

CONSERVATION PLANS AS A TOOL TO MANAGE BROILER LITTER

USDA SOIL CONSERVATION SERVICE

Each individual ranch or farm that utilizes broiler litter as a fertilizer is as unique as the East Texas Landscape. Production goals, methods of cakeout and cleanout, as well as time of the year varies from each operation. So how do you reach your goals and objectives in managing your broiler litter from your farm or ranch operation? A conservation plan is a tool that will help.

When broiler litter is used on the farm, an Agricultural Waste Management System (AWMS) is developed as a part of the conservation plan. The AWMS is a plan on how to use broiler litter as fertilizer in a manner that sustains or enhances the quality of air, water, soil, plant and animal resources. The AWMS must meet all local, state, or federal regulations as well as state Best Management Practices. During the planning process, you as the landuser make the decisions, while the SCS conservationists explain how your decision may impact various on-farm and off-farm resources (ie. grass production, water quality, wildlife, herd/flock health).

The following sample conservation plan is an example of landowner's decisions for a 300 acre poultry and cow/calf operation. The five-house broiler operation has a capacity of 100,000 birds. The average mortality on the farm is 5%. The farm produces 719 tons of broiler litter annually. Pastures include common bermuda, bahia, and a Coastal bermuda hayfield. The plant available nitrogen (PAN) content of the broiler litter was determined to be 36.6 lbs / ton for cleanout and 44.0 lbs / ton for cakeout litter. This was determined from an Agricultural Engineering computer program used by SCS, commonly known as MANURE 3.

This information was used to determine how to supply the nutrients from the litter to meet crop production needs. The plan includes nutrient balance worksheets for each field, that determine the application rate for broiler litter in tons / acre. Soil fertility levels are always changing. The following years of the plan the utilization of litter will be based on crop production goals, soil tests, manure analyses or the nutrient values from MANURE 3.

If you need technical assistance with broiler litter management or desire a conservation plan with an Ag Waste Management System contact your local Soil and Water Conservation District or the Soil Conservation Service. All programs of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap. The use of trade names in the conservation plan does not imply endorsement by the Soil Conservation Service.

Waste Utilization and Nutrient Management

For the

0

Broiler

Operation in

County

Prepared By:

17-Sep-01

| DATA ENTRY SHEET | |
|---|----------------|
| Data on this sheet is automatically placed into the correct place on the "Cover" sheet, the "Birds" sheet, the "Litter Analysis Conversion Sheet", and the "Leopold" Waste Utilization and Nutrient Mgt Plan. | |
| Farmer Name: | |
| County: | |
| Birds Information | |
| Market Bird Weight: | 4.00 |
| Bird Type (ie: Broiler, Breeder, etc.): | Broiler |
| Weeks per Batch: | 6.0 |
| No. Batches per yr.: | 6 |
| No. Winter Batches: | 3.0 |
| No. Summer Batches: | 3.0 |
| No. Days/yr Birds in Houses: | 252 |
| Average Mortality %: | 3.0 |
| No. of Houses: | 8 |
| Average Size of Houses: | 425 ft x 37 ft |
| No. Birds per House-Winter: | 21,300 |
| No. Birds per House-Summer: | 21,300 |
| Dead Bird Disposal Method: | 4 |
| 1=Incinerator; 2=Freezers; 3=Composter; 4=Rendering | |
| Litter Information | |
| Nitrogen % From Litter Analysis: | 4.07 |
| Phosphorus % From Litter Analysis: | 2.28 |
| Potassium % From Litter Analysis: | 3.09 |
| Moisture % From Litter Analysis: | 18 |
| Tons of Litter Stored: | 0 |
| Tons of Litter Used for Feed: | 0 |
| Use N/A if no litter analysis | |
| Use N/A if no litter analysis | |
| Use N/A if no litter analysis | |
| Use 25% if not reported on analysis | |
| Spelling MUST be exactly as shown in the source table. | |
| This number is calculated automatically. | |

