



Tennessee Department of Environment and Conservation,
 Division of Water Resources
 William R. Snodgrass-Tennessee Tower
 312 Rosa L. Parks Avenue, 11th Floor, Nashville, TN 37243
 (615) 532-0625

**CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
 STATE OPERATING PERMIT (SOP)
 NOTICE OF INTENT (NOI)**

Type of permit you are requesting: SOPCD0000 (designed to discharge) SOPC0000 (no discharge) Unknown, please advise
 Application type: New Permit Permit Reissuance Permit Modification
 If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: _____

OPERATION IDENTIFICATION

Operation Name: Burcham Swine Farm		County: Carroll
Operation Location/ Physical Address: 6450 Hwy 423 McKenzie, Tn 38201		Latitude: 36.1252
		Longitude: -88.409
Name and distance to nearest receiving water(s): 900 ft to Tributary of Guins Creek		
If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers:		
Animal Type: <input type="checkbox"/> Poultry <input checked="" type="checkbox"/> Swine <input type="checkbox"/> Dairy <input type="checkbox"/> Beef <input type="checkbox"/> Other _____		
Number of Animals: 4900	Number of Barns: 2	Name of Integrator: Toys Pork
Type of Animal Waste Management: (check all that apply) <input type="checkbox"/> Dry <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Liquid, Closed System (i.e. covered tank, under barn pit, etc.)		
Attach the NMP <input checked="" type="checkbox"/> NMP Attached	Attach the closure plan <input checked="" type="checkbox"/> Closure Plan Attached	Attach a topographic map <input checked="" type="checkbox"/> Map Attached

PERMITTEE IDENTIFICATION

Official Contact (applicant): Jerry Burcham		Title or Position: Owner		<input type="checkbox"/> Correspondence <input type="checkbox"/> Invoice
Mailing Address: 4640 Hwy 423	City: McKenzie	State: Tn	Zip: 38201	
Phone number(s): 731-415-8375	E-mail: jburcham3269@charter.net			
Optional Contact:		Title or Position:		<input type="checkbox"/> Correspondence <input type="checkbox"/> Invoice
Address:		City:	State: Zip:	
Phone number(s):		E-mail:		

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 0400-40-05-14)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title, print or type Jerry Burcham OWNER	Signature <i>Jerry Burcham</i>	Date 5-18-15
--	-----------------------------------	------------------------

STATE USE ONLY

Received Date	Reviewer	EFO	T & E Aquatic Fitment	Tracking No.
	Impaired Receiving Stream	High Quality Water		NOC Date

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Declarations to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO regulations that apply to my CAFO operation:

- 1) All animals in confinement are prevented from coming in direct contact with waters of the state.
- 2) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 3) Pesticide-contaminated waters will be prevented from discharging into waste retention structures. Waste from pest control and from facilities used to manage potentially hazardous or toxic chemicals shall be handled and disposed of in a manner that will prevent pollutants from entering waste retention structures or waters of the state.
- 4) Chemicals, manure/litter, and process wastewater will be managed to prevent spills. Spill clean-up plans will be developed and any equipment needed for spill clean-up will be available to facility personnel.
- 5) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 6) All records outlined in the permit that I am applying for will be maintained and available on-site.
- 7) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed or modified after April 13, 2006, are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 8) A copy of the most recent Nutrient Management Plan will be kept as part of the farm records and will be maintained and implemented as written.
- 9) If applicable, all waste directed to under floor pits shall be composed entirely of wastewater (i.e. washwater and animal waste).
- 10) The Tennessee Department of Environment and Conservation Division of Water Resources will be notified of any significant wildlife mortalities near retention ponds or following any land application of animal wastes to fields.
- 11) All employees involved in work activities that relate to permit compliance will receive regular training on proper operation and maintenance (O&M) of the facility and waste disposal. Training shall include appropriate topics, such as land application of wastes, good housekeeping and material management practices, proper O&M of the facility, record keeping, and spill response and clean up. The periodic scheduled dates for such training shall be identified in the current Nutrient Management Plan.
- 12) There shall be no land application of nutrients within 24 hours of a precipitation event that may cause runoff. The operator shall not land apply nutrients to frozen, flooded, or saturated soils.


Signature of CAFO Owner/Operator

5-17-15
Date

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Closure Plan

In the event that Swine production at this location ceases, the following will be done within 360 days:

- All manure in all animal use areas will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.
- The most current manure analysis will be provided to anyone removing manure from the farm.
- Any dead pigs on the farm will be disposed of at the time of closure according to methods outlined in my current Nutrient Management Plan and or allowable by Tennessee Law.
- Any manure which is land applied will be done so according to the rates discussed in my most recent Nutrient Management Plan.

The following will be completed within a reasonable period as allowable by law using Tennessee Natural Resources Conservation Service (NRCS) Standard Code 360- Closure of Waste Impoundments:

- Any manure storage facility (lagoon) located on the swine farm will be properly decommissioned.
- Any manure currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.
- The lagoon will be breached and backfilled and or converted to freshwater storage according to NRCS standards.



Date: 5-17-15

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Burcham Swine Farm Extension of Old Nutrient Management Plan

All manure is now exported.

Pits are covered and clean water is diverted from buildings.

2.3. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Barn 1	In-house storage pit	1,092,596 Gal	1,300,000 Gal	307
Barn 2	In-house storage pit	1,092,596 Gal	1,300,000 Gal	307

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
Pigs 1	Wean-to-finish pig	2,480	140	Jan Early - Dec Late	100	Barn 1
Pigs 2	Wean-to-finish pig	2,480	140	Jan Early - Dec Late	100	Barn 2

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.

(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

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2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Oct 2015	Barn 1	900,000 Gal	Tosh Farms	
Oct 2015	Barn 2	900,000 Gal	Tosh Farms	
Apr 2016	Barn 1	600,000 Gal	Tosh Farms	
Apr 2016	Barn 2	680,000 Gal	Tosh Farms	
Oct 2016	Barn 1	700,000 Gal	Tosh Farms	
Oct 2016	Barn 2	660,000 Gal	Tosh Farms	
Apr 2017	Barn 1	660,000 Gal	Tosh Farms	
Apr 2017	Barn 2	650,000 Gal	Tosh Farms	
Oct 2017	Barn 1	650,000 Gal	Tosh Farms	
Oct 2017	Barn 2	650,000 Gal	Tosh Farms	
Apr 2018	Barn 1	650,000 Gal	Tosh Farms	
Apr 2018	Barn 2	650,000 Gal	Tosh Farms	
Oct 2018	Barn 1	650,000 Gal	Tosh Farms	
Oct 2018	Barn 2	650,000 Gal	Tosh Farms	
Apr 2019	Barn 1	650,000 Gal	Tosh Farms	
Apr 2019	Barn 2	650,000 Gal	Tosh Farms	
Oct 2019	Barn 1	650,000 Gal	Tosh Farms	
Oct 2019	Barn 2	640,000 Gal	Tosh Farms	

Tosh Farms 1596 Atlantic Avenue
Henry Tn

2.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination
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(None)

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6.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH ₄ -N	Total P ₂ O ₅	Total K ₂ O	Avail. P ₂ O ₅	Avail. K ₂ O	Units	Analysis Source and Date
Barn 1		33.1		7.6	16.9	7.6	16.9	Lb/1000Gal	Burcham 5-1-15
Barn 2		33.1		7.6	16.9	7.6	16.9	Lb/1000Gal	Burcham 5-1-15

(1) Entered analysis may be the average of several individual analyses.

(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (<http://wastemgmt.ag.utk.edu/Pubs/PB1510.pdf>).

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6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Transferred In	Total Applied	Total Exported	Total Transferred Out	On Hand at End of Period	Units
Barn 1	Mar '15 - Feb '16	50,000	1,300,000	0	0	0	900,000	0	450,000	Gal
Barn 2	Mar '15 - Feb '16	75,000	1,300,000	0	0	0	900,000	0	475,000	Gal
All Sources	Mar '15 - Feb '16	125,000	2,600,000	0	0	0	1,800,000	0	925,000	Gal
Barn 1	Mar '16 - Feb '17	450,000	1,300,000	0	0	0	1,300,000	0	450,000	Gal
Barn 2	Mar '16 - Feb '17	475,000	1,300,000	0	0	0	1,340,000	0	435,000	Gal
All Sources	Mar '16 - Feb '17	925,000	2,600,000	0	0	0	2,640,000	0	885,000	Gal
Barn 1	Mar '17 - Feb '18	450,000	1,300,000	0	0	0	1,310,000	0	440,000	Gal
Barn 2	Mar '17 - Feb '18	435,000	1,300,000	0	0	0	1,300,000	0	435,000	Gal
All Sources	Mar '17 - Feb '18	885,000	2,600,000	0	0	0	2,610,000	0	875,000	Gal
Barn 1	Mar '18 - Feb '19	440,000	1,300,000	0	0	0	1,300,000	0	440,000	Gal
Barn 2	Mar '18 - Feb '19	435,000	1,300,000	0	0	0	1,300,000	0	435,000	Gal
All Sources	Mar '18 - Feb '19	875,000	2,600,000	0	0	0	2,600,000	0	875,000	Gal
Barn 1	Mar '19 - Feb '20	440,000	1,300,000	0	0	0	1,300,000	0	440,000	Gal
Barn 2	Mar '19 - Feb '20	435,000	1,300,000	0	0	0	1,290,000	0	445,000	Gal
All Sources	Mar '19 - Feb '20	875,000	2,600,000	0	0	0	2,590,000	0	885,000	Gal

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6.11. Plan Nutrient Balance

	N (Lbs)	P ₂ O ₅ (Lbs)	K ₂ O (Lbs)
Total Manure Nutrients on Hand at Start of Plan ¹	4,138	950	2,112
Total Manure Nutrients Collected ²	430,300	98,800	219,700
Total Manure Nutrients Imported ³	0	0	0
Total Manure Nutrients Exported ⁴	405,144	93,024	206,856
Total Manure Nutrients Gained/Lost in Transfer ⁵	0	0	0
Total Manure Nutrients on Hand at End of Plan ⁶	29,293	6,726	14,956
Total Manure Nutrients Applied ⁷	0	0	0
Available Manure Nutrients Applied (Utilized by plan's crops) ⁸	0	0	0
Available Manure Nutrients Applied (Not utilized by plan's crops) ⁹	0	0	0
Commercial Fertilizer Nutrients Applied (Utilized by plan's crops) ¹⁰	0	0	0
Commercial Fertilizer Nutrients Applied (Not utilized by plan's crops) ¹¹	0	0	0
Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops) ¹²	0	0	0
Nutrient Utilization Potential ¹³	0	0	0
Nutrient Balance of Spreadable Acres ^{14*}	0	0	0
Average Nutrient Balance per Spreadable Acre per Year ^{15*}	0	0	0

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate changes in total manure nutrients due to internal transfers between storage units with differing analyses.
6. Values indicate total manure nutrients present in storage(s) at the end of plan.
7. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
8. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 7) after accounting for state-specific nutrient losses due to rate, time and method of application. Nutrients which will not be utilized by crops in the plan (row 9) are excluded from these values.
9. Values indicate manure nutrients applied that will be utilized by crops outside the plan.
10. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan (row 11) are excluded from these values.
11. Values indicate nutrients applied as commercial fertilizer which will be utilized by crops outside the plan.
12. Values are the sum of available manure nutrients applied (row 8) and commercial fertilizer nutrients applied (row 10).
13. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P₂O₅ and K₂O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
14. Values indicate available nutrients applied (row 12) minus crop nutrient utilization potential (row 13). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
15. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 14) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P₂O₅ and/or K₂O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P₂O₅ and K₂O indicate that planned applications to some fields are less than crop removal rates.

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Waters Agricultural Laboratories, Inc.

Manure/Sludge Analysis and Application Report

P.O. Box 382 * 257 Newton Highway * Camilla, Georgia 31730-0382 * phone: (229) 336-7216

Ship To: TOSH FARMS P.O. BOX 308 HENRY, TN 38231-	Grower: BERCHAM	
	Sample Number: 1	Date Submitted: 05/01/2015
	Lab Number: 52049MS	Report Date: 05/04/2015
	Type: 4-25-15 MANURE	

	Parts per million (ppm)	Pounds per 1000 gallons
Nitrate Nitrogen	3968.2	33.095
P2O5 - Total	906.5	7.560
K2O -Total	2029.1	16.923

Results Reported On: L=LIQUID BASIS

Remarks

Suggest the use of PLANT and SOIL analysis to monitor the need for additional and/or build up of some elements.

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Waters Agricultural Laboratories, Inc.

Manure/Sludge Analysis and Application Report

P.O. Box 382 * 257 Newton Highway * Camilla, Georgia 31730-0382 * phone: (229) 336-7216

Ship To: TOSH FARMS P.O. BOX 308 HENRY, TN 38231-	Grower: BERCHAM	
	SampleNumber: 1ST H2	Date Submitted: 05/01/2015
	Lab Number: 52051MS	Report Date: 05/04/2015
	Type: 4-22-15 MANURE	

	Parts per million (ppm)	Pounds per 1000 gallons
Nitrate Nitrogen	5711.1	47.631
P2O5 - Total	5348.1	44.603
K2O -Total	2305.7	19.230

Results Reported On: L=LIQUID BASIS

Remarks

Suggest the use of PLANT and SOIL analysis to monitor the need for additional and/or build up of some elements.

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COMPREHENSIVE NUTRIENT MANAGEMENT PLAN



Jerry Burcham Swine Farm

Prepared by: Kevin M. Hart
United States Department of Agriculture
Natural Resources Conservation Service
Huntingdon FSC Office
Huntingdon, TN

In cooperation with the
Carroll County Soil and Water Conservation District

Date Prepared: 2/26/2008

Hydrologic Unit Code: 080102030202

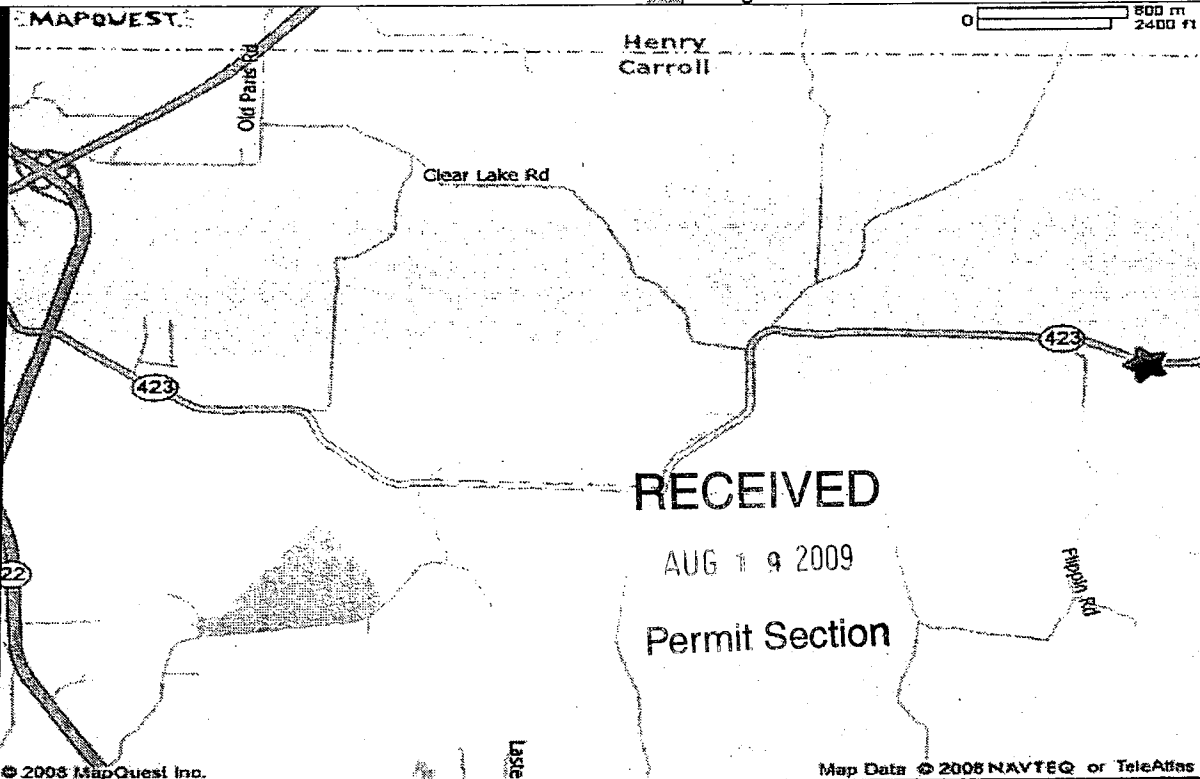
Driving Directions:

From Huntingdon USDA Field Service Center travel North on High Street for 0.2 miles, then West on Veterans Drive for 1.9 miles, then North on State Highway 22 for 8.2 miles, then East on State Highway 423 for 5.3 miles. Swine operation is on the South side of HWY 423.

Facility Coordinates:

Latitude – 36° 7' 31.84" N

Longitude – 88° 24' 34.32" W



1. CNMP SIGNATURE PAGE

Owner/Operator

Name: Jerry Burcham	Phone: (731) 352-3269
Address: 4640 Highway 423 McKenzie, TN 38201-8456	
Farm Number(s): 421,557,585,586,6031,6924	Tract(s): 2164,1910,1913,2157,6895, 954

The following people have assisted with the development of the CNMP and certify that their element meets all applicable NRCS standards.

Manure and Wastewater Handling and Storage

Signature:	Date:
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

Nutrient Management

Signature:	Date:
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

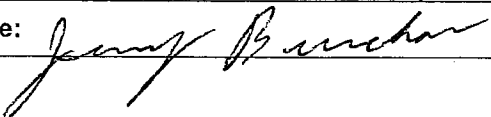
Land Treatment Practices

Signature:	Date:
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

Certified Conservation Planner

As a Certified Conservation Planner, I certify that I have reviewed this plan for technical adequacy and that the elements of the CNMP are compatible, reasonable, and able to be implemented.	
Signature:	Date:
Name: James Woodall	
Title: NRCS District Conservationist	

Owner/ Operator

As the owner/operator, I certify that as the decision-maker, I have been involved in the planning process and agree that the items listed in each element are needed. I understand that I am responsible for keeping all necessary records associated with the implementation of this CNMP. It is my intent to implement this CNMP in a timely manner as described in the plan.	
Signature: 	Date: 3-4-08

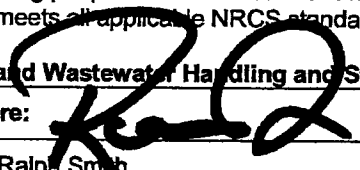
1. CNMP SIGNATURE PAGE

Owner/Operator

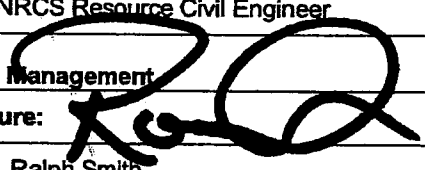
Name: Jerry Burcham	Phone: (731) 352-3269
Address: 4640 Highway 423 McKenzie, TN 38201-8456	
Farm Number(s): 421,557,585,586,6031,6924	Tract(s): 2164,1910,1913,2157,6895, 954

The following people have assisted with the development of the CNMP and certify that their element meets all applicable NRCS standards.

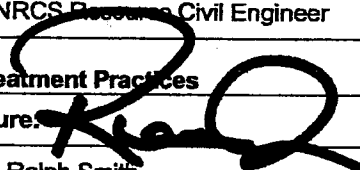
Manure and Wastewater Handling and Storage

Signature: 	Date: 3/13/08
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

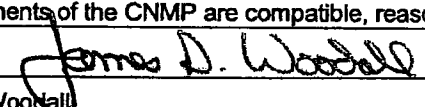
Nutrient Management

Signature: 	Date: 3/13/08
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

Land Treatment Practices

Signature: 	Date: 3/13/08
Name: Ralph Smith	
Title: NRCS Resource Civil Engineer	

Certified Conservation Planner

As a Certified Conservation Planner, I certify that I have reviewed this plan for technical adequacy and that the elements of the CNMP are compatible, reasonable, and able to be implemented.	
Signature: 	Date: 4/14/08
Name: James Woodall	
Title: NRCS District Conservationist	

Owner/ Operator

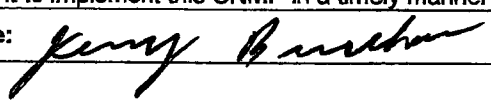
As the owner/operator, I certify that as the decision-maker, I have been involved in the planning process and agree that the items listed in each element are needed. I understand that I am responsible for keeping all necessary records associated with the implementation of this CNMP. It is my intent to implement this CNMP in a timely manner as described in the plan.	
Signature: 	Date: 3-4-08

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Addendum to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

- 1) All clean water (including rainfall) is diverted, as appropriate, from the production area.
- 2) All animals in confinement are prevented from coming in direct contact with waters of the state.
- 3) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 4) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 5) All records outlined in 1200-4-5-.14(16)d-f will be maintained and available on-site.
- 6) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 7) Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
- 8) An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].


Signature of CAFO Operator:

3-4-08
Date:

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1.1. INTRODUCTION

This Comprehensive Nutrient Management Plan (CNMP) contains guidance on the proper utilization of manure on swine farms. This document specifically addresses manure/compost handling and storage, nutrient management and land treatment practices; which when integrated; will provide the producer with an informed approach to managing the nutrient resources on his land.

Table 1: Resource Concerns

Soil Erosion Concerns	Water Quality Concerns	Other Concerns Addressed
Erosion around buildings and storage structures	Proper utilization of swine manure	Regulations
Animal waste and other organics	Excessive nutrients and organics in groundwater	Neighbor Relations
	Harmful levels of pathogens in surface water	Aesthetics
		Air Odor and Air Movement

Erosion around buildings and storage structures is addressed in the Land Treatment Practices Section.

Proper utilization of swine manure is addressed in the Manure and Mortality Management Section.

Mr. Burcham hopes to continue the good relationship he has with his neighbors. He plans to make sure aesthetics around the operation are well maintained to prevent potential violations.

The Air Odor and Air Movement concerns are addressed in the Air Quality portion of the Operation and Maintenance section.

This operation is considered a Class II (Medium CAFO) and was permitted in 2006 (TNA000208).

1.2. CURRENT SYSTEM DESCRIPTION

Jerry Burcham operates a 2480 head swine operation and farms 700 acres in Carroll County. His current drift of pigs are housed in a modern grower finishing building, designed and constructed according to NRCS standards and specifications. Mr. Burcham plans to expand the operation by building a new finishing facility with the identical dimensions and functions of his existing building. The specifications of the current (and proposed) building are as follows:

- The clear span to the center of the building is divided by portable aluminum pens.
- Large fans will provide ventilation from the end of the building.
- Automatic feeders and nipple waterers are located through out the building.
- The floor will be precast concrete slatted floor over a concrete foundation and concrete floor, which will act as manure storage similar to a common concrete storage tank.
- The floor is sloped to a sump location for easy unloading by portable or fixed pump.
- The inside dimension of the manure storage is 100.9' x 196.9' x 7.5' deep.
- The facility has capacity for 2480 pigs at an average weight of 135 lbs.
- The manure storage will be emptied after each group is sold and land application will take place at that time.
- Therefore spreading on fields will take place in March-April or September-October.
- The combined facilities will house 4960 pigs.

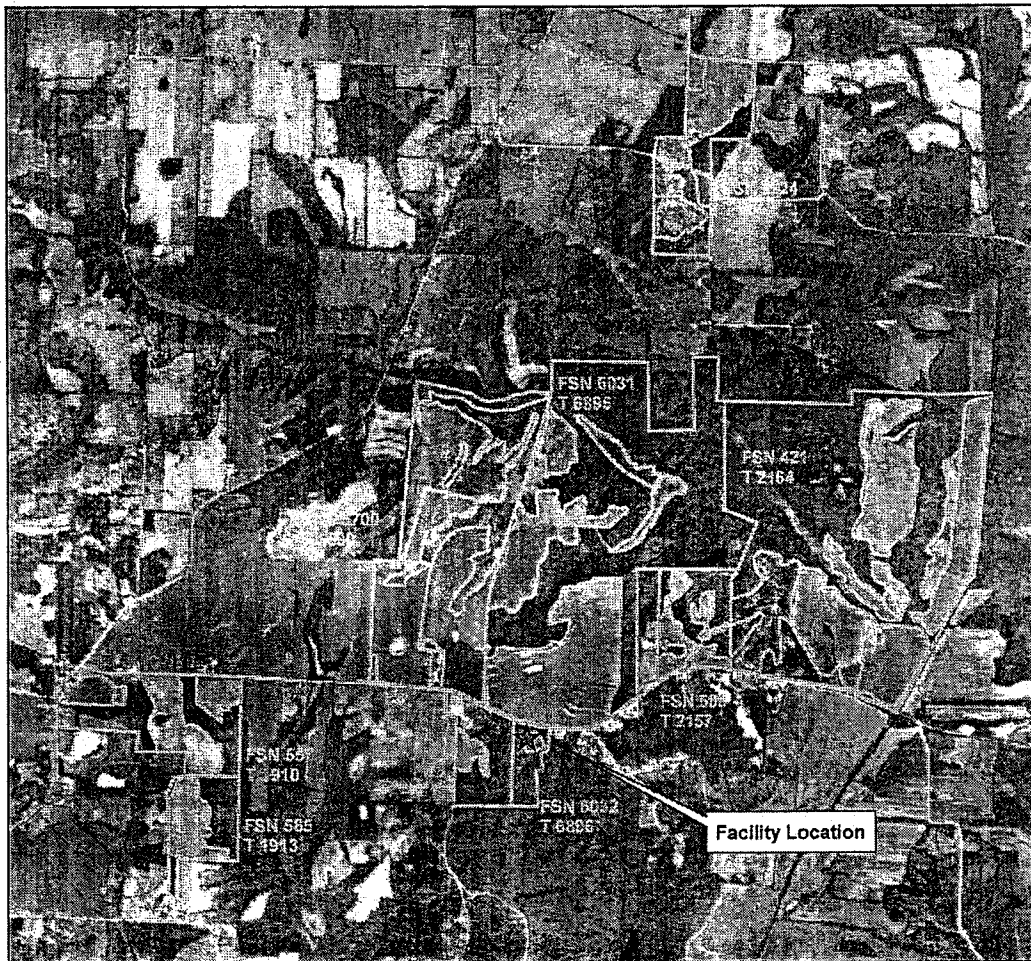
Map 1 - CNMP Site Map

Burcham CNMP Site Map

Date: 8/9/2007

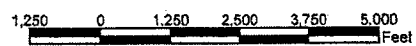
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

□ 2007 CNMP



2. MANURE AND WASTEWATER HANDLING AND STORAGE

This element addresses the components and activities, existing and planned, associated with the production facility, manure storage and mortality management structures, and any area used to facilitate transfer of manure or mortalities.

2.1. PRODUCTION INFORMATION

Animal Housed	Grower Pig
Number of Animals (In Structure)	2480
Weight In	15
Weight Out	240
Average Weight	135
Time in Location	6 months
Number of Herds (Per Year)	2
Storage Structure Receiving Manure	Under building

2.2. PROPOSED MANURE HANDLING AND STORAGE

The following sub-sections refer to all works of improvement addressed in this plan and include specifications addressing storage, collection, transfer and application functions.

2.2.1. Manure Production Information

House 1 (Existing)

Manure	No. Animals	Average Weight	Amount Excreted	Total Days	Total	Total
		(lbs)	(cu. Ft/day/1000 lbs)	days/year	cu. Ft	gallons
	2460	135	1	365	122202	914071

Wash Water	Gallons/Day/Animal	Total Days	Total
	(gal/day/animal)	days/year	gallons
	0.1	365	90520
Total			1004591 per year 83716 per month

House 2 (Proposed)

Manure	No. Animals	Average Weight	Amount Excreted	Total Days	Total	Total
		(lbs)	(cu. Ft/day/1000 lbs)	days/year	cu. Ft	gallons
	2460	135	1	365	122202	914071

Wash Water	Gallons/Day/Animal	Total Days	Total
	(gal/day/animal)	days/year	gallons
	0.1	365	90520
Total			1004591 per year 83716 per month

2.2.2. Manure Storage Facilities

A concrete tank under the slatted floors of the building measures 100.9' x 196.9' x 7.5' which yields a maximum of 149,004 cubic feet of storage. The operating plan will never let storage reach this high since application of manure is made when fields are ready and volume is greater than one-year capacity. Fans controlled by sensors remove gasses automatically from the pits.

2.2.3. Storage Period

The storage period is one year, however, the manure will be emptied whenever fields are ready and conditions are right for the injection process.

2.2.4. Manure Nutrient Content

Table 2: Manure Nutrient Contents from Manure Analysis (or Book Values)

Storage Name	% Liquid	Total N	NH4-N	Org -N	NO3-N	P205	K20	Units
House 1 – Pit	98	24.7	23.1	1.6	0	7.9	17.9	Lbs/th gallons
House 2 – Pit*	100	25	15	10	0	23	21	Lbs/th gallons

* Taken from the Animal Waste Manual Field Handbook

2.2.5. Application equipment

The landowner will obtain use of a knife injector system utilizing a tanker pulled by a farm tractor to haul the manure to each field where it will be off loaded into holding bladder feeding a drag hose pulled by a large hp tractor with knife injector.

2.2.6. Time needed to apply storage volume

The storage can be emptied and spread as planned in a five-day continuous work period.

2.3. PROPOSED MORTALITY MANAGEMENT

Dead animals will be disposed of according to state and local laws and in a way that does not adversely affect ground water or create public health concern. All normal mortalities will be rendered and burial will only be used for catastrophic events. The producer should notify the local USDA-NRCS office if the method of disposing of dead animals changes.

2.3.1. Burial

Burial will only be used as a secondary method of mortality disposal- such as a catastrophic situation. NRCS personnel should be contacted to help in the selection of an appropriate disposal site. In general the following criteria will be used to select an appropriate disposal location:

- it is greater than 100 feet away from a private well
- it is greater than 200 feet away from a public well
- it is greater than 50 feet from an adjacent property line
- it is greater than 500 feet from a residence
- it is greater than 100 feet from a stream, lake, pond, wetland, or 100-year floodplain

The burial pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface.

The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients. Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit. Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. The carcasses must be covered daily as to reduce vectors in and around the trench or pit. When a burial pit is full, the site shall be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Soil shall cover the carcasses a minimum of 2 feet. The area shall be grassed as to prevent erosion. The burial area shall be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

2.4. FEED MANAGEMENT

Feed management activities may be used to reduce the nutrient content of manure, which may result in less land being required to effectively utilize the manure. Feed management activities may be dealt with as a planning consideration and not as a requirement that addresses specific criteria; however, AFO owners/operators are encouraged to incorporate feed management as part of their nutrient management strategy. Specific information and recommendations should be obtained from Land Grant Universities, industry, the Agricultural Research Service, or professional societies such as the Federation of Animal Science Societies (FASS) or American Registry of Professional Animal Scientists (ARPAS), or other technically qualified entities. Specific feed management activities to address nutrient reduction in manure may include phase feeding, amino acid supplemented low crude protein diets, and the use of low phytin phosphorus grain and enzymes, such as phytase or other additives. Feed management can be an effective approach to addressing excess nutrient production and should be encouraged; however, it is also recognized that feed management may not be a viable or acceptable alternative for all AFOs. A professional animal nutritionist should be consulted before making any recommendations associated with feed ration adjustment. Integrator will provide feed management. Any significant changes that would result in nutrient changes in the manure will require a re-evaluation of this plan (CNMP).

2.5. MANAGEMENT OF MEDICAL ANIMAL WASTE

This operation is managed so as not to generate animal medical waste. Any medical treatment provided onsite will be handled by veterinary personnel capable of disposing of all medical waste created.

2.6. Closure Plan

In the event of this operation closing, the land owner will take such measures as necessary to remove all animals and waste/manure from the site. Any stockpiled manure will be land applied in accordance with NRCS standards and specifications. Damaged or disassembled facilities will be disposed of in a manner meeting local, state, and federal guidelines.

2.7. EMERGENCY ACTION PLAN

The emergency action plan will be implemented in the event that animal by-products from the operation are leaking, overflowing, running off site or are in imminent danger of doing so. The operator should not wait until manure reach surface water or leave the property to consider that there is a problem. This plan should be posted in an accessible location for all employees at the facility. The following are some action items you should take.

1. Threatening Natural Occurrences

Prevent or minimize damage caused by threatening natural occurrences, such as tornadoes or strong storms associated with approaching fronts - actions include:

- a. Do not spread manure on fields just prior to an approaching storm.
- b. Do not spread manure on fields that flood during high rainfall events.
- c. Notify State Veterinary Office - Animal Emergency Response Coordinator (See Table below) or Local Animal Emergency Response Coordinator for relocation of animals if needed.

2. Personal injury

- a. Stop all other activities to deal with the emergency.
- b. Call for help (See Table below).

3. Catastrophic deaths – Disease Related

- a. Notify State Veterinary Office.
- b. Limit exposure to other birds.
- c. Prevent visitation by unnecessary people.
- d. Dead animals should be moved into an approved transport vehicle or an approved storage area or bin.
- e. Record date of catastrophic deaths, number of deaths, method and location of disposal.

4. Catastrophic deaths – Disaster Related

- a. Notify State Veterinary Office - Animal Emergency Response Coordinator immediately. (See Table below)
- b. Notify the integrator farm manager to remove useable animals.
- c. Remove mortality from the barns/houses.
- d. Dispose of mortality in the manner given in this CNMP for emergency dead animal disposal.
- e. Record date of catastrophic deaths, number of deaths, method and location of disposal.

5. Manure Removal

- a. Place manure in stacking structure if available. Do not stack old manure next to new or wet manure next to dry.
- b. Cover any manure stacks for temporary storage with plastic and weight down the edges. Cut a 4" diameter hole in the top and cover the hole with screen wire.

6. Fire

- a. Stop all other activities to deal with the emergency.
- b. Try to extinguish the fire with the appropriately rated fire extinguishers.
- c. If fire cannot be contained, call for help (See Table below.)

7. Assess the extent of the spill and note any obvious damages.

- a. Did the by-product reach any surface waters?
- b. Approximately how much was released and for what duration?
- c. Any damage noted, such as employee injury, fish kills, or property damage?
- d. Did the spill leave the property?

- e. Did the spill have the potential to reach surface waters?
- f. Could a future rain event cause the spill to reach surface waters?
- g. Are potable water wells in danger (either on or off of the property)?
- h. How much reached surface waters?

