Annual Report

Title: *Optimal Selection of Management Practices for Phosphorus Abatement: Using GIS and Economic Methodology to Model a Watershed*

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Problem and Research Objectives:

In eastern Oklahoma and western Arkansas, poultry litter from broiler producing operations has saturated the land, causing nitrate leaching and runoff of potassium and phosphorus, harming water supplies. In response to this problem, our research had three objectives:

Objectives:
The overall objective of the study was to evaluate the efficiency of a set of policies designed to remedy phosphorus pollution problems in the Eucha-Spavinaw watershed in Eastern Oklahoma and Western Arkansas. Specific objectives of the study were to:

1. Determine the economic viability and best location for poultry litter-to-energy facilities.
2. Determine the most economically effective set of poultry litter management practices and/or STP regulations that meet specified limits on soluble phosphorus runoff.
3. Determine the most efficient pattern of litter transportation for use within the watershed and for removal of excess litter from the watershed.

Methodology:
The most efficient overall policy is expected to be a set of individual interdependent complementary policies. For example the economic viability of a litter-to-energy plan and the litter transportation will be affected by a soil test phosphorus level (STP) that limits litter application at various locations within the watershed. Implementation of uniform STP limits over the watershed are expected to be more costly and create different transportation patterns than would STP phosphorus limits based on the P-Loss Index concept.

The composition of the best policy set is highly dependent upon the total amount of allowable discharge from the watershed. It is necessary to not only determine the optimal level of annual phosphorus given by our model but also to estimate the benefits (reduced environmental damages) and costs associated with the most efficient policy set for meeting each of several possible discharge limits. This allows users to make adjustments for qualitative factors not addressed by the model.

The first step was the construction of a basin level mathematical programming model. The model is capable of simultaneously determining: a) the optimal location of processing facilities for and the quantity of poultry litter to be converted to energy, b) the quantity of litter to be transported from poultry houses to locations within and out of the watershed, and c) the best management practices for applying poultry litter in each HRU within the watershed so that the total cost of meeting specific phosphorus emission targets is minimized.

Information for the litter-to-energy plant and transportation network from poultry houses in the basin was obtained by completing Objective 1. This information is reported in greater detail in Chala. The information (farm income, soil phosphorus levels, and phosphorus runoff) on alternative poultry litter management practices and P application rules was obtained from a series of SWAT simulations. Software was developed to "read" the numerous SWAT output files for each hydraulic response unit (an area of common soil type and land use) from each simulation run and directly incorporate the results into a programming model. The programming model is a necessary step to determine the most economically efficient set of management practices. This is because the uniform regulations easily analyzed by simulation models are not the most cost effective. The programming model is a mechanism to accumulate the SWAT simulations. Solution of the programming model allows different management practices to be used in different HRUs. The concept is similar to that of targeting soil conservation practices to "Highly Erodible" land where more erosion can be prevented at lower cost.

The second step was to conduct a series of policy analysis scenarios with the completed programming model. The effectiveness of the possible abatement policies was determined by parametrically varying the annual limit on annual phosphorus discharges. The allowable range of annual phosphorus loading from the watershed was be varied by five-ton increments from the minimum attainable value upward to the annual current load of 50 tons. The solutions indicate the most economically efficient mix of policy methods to achieve each level of phosphorus abatement. Estimates of the amount of water treatment cost avoided and the amount of lake recreation obtained provide policy makers with the tradeoff between cost of further reducing P loads against the value of environmental damages avoided.

Findings:
Objective 1:
The purpose of this objective was to determine the economic viability and best location for poultry litter-to-energy facilities. The complete project has been reported in a thesis by Chala, but the results are summarized here. Three scenarios were examined. Scenario I analyzed reduction of poultry litter applied to land in eastern Oklahoma with an assumption that no processing plant is established. In this situation, continuous variables represented the quantity of litter transported from each poultry grower to each selected wheat and/or forage-growing county outside the watershed. A linear programming model was used to determine the optimum solution.

Scenario II examined the combined alternatives of establishing processing plants and transporting some amount of Oklahoma poultry litter outside the watershed. In this case, binary variables were used to select or not select a particular location and processing plant capacity. Mixed integer programming was used to find the optimum solution. Scenario III was like Scenario II, but included poultry litter from western Arkansas.

Since the assumptions about profitability of processing plants were projections and have not been tested, the model results were tested for sensitivity to an alternative assumption. The alternative assumption was that, rather than achieving its expected profitability, the processing plant achieved only half that amount. This might happen, for example, if electricity or fertilizer yields were lower than predicted, or if wholesale electricity and fertilizer prices were lower than predicted, or if the “green energy” tax credit (currently 1.8¢/kwh) were not available.

The model choice variables were quantities of litter transported from each farm to each processing plant and processed, capacity of each processing plant that is built, and quantity of litter transported from each farm to each of several phosphorous-deficit counties.

The model selected one of five plant capacities for each of five prospective plant locations: 100,000, 200,000, 300,000, 400,000, and 500,000 tons per year of litter processing capacity. Alternatively, the model chose to build no plant at a particular location. Binary variables were used to model these choices. Continuous variables were used to determine the quantity of litter transported from each farm.

Key Results

- Using previous projections of processing profitability (determined under the previous year’s OWRRI study), the model’s optimum solution is to build one 400,000-ton capacity plant and one 500,000-ton capacity plant. Operating at 90% capacity, the 400K-ton plant processes 289,560 tons of Arkansas litter and 70,440 tons of Oklahoma litter, while the 500K-ton plant processes 340,920 tons of Arkansas litter and 109,080 tons of Oklahoma litter. Profit reported by Chala is $8.88/ton of litter. Updating those results with increased transportation costs results in an expected profit of $6.81/ton of litter.
- If processing is as profitable as projections indicate, processing is an effective way of removing litter from the region, and no mandates are necessary. Transporting litter out of the region is more costly.

- If processing is 50% less profitable than projections indicate, it is still less costly than transporting the litter out of the region, and is thus an effective way of removing litter from the region. However, neither processing nor transporting litter out of the region will occur without incentives or mandates, such as a constraint on minimum amount of litter to be removed. In this case, raising the minimum amount of litter that must be removed reduces per-ton cost of removing litter because it forces larger amounts to be processed, taking advantage of economies of size in processing.
- There is a tradeoff between reducing cost (increasing profitability) of removing litter, and amount of litter removed from Oklahoma. Profitability is increased by allowing Arkansas litter to be processed, but this reduces the amount of litter removed from Oklahoma.

Findings:
Objectives 2 and 3:

Objectives 2 and 3 were to determine the most economically effective set of poultry litter management practices and/or STP regulations that meet specified limits on soluble phosphorus runoff, and to determine the most efficient pattern of litter transportation for use within the watershed and for removal of excess litter from the watershed. These objectives were to include a poultry litter-to-energy processing plant as one of the alternative uses for the litter if the plant had the potential to be economically viable. The results from Objective 1 found that with quite conservative assumptions a litter-to-energy plant could be economically viable, so it is included in the following analysis.

The procedures used to accomplish objectives 2 and 3, and a detailed summary of the findings, are described below.

An Approach to Efficient Watershed Pollution Abatement

The recent explosive growth in geographical information systems (GIS) with environmental databases has been accompanied by growth and improvement in watershed level simulation models. The latter have found a ready audience with those particularly concerned with nonpoint source pollution problems. The main problem treated in the paper is the use of these new developments to assign management practices to particular areas within the watershed to effectively control nonpoint source pollution at least cost. This approach illustrates a relatively simple method of using GIS based simulation models to estimate nonpoint source coefficients that can be input into a conventional mathematical programming model. The programming model is then used to select most efficient management practices for each location in the watershed so that an overall pollution target is reached at least cost. The motivation for this process can be better understood by first reviewing the conceptual framework for determining optimal abatement levels and the inherent problem with using only a simulation model to accomplish the task.

Conceptual Framework

The conceptual framework is based on this concept of minimizing the sum of total pollution abatement cost and total environmental damage cost (Freeman, Haveman and Kneese, 1973). Assume there is a watershed with two heterogeneous sources of pollution (each emitting 100 tons per year) that cause environmental damage. For each source i, total unregulated pollution (TP_i) is equal to pollution removed or abated (R_i) and pollution remaining (P_i). The optimal social welfare pollution abatement problem can be expressed as,

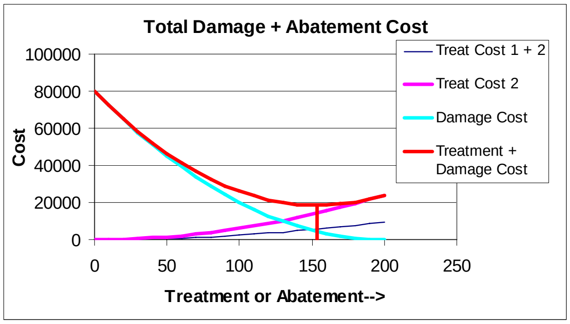
(1) $\text{Min } W(P) = a_1R_1^2 + a_2R_2^2 + d(P_1 + P_2)^2 + \lambda_1(TP_1\text{-}P_1\text{-}R_1) + \lambda_2(TP_2\text{-}P_2\text{-}R_2)$,

where W(p) is a pollutant dependent welfare function, M* is the maximum amount of market goods produced in a economy without any abatement, E* is the maximum potential value of environmental services obtained from a pristine environment, $a_iR_i^2$ is the total abatement or treatment cost at source i for removing R_i units of pollution, $d(\Sigma Pi)^2$ is the monetary value of environmental damage caused by the remaining pollution from each source i. Since M* and E* can be treated as endowments that are fixed in the short run, the total social well being can be maximized by minimizing the sum of pollution abatement costs and environmental damages costs. The first order conditions with respect to Ri, Pi are,

$\partial W/\partial R_1 = 2a_1R_1 - \lambda_1 = 0,$ $\partial W/\partial R_2 = 2a_2R_2 - \lambda_2 = 0,$

$\partial W/\partial P_1 = 2d(P_1 + P_2) - \lambda_1 = 0,$ $\partial W/\partial P_2 = 2d(P_1+P_2) - \lambda_2 = 0.$

If all P_i, $R_i > 0$ are in the optimal solution, then the last equation indicates that $\lambda_1 = \lambda_2$ and that $2a_1R_1 = 2a_2R_2 = 2d(P_1+P_2)$. In a watershed with n sources of pollution, optimal abatement occurs where $MAC_1 = MAC_2 = \ldots = MACn = MDC$, where MAC_i is the marginal abatement cost for source i and MDC is the marginal damage cost at the point of measurement. If for the same amount of abatement ($R_1 = R_2$) we have $MAC(R_2) > MAC(R_1)$, then at the optimum, $R_2 < R_1$. That is, most of the abatement should be accomplished by R_1, the source with the lower marginal abatement cost.