Entry

| Land-Use/Crop/ & Soil Information | Acres | Crop/Land-Use and Soil Test P Level, (VL - L; M; H; VH; or C). | Soil Test Recommended N | K2O |
|--------------------------------------|-------|---|----------------------------|-----|
| | | Spelling & Spacing MUST be exactly as shown in the source table. Ex.: Coastal 3 Cut Hay VH (REMEMBER!! If Soil test P exceeds 200 ppm, use C rather than VH.) | | |
| Field 1 & 2 | 15 | Coastal Grazing + 1 Hay VL - L | 95 | 0 |
| Field 3 | 42 | Coastal Grazing + 1 Hay VL - L | 95 | 45 |
| Field 4 & 5 | 36 | Coastal Grazing + 1 Hay VL - L | 95 | 45 |
| Field 7 | 38 | Klein 3 Cut Hay VL - L | 100 | 200 |
| Field 8 | 12 | Coastal 3 Cut Hay VL - L | 100 | 200 |
| Field 9 | 35 | Klein Grazing + 1 Hay H | 35 | 0 |
| Field 13 | 27 | Coastal Grazing + 1 Hay M | 65 | 0 |
| Field 14 | 16 | Coastal 3 Cut Hay M | 35 | 0 |
| Field 15 | 25 | Common 3 Cut Hay VL - L | 95 | 210 |
| Field 16 & 18 | 55 | Coastal Grazing + 1 Hay VL - L | 90 | 65 |
| Field 17 | 45 | Common Grazing + 1 Hay VL - L | 90 | 65 |
| Field 20 & 21 | 20 | Coastal 3 Cut Hay VL - L | 90 | 0 |
| Field 22 | 22 | Coastal Grazing M | 80 | 95 |
| Field 24 | 39 | Coastal grazing VL - L | 90 | 80 |
| Field 25 | 44 | Coastal 3 Cut Hay VL - L | 20 | 30 |



Average Number of Birds Calculation Sheet for Broilers

Capacity and Data Information:

Name: 0

1. Market bird weight = 4.00 lbs
2. Aver. liveweight per bird => (0.13 lbs chick wt. + 4.00 lbs market bird weight) / 2 = 2.065 aver. live wt. / bird
3. Weeks per batch = 6
4. No. of batches/yr. = 6
5. Aver. mortality = 3.0 % mortality
6. No. of houses = 8
7. Winter birds => (3.0 winter batches x 21,300 birds/house) = 63,900 winter birds
8. Summer birds => (3 summer batches x 21,300 birds/house) = 63,900 summer birds
9. Total birds => (63,900 winter birds + 63,900 summer birds) / 6 batches per year
without mortality
= 21,300 aver. birds/house x 8 houses = 170,400 birds/batch
10. No. dead birds => 170,400 Total birds w/o mortality x 3 % mortality = 5,112 dead birds
11. Market birds => 170,400 Total birds w/o mortality - 5,112 dead birds = 165,288 market birds per batch
12. Average Total Birds:
(#9 + #11) / 2 => (170,400 + 165,288) / 2 = 167,844 aver. total birds per batch

LOCATION OF OPERATION AND PURPOSE OF THE PLAN

This poultry operation is located in **0** County (see plan map for location). The purpose of this plan is to outline the details of the land application of the poultry litter produced in this operation. When the plan is fully implemented it should minimize the effects of the land application of poultry litter on the air, soil, water, and animal resources in and around the application area.

This plan, when applied, will meet the requirements of the Natural Resources Conservation Service (formerly the Soil Conservation Service) Waste Utilization Standard and Nutrient Management Standard.

The birds will be housed in **8** houses (Aver. approx. size: **425 ft x 37 ft**) with approximately **21,300** birds placed in each house (l **3** % mortality). About **6** flocks are raised each year; final weight of birds will be **4.00** pounds. Each flock will be present for about **6** weeks. The average number of days each year that the facilities will contain birds will be about **252** days.