8. Provide the following information when reporting an emergency.

- a. Your name and phone number.
- b. Directions to the farm.
- c. Description of emergency.
- d. Estimate of the amounts, area covered, and distance traveled.
- e. Has manure reached surface waters or major field drains?
- f. Is there any obvious damage: employee injury, fish kill, or property damage?
- g. What is currently in progress to contain situation?

9. Implement procedures as advised by TDEC and technical assistance agencies to rectify the damage, repair the system, and reassess the manure management plan to keep problems with release of manure from happening again.

10. Documentation. The following items shall be documented in writing and filed with the Emergency Action Plan for future reference and emergency response training.

- a. Date and time, location of spill, affected landowners.
- b. Affect of manure spill on any surface water body or potable water well.
- c. Approximately how much manure was released and for what duration.
- d. Amount of manure, if any, that left the farm property.
- e. Any damage, such as personal injury, fish kill, property damage.
- f. Cause of the spill.
- g. Procedure to handle the emergency.
- h. Clean up efforts.
- i. List of authorities called, those that responded, and the time it took for them to respond.
- j. Recommendations to prevent a reoccurrence.

Table 3: Information and Important Phone Numbers for Emergency Response

Farm Information

Farm Name	Jerry Burcham
Address	4640 Highway 423 McKenzie, TN 38201-8456
Farm Phone No.	(731) 352-3269
Permit No.	
Directions to Farm	From Huntingdon travel North on High Street for 0.2 miles, then West on Veterans Drive for 1.9 miles, then North on State Highway 22 for 8.2 miles, then East on State Highway 423 for 5.3 miles. Swine operation is on the South side of HWY 423.

Farm Contacts

	Name	Phone	Emergency Phone
Farm Owner	Jerry Burcham	(731) 352-3269	(731) 415-8375
Farm Manager	same	same	same
Farm Operator	same	same	same

Agency Contacts

Contact Agency	Person/Office Name	Phone	Emergency Number
TDEC	Pat Patrick	(731) 512-1300	
State Veterinarian	Dr. Ronald B. Wilson	(615) 837-5120	(615) 837-5120
Fire Department	911	911	911
Sheriffs Office	Bendell Bartholomew	(731) 986-8947	
NRCS	NRCS Field Office	(731) 415-4153	
UT Extension	County Office	(731) 986-1976	
Integrator	Tosh Farms	(731) 243-4861	

Customer(s): JERRY BURCHAM

District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: CAMDEN SERVICE CENTER

Agency: USDA-NRCS

Assisted By: Kevin M Hart

State and County: TN, CARROLL



Legend



□ 2007 CNMP_T 954



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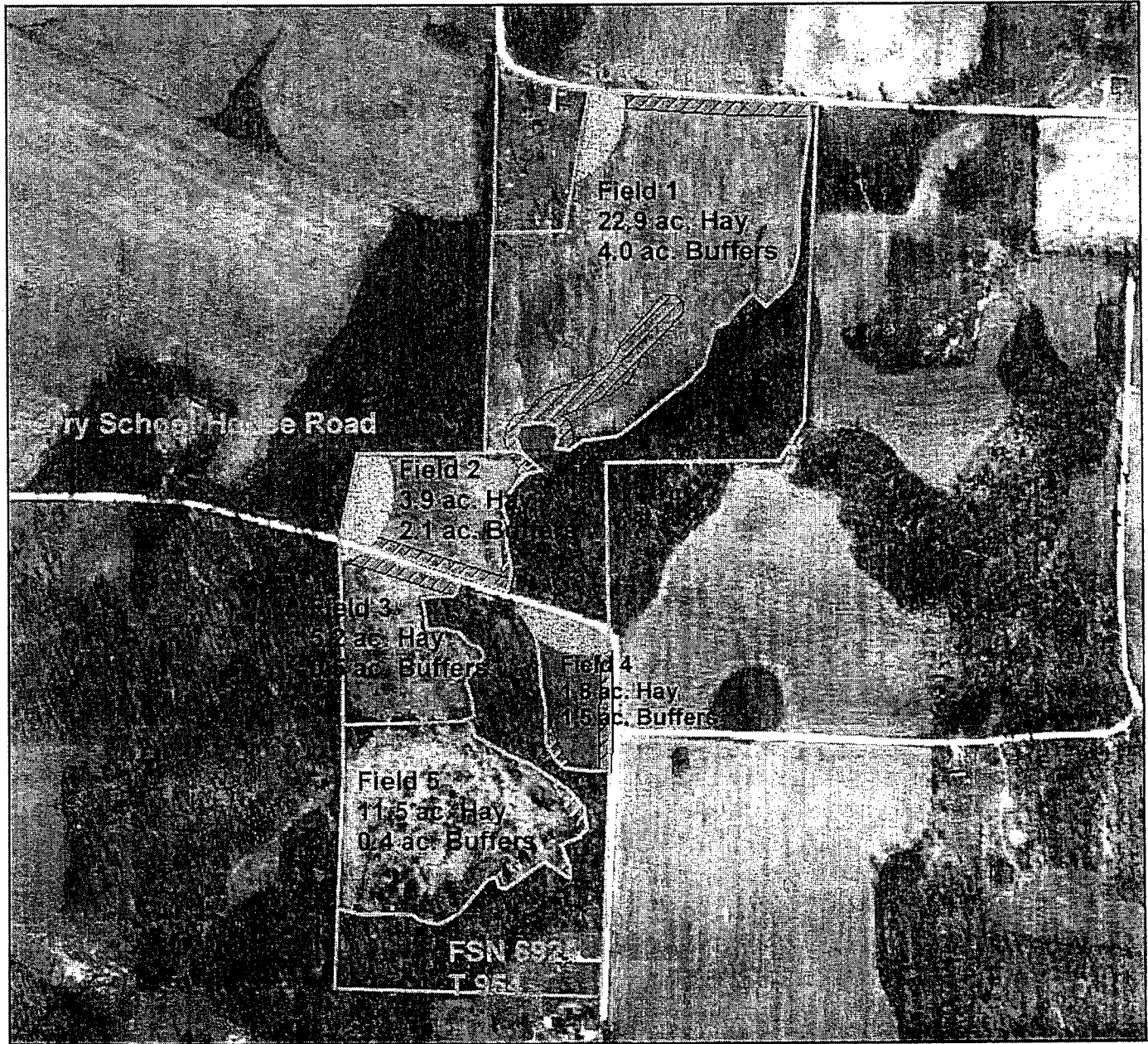


Buffers Map_T 954





Date: 8/9/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

-  2007 CNMP_T 954
-  300' Dwelling Buffer_T 954.shp
-  50' Road Buffer.shp
-  50' Waterbody Buffer.shp

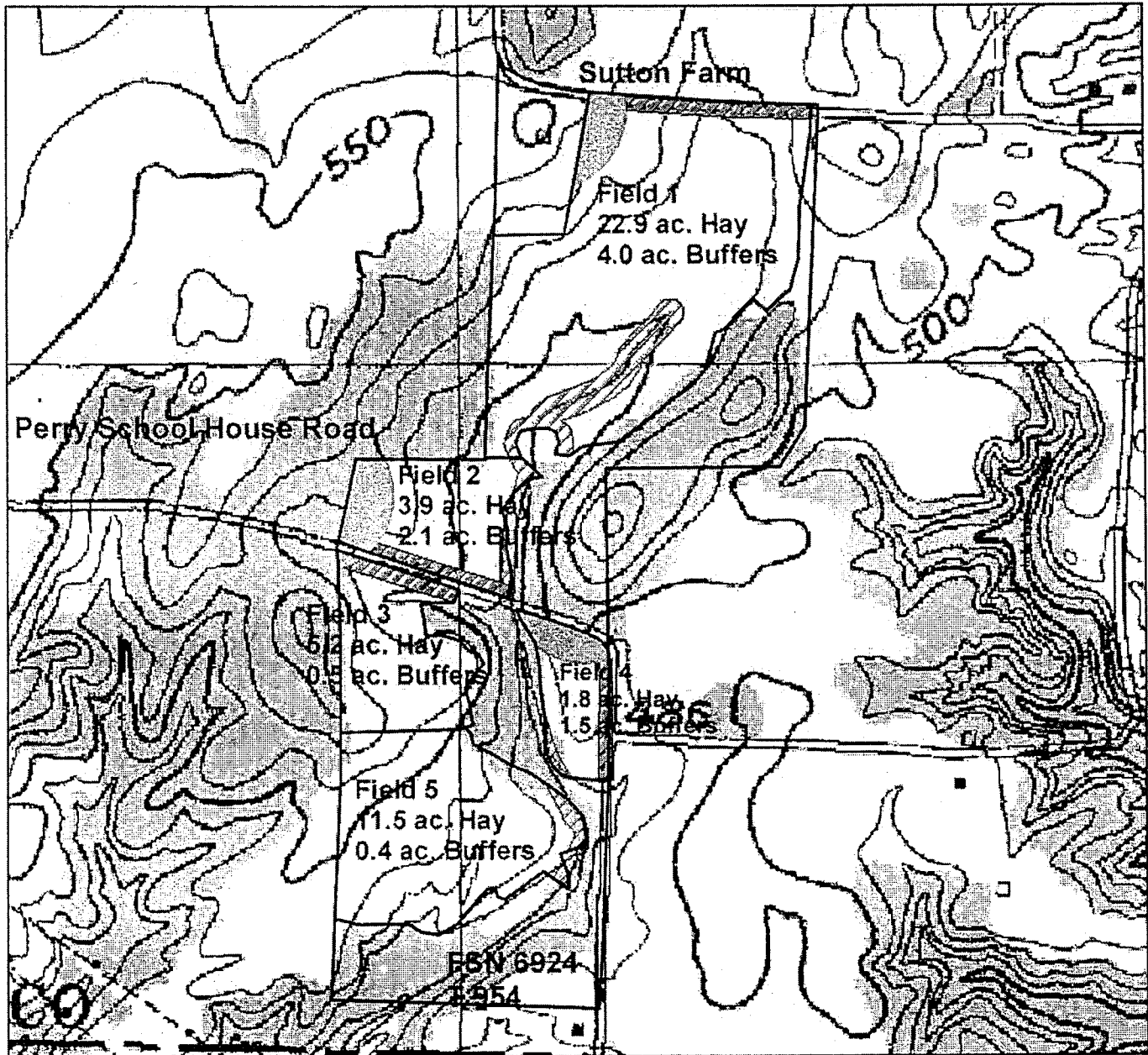


Topo Map_T 954





Date: 8/9/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

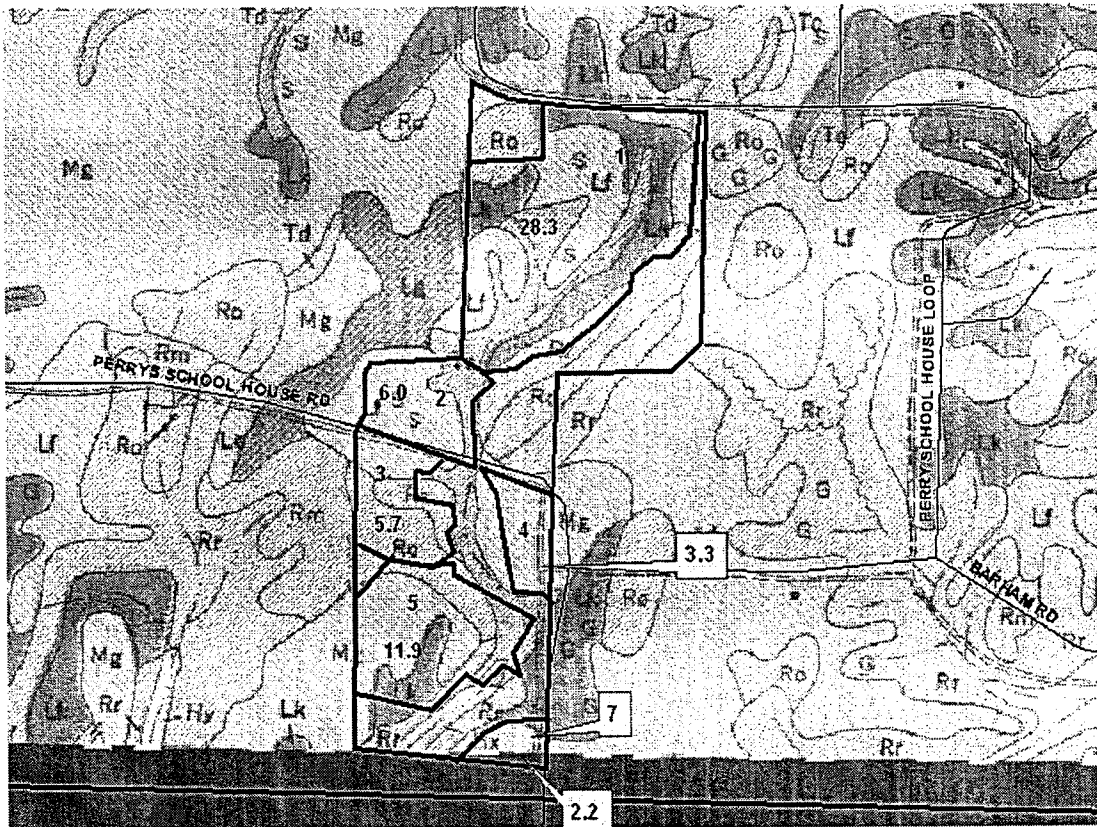
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

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-  300' Dwelling Buffer_T 954.shp
-  50' Road Buffer.shp
-  50' Waterbody Buffer.shp





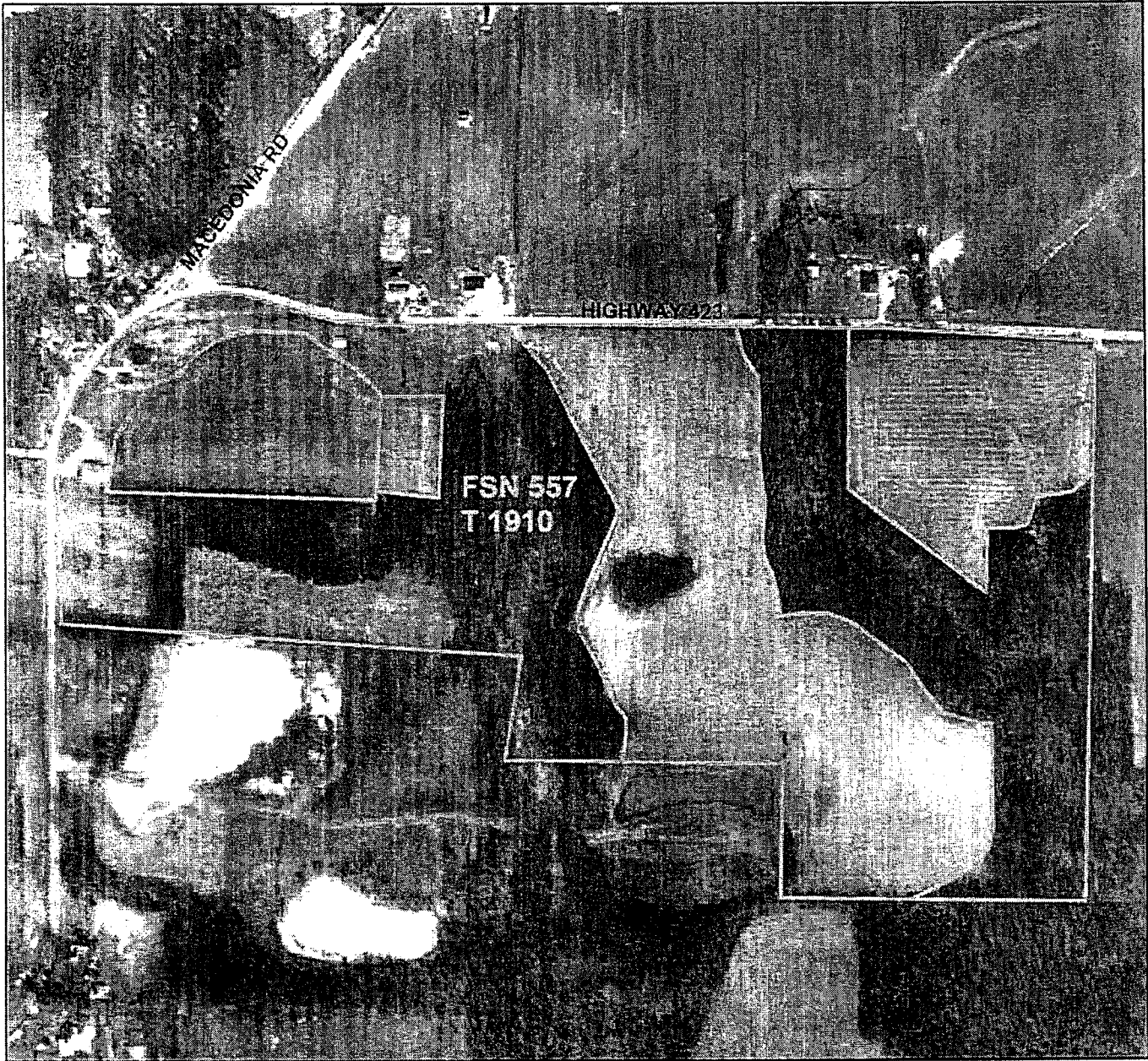
Map Symbol	Map Unit Name	Hydrologic Group	Slope
Hx	HYMON AND BEECHY FINE SANDY LOAM (COLLINS-BIBB)	C	0 to 2 percent
Lf	LEXINGTON SILT LOAM, ERODED, UNDULATING	B	2 to 5 percent
Lk	LEXINGTON SILTY CLAY LOAM, SEVERELY ERODED, ROLLING	B	5 to 12 percent
Mg	MEMPHIS SILT LOAM, ERODED, UNDULATING (LEXINGTON)	B	2 to 5 percent
Rc	ROBERTSVILLE SILT LOAM	D	0 to 2 percent
Ro	RUSTON FINE SANDY LOAM, ERODED, ROLLING (SMITHDALE)	B	5 to 12 percent
Rr	RUSTON FINE SANDY LOAM, HILLY (SMITHDALE)	B	12 to 25 percent
Tc	TIGRETT FINE SANDY LOAM (STATLER)	B	1 to 5 percent

2007 CNMP_T 1910

Date: 8/10/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT
Approximate Acres: 27.4

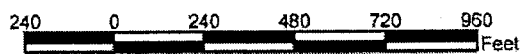
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart



Legend



 2007 CNMP_T 1910

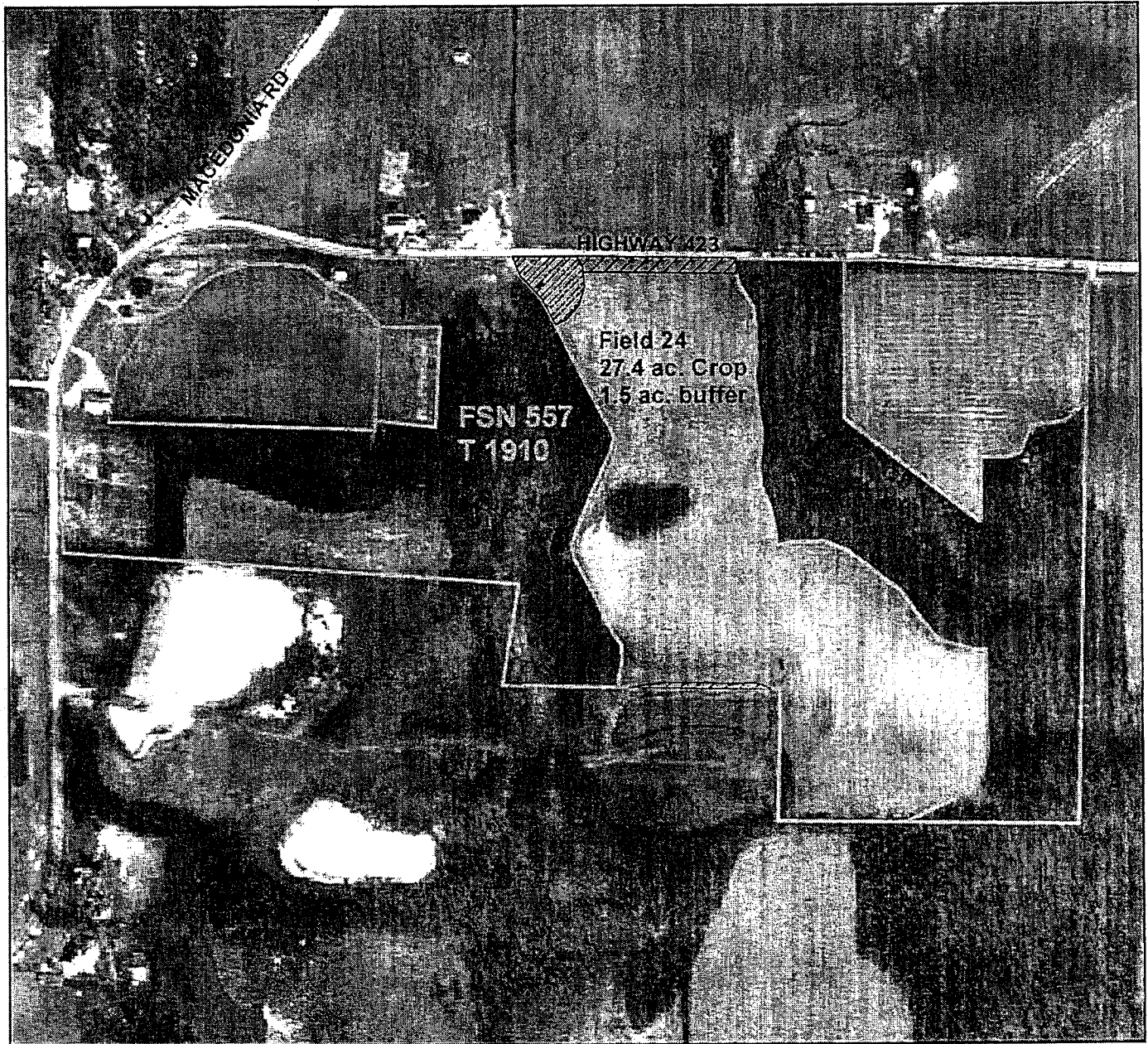


Buffers Map_T 1910






Date: 8/10/2007

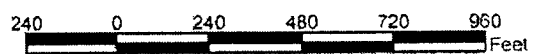
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT
Approximate Acres: 27.4

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart



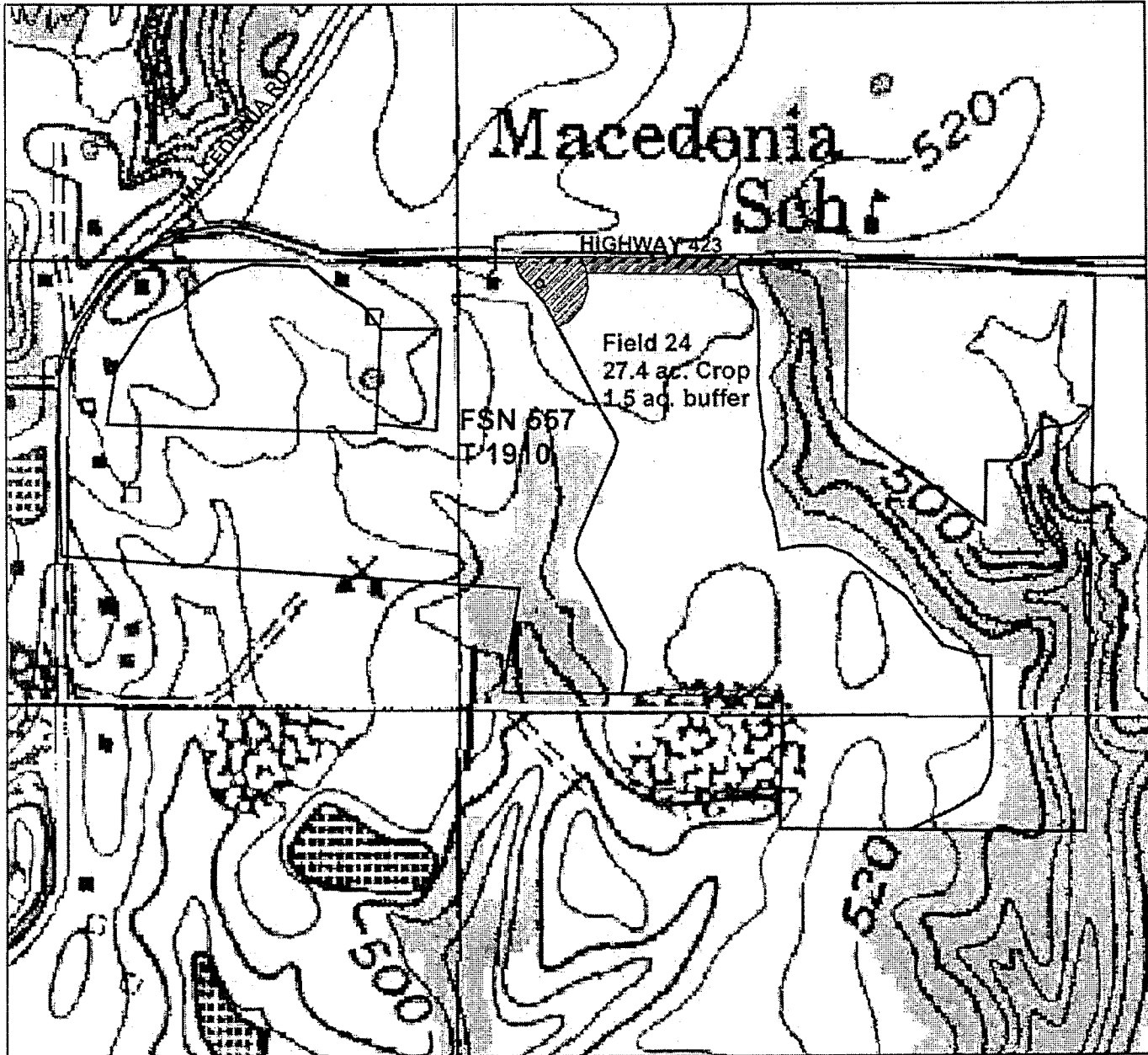
Legend

-  150' Well Buffer.shp
-  30' Waterbody Buffer
-  BurchamWellSites
-  50' Road Buffer
-  2007 CNMP_T 1910



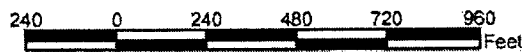
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT
Approximate Acres: 27.4

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart

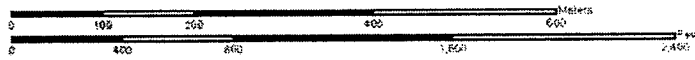


Legend

- ◉ Water Well
- ▨ 150' Well Buffer.shp
- ▧ 30' Waterbody Buffer
- ▩ 50' Road Buffer
- 2007 CNMP_T 1910



Hydrologic Soil Group—Carroll County, Tennessee
(Soils_T 1910)



USDA
Natural Resources
Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

8/18/2007
Page 1 of 4

Hydrologic Soil Group

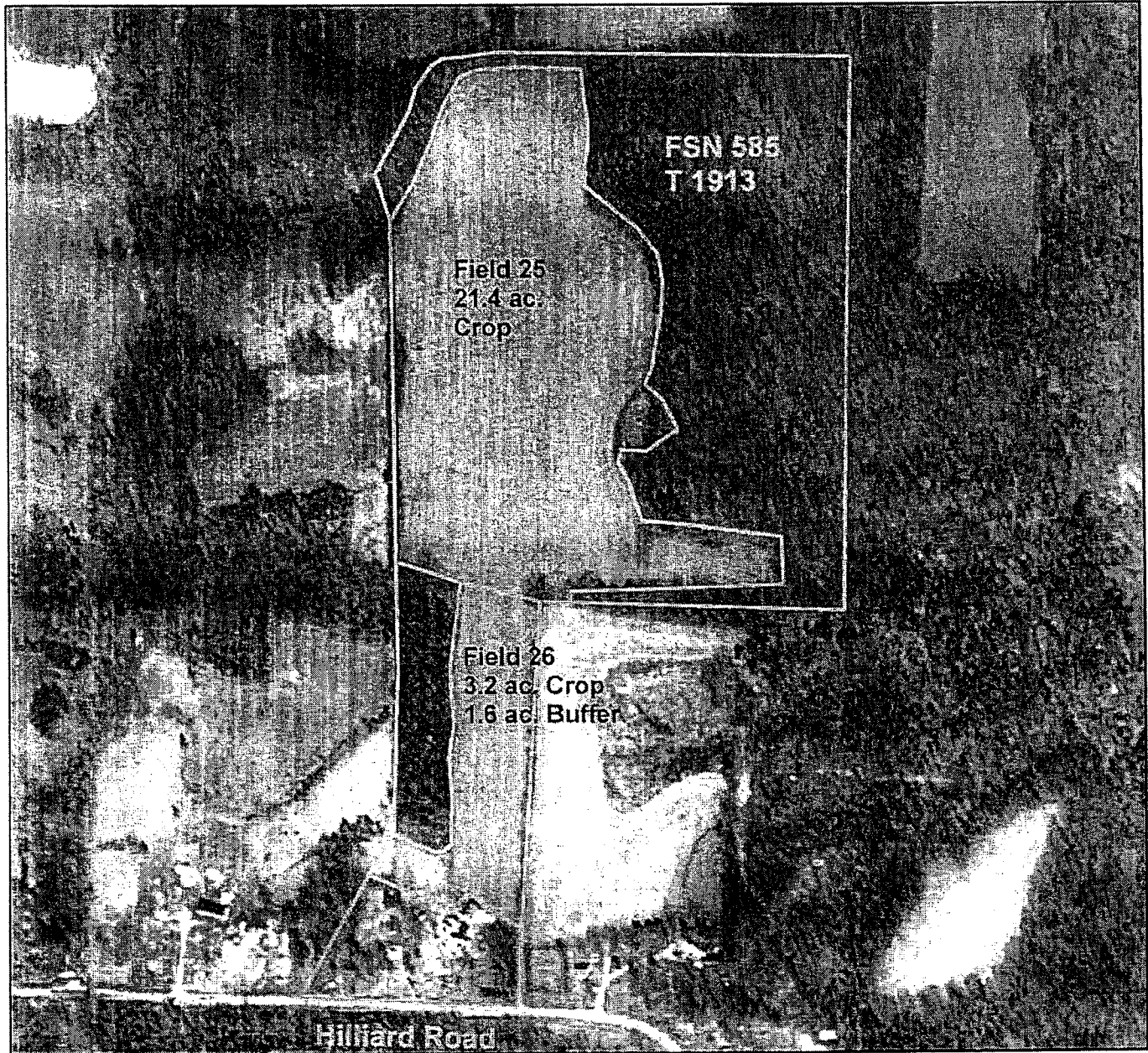
Hydrologic Soil Group— Summary by Map Unit — Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres In AOI	Percent of AOI
Ca	Calloway silt loam	C	5.6	3.7%
Co	Collins silt loam, occasionally flooded	C	11.4	11.5%
GrB	Grenada silt loam, 2 to 5 percent slopes	C	1.0	1.0%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	48.7	49.3%
LeC2	Lexington silt loam, 5 to 8 percent slopes, eroded	B	11.8	11.9%
LeD2	Lexington silt loam, 8 to 12 percent slopes, eroded	B	14.2	14.4%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	4.8	5.0%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	1.8	2.0%
Up	Udorthents-Pis complex	C	1.3	1.3%
Totals for Area of Interest (AOI)			95.6	100.0%

2007 CNMP_T 1913

Date: 8/8/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

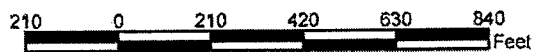
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend



□ 2007 CNMP_T 1913

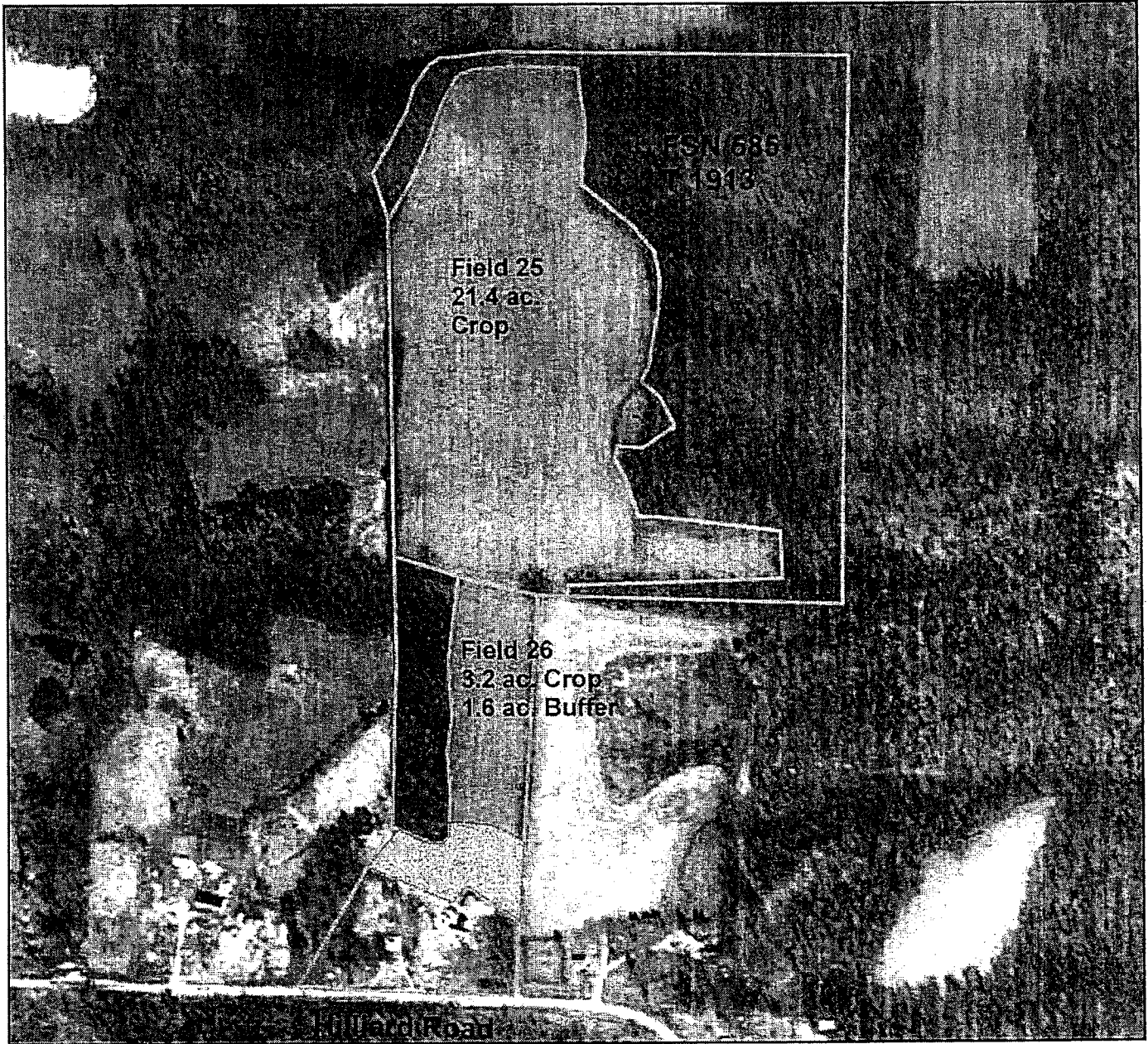


Buffers Map_T 1913

Date: 8/8/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend



- 2007 CNMP_T 1913
- 300' Dwelling Buffer.shp

210 0 210 420 630 840 Feet

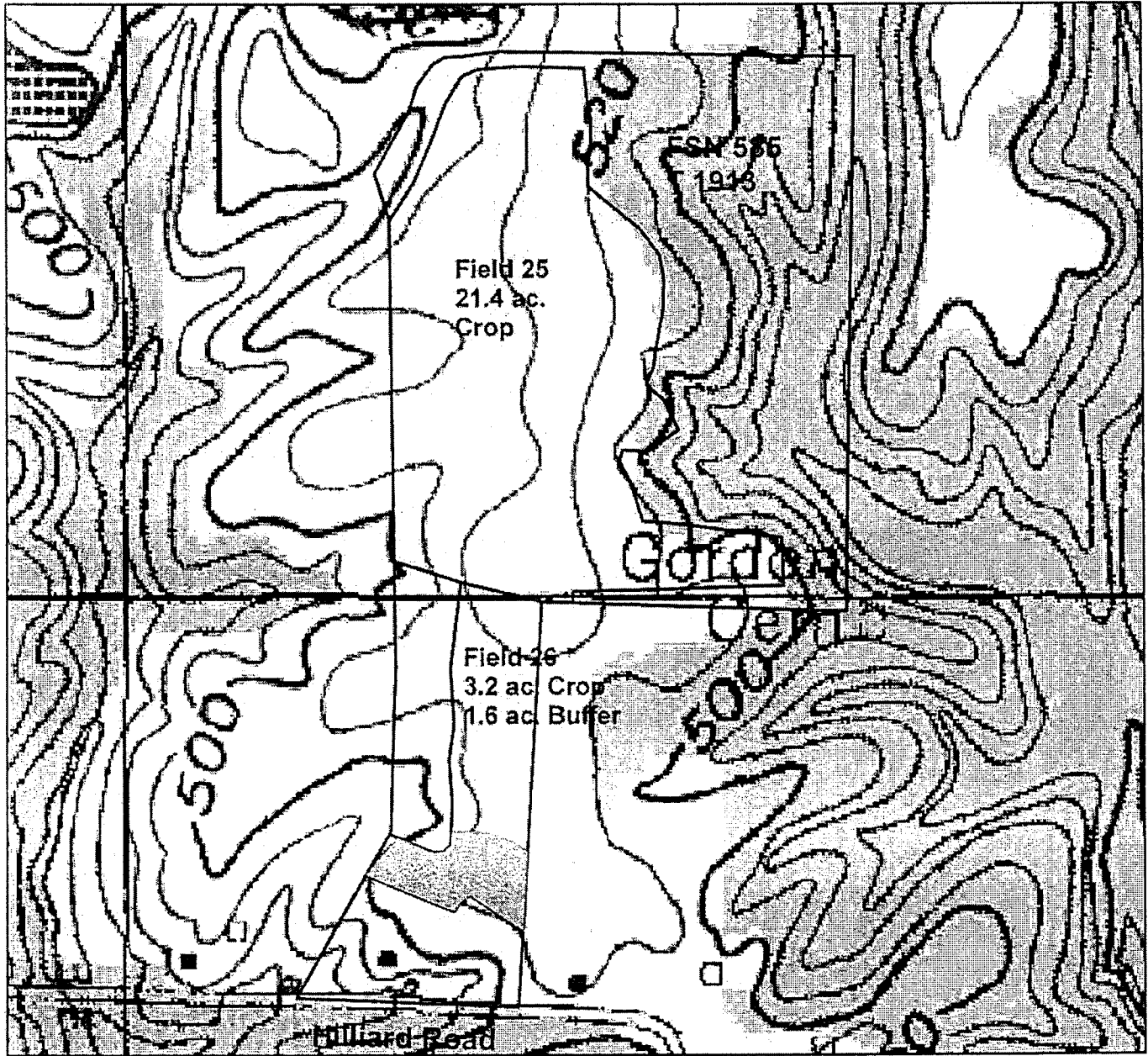


Topo Map_T 1913

Date: 8/8/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

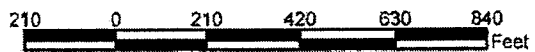
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL

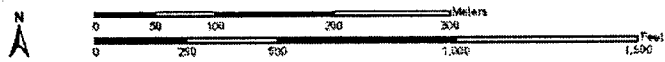


Legend



- 2007 CNMP_T 1913
- ▨ 300' Dwelling Buffer.shp





USDA
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Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

8/10/2007
Page 1 of 4

Hydrologic Soil Group— Summary by Map Unit — Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres In AOI	Percent of AOI
Co	Collins silt loam, occasionally flooded	C	3.2	6.1%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	23.4	44.1%
SmD2	Smithdale fine sandy loam, 8 to 12 percent slopes, eroded	B	3.3	6.3%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	13.1	24.7%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	9.6	18.1%
Up	Udorthents-Pits complex	C	0.4	0.7%
Totals for Area of Interest (AOI)			53.1	100.0%

2007 CNMP_T 2157

Date: 8/8/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

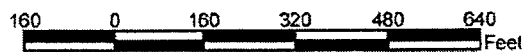
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend



□ 2007 CNMP_T 2157

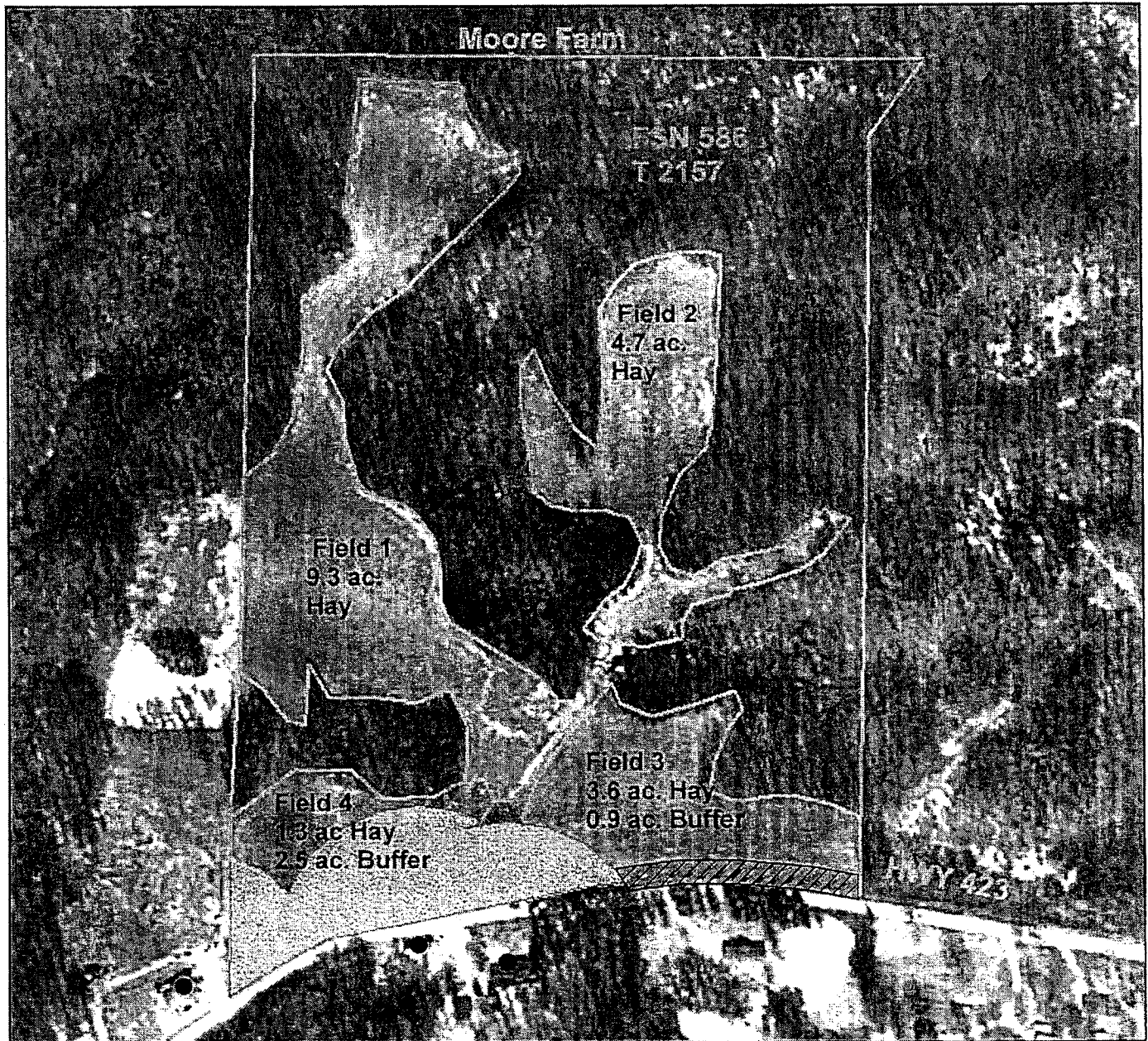


Buffers Map_T 2157




Date: 8/8/2007

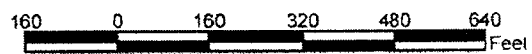
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

-  50' Road Buffer_T 2157.shp
-  300' Dwelling Buffer_T 2157.shp
-  2007 CNMP_T 2157

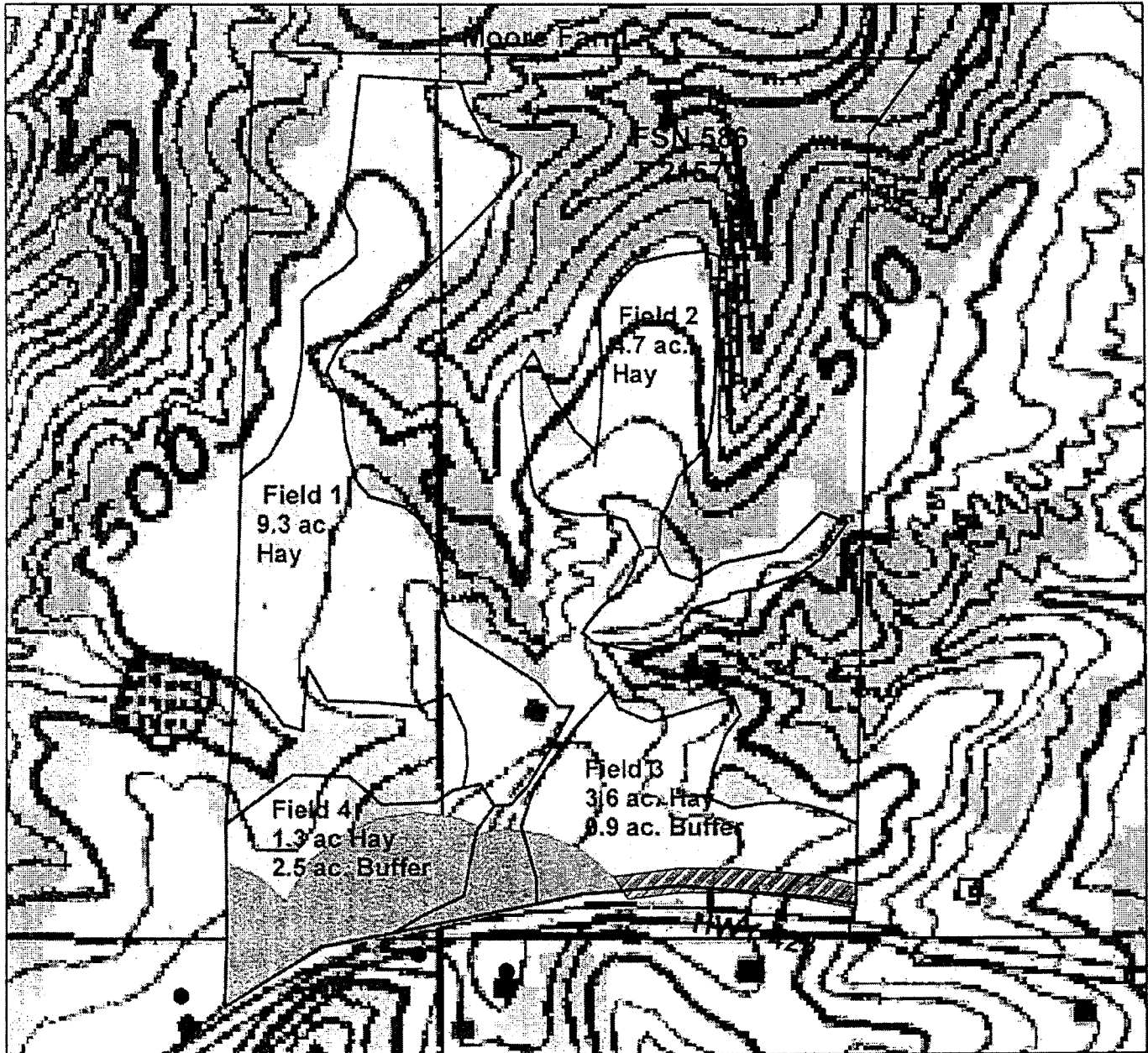


Topo Map_T 2157

Date: 8/8/2007

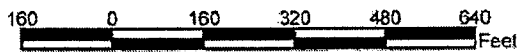
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

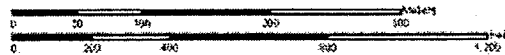
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

- 2007 CNMP_T 2157
- ▨ 50' Road Buffer_T 2157.shp
- ▤ 300' Dwelling Buffer_T 2157.shp





USDA
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Web Soil Survey 2.0
National Cooperative Soil Survey

8/10/2007
Page 1 of 4

Hydrologic Soil Group—Summary by Map Unit — Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Co	Collins silt loam, occasionally flooded	C	0.5	0.8%
Fa	Falaya silt loam, occasionally flooded	D	4.3	7.6%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	9.4	16.7%
LeC2	Lexington silt loam, 5 to 8 percent slopes, eroded	B	15.8	28.1%
LeD2	Lexington silt loam, 8 to 12 percent slopes, eroded	B	12.0	21.4%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	4.9	8.7%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	1.2	2.1%
Us	Udorthents-Smithdale complex, gullied	C	8.1	14.5%
Totals for Area of Interest (AOI)			56.0	100.0%

2007 CNMP_T 2164

Date: 8/8/2007

Customer(s): JERRY BURCHAM

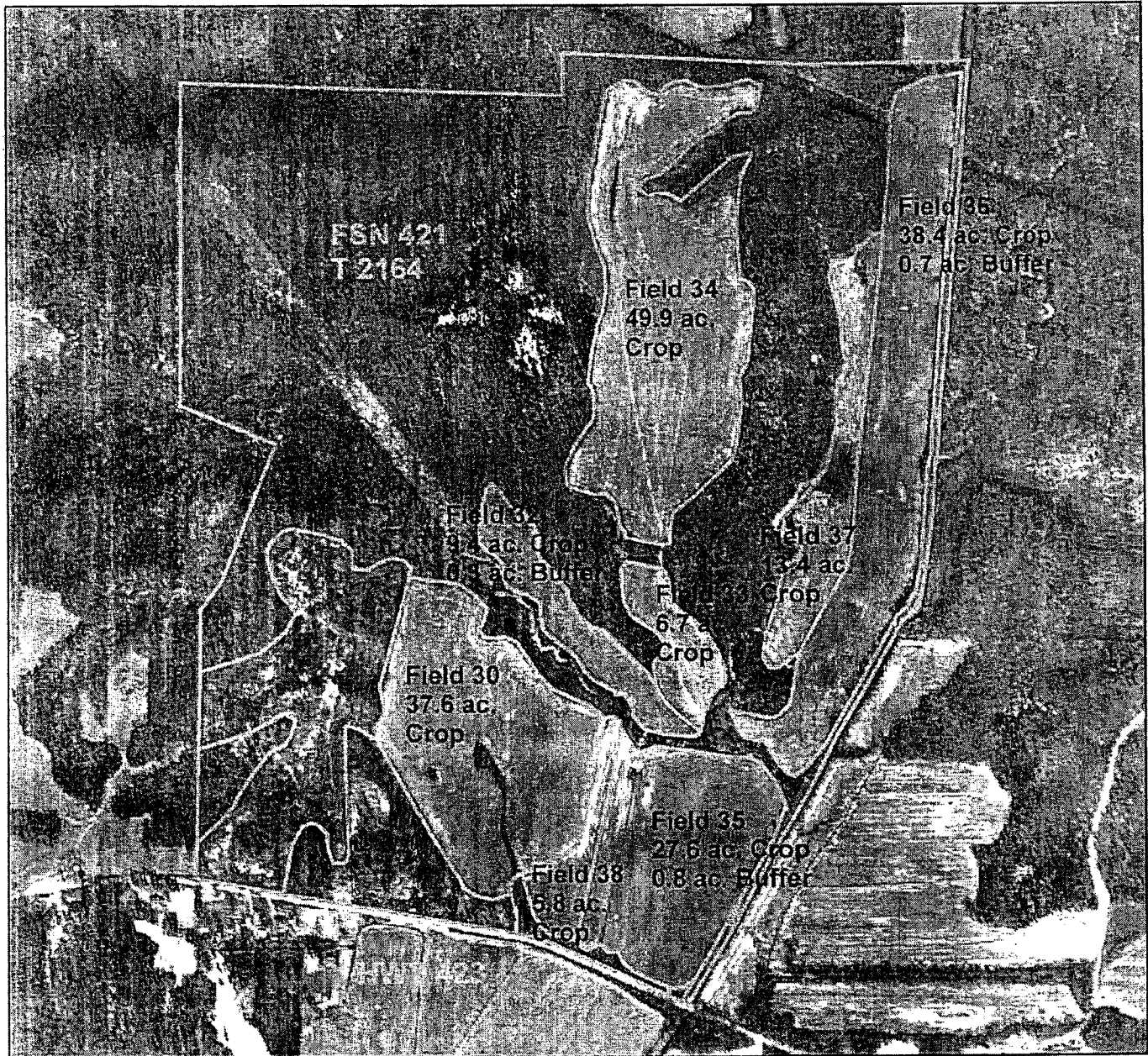
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER

Agency: USDA-NRCS

Assisted By: Kevin M Hart

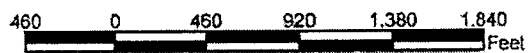
State and County: TN, CARROLL



Legend



2007 CNMP_T 2164

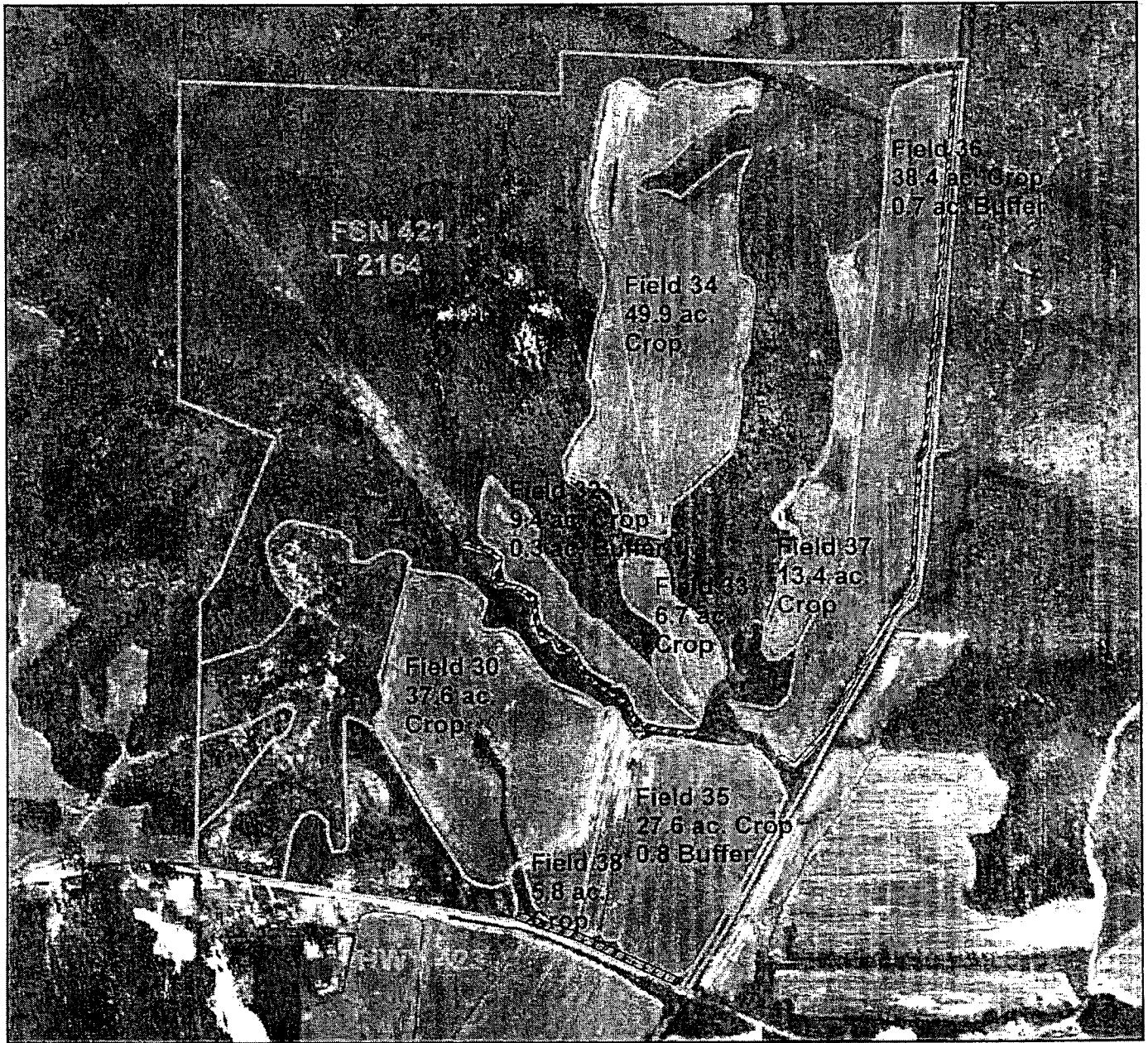


Buffer Map_T 2164




Date: 8/8/2007

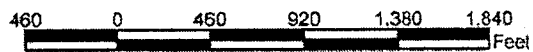
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

-  30' Waterbody Buffer_T 2164.shp
-  50' Roads Buffer_T 2164.shp
-  2007 CNMP_T 2164



Topo Map_T 2164

Date: 8/8/2007

Customer(s): JERRY BURCHAM

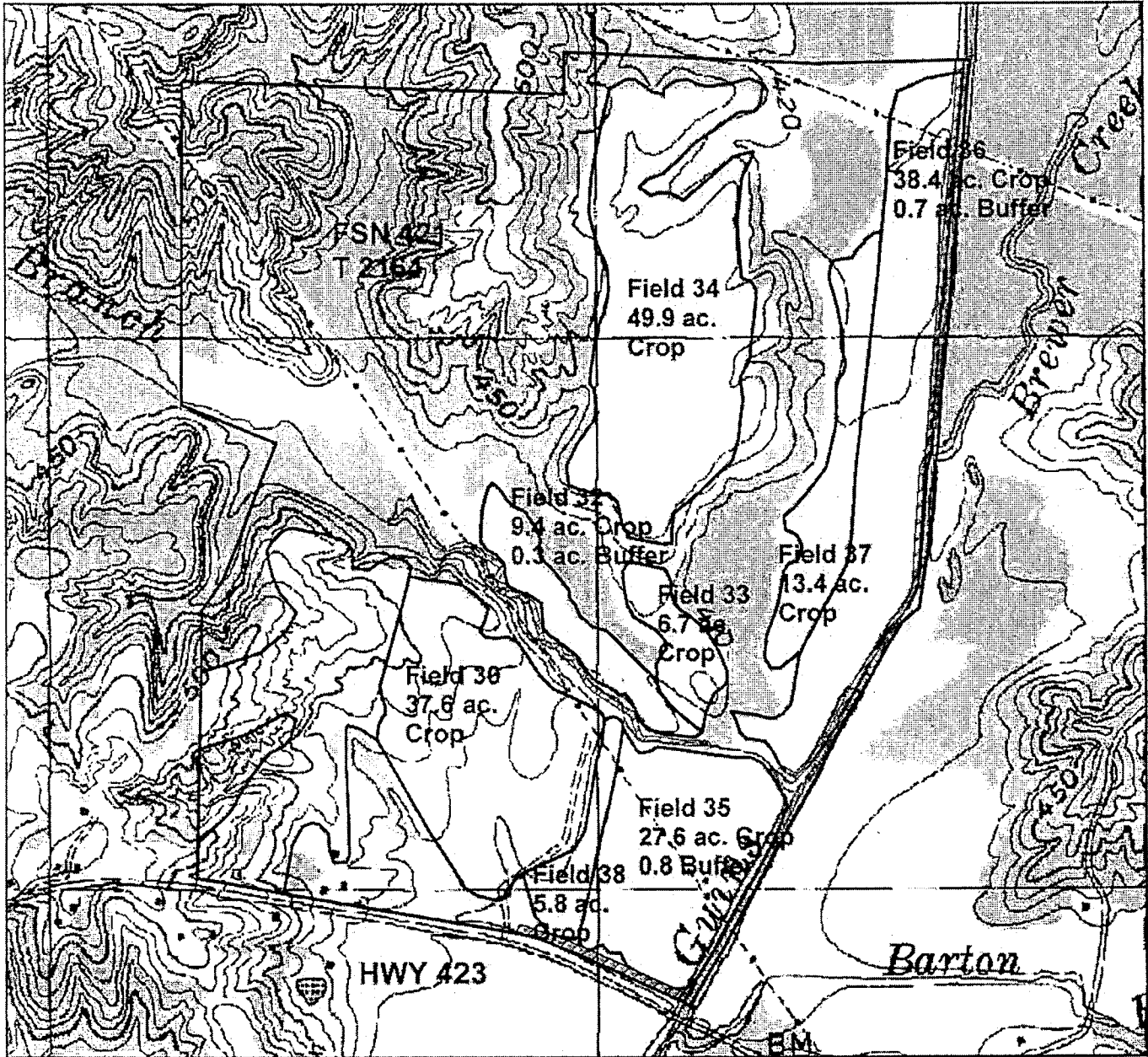
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER




Agency: USDA-NRCS

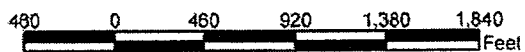
Assisted By: Kevin M Hart

State and County: TN, CARROLL



Legend

-  30' Waterbody Buffer_T 2164.shp
-  50' Roads Buffer_T 2164.shp
-  2007 CNMP_T 2164



Hydrologic Soil Group—Carroll County, Tennessee
(Soils_T 2164)



Hydrologic Soil Group— Summary by Map Unit — Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ca	Calloway silt loam	C	14.3	2.8%
Co	Coffins silt loam, occasionally flooded	C	16.1	3.2%
Fa	Falaya silt loam, occasionally flooded	D	145.8	29.0%
GrB	Grenada silt loam, 2 to 5 percent slopes	C	3.8	0.8%
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded	C	4.9	1.0%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	44.3	8.8%
LeC2	Lexington silt loam, 5 to 8 percent slopes, eroded	B	55.3	11.0%
LeD2	Lexington silt loam, 8 to 12 percent slopes, eroded	B	45.2	9.0%
SmD2	Smithdale fine sandy loam, 8 to 12 percent slopes, eroded	B	20.9	4.2%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	53.6	10.7%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	12.6	2.5%
Us	Udothents-Smithdale complex, gullied	C	17.5	3.5%
Wo	Waverly silt loam, occasionally flooded	D	68.4	13.6%
Totals for Area of Interest (AOI)			502.7	100.0%

2007 CNMP_T 5590

Date: 8/8/2007

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

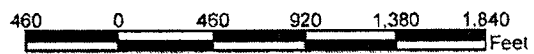
Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend



□ 2007 CNMP_T 5590

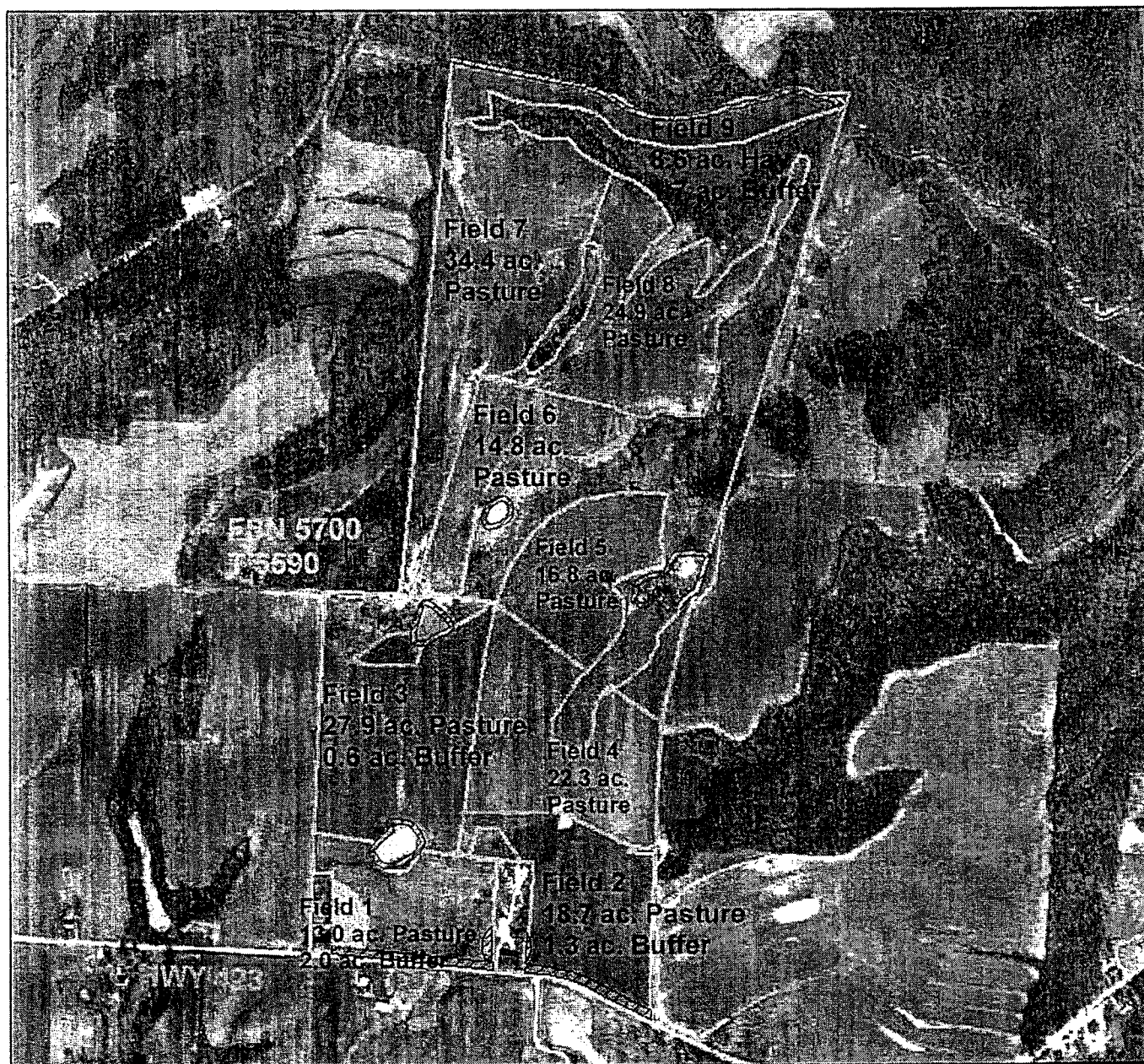


Buffers Map_T 5590






Date: 8/8/2007

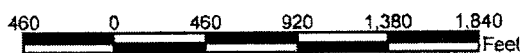
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



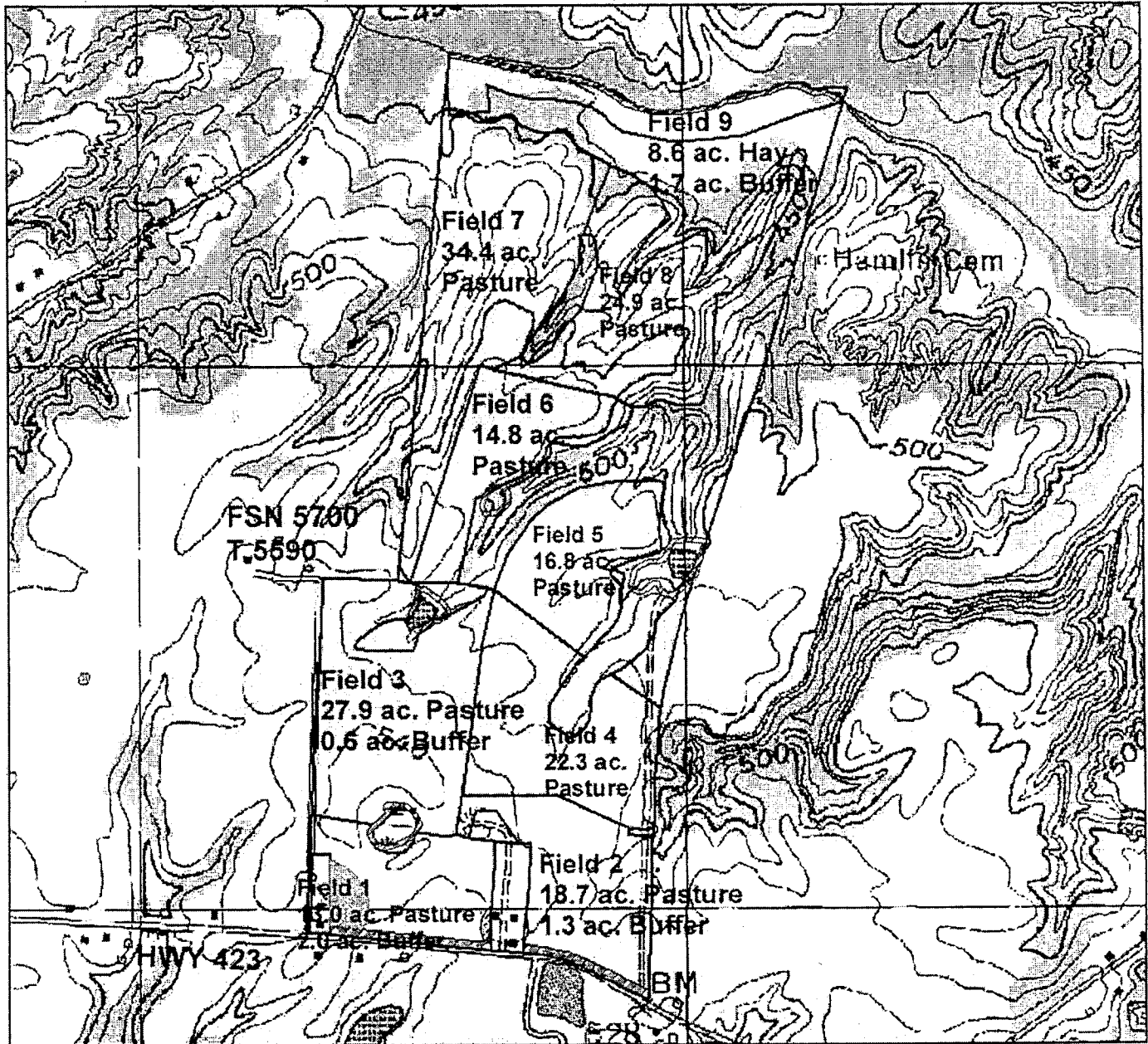
Legend

-  150' Well Buffer_T 5590.shp
-  30' Waterbody Buffer_T 5590.shp
-  300' Dwelling Buffer_T 5590.shp
-  50' Road Buffer_T 5590.shp
-  2007 CNMP_T 5590