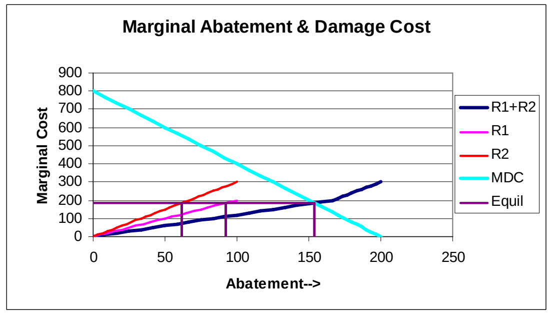


Figure 1. Total and Marginal Abatement and Damage Costs for the Example Problem.

This concept is illustrated in Figure 1 above where a_1=\$1, a_2 = \$1.5 and d=\$2. The optimum level of pollution abatement occurs where sum of total Treatment + Damage cost is a minimum. The optimal solution calls for the abatement of 154 tons with source one removing 92 tons and source two removing 62 tons. This level of removal equates the marginal abatement costs for each source to each other and to the aggregate marginal damage cost curve at \$185 per ton. Note the solution requires an equation of marginal abatement costs across sources and does not assume equal or proportional abatement across sources. For this approach to be operational in a watershed, empirical estimation of both abatement and environmental damage costs for the selected pollutant or pollutants is needed.

Geographical Information Systems and Simulation Models.

Large efforts are underway to develop high quality Geographical Land Use data sets in many countries of the world. At a minimum these data sets typically contain layers for land use and characteristics for soil type. At the same time many GIS based simulation models have been developed to help environmental planners deal with pollution problems at the watershed level. Several authors (Gurnell and Montgomery, 2000), (Arnold *et al*., 1998), discuss recent advances in biophysical modeling due to the advent of GIS data use as well as other dramatic improvements in computing capabilities. These advances create an opportunity for more precise modeling of the environmental-economic processes relevant for the problem of point and nonpoint pollution abatement at the watershed and river basin level. These advances could be used in designing environmentally and economically effective policies. However these are simulation models while efficient solutions to the above problem require optimization as illustrated in the example below.

The example below in Figure 2 illustrates a relatively simple two-step procedure for combining simulation and mathematical programming to determine a set of phosphorus abatement practices for a watershed. In the example, the objective is to determine how much poultry litter can be applied to each HRU if total producer income from the watershed is maximized while total phosphorus emissions are held below a target level.

The first step is to conduct a series of multiyear simulations where alternative management practices are tested in each HRU of the watershed. Assume the management practices consist of applying from 1 to 6 tons of poultry litter per hectare on land used for hay. A 10-year simulation is run in which 1 ton of litter is applied to each HRU. From the simulation output, the yield averaged over 10 years is multiplied by the price of hay ($70/ton). Then the variable costs of $15 for materials and labor per hectare and $5 per ton of litter applied are subtracted. For HRU_1, the net revenue calculation, ($70/mt)(.59 mt)- $15 - $5 /mt = $21) is entered in the objective function. The average P loss of 2.46 kg per hectare is entered in the PLoss row of the model. From the same simulation run, calculations for applying one ton of poultry litter in each of the otherHRUs are made and the coefficients are entered into the programming model. Another 10 year simulation is conducted with two tons of poultry litter applied to each HRU. The average net

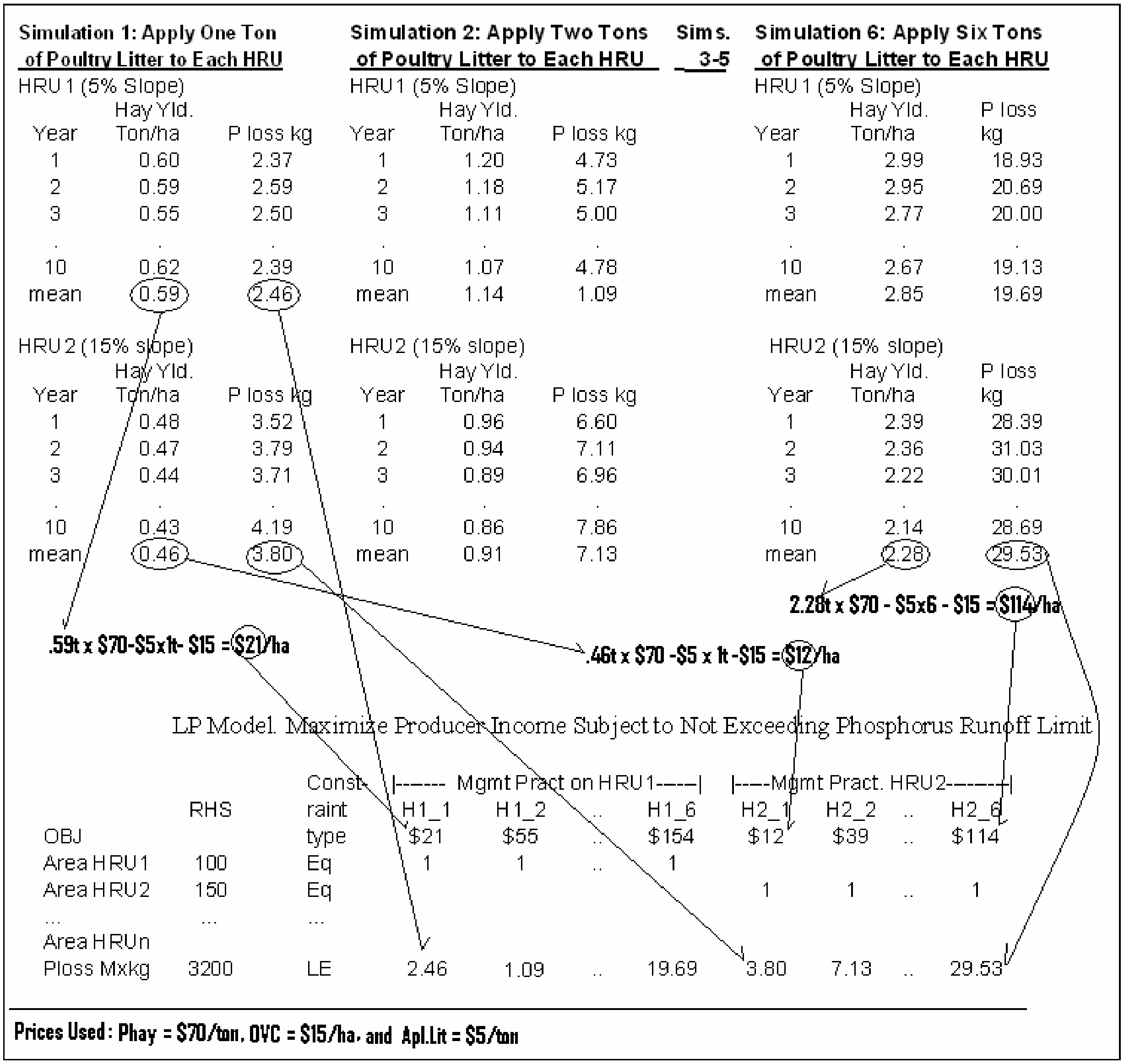


Figure 2. Example Showing Construction of a Watershed Level Programming Model from a Series of Simulation Runs with Different Level of Poultry Litter Applied.

revenue and P loss values are calculated and added to the programming model. The simulation process is repeated with 3, 4, 5, and 6 tons of litter applied to each HRU. After each simulation the net revenue and P loss values for each HRU are calculated and entered in the programming model. After the programming model has been completed, the Maximum Allowable P loss can be varied parametrically to determine the maximum farm income, amount of poultry litter that can be applied in each HRU so the watershed target is met. The treatment cost is obtained by subtracting the value of the objective function from the maximum farm income that could be obtained in the absence of any limitation of P runoff.

With only the data shown in Figure 2, maximum income ($32,570) is obtained with all producers applying 6 tons of litter. Phosphorus runoff is nearly 6,400 kg. The maximum income that could be obtained with a 3,200 limit on phosphorus loading is $21,770 where producers in HRU1 apply 6 tons of litter but producers in HRU2 reduce litter applications to 2.2 tons per hectare. The minimum treatment cost to meet the 3,200 phosphorus limit is $10,800. In a large watershed with several thousand HRUs, it will be more efficient to determine the least cost pattern of abatement by using a combination of simulation and mathematical programming than by searching with simulation alone. The programming model has the added advantage that treatment costs from municipal and industrial sites can be included along with the damage cost from pollution and the model used to determine optimal level of abatement from point and nonpoint sources of pollution.

Applications of the Methodology

Examples with two types of biosimulation models are provided. The first is the Soil Water Assessment (SWAT) Model. SWAT is a comprehensive model developed by the U.S. Agricultural Research Service at the Blacklands Research Center in Temple, Texas. (Arnold *et al*. 2000). SWAT divides a watershed first into subbasins. Then each subbasin is subdivided into hydrologic response units (HRU). An HRU is an area with a common soil type and land use. The model uses daily rainfall and solar energy to simulate biomass growth, filtration and runoff, nutrient flux, and groundwater drainage. The model must be calibrated for use in a specific subbasin by selecting soil types, land cover, and measuring water and nutrient outflows against recorded stream flow data. (Storm *et al*. 2002).

Use of SWAT and Optimal Phosphorus Abatement in a Watershed.

The Eucha-Spavinaw watershed (Figure 3) that crosses the Western Arkansas- Eastern Oklahoma border has been troubled for a number of years and has been a source of considerable controversy between the two states. The watershed is a primary source of drinking water for the Tulsa metropolitan area (population 1 million). Eutrophication of Lakes Eucha and Spavinaw is blamed on high phosphorus loading in the watershed attributed to excessive land application of litter produced by intensive poultry industry in the area, and discharges of municipal wastewater from the City of Decatur, AR, emitted from a combined treatment plant for the municipality and a poultry processing facility (Storm *et al.*, 2002). Water from eutrophic lakes is not suitable for drinking due to bad taste caused by chemicals resulting from algae presence (OWRB, 2002). Drinking water treatment facilities are able to treat the water to achieve established drinking water standards, but find it difficult and extremely expensive to treat the water to remove the bad taste (TMUA, 2003). There are concerns regarding the recreational values of the area lakes, as well as concerns about the overall ecological impacts of phosphorus pollution in the watershed. The estimation of abatement and damage costs is described below.