ESTIMATED AMOUNT OF WASTE PRODUCED

| | | | |
|--|----------------|------------------------|--|
| Avg. Number of Birds | Type | Avg. Number of Batches | Pounds Litter/bird/flock |
| 167,844 | Broiler | 6 | 2.0 |
| Estimated Tons of Litter Produced Annuall | | 1007 | |
| Contact the local Soil and Water Conservation District or USDA Natural Resources Conservation Service office if the total number of birds changes by more than 10 percent so your plan can be revised. | | | |
| ESTIMATED NUTRIENT AVAILABILITY | | | |
| | pounds/yr | lbs / ton litter ** | |
| N | 53,776 | 53 | |
| P ₂ O ₅ | 86,233 | 86 | |
| K ₂ O | 61,241 | 61 | ** Litter Value Based on Litter Analysis |

Estimated values are intended for use during initial planning. Site specific data will be used, if available. In situations where site specific data is not available, litter will be tested annually for the first 2-3 years after planning, until baseline values can be determined for the operation. If the actual values are more than 10% higher or lower than the estimated values, the plan will need to be revised accordingly. Once the baseline values have been established, the sampling frequency may be reduced to every other year.

Maximum annual and biennial litter applications to crops will be based on phosphorus soil test levels listed below:

| State University Phosphorus Soil Test Value | Annual Litter Rate | Biennial Litter Rate |
|---|--------------------------------|------------------------------|
| Very Low - Low (0 - 10 ppm) | Balance for Nitrogen * | Balance for Nitrogen * |
| Medium (11 - 41 ppm) | 2 times crop P requirement * | Double Annual Litter Rate ** |
| High (42 - 61 ppm) | 1.5 times crop P requirement * | Double Annual Litter Rate ** |
| Very High (62 - 200 ppm) | Crop P requirement * | Double Annual Litter Rate ** |
| Critical (> 200 ppm) | 0 | 0 |

* Crop requirement will be according to NRCS Nutrient Management Standard.

** Not to exceed annual N needs of the crop.

ESTIMATED NUTRIENT AVAILABILITY (Continued)

Values in the table below are based on the estimates from the previous page. Actual application will be based on litter analysis once baseline values are established for the operation. Applying litter at the MAXIMUM rates shown below will result in a more rapid build-up of phosphorus than if applied at lower rates. Phosphorus will build up more rapidly on pastureland than on hayland, since very few nutrients are actually removed by grazing animals. The poultry litter may be applied to the same acreage every year, as long as the soil test P level does not exceed the critical level. This plan is valid only if the application of litter to the crops listed below does not exceed the per acre rates shown by more than 10%. If the yield of a crop does not meet the expected goal application rate should be adjusted accordingly the following year.

| Estimated Annual Litter Production | Field No. | Acres | Crop Mngt. and soil P level | Max P An | Tons Litter/Ac | Tons Litter / field |
|------------------------------------|---------------|--------------------------|-----------------------------|----------|----------------|---------------------|
| 1007 Tons | Field 1 & 2 | 15 | Coastal Grazing + 1 Hay VL | 353 | 4.1 | 62 |
| | Field 3 | 42 | Coastal Grazing + 1 Hay VL | 353 | 4.1 | 173 |
| | Field 4 & 5 | 36 | Coastal Grazing + 1 Hay VL | 353 | 4.1 | 148 |
| | Field 7 | 38 | Klein 3 Cut Hay VL - L | 337 | 3.9 | 149 |
| | Field 8 | 12 | Coastal 3 Cut Hay VL - L | 481 | 5.6 | 67 |
| | Field 9 | 35 | Klein Grazing + 1 Hay H | 75 | 1.0 | 35 |
| | Field 13 | 27 | Coastal Grazing + 1 Hay M | 100 | 1.2 | 32 |
| | Field 14 | 16 | Coastal 3 Cut Hay M | 200 | 2.3 | 37 |
| | Field 15 | 25 | Common 3 Cut Hay VL - L | 337 | 3.9 | 98 |
| | Field 16 & 17 | 55 | Coastal Grazing + 1 Hay VL | 353 | 4.1 | 227 |
| | Field 17 | 45 | Common Grazing + 1 Hay VL | 305 | 3.6 | 160 |
| | Field 20 & 21 | 20 | Coastal 3 Cut Hay VL - L | 481 | 5.6 | 112 |
| | Field 22 | 22 | Coastal Grazing M | 100 | 1.2 | 26 |
| | Field 24 | 39 | Coastal grazing VL - L | 289 | 3.4 | 131 |
| Field 25 | 44 | Coastal 3 Cut Hay VL - L | 481 | 5.6 | 247 | |
| Estimated Tons of Excess | | | | | | -699 |

All excess litter will be sold or given away for off-site application.