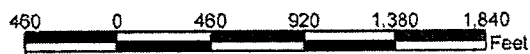
Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



Legend

-  150' Well Buffer_T 5590.shp
-  30' Waterbody Buffer_T 5590.shp
-  300' Dwelling Buffer_T 5590.shp
-  50' Road Buffer_T 5590.shp
-  2007 CNMP_T 5590



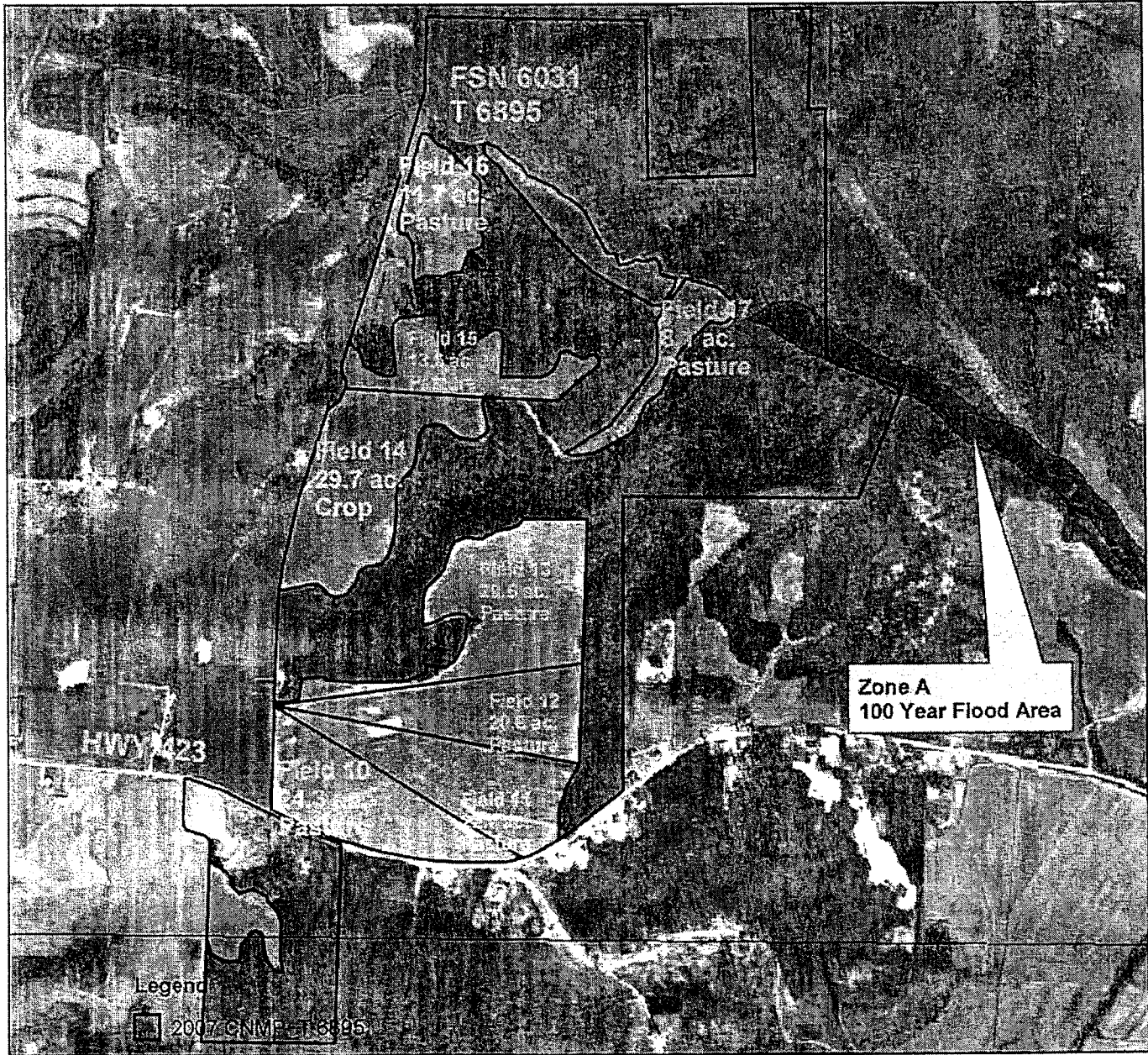
Hydrologic Soil Group—Carroll County, Tennessee
(Soils_T 5590)



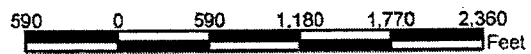
Hydrologic Soil Group— Summary by Map Unit — Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ca	Calloway silt loam	C	0.4	0.1%
Co	Coffins silt loam, occasionally flooded	C	9.4	3.5%
Fa	Faleya silt loam, occasionally flooded	D	0.9	0.3%
GrB	Grenada silt loam, 2 to 5 percent slopes	C	6.7	2.5%
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded	C	0.1	0.0%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	110.4	41.5%
LeC2	Lexington silt loam, 5 to 8 percent slopes, eroded	B	28.1	10.5%
LeD2	Lexington silt loam, 8 to 12 percent slopes, eroded	B	39.0	14.7%
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	C	5.0	1.9%
SmD2	Smithdale fine sandy loam, 8 to 12 percent slopes, eroded	B	0.9	0.3%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	19.7	7.4%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	0.1	0.0%
W	Water		0.7	0.3%
Wp	Waverly silt loam, occasionally flooded	D	40.3	15.2%
Wp	Waverly silt loam, ponded	D	4.4	1.6%
Totals for Area of Interest (AOI)			265.8	100.0%

Customer(s): JERRY BURCHAM
District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Kevin M Hart
State and County: TN, CARROLL



- FIRM**
- ZONE**
- A
 - AE
 - ANI
 - X
 - X500

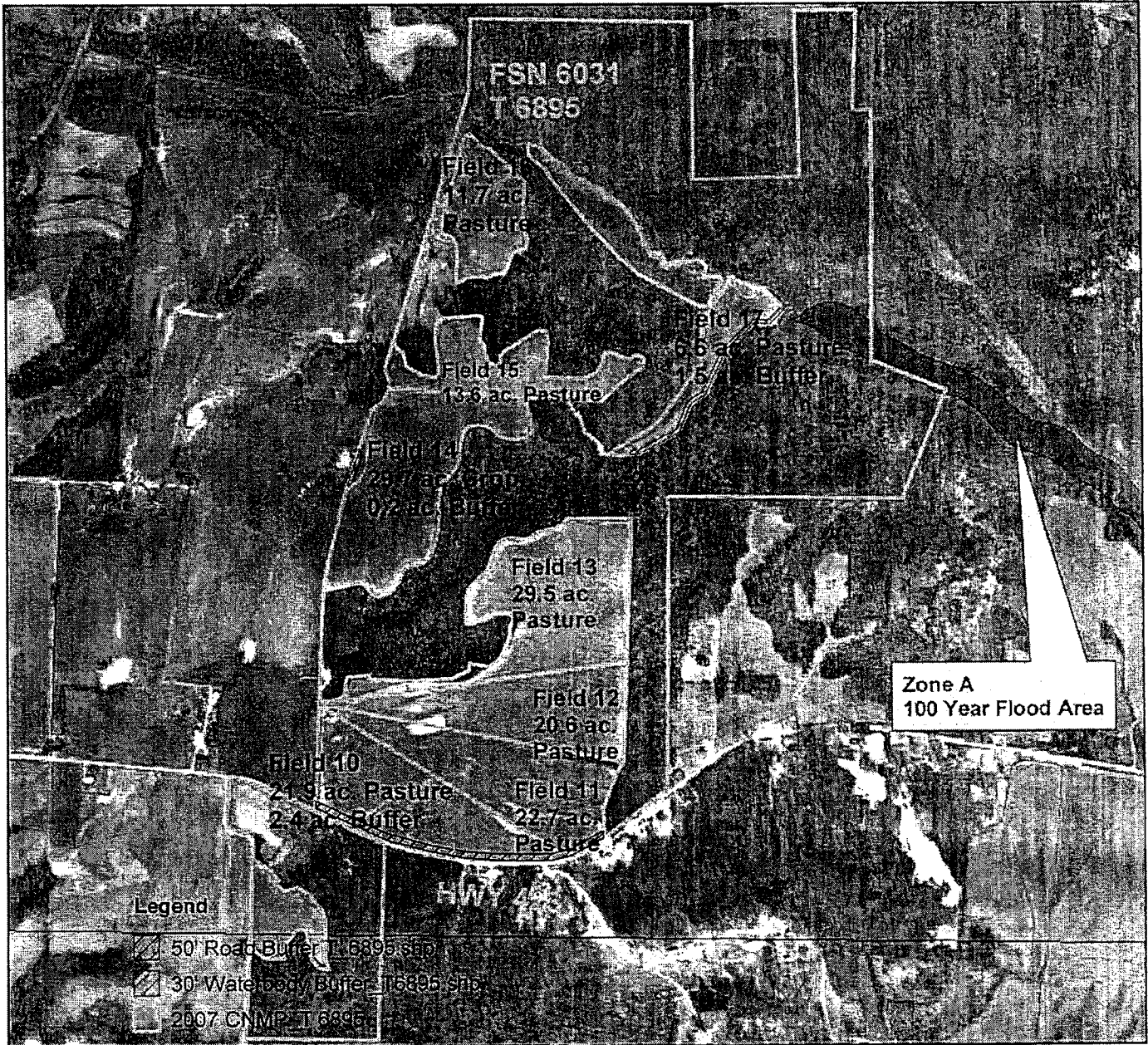


Buffers Map_T 6895

Date: 8/8/2007

Customer(s): JERRY BURCHAM
 District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

Field Office: HUNTINGDON SERVICE CENTER
 Agency: USDA-NRCS
 Assisted By: Kevin M Hart
 State and County: TN, CARROLL



- FIRM
- ZONE
- A
 - AE
 - ANI
 - X
 - X500

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AUG 19 2009

Permit Section

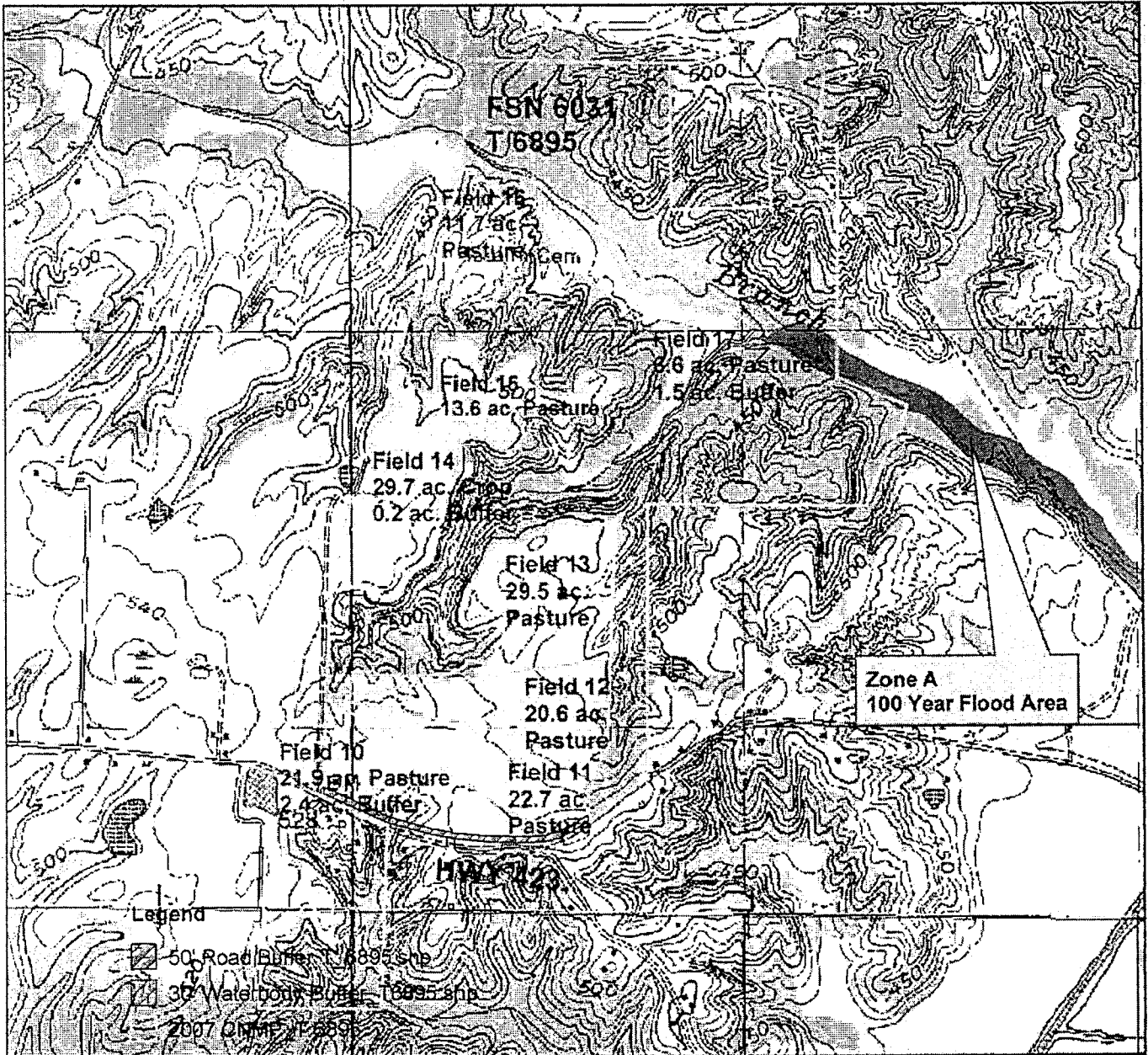


Topo Map_T 6895

Date: 8/8/2007

Customer(s): JERRY BURCHAM
 District: CARROLL COUNTY SOIL CONSERVATION DISTRICT

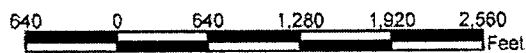
Field Office: HUNTINGDON SERVICE CENTER
 Agency: USDA-NRCS
 Assisted By: Kevin M Hart
 State and County: TN, CARROLL



FIRM

ZONE

- A
- AE
- ANI
- X
- X500



Hydrologic Soil Group—Carroll County, Tennessee
(Soils_T 6895)



Hydrologic Soil Group— Summary by Map Unit— Carroll County, Tennessee				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Co	Collins silt loam, occasionally flooded	C	8.4	1.9%
Fa	Falaya silt loam, occasionally flooded	D	59.3	12.1%
LeB	Lexington silt loam, 2 to 5 percent slopes	B	130.0	26.6%
LeC2	Lexington silt loam, 5 to 6 percent slopes, eroded	B	87.6	13.6%
LeD2	Lexington silt loam, 8 to 12 percent slopes, eroded	B	13.6	2.6%
SmD2	Smithdale fine sandy loam, 8 to 12 percent slopes, eroded	B	16.7	3.4%
SmE	Smithdale fine sandy loam, 12 to 20 percent slopes	B	115.5	23.6%
SmE3	Smithdale fine sandy loam, 12 to 20 percent slopes, severely eroded	B	11.5	2.3%
SwE3	Sweeten loam, 12 to 20 percent slopes, severely eroded	C	5.5	1.1%
Us	Udothents-Smithdale complex, gullied	C	18.5	3.6%
W	Water		3.1	0.6%
Wo	Waverly silt loam, occasionally flooded	D	36.4	7.6%
Totals for Area of Interest (AOI)			489.5	100.0%

3. LAND AND TREATMENT PRACTICES

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of manure and organic by-products from an Animal Feeding Operation. On fields where manure and organic by-products are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized to allow for plant uptake of these nutrients.

3.1. LAND TREATMENT PRACTICES AND EXPECTED RESULTS

Fields where nutrients are applied will be managed to soil loss tolerance. Necessary conservation practices have been, or will be, established and maintained on cropland where animal by-products are applied before the first application. All fields need a field border, residue management, as well as vegetative field strips established when next to a ditch, stream, or wetlands. Refer to the conservation plan for practices beyond those proscribed in the Phosphorus Risk Index. For further information concerning the applied or planned Land Treatment Practices, see the Conservation Plan for the Producer operation located in the Carroll County NRCS Field Office. The following are planned practices for the CNMP for this farm:

Planned Land Treatment and Description	Fields	Date Planned
Forage Harvest Management (511) On these fields, forages will be harvested at the appropriate growth stages to provide the desired forage quality and to maintain the forage stand.	Tract 954 (1, 2, 3, 4) Tract 5590 (9)	2008, 2009, 2010
Prescribed Grazing (528) The vegetation on the pastures will be managed via controlled harvest with grazing animals.	Tract 5590 (1, 2, 3, 4, 5, 6, 7, 8) Tract 6895 (10,11,12,13, 15, 16, 17)	2008, 2009, 2010
Residue Management (344) – Residue from crop harvesting will be managed on the fields in order to minimize soil erosion.	Tract 1910 (24) Tract 1913 (24, 26) Tract 2157 (1, 2, 3, 4) Tract 2164 (30, 32, 33, 34, 35, 36, 37) Tract 6895 (14)	2008, 2009, 2010

3.1.1. Plan for Establishing Vegetation

Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, this offsite nutrient and pathogen transport.

All disturbed areas including slopes of pads will be planted to permanent vegetation. If construction occurs during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until the recommended planting dates. Refer to NRCS practice standard 342, Critical Area Treatment, for guidance.

4. NUTRIENT MANAGEMENT

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

4.1. SOIL TESTING

Soil testing should occur as recommended in Table 4. Soil nutrient levels should be monitored by soil testing to determine the requirement or buildup of phosphorus and potassium in the soil.

Table 4: Recommended Soil Testing Frequency

Land Use	Frequency (in years)
Continuous row crops (conventional)	2-3
Double-cropping system	2
Continuous No-till Corn, Cotton, Tobacco	1-2
Continuous No-till Soybeans (only)	3-5
Hay Systems	2
Pasture	3-5
High value Cash Crops (tobacco, vegetables)	annually
Lawns, Gardens	3-5
Any time a nutrient problem is suspected	Per event
At the beginning of a different cropping rotation	Per event

Soil samples are to be collected in accordance with The University of Tennessee extension service guidance (UT PB 1061) or standard industry practice if accepted by The University of Tennessee.

Soil testing is to be performed by laboratories that are accepted in one or more of the following programs:

1. State Certified Programs
2. The North American Proficiency Testing Program (Soil Science Society of America)
3. Other laboratories whose test results and interpretations of such test are within the currently accepted guidelines of The University of Tennessee

Soil profile sampling for nitrogen, Pre-Sidedress Nitrogen Test (PSNT) (UT SP427 for corn), Pre-Plant Soil Nitrate (PPSN) or soil surface sampling for phosphorus or acidity 22 may be necessary in situations where there are special production or environmental concerns.

Soil amendments shall be applied to adjust pH to specific range of the crop for optimum utilization of nutrients as per soil test recommendations.

MANURE ANALYSIS

The producer shall be responsible for having representative samples of the manure collected and analyzed at least once per year. The amount of manure to be land applied so that the permitted application rate (normally the agronomic rate) is met will be determined using a rolling average of the previous analyses. The documentation must be maintained for at least five years, longer if it relates to a USDA program. These analyses are part of the required Record Keeping and are stored under the Record Keeping element of this CNMP.

When collecting a manure sample from a storage facility, the most important thing to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g. two separate manure storage buildings) each unit should be sampled separately (e.g. the producer will need to collect two samples, one to represent each manure type, liquid sample and a solid sample).

4.1.1. Manure Sampling Method

The sample sent to the lab from a manure storage building should be a composite of several sub-samples. Sub-samples should be obtained from about 10 locations within the manure pile. The sample locations should vary by depth (from 1 ft deep to 3 inches from the bottom) and by position (from the front, back and sides). After collecting the sub-samples, the material should be mixed in one container to make a homogeneous composite sample. The composite sample sent to the lab should be about one pint. It should be sent in a well-sealed container. Sealable plastic bags work well for relatively dry material, wide mouthed plastic bottles are better for wetter material.

4.2. PHOSPHORUS INDEX (P INDEX)

When the soil test report recommends no application of P₂O₅ to the crop and a nitrogen-based application rate is needed, the Tennessee Phosphorus Index (P Index) used to assess further applications of P₂O₅. The P Index is an assessment tool used to evaluate the potential for P movement from the land application area. The following table shows the P Index point system and the generalized interpretation the points.

Total Points	Generalized Interpretation of P Index Points for the Site
<100	LOW potential for P movement from the field. If farming practices are maintained at the current level there is a low probability of an adverse impact to surface waters from P losses. Nitrogen-based nutrient management planning is satisfactory for this site. Soil P levels and P loss potential may increase in the future due to N based nutrient management.
100 - 200	MEDIUM potential for P movement from the field. The chance for adverse impact to surface waters exists. Nitrogen-based nutrient management planning may be satisfactory for this field when conservation measures are implemented to lessen the probability of P loss. Soil P levels and P loss potential may increase in the future due to N-based nutrient management.
201 - 300	HIGH potential for P movement from the field. The chance for adverse impact to surface waters is likely unless remedial action is taken. Soil and water conservation practices are necessary (if practical) to reduce the risk of P movement and water quality degradation. If risk cannot be reduced, then a P-based nutrient management plan will be implemented.
>300	VERY HIGH potential for P movement from the field and an adverse impact on surface waters. All necessary soil and water conservation practices, plus a P-based nutrient management plan must be put in place to avoid the potential for water quality degradation.

The P Index also requires certain setbacks, or buffers, be used on fields where manure will be applied to limit the potential affect of phosphorus on nearby water sources. The table below lists the buffer widths used in this plan.

Buffer Widths		
Object/Site	Situation	Buffer Width (ft)
Well	Located up-slope of application site.	150
Well	Located down-slope of application site provided conditions warrant application.	300
Waterbody/Stream ¹	Predominate slope < 5% with good vegetation. ²	30
Waterbody/Stream ¹	Predominate slope 5- 8% with good vegetation. ²	50
Waterbody/Stream ¹	Poor vegetative cover or Predominate slope > 8% ²	100
Waterbody/Stream ¹	Cultivated land, low erosion.	30
Public Road	Irrigated wastewater.	50
Public Road	Solid applied with spreader truck.	50
Dwelling	Other than producer.	300
Public Use Area	All.	300
Property Line	Located down-slope of application site.	30

Notes:

- ¹ Water bodies include pond, lake, wetland, or sinkhole. "Open" sinkholes should be protected the same as a well. Where sinkholes are not "open," a buffer should be established in the flat area around the rim of the basin.
- ² Good vegetation refers to a well-managed, dense stand that is not overgrazed.

Table 5: Tennessee Phosphorus Index Risk Rating Report

Operation Name: Jerry Burcham		Tennessee Phosphorus Index Risk Rating Report																
Tract Number	Field Number	Phosphorus Source Characteristics							Phosphorus Transport Characteristics							Erosion Potential		
		Soil Test P	MAX P2O5 Appl Rate (lbs/ac)	MAX P2O5 Appl Rate (th gal /ac)	P2O5 Appl ed As	Appl Timing	Appl Method	Hydrologic Soil Group	Perm. Vegetative Buffer Width	Non-App. Width from Surface Water Conveyance	Slope (%)	Cover	Texture	Length of Horizontal slope	Site Vulnerability	PI Rating Value	Control Nutrient	
954	1	M	284	35.9	2	2	1	B	>29	>29	2-5	3	3	150	Medium	200.4	N	
954	2	H	264	33.4	2	2	1	B	>29	>29	2-5	3	3	150	Medium	200.4	N	
954	3	L	294	37.2	2	2	1	B	>29	>29	5-12	5	1	150	Medium	200.4	N	
954	4	M	284	35.9	2	2	1	B	>29	>29	2-5	3	3	150	Medium	200.4	N	
954	5	L	294	37.2	2	2	1	B	>29	>29	2-5	3	3	150	Medium	200.4	N	
1910	24	M	63	8.0	2	3	1	B	<10	>29	2-5	2	2	300	Medium	199.5	N	
1913	25	L	93	11.8	2	2	1	B	<10	>29	2-5	2	2	150	Medium	199.5	N	
1913	26	L	114	14.4	2	2	1	B	<10	>29	2-5	2	2	75	Medium	200.2	N	
2157	1	L	294	37.2	2	2	1	B	>29	>29	5-12	4	1	150	Medium	200.4	N	
2164	30	L	114	14.4	2	2	1	B	<10	>29	5-12	4	1	150	Medium	200.2	N	
2164	32	M	104	13.2	2	2	1	D	20-29	>29	0-2	2	1	150	Medium	200.2	N	
2164	33	M	104	13.2	2	2	1	C	10-19	>29	2-5	2	2	150	Medium	200.2	N	
2164	34	M	132	16.7	2	2	1	B	10-19	>29	2-5	2	2	300	Medium	200.2	N	
2164	35	M	104	13.2	2	2	1	D	20-29	>29	0-2	2	1	300	Medium	200.2	N	
2164	36	L	114	14.4	2	2	1	D	20-29	>29	0-2	2	1	300	Medium	200.2	N	
2164	37	L	114	14.4	2	2	1	D	20-29	>29	0-2	2	1	150	Medium	200.2	N	
5590	1	H	163	20.6	2	1	1	B	10-19	>29	2-5	3	2	150	Medium	200.7	N	
5590	2	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	3	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	4	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	5	M	114	14.4	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	6	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	7	M	114	14.4	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	8	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
5590	9	L	124	15.7	2	1	1	D	20-29	>29	0-2	3	1	150	Medium	200.2	N	
6895	10	M	114	14.4	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	11	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	12	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	13	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	14	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	15	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	16	L	124	15.7	2	1	1	B	<10	>29	2-5	3	2	150	Medium	200.2	N	
6895	17	L	124	15.7	2	1	1	D	20-29	>29	0-2	3	1	75	Medium	200.2	N	

Tennessee Phosphorus Index Risk Rating Report (Continued)

<p>SoilTest P / Site Vulnerability L = Low M = Medium H = High VH = Very High</p> <p>P2O5 Applied As 1 = 0.20 applied as commercial fertilizer 2 = 0.10 applied as litter, manure, or biosolids 3 = 0.05 applied as alum to swine manure @ 100 lbs per 1000 sq. ft. rate 4 = 0.02 applied as alum to swine manure @ 200 lbs per 1000 sq. ft. rate</p> <p>Application Timing 1 = June - Sept. 2 = April, May, Oct, Mar or Nov. w/winter cover 3 = March or Nov. w/o winter cover, Feb w/ winter cover 4 = Dec, Jan, Feb</p>	<p>Cover 1 = Bare soil or conventional tillage 2 = No-till row-crops with light to medium residue 3 = Pasture/Hay or No-till row-crops with heavy residues 4 = No-till row-crops with heavy residues 5 = Pasture/Hay</p> <p>Texture 1 = All Textures 2 = Silt loam (West TN) 3 = Silt loam 4 = other</p>	<p>Controlling Nutrient N = Nitrogen 3*P = 3*Phosphorus 2*P = 2*Phosphorus P = Phosphorus No Man. = No manure 123</p> <p>Application Method 1 = Injected 2 = Incorporated within 5 days of application 3 = Incorporated more than 5 days after application 4 = Surface applied (no incorporation)</p>
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4.3. MANURE APPLICATION PLAN

4.3.1. Application Fields Summary

Available land for manure application includes the following tracts and fields listed in the Table below. These fields are not included in any other Nutrient Management Plan and no other manure or compost is being applied to these fields.

Table 6: Application Fields Summary

Tract	Field Number	Acreage	Buffered Acreage	Spreadable Acreage	Soil Test P (lbs/acre)	PI Risk Rating	Controlling Nutrient
954	1	26.9	4	22.9	18	MEDIUM	Nitrogen
954	2	6	2.1	3.9	40	MEDIUM	Nitrogen
954	3	5.7	0.5	5.2	18	MEDIUM	Nitrogen
954	4	3.3	1.5	1.8	20	MEDIUM	Nitrogen
954	5	11.9	0.4	11.5	8	MEDIUM	Nitrogen
1910	24	28.9	0.8	28.1	24	MEDIUM	Nitrogen
1913	25	21.4	0	21.4	12	MEDIUM	Nitrogen
1913	26	4.8	1.5	3.3	16	MEDIUM	Nitrogen
2157	1	9.3	0	9.3	18	MEDIUM	Nitrogen
2157	2	4.7	0	4.7	0	Undetermined	Undetermined
2157	3	4.5	0.9	3.6	0	Undetermined	Undetermined
2157	4	3.8	2.5	1.3	0	Undetermined	Undetermined
2164	30	37.6	0	37.6	12	MEDIUM	Nitrogen
2164	32	9.7	0.3	9.4	28	MEDIUM	Nitrogen
2164	33	6.7	0	6.7	20	MEDIUM	Nitrogen
2164	34	49.9	0	49.9	24	MEDIUM	Nitrogen
2164	35	28.4	0.8	27.6	20	MEDIUM	Nitrogen
2164	36	39.1	0	39.1	18	MEDIUM	Nitrogen
2164	37	13.4	0	13.4	12	MEDIUM	Nitrogen
5590	1	15	2	13	40	MEDIUM	Nitrogen
5590	2	20	1.3	18.7	12	MEDIUM	Nitrogen
5590	3	28.5	0.6	27.9	18	MEDIUM	Nitrogen
5590	4	22.3	0	22.3	4	MEDIUM	Nitrogen
5590	5	16.8	0	16.8	28	MEDIUM	Nitrogen
5590	6	14.8	0	14.8	12	MEDIUM	Nitrogen
5590	7	34.4	0	34.4	24	MEDIUM	Nitrogen
5590	8	24.9	0	24.9	4	MEDIUM	Nitrogen
5590	9	10.3	1.7	8.6	12	MEDIUM	Nitrogen
6895	10	24.3	2.4	21.9	24	MEDIUM	Nitrogen
6895	11	22.7	0.3	22.4	4	MEDIUM	Nitrogen
6895	12	20.6	0	20.6	8	MEDIUM	Nitrogen
6895	13	29.5	0	29.5	8	MEDIUM	Nitrogen
6895	14	29.7	0.2	29.5	12	MEDIUM	Nitrogen
6895	15	13.6	0	13.6	4	MEDIUM	Nitrogen
6895	16	11.7	0	11.7	8	MEDIUM	Nitrogen
6895	17	8.1	1.5	6.6	4	MEDIUM	Nitrogen

4.3.2. Application Strategy

The tables below show the overall strategy of manure application during the CNMP planning period.

The application rates shown below are based on the recommended nitrogen application rates for crops using the University of Tennessee based fertility recommendation tool. The rates are also lower than the maximum values calculated using the P-Index (Table 5) The strategy of application for this plan is as follows:

- 2008 – Fall Apply manure to fields that are being converted to Bermuda from Fescue
- 2009 – Spring Apply manure to fields with residual value (hay, silage, grain)
- 2010 – Spring Apply manure to fields with residual value (hay, silage, grain)
- 2010 – Summer Apply manure to Bermuda fields

Supplemental fertilizer will be necessary on some fields, refer to the Nutrient Budget, Table 9, for estimates of the nutrients needed.