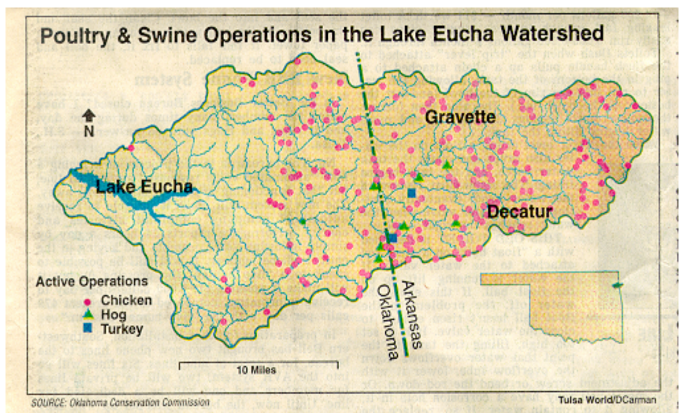


Figure 3. Eucha-Spavinaw Watershed

Abatement costs

Total abatement costs are the sum of point and non-point source abatement costs. Abatement costs for a municipal wastewater treatment represent the costs of employing a particular abatement technology for phosphorus reduction. Abatement costs for non-point

Environmental damage costs

The two main types of environmental damages caused by phosphorus pollution in the watershed were identified as the impairment of the quality of drinking water for the city of Tulsa (OWRB, 2002) and the losses of recreational values from the lakes, Eucha and Spavinaw. The latter was reflected in a drastic reduction in the number of annual visits (OCC, 1997, OTRD, 2003)).

Methods and Procedure

First, the Soil Water Assessment Tool (SWAT) is used as a Geographical Information Systems (GIS) data biophysical simulation model for the Eucha-Spavinaw watershed (Storm *et al*., 2002). The SWAT output data on crop yield, grazed biomass and phosphorus runoff were used in a spatial mathematical programming model to determine optimal allocation of management practices to the point and non-point sources of phosphorus loading within the watershed and to derive the marginal phosphorus abatement costs. Environmental damage costs were calculated as a sum of cost for additional drinking water treatment for the City of Tulsa and the costs of recreational losses of the area lakes.

Step 1: Management Practices, Abatement and Damage Costs

The calibrated SWAT model for the Eucha-Spavinaw watershed (Storm et. al., 2001) was used to conduct biophysical simulation for the alternative BMPs. The BMPs were implemented on 2,416 agricultural hydraulic response units (HRU) from 90 sub-basins in the Eucha-Spavinaw watershed. An HRU represents a combination of a major soil type and land use within a sub-basin. The watershed with broiler houses is shown in Figure 3.

SWAT Delineation of Eucha Watershed

The SWAT simulation model was developed and Calibrated by Storm and White (2005). The 93,115 hectares in the watershed was delineated by SWAT into 2413 HRUs and 27 major soil types. There are more actual soil types in the basin but SWAT combines similar soils together to reduce the total number of HRUs. The current study concentrates on the `1395 HRUs and the 35,916 hectares classified as pasture The land uses by major soil type are shown in Table 1.

Table 1. Land Use delination of Eucha Watershed by Major Soil Type and Land Use

	Land Use						
Major Soil Type	Crop	Pasture	Range	Forest	Urban	Water	Total
	Hectares						
BRITWATER	5	1111	145	593	27	91	1974
CAPTINA	316	5150	201	404	383	2	6456
CARYTOWN	0	127	16	0	8	1	152
CHEROKEE	0	19	0	0	1	0	20
CLARKSVILLE	11	5932	2327	32810	152	156	41388
DONIPHAN	73	4353	398	1161	172	3	6160
ELDORADO	0	26	0	0	0	0	26
ELSAH	0	85	33	313	4	9	444
HEALING	17	175	7	15	2	0	216
HECTOR	0	6	0	0	0	0	6
JAY	89	985	32	0	27	1	1134
LINKER	0	44	0	0	0	0	44
MACEDONIA	168	1460	111	291	86	0	2116
NEWTONIA	566	2224	84	128	61	0	3063
NIXA	1	5752	994	5659	377	2	12785
NOARK	0	394	220	1793	9	2	2417
PERIDGE	122	1339	2	0	80	0	1544
RAZORT	2	1118	306	3716	22	2	5165
SECESH	2	210	30	258	33	4	537
SHIDLER	0	0	0	0	1	0	1
STIGLER	36	368	0	0	23	1	427
TAFT	1	0	0	0	0	0	1
TALOKA	271	1948	60	0	44	2	2324
TONTI	70	3039	145	237	230	3	3724
WABEN	1	44	0	0	2	0	47
WATER	0	5	3	19	2	912	942
Grand Total	1751	35916	5113	47396	1747	1191	93115
No of HRUs	118	1395	282	241	262	115	2413

The 90 subbasins delineated by SWAT for the Eucha Spavinaw basin are shown in Figure 4. below. Lake Eucha is located in Subbasins 48 and 55. Lake Spavinaw is located to the west of Subbasin 48.

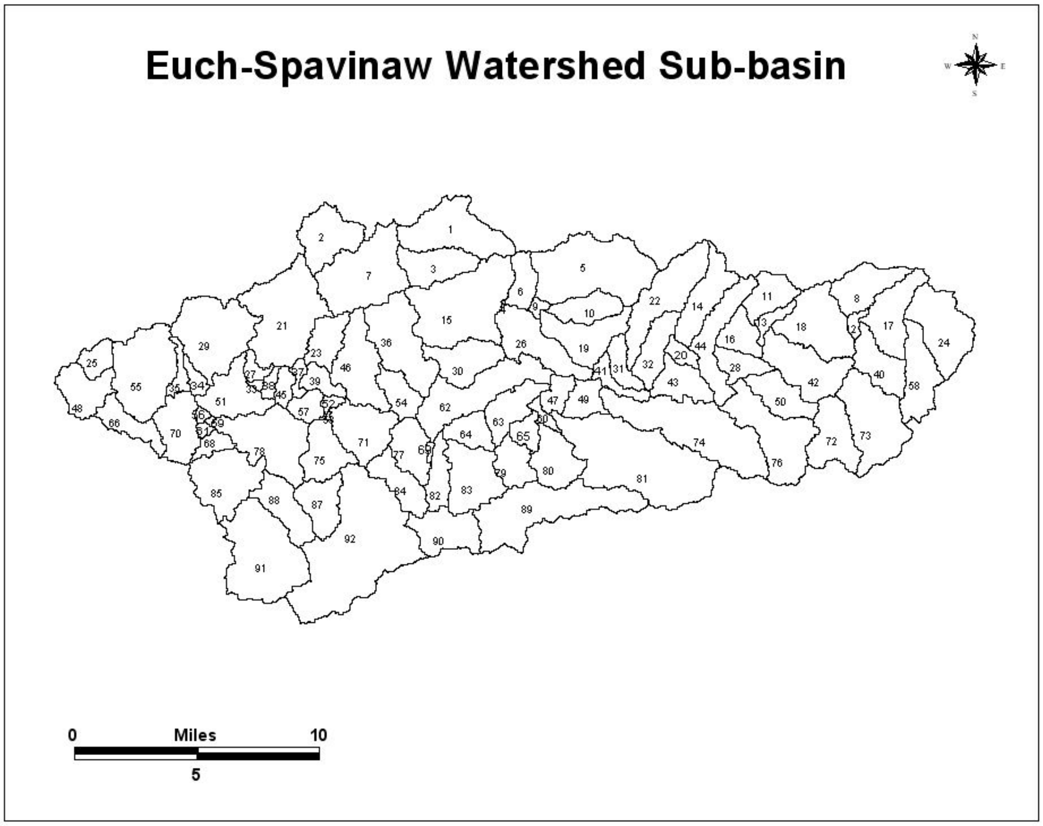


Figure 4. Subbasins Defined for the Eucha-Spavinaw Subbasin.

Modeling Grazing Management Practices in the Eucha Watershed

A previous study by Ancev (2003) indicated that improved pasture management had the potential to become a cost effective BMP for reducing phosphorus runoff. In this study combinations of litter application, commercial nitrogen, minimum biomass maintained during grazing, and stocking densities were simulated. The pasture in the Eucha basin was modeled as tall fescue. Some 48 alternative pasture management combinations were simulated on each of the 1395 pasture HRUs in the water shed. Alternative pasture management practices were not simulated for HRUs in range and forest. Combinations of litter applied and commercial nitrogen were used to provide a range of fertilizer levels from zero to 240 kg of N per hectare. Each Mg of Litter was assumed to contain 30 kg of N and 14 kg of P. The combinations of Litter and commercial nitrogen used are shown in Figure 5 below and in Table 1.

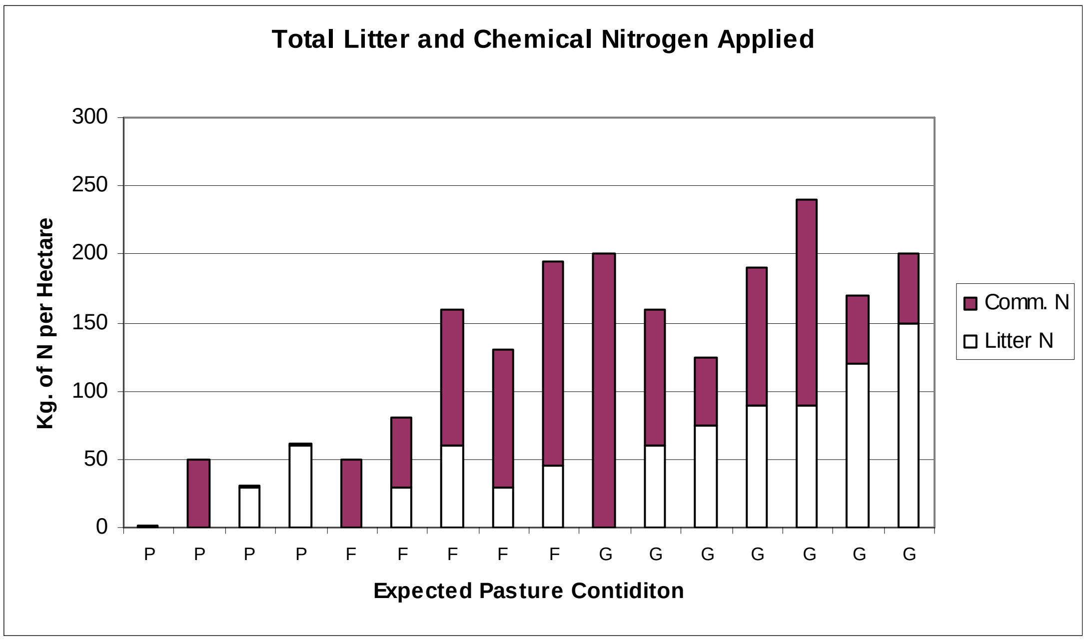


Figure 5 Nitrogen from the Poultry Litter and Commercial Nitrogen Applications Simulated in SWAT to Analyze Grazing Management Practices.