All litter that is land-applied will be applied on land with a currently growing crop. Litter application is not allowed on dormant crops in winter months unless growing crops such as winter ryegrass, clover, etc. are the predominant vegetative cover.

Supplemental commercial fertilizer nitrogen (N), and potassium (K₂O) will be applied to achieve the above yield goals when recommended by soil test, and the annual litter application does not meet the requirements, see table on next page for supplemental requirements, if any.

Supplemental Commercial N and K₂O required to meet yield goals.

| Field No. | N (lbs/ac) | K ₂ O (lbs/ac) |
|--------------|------------|---------------------------|
| Field 1 & 2 | 0 | 0 |
| Field 3 | 0 | 0 |
| Field 4 & 5 | 0 | 0 |
| Field 7 | 0 | 0 |
| Field 8 | 0 | 0 |
| Field 9 | 0 | 0 |
| Field 13 | 3 | 0 |
| Field 14 | 0 | 0 |
| Field 15 | 0 | 0 |
| Field 16 & 1 | 0 | 0 |
| Field 17 | 0 | 0 |
| Field 20 & 2 | 0 | 0 |
| Field 22 | 18 | 24 |
| Field 24 | 0 | 0 |
| Field 25 | 0 | 0 |
| 0 | 0 | 0 |

In the event that the actual nutrients being applied are shown to be more than 10% higher or lower than estimates (based on litter analysis and amount applied) this plan will be revised to reflect the actual figures. This could result in more or less application area being required.

PLANNED METHOD OF APPLICATION

Poultry litter should be surface applied uniformly. If a spreader with a capacity to haul about 5.5 cubic yards of litter (about 2.4 tons of litter) is used, it should take about 11 trips to remove 1 inch of litter from 1 house.

To reduce soil compaction, applications should only be made when soil conditions are favorable.

Poultry litter should not be spread if heavy rains are forecast to occur within 1 day of a proposed application date.

BUFFER ZONES

A **minimum 100 foot wide** grass or wooded buffer providing at least 70% ground cover will be maintained between the application area and all water courses, ponds, lakes, frequently flooded areas, and wetlands. Application will not be made to these buffer areas.

Litter will not be applied within 100 feet of adjacent **residential** property lines, unless it is incorporated within 48 hours of application.

When litter is applied to **cropland, hayland, or pastureland**, a **100 foot wide** grass or wooded buffer providing at least 70% ground cover will be maintained between the application area and **down gradient** property lines, unless the litter is incorporated within 48 hours of application.

The **minimum** application distance from private or public **wells** will be **150 feet** and **500 feet** respectively, and the minimum application distance from a school, institution, densely populated residential, business, or similar development should be **1000 feet**.

ODOR MANAGEMENT

The following steps should be taken when spreading poultry litter to reduce problems associated with odor.

1. Avoid spreading poultry litter when wind will blow odors toward populated areas.
2. Avoid spreading poultry litter immediately before weekends or holidays, if people are likely to be engaged in nearby outdoor activities.
3. Avoid spreading poultry litter near heavily traveled highways.
4. Make poultry litter applications in the morning when the air is warming, rather than in the late afternoon.

MORTALITY MANAGEMENT

Dead birds will be collected daily and placed in sealed bins or barrels until removed by a rendering company on a frequent (2 - 3 days) and regular schedule.