Application Plan - 2008					House 1 - Volume 1004.4 (th gal)	House 2 - Volume 1004.4 (th gal)			
					Carryover Generated	0 th gallons	0 th gallons		
					837 th gallons	837 th gallons			
Allocation Period	Tract Number	Field Number	Spreadable Acreage	Crop Name	Source	Allocation Rate (th gallons/acre)	Allocation Amount (thousand gallons)	Allocation Rate (thousand gallons)	Allocation Amount (thousand gallons)
Fall 2008	8895	11	22.4	Bermudagrass, pasture	House 1	8.5	190.4		
Fall 2008	8895	12	20.6	Bermudagrass, pasture	House 1	8.5	175.1		
Fall 2008	8895	13	29.5	Bermudagrass, pasture	House 1	8.5	250.75		
Fall 2008	8895	14	29.5	Bermudagrass, pasture	House 2			3	88.5
Fall 2008	8895	15	13.0	Bermudagrass, pasture	House 2			3	40.8
Fall 2008	8895	16	11.7	Bermudagrass, pasture	House 2			3	35.1
Fall 2008	8895	17	6.6	Bermudagrass, pasture	House 2			3	19.8
Note: Manure collection starts in March 2008 (10 months @ 83.7 th gallons/month = 837 th gallons)						Total Used	616.25	Total Used	184.2
						Total Carryover	220.75	Total Carryover	652.8

Application Plan - 2009					House 1 - Volume 1004.4 (th gal)	House 2 - Volume 1004.4 (th gal)			
					Carryover Generated	220.75 th gallons	622.8 th gallons		
					1004.4 th gallons	1004.4 th gallons			
Allocation Period	Tract Number	Field Number	Spreadable Acreage	Crop Name	Source	Allocation Rate (thousand gallons)	Allocation Amount (thousand gallons)	Allocation Rate (thousand gallons)	Allocation Amount (thousand gallons)
Spring 2009	954	1	22.9	Cool Season Grass Mix, hay	House 2			4.6	103.05
Spring 2009	954	3	5.2	Cool Season Grass Mix, hay	House 2			4.6	23.4
Spring 2009	954	4	1.6	Cool Season Grass Mix, hay	House 2			4.6	8.1
Spring 2009	954	5	11.5	Cool Season Grass Mix, hay	House 2			4.6	51.75
Spring 2009	1010	24	28.1	Soybeans, grain	House 2			6.5	182.66
Spring 2009	1013	25	21.4	Soybeans, grain	House 2			8.5	181.9
Spring 2009	1013	26	3.3	Soybeans, grain	House 2			8.5	28.05
Spring 2009	2164	34	48.9	Soybeans, grain	House 2			8.5	325
Spring 2009	2164	30	37.6	Soybeans, grain	House 1	7.5	282		
Spring 2009	2164	32	9.4	Soybeans, grain	House 1	7.6	70.5		
Spring 2009	2164	33	6.7	Soybeans, grain	House 1	7.5	50.25		
						Total Used	402.76	Total Used	717.6
						Total Carryover	822.4	Total Carryover	939.6

Application Plan - 2010					House 1 - Volume 1004.4 (th gal)	House 2 - Volume 1004.4 (th gal)			
					Carryover Generated	822.4 th gallons	939.6 th gallons		
					1004.4 th gallons	1004.4 th gallons			
Allocation Period	Tract Number	Field Number	Spreadable Acreage	Crop Name	Source	Allocation Rate (thousand gallons)	Allocation Amount (thousand gallons)	Allocation Rate (thousand gallons)	Allocation Amount (thousand gallons)
Spring 2010	2164	35	27.6	Com, silage	House 1	6	166.6		
Spring 2010	2164	36	39.1	Com, silage	House 1	6	234.6		
Spring 2010	2164	37	13.4	Com, silage	House 1	6	80.4		
Spring 2010	2157	1	9.3	Com, silage	House 1	8	55.8		
Summer 2010	8895	10	21.9	Bermudagrass, pasture	House 1	14.5	317.55		
Summer 2010	8895	11	22.4	Bermudagrass, pasture	House 1	14.5	324.8		
Summer 2010	8895	15	13.6	Bermudagrass, pasture	House 1	14.5	197.2		
Summer 2010	8895	12	20.8	Bermudagrass, pasture	House 2			15.5	319.3
Summer 2010	8895	13	29.5	Bermudagrass, pasture	House 2			15.5	457.25
Summer 2010	8895	14	29.5	Bermudagrass, pasture	House 2			15.5	457.25
						Total Used	895.35	Total Used	1233.8
						Total Carryover	831.45	Total Carryover	710.2

4.4. CROP TYPES, REALISTIC YIELDS, SEQUENCES AND APPLICATION PERIODS

The following Table displays the crop type with their realistic yields based upon the historic data. The following crops, associated yields, and nutrient removal data are used to determine a nutrient budget based upon nutrient removal criteria.

Table 7: Crop Type, Yield Goals, and Removal Rates.

Tract	Field Number	Crop Name	Expected Yield	Nutrient Removal (lb/ac)		
				N	P	K
954	1	Cool Season Grass Mix, hay	3 Tons	39.5	4.1	40
954	2	Cool Season Grass Mix, hay	3 Tons	39.5	4.1	40
954	3	Cool Season Grass Mix, hay	3 Tons	39.5	4.1	40
954	4	Cool Season Grass Mix, hay	3 Tons	39.5	4.1	40
954	5	Cool Season Grass Mix, hay	3 Tons	39.5	4.1	40
1910	24	Corn, silage	20 Tons	8.7	1.3	10.5
1910	24	Soybeans, grain	35 Bushels	3.8	0.38	1.1
1913	25	Corn, silage	20 Tons	8.7	1.3	10.5
1913	25	Soybeans, grain	40 Bushels	3.8	0.38	1.1
1913	26	Corn, silage	20 Tons	8.7	1.3	10.5
1913	26	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2157	1	Corn, silage	20 Tons	8.7	1.3	10.5
2164	30	Corn, silage	20 Tons	8.7	1.3	10.5
2164	30	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	32	Corn, silage	20 Tons	8.7	1.3	10.5
2164	32	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	33	Corn, silage	20 Tons	8.7	1.3	10.5
2164	33	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	34	Corn, silage	20 Tons	8.7	1.3	10.5
2164	34	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	35	Corn, silage	20 Tons	8.7	1.3	10.5
2164	35	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	36	Corn, silage	20 Tons	8.7	1.3	10.5
2164	36	Soybeans, grain	40 Bushels	3.8	0.38	1.1
2164	37	Corn, silage	20 Tons	8.7	1.3	10.5
2164	37	Soybeans, grain	40 Bushels	3.8	0.38	1.1
5590	1	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	2	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	3	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	4	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	5	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	6	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	7	Bermudagrass, pasture	8 Tons	37.5	3.8	28
5590	8	Bermudagrass, pasture	8 Tons	37.5	3.8	28

Tract	Field Number	Crop Name	Expected Yield	Nutrient Removal (lb/ac)		
				N	P	K
5590	9	Bermudagrass, hay/silage	8 Tons	37.5	3.8	28
6895	10	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	10	Corn, silage	20 Tons	8.7	1.3	10.5
6895	11	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	11	Corn, silage	20 Tons	8.7	1.3	10.5
6895	12	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	12	Corn, silage	20 Tons	8.7	1.3	10.5
6895	13	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	13	Corn, silage	20 Tons	8.7	1.3	10.5
6895	14	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	14	Corn, silage	20 Tons	8.7	1.3	10.5
6895	15	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	15	Corn, silage	20 Tons	8.7	1.3	10.5
6895	16	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	16	Corn, silage	20 Tons	8.7	1.3	10.5
6895	17	Bermudagrass, pasture	8 Tons	37.5	3.8	28
6895	17	Corn, silage	20 Tons	8.7	1.3	10.5

The following table displays the targeted periods of the year when manure should be applied to specific crops. Manure may be applied during other periods, but with less benefit to production and only when environmental affects of manure application are considered to be minimal.

Table 8: Expected Application Periods by Crop*

Crop	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fescue Pasture/Hay			X	X	X	X			X	X	X	
Bermudagrass Pasture/Hay					X	X	X	X				
Corn or Sorghum Silage			X	X	X	X						
Soybeans			X	X	X	X						

4.5. PLANT TISSUE TEST RESULTS

If allocation decisions are based upon the results of such testing, the producer needs to document the rationale for changing the application rates and maintain all such documentation to support the soundness of such a decision. The results of tissue testing need to be included in the Record Keeping element of the CNMP and retained by the producer for five (5) years.

4.6. APPLICATION REQUIREMENTS

The Nutrient Allocation Schedule (below) shows allocation dates, application equipment used, and timing of incorporation. Specific dates and nutrient/manure amounts referenced throughout this document are estimates and are intended only to guide the producer in his application strategy. The schedule and nutrient budget indicate that there is not enough manure to adequately meet the nutrient needs of all the fields on the various tracts. Commercial fertilizer will be needed to supplement the manure applied to fields. The allocation rate has been determined based on UT fertility recommendations.

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4.7. NUTRIENT ALLOCATION SCHEDULE, AND BUDGETS (N, P2O5 AND K2O)

The following schedule is an estimate and represents data output from the program Afopro. The application information provided in section 4.3.2 should be used for manure application planning. This table is intended to show the source of information provided in the application strategy section.

Table 9: Nutrient Allocation Schedule, and Budgets (N, P2O5 and K2O)

Tract/No Field No Spr/ Acres	Crop Name	Crop Yield	Plant Date	Recommended (lb/ac)			Preallocation Credits (lb/ac)			Manure (lb/ac)			Balance (lb/ac)		
				N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
1910 24 28.1	20 Tons Corn, silage	20 Tons	4/1/2008	150	80	240	0	0	0	0	0	0	-150	-80	-240
	35 Bu. Soybeans, grain	35 Bu.	5/15/2009	140	20	80	0	0	0	132	150	136	-8	130	56
	20 Tons Corn, silage	20 Tons	4/1/2010	150	80	240	0	0	0	0	0	0	-150	-80	-240
			Totals	440	180	560	0	0	0	132	150	136	-308	-30	-424
1913 25 21.4	20 Tons Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	40 Bu. Soybeans, grain	40 Bu.	5/15/2009	180	40	80	0	0	0	173	196	178	-7	156	98
	20 Tons Corn, silage	20 Tons	4/1/2010	150	160	240	0	0	0	0	0	0	-150	-160	-240
			Totals	480	360	560	0	0	0	173	196	178	-307	-164	-382
1913 26 3.3	20 Tons Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	40 Bu. Soybeans, grain	40 Bu.	5/15/2009	180	40	80	0	0	0	173	196	178	-7	156	98
	20 Tons Corn, silage	20 Tons	4/1/2010	150	160	240	0	0	0	0	0	0	-150	-160	-240
			Totals	480	360	560	0	0	0	173	196	178	-307	-164	-382
2157 1 9.3	20 Tons Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	20 Tons Corn, silage	20 Tons	4/1/2009	150	160	240	0	0	0	0	0	0	-150	-160	-240
	20 Tons Corn, silage	20 Tons	4/1/2010	150	160	240	0	0	0	142	47	107	-8	-113	-53
			Totals	450	480	480	0	0	0	142	47	107	-308	-433	-373
2164 30 37.6	20 Tons Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	40 Bu. Soybeans, grain	40 Bu.	5/15/2009	180	40	80	0	0	0	180	59	134	0	19	54
	20 Tons Corn, silage	20 Tons	4/1/2010	150	160	240	0	0	0	0	0	0	-150	-160	-240
			Totals	480	360	560	0	0	0	180	59	134	-300	-301	-426
2164 32 9.4	20 Tons Corn, silage	20 Tons	4/1/2008	150	80	240	0	0	0	0	0	0	-150	-80	-240
	40 Bu. Soybeans, grain	40 Bu.	5/15/2009	180	20	80	0	0	0	180	59	134	0	39	54
	20 Tons Corn, silage	20 Tons	4/1/2010	150	80	240	0	0	0	0	0	0	-150	-80	-240
			Totals	480	180	560	0	0	0	180	59	134	-300	-121	-426

Tract No Field No Spr. Acres	Crop Name	Crop Yield	Plant Date	Recommended (lb/ac)			Preallocation Credits (lb/ac)			Manure (lb/ac)			Balance (lb/ac)			
				N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20	
2164 33 6.7	Corn, silage	20 Tons	4/1/2008	150	80	240	0	0	0	0	0	0	0	-150	-80	-240
	Soybeans, grain	40 Bu.	5/15/2009	180	20	80	0	0	0	180	59	134	0	39	54	54
	Corn, silage	20 Tons	4/1/2010	150	80	240	0	0	0	0	0	0	0	-150	-80	-240
			Totals	480	180	560	0	0	0	180	59	134	0	-300	-121	-426
2164 34 49.9	Corn, silage	20 Tons	4/1/2008	150	80	240	0	0	0	0	0	0	0	-150	-80	-240
	Soybeans, grain	40 Bu.	5/15/2009	180	20	80	0	0	0	132	150	137	0	-48	130	57
	Corn, silage	20 Tons	4/1/2010	150	80	240	0	0	0	0	0	0	0	-150	-80	-240
			Totals	480	180	560	0	0	0	132	150	137	0	-348	-30	-423
2164 35 27.6	Corn, silage	20 Tons	4/1/2008	150	80	240	0	0	0	0	0	0	0	-150	-80	-240
	Soybeans, grain	40 Bu.	5/15/2009	180	20	80	0	0	0	0	0	0	0	-180	-20	-80
	Corn, silage	20 Tons	4/1/2010	150	80	240	0	0	0	144	47	107	0	-6	-33	-133
			Totals	480	180	560	0	0	0	144	47	107	0	-336	-133	-453
2164 36 39.1	Corn, silage	20 Tons	4/1/2008	150	160	160	0	0	0	0	0	0	0	-150	-160	-160
	Soybeans, grain	40 Bu.	5/15/2009	180	40	40	0	0	0	0	0	0	0	-180	-40	-40
	Corn, silage	20 Tons	4/1/2010	150	160	160	0	0	0	144	47	107	0	-6	-113	-53
			Totals	480	360	360	0	0	0	144	47	107	0	-336	-313	-253
2164 37 13.4	Corn, silage	20 Tons	4/1/2008	150	160	160	0	0	0	0	0	0	0	-150	-160	-160
	Soybeans, grain	40 Bu.	5/15/2009	180	40	40	0	0	0	0	0	0	0	-180	-40	-40
	Corn, silage	20 Tons	4/1/2010	150	160	160	0	0	0	144	47	107	0	-6	-113	-53
			Totals	480	360	360	0	0	0	144	47	107	0	-336	-313	-253
5590 1 13	Bermuda, Pasture	8 Tons	5/1/2008	400	40	80	45	11	46	0	0	0	0	-355	-29	-34
	Bermuda, Pasture	8 Tons	5/1/2009	400	40	80	45	11	46	0	0	0	0	-355	-29	-34
	Bermuda, Pasture	8 Tons	5/1/2010	400	40	80	45	11	46	0	0	0	0	-355	-29	-34
			Totals	1200	120	240	135	33	138	0	0	0	0	-1065	-87	-102
5590 2 18.7	Bermuda, Pasture	8 Tons	5/1/2008	400	120	240	45	11	46	0	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	0	0	0	0	-355	-109	-194
			Totals	1200	360	720	135	33	138	0	0	0	0	-1065	-327	-582
5590 3 27.9	Bermuda, Pasture	8 Tons	5/1/2008	400	120	160	45	11	46	0	0	0	0	-355	-109	-114
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	160	45	11	46	0	0	0	0	-355	-109	-114
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	160	45	11	46	0	0	0	0	-355	-109	-114
			Totals	1200	360	480	135	33	138	0	0	0	0	-1065	-327	-342

Tract No Field No Spr. Acres	Crop Name	Crop Yield	Plant Date	Recommended (lb/ac)		Preallocation Credits (lb/ac)		Manure (lb/ac)		Balance (lb/ac)				
				N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O		
5590 4 22.3	Bermuda, Pasture	8 Tons	5/1/2008	400	120	240	45	11	46	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	0	0	-355	-109	-194
	Totals			1200	360	720	135	33	138	0	0	-1065	-327	-582
5590 5 16.8	Bermuda, Pasture	8 Tons	5/1/2008	400	80	80	45	11	46	0	0	-355	-69	-34
	Bermuda, Pasture	8 Tons	5/1/2009	400	80	80	45	11	46	0	0	-355	-69	-34
	Bermuda, Pasture	8 Tons	5/1/2010	400	80	80	45	11	46	0	0	-355	-69	-34
	Totals			1200	240	240	135	33	138	0	0	-1065	-207	-102
5590 6 14.8	Bermuda, Pasture	8 Tons	5/1/2008	400	120	240	45	11	46	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	0	0	-355	-109	-194
	Totals			1200	360	720	135	33	138	0	0	-1065	-327	-582
5590 7 34.4	Bermuda, Pasture	8 Tons	5/1/2008	400	120	80	45	11	46	0	0	-355	-109	-34
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	80	45	11	46	0	0	-355	-109	-34
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	80	45	11	46	0	0	-355	-109	-34
	Totals			1200	360	240	135	33	138	0	0	-1065	-327	-102
5590 8 24.9	Bermuda, Pasture	8 Tons	5/1/2008	400	120	160	45	11	46	0	0	-355	-109	-114
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	160	45	11	46	0	0	-355	-109	-114
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	160	45	11	46	0	0	-355	-109	-114
	Totals			1200	360	480	135	33	138	0	0	-1065	-327	-342
5590 9 8.6	Bermuda, hay	8 Tons	5/1/2008	400	120	240	0	0	0	0	0	-400	-120	-240
	Bermuda, hay	8 Tons	5/1/2009	400	120	240	0	0	0	0	0	-400	-120	-240
	Bermuda, hay	8 Tons	5/1/2010	400	120	240	0	0	0	0	0	-400	-120	-240
	Totals			1200	360	720	0	0	0	0	0	-1200	-360	-720
6895 10 21.9	Corn, silage	20 Tons	4/1/2008	150	80	160	0	0	0	0	0	-150	-80	-160
	Bermuda, Pasture	8 Tons	9/15/2008	60	40	40	45	11	46	0	0	-15	-29	6
	Bermuda, Pasture	8 Tons	5/1/2009	400	80	160	45	11	46	0	0	-355	-69	-114
	Bermuda, Pasture	8 Tons	5/1/2010	400	80	160	45	11	46	347	115	260	46	146
Totals			1010	280	520	135	33	138	347	115	260	-528	-132	-122
6895 11 22.4	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	204	67	152	189	-2
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	347	115	260	46	66
Totals			1010	480	800	135	33	138	551	182	412	-324	-265	-250

Tract No Field No Spr/ Acres	Crop Name	Crop Yield	Plant Date	Recommended (lb/ac)			Preallocation Credits (lb/ac)			Manure (lb/ac)			Balance (lb/ac)		
				N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
6895 12 20.6	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	204	67	152	189	-2	118
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	315	356	326	-40	247	132
	Totals			1010	480	800	135	33	138	519	423	478	-356	-24	-184
6895 13 29.5	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	204	67	152	189	-2	118
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	315	356	326	-40	247	132
	Totals			1010	480	800	135	33	138	519	423	478	-356	-24	-184
6895 14 29.5	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	61	69	63	46	0	29
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	315	356	326	-40	247	132
	Totals			1010	480	800	135	33	138	376	425	389	-499	-22	-273
6895 15 13.6	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	61	69	63	46	0	29
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	347	115	260	-8	6	66
	Totals			1010	480	800	135	33	138	408	184	323	-467	-263	-339
6895 16 11.7	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	61	69	63	46	0	29
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Totals			1010	480	800	135	33	138	61	69	63	-814	-378	-599
6895 17 6.6	Corn, silage	20 Tons	4/1/2008	150	160	240	0	0	0	0	0	0	-150	-160	-240
	Bermuda, Pasture	8 Tons	9/15/2008	60	80	80	45	11	46	61	69	63	46	0	29
	Bermuda, Pasture	8 Tons	5/1/2009	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Bermuda, Pasture	8 Tons	5/1/2010	400	120	240	45	11	46	0	0	0	-355	-109	-194
	Totals			1010	480	800	135	33	138	61	69	63	-814	-378	-599
954 1 22.9	Fescue, Hay	3 Tons	4/15/2008	90	60	30	0	0	0	0	0	0	-90	-60	-30
	Fescue, Hay	3 Tons	2/15/2009	90	60	30	0	0	0	86	104	94	-4	44	64
	Fescue, Hay	3 Tons	2/15/2010	90	60	30	0	0	0	0	0	0	-90	-60	-30
	Totals			270	180	90	0	0	0	86	104	94	-184	-76	4

Tract No Field No Spr. Acres	Crop Name	Crop Yield	Plant Date	Recommended (lb/ac)			Preallocation Credits (lb/ac)			Manure (lb/ac)			Balance (lb/ac)		
				N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20
954 2 3.9	Fescue, Hay	3 Tons	4/15/2008	90	0	0	0	0	0	0	0	0	-90	0	0
	Fescue, Hay	3 Tons	2/15/2009	90	0	0	0	0	0	0	0	0	-90	0	0
	Fescue, Hay	3 Tons	2/15/2010	90	0	0	0	0	0	0	0	0	-90	0	0
	Totals			270	0	0	0	0	0	0	0	0	-270	0	0
954 3 5.2	Fescue, Hay	3 Tons	4/15/2008	90	60	0	0	0	0	0	0	0	-90	-60	0
	Fescue, Hay	3 Tons	2/15/2009	90	60	0	0	0	0	86	104	94	-4	44	94
	Fescue, Hay	3 Tons	2/15/2010	90	60	0	0	0	0	0	0	0	-90	-60	0
	Totals			270	180	0	0	0	0	86	104	94	-184	-76	94
954 4 1.8	Fescue, Hay	3 Tons	4/15/2008	90	30	60	0	0	0	0	0	0	-90	-30	-60
	Fescue, Hay	3 Tons	2/15/2009	90	30	60	0	0	0	86	104	94	-4	74	34
	Fescue, Hay	3 Tons	2/15/2010	90	30	60	0	0	0	0	0	0	-90	-30	-60
	Totals			270	90	180	0	0	0	86	104	94	-184	14	-86
954 5 11.5	Fescue, Hay	3 Tons	4/15/2008	90	60	30	0	0	0	0	0	0	-90	-60	-30
	Fescue, Hay	3 Tons	2/15/2009	90	60	30	0	0	0	86	104	94	-4	44	64
	Fescue, Hay	3 Tons	2/15/2010	90	60	30	0	0	0	0	0	0	-90	-60	-30
	Totals			270	180	90	0	0	0	86	104	94	-184	-76	4

5. OPERATION AND MAINTENANCE

This section addresses the operation and maintenance of the manure management system, conservation practices, manure/compost testing, and equipment calibration. Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice if one or more components fail.

5.1. ITEM SPECIFIC OPERATION AND MAINTENANCE

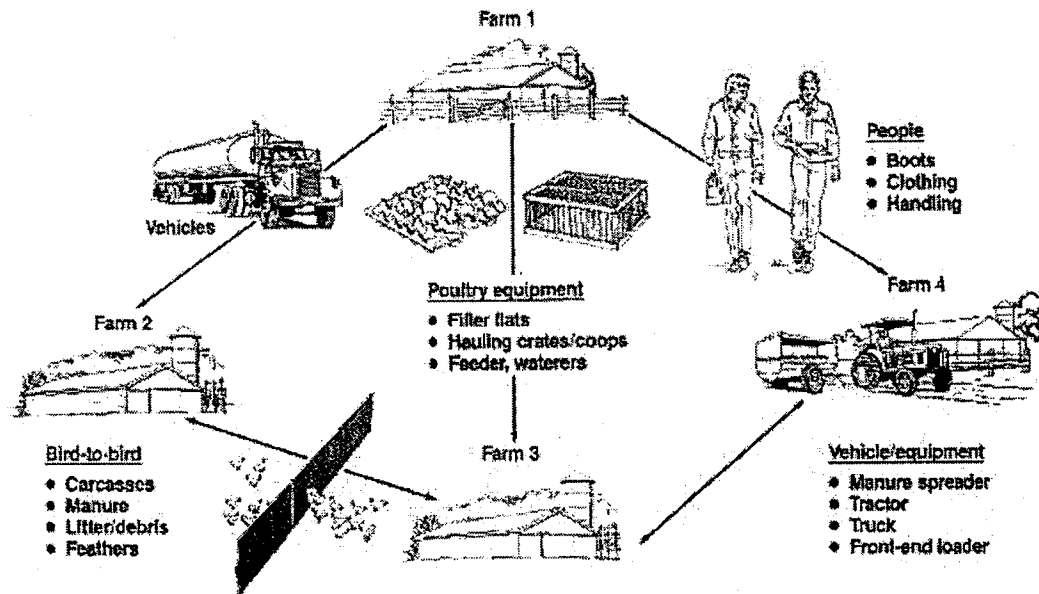
5.1.1. Manure Storage Operation and Maintenance Items

Waste Storage Tanks - Above or below ground

1. Inspect all visible elements on a monthly basis. Repair defects or report to NRCS representative and/or manufacturer (if applicable).
2. Inspect and maintain all safety and rescue equipment (buoys, ropes, ladders, etc). Ensure that all gates, fences, and warning signs are preventing unintended access.
3. Inspect staff gauge or water level measurement device at each pump out event. Check that markings and delineations are visible and that ropes/pulleys/chains are free from defects. Replace when necessary (1-3 years).

5.1.2. Bio Security

How Diseases Spread



Steps to Take to Avoid Disease Spread

To reduce the risk of introducing disease into a flock, maintain a bio security barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, swine facilities, other commercial avian facilities, and pet birds. Some examples of good bio security practices include:

1. Permit only essential workers and vehicles on the premises.
2. Provide clean clothing and a disinfection procedure for employees and visitors.
3. Clean and disinfect vehicles at the farm entrance.
4. Avoid visiting other avian facilities.
5. Do not keep pet birds.
6. Protect the flock from exposure to wild birds.
7. Control movement associated with the disposal of bird carcasses, manure, and manure.
8. Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
9. Report signs of disease to your veterinarian.

5.1.3. Air Quality

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that effect odor are:

Type of operation	Building design
Ventilation method	Animal numbers
Animal diets	Manure treatment system
Season	Topography
Management skill or effort	

a. Animal Cleanliness

- Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.
- Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

b. Minimize Dust

- It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.
- Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and manure. Dust also comes from animal skin, insects, and other sources.
- Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

c. Waste Storage Facility - to reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

- Consider alternatives and additional practices including covered anaerobic digesters (365), and composting facilities (317).
- Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.
- Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

d. Animal diets can also be manipulated to produce less waste and a less odorous waste.

e. Proper Disposal of Mortality - Normal mortality for the animal feeding operation *must* be properly handled for both odor control and biological security of the operation. Composting, incineration, and rendering are acceptable methods for mortality disposal.

f. Good Fly and Rodent Control Programs - These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized.

g. Utilize Trees - While trees should not grow directly adjacent to facilities, wind breaks of trees correctly positioned near the facility not only create a visual barrier but can also provide a large filtration surface for dust and odorous compound removal. Trees can adsorb odorous compounds and create turbulence that enhances odor dispersion and dilution. Trees also can create a cooler microclimate around the facility, which can reduce odors.

h. Land application

- Note wind direction and avoid spreading when the wind is blowing toward populated areas.
- Avoid spreading on weekend/holidays when people are likely to be engaged in nearby outdoor and recreational activities.
- Spread in the morning when air begins to warm and is rising, rather than in the afternoon.

- Use available weather information to best advantage. Turbulent breezes will dissipate and dilute odors. Hot and humid weather tends to concentrate and intensify odors, particularly in the absence of breezes. Rain will remove the odor from the atmosphere.
- Use natural vegetation barriers, such as woodlots or windbreaks, to help dissipate and filter odors.
- Establish vegetated air filters in field border area by planting conifers and shrubs as windbreaks and visual screens between cropland and residential developments.

5.1.4. Pathogen Management

Many of the same conservation practices used to prevent nutrient movement from this animal feeding operation, such as runoff and erosion control are likely to minimize the movement of pathogens. Pathogenic organisms occur naturally in animal wastes. Exposure to some pathogens can cause illness to humans and animals, especially for immune-deficient populations.

6. RECORD KEEPING

It is important that records are kept to effectively document and demonstrate implementation activities associated with CNMPs. Documentation of management and implementation activities associated with a CNMP provides valuable benchmark information for the producer that can be used to adjust his/her CNMP to better meet production objectives. It is the responsibility of AFO owners/operators to maintain records that document the implementation of CNMPs.

The CNMP requires the producer to maintain these records for no less than 5 years. It is the producer's responsibility to ascertain the minimum time required for archiving the records listed below. In some cases, if certain USDA programs are in effect, the records may need to be kept as long as fifteen years.

Also, if the operation requires a permit, annual reporting may be necessary.

Records may be kept in a number of ways:

- Forms are available from the NRCS.
- Record forms may be obtained from University of Tennessee Agricultural Extension Service (Publication 1644)
- You may develop your own records system provided that all necessary information is included.

6.1. DOCUMENTATION

The Table below shows which of the CNMP reports are required by NRCS to document plan implementation. As applicable, records include:

Table 10: Records to be maintained by Producer Farms

Item	Report Details	Frequency	Documentation	Tennessee Records Kept For	Required by TDEC?
Monthly Animal and Mortality Count and Calibration Record for Spreading Equipment		Monthly	Suggested format included ¹	Two Most Recent Records	Y
Soil test results	Soil Tests are to be conducted once per year for any field that has manure applied to it for consecutive years. Additionally, these collective reports will give the producer the means for tracking salts and heavy metal build-ups in the application fields. Any alternative sampling technique used to address specific crop requirements that lead to a change in the applied amounts should be documented on the Land Application Record Form as well as the test results maintained for five years. It is recommended that even if the additional testing yields no direct changes to the planned allocations, the test results should be maintained for the five-year period.	Annually If manure is applied for two years consecutively, annual soil testing is required.	Suggested format included ¹ Keep Test Reports	5 Years	Y
Results of Pre-Side Dress Nitrogen or Pre-Plant Soil Nitrate Testing		If analysis is used in allocation decisions these results should be maintained	Keep Test Reports		Y
Plant Tissue Testing Results		If analysis is used in allocation decisions these results should be maintained	Keep Test Reports	5 Years	Y
Manure Nutrient Analysis	A manure analysis must be completed annually, for each manure storage containment and prior to application. It is essential that the rate of manure allocated be revisited each year using the current analysis data to make those decisions. The manure analysis should be used to assess the content proportions of each micro and macronutrient. One example of the effective use of the analysis would be to check the level of Magnesium against the level of Potassium. Should Magnesium be higher and the manure is applied to pasture land, the result could be detrimental to foraging livestock	Annual	Keep Test Reports	5 Years	Y
Events associated with manure storage and containment structures (e.g. manure transfer overflow events)	Dates of emptying, level before emptying, and level after emptying. Discharge or overflow events, level before and after event	Event Driven	Suggested format included ¹		Y
Spill Response	Activities associated with emergency spill response plan.	Event Driven	Keep Records of Actions Taken		Y

Item	Report Details	Frequency	Documentation	Tennessee Records Kept For	Required by TDEC?
Containment Source or Type Form of Commercial Fertilizer	Use Events Associated w/ Storage Structures	Event Driven	Suggested format included ¹		Y
Crop records	Crops planted and planting/harvesting dates, by field.	Event Driven	Suggested format included ¹	5 Years	Y
Transfer of manure offsite to third parties	a. Manure nutrient content b. Amount of manure transferred c. Date of transfer d. Recipient of manure	Event Driven	Suggested format included ¹	5 Years	Y
Maintenance Records	Records of maintenance performed associated with operation and maintenance plans.	Scheduled Maintenance and Event Driven	Keep Records of Actions Taken		Y
Changes Made In CNMP	Some changes to the CNMP will not require a new plan to be created, other decisions will. Ask your local NRCS Field Office Personnel for information regarding changes to this CNMP.	Any actual operational or management variation from the original CNMP must be documented	Suggested format included ¹		Y
Animal Facility Management Plan		Duration of Plan Developed or When Changes are made to CNMP (See NRCS Field Office)	CNMP	As long as facility is in operation	Y
Reviews by third parties	Records associated with any reviews by NRCS, third-party consultants, or representatives of regulatory agencies: a. Dates of review b. Name of reviewer and purpose of the review c. Recommendations or follow-up requirements resulting from the review d. Actions taken as a result of the review	Scheduled	Suggested format included ¹	5 Years	Y
Land Application Event by Field	(Land Application Event & Nutrient Application Summary By Field) a. Application records for each application event, including (this also applies to commercial fertilizers that are applied to supplement manure or irrigation water, if applicable) b. Field(s) where manure or organic by-products are applied c. Amount applied per acre d. Time and date of application e. Weather conditions during nutrient application f. General soil moisture condition at time of application (i.e., saturated, wet, moist, dry) g. Application method and equipment used	Event Driven	Suggested format included ¹	5 Years	Y
Annual Report	TDEC and TDA require a report that summarizes the operational details of a permitted farm.	Annually	Suggested format included ¹	N/A	If permitted

¹ All suggested blank formats provided below.

MONTHLY ANIMAL AND MORTALITY COUNT

Year:

Production Phase:

Month	Animal Type	Animal Count	Animal Weight	Mortality Percentage (%)	Comments
January					
February					
March					
April					
May					
June					
July					
September					
October					
November					
December					

ANNUAL REPORT

Operation Name:

Date Submitted:

1. Number and types of animals on site.	Types:	Number:	
2. Estimated amount of litter, manure, compost and/or process wastewater generated in the previous calendar year.	Amount:		
3. Estimated amount of litter, manure, compost and/or process wastewater transferred to a 3rd party in the previous calendar year.	Amount Transferred:		
4. Total number of acres for land application covered by the nutrient management plan.	Acres:		
5. Total number of acres under control of the landowner that were used for land application of litter, manure, compost and/or process wastewater in the previous calendar year.	Acres:		
6. Summary of all litter, manure and/or process wastewater discharges to waters of the state from the production area that have occurred in the previous calendar year, include date, time and approximate volume.	Date:	Time:	Volume:
7. The current version of the Comprehensive Nutrient Management Plan was developed and/or approved by a certified nutrient management planner.	Yes/No	Comments:	
<p style="text-align: center;">Mail a completed form to the following agencies: Tennessee Department of Environment and Conservation Division of Water Pollution Control 6th Floor L&C Annex, 401 Church Street Nashville, TN 37243</p> <p style="text-align: center;">And</p> <p style="text-align: center;">Tennessee Department of Agriculture Ellington Agricultural Center P.O. Box 40627 Nashville, TN 37204</p>			

**MANURE
ANALYSIS
AND
SOIL TEST
REPORTS**

Tract No.	Field No.	Soil Test Sample No
5590	1	1
5590	2	2
5590	3	3
5590	4	4
5590	5	5
5590	6	6
5590	7	7A
5590	7	7B
5590	8	8A
5590	8	8B
5590	9	9
6895	10	10
6895	11	11
6895	12	12
6895	13	13
6895	14	14
6895	15	15
6895	16	16
6895	17	17
x	x	23
1910	24	24A
1910	24	24B
1910	24	24C
1913	25	25A
1913	25	25B
1913	26	26
2164	30	30A
2164	30	30B
2164	32	32
2164	33	33
2164	34	34A
2164	34	34B
2164	34	34C
2164	25	35
2164	36	36A
2164	36	36B
2164	36	36C
2164	37	37
2164	38	38
2157	1	MOORE
954	1	SU1A
954	1	SU1B
954	2	SU2
954	3	SU3
954	4	SU4
954	5	SU5

AGRICULTURAL DIAGNOSTIC LABORATORY
 UNIVERSITY OF ARKANSAS- FAYETTEVILLE
 LIQUID MANURE FOR FERTILIZER ANALYSIS (report for AGRI-429)

Name: <u>JERRY BURCHAM</u>	Received: <u>10/11/2007</u>
Address: <u>4640 HWY 423</u>	Mailed: <u>10/17/2007</u>
City: <u>McKENZIE</u>	State, Zip: <u>TN 38201</u>
County: <u>CARROLL (TN)</u>	Check #: <u>1064</u>

Lab. No.	<u>M71002</u>				
Sample I.D.	<u>NONE GIVEN</u>				
Animal type	<u>swine</u>				
-age/lbs	<u>170 lbs</u>				
Bedding type	<u>none</u>				
Manure type	<u>pit under barn</u>				
Sample date	<u>10/02/2007</u>				
Age of manure	<u>6/07 to 10/07</u>				
pH	<u>6.9</u>				
EC(umhos/cm)	<u>21300</u>				
% Solids	<u>1.52</u>				

mg/l on "as-is" basis

Total N	<u>2966</u>				
Total P	<u>413</u>				
Total K	<u>1788</u>				
Total Ca	<u>308</u>				
Ammonia-N	<u>2778</u>				
Nitrate-N					

lbs/1000 gal on "as-is" basis

Total N	<u>24.7</u>				
TOTAL P AS					
"P2O5"	<u>7.9</u>				
TOTAL K AS					
"K2O"	<u>17.9</u>				
Total Ca	<u>2.6</u>				
Ammonia-N	<u>23.1</u>				
Nitrate-N					

*lbs/1000gal P2O5 = mg/l Total P on "as-is" basis multiplied by 2.29*0.00633
 *lbs/1000gal K2O = mg/l Total K on "as-is" basis multiplied by 1.2*0.00533

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

BURCHAM - Page 2

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

If you have questions about these recommendations, contact your County Extension office.