The pasture condition from each of the sixteen litter-fertilizer combinations described above when assigned minimum biomass to be maintained during grazing were assumed to result in ratings of poor, fair, and good. The three levels of minimum biomass specified were

Poor Pasture, 1100 kg.
Fair Pasture, 1600 kg.
Good Pasture, 2000 kg. (was considered Good/Fair with high grazing intensity).

The determination of pasture condition is in part a judgment call but is important because the NRCS curve numbers are assigned or adjusted according to the pasture condition. This adjustment is made exogenous to the SWAT model. In general poor pastures are more susceptible to runoff because of less land cover and are assigned a higher curve number. The range of curve numbers also depend on the hydrologic code (A, B, C, or D) assigned to each soil type.

The three grazing intensities in terms of consumption per day and animal units/acre were

7.4 Low, 0.67 AU/acre
11.8 Medium, 1.00 AU/acre
14.9 High, 1.26 AU/acre.

The 16 fertilizer combinations used with each grazing intensity are, given in Table 2.

Table 2 . Alternative Litter Application Rates, Commercial Nitrogen, Minimum Biomass Retained During Grazing, Stocking Rates Simulated for each of the 16 Management Practices.

Pasture Condition	Lit kg/ha	qCNit kg/ha	Tot.Nitrogen kg/ha	P Applied	Minimum Biomass	Curve No
Low Stocking (.67 AU/ha) and Medium Stocking Rates (1 AU/ha						
P	1	1	1.0	0.0	1100	86
P	1	50	50.0	0.0	1100	86
P	1000	1	1.0	14.0	1100	86
P	2000	1	1.0	28.0	1100	86
F	1	50	50.0	0.0	1600	79
F	1000	50	50.0	14.0	1600	79
F	2000	50	50.0	28.0	1600	79
F	1000	100	100.0	14.0	1600	79
F	1500	100	100.0	21.0	1600	79
G	1	200	200.0	0.0	2000	74
G	2000	100	100.0	28.0	2000	74
G	2500	50	50.0	35.0	2000	74
G	3000	100	100.0	42.0	2000	74
G	3000	150	150.0	42.0	2000	74
G	4000	50	50.0	56.0	2000	74
G	5000	50	50	70	2000	74
High Stocking Rate (1.26 AU/ha.)						
P	1	1	1	0.014	1100	86
P	1	50	50	0.014	1100	86
P	1000	1	1	14	1100	86
P	2000	1	1	28	1100	86
F	1	50	50	0.014	1600	79
F	1000	50	50	14	1600	79
F	2000	50	50	28	1600	79
F	1000	100	100	14	1600	79
F	1500	100	100	21	1600	79
F/G	1	200	200	0.014	2000	76
F/G	2000	100	100	28	2000	76
F/G	2500	50	50	35	2000	76
F/G	3000	100	100	42	2000	76
F/G	3000	150	150	42	2000	76
F/G	4000	50	50	56	2000	76
F/G	5000	50	50	70	2000	76

The SWAT simulation results with respect to biomass eaten, phosphorus runoff for each of the 48 treatments are summarized in the Appendix for the major soils in the watershed. The simulation results for each soil are a weighted average of the results from each individual hru of that soil type. The weights were the area of each hru.

The results show the following.

1. There is much less phosphorus loss under all treatments for the Class B soils than for the class C and D soils.
2. The amount of phosphorus loss for fair and good pastures is much less than for the poor pastures.

However, a simple budget analysis (not shown) found that the higher stocking rate 14.9 kg/day was more profitable than the medium stocking rate of 11.8 kg/day which in turn was more profitable than the low stocking rate of 7.4 kg/day. That is pastures in the upper poor and lower fair range give higher economic returns than good pastures. This assessment was based on the assumption that commercial nitrogen cost $.64 per kg and that the delivered and applied cost of litter would vary from $15 to $20 per metric ton. The net value of consumed grass was valued at $27.88 per metric ton. This value was derived from a modified OSU cow calf budget shown below.

Modifications to OSU Cow Calf Budget.

The census of agriculture provides estimates of the number of cattle sold and the value of these cattle. The value of cattle sold was adjusted to remove an estimate of the number of cull cattle that would likely be sold. Dividing the remaining value by the average price of cattle for each census year then indicated the average weight of all non-cull cattle sold was approximately 623 pounds. This indicated many of the calves were likely kept beyond weaning and sold later.

The OSU budget (2005) was modified by removing the costs for pasture and hay and by assuming that part of the calf crop were kept and sold later as stockers. (Census of Agriculture, 1992, 1997, and 2002).

Table 5. Modified Cow Calf Budget Used to Derive the Value of Biomass Consumed by Grazing.

100 Cow Herd with Stockers Kept

	Weight	Unit	Price	Qt	Revenue
Steer Calves	470	Lbs./hd	$ 93.77	18.91	$ 8,333
Heifer Calves	470	Lbs./hd	$ 86.72	7.49	$ 3,054
Cull Cows	1150	Lbs./hd	$ 38.63	12.0	$ 5,331
Cull Replacement	825	Lbs./hd	$ 76.97	12.0	$ 7,620
Cull Bulls	1750	Lbs./hd	$ 52.24	1.0	$ 914
Stockers	623	Lbs./hd	$ 88.82	40.0	$ 22,134
					$ 47,386
Protein Supp.	1	hd.	$ 41.91	1.1	$ 4,610
Salt	1	hd.	$ 2.33	1.1	$ 256
Minerals	1	hd.	$ 11.50	1.1	$ 1,265
				1.1	
Vet Services	1	hd.	$ 7.14	1.1	$ 785
Vet Supplies	1	hd.	$ 1.16	1.1	$ 128
Marketing	1	hd.	$ 6.14	1	$ 614
Mach. Fuel,Oil, Repairs	1	hd.	$ 20.02	1.1	$ 2,202
Machinery labor	1	hrs.	$ 7.75	2.65	$ 2,054
Other labor	1	hrs.	$ 7.75	3	$ 2,325
Other expense	1	hd.	-	1.1	
Annual Oper. Capital		Dollars	0.0725	179.72	$ 1,303
					$ 15,542
Other Fixed Costs	(OSU budget)				$ 12,577
Net Return to Hay and Pasture					$ 19,266

Hay and Pasture Required per Cow Unit

	Wt	No	lbs/day	days/yr	lbs/yr	kg/yr
Cow	1150	1	25	365	9125	4139
Bull	1200	0.04	25	365	365	166
repHeif	800	0.12	18	365	788	358
Stocker	600	0.4	14	100	560	254
						4916

Net Revenue per Mg Biomass Consumed ($19,266/100hd/4.92) = $ 39.19

The forage calculations at the lower part of the budget in Table 4 indicated that approximately 4.9 Mg of hay and pasture would be required to for the number of cattle associated with each cow unit. Thus the budget provided a potential return of $39.19 for each cow unit if no hay baling were required.

Establishment of Broiler and Subbasin Centroids for Litter Shipment Points

Storm and White (2001) located approximately 1053 broiler houses in the watershed. It was estimated these operations produced 89,460 tons of litter annually. The locations of the poultry houses or clusters of broiler houses are show in Figure 6 below. Most of the poultry operations are located in the eastern part of the watershed in Arkansas.

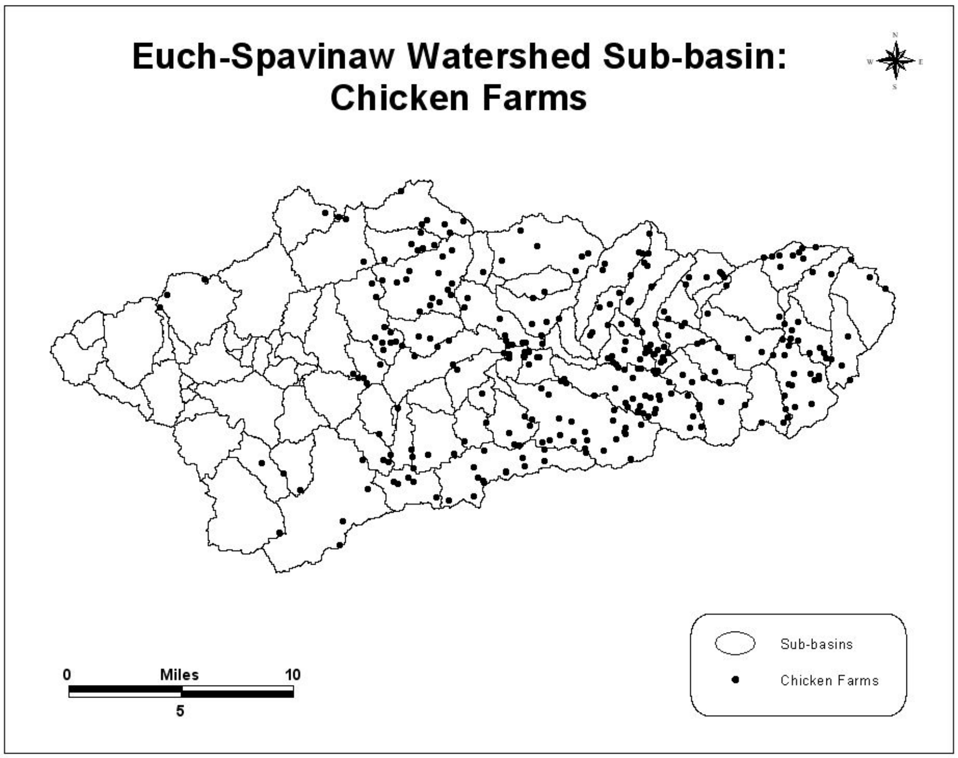


Figure 6. Location of Individual or Clusters of Poultry Operations in the Eucha-Spavinaw Watershed

Methodology for the Transportation Matrix:

Four distance calculations were necessary to develop the transportation matrix. First, the 300 chicken farms were divided into 24 groups such that no chicken farm was more than two miles from a group centroid. This was necessary to limit the number of transportation activities in the linear programming. To obtain the first distance, a script was run in ArcView 3.3® which determined the average distance from each chicken farm to the centroid of that group. This average distance was needed, since not all the farms were exactly two miles away from the chicken farm centroid.

Second, a nearest feature algorithm was run to determine the distance from each chicken farm centroid to the nearest road. The next distance was determined by utilizing a multi-path script, which started from the point on the road nearest each chicken farm centroid and went to the point on the road nearest each sub-basin centroid. The final distance required was the distance from the road to the sub-basin centroid, in which the nearest feature algorithm was again utilized. By placing each distance in a matrix we were able to obtain the distance from each of the 24 chicken farm centroids to each of the 92 sub-basin centroids, which resulted in 2160 combinations. This same process was utilized to create the transportation matrix from each chicken farm centroid to Jay, Oklahoma for location of a possible litter-to-energy plant.