LITTER STORAGE

If dry poultry litter will be temporarily stored, it will be in an appropriate manner to maintain the dryness of the litter and to prevent contamination of groundwater and runoff water. Litter will be contained under a roofed structure located on soil, geology, and topography suitable to prevent contamination of waters. Roofed structures will meet USDA/NRCS standards. Litter may also be temporarily stockpiled and covered with durable plastic or other suitable tarp material. Stockpiled litter must also be sited on suitable soil, geology, and topography to prevent contamination of waterways. Runoff from stockpiled or roofed litter must be retained on-site by use of berms or other adequate structures to prevent transport of litter into waterways. Stored litter will be land-applied according to this plan as previously described or sold or given away for off-site application.

SOIL ANALYSIS

A base line soil analysis will be completed for all areas to be used for poultry litter applicatio The area will be tested at least every other year to monitor P build up. If the initial soil analysis of a field(s) determines available P to be CRITICAL (> 200 ppm), NO litter will be applied until the level is below CRITICAL. If this occurs, contact the local Soil and Water Conservation District or USDA/NRCS office to revise the Waste Utilization Plan and to assist in development of a plan to reduce P in the field(s).

COLLECTING SOIL SAMPLES FOR ANALYSIS

Collect a composite sample for each field (or area of similar soils and management not more than 40 acres) comprised of 10 - 15 randomly selected cores. Each core should represent 0 - 6 inches below the surface. Thoroughly mix each set of core samples, and select about a pint of the mixture as the sample for analysis. Label each sample for the field that it represents. Request that the samples be analyzed for nitrate nitrogen, available phosphorus, potassium, sodium, magnesium, calcium, sulfur, conductivity, and pH. Also note on the samples that they are from a poultry litter application area.

MANURE TESTING

Manure sampling is needed to get a better idea of the nutrients actually being applied. The sample should be collected from the houses at the time of application and submitted immediately to a lab for testing. If sent to Texas A&M soil lab or SFASU Soil Testing Lab for analysis, use the "plant and forage analysis" form, note that your sample is broiler litter, breeder litter, etc. Request that the litter be analyzed for percent moisture, Kjeldahl nitrogen, total phosphorus, and total potassium.

RECORD KEEPING

Detailed records should be maintained for all application of animal waste to land owned and operated by the producer. Records should include date, time, location, and amount of application; they could also include weather conditions, estimated wind speed and direction, etc. Records should also be kept showing amounts of litter given or sold to others. ***A copy of the litter analysis and Poultry Litter BMP Sheet should be given to anyone who will use the litter off-site, and if they routinely use litter for fertilizer they should be directed to the local Soil and Water Conservation District or NRCS office to develop a Waste Utilization and Nutrient Management Plan for their land.***

OPERATION AND MAINTENANCE

Application equipment should be maintained in good working order, and it should be calibrated so that the desired rate and amount of litter will be applied.

Any changes in this system should be discussed with the local Soil and Water Conservation District or USDA Natural Resources Conservation Service prior to their implementation.

**CONVERSION OF PERCENT ELEMENTAL CONCENTRATION TO
POUNDS OF OXIDE FORM PER TON OF LITTER**

| | % Element as Shown on Litter Analysis | % Moisture * | lbs/ton | |
|---|---|-----------------|---------|---|
| N | 4.07 | 18 | => 53 | lbs N/ton litter |
| P | 2.28 | 18 | => 86 | lbs P ₂ O ₅ /ton litter |
| K | 3.09 | 18 | => 61 | lbs K ₂ O/ton litter |

* Use % moisture as shown on Litter Analysis report or assume 25%.

Calculations Used:

N: (% N minus 20% estimated application loss) multiplied by (2000 minus % moisture)

P: (% P multiplied by 2.29 to convert P to P₂O₅) multiplied by (2000 minus % moisture)