Visit our web site at <http://bioengr.ag.utk.edu/soiltestlab> for additional information.

SOIL TEST REPORT

JERRY BURCHUM
4640 HIGHWAY 423
MCKENZIE, TN 38201

Deborah K. Joines
Deborah K. Joines
Manager
Soil, Plant and Pest Center
5201 Marckant Drive
Nashville, TN 37211-5112
(615) 832-5850
soilplantpestcenter@utk.edu

Date Tested: 10/30/2007

County: Carroll

Lab Number: 323222

Mehlich 1 SOIL TEST RESULTS and RATINGS*
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
SU1A	5.6	7.6	28 M	249 H	1280 + S	64 + S						
	Organic Matter %	Soluble Sulfur PPM**										

RECOMMENDATIONS
Fertilizer/Lime Application Rate and Timing

SU1A Hybrid Bermudagrass Hay - Maintenance
N/P₂O₅/K₂O
Nitrogen/Phosphate/Potash: 120-400 / 40-80 / 40-80 pounds per acre

Limestone: 2 tons per acre

The rate of nitrogen topdressing depends on the need for forage. Apply 60 to 100 pounds of the nitrogen May 1 and again after each cutting when conditions favor regrowth. Four cuttings are often possible. If the higher rates of nitrogen are used, use the higher rates of phosphate and potash. Broadcast all lime and fertilizer on the soil surface. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

When nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If urea is the nitrogen source, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Apply recommended amounts of phosphate and potash in one application any time during the year.

County: Carroll

Lab Number: 323223

Mehlich 1 SOIL TEST RESULTS and RATINGS*
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
SU1B	5.8	7.6	18 L	111 M	1280 + S	64 + S						
	Organic Matter %	Soluble Sulfur PPM**										

BURCHUM - Page 1

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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RECOMMENDATIONS

Sample Number: Fertilizer/Lime Application Rate and Timing:

SU1B Hybrid Bermudagrass Hay - Maintenance

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 120-400 / 60-120 / 80-160 pounds per acre

Limestone: 2 tons per acre

The rate of nitrogen topdressing depends on the need for forage. Apply 60 to 100 pounds of the nitrogen May 1 and again after each cutting when conditions favor regrowth. Four cuttings are often possible. If the higher rates of nitrogen are used, use the higher rates of phosphate and potash. Broadcast all lime and fertilizer on the soil surface. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

When nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If urea is the nitrogen source, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Apply recommended amounts of phosphate and potash in one application any time during the year.

County: Carroll

Lab Number: 323224

Mehlich 1 SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
SU2	5.8	7.5	40 H	176 H	1280 + S	64 + S						

Organic Matter % Soluble Salts PPM**

RECOMMENDATIONS

Sample Number: Fertilizer/Lime Application Rate and Timing:

SU2 Hybrid Bermudagrass Hay - Maintenance

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 120-400 / 20-40 / 40-80 pounds per acre

Limestone: 2 tons per acre

The rate of nitrogen topdressing depends on the need for forage. Apply 60 to 100 pounds of the nitrogen May 1 and again after each cutting when conditions favor regrowth. Four cuttings are often possible. If the higher rates of nitrogen are used, use the higher rates of phosphate and potash. Broadcast all lime and fertilizer on the soil surface. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

When nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If urea is the nitrogen source, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Apply recommended amounts of phosphate and potash in one application any time during the year.

County: Carroll

Lab Number: 323225

SURCHUM - Page 2

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Mehlich 1 SOIL TEST RESULTS and RATINGS*
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
SU3	5.5	7.5	18 L	320 + V	1280 + S	64 + S						
			Organic Matter %	Soluble Salts PPM**								

RECOMMENDATIONS
Sample Number: Fertilizer/Lime Application Rate and Timing

SU3 Cool Season Grass Pasture b. Maintenance
 N / P₂O₅ / K₂O
 Nitrogen/Phosphate/Potash: 60-120 / 60 / 0 pounds per acre
 Limestone: 2 tons per acre
 Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Carroll Lab Number: 323226

Mehlich 1 SOIL TEST RESULTS and RATINGS*
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	B Boron	Na Sodium
SU4	5.7	7.7	20 M	67 L	1280 + S	64 + S						
			Organic Matter %	Soluble Salts PPM**								

RECOMMENDATIONS
Sample Number: Fertilizer/Lime Application Rate and Timing

SU4 Hybrid Bermuda grass Hay - Maintenance
 N / P₂O₅ / K₂O
 Nitrogen/Phosphate/Potash: 120-400 / 40-80 / 120-240 pounds per acre
 Limestone: 2 tons per acre
 The rate of nitrogen topdressing depends on the need for forage. Apply 60 to 100 pounds of the nitrogen May 1 and again after each cutting when conditions favor regrowth. Four cuttings are often possible. If the higher rates of nitrogen are used, use the higher rates of phosphate and potash. Broadcast all lime and fertilizer on the soil surface. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.
 When nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If urea is the nitrogen source, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Apply recommended amounts of phosphate and potash in one application any time during the year.
 County: Carroll Lab Number: 323227
 BURCHUM - Page 3

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

MGORE Small Grain/Soybean Rotation

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 45-90 / 90 / 60 pounds per acre

Limestones: Lime is not recommended at this time

The above recommendation will supply the phosphate and potash of both small grain and soybeans.

For small grain establishment apply 15 pounds of nitrogen per acre when following soybeans and 30 pounds per acre when following corn, grain sorghum or grasses. Nitrogen is not recommended for soybean establishment since it is a legume and when properly inoculated will supply its own nitrogen.

Treat soybean seed with two-tenths (0.2) ounce molybdenum per bushel when soil pH is 6.5 or below. Apply either one-half (0.5) ounce of sodium molybdate per bushel or for liquid hopper-box applied sources containing fungicides follow the product label.

Topdress small grain February 15 to March 15 with 60 to 90 pounds per acre of nitrogen. Use lower rates of nitrogen where lodging has been a problem.

BURCHUM - Page 5

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SOIL TEST REPORT

JERRY BURCHAM
4840 HWY 423

MCKENZIE, TN 38201

|||||

Deborah K. Joines
Deborah K. Joines
Extension Assistant
Biosystems Engineering and
Environmental Science
5201 Marchant Drive
Nashville, TN 37211-5112
(615) 832-5890
djoines2@utk.edu

Date Tested: 7/10/2006

County: Carroll

Lab Number: 294401

Mehlich 1 SOIL TEST RESULTS and RATINGS													
(Pounds Per Acre)													
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	
30A	5.8	7.8	12 L	39 L									

RECOMMENDATIONS	
Sample Number	Fertilizer/Lime Application Rate and Timing
30A	Corn Silage >25 T/A

N/P₂O₅/K₂O
Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre
Limestone: 1.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre. If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

30A Corn Silage 19-25 T/A
N/P₂O₅/K₂O
Nitrogen/Phosphate/Potash: 150 / 160 / 240 pounds per acre
Limestone: 1.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre. If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.
 If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll Lab Number: 294402

Mehlich 1 SOIL TEST RESULTS and RATINGS												
(Pounds Per Acre)												
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
30B	5.8	7.7	12 L	38 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number: 30B Crop: Corn Silage >25 T/A

N/P₂O₅/K₂O Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

30B Corn Silage 19-25 T/A

N/P₂O₅/K₂O Nitrogen/Phosphate/Potash: 150 / 160 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll Lab Number: 294403

Mehlich 1 SOIL TEST RESULTS and RATINGS												
(Pounds Per Acre)												
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
24A	5.8	7.7	24 M	48 L								

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Visit our web site at <http://bioengr.ag.uk.edu/soiltestlab> for additional information.

RECOMMENDATIONS

Sample Number: _____ Fertilizer/Lime Application Rate and Timing: _____

24A Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

24A Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll Lab Number: 294404

Millionth SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Pb Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
24B	5.7	7.7	24 M	49 L								

RECOMMENDATIONS

Sample Number: _____ Fertilizer/Lime Application Rate and Timing: _____

24B Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

24B Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294405

Menich 1 SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
24C	5.7	7.6	24 M	49 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

24C Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

24C Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294406

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM
26	5.4	7.5	16 L	57 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
26	Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

26 Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294407

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
25A	5.6	7.5	12 L	43 L								

RECOMMENDATIONS

Sample Number: Fertilizer/Lime Application Rate and Timing

Crop

25A: Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

25A: Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294408

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
25B	5.6	7.7	12 L	41 L								

RECOMMENDATIONS

Sample Number: Fertilizer/Lime Application Rate and Timing

Crop

25B: Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre

Limestone: 2 tons per acre

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

25B Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294409

Menich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
38	5.5	7.6	20 M	71 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and timing

Sample Number 38 Crop Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

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28

Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294410

Mehlich-1 SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pit	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
34A	4.8	7.6	24 M	79 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
34A	Corn Silage >25 T/A

34A Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

34A Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

BURCHAM - Page 8

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294411

Mehlich-1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
34B	4.8	7.6	24 M	73 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

34B Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

34B Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294412

Mehlich-1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
34C	4.9	7.5	24 M	75 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

34C Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2.5 tons per acre

BURCHAM - Page 9

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

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Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre. If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

34C Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number:

294413

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
36A	5.4	7.7	16 L	110 M								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

36A Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 200 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

34C Corn Silage 19-25 T/A

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294413

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
35A	5.4	7.7	16 L	110 M								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number: 35A Crop: Corn

35A Corn Silage >25 T/A

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 200 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

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36A Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 160 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

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Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294414

Merlich I SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
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36B	5.8	7.7	16 L	120 M								
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RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
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36B Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 200 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

36B Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 160 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

If you have questions about these recommendations, contact your County Extension office.

Visit our web site at <http://blenagr.ag.utk.edu/soiltestlab> for additional information.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294415

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM
36C	5.5	7.7	18 L	120 M								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
36C	Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 200 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

36C Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 180 / 180 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294416

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM
33	5.9	7.5	20 M	39 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
33	Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

33 : Corn Silage 19-25 T/A

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 284417

Mehlich 1 SOIL TEST RESULTS and RATINGS
(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
33	5.3	7.6	28 M	71 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

32 : Corn Silage >25 T/A

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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32

Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number:

294418

Mehlich-1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
35	5.5	7.7	20 M	70 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number

Crop

35

Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 100 / 300 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

35

Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 80 / 240 pounds per acre

Limestone: 2 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

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*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294419

Mehlich 1 SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
37	5.1	7.5	12 L	93 M								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Crop

37 Corn Silage >25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 180 / 200 / 200 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

37 Corn Silage 19-25 T/A

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 150 / 160 / 150 pounds per acre

Limestone: 2.5 tons per acre

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

County: Carroll

Lab Number: 294420

Mehlich 1 SOIL TEST RESULTS and RATINGS*

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
2	6.6		12 L	85 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Crop

2 Grass Hay a, Establishment

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 90 / 90 pounds per acre

Limestone: Lime is not recommended at this time

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested. If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

2. Grass Hay b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-165 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294421

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
12	6.4		8 L	65 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing:

Sample Number

Crop

12. Grass-Clover Pasture b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294422

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
17	6.2		4 L	34 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing:

Sample Number

Crop

17. Grass-Clover Pasture b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294423

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

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Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
15	6.2		4 L	66 L								

RECOMMENDATIONS

Sample Number	Crop	Fertilizer/Lime Application Rate and Timing
15	Grass-Clover Pasture b. Maintenance	

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294424

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
17	6.4		4 L	39 L								

RECOMMENDATIONS

Sample Number	Crop	Fertilizer/Lime Application Rate and Timing
17	Grass-Clover Pasture b. Maintenance	

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294425

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
5	5.8	7.6	28 M	320 H V								

RECOMMENDATIONS

Sample Number	Crop	Fertilizer/Lime Application Rate and Timing
5	Cool Season Grass Pasture a. Establishment/Renovation	

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 60 / 0 pounds per acre

Limestone: 2 tons per acre

Each pasture sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested.

If renovation involves the addition of legumes to grass pastures, the nitrogen should be omitted.

5 Cool Season Grass Pasture b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-120 / 30 / 0 pounds per acre

Limestone: 2 tons per acre

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Carroll

Lab Number: 294426

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
9	6.1		12 L	36 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
9	Grass Hay b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-165 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294427

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
1	6.6		40 H	230 H								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
1	Grass Hay a. Establishment

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 30 / 30 pounds per acre

Limestone: Lime is not recommended at this time

Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested.

If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

1 Grass Hay b. Maintenance

N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-165 / 0 / 0 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294428

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Mehlich 1 SOIL TEST RESULTS and RATINGS*													
(Pounds Per Acre)													
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	
16	6.4		8 L	77 L									

RECOMMENDATIONS	
Sample Number	Fertilizer/Lime Application Rate and Timing
16	

Crop: Grass-Clover Pasture b. Maintenance
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre
Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures. Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll Lab Number: 294429

Mehlich 1 SOIL TEST RESULTS and RATINGS*													
(Pounds Per Acre)													
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	
4	6.3		4 L	62 L									

RECOMMENDATIONS	
Sample Number	Fertilizer/Lime Application Rate and Timing
4	

Crop: Grass-Clover Pasture b. Maintenance
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre
Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures. Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll Lab Number: 294430

Mehlich 1 SOIL TEST RESULTS and RATINGS*													
(Pounds Per Acre)													
Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**	
13	6.0	7.7	8 L	45 L									

RECOMMENDATIONS	
Sample Number	Fertilizer/Lime Application Rate and Timing
13	

Crop: Grass-Clover Pasture b. Maintenance
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre
Limestone: 1.5 tons per acre

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures. Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll Lab Number: 294431

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Visit our web site at <http://bioengr.ag.utk.edu/soiltestlab> for additional information.

Mehlich-1 SOIL TEST RESULTS and RATINGS

Sample Number	Water pH	Buffer Value	(Pounds Per Acre)										Organic Matter %	Soluble Salts PPM	
			P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese					
8A	6.2		4	L	96	M									

RECOMMENDATIONS

Sample Number: _____ Fertilizer/Lime Application Rate and Timing: _____
 Crop: _____

8A: Cool Season Grass Pasture b. Maintenance

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 60-120 / 60 / 30 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

8A: Grass Hay a. Establishment

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 30 / 90 / 60 pounds per acre

Limestone: Lime is not recommended at this time

Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested.

If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

8A: Grass Hay b. Maintenance

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 60-165 / 60 / 30 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll Lab Number: 294432

Mehlich-1 SOIL TEST RESULTS and RATINGS

Sample Number	Water pH	Buffer Value	(Pounds Per Acre)										Organic Matter %	Soluble Salts PPM
			P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese				
8B	6.2		4	L	95	M								

RECOMMENDATIONS

Sample Number: _____ Fertilizer/Lime Application Rate and Timing: _____
 Crop: _____

8B: Cool Season Grass Pasture b. Maintenance

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 60-120 / 60 / 30 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

8B: Grass Hay a. Establishment

N / P₂O₅ / K₂O

Nitrogen/Phosphate/Potash: 30 / 90 / 60 pounds per acre

Limestone: Lime is not recommended at this time

BURCHAM - Page 20

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)
 **PPM = Parts per Million
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Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested. If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

08 Grass Hay b, Maintenance
N/P,O./K,O

Nitrogen/Phosphate/Potash: 60-165 / 60 / 30 pounds per acre

Limestone: Lime is not recommended at this time

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294433

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
7A	5.8	7.7	16	L	180	H						

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
7A	Cool Season Grass Pasture b, Maintenance

N/P,O./K,O

Nitrogen/Phosphate/Potash: 60-120 / 60 / 0 pounds per acre

Limestone: 2 tons per acre

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

7A Grass Hay a, Establishment

N/P,O./K,O

Nitrogen/Phosphate/Potash: 30 / 90 / 30 pounds per acre

Limestone: 2 tons per acre

Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested. If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

7A Grass Hay b, Maintenance

N/P,O./K,O

Nitrogen/Phosphate/Potash: 60-165 / 60 / 0 pounds per acre

Limestone: 2 tons per acre

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294434

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample Number	Water pH	Buffer Value	(Pounds Per Acre)										Organic Matter %	Soluble Salts PPM**	
			P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese					
7B	5.7	7.7	24 M	170 H											

RECOMMENDATIONS

Sample Number: **7B** Crop: **Cool Season Grass Pasture b. Maintenance**

Fertilizer/Lime Application Rate and Timing
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-120 / 30 / 0 pounds per acre
Limestone: 2 tons per acre

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

Sample Number: **7B** Crop: **Grass Hay a. Establishment**

Fertilizer/Lime Application Rate and Timing
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 60 / 30 pounds per acre
Limestone: 2 tons per acre

Each hay sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested.

If renovation involves the addition of legumes to grass hay, the nitrogen should be omitted.

Sample Number: **7B** Crop: **Grass Hay b. Maintenance**

Fertilizer/Lime Application Rate and Timing
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-165 / 30 / 0 pounds per acre
Limestone: 2 tons per acre

Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre March 1-30. Where a second cutting is expected, apply an additional 45 pounds of N per acre immediately after the first cutting. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

If urea is the nitrogen source, especially for fall topdressings, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: **Carroll** Lab Number: **294435**

Mehlich 1 SOIL TEST RESULTS and RATINGS*

Sample Number	Water pH	Buffer Value	(Pounds Per Acre)										Organic Matter %	Soluble Salts PPM**	
			P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese					
3	6.5		18 L	130 M											

RECOMMENDATIONS

Sample Number: **3** Crop: **Cool Season Grass Pasture a. Establishment/Renovation**

Fertilizer/Lime Application Rate and Timing
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 90 / 60 pounds per acre
Limestone: Lime is not recommended at this time

Each pasture sample has two recommendations. The first should be used for new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation part until the field is re-tested.

If renovation involves the addition of legumes to grass pastures, the nitrogen should be omitted.

Sample Number: **3** Crop: **Cool Season Grass Pasture b. Maintenance**

Fertilizer/Lime Application Rate and Timing
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 60-120 / 60 / 30 pounds per acre
Limestone: Lime is not recommended at this time

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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Apply recommended amounts of phosphate and potash in one application anytime during the year. Apply 60 pounds of nitrogen per acre August 15 to September 15 and from March 1 to March 30. If additional growth is only needed during one season, apply nitrogen for that season only. If fescue is stockpiled in the fall, apply 60 pounds of N per acre August 15 to September 15.

County: Carroll

Lab Number: 294436

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Sol. bte Salts PPM**
10	6.6		24 M	110 M								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
10	Grass-Clover Pasture a. Estab./Renovation N/P,O./K,O

Nitrogen/Phosphate/Potash: 30 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

Each pasture sample has two recommendations. The first should be used for establishment of new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation until the field is re-tested.

If renovation involves the addition of legumes to grass pastures, the nitrogen should be omitted.

Sample Number	Crop
10	Grass-Clover Pasture b. Maintenance N/P,O./K,O

Nitrogen/Phosphate/Potash: 0-90 / 30 / 30 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294437

Mehlich 1 SOIL TEST RESULTS and RATINGS

(Pounds Per Acre)

Sample Number	Water pH	Buffer Value	P Phosphorus	K Potassium	Ca Calcium	Mg Magnesium	Zn Zinc	Cu Copper	Fe Iron	Mn Manganese	Organic Matter %	Soluble Salts PPM**
24	6.3		12 L	71 L								

RECOMMENDATIONS

Fertilizer/Lime Application Rate and Timing

Sample Number	Crop
24	Corn Silage >25 T/A N/P,O./K,O

Nitrogen/Phosphate/Potash: 180 / 200 / 300 pounds per acre

Limestone: Lime is not recommended at this time

Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorous and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.

Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.

If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.

Reduce nitrogen rates following leguminous cover crops. A good crop of crimson clover or hairy vetch in early bloom stage will supply about 50-70 pounds per acre of nitrogen.

If zinc was tested and is below 2 pounds per acre, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

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14 Grass-Clover Pasture a, Estab./Renovation
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 30 / 90 / 90 pounds per acre

Limestone: Lime is not recommended at this time

Each pasture sample has two recommendations. The first should be used for establishment of new crops or to renovate an existing crop. The second should be used for maintenance of an existing crop. For future maintenance of the new or renovated crop, use the second recommendation omitting the lime recommendation until the field is re-tested.

If renovation involves the addition of legumes to grass pastures, the nitrogen should be omitted.

14 Grass-Clover Pasture b, Maintenance
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

County: Carroll

Lab Number: 294438

Mehlich 1 SOIL TEST RESULTS and RATINGS

Sample Number	Water pH	Buffer Value	P		K		Ca	Mg	Zn	Cu	Fe	Mn	Organic Matter %	Soluble Sulfur PPM**
			Phosphorus	L	Potassium	L								
6	6.6		12	L	73	L								

RECOMMENDATIONS

Sample Number	Crop	Fertilizer/Lime Application Rate and Timing
6	Grass-Clover Pasture b, Maintenance	

6 Grass-Clover Pasture b, Maintenance
N/P₂O₅/K₂O

Nitrogen/Phosphate/Potash: 0-90 / 60 / 60 pounds per acre

Limestone: Lime is not recommended at this time

The nitrogen should be omitted on pastures containing more than 30 percent clover in the spring, otherwise if clover is less than 30 percent of the pasture apply 30 pounds of nitrogen per acre between March 1-30. For fall stockpiling of fescue apply 60 pounds of N per acre August 15 to September 15 to all fescue-clover mixtures.

Apply recommended amounts of phosphate and potash in one application anytime during the year. If more than 4 tons of lime per acre are required, apply only 4 tons of lime per acre and re-test after one year.

*Ratings: Indicates relative availability of nutrients to plants. (See back of this form for detailed explanation.)

**PPM = Parts per Million

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8. NOTICES OF INTENT, WAIVERS AND AGREEMENTS

**NOTICES
OF INTENT,
WAIVERS
AND
AGREEMENTS**

Agreement for Removal of litter, manure and/or Process Wastewater from an AFO

(Based on Appendix A of: *TDEC Division of Water Pollution Control, Chapter 1200-4-5 Permit Effluent Limitations and Standards, July 2004*).

The conditions listed below help to protect water quality. These conditions apply to litter, manure and/or process wastewater removed from an AFO. The material covered by this agreement was removed on

_____ from the facility owned by _____, located at _____.

- A. The litter, manure and/or process wastewater must be managed to ensure there is no discharge of litter, manure and/or process wastewater to surface or ground water.
- B. When removed from the facility, litter, manure and/or process wastewater should be applied directly to the field or stockpiled and covered with plastic or stored in a building.
- C. Litter, manure and/or process wastewater must not be stockpiled near streams, sinkholes or wells.
- D. Fields receiving litter, manure and/or process wastewater should be soil tested at least every two or three years.
- E. A litter, manure and/or process wastewater nutrient analysis should be used to determine application rates for various crops.
- F. Calibrate spreading equipment and apply litter, manure and/or process wastewater uniformly.
- G. Apply no more nitrogen than can be used by the crop.
- H. A buffer zone is recommended between the application sites and adjacent streams, lakes, ponds, sinkholes and wells.
- I. Do not apply litter, manure and/or process wastewater when the ground is frozen, or on steep slopes subject to flooding, erosion or rapid runoff.
- J. Cover vehicles hauling litter, manure and/or process wastewater on public roads.
- K. Keep records of locations where litter, manure and/or process wastewater will be used as a fertilizer.

I, _____ am the person receiving litter, manure and/or process
(name) wastewater and I understand the conditions listed above.

(signature)

(date)

(address)

(phone)

9. NUTRIENT BUDGET CALCULATOR OUTPUT

**NUTRIENT
BUDGET
CALCULATOR
OUTPUT**

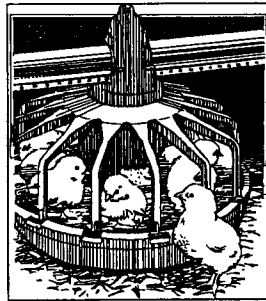
10. MANURE STORAGE AND COMPOSTER BUILDING PLANS AND SPECIFICATIONS

**MANURE STORAGE
PLANS AND COMPOSTER
BUILDING
SPECIFICATIONS**

SWINE WASTE MANAGEMENT SYSTEM CONSTRUCTION SPECIFICATIONS

Prepared for

JERRY BURCHAM SWINE OPERATION



In

Carroll County, Tennessee

In cooperation with

Carroll County Soil & Water Conservation District

And

United States Department of Agriculture

Natural Resources Conservation Service

11.1. SCOPE

This specification shall consist of the clearing, grubbing, excavation, backfill, concrete, forms, reinforcing steel, timber, trusses, sheet metal roofing, fasteners, other appurtenances and services required for the construction of waste storage or waste conveyance structures (i.e., dry stacks, composters, tanks, flumes, etc.) and the disposal of all cleared and excavated materials. All materials must be sound and of good quality with a minimum life expectancy of not less than 10 years. Construction shall be carried out in such a manner that erosion, water, air, and noise pollution will be minimized and held within legal limits as established by state and federal regulations. All structures shall be constructed according to plans furnished by the Natural Resources Conservation Service (NRCS) and in accordance with NRCS's engineering standards for these practices, as well as local building codes and current industry standards. Any deviation from the approved drawings and specifications must be approved by the engineer prior to construction.

11.2. CLEARING

All trees, brush, stumps, boulders, rubbish and manure shall be removed from the foundation, storage, and spoil area(s) before excavation is performed. All material cleared from the area shall be disposed of by burning or burying on-site or hauling to an appropriate landfill. All burning shall conform to state and federal laws and regulations. Trees and other cleared vegetation will be cut flush with the ground surface in spoil areas. The foundation and/or storage area will have all stumps, roots and vegetation removed. The general area around buildings will also require grubbing as necessary to complement the use intended for the structure. The limits of the grubbing will be staked by the engineer or his/her agent.

11.3. EXCAVATION

Top soil excavated from the site will be stockpiled for later placement around the completed structure. Soils containing excessive organic material will be removed from the foundation area. The completed excavation and placement of spoil material shall conform as nearly to lines, dimensions, grades, and slopes shown on plans or staked on the ground as skillful operation of the excavating equipment will permit. Generally, spoil will be placed and spread to blend with the existing terrain of the spoil area. Runoff from outside drainage areas will be diverted away from the excavation area.

Excavated surfaces too steep to be safe and stable if unsupported shall be supported as necessary to safeguard the work and workmen, to prevent sliding or settling of the adjacent ground, and to avoid damaging existing improvements. The width of the excavation shall be increased as necessary to provide space for sheeting, bracing, shoring, and other supporting installations. When the work is completed, such supporting installations shall be removed.

11.4. EARTHFILL

11.4.1. Placement

Earth material placed for pads, flooring, liners or foundations shall be good sandy clay or clayey sands and gravels free of detrimental amounts of sod, roots, large stones, and other objectionable material. Highly plastic clay soils should be avoided.

Begin placing and spreading the fill material at the lowest point of the foundation and bring the fill up in approximately horizontal layers not exceeding 9 inches loose thickness. These layers shall be reasonably uniform in thickness and shall extend over the entire area of the fill. Each layer shall be

compacted by 4 complete passes with a 250 psi sheep foot roller or other equivalent methods approved by the engineer or his/her agent.

If a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that required density. All finished work shall be left in a neat and sightly condition. The outer edges and slopes of the fill shall blend with the surrounding landscape and complement the structure built upon it.

11.4.2. Moisture Control

All fill material shall have sufficient moisture content for the required compaction. Fill material which is too dry shall be moistened by adding water or by thoroughly mixing with moist fill until an acceptable moisture level is obtained. Fill material which is too wet shall be allowed to dry out naturally or shall be dried by diskling or shall be thoroughly mixed with dry fill material until an acceptable moisture level is obtained.

The moisture content of the fill shall be maintained within the limits to:

1. Prevent bulking or dilatace of the material under the action of the hauling or compacting equipment.
2. Prevent adherence of the fill material to the equipment.
3. Ensure the crushing and blending of the soil clods and aggregation into a homogeneous mass.
4. Contain adequate moisture so that a sample can be hand molded without the mold oozing through the fingers or squeezing out any water.

11.5. WATER SUPPLY

A water source shall be available at the facility.

11.6. TIMBER FABRICATION AND INSTALLATION

Above ground timber structures, such as manure dry stack facilities, shall be constructed on a firm foundation to the lines and grades shown on the plans. Dimensions and spacings shown on the plans and drawings are minimum requirements for the 25-year wind and snow loads. These dimensions and spacings may be altered if the result is a stronger structure, with prior approval of the engineer. In no case will the dimensions and spacings be modified in a way which would reduce the strength of the structure. All framing shall be true and exact. Timber shall be accurately cut and assembled to a close fit. Appropriate bracing for safety and structural stability during construction shall be used.

11.6.1. Wood and Timber

All material shall be sound wood, free from decay, and of new quality. Good quality, used, pressure-treated lumber may be utilized for walls of composter bins and dry stack storage areas. All structural timber shall be dense, structural quality, and graded in accordance with the Standard Grading Rules for Southern Pine Lumber. Unless otherwise specified, all timber and lumber shall be furnished in American Standard dressed sizes. All sizes specified are nominal sizes. All structural timber, posts, poles, and lumber, except roof girders, rafters, purlins, trusses, knee braces, and attic bracing shall be pressure treated. Treated timber and lumber shall be impregnated with the specified type and quantity of preservative and conform to Federal Specification TT-W-571. The minimum net retention of the common preservative, chromated copper arsenate shall be 0.4 lbs/cf (pcf) for dimension lumber used above ground. For structural posts or timbers in contact with the ground, 0.6 pcf is recommended. Lumber used for walls of composting bins and dry stack storage areas may be treated to a 0.4 pcf level.

Post and poles shall be set plumb and to the depths shown on the drawings. Backfill around posts/poles shall be concrete as shown on the drawings or shall be hand tamped earth if allowed on the drawings. Post/poles shall be temporarily braced until girders, plates, or other members are installed to maintain plumb alignment. All wood and timber shall be No. 2 Southern Pine or better (non-dense No. 2 is not acceptable). All wood and timber shall be pressure treated except purlins, trusses, rafters, girders, and overhead braces.

11.6.2. Handling and Storing

All timber and lumber stored at the site of the work shall be neatly stacked on supports at least 12 inches above the ground and protected from the weather by suitable covering. Untreated material shall be so stacked and stripped as to permit free circulation of air between the tiers and courses. Treated timber may be close-stacked. The ground underneath and in the vicinity of all stacks shall be cleared of weeds and rubbish. The use of cant hooks, peavies, or other pointed tools except end hooks, will not be permitted in the handling of structural timber or lumber. Treated timber shall be handled with rope slings or other methods which will prevent the breaking or brushing of outer fibers, or penetration of the surface in any manner.

11.6.3. Fasteners

Connections between wood members requiring bolts may be initially done with appropriately sized nails until such time as it is expedient to add the bolts, unless specified otherwise in the drawings. Bolts shall be added as soon as practicable, before the building is declared structurally sound, and before being accepted as complete. Nails and spikes shall be driven with just sufficient force to set the heads flush with the surface of the wood. Holes for machine bolts shall be bored with a bit of the same diameter as the bolt. Appropriately sized washers shall be used in contact with all bolt heads and nuts that would otherwise be in contact with the wood.

Spiral or annular ring shank nails shall be used in all connections of pressure treated wood. Nails to fasten rafters, girders, cleats, scabs, wooden sidewalls, and/or braces to the pressure treated poles shall be 20d to 40d size or as specified on the drawings. Untreated framing members shall be fastened to each other with 16d to 20d nails. Examples include roof purlins to rafters, and tie-down cleats or braces to rafters or girders. Various galvanized metal fasteners, with appropriate joist or deck nails, may be used to facilitate assembly, as approved by the engineer. All bolts, washers, nuts, nails, and other hardware exposed to rain or animal wastes shall be galvanized unless otherwise specified.

11.7. ROOFING

Roofing shall be galvanized metal in standard lengths and widths. Roofing material shall be a minimum of 29 gauge and double ribbed. Roofing shall be installed in accordance with manufacturer's recommendations. If any other type of roofing material is desired, it must first be approved by the engineer. Nails used to attach the roofing material to the purlins shall be lead-headed nails, aluminum nails with neoprene washers, or other type as approved by the NRCS approving authority. The contractor shall provide the Landowner and NRCS with a certification stating that the material meets the above requirements.

11.7.1. Trusses

Trusses shall be CANTILEVER type. Trusses may be metal or wood and shall be designed to handle a minimum of 25 pounds per square foot and shall be installed on the spacing compatible with the design. Trusses shall have a minimum of 12 inches of overhang. Trusses may be pre-fabricated, manufactured trusses.

Manufactured trusses will be installed in accordance with the manufacturer's instructions. All trusses will be of a design approved by a registered professional engineer. A copy of the truss certification shall be provided to the NRCS approving authority prior to truss installation. Truss anchorage and associated supports shall be as shown on the drawings or other acceptable methods as approved by the engineer.

11.8. GUTTERS

Composter and Manure Storage Facility - Guttering is required over the composter portion of the structure and optional over the remainder of the building. Guttering shall be 6 inch seamless aluminum. For the composter portion of the building, if longer than 40 feet use two downspouts with gutter sloped from the center of the structure to each end with a downspout at each end. For a building less than 40 feet, one downspout is required. For the optional portion of the building, if longer than 56 feet use two downspouts with the gutter sloped from the center of the structure to each end with a downspout at each end. For a building less than 56 feet, one downspout is required. If guttering is not used, the drip line will need to be protected using a one foot wide by eight inch deep gravel pad lined with geotextile.

Manure Storage Facility - Guttering is optional. If used, guttering shall be 6 inch seamless aluminum. For a building longer than 56 feet use two downspouts with gutter sloped from the center of the structure to each end with a downspout at each end. For a building less than 56 feet, one downspout is required. Guttering is optional. If guttering is not used, the drip line will need to be protected using a one foot wide by eight inch deep gravel pad lined with geotextile.