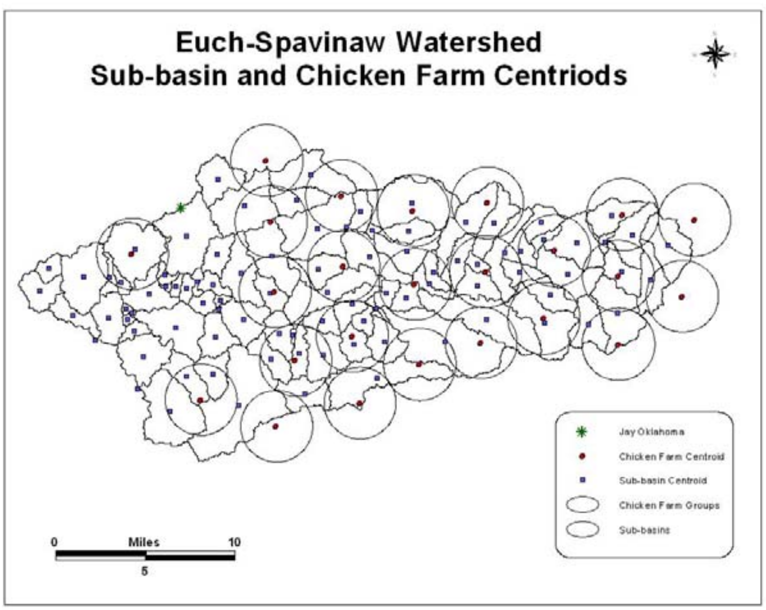


Figure 7. Eucha-Spavinaw Watershed and Sub-basins and Chicken Farm Centroids.

"Currently BMPs, Inc. is coordinating all transactions between the buyers, sellers, and haulers" (Oklahoma Litter Market). The cost for loading, hauling, and spreading through correspondence with Sheri Herron at BMPs, Inc.,(2006). The cost for loading and coordinating a haul ranges from $7.50 to $8.00 per ton. The cost of hauling ranges from $3.25 to $3.50 per loading mile per truckload, with each truck averaging 23 tons per load and the loaded mileage a one-way distance. There was no direct cost for spreading; however, BMPs, Inc. would coordinate spreading at an average of $6 per short ton.

Step 2: The Basin Level Linear Programming Model.

The purpose of the programming model is to select the best management from the 48 choices available in each of the 1394 pasture HRUs along with the pattern of litter shipments that provides the maximum returns from grazing such that the total phosphorus runoff from the watershed does not exceed a finite amount. The annual phosphorus runoff targets used in the analysis were 30, 25, 20, and 15 Mg.

More formally the model can be stated as,

Maximize $Z = \Sigma_{i=1,nhru} \Sigma_{j=1,48} \; C_{ij} X_{ij} - \Sigma_{c=1,28} \Sigma_{b=1,92} \, s_{cb} T_{cb}$

Subject to:

$\Sigma_{j=1,48} \; X_{ij} = Ha_i$, i = 1, 1395, (Land available in each Hru)

$\Sigma_{s=1,24} \; T_{cb} = LS_c$, c=1,24 (All litter must be shipped from each chicken centroid)

$\Sigma_{h(b)} \Sigma_{j=1,48} \, q_{jb} X_{jb} - \Sigma_{c=1,34} T_{cb} = 0$ (inshipments of litter to each subbasin must equal the quantity of litter applied in each subbasin.)

$\Sigma_{i=1,nhru} \Sigma_{j=1,48} \; p_{ij} X_{ij} \le P_{max}$ (total runoff from all hrus in the watershed must be less than or equal the maximum allowable phosphorus (30 Mg, 25 Mg, 20 Mg or 15 Mg)

Where

X_{ij} is the area for the j management practice in the i'th hru,
Ha_i is the total number ofhectares in hru I,
T_{cb} is the quantity of litter shipped from chicken centroid c to subbasin b

q_{ij} is the quantity of litter required by management practice j in hru i. The summation is over the hrus in subbasins s

LS_c is the supply of litter in chicken centroid c

p_{ij} is the amount of phosphorus runoff from hru I if management practice j is used.

Results

Scenario 1. Subsidized Hauling to Enid without a Litter-to-Energy Plant.

Enid, Oklahoma was chosen as the repository site for litter hauled from the Basin. This site was chosen because it has a sufficient area of land available that could beneficially receive large quantities of litter from the Eucha basin. The price of litter at Enid was set at $24.82 per Mg ($22.50 per short ton). The cost of hauling from the chicken centroids to Enid (with the subsidy limited to $5.00 per ton) varied from $41 to $46 per Mg ($37 to $42 per short ton). Hauling litter that distance would not be undertaken unless forced by limits on total phosphorus that could leave the watershed. Large additional subsidies would be required to implement the results. If sufficient land that could accept large applications of phosphorus could be located closer the amount of subsidies would be reduced.

Table 6 below provides an aggregate summary of the effects of limiting total phosphorus runoff to 30, 25, 20, and 15 Mg per year when the only method of litter allocation is hauling within the subbasin and exporting westward to Enid. The amount of litter transported to Enid increased from 11.4 Mg to 63,573 Mg as the phosphorus limit was reduced from 30 Mg to 15 Mg per year. At the same time the cost of removing one additional kilogram of phosphorus increased from $55 to $166. The “abatement cost” is the cost in reduced income to from crops and pasture and the increased cost of litter transport.

Table 6. Effect of Meeting Annual Phosphorus Runoff Limits from 30 to 15 Mg On Income, Cost, and Litter Use when the Only Option is Reduced Application and Export to Enid.

Max. Phos. Runoff	Mg	15	20	25	30
Total Poultry Litter	Mg	89460	89460	89460	89460
To Enid	Mg	63573	41261	25474	11378
To Crop-Past. In Basin	Mg	25887	48199	63986	78082
Red. In Crp/Pst Returns	thoudol	1469565	782032	315587	0
Marg.Abat.Cost $/kg P	$/kg P	166.42	113	74.	55.34
Pasture P. Loss Mg	Mg	10.7	14.9	18.8	23.3
Qt. Litter / ha.	Mg/ha	0.61	1.2	1.67	2
Commercial N Apl.	kg/ha	46.6	36.2	33.3	31.2
Total N. Apl.	kg/ha	64.9	73	83.1	92.6
Biomass Min Graz.	Mg/ha	1.59	1.6	1.55	1.5
Biomass Cons.	Mg/ha	1.75	2	2.14	2.3
Nitrogen Runoff		24063	26812	28294	29376

The average litter application rate declined from 2 tons per hectare to only .6 tons per hectare as the annual allowable phosphorus limit was decreased to 15 mg. The minimum biomass retained for cover (to reduce runoff) increased while the actual biomass consumed decreased as the allowable phosphorus runoff was reduced. The amount of commercial nitrogen used steadily increased as the allowable phosphorus runoff was reduced. The actual nitrogen runoff in this series of solutions declined with the level of phosphorus. This is because total nitrogen (commercial nitrogen plus litter N) declined with allowable phosphorus runoff. (The opposite effect was observed in the scenarios described below).

Variation of Litter Applied By Soil Type.

There is considerable variation between the amounts of litter that can be applied to different soil types within each level of phosphorus runoff. Table 7 below shows the overall quantity of litter applied declines rapidly as the phosphorus limit is reduced from 30 Mg to 15 Mg. However this occurred more rapidly in some soils and not at all in a few soils. In the case of the 15 Mg limit over 15,000 of the nearly 36,000 hectares have rates of one Mg or more. There are some 1600 hectares with application rates of 1.5 Mg or more and over 800 hectares with an application rate of over 2 Mg per hectare. In many cases, the simulated runoff values for soils receiving higher rates of litter application (in many cases the soils receiving the higher litter application rates (Elash, Healing, Linker, Secesh) actually have lower P losses than soils receiving little or no litter (Capitina, Jay, Tonti). The increase in litter application rate on a few soils as the annual P load limit declines occurs because the imputed value of litter in some cases is negative. These results are expected as the least cost phosphorus abatement solution required that marginal abatement costs be equated across soil types which implies the litter application will vary from one soil type to another.

Table 7. Comparison of Optimal Litter Application Rates and Phosphorus Runoff by Soil Type in the Eucha Basin.

			Annual Phosphorus Limit				Annual Phosphorus Limit			
Soil Name	Hyd. Code	Hectares	15 Mg	20 Mg	25 Mg	30 Mg	15 Mg	20 Mg	25 Mg	30 Mg
			Tons of Litter Applied/ha				Phosphorous Runoff kg/ha			
BRITWATER	B	1111.3	0	0	0.3	0.8	0.34	0.34	0.37	0.44
CLARKSVILLE	B	5932.4	0	0.9	1.6	2	0.24	0.41	0.64	0.75
DONIPHAN	B	4352.8	1.4	2.5	2.3	2.1	0.20	0.39	0.49	0.56
ELDORADO	B	26.1	1.3	2.2	2.3	2.4	0.21	0.66	0.74	0.98
ELSAH	B	85.2	2.2	3	2	2	0.24	0.53	0.83	0.83
HEALING	B	174.9	2.9	3.9	4.5	4.6	0.33	0.38	0.49	0.57
LINKER	B	44	5	5	4.9	4.9	0.16	0.22	0.26	0.26
MACEDONIA	B	1460.1	0	0	0	0.6	0.26	0.26	0.26	0.33
NEWTONIA	B	2223.8	1.2	2.8	4.1	4.5	0.21	0.30	0.39	0.42
NOARK	B	393.6	0	0.2	1.1	1.6	0.20	0.27	0.62	0.76
PERIDGE	B	1338.6	1.2	1.7	3	4.3	0.34	0.39	0.53	0.68
RAZORT	B	1118.4	1.9	3.2	3.9	4	0.22	0.29	0.45	0.52
SECESH	B	209.8	4.8	4.9	5	5	0.31	0.42	0.44	0.47
WABEN	B	44	1.8	3.4	2	2	0.24	0.47	0.88	0.88
CAPTINA	C	5150.5	1.1	1.9	2.8	3	0.51	0.76	0.90	1.00
JAY	C	984.8	0.8	2.4	2.6	3.5	0.48	0.65	0.77	0.92
NIXA	C	5752.4	0	0	0	0.5	0.27	0.35	0.40	0.70
TONTI	C	3039.2	0	0	0.1	1.3	0.26	0.26	0.28	0.43
CARYTOWN	D	127.3	0	2.2	3.8	2.6	0.42	0.64	0.82	1.14
CHEROKEE	D	19.5	1.4	2	2.5	2.5	0.13	0.69	1.12	1.31
HECTOR	D	6.2	1.5	0	0	0	0.00	0.66	0.66	0.66
STIGLER	D	367.5	2.1	2.2	3.5	3.7	0.44	0.47	0.55	0.57
TALOKA	D	1948.2	0	0	0	0.1	0.28	0.29	0.31	0.35

The shipment pattern is illustrated in the diagrams below. The general westward movement of litter within the subbasin is observed in all scenarios.