K: (% K multiplied by 1.2 to convert K to K₂O) multiplied by (2000 minus % moisture)

| 1 | Type | Pounds litter/bird/flock | N | P2O5 | K2O |
|----|------------------------------|--------------------------|------|------|------|
| 2 | Broiler | 2.0 | 53 | 85.6 | 60.8 |
| 3 | Heavy Broiler | 2.4 | 53 | 85.6 | 60.8 |
| 4 | Roaster | 2.9 | 53 | 85.6 | 60.8 |
| 5 | Cornish Hen | 1.0 | 53 | 85.6 | 60.8 |
| 6 | Pullet | 5.0 | 53.4 | 85.6 | 60.8 |
| 7 | Breeder | 35.0 | 53.4 | 85.6 | 60.8 |
| 8 | Laying Hen | 50.0 | 53.4 | 85.6 | 60.8 |
| 9 | Heavy Turkey | 18.2 | 53.4 | 85.6 | 60.8 |
| 10 | Light Turkey | 7.7 | 53.4 | 85.6 | 60.8 |
| 11 | Brooder Turkey | 2.0 | 53.4 | 85.6 | 60.8 |
| 12 | Turkey w/ hens removed @8wks | 12.9 | 46.0 | 72.0 | 40.0 |

13

14

15

16

Max. P not to exceed N

| | | |
|----|---|-----|
| 17 | Coastal Grazing C | 0 |
| 18 | Coastal Grazing H | 75 |
| 19 | Coastal Grazing M | 100 |
| 20 | Coastal Grazing VH | 50 |
| 21 | Coastal Grazing VL - L | 289 |
| 22 | Coastal Grazing + 1 Hay VL - L | 353 |
| 23 | Coastal Grazing + 1 Hay M | 100 |
| 24 | Coastal Grazing + 1 Hay H | 75 |
| 25 | Coastal Grazing + 1 Hay VH | 50 |
| 26 | Coastal Grazing + 1 Hay C | 0 |
| 27 | Coastal 3 Cut Hay VL - L | 481 |
| 28 | Coastal 3 Cut Hay M | 200 |
| 29 | Coastal 3 Cut Hay H | 150 |
| 30 | Coastal 3 Cut Hay VH | 100 |
| 31 | Coastal 3 Cut Hay C | 0 |
| 32 | Coastal 4 - 6 Cut Hay VL - L | 641 |
| 33 | Coastal 4 - 6 Cut Hay M | 260 |
| 34 | Coastal 4 - 6 Cut Hay H | 195 |
| 35 | Coastal 4 - 6 Cut Hay VH | 130 |
| 36 | Coastal 4 - 6 Cut Hay C | 0 |
| 37 | Common Grazing VL - L | 224 |
| 38 | Common Grazing M | 60 |
| 39 | Common Grazing H | 45 |
| 40 | Common Grazing VH | 30 |
| 41 | Common Grazing C | 0 |
| 42 | Common Grazing 1 AU/1.0 - 1.5 Ac VL - L | 289 |
| 43 | Common Grazing 1 AU/1.0 - 1.5 Ac M | 100 |
| 44 | Common Grazing 1 AU/1.0 - 1.5 Ac H | 75 |
| 45 | Common Grazing 1 AU/1.0 - 1.5 Ac VH | 50 |
| 46 | Common Grazing 1 AU/1.0 - 1.5 Ac C | 0 |
| 47 | Common Grazing + 1 Hay VL - L | 305 |
| 48 | Common Grazing + 1 Hay M | 100 |
| 49 | Common Grazing + 1 Hay H | 75 |
| 50 | Common Grazing + 1 Hay VH | 50 |
| 51 | Common Grazing + 1 Hay C | 0 |