11.8.1. Materials

Gutters and downspouts shall be made of aluminum or galvanized steel. Galvanized steel shall have a minimum thickness of 0.027 inches and the downspout shall have a minimum thickness of 0.020 inches. Gutters shall be a minimum of 6 inches and of standard shape. Galvanized steel gutters shall not be used with aluminum downspouts and aluminum gutters shall not be used with galvanized steel downspouts. Spikes and ferrules shall be made of corrosion resistant materials. Spikes shall be a minimum of 8-inches long and a 1/4 inch in diameter. Ferrules shall be compatible in length with the top width of the gutter. Rock filled trenches shall be backfilled with natural rock. The rock shall be poorly graded (all rock fragments of approximately the same size) and free of appreciable amounts of sand and/or soil particles. Crushed limestone shall not be used for backfill unless it has been washed. Any plastic corrugated drain tubing shall meet the requirements of practice standard and specification 606 - Subsurface Drains.

11.8.2. Fabrication

Continuous gutters may be formed at the installation site with cold forming equipment. As many joints shall be eliminated as possible and practical. Lap joints are more commonly used and should be used in lieu of butt joints on long runs. The joint method shall be most compatible and applicable to the material used and the specific application. Joints shall be made watertight by sealing with mastic compatible with the gutter material or by soldering. All soldered joints shall be watertight, smooth and exhibit a workmanlike appearance.

11.8.3. Installation

Gutters shall be installed at the locations shown on the plans or approved in the field. The fabrication shall be inspected and approved before the gutters are hung. Gutters shall be hung by the method shown on the plans or approved by the NRCS Representative. Gutters may be supported by spike and ferrule, strap hangers or shank hangers. Spike and ferrule is not recommended if girth of gutter exceeds 15 inches. Girth is the width of sheet metal from which gutter is fabricated. Gutters

shall be fastened to a structural member of the building. Spikes shall be driven in to the end of rafters or truss top chord member. Straps and bracket hangers may be nailed into the sheathing but should also be nailed into the rafters. The maximum spacing of gutter supports shall be 48 inches for galvanized gutters, 32 inches for aluminum. Maximum support spacing shall be one-half of that previously stipulated when ice and snow is a problem. The bottom slope shall be 1/16 inch per foot or steeper.

Downspouts shall be securely fastened to posts, walls, or other building support members. Downspouts shall be securely fastened at the top and bottom. Intermediate supports shall be installed that are a maximum of 10 feet apart. Intermediate supports shall be installed at any joints in the downspout. Downspout supports shall be compatible with the downspout shape and sufficiently stable to support the downspout full of ice or water. Downspouts shall be of the same material as the gutters. Outlet tubes shall be securely fabricated into the gutter. The outlet tube shall not serve as a restriction and its cross-sectional area shall be approximately equal to that of the downspout. Outlet tube installation shall be watertight and equally as strong as the gutter and downspout.

11.8.4. Outlets

Roof runoff systems shall outlet at a location that will not flood other facilities, produce erosion or scour or permit the runoff to enter unprotected areas. The outlet shall be protected from livestock, machinery or other damage. Outlets that will cause erosion shall have splash blocks or other impact absorbing measures installed. Pipe used to carry guttered water away from the building may be PVC DWV pipe to meet ASTM D2665 or better. All pipe must be protected in such a manner as to protect it from damage from animals and equipment.

11.9. CONCRETE

11.9.1. Design Mix

The concrete mixture shall contain a minimum of six bags of cement per cubic yard. The water content shall not exceed 6 gallons per bag of cement in the mixture. The concrete mixture shall have a minimum 28 day compressive strength of 3000 psi. Portland cement shall meet the requirements of ASTM Specification C150. Aggregates shall meet the requirements of ASTM Specification C33. Clean water shall be used in the mix. Calcium Chloride and other chemical admixtures for concrete will not be accepted unless expressly specified in the drawings or specifications, or approved by the approving official. Fly ash (pozzolans) may be used and shall conform to ASTM C618. Fly ash shall be limited to 20% by weight.

Minimum cement (cement plus fly ash) to be used shall be 470 pounds (5 bags) per cubic yard. Aggregates shall meet the requirements of ASTM C33. The maximum coarse aggregate size shall be one inch. (#57 stone). The concrete shall contain an air entraining admixture meeting the requirements of ASTM C260.

The air content of the concrete at placement shall be 6 % \pm 1%. The concrete supplier shall provide a certification of the mix delivered. The certification shall state the types and amounts of cement, water, admixtures, aggregates, etc. added. Concrete shall be consolidated with internal type mechanical vibrators capable of transmitting vibration to the concrete at frequencies not less than 6,000 impulses per minute. The location, manner, and duration of the application of the vibrators shall be such as to secure maximum consolidation of the concrete without causing segregation of the mortar and coarse aggregate, and without causing water or cement paste to flush to the surface.

Vibration shall be applied to the freshly deposited concrete by slowly inserting and removing the vibrator at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective. The vibrator shall extend into the previously placed layer of fresh concrete, at all points, to insure effective bond between layers. The use of vibrators to transport concrete within the

forms will not be permitted. In extreme conditions it may be necessary to: (1) Restrict placement to late afternoon or evening; (2) Restrict the depth of layers to assure coverage of the previous layer while it will respond readily to vibration; (3) Suspend placement until conditions improve; and (4) Remove forms, repair, patch, and re-apply wet curing on small areas at a time.

11.9.2. Consistency

The amount of water used in the concrete shall be the minimum necessary to obtain the required workability. The consistency of the concrete shall be such that it can be worked readily into the corners and angles of the forms and around reinforcement but without permitting the materials to segregate or excess free water to collect on the surface. The slump shall be between 2-5 inches as tested by "The Test for Slump for Portland Cement Concrete", ASTM Specification C-143. The air content of the concrete at time of placement shall be $6\% \pm 2\%$. Air entraining admixtures shall conform to ASTM Specification C-260.

11.9.3. Fiber Reinforced Concrete

Fiber shall consist of virgin homopolymer polypropylene fibers, either the collated fibrillated type or the monofilament type. The minimum rate of application is 1.5 lbs. of fiber per cubic yard of concrete.

The addition of fiber to a concrete mix may cause an apparent reduction in slump. However, no additional water shall be added to the mix to improve workability. If needed, a high-range water reducing admixture (super plasticizer) should be added to the concrete mix. During placement the fiber mix will generally require more effort and vibration to move the mix and consolidate it into the forms due to the lower slump nature. Properly controlled internal vibration is acceptable, but external vibration of the forms and exposed surfaces are preferable to prevent fiber segregation.

If welded wire fabric is omitted from concrete slabs and only fiber additives are used, contraction joint spacing will be reduced from a maximum of 30 feet to a maximum of 10 feet in any direction. Sawed joints shall be 1/4 of the slab's thickness in depth. Formed joints shall be the keyway type. Smooth vertical joints through the slab are not permitted. Fiber additives in concrete do not take the place of structural steel reinforcement. Where steel reinforcement is shown on drawings it shall be placed as shown.

11.9.4. Forms

Forms shall be of wood, steel, or other approved material. Forms shall be true to line and grade, mortar tight, and sufficiently rigid to prevent objectionable deformation under load. Form surfaces shall be smooth, free from irregularities, dents, sags, or holes when used for permanently exposed surfaces. Rods used for internal ties shall be so arranged that, when the forms are removed, metal will not be less than 1 inch from any concrete surface. Forms for walls and vertical sections 2 feet high and taller shall be stabilized with adequate tie rods, walers, cat-heads and sufficient bracing to prevent shifting or movement of forms during placing of concrete. Forms for exposed surfaces shall be coated with a non-staining form release agent which shall be applied before the concrete is placed. All excess release agent on the form surfaces and any on surfaces requiring bonding with concrete shall be removed.

All form removal shall be accomplished in such a manner as to prevent injury to the concrete. Forms for floor slabs and such work may be removed after a minimum of 24 hours. Forms for walls shall be left in place for a minimum of 3 days. All forms must be removed before final inspection of the work. All repair work must be done immediately after removal of forms.

11.9.5. Timing and Temperature

Concrete shall be placed within 1-1/2 hours after introduction of water to the cement and aggregates. Concrete shall not be placed when the outside temperature is expected to fall below 40°F at the time the concrete is delivered and placed at the work site. Concrete shall not be exposed to freezing temperatures during the curing period.

Concrete, when deposited in the forms during hot weather, will have a temperature not greater than 90°F at the time of placement. Ice may be used as a portion of the mixing water to control temperature provided all ice is melted in the mixing process. When the outside temperature reaches or exceeds 90°F, the concrete shall be placed within 45 minutes after batching. A longer time may be allowed, provided the setting time of the concrete is extended a corresponding amount by the addition of an approved set retarding admixture.

11.9.6. Conveying and Placing

No concrete shall be placed until the approving official has given approval of the in-place sub grade, forms, reinforcing steel, and any other items involved or affected by the concrete placement.

Concrete shall be conveyed from mixer to forms as rapidly as practicable by methods which will prevent segregation or loss of ingredients. Hoppers and chutes, pipes, or "elephant trunks" may be used. There shall be no vertical drop greater than 5 feet.

Unless otherwise authorized, all concrete shall be placed upon clean, damp surfaces free from frost, ice, standing and running water, and never upon soft mud, dried porous earth, or fill that does not meet specified compaction requirements. Soft mud or other unacceptable foundation material shall be removed and replaced with gravel or other approved material.

Concrete shall be deposited as close as possible to its final position in the forms. Concrete shall be thoroughly consolidated by rodding or mechanically vibrating the concrete in place supplemented by hand-spading and tamping to remove air voids. Vibrating equipment shall be used when pouring walls and other thin sections.

Concrete floor slabs may be placed at one time or may be poured in sections at different times. When steel reinforcement is specified for the floor slab, formed contraction joints shall be placed at intervals not to exceed 30 feet in any direction unless otherwise specified. When steel is not used, joints shall be as specified under Fiber Reinforced Concrete. The formed edges of each section shall be keyed to lock the edges of adjacent sections together. The edge forms may be removable metal or wood forms having the required keyed shape or may be thin galvanized metal designed to be left in place. Smooth vertical edged joints will not be allowed.

11.9.7. Finishing

Defective concrete, honeycombed areas, voids left by the removal of tie rods, and unacceptable ridges left on concrete surfaces shall be repaired immediately after the removal of forms unless otherwise authorized and directed. Voids left by the removal of tie rods shall be reamed and completely filled with mortar.

Defective concrete shall be repaired by cutting out the unsatisfactory material and placing new concrete which shall be secured with keys, dovetails or anchors. Excessive rubbing of formed areas will not be permitted. All unformed surfaces of concrete, exposed in the completed work, shall have a wood float finish without additional mortar.

11.9.8. Curing

Concrete shall be prevented from drying for a curing period of at least 7 days after placement. All exposed surfaces of concrete shall be protected from the direct rays of the sun for at least these first 7 days. All concrete shall be cured by keeping continuously moist for the entire curing period, or until curing compound is applied. Moisture shall be maintained by sprinkling, flooding, fog spraying, or by covering with materials kept continuously moist such as canvas, cloth mats, straw, sand, polyethylene, or other approved material.

Wood forms (except plywood) left in place during the curing period shall be kept wet. Formed surfaces shall be thoroughly wetted immediately after forms are removed and shall be kept wet until patching and repairs are completed. Water or covering shall be applied in such a way that the concrete surface is not eroded or otherwise damaged.

If curing compound is used, two coats shall be applied to all concrete surfaces except construction joints and surfaces to which other concrete will be bonded. The compound shall be sprayed on the moist concrete surfaces as soon as free water has disappeared, but shall not be applied to any surface until patching, repairs and finishing of that surface are completed. Curing compound shall meet the requirements of ASTM Specification C-309, Type 2, white pigmented.

11.9.9. Expansion joints

Expansion joint material shall not extend above adjacent concrete surfaces. Expansion joint material shall be the preformed, bituminous type meeting the requirements of ASTM D994 or D1751.

11.10. STEEL REINFORCEMENT

Reinforcement steel and welded wire fabric shall be new, clean, and free of oil, grease, paints, and flaky rust. Steel bars for concrete reinforcement shall be deformed billet-steel bars, conforming to ASTM Specification A-615, Grade 40 or 60. Welded wire fabric shall conform to the requirements of ASTM Specification A-185.

Reinforcement steel shall be accurately placed as specified and secured in position in a manner which will prevent its displacement during placement of the concrete. If reinforcing steel is spliced, the splices shall provide an overlap equal to 30 times the diameter of the smaller bar in the splice and shall be tied at both ends of the splice. Steel reinforcement in concrete block walls shall be tied in place prior to laying the blocks. Dropping or placing required steel reinforcement into the holes of concrete blocks without properly overlapping and tying the steel together with the foundation steel is not acceptable. Field bending of steel will be permitted. When steel is heated for bending, it must be allowed to air cool back to ambient temperature. Steel shall not be fast-cooled with water or air.

Reinforcement steel and welded wire fabric shall be suspended off the ground and other concrete contact surfaces by using support blocks of concrete bricks, concrete blocks or pieces of blocks, wire stands, or other approved method prior to the placing of concrete. Support blocks of stone, wood materials, earth, earth clods, clay bricks, scrap metal and other unapproved materials are not acceptable. During concrete placement welded wire reinforcement shall be pulled into the middle of the concrete or the position shown in the drawings. Unless otherwise specified, welded wire fabric shall be spliced in the following manner:

Adjacent sections shall be spliced by overlapping a minimum of one full mesh plus 2 inches, or 6 inches, whichever is greater. The splice length shall be measured from the center of the first transverse wire in one piece of fabric to the center of the first transverse wire in the lapped piece of fabric.

11.11. GRAVEL

Gravel under the concrete structures shall meet the requirements of coarse aggregate conforming to AASHTO M43, size 57. The gravel under the concrete shall be compacted by at least one pass of the track or wheels of the placing equipment over the entire surface of the gravel area.

11.12. GEOTEXTILE

Geotextile shall be non-woven with a minimum tensile strength of 150 pounds MARV (minimum average roll value) and weighing a minimum of 6 ounces per square yard. It shall be installed according to the manufacturer's recommendations. The minimum lap distance shall be 24 inches. Equipment shall not be allowed to operate directly on top of the geotextile fabric without a cushion of gravel. Geotextile may be used underneath the gravel entrance pad, but is not required.

11.13. SAFETY AND HEALTH

During construction, hard-hats, rollover protection systems (ROPS), and seat belts which meet OSHA requirements should be used on and around all equipment. All local, State, and Federal laws and regulations shall be followed. Special emphasis shall be given to the requirements contained in OSHA's Construction Regulations.

11.14. SYSTEMS REVISIONS OR MODIFICATIONS

Any revisions or modifications to the drawings and/or specifications shall be approved by the NRCS Engineer, in writing, prior to implementation.

11.15. LANDSCAPE AND VEGETATION

The area adjacent and in the immediate vicinity of the structure shall be shaped to blend with the natural surroundings and to complement the structure and work area around it. Shaping shall be in such a way as to drain or divert all overland and roof runoff safely away from the structure and surrounding work area. All disturbed areas around the structure, including spoil areas, shall be vegetated and/or surfaced with gravel, chert, or some other acceptable covering as permitted by the NRCS approving authority. Spoil areas not used for farm traffic shall be vegetated. Permanent vegetation shall be established to the plant species and by methods prescribed by the approving official. All vegetating of disturbed areas shall be done as critical area planting and shall include liming, fertilizing, seedbed preparation, seeding and mulching. Temporary vegetation may be used when conditions or seeding dates are not suitable for the establishment of permanent vegetation. Disturbed areas shall be mulched regardless of seeding dates. If farm animals will have access to the vegetated area, it shall be appropriately fenced until vegetation is well established.

11.16. ADDENDUM

Wood and Timber (Section 12.6.1): The minimum net retention of the common preservative, ACQ, alkaline copper quat, shall be 0.4 lbs/cf (pcf) for dimension lumber used above ground and 0.6 pcf for structural posts or timbers in contact with the ground. Lumber used for walls of composting bins and dry stack storage areas may be treated to a 0.25 pcf level.

Fasteners (Section 12.6.3): Due to the corrosiveness of the ACQ the fasteners or connections shall be Type 304 or 316 stainless steel or hot-dip galvanized fasteners meeting ASTM A153 with 2 ounces of zinc coating per square foot minimum and connectors to meet ASTM A653, Class G185 sheet with 1.85 ounces of zinc coating per square foot minimum.



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2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

LAND APPLICATION ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris , TN 38242-1056	Grower : Billy Sutton <i>Billy Sutton</i> PO :	Report No: 09-219-0254 Cust No: 01179 Date Printed: 08/13/2009 Page : 1 of 1 Date Recd : 8/7/2009
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Lab Number : 75469

Sample Id : Manure

Test	Analysis		Pounds Per 1000 Gallons	
	As Received	Dry Basis	As Received	Dry Basis
Nitrogen, N %	0.380		32.3	
Phosphorus, P %	0.05		9.77 P ₂ O ₅	
Potassium, K %	0.13		13.3 K ₂ O	
Sulfur, S				
Magnesium, Mg				
Calcium, Ca				
Sodium, Na				
Iron, Fe				
Aluminum, Al				
Manganese, Mn				
Copper, Cu				
Zinc, Zn				
Boron, B				

Test	Result
Moisture %	97.9
Solid %	2.1

Additional Information	Result
Type	As Received

Comments :

RMMA Recommended Methods of Manure Analysis, Peters et al, 2002, In Press
 SW USEPA, SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, 3rd Ed.
 Current Revision

M. Scott McKee, Technical Director



A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 1 of 12
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Lab Number : 04385

Field Id :

Sample Id : 24-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.7						9.2 meq/100g
Buffer pH	7.67						
Phosphorus (P)	90 LB/ACRE	[Bar chart showing Phosphorus level]					Calculated Cation Saturation %K 3.7 %Ca 57.6 %Mg 9.4 %H 28.7 %Na 0.9
Potassium (K)	268 LB/ACRE	[Bar chart showing Potassium level]					
Calcium (Ca)	2120 LB/ACRE	[Bar chart showing Calcium level]					
Magnesium (Mg)	208 LB/ACRE	[Bar chart showing Magnesium level]					
Sulfur (S)	18 LB/ACRE	[Bar chart showing Sulfur level]					
Boron (B)	0.6 LB/ACRE	[Bar chart showing Boron level]					
Copper (Cu)	1.8 LB/ACRE	[Bar chart showing Copper level]					
Iron (Fe)	290 LB/ACRE	[Bar chart showing Iron level]					
Manganese (Mn)	262 LB/ACRE	[Bar chart showing Manganese level]					
Zinc (Zn)	2.8 LB/ACRE	[Bar chart showing Zinc level]					
Sodium (Na)	38 LB/ACRE	[Bar chart showing Sodium level]					K : Mg Ratio 0.40
Soluble Salts							
Organic Matter	1.2 % ENR 68						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	183	53	72	0	11	1.4	0	0	3.1	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	0	30	66	0	16	1.0	0	0	2.0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 2 of 12
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Lab Number : 04386

Field Id :

Sample Id : 24-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.7						8.5 meq/100g
Buffer pH	7.66						
Phosphorus (P)	126 LB/ACRE						Calculated Cation Saturation %K 3.7 %Ca 55.2 %Mg 8.5 %H 32.0 %Na 0.9 K : Mg Ratio 0.43
Potassium (K)	242 LB/ACRE						
Calcium (Ca)	1876 LB/ACRE						
Magnesium (Mg)	174 LB/ACRE						
Sulfur (S)	22 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	2.0 LB/ACRE						
Iron (Fe)	298 LB/ACRE						
Manganese (Mn)	364 LB/ACRE						
Zinc (Zn)	2.8 LB/ACRE						
Sodium (Na)	36 LB/ACRE						
Soluble Salts							
Organic Matter	1.5 % ENR 74						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	183	30	81	0	10	1.0	0	0	3.1	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	0	30	75	0	14	0.5	0	0	2.0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

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Permit Section



A&L Analytical Laboratories, Inc.

2790 Whitten Rd. Memphis, TN 38133 (901) 213-2400 Fax (901) 213-2440

Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 3 of 12
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Lab Number : 04387

Field Id :

Sample Id : 25-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.5						12.0 meq/100g
Buffer pH	7.53						
Phosphorus (P)	80 LB/ACRE						Calculated Cation Saturation %K 3.0 %Ca 55.7 %Mg 8.8 %H 31.3 %Na 0.8 K: Mg Ratio 0.34
Potassium (K)	278 LB/ACRE						
Calcium (Ca)	2674 LB/ACRE						
Magnesium (Mg)	252 LB/ACRE						
Sulfur (S)	22 LB/ACRE						
Boron (B)	0.6 LB/ACRE						
Copper (Cu)	2.4 LB/ACRE						
Iron (Fe)	326 LB/ACRE						
Manganese (Mn)	248 LB/ACRE						
Zinc (Zn)	3.2 LB/ACRE						
Sodium (Na)	46 LB/ACRE						
Soluble Salts							
Organic Matter	1.8 % ENR 80						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
3500	1.75	183	59	85	0	10	1.4	0	0	2.9	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
3500	1.75	0	30	85	0	14	1.0	0	0	0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

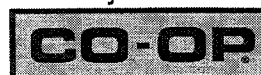
- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 6 of 12
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Lab Number : 04390

Field Id :

Sample Id : 33-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Vary Low	Low	Medium	Optimum	Very High	
Soil pH	6.8						9.2 meq/100g
Buffer pH	7.72						
Phosphorus (P)	72 LB/ACRE						Calculated Cation Saturation %K 2.3 %Ca 64.5 %Mg 7.2 %H 24.3 %Na 1.3 K : Mg Ratio 0.32
Potassium (K)	168 LB/ACRE						
Calcium (Ca)	2372 LB/ACRE						
Magnesium (Mg)	160 LB/ACRE						
Sulfur (S)	16 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	2.6 LB/ACRE						
Iron (Fe)	316 LB/ACRE						
Manganese (Mn)	782 LB/ACRE						
Zinc (Zn)	2.2 LB/ACRE						
Sodium (Na)	56 LB/ACRE						
Soluble Salts							
Organic Matter	1.5 % ENR 74						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	183	63	109	0	12	1.0	0	0	3.4	
Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE											
0	0	0	30	92	0	17	0.5	0	0	2.0	

Comments :

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 7 of 12
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Lab Number : 04391

Field Id :

Sample Id : 34-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.1						6.6 meq/100g
Buffer pH	7.55						
Phosphorus (P)	156 LB/ACRE						Calculated Cation Saturation %K 4.7 %Ca 33.0 %Mg 7.1 %H 54.5 %Na 1.4 K : Mg Ratio 0.66
Potassium (K)	240 LB/ACRE						
Calcium (Ca)	870 LB/ACRE						
Magnesium (Mg)	112 LB/ACRE						
Sulfur (S)	24 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	1.8 LB/ACRE						
Iron (Fe)	314 LB/ACRE						
Manganese (Mn)	392 LB/ACRE						
Zinc (Zn)	2.2 LB/ACRE						
Sodium (Na)	42 LB/ACRE						
Soluble Salts							
Organic Matter	1.2 % ENR 68						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
4000	2	183	30	82	13	10	0.8	0	0	3.4	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
4000	2	0	30	75	13	14	0	0	0	2.0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 8 of 12
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Lab Number : 04392

Field Id :

Sample Id : 34-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.2						6.4
Buffer pH	7.51						
Phosphorus (P)	86 LB/ACRE						meq/100g
Potassium (K)	176 LB/ACRE						
Calcium (Ca)	718 LB/ACRE						Calculated Cation Saturation %K 3.5 %Ca 28.0 %Mg 6.1 %H 61.3 %Na 1.2
Magnesium (Mg)	94 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	0.6 LB/ACRE						
Copper (Cu)	1.6 LB/ACRE						
Iron (Fe)	270 LB/ACRE						K : Mg Ratio 0.58
Manganese (Mn)	386 LB/ACRE						
Zinc (Zn)	2.4 LB/ACRE						
Sodium (Na)	34 LB/ACRE						
Soluble Salts							
Organic Matter	1.1 % ENR 66						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
4000	2	183	56	106	16	11	1.4	1.0	0	3.3	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
4000	2	0	30	90	16	15	1.0	1.0	0	2.0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.

- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.

- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 9 of 12
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Lab Number : 04393

Field Id :

Sample Id : 36-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.0						7.0 meq/100g
Buffer pH	7.67						
Phosphorus (P)	64 LB/ACRE						Calculated Cation Saturation %K 2.5 %Ca 49.1 %Mg 9.4 %H 37.7 %Na 1.1 K : Mg Ratio 0.26
Potassium (K)	136 LB/ACRE						
Calcium (Ca)	1374 LB/ACRE						
Magnesium (Mg)	158 LB/ACRE						
Sulfur (S)	14 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	1.4 LB/ACRE						
Iron (Fe)	280 LB/ACRE						
Manganese (Mn)	182 LB/ACRE						
Zinc (Zn)	1.0 LB/ACRE						
Sodium (Na)	34 LB/ACRE						
Soluble Salts							
Organic Matter	1.6 % ENR 76						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000	1	0	30	102	0	18	0.5	1.0	0	3.0	

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000	1	183	67	121	0	13	1.0	1.0	0	4.0	

Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 10 of 12
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Lab Number : 04394

Field Id :

Sample Id : 36-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.5						8.2 meq/100g
Buffer pH	7.68						
Phosphorus (P)	130 LB/ACRE						Calculated Cation Saturation %K 5.0 %Ca 54.4 %Mg 8.1 %H 31.2 %Na 1.1 K : Mg Ratio 0.62
Potassium (K)	322 LB/ACRE						
Calcium (Ca)	1784 LB/ACRE						
Magnesium (Mg)	160 LB/ACRE						
Sulfur (S)	14 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	2.2 LB/ACRE						
Iron (Fe)	284 LB/ACRE						
Manganese (Mn)	446 LB/ACRE						
Zinc (Zn)	1.0 LB/ACRE						
Sodium (Na)	42 LB/ACRE						
Soluble Salts							
Organic Matter	1.8 % ENR 80						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	0	30	40	0	18	0.5	0	0	3.0	

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	183	30	52	0	13	1.0	0	0	4.0	

Comments :

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 11 of 12
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Lab Number : 04395

Field Id :

Sample Id : 37-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.0						9.5 meq/100g
Buffer pH	7.46						
Phosphorus (P)	108 LB/ACRE						Calculated Cation Saturation %K 4.2 %Ca 38.2 %Mg 10.7 %H 45.5 %Na 1.0 K : Mg Ratio 0.39
Potassium (K)	308 LB/ACRE						
Calcium (Ca)	1452 LB/ACRE						
Magnesium (Mg)	244 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	1.8 LB/ACRE						
Iron (Fe)	296 LB/ACRE						
Manganese (Mn)	292 LB/ACRE						
Zinc (Zn)	3.2 LB/ACRE						
Sodium (Na)	42 LB/ACRE						
Soluble Salts							
Organic Matter	1.7 % ENR 78						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL			Yield Goal : 50 BU			Rec Units: LB/ACRE						
(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
5000		2.5	0	30	40	0	15	0	0	0	0	
Crop : CORN-NO TILL			Yield Goal : 150 BU			Rec Units: LB/ACRE						
5000		2.5	183	35	57	0	11	0.8	0	0	2.9	

Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

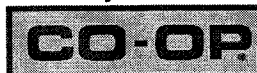
- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 12 of 12
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Lab Number : 04396

Field Id :

Sample Id : 26-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.3						12.7 meq/100g
Buffer pH	7.45						
Phosphorus (P)	100 LB/ACRE						Calculated Cation Saturation %K 3.1 %Ca 50.2 %Mg 11.4 %H 34.6 %Na 0.8 K : Mg Ratio 0.27 <input type="checkbox"/>
Potassium (K)	308 LB/ACRE						
Calcium (Ca)	2550 LB/ACRE						
Magnesium (Mg)	348 LB/ACRE						
Sulfur (S)	22 LB/ACRE						
Boron (B)	0.8 LB/ACRE						
Copper (Cu)	2.0 LB/ACRE						
Iron (Fe)	310 LB/ACRE						
Manganese (Mn)	204 LB/ACRE						
Zinc (Zn)	3.4 LB/ACRE						
Sodium (Na)	46 LB/ACRE						
Soluble Salts							
Organic Matter	2.2 % ENR 88						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
4500	2.25	183	43	71	0	10	1.2	0	0	2.8	
Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE											
4500	2.25	0	30	78	0	14	0.5	0	0	0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

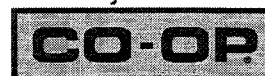
- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 4 of 12
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Lab Number : 04388

Field Id :

Sample Id : 27-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.9						11.0 meq/100g
Buffer pH	7.60						
Phosphorus (P)	36 LB/ACRE						Calculated Cation Saturation %K 3.6 %Ca 53.1 %Mg 13.6 %H 29.1 %Na 0.8 K : Mg Ratio 0.27
Potassium (K)	310 LB/ACRE						
Calcium (Ca)	2338 LB/ACRE						
Magnesium (Mg)	358 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	0.6 LB/ACRE						
Copper (Cu)	2.0 LB/ACRE						
Iron (Fe)	232 LB/ACRE						
Manganese (Mn)	272 LB/ACRE						
Zinc (Zn)	1.8 LB/ACRE						
Sodium (Na)	42 LB/ACRE						
Soluble Salts							
Organic Matter	2.3 % ENR 90						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	183	88	70	0	11	1.4	0	0	3.6	

Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2500	1.25	0	72	77	0	16	1.0	0	0	2.2	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-117-0594 Cust No: 01179 Date Printed: 04/28/2009 Date Received : 04/27/2009 PO: Page : 5 of 12
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Lab Number : 04389

Field Id :

Sample Id : 29-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.3						8.2 meq/100g
Buffer pH	7.60						
Phosphorus (P)	30 LB/ACRE						Calculated Cation Saturation %K 4.2 %Ca 42.1 %Mg 13.2 %H 39.0 %Na 1.2 K : Mg Ratio 0.32
Potassium (K)	268 LB/ACRE						
Calcium (Ca)	1380 LB/ACRE						
Magnesium (Mg)	260 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	0.8 LB/ACRE						
Copper (Cu)	1.6 LB/ACRE						
Iron (Fe)	208 LB/ACRE						
Manganese (Mn)	178 LB/ACRE						
Zinc (Zn)	1.8 LB/ACRE						
Sodium (Na)	44 LB/ACRE						
Soluble Salts							
Organic Matter	2.0 % ENR 84						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
3500	1.75	183	94	72	0	11	1.2	1.0	0	3.6	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
3500	1.75	0	78	66	0	15	0.5	1.0	0	2.2	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 1 of 24
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Lab Number : 03015

Field Id :

Sample Id : 1-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.7						10.5 meq/100g
Buffer pH	7.72						
Phosphorus (P)	126 LB/ACRE						Calculated Cation Saturation %K 3.9 %Ca 63.2 %Mg 10.9 %H 21.3 %Na 1.1 K : Mg Ratio 0.36
Potassium (K)	322 LB/ACRE						
Calcium (Ca)	2654 LB/ACRE						
Magnesium (Mg)	274 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	1.4 LB/ACRE						
Copper (Cu)	4.6 LB/ACRE						
Iron (Fe)	376 LB/ACRE						
Manganese (Mn)	510 LB/ACRE						
Zinc (Zn)	7.2 LB/ACRE						
Sodium (Na)	54 LB/ACRE						
Soluble Salts							
Organic Matter	2.2 % ENR 88						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	40-60	30	39	0	15	0.6	0	0	0	
Crop :												Rec Units:

Comments :

BERMUDA/LEGUME PASTURE

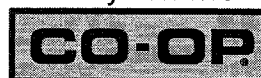
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 2 of 24
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Lab Number : 03016

Field Id :

Sample Id : 2-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	7.1						8.3 meq/100g
Buffer pH	7.77						
Phosphorus (P)	132 LB/ACRE						Calculated Cation Saturation %K 4.3 %Ca 83.1 %Mg 11.3 %H 0.0 %Na 1.3 K : Mg Ratio 0.38
Potassium (K)	276 LB/ACRE						
Calcium (Ca)	2760 LB/ACRE						
Magnesium (Mg)	226 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	4.0 LB/ACRE						
Iron (Fe)	436 LB/ACRE						
Manganese (Mn)	546 LB/ACRE						
Zinc (Zn)	5.4 LB/ACRE						
Sodium (Na)	50 LB/ACRE						
Soluble Salts							
Organic Matter	2.0 % ENR 84						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	30	30	0	16	0.8	0	0	0	
Crop : Rec Units:											

Comments :

BERMUDA/LEGUME PASTURE

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 3 of 24
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Lab Number : 03018

Field Id :

Sample Id : 3-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	7.1						8.2 meq/100g
Buffer pH	7.72						
Phosphorus (P)	104 LB/ACRE						Calculated Cation Saturation %K 6.4 %Ca 79.2 %Mg 13.4 %H 0.0 %Na 1.2 K : Mg Ratio 0.48
Potassium (K)	410 LB/ACRE						
Calcium (Ca)	2598 LB/ACRE						
Magnesium (Mg)	264 LB/ACRE						
Sulfur (S)	24 LB/ACRE						
Boron (B)	1.6 LB/ACRE						
Copper (Cu)	4.2 LB/ACRE						
Iron (Fe)	400 LB/ACRE						
Manganese (Mn)	710 LB/ACRE						
Zinc (Zn)	6.4 LB/ACRE						
Sodium (Na)	46 LB/ACRE						
Soluble Salts							
Organic Matter	2.5 % ENR 94						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE

Yield Goal : 3

TONS

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	30	30	0	14	0.6	0	0	0	
Crop :											Rec Units:

Comments :

BERMUDA/LEGUME PASTURE

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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SOIL ANALYSIS

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Lab Number : 03019

Field Id :

Sample Id : 3-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	7.0						8.7 meq/100g
Buffer pH	7.76						
Phosphorus (P)	138 LB/ACRE						Calculated Cation Saturation %K 4.7 %Ca 80.3 %Mg 12.8 %H 0.0 %Na 2.4 K : Mg Ratio 0.37
Potassium (K)	320 LB/ACRE						
Calcium (Ca)	2796 LB/ACRE						
Magnesium (Mg)	268 LB/ACRE						
Sulfur (S)	22 LB/ACRE						
Boron (B)	1.4 LB/ACRE						
Copper (Cu)	5.0 LB/ACRE						
Iron (Fe)	426 LB/ACRE						
Manganese (Mn)	558 LB/ACRE						
Zinc (Zn)	7.2 LB/ACRE						
Sodium (Na)	98 LB/ACRE						
Soluble Salts							
Organic Matter	2.1 % ENR 86						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE

Yield Goal : 3 TONS

Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	40-60	30	30	0	14	0.6	0	0	0	
Crop :												Rec Units:

Comments :

BERMUDA/LEGUME PASTURE

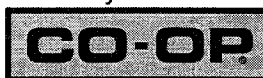
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 5 of 24
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Lab Number : 03020

Field Id :

Sample Id : 4-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.7						7.8 meq/100g
Buffer pH	7.73						
Phosphorus (P)	34 LB/ACRE	[Bar chart]					Calculated Cation Saturation %K 2.5 %Ca 60.0 %Mg 8.2 %H 27.7 %Na 1.3 K : Mg Ratio 0.30
Potassium (K)	152 LB/ACRE	[Bar chart]					
Calcium (Ca)	1872 LB/ACRE	[Bar chart]					
Magnesium (Mg)	154 LB/ACRE	[Bar chart]					
Sulfur (S)	18 LB/ACRE	[Bar chart]					
Boron (B)	1.2 LB/ACRE	[Bar chart]					
Copper (Cu)	2.4 LB/ACRE	[Bar chart]					
Iron (Fe)	262 LB/ACRE	[Bar chart]					
Manganese (Mn)	528 LB/ACRE	[Bar chart]					
Zinc (Zn)	2.8 LB/ACRE	[Bar chart]					
Sodium (Na)	48 LB/ACRE	[Bar chart]					
Soluble Salts							
Organic Matter	1.8 % ENR 80						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	183	90	115	0	11	0.8	0	0	3.1	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	0	74	97	0	16	0	0	0	2.0	

Comments :

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P2O5/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

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Permit Section



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Henry Farmers



SOIL ANALYSIS

Client: Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 6 of 24
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Lab Number : 03021

Field Id :

Sample Id : 5-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.7						9.0 meq/100g
Buffer pH	7.74						
Phosphorus (P)	226 LB/ACRE						Calculated Cation Saturation %K 6.8 %Ca 56.4 %Mg 12.1 %H 23.1 %Na 1.4 K : Mg Ratio 0.56
Potassium (K)	480 LB/ACRE						
Calcium (Ca)	2030 LB/ACRE						
Magnesium (Mg)	262 LB/ACRE						
Sulfur (S)	24 LB/ACRE						
Boron (B)	2.2 LB/ACRE						
Copper (Cu)	4.0 LB/ACRE						
Iron (Fe)	604 LB/ACRE						
Manganese (Mn)	522 LB/ACRE						
Zinc (Zn)	9.4 LB/ACRE						
Sodium (Na)	56 LB/ACRE						
Soluble Salts							
Organic Matter	2.4 % ENR 92						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	30	30	0	14	0	0	0	0	
Crop :											Rec Units:

Comments :

BERMUDA/LEGUME PASTURE

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 7 of 24
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Lab Number : 03022

Field Id :

Sample Id : 6-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.9						9.0 meq/100g
Buffer pH	7.81						
Phosphorus (P)	178 LB/ACRE						Calculated Cation Saturation %K 6.3 %Ca 61.2 %Mg 14.0 %H 16.9 %Na 1.7 K : Mg Ratio 0.45
Potassium (K)	442 LB/ACRE						
Calcium (Ca)	2202 LB/ACRE						
Magnesium (Mg)	302 LB/ACRE						
Sulfur (S)	44 LB/ACRE						
Boron (B)	1.6 LB/ACRE						
Copper (Cu)	4.0 LB/ACRE						
Iron (Fe)	466 LB/ACRE						
Manganese (Mn)	502 LB/ACRE						
Zinc (Zn)	7.0 LB/ACRE						
Sodium (Na)	72 LB/ACRE						
Soluble Salts							
Organic Matter	2.4 % ENR 92						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	183	30	40	0	0	0.6	0	0	0	

Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE

0	0	0	30	40	0	0	0	0	0	0	
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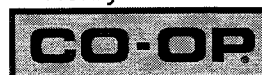
Comments :

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 8 of 24
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Lab Number : 03023

Field Id :

Sample Id : 6-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.7						10.9 meq/100g
Buffer pH	7.72						
Phosphorus (P)	62 LB/ACRE						Calculated Cation Saturation %K 3.7 %Ca 60.2 %Mg 14.3 %H 20.6 %Na 1.4 K : Mg Ratio 0.26
Potassium (K)	316 LB/ACRE						
Calcium (Ca)	2626 LB/ACRE						
Magnesium (Mg)	374 LB/ACRE						
Sulfur (S)	26 LB/ACRE						
Boron (B)	1.4 LB/ACRE						
Copper (Cu)	3.8 LB/ACRE						
Iron (Fe)	260 LB/ACRE						
Manganese (Mn)	300 LB/ACRE						
Zinc (Zn)	3.0 LB/ACRE						
Sodium (Na)	72 LB/ACRE						
Soluble Salts							
Organic Matter	1.6 % ENR 76						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	183	68	67	0	10	0.6	0	0	3.0	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	0	30	76	0	13	0	0	0	2.0	

Comments :

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers

CO-OP

SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 9 of 24
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Lab Number : 03024

Field Id :

Sample Id : 7-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.4						6.3 meq/100g
Buffer pH	7.77						
Phosphorus (P)	120 LB/ACRE						Calculated Cation Saturation %K 7.7 %Ca 46.0 %Mg 15.1 %H 29.2 %Na 1.9 K : Mg Ratio 0.51
Potassium (K)	378 LB/ACRE						
Calcium (Ca)	1160 LB/ACRE						
Magnesium (Mg)	228 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	0.8 LB/ACRE						
Copper (Cu)	1.8 LB/ACRE						
Iron (Fe)	288 LB/ACRE						
Manganese (Mn)	118 LB/ACRE						
Zinc (Zn)	6.0 LB/ACRE						
Sodium (Na)	54 LB/ACRE						
Soluble Salts							
Organic Matter	2.5 % ENR 94						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	30	30	0	15	1.2	0	0	0	
Rec Units:											

Comments :

BERMUDA/LEGUME PASTURE

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 10 of 24
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Lab Number : 03025

Field Id :

Sample Id : 7-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity	
		Very Low	Low	Medium	Optimum	Very High		
Soil pH	6.2						11.6 meq/100g	
Buffer pH	7.65							
Phosphorus (P)	30 LB/ACRE						Calculated Cation Saturation	
Potassium (K)	430 LB/ACRE							
Calcium (Ca)	2458 LB/ACRE							
Magnesium (Mg)	476 LB/ACRE							
Sulfur (S)	18 LB/ACRE							
Boron (B)	1.0 LB/ACRE						%K	4.8
Copper (Cu)	3.2 LB/ACRE						%Ca	53.0
Iron (Fe)	290 LB/ACRE						%Mg	17.1
Manganese (Mn)	82 LB/ACRE						%H	24.1
Zinc (Zn)	9.0 LB/ACRE						%Na	0.7
Sodium (Na)	38 LB/ACRE						K : Mg Ratio	
Soluble Salts							0.28	
Organic Matter	3.4 % ENR 112							
Nitrate Nitrogen								

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE

Yield Goal : 3 TONS

Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500		0.75	40-60	58	30	0	16	1.0	0	0	0	
Rec Units:												

Comments :

BERMUDA/LEGUME PASTURE

Limestone application is targeted to bring soil pH to 6.5.

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 11 of 24
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Lab Number : 03026

Field Id :

Sample Id : 8-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.1						9.5 meq/100g
Buffer pH	7.66						
Phosphorus (P)	26 LB/ACRE						Calculated Cation Saturation %K 3.7 %Ca 49.9 %Mg 16.4 %H 28.6 %Na 1.0
Potassium (K)	272 LB/ACRE						
Calcium (Ca)	1896 LB/ACRE						
Magnesium (Mg)	374 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	2.4 LB/ACRE						
Iron (Fe)	296 LB/ACRE						
Manganese (Mn)	166 LB/ACRE						
Zinc (Zn)	4.6 LB/ACRE						
Sodium (Na)	42 LB/ACRE						K : Mg Ratio 0.22
Soluble Salts							
Organic Matter	2.7 % ENR 98						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500	0.75	40-60	63	30	0	16	0.8	0	0	0	
Crop : Rec Units:											

Comments :

BERMUDA/LEGUME PASTURE

Limestone application is targeted to bring soil pH to 6.5.

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 12 of 24
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Lab Number : 03027

Field Id :

Sample Id : 9-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.3						7.4 meq/100g
Buffer pH	7.69						
Phosphorus (P)	98 LB/ACRE						Calculated Cation Saturation %K 2.7 %Ca 54.3 %Mg 8.6 %H 33.5 %Na 1.2 K : Mg Ratio 0.32
Potassium (K)	156 LB/ACRE						
Calcium (Ca)	1606 LB/ACRE						
Magnesium (Mg)	152 LB/ACRE						
Sulfur (S)	16 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	3.8 LB/ACRE						
Iron (Fe)	496 LB/ACRE						
Manganese (Mn)	332 LB/ACRE						
Zinc (Zn)	6.8 LB/ACRE						
Sodium (Na)	40 LB/ACRE						
Soluble Salts							
Organic Matter	2.3 % ENR 90						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : BERMUDA/LEGUME PASTURE

Yield Goal : 3

TONS

Rec Units:

LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	40-60	30	127	0	17	1.0	0	0	0	
Crop :												
Rec Units:												

Comments :

BERMUDA/LEGUME PASTURE

- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- For renovation of a grass stand with a legume, lime the soil to raise the soil pH to 6.4.
- In renovation do not apply nitrogen or the grass will reduce that stand of the legume.
- For renovation, apply inoculant to the legume seed and molybdenum seed treatment or a molybdenum soil application.
- An application of 40-80 lbs of nitrogen per acre may be made in late spring when clover growth has slowed.
- All of the recommended rates of P and K should be applied in the fall when clover growth begins.

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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 13 of 24
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Lab Number : 03028

Field Id :

Sample Id : 10-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.3						9.1 meq/100g
Buffer pH	7.70						
Phosphorus (P)	84 LB/ACRE						Calculated Cation Saturation %K 3.3 %Ca 56.9 %Mg 12.0 %H 26.4 %Na 1.1
Potassium (K)	236 LB/ACRE						
Calcium (Ca)	2070 LB/ACRE						
Magnesium (Mg)	262 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	1.4 LB/ACRE						
Copper (Cu)	3.0 LB/ACRE						
Iron (Fe)	388 LB/ACRE						
Manganese (Mn)	418 LB/ACRE						
Zinc (Zn)	3.4 LB/ACRE						
Sodium (Na)	44 LB/ACRE						
Soluble Salts							
Organic Matter	1.8 % ENR 80						
Nitrate Nitrogen							
							K : Mg Ratio 0.28

SOIL FERTILITY GUIDELINES

Crop : FESCUE/LEGUME PASTURE

Yield Goal : 3 TONS

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	30	64	0	16	0.6	0	0	0	
Crop : _____ Rec Units: _____											

Comments :

FESCUE/LEGUME PASTURE

- Nitrogen not needed on grass-legume mixtures with a good legume stand.
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- Apply 1.5 to 2.0 lbs of boron/acre/year on grass-legume mixtures.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 14 of 24
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Lab Number : 03029

Field Id :

Sample Id : 10-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.5						6.9 meq/100g
Buffer pH	7.77						
Phosphorus (P)	52 LB/ACRE						Calculated Cation Saturation %K 2.1 %Ca 61.2 %Mg 8.6 %H 26.7 %Na 1.6 K : Mg Ratio 0.25
Potassium (K)	114 LB/ACRE						
Calcium (Ca)	1688 LB/ACRE						
Magnesium (Mg)	142 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	3.4 LB/ACRE						
Iron (Fe)	312 LB/ACRE						
Manganese (Mn)	438 LB/ACRE						
Zinc (Zn)	3.6 LB/ACRE						
Sodium (Na)	52 LB/ACRE						
Soluble Salts							
Organic Matter	1.6 % ENR 76						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : FESCUE/LEGUME PASTURE

Yield Goal : 3 TONS

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	42	136	0	16	0.8	0	0	0	
Crop : Rec Units:											

Comments :

FESCUE/LEGUME PASTURE

- Nitrogen not needed on grass-legume mixtures with a good legume stand.
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- Apply 1.5 to 2.0 lbs of boron/acre/year on grass-legume mixtures.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 15 of 24
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Lab Number : 03030

Field Id :

Sample Id : 11-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.4						10.9 meq/100g
Buffer pH	7.65						
Phosphorus (P)	28 LB/ACRE						Calculated Cation Saturation %K 3.2 %Ca 56.8 %Mg 12.6 %H 25.7 %Na 2.0 K : Mg Ratio 0.25
Potassium (K)	268 LB/ACRE						
Calcium (Ca)	2476 LB/ACRE						
Magnesium (Mg)	330 LB/ACRE						
Sulfur (S)	16 LB/ACRE						
Boron (B)	1.8 LB/ACRE						
Copper (Cu)	2.8 LB/ACRE						
Iron (Fe)	278 LB/ACRE						
Manganese (Mn)	378 LB/ACRE						
Zinc (Zn)	3.4 LB/ACRE						
Sodium (Na)	98 LB/ACRE						
Soluble Salts							
Organic Matter	2.3 % ENR 90						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : FESCUE/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	60	83	0	17	0	0	0	0	
Crop : Rec Units:											

Comments :

FESCUE/LEGUME PASTURE

- Nitrogen not needed on grass-legume mixtures with a good legume stand.
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- Apply 1.5 to 2.0 lbs of boron/acre/year on grass-legume mixtures.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 16 of 24
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Lab Number : 03031

Field Id :

Sample Id : 12-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.6						10.2 meq/100g
Buffer pH	7.70						
Phosphorus (P)	24 LB/ACRE						Calculated Cation Saturation %K 3.6 %Ca 57.9 %Mg 13.2 %H 23.5 %Na 2.2 K : Mg Ratio 0.27
Potassium (K)	284 LB/ACRE						
Calcium (Ca)	2364 LB/ACRE						
Magnesium (Mg)	322 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	2.0 LB/ACRE						
Copper (Cu)	2.4 LB/ACRE						
Iron (Fe)	236 LB/ACRE						
Manganese (Mn)	224 LB/ACRE						
Zinc (Zn)	2.4 LB/ACRE						
Sodium (Na)	102 LB/ACRE						
Soluble Salts							
Organic Matter	2.1 % ENR 86						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : FESCUE/LEGUME PASTURE

Yield Goal : 3

TONS

Rec Units:

LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	40-60	65	70	0	16	0	0	0	2.0	
Crop :											
Rec Units:											

Comments :

FESCUE/LEGUME PASTURE

- Nitrogen not needed on grass-legume mixtures with a good legume stand.
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- Apply 1.5 to 2.0 lbs of boron/acre/year on grass-legume mixtures.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 17 of 24
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Lab Number : 03032

Field Id :

Sample Id : 13-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very	
Soil pH	6.2						9.5 meq/100g
Buffer pH	7.68						
Phosphorus (P)	38 LB/ACRE						Calculated Cation Saturation %K 4.0 %Ca 53.8 %Mg 13.9 %H 26.9 %Na 1.2 K : Mg Ratio 0.29
Potassium (K)	298 LB/ACRE						
Calcium (Ca)	2044 LB/ACRE						
Magnesium (Mg)	318 LB/ACRE						
Sulfur (S)	18 LB/ACRE						
Boron (B)	1.6 LB/ACRE						
Copper (Cu)	2.2 LB/ACRE						
Iron (Fe)	274 LB/ACRE						
Manganese (Mn)	286 LB/ACRE						
Zinc (Zn)	2.6 LB/ACRE						
Sodium (Na)	54 LB/ACRE						
Soluble Salts							
Organic Matter	1.9 % ENR 82						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : FESCUE/LEGUME PASTURE Yield Goal : 3 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500	0.75	40-60	51	30	0	16	0.6	0	0	2.0	
Crop : Rec Units:											

Comments :

FESCUE/LEGUME PASTURE

Limestone application is targeted to bring soil pH to 6.5.

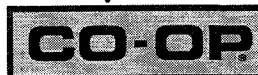
- Nitrogen not needed on grass-legume mixtures with a good legume stand.
- If the grass-legume stand contains less than 25 percent legume, topdress with N rates used for a straight grass stand.
- Apply 1.5 to 2.0 lbs of boron/acre/year on grass-legume mixtures.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received: 04/23/2009 PO: Page: 18 of 24
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Lab Number : 03033

Field Id :

Sample Id : 30-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.2						10.7 meq/100g
Buffer pH	7.69						
Phosphorus (P)	92 LB/ACRE						Calculated Cation Saturation %K 2.2 %Ca 65.9 %Mg 7.2 %H 23.2 %Na 1.1 K : Mg Ratio 0.31
Potassium (K)	186 LB/ACRE						
Calcium (Ca)	2822 LB/ACRE						
Magnesium (Mg)	186 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	2.0 LB/ACRE						
Copper (Cu)	3.8 LB/ACRE						
Iron (Fe)	520 LB/ACRE						
Manganese (Mn)	288 LB/ACRE						
Zinc (Zn)	6.6 LB/ACRE						
Sodium (Na)	54 LB/ACRE						
Soluble Salts							
Organic Matter	3.0 % ENR 104						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500	0.75	183	51	121	0	11	0	0	0	0	

Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE

1500	0.75	0	30	109	0	15	0	0	0	0	
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Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.

- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.

- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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SOIL ANALYSIS

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Lab Number : 03034

Field Id :

Sample Id : 30-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.0						11.0 meq/100g
Buffer pH	7.61						
Phosphorus (P)	28 LB/ACRE						Calculated Cation Saturation %K 2.8 %Ca 55.9 %Mg 10.9 %H 28.4 %Na 2.3 K : Mg Ratio 0.26
Potassium (K)	240 LB/ACRE						
Calcium (Ca)	2458 LB/ACRE						
Magnesium (Mg)	288 LB/ACRE						
Sulfur (S)	20 LB/ACRE						
Boron (B)	1.8 LB/ACRE						
Copper (Cu)	3.2 LB/ACRE						
Iron (Fe)	318 LB/ACRE						
Manganese (Mn)	314 LB/ACRE						
Zinc (Zn)	2.6 LB/ACRE						
Sodium (Na)	114 LB/ACRE						
Soluble Salts							
Organic Matter	1.7 % ENR 78						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000		1	183	96	102	0	11	0	0	0	3.2	

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000		1	0	81	94	0	15	0	0	0	2.0	

Comments :

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.

- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.

- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.

- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 20 of 24
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Lab Number : 03035

Field Id :

Sample Id : 38-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.2						7.8 meq/100g
Buffer pH	7.76						
Phosphorus (P)	164 LB/ACRE						Calculated Cation Saturation %K 2.5 %Ca 63.0 %Mg 7.1 %H 24.6 %Na 2.7 K : Mg Ratio 0.36
Potassium (K)	154 LB/ACRE						
Calcium (Ca)	1966 LB/ACRE						
Magnesium (Mg)	132 LB/ACRE						
Sulfur (S)	22 LB/ACRE						
Boron (B)	1.2 LB/ACRE						
Copper (Cu)	3.4 LB/ACRE						
Iron (Fe)	870 LB/ACRE						
Manganese (Mn)	400 LB/ACRE						
Zinc (Zn)	3.8 LB/ACRE						
Sodium (Na)	98 LB/ACRE						
Soluble Salts							
Organic Matter	1.7 % ENR 78						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL Yield Goal : 50 BU Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1000	0.5	0	30	97	0	14	0	0	0	0	

Crop : CORN-NO TILL Yield Goal : 150 BU Rec Units: LB/ACRE

1000	0.5	183	30	114	0	10	0.8	0	0	2.6	
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Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P2O5/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 21 of 24
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Lab Number : 03036

Field Id :

Sample Id : 35-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.9						5.4 meq/100g
Buffer pH	7.74						
Phosphorus (P)	124 LB/ACRE						Calculated Cation Saturation %K 3.5 %Ca 47.1 %Mg 8.2 %H 38.5 %Na 2.4 K : Mg Ratio 0.43
Potassium (K)	148 LB/ACRE						
Calcium (Ca)	1018 LB/ACRE						
Magnesium (Mg)	106 LB/ACRE						
Sulfur (S)	16 LB/ACRE						
Boron (B)	1.0 LB/ACRE						
Copper (Cu)	2.0 LB/ACRE						
Iron (Fe)	416 LB/ACRE						
Manganese (Mn)	240 LB/ACRE						
Zinc (Zn)	3.4 LB/ACRE						
Sodium (Na)	60 LB/ACRE						
Soluble Salts							
Organic Matter	1.3 % ENR 70						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL			Yield Goal : 50 BU			Rec Units: LB/ACRE					
(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500	0.75	0	30	98	14	17	0.5	0	0	0	
Crop : CORN-NO TILL			Yield Goal : 150 BU			Rec Units: LB/ACRE					
1500	0.75	183	30	116	14	12	1.0	0	0	2.8	

Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 22 of 24
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Lab Number : 03037

Field Id :

Sample Id : 35-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity meq/100g
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	6.3						6.7
Buffer pH	7.78						
Phosphorus (P)	62 LB/ACRE						Calculated Cation Saturation %K 2.1 %Ca 62.1 %Mg 7.6 %H 26.3 %Na 2.6 K : Mg Ratio 0.28
Potassium (K)	110 LB/ACRE						
Calcium (Ca)	1664 LB/ACRE						
Magnesium (Mg)	122 LB/ACRE						
Sulfur (S)	16 LB/ACRE						
Boron (B)	0.8 LB/ACRE						
Copper (Cu)	3.6 LB/ACRE						
Iron (Fe)	348 LB/ACRE						
Manganese (Mn)	398 LB/ACRE						
Zinc (Zn)	3.4 LB/ACRE						
Sodium (Na)	80 LB/ACRE						
Soluble Salts							
Organic Matter	1.0 % ENR 64						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	0	30	108	8	17	0.5	0	0	0	

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	183	68	130	8	12	1.2	0	0	2.8	

Comments :

SOYBEANS-NO TILL

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.

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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received: 04/23/2009 PO: Page: 23 of 24
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Lab Number : 03038

Field Id :

Sample Id : 32-1

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.8						7.8
Buffer pH	7.66						
Phosphorus (P)	106 LB/ACRE						meq/100g
Potassium (K)	154 LB/ACRE						
Calcium (Ca)	1648 LB/ACRE						Calculated Cation Saturation
Magnesium (Mg)	148 LB/ACRE						
Sulfur (S)	18 LB/ACRE						%K 2.5
Boron (B)	0.8 LB/ACRE						%Ca 52.8
Copper (Cu)	2.8 LB/ACRE						%Mg 7.9
Iron (Fe)	456 LB/ACRE						%H 34.9
Manganese (Mn)	364 LB/ACRE						%Na 1.5
Zinc (Zn)	5.4 LB/ACRE						K : Mg Ratio
Sodium (Na)	54 LB/ACRE						
Soluble Salts							0.32
Organic Matter	1.4 % ENR 72						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL			Yield Goal : 50 BU			Rec Units: LB/ACRE						
(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe	
2500	1.25	0	30	97	0	16	0.5	0	0	0		
Crop : CORN-NO TILL			Yield Goal : 150 BU			Rec Units: LB/ACRE						
2500	1.25	183	37	114	0	11	1.2	0	0	2.0		

Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers

CO-OP

SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney Gallimore 1211 W. Wood Paris TN 38242-1056	Grower : GARLIN ELLIS	Report No: 09-113-0577 Cust No: 01179 Date Printed: 04/24/2009 Date Received : 04/23/2009 PO: Page : 24 of 24
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Lab Number : 03039

Field Id :

Sample Id : 13-2

Test	Results	SOIL TEST RATINGS					Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	Very High	
Soil pH	5.8						9.1 meq/100g
Buffer pH	7.68						
Phosphorus (P)	80 LB/ACRE	[Bar chart showing level in Medium-Optimum range]					Calculated Cation Saturation %K 6.6 %Ca 43.0 %Mg 20.1 %H 28.1 %Na 1.8 K : Mg Ratio 0.33
Potassium (K)	466 LB/ACRE	[Bar chart showing level in Optimum-Very High range]					
Calcium (Ca)	1564 LB/ACRE	[Bar chart showing level in Very Low range]					
Magnesium (Mg)	438 LB/ACRE	[Bar chart showing level in Optimum-Very High range]					
Sulfur (S)	32 LB/ACRE	[Bar chart showing level in Low-Medium range]					
Boron (B)	1.2 LB/ACRE	[Bar chart showing level in Medium-Optimum range]					
Copper (Cu)	2.6 LB/ACRE	[Bar chart showing level in Low-Medium range]					
Iron (Fe)	374 LB/ACRE	[Bar chart showing level in Optimum-Very High range]					
Manganese (Mn)	254 LB/ACRE	[Bar chart showing level in Low-Medium range]					
Zinc (Zn)	3.6 LB/ACRE	[Bar chart showing level in Low-Medium range]					
Sodium (Na)	76 LB/ACRE	[Bar chart showing level in Very Low range]					
Soluble Salts							
Organic Matter	1.8 % ENR 80						
Nitrate Nitrogen							

SOIL FERTILITY GUIDELINES

Crop : SOYBEANS-NO TILL

Yield Goal : 50 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000	1	0	30	40	0	12	0	0	0	0	

Crop : CORN-NO TILL

Yield Goal : 150 BU

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
2000	1	183	59	40	0	9	0.8	0	0	2.7	

Comments :

SOYBEANS-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Nitrogen is optional on soybeans.
- For soybeans on soils with a pH of 6.2 or less, apply limestone as recommended or plant seed treated with molybdenum. Apply 1-2 oz of sodium molybdate (0.4-0.8 oz of elemental molybdenum) per acre as a seed treatment.

CORN-NO TILL

Limestone application is targeted to bring soil pH to 6.5.

- Greater N efficiency for corn may be achieved by splitting the N application. Apply 1/4 to 1/3 of the N prior to or at planting and the remainder as sidedress when corn is 8-24 inches high.
- For early planted corn or no till corn, apply a starter fertilizer at least 2 inches from the seed at a rate of 10-20 lbs N/Acre and 30-60 lbs P₂O₅/Acre.
- If N is supplied to corn through the irrigation system, make 3-4 equal applications at 7-10 day intervals, beginning at the 6th leaf stage.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney 'PRECISION AG ACCT' 1211 W. Wood Paris TN 38242-1056	Grower : BILLY SUTTON Farm ID: 954	Report No: 09-084-0582 Cust No: 16944 Date Printed: 03/26/2009 Date Received : 03/25/2009 PO: Page : 1 of 4
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Lab Number : 11072

Field Id :

Sample Id : 1A-1

Test	Results	SOIL TEST RATINGS			Calculated Cation Exchange Capacity
		Low	Medium	Optimum	
Soil pH	6.4				8.7 meq/100g
Buffer pH	7.76				
Phosphorus (P)	48 LB/ACRE				Calculated Cation Saturation %K 2.2 %Ca 62.3 %Mg 8.8 %H 22.1 %Na 4.3 K : Mg Ratio 0.25
Potassium (K)	148 LB/ACRE				
Calcium (Ca)	2168 LB/ACRE				
Magnesium (Mg)	184 LB/ACRE				
Sulfur (S)	22 LB/ACRE				
Boron (B)	0.8 LB/ACRE				
Copper (Cu)	3.6 LB/ACRE				
Iron (Fe)	214 LB/ACRE				
Manganese (Mn)	192 LB/ACRE				
Zinc (Zn)	5.2 LB/ACRE				
Sodium (Na)	174 LB/ACRE				
Soluble Salts					
Organic Matter	2.4 % ENR 92				
Nitrate Nitrogen					

SOIL FERTILITY GUIDELINES

Crop : BERMUDAGRASS HAY

Yield Goal : 5

TONS

Rec Units:

LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0		0	225	68	193	0	10	0.5	0	0	0	
Crop :												Rec Units:

Comments :

BERMUDAGRASS HAY

- To establish coastal or hybrid bermuda apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging.
- After sprigs start to grow, topdress with 40-60 lbs N/Acre. Topdress with an additional 30-40 lbs N/Acre in August or early September if needed.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For soils low in sulfur, apply 20-40 lbs of sulfur as a sulfate in the spring with the nitrogen.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.



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Henry Farmers



SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney 'PRECISION AG ACCT' 1211 W. Wood Paris TN 38242-1056	Grower : BILLY SUTTON Farm ID: 954	Report No: 09-084-0582 Cust No: 16944 Date Printed: 03/26/2009 Date Received : 03/25/2009 PO: Page : 2 of 4
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Lab Number : 11073

Field Id :

Sample Id : 2-1

Test	Results	SOIL TEST RATINGS			Calculated Cation Exchange Capacity
		Low	Medium	Optimum	
Soil pH	6.2				9.9 meq/100g
Buffer pH	7.66				
Phosphorus (P)	62 LB/ACRE	[Bar chart]			Calculated Cation Saturation %K 3.0 %Ca 58.0 %Mg 10.1 %H 27.5 %Na 1.8 K : Mg Ratio 0.29
Potassium (K)	228 LB/ACRE	[Bar chart]			
Calcium (Ca)	2298 LB/ACRE	[Bar chart]			
Magnesium (Mg)	240 LB/ACRE	[Bar chart]			
Sulfur (S)	28 LB/ACRE	[Bar chart]			
Boron (B)	1.0 LB/ACRE	[Bar chart]			
Copper (Cu)	3.8 LB/ACRE	[Bar chart]			
Iron (Fe)	228 LB/ACRE	[Bar chart]			
Manganese (Mn)	140 LB/ACRE	[Bar chart]			
Zinc (Zn)	4.6 LB/ACRE	[Bar chart]			
Sodium (Na)	80 LB/ACRE	[Bar chart]			
Soluble Salts					
Organic Matter	2.1 % ENR 86				
Nitrate Nitrogen					

SOIL FERTILITY GUIDELINES

Crop : BERMUDAGRASS HAY Yield Goal : 5 TONS Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500	0.75	225	60	160	0	10	0.5	0	0	0	
Crop : Rec Units:											

Comments :

BERMUDAGRASS HAY

Limestone application is targeted to bring soil pH to 6.5.

- To establish coastal or hybrid bermuda apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging.
- After sprigs start to grow, topdress with 40-60 lbs N/Acre. Topdress with an additional 30-40 lbs N/Acre in August or early September if needed.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For soils low in sulfur, apply 20-40 lbs of sulfur as a sulfate in the spring with the nitrogen.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.

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Henry Farmers

CO-OP

SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney 'PRECISION AG ACCT' 1211 W. Wood Paris TN 38242-1056	Grower : BILLY SUTTON Farm ID: 954	Report No: 09-084-0582 Cust No: 16944 Date Printed: 03/26/2009 Date Received : 03/25/2009 PO: Page : 3 of 4
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Lab Number : 11074

Field Id :

Sample Id : 1B-1

Test	Results	SOIL TEST RATINGS				Calculated Cation Exchange Capacity
		Very Low	Low	Medium	Optimum	
Soil pH	6.5					8.7 meq/100g
Buffer pH	7.72					
Phosphorus (P)	92 LB/ACRE					Calculated Cation Saturation %K 2.9 %Ca 58.9 %Mg 10.5 %H 25.7 %Na 1.5 K : Mg Ratio 0.27
Potassium (K)	196 LB/ACRE					
Calcium (Ca)	2050 LB/ACRE					
Magnesium (Mg)	220 LB/ACRE					
Sulfur (S)	32 LB/ACRE					
Boron (B)	0.6 LB/ACRE					
Copper (Cu)	2.8 LB/ACRE					
Iron (Fe)	254 LB/ACRE					
Manganese (Mn)	198 LB/ACRE					
Zinc (Zn)	6.2 LB/ACRE					
Sodium (Na)	60 LB/ACRE					
Soluble Salts						
Organic Matter	2.3 % ENR 90					
Nitrate Nitrogen						

SOIL FERTILITY GUIDELINES

Crop : BERMUDAGRASS HAY

Yield Goal : 5 TONS

Rec Units: LB/ACRE

(lbs)	LIME (tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
0	0	225	35	174	0	9	1.0	0	0	0	
Crop :											
Rec Units:											

Comments :

BERMUDAGRASS HAY

- To establish coastal or hybrid bermuda apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging.
- After sprigs start to grow, topdress with 40-60 lbs N/Acre. Topdress with an additional 30-40 lbs N/Acre in August or early September if needed.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For soils low in sulfur, apply 20-40 lbs of sulfur as a sulfate in the spring with the nitrogen.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.



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SOIL ANALYSIS

Client : Henry Farmers Co-op Rodney 'PRECISION AG ACCT' 1211 W. Wood Paris TN 38242-1056	Grower : BILLY SUTTON Farm ID: 954	Report No: 09-084-0582 Cust No: 16944 Date Printed: 03/26/2009 Date Received : 03/25/2009 PO: Page : 4 of 4
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Lab Number : 11076

Field Id :

Sample Id : 4-1

Test	Results	SOIL TEST RATINGS			Calculated Cation Exchange Capacity
		Low	Medium	Optimum	
Soil pH	5.9				8.1 meq/100g
Buffer pH	7.73				
Phosphorus (P)	88 LB/ACRE				Calculated Cation Saturation %K 3.2 %Ca 56.7 %Mg 11.7 %H 26.7 %Na 1.4 K : Mg Ratio 0.28
Potassium (K)	204 LB/ACRE				
Calcium (Ca)	1836 LB/ACRE				
Magnesium (Mg)	228 LB/ACRE				
Sulfur (S)	36 LB/ACRE				
Boron (B)	1.2 LB/ACRE				
Copper (Cu)	3.0 LB/ACRE				
Iron (Fe)	178 LB/ACRE				
Manganese (Mn)	162 LB/ACRE				
Zinc (Zn)	4.6 LB/ACRE				
Sodium (Na)	54 LB/ACRE				
Soluble Salts					
Organic Matter	1.7 % ENR 78				
Nitrate Nitrogen					

SOIL FERTILITY GUIDELINES

Crop : BERMUDAGRASS HAY

Yield Goal : 5

TONS

Rec Units:

LB/ACRE

(lbs)	LIME	(tons)	N	P ₂ O ₅	K ₂ O	Mg	S	B	Cu	Mn	Zn	Fe
1500		0.75	225	37	171	0	9	0	0	0	0	
Crop :												
Rec Units:												

Comments :

BERMUDAGRASS HAY

Limestone application is targeted to bring soil pH to 6.5.

- To establish coastal or hybrid bermuda apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging.
- After sprigs start to grow, topdress with 40-60 lbs N/Acre. Topdress with an additional 30-40 lbs N/Acre in August or early September if needed.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
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- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.