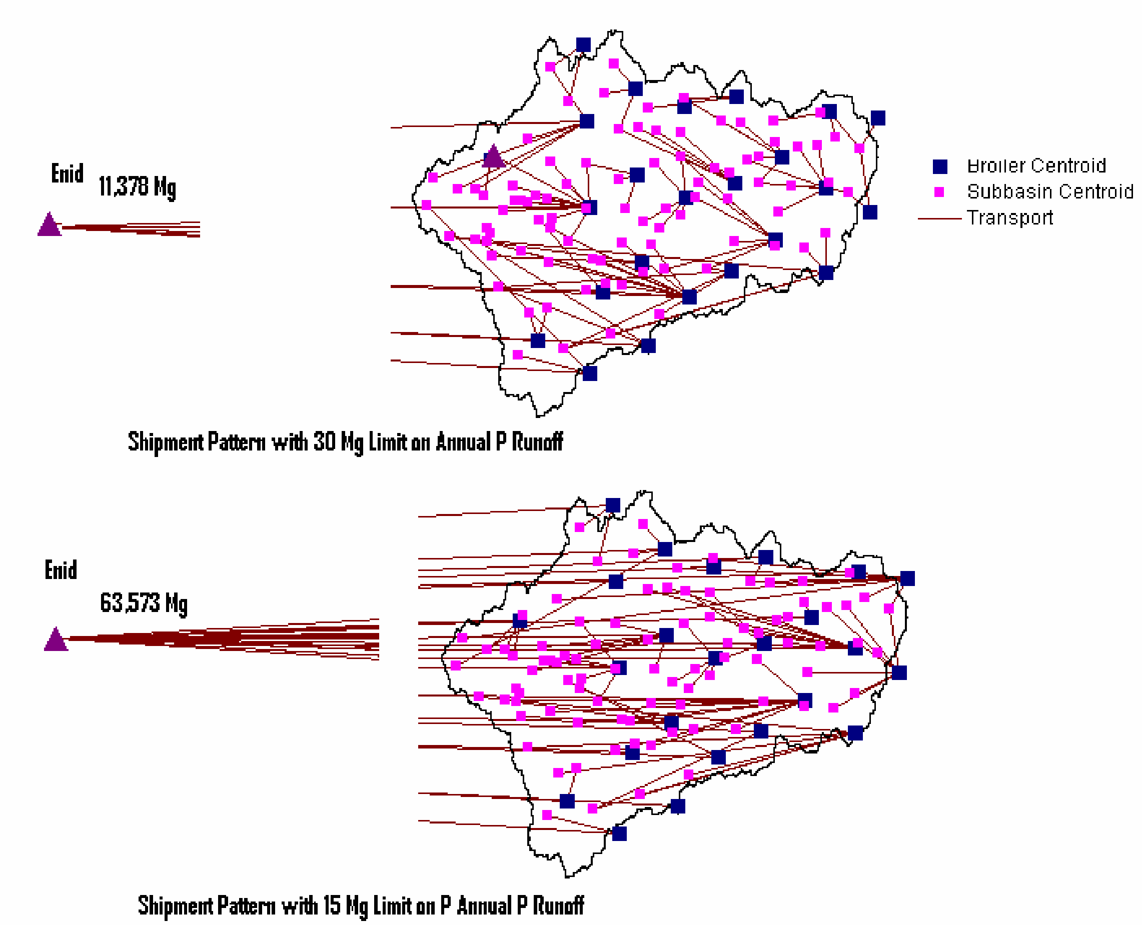


Figure 7, Litter Shipments From Broiler Centroids to Subbasins and Export to Enid when Maximum Phosphorus Runoff is limited to 30 and to 15 Mg per Year.

Scenario 2. A Litter to Energy Plant With Subsidized Hauling to the Plant

In this scenario, the hauling of litter from the broiler house centroids to a Litter to Energy Plant at Jay, Oklahoma was subsidized at the rate of $.05 per ton/mile up to a maximum of $5 per short ton. This is the rate currently used to subsidize hauling of litter outside the basin. The producers were expected to receive a payment of $6.81 for each short ton delivered to the plant. The $6.81 per ton is the midrange of a set of values reported by Chala (2005) for the expected profitability of the proposed litter to energy plant which has been proposed for Jay, Oklahoma (Adam, 2005). The cost of loading and delivery to the plant varied from $9.50 to $13.50 per Mg.

In this scenario, producers would not haul litter to the plant unless the net cost of delivery to the plant exceeded $6.81 – the actual cost of delivery represented the least cost method of disposal.

Table 9 below summarizes the effect of varying phosphorus runoff limits from 15 Mg to 30 Mg per year (12.3 to 27.6 short tons) on the allocation of litter between a litter-to-energy plant and the use on pasture land within the subbasin. (It was also possible to deliver litter to Enid at the same rate as above but this was never a viable option). If only 30 metric tons of phosphorus runoff were allowed each year, then about half of the 89,460 tons of litter would be hauled to the electric plant. The amount of litter hauled to the energy plant steadily increased as the allowable level of phosphorus runoff declined.

Table 9. Summary of Effect of Changing the Annual Phosphorus Runoff Limit from 30 Mg to 15 Mg when there is a Litter-to-Energy Plant and Jay, Oklahoma. Hauling to the Plant is Subsizided at .$05 per Mile.

Max. Phos. Runoff	Mg	15	20	25	30
Total Poultry Litter	Mg	89460	89460	89460	89460
To Electric Plant	Mg	71232	55247	46783	44575
To Crop-Past. In Basin	Mg	18228	34213	42677	44885
Red. In Crp/Pst Returns	thoudol	1306738	667039	256434	0
Marg.Abat.Cost $/kg P	$/kg P	158.244	103.614	61.294	43.32
Pasture P. Loss Mg	Mg	10.6	14.7	18.5	23.2
Qt. Litter / ha.	Mg/ha	0.4	0.83	1.1	1.12
Commercial N Applied.	kg/ha	44	35	32	28.4
Total N. Applied.	kg/ha	50	60.1	63.9	62.2
Biomass Min Graz.	Mg/ha	1.6	1.52	1.5	1.4
Biomass Cons.	Mg/ha	1.7	1.93	2.1	2.2
Nitrogen Runoff		23517	24960	25602	24898

The opportunity to haul litter to the plant at Jay, Oklahoma reduced the cost to remove an additional kilogram of phosphorus at all load levels. The cost to remove one additional ton of phosphorus decreased from over $50 per kg with a 30 ton total limit to $43.32. The cost to remove one additional kilogram of P at the 15 Mg limit declined from $166 to $158. The marginal cost of removing an additional kilogram rose rapidly in both scenarios when the proposed load limit was reduced below 25 tons. Results by Ancev (2003) using a previous SWAT model with a slightly larger subbasin area, though with less refined land detail, concluded that the optimal level of abatement was around 25 tons per year.

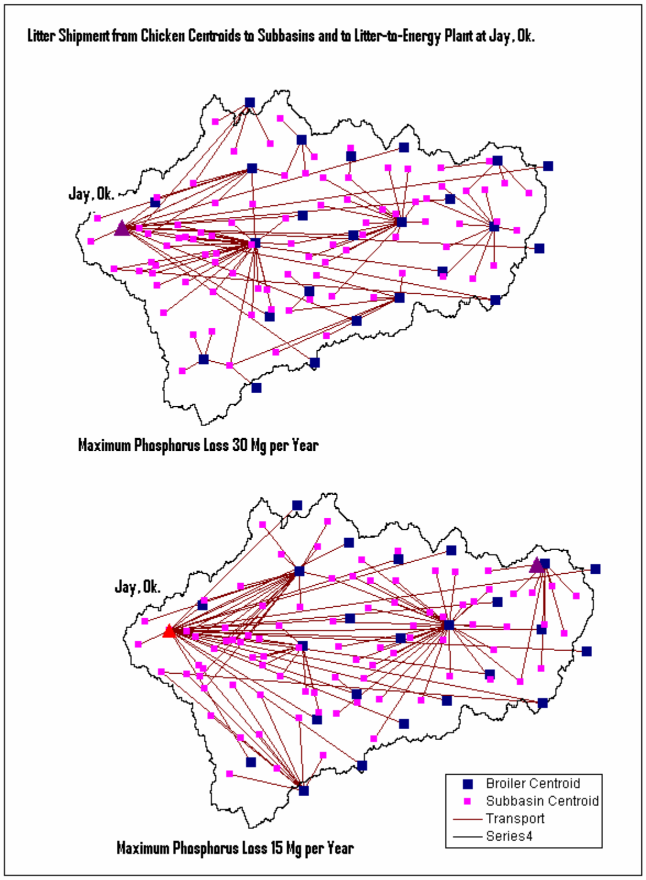


Figure 9. Transportation of Litter Within the Eucha Basin and with Partly Subsidized Transportation to a Possible Litter-to-Energy Plant at Jay, Oklahoma when the Maximum Annual Phosphorus Loss is 15 Mg and 30 Mg.

The transportation patterns of poultry litter from the broiler centroids to the 90 subbasins and to the proposed litter-to-energy plant at Jay, Oklahoma are shown in Figure 9. When the maximum annual phosphorus runoff was limited to 15 Mg, over 71 thousand of the total 89 thousand metric tons are transported to the plant. Hauling to the plant was subsidized at $.05 per mile.

Scenario 3; A Litter to Energy Plant with Complete Subsidization of Hauling to Plant.

Table 10 below contains an overview of the solutions where it was assumed that owners of broiler houses could receive $6.81 per short ton above the cost of delivering the litter to a litter to energy plant at Jay, Oklahoma. This scenario assumed the plant operates as a cooperative with the plant responsible for picking up litter in the basin. This is consistent with the limited cost analysis done so far for the litter-to-energy plant.

As described above, at current prices there is small economic incentive to apply poultry litter to pastures in the subbasin because of high transportation costs and because of the value of litter is limited to its value as a nitrogen fertilizer. The pastures were modeled as grazing units so because of manure deposition there is very little phosphorus removal. There was also little commercial nitrogen used (Price of nitrogen at $063 per kg ($ 0.29/lb plus $2.50 per acre application) because of the relatively high price. The problem with low fertilizer application rates is the lack of biomass to prevent runoff of phosphorus (mainly in the sediment form).