| | | |
|-----|--|-----|
| 52 | Common 3 Cut Hay VL - L | 337 |
| 53 | Common 3 Cut Hay M | 120 |
| 54 | Common 3 Cut Hay H | 90 |
| 55 | Common 3 Cut Hay VH | 60 |
| 56 | Common 3 Cut Hay C | 0 |
| 57 | Common 4 - 6 Cut Hay VL - L | 449 |
| 58 | Common 4 - 6 Cut Hay M | 160 |
| 59 | Common 4 - 6 Cut Hay H | 120 |
| 60 | Common 4 - 6 Cut Hay VH | 80 |
| 61 | Common 4 - 6 Cut Hay C | 0 |
| 62 | Bahia Grazing VL - L | 224 |
| 63 | Bahia Grazing M | 60 |
| 64 | Bahia Grazing H | 45 |
| 65 | Bahia Grazing VH | 30 |
| 66 | Bahia Grazing C | 0 |
| 67 | Bahia Grazing 1 AU/1.0 - 1.5 Ac VL - L | 289 |
| 68 | Bahia Grazing 1 AU/1.0- 1.5 Ac M | 100 |
| 69 | Bahia Grazing 1 AU/1.0 - 1.5 Ac H | 75 |
| 70 | Bahia Grazing 1 AU/1.0 - 1.5 Ac VH | 50 |
| 71 | Bahia Grazing 1 AU/1.0 - 1.5 Ac C | 0 |
| 72 | Bahia Grazing + 1 Hay VL - L | 305 |
| 73 | Bahia Grazing + 1 Hay M | 100 |
| 74 | Bahia Grazing + 1 Hay H | 75 |
| 75 | Bahia Grazing + 1 Hay VH | 50 |
| 76 | Bahia Grazing + 1 Hay C | 0 |
| 77 | Bahia 3 Cut Hay VL - L | 337 |
| 78 | Bahia 3 Cut Hay M | 120 |
| 79 | Bahia 3 Cut Hay H | 90 |
| 80 | Bahia 3 Cut Hay VH | 60 |
| 81 | Bahia 3 Cut Hay C | 0 |
| 82 | Bahia 4 - 6 Cut Hay VL - L | 449 |
| 83 | Bahia 4 - 6 Cut Hay M | 160 |
| 84 | Bahia 4 - 6 Cut Hay H | 120 |
| 85 | Bahia 4 - 6 Cut Hay VH | 80 |
| 86 | Bahia 4 - 6 Cut Hay C | 0 |
| 87 | 0 | 0 |
| 88 | Klein Grazing VL - L | 224 |
| 89 | Klein Grazing M | 60 |
| 90 | Klein Grazing H | 45 |
| 91 | Klein Grazing VH | 30 |
| 92 | Klein Grazing C | 0 |
| 93 | Klein Grazing 1 AU/1.0 - 1.5 Ac VL - L | 289 |
| 94 | Klein Grazing 1 AU/1.0 - 1.5 Ac M | 100 |
| 95 | Klein Grazing 1 AU/1.0 - 1.5 Ac H | 75 |
| 96 | Klein Grazing 1 AU/1.0 - 1.5 Ac VH | 50 |
| 97 | Klein Grazing 1 AU/1.0 - 1.5 Ac C | 0 |
| 98 | Klein Grazing + 1 Hay VL - L | 305 |
| 99 | Klein Grazing + 1 Hay M | 100 |
| 100 | Klein Grazing + 1 Hay H | 75 |
| 101 | Klein Grazing + 1 Hay VH | 50 |
| 102 | Klein Grazing + 1 Hay C | 0 |