The results indicate at even at the 30 Mg per year limit on phosphorus runoff, that 83.8 mg of the 89.4 Mg of poultry litter would be hauled to the litter-to-energy plant. That is, the value of most litter if applied to land within the basin would yield the broiler owners less than $6.81 per short ton. Currently the Litter Link web site (2006) indicates that producers are averaging $4.50 per ton of litter. As the restriction on the amount of allowable phosphorus runoff is decreased from 30 Mg per year to 25, 20, and 15 Mg, the phosphorus abatement cost in terms of reduction in producer income from crops, pasture, and range increased at an increasing rate. The marginal cost of preventing one additional kilogram of phosphorus loss when 30 tons per year are allowed was estimated to be $23.00. This is considerable less than for scenarios one and two above. However, when only 15 Mg of P per year was allowed, the cost to prevent an additional kilogram increases to $158. Again, the marginal cost of phosphorus abatement increased rapidly as the phosphorus load was reduced from 20 to 25 tons. 2 The marginal abatement cost is in addition to any subsidies in transportation and in plant construction.

Table 10. Effect of Changing the Annual Allowable Phosphorus Runoff Limit from 30 Mg to 15 Mg when Broiler Owners Receive $7.50 per Mg ($6.81 per short ton) above any Transportation Cost.

	Unit				
Max. Phos. Runoff	Mg	15	20	25	30
Total Poultry Litter	Mg	89460	89460	89460	89460
To Electric Plant	Mg	85642	86214	85055	83805
To Crop-Past. In Basin	Mg	3818	3246	4405	5655
Red. In Crp/Pst Returns	Thou.$	939599	402052	147566	0
Marginal.Abatat. Cost	$/kg P	158.624	73.32	36.68	$23.08
Pasture P. Loss Mg	Mg	10.7	14.3	18.6	23.1
Qt. Litter / ha.	Mg/ha	0.02	0.01	0.04	0.06
Commercial N Apl.	kg/ha	42.5	37.9	34.1	30
Total N. Apl.	kg/ha	43.1	38.4	35.3	31.9
Biomass Min Graz.	Mg/ha	1.5	1.4	1.3	1.23
Biomass Cons.	Mg/ha	1.67	1.89	1.94	1.97
Nitrogen Runoff		21890	22943	22326	21355

The results above indicate that maintaining additional biomass on pastures is required as the allowable phosphorus load is decreased. This is reflected in the value for minimum biomass before grazing is allowed and in the increase in total nitrogen applied to pasture. Conversely, the amount of biomass consumed by grazing declines with the increase in biomass retained for cover. However, as indicated previously, this is not a practice that can be profitably adopted by producers without additional subsidy. That is, producers would have to be compensated to adopt the higher biomass pastures. The increase in pasture biomass from increased nitrogen fertilization is accompanied by increases in nitrogen runoff. Thus, nitrogen runoff increases as phosphorus runoff decreases.

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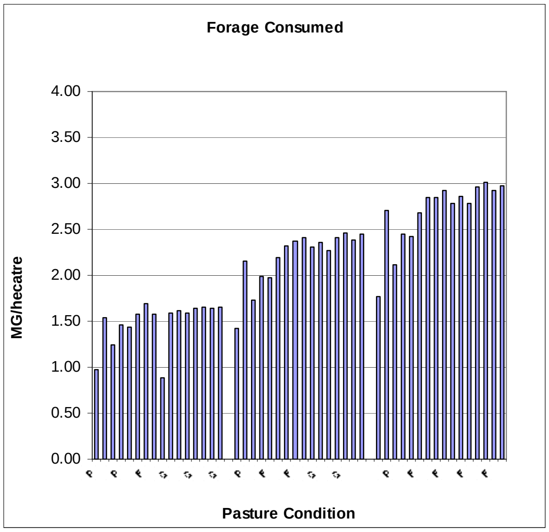
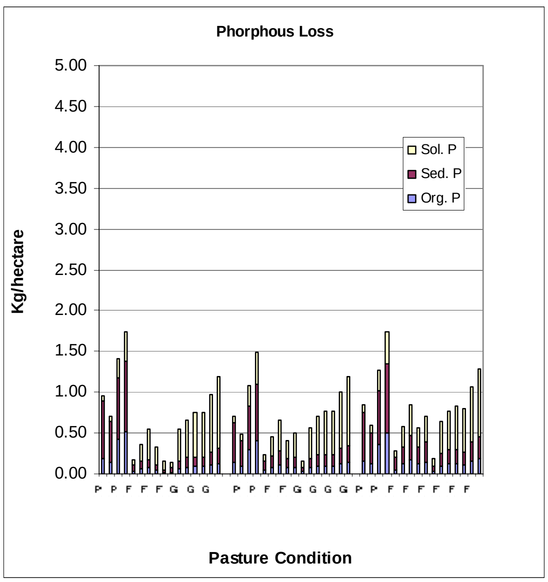
APPENDIX

SWAT Simulation Results for Yield, Phosphorus Runoff for the 48 Alternative Pasture Management Practices Averaged by Major Soil Type

TALOKA

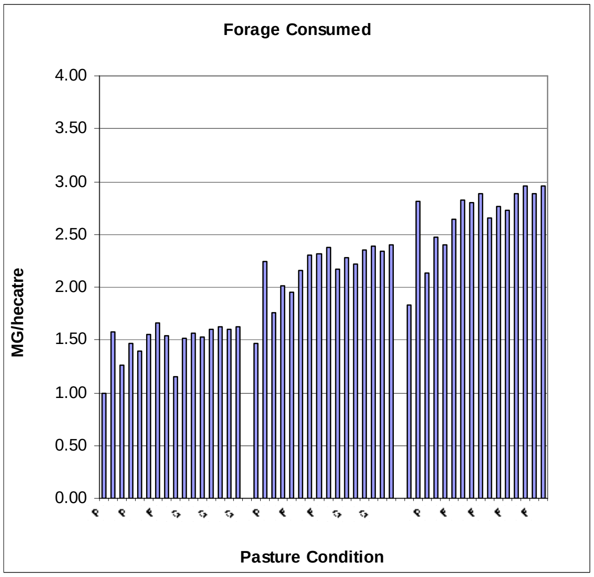
Past Cond	1948 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	D P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	86	0.18	0.71	0.06	0.97	41.80	0.95	30.03
P	1	50	50.0	0.0	1100	86	0.14	0.49	0.06	1.54	66.41	0.70	57.89
P	1000	1	1.0	14.0	1100	86	0.42	0.76	0.22	1.24	53.30	1.40	38.77
P	2000	1	1.0	28.0	1100	86	0.52	0.86	0.36	1.46	62.71	1.74	48.12
F	1	50	50.0	0.0	1600	79	0.03	0.08	0.06	1.44	61.86	0.17	58.78
F	1000	50	50.0	14.0	1600	79	0.06	0.09	0.21	1.58	67.97	0.36	69.67
F	2000	100	100.0	28.0	1600	79	0.08	0.10	0.37	1.69	72.60	0.54	129.55
F	1000	100	100.0	14.0	1600	79	0.05	0.07	0.22	1.57	67.81	0.34	119.27
F	1500	150	150.0	21.0	1600	79	0.02	0.03	0.11	0.88	37.99	0.16	75.83
G	1	200	200.0	0.0	2000	74	0.02	0.05	0.08	1.60	68.71	0.15	198.41
G	2000	100	100.0	28.0	2000	74	0.07	0.09	0.38	1.61	69.47	0.54	135.88
G	2500	50	50.0	35.0	2000	74	0.08	0.12	0.46	1.59	68.45	0.66	97.86
G	3000	100	100.0	42.0	2000	74	0.09	0.12	0.55	1.64	70.59	0.76	153.64
G	3000	150	150.0	42.0	2000	74	0.09	0.12	0.55	1.66	71.26	0.76	202.19
G	4000	50	50.0	56.0	2000	74	0.11	0.16	0.70	1.64	70.41	0.97	124.61
G	5000	50	50.0	70.0	2000	74	0.13	0.18	0.87	1.66	71.28	1.19	143.88
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	86	0.14	0.49	0.08	1.42	61.22	0.71	31.25
P	1	50	50.0	0.0	1100	86	0.09	0.31	0.08	2.15	92.77	0.49	59.03
P	1000	1	1.0	14.0	1100	86	0.30	0.54	0.24	1.73	74.42	1.07	40.09
P	2000	1	1.0	28.0	1100	86	0.41	0.69	0.38	1.99	85.65	1.48	49.62
F	1	50	50.0	0.0	1600	79	0.04	0.12	0.08	1.97	84.74	0.24	60.66
F	1000	50	50.0	14.0	1600	79	0.09	0.14	0.23	2.19	94.12	0.46	70.52
F	2000	50	50.0	28.0	1600	79	0.12	0.17	0.37	2.33	100.14	0.66	81.75
F	1000	100	100.0	14.0	1600	79	0.07	0.11	0.23	2.37	101.94	0.41	110.19
F	1500	100	100.0	21.0	1600	79	0.08	0.12	0.30	2.41	103.80	0.51	116.12
G	1	200	200.0	0.0	2000	74	0.03	0.05	0.08	2.31	99.40	0.16	191.26
G	2000	100	100.0	28.0	2000	74	0.08	0.10	0.38	2.36	101.54	0.56	126.29
G	2500	50	50.0	35.0	2000	74	0.10	0.14	0.46	2.27	97.58	0.70	91.03
G	3000	100	100.0	42.0	2000	74	0.10	0.14	0.53	2.41	103.66	0.77	140.32
G	3000	150	150.0	42.0	2000	74	0.10	0.13	0.53	2.46	105.78	0.76	187.10
G	4000	50	50.0	56.0	2000	74	0.13	0.18	0.68	2.39	102.90	1.00	111.35
G	5000	50	50	70	2000	74	0.15	0.20	0.83	2.45	105.38	1.19	125.75
				High Stocking Rate									
P	1	1	1	0.014	1100	86	0.16	0.59	0.09	1.77	76.20	0.84	32.60
P	1	50	50	0.014	1100	86	0.12	0.39	0.10	2.70	116.41	0.60	60.29
P	1000	1	1	14	1100	86	0.36	0.67	0.25	2.11	90.94	1.27	41.30
P	2000	1	1	28	1100	86	0.50	0.85	0.40	2.44	105.25	1.75	50.81
F	1	50	50	0.014	1600	79	0.05	0.15	0.09	2.43	104.45	0.29	61.38
F	1000	50	50	14	1600	79	0.12	0.21	0.25	2.68	115.39	0.57	70.88
F	2000	50	50	28	1600	79	0.18	0.29	0.39	2.84	122.45	0.85	81.23
F	1000	100	100	14	1600	79	0.12	0.21	0.24	2.84	122.39	0.57	110.23
F	1500	100	100	21	1600	79	0.15	0.24	0.31	2.92	125.61	0.70	115.40
F	1	200	200	0.014	2000	76	0.03	0.07	0.09	2.79	120.04	0.19	188.60
F	2000	100	100	28	2000	76	0.10	0.15	0.39	2.86	123.17	0.64	123.93
F	2500	50	50	35	2000	76	0.12	0.18	0.46	2.78	119.69	0.76	89.92
F	3000	100	100	42	2000	76	0.12	0.18	0.53	2.97	127.76	0.84	136.20
F	3000	150	150	42	2000	76	0.11	0.15	0.53	3.01	129.68	0.79	181.24
F	4000	50	50	56	2000	76	0.16	0.23	0.68	2.93	125.99	1.07	108.40
F	5000	50	50	70	2000	76	0.19	0.27	0.82	2.98	128.10	1.28	121.34