| | | |
|-----|------------------------------------|-----|
| 103 | Klein 3 Cut Hay VL - L | 337 |
| 104 | Klein 3 Cut Hay M | 120 |
| 105 | Klein 3 Cut Hay H | 90 |
| 106 | Klein 3 Cut Hay VH | 60 |
| 107 | Klein 3 Cut Hay C | 0 |
| 108 | Kein 4 - 6 Cut Hay VL - L | 449 |
| 109 | Klein 4 - 6 Cut Hay M | 160 |
| 110 | Klein 4 - 6 Cut Hay H | 120 |
| 111 | Klein 4 - 6 Cut Hay VH | 80 |
| 112 | Klein 4 - 6 Cut Hay C | 0 |
| 113 | Native Grazing VL - L | 128 |
| 114 | Native Grazing M | 80 |
| 115 | Native Grazing H | 60 |
| 116 | Native Grazing VH | 40 |
| 117 | Native Grazing C | 0 |
| 118 | Corn 70 bu VL - L | 144 |
| 119 | Corn 70 bu M | 120 |
| 120 | Corn 70 bu H | 90 |
| 121 | Corn 70 bu VH | 60 |
| 122 | Corn 70 bu C | 0 |
| 123 | Corn 90 bu VL - L | 192 |
| 124 | Corn 90 bu M | 120 |
| 125 | Corn 90 bu H | 90 |
| 126 | Corn 90 bu VH | 60 |
| 127 | Corn 90 bu C | 0 |
| 128 | Grain Sorghum VL - L | 96 |
| 129 | Grain Sorghum M | 60 |
| 130 | Grain Sorghum H | 45 |
| 131 | Grain Sorghum VH | 30 |
| 132 | Grain Sorghum C | 0 |
| 133 | Oat Grazing VL - L | 321 |
| 134 | Oat Grazing M | 150 |
| 135 | Oat Grazing H | 113 |
| 136 | Oat Grazing VH | 75 |
| 137 | Oat Grazing C | 0 |
| 138 | Native Grazing + 1 Cut Hay VL - L | 192 |
| 139 | Native Grazing + 1 Cut Hay M | 100 |
| 140 | Native Grazing + 1 Cut Hay H | 75 |
| 141 | Native Grazing + 1 Cut Hay VH | 50 |
| 142 | Native Grazing + 1 Cut Hay C | 0 |
| 143 | Forage Sorg. 2 Cut or Graze VL - L | 224 |
| 144 | Forage Sorg. 2 Cut or Graze M | 120 |
| 145 | Forage Sorg. 2 Cut or Graze H | 90 |
| 146 | Forage Sorg. 2 Cut or Graze VH | 60 |
| 147 | Forage Sorg. 2 Cut or Graze C | 0 |
| 148 | Wheat Grain 30 bu VL - L | 72 |
| 149 | Wheat Grain 30 bu M | 80 |
| 150 | Wheat Grain 30 bu H | 60 |
| 151 | Wheat Grain 30 bu VH | 40 |
| 152 | Wheat Grain 30 bu C | 0 |
| 153 | Wheat Grain 30 bu + Grazing VL - L | 131 |

| | | |
|-----|-------------------------------------|-----|
| 154 | Wheat Grain 30 bu + Grazing M | 80 |
| 155 | Wheat Grain 30 bu + Grazing H | 60 |
| 156 | Wheat Grain 30 bu + Grazing VH | 40 |
| 157 | Wheat Grain 30 bu + Grazing C | 0 |
| 158 | Wheat Grazing VL - L | 321 |
| 159 | Wheat Grazing M | 150 |
| 160 | Wheat Grazing H | 113 |
| 161 | Wheat Grazing VH | 75 |
| 162 | Wheat Grazing C | 0 |
| 163 | Legume Overseeded VL - L | 128 |
| 164 | Legume Overseeded M | 136 |
| 165 | Legume Overseeded H | 120 |
| 166 | Legume Overseeded VH | 80 |
| 167 | Legume Overseeded C | 0 |
| 168 | Legume w/ryegrass VL - L | 128 |
| 169 | Legume w/ryegrass M | 136 |
| 170 | Legume w/ryegrass H | 120 |
| 171 | Legume w/ryegrass VH | 80 |
| 172 | Legume w/ryegrass C | 0 |
| 173 | Small Grain Light Grazing VL - L | 257 |
| 174 | Small Grain Light Grazing M | 120 |
| 175 | Small Grain Light Grazing H | 90 |
| 176 | Small Grain Light Grazing VH | 60 |
| 177 | Small Grain Light Grazing C | 0 |
| 178 | Small Grain Moderate Grazing VL - L | 321 |
| 179 | Small Grain Moderate Grazing M | 150 |
| 180 | Small Grain Moderate Grazing H | 113 |
| 181 | Small Grain Moderate Grazing VH | 75 |
| 182 | Small Grain Moderate Grazing C | 0 |
| 183 | Small Grain Heavy Grazing VL - L | 385 |
| 184 | Small Grain Heavy Grazing M | 160 |
| 185 | Small Grain Heavy Grazing H | 120 |
| 186 | Small Grain Heavy Grazing VH | 80 |
| 187 | Small Grain Heavy Grazing C | 0 |
| 188 | | |