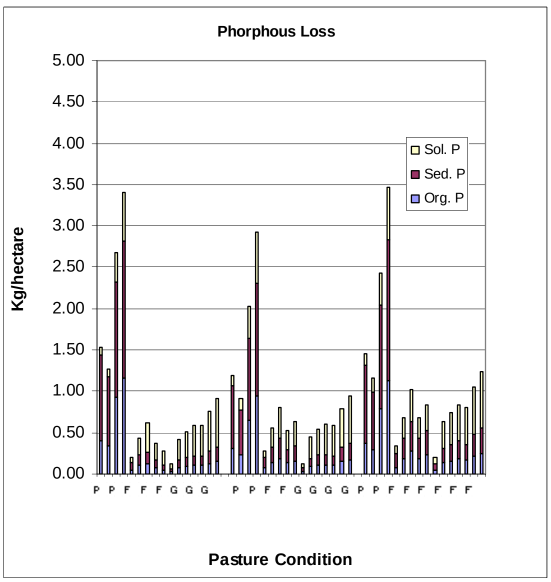

Forage Consumed
MG/hecatre
Pasture Condition


Phorphous Loss
Kg/hectare
Sol. P
Sed. P
Org. P
Pasture Condition

BRITWATER

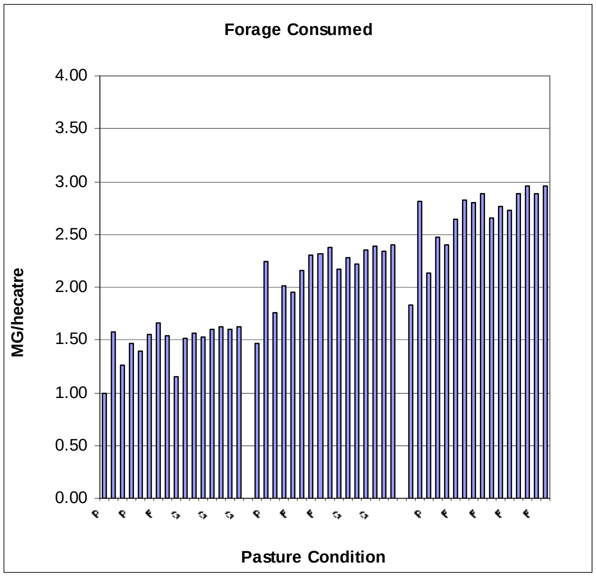
	1111	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.40	1.04	0.09	1.00	42.85	1.53	23.55
P	1	50	50.0	0.0	1100	68	0.35	0.83	0.10	1.58	68.03	1.28	46.72
P	1000	1	1.0	14.0	1100	68	0.93	1.40	0.35	1.26	54.07	2.67	30.67
P	2000	1	1.0	28.0	1100	68	1.16	1.66	0.59	1.47	63.12	3.40	37.73
F	1	50	50.0	0.0	1600	49	0.05	0.09	0.06	1.40	60.10	0.21	35.95
F	1000	50	50.0	14.0	1600	49	0.11	0.13	0.20	1.55	66.75	0.44	42.48
F	2000	100	100.0	28.0	1600	49	0.13	0.14	0.36	1.67	71.75	0.63	78.49
F	1000	100	100.0	14.0	1600	49	0.08	0.08	0.21	1.54	66.21	0.37	72.51
F	1500	150	150.0	21.0	1600	49	0.05	0.06	0.18	1.15	49.69	0.28	86.67
G	1	200	200.0	0.0	2000	39	0.03	0.04	0.05	1.52	65.41	0.12	111.03
G	2000	100	100.0	28.0	2000	39	0.08	0.09	0.26	1.56	67.30	0.42	74.35
G	2500	50	50.0	35.0	2000	39	0.10	0.11	0.31	1.53	66.02	0.51	52.45
G	3000	100	100.0	42.0	2000	39	0.10	0.11	0.37	1.60	68.96	0.58	83.80
G	3000	150	150.0	42.0	2000	39	0.10	0.11	0.37	1.62	69.71	0.58	111.14
G	4000	50	50.0	56.0	2000	39	0.13	0.15	0.48	1.59	68.67	0.75	66.51
G	5000	50	50.0	70.0	2000	39	0.15	0.17	0.60	1.62	69.81	0.92	76.82
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.31	0.76	0.12	1.47	63.18	1.19	24.17
P	1	50	50.0	0.0	1100	68	0.24	0.54	0.13	2.24	96.50	0.91	47.18
P	1000	1	1.0	14.0	1100	68	0.66	0.99	0.38	1.76	75.76	2.03	30.99
P	2000	1	1.0	28.0	1100	68	0.94	1.36	0.62	2.01	86.71	2.93	38.65
F	1	50	50.0	0.0	1600	49	0.07	0.14	0.08	1.95	83.95	0.28	37.25
F	1000	50	50.0	14.0	1600	49	0.14	0.18	0.23	2.16	93.04	0.55	43.27
F	2000	50	50.0	28.0	1600	49	0.19	0.24	0.37	2.30	99.23	0.80	50.17
F	1000	100	100.0	14.0	1600	49	0.13	0.16	0.22	2.31	99.61	0.52	69.84
F	1500	100	100.0	21.0	1600	49	0.15	0.19	0.30	2.38	102.52	0.64	73.08
G	1	200	200.0	0.0	2000	39	0.03	0.04	0.06	2.17	93.53	0.13	107.59
G	2000	100	100.0	28.0	2000	39	0.09	0.10	0.26	2.27	97.94	0.45	70.47
G	2500	50	50.0	35.0	2000	39	0.11	0.13	0.31	2.22	95.50	0.55	49.81
G	3000	100	100.0	42.0	2000	39	0.11	0.12	0.37	2.35	101.31	0.60	78.04
G	3000	150	150.0	42.0	2000	39	0.11	0.12	0.37	2.39	103.01	0.59	105.00
G	4000	50	50.0	56.0	2000	39	0.15	0.17	0.47	2.34	100.75	0.79	60.85
G	5000	50	50	70	2000	39	0.17	0.20	0.57	2.40	103.13	0.94	68.90
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.38	0.94	0.14	1.83	78.85	1.46	25.54
P	1	50	50	0.014	1100	68	0.30	0.70	0.16	2.82	121.32	1.16	48.39
P	1000	1	1	14	1100	68	0.79	1.24	0.40	2.13	91.78	2.44	32.34
P	2000	1	1	28	1100	68	1.12	1.70	0.65	2.47	106.51	3.47	40.00
F	1	50	50	0.014	1600	49	0.08	0.17	0.09	2.40	103.54	0.34	37.92
F	1000	50	50	14	1600	49	0.19	0.25	0.24	2.65	114.03	0.68	44.03
F	2000	50	50	28	1600	49	0.27	0.36	0.39	2.83	121.65	1.02	50.61
F	1000	100	100	14	1600	49	0.19	0.25	0.24	2.80	120.66	0.67	70.11
F	1500	100	100	21	1600	49	0.23	0.30	0.31	2.88	124.04	0.84	73.49
F	1	200	200	0.014	2000	44	0.05	0.08	0.07	2.66	114.48	0.20	108.96
F	2000	100	100	28	2000	44	0.14	0.17	0.32	2.77	119.20	0.63	71.68
F	2500	50	50	35	2000	44	0.16	0.20	0.39	2.72	117.21	0.74	50.81
F	3000	100	100	42	2000	44	0.18	0.22	0.44	2.88	124.17	0.84	78.66
F	3000	150	150	42	2000	44	0.16	0.20	0.44	2.96	127.44	0.80	104.13
F	4000	50	50	56	2000	44	0.22	0.26	0.57	2.88	124.18	1.05	61.29
F	5000	50	50	70	2000	44	0.25	0.30	0.69	2.96	127.25	1.24	68.35

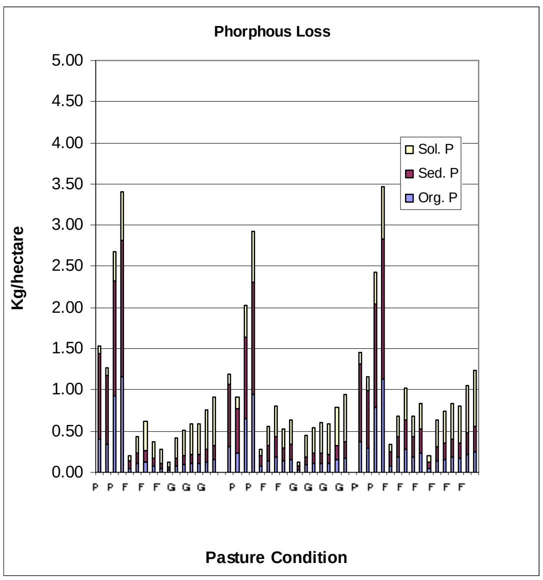

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Sol. P
Sed. P
Org. P
P P F F F F G G G G
P P F F F G G G G G P P P F F F F F F F F
Pasture Condition

CLARKSVILLE

	5932	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.40	1.04	0.09	1.00	42.85	1.53	23.55
P	1	50	50.0	0.0	1100	68	0.35	0.83	0.10	1.58	68.03	1.28	46.72
P	1000	1	1.0	14.0	1100	68	0.93	1.40	0.35	1.26	54.07	2.67	30.67
P	2000	1	1.0	28.0	1100	68	1.16	1.66	0.59	1.47	63.12	3.40	37.73
F	1	50	50.0	0.0	1600	49	0.05	0.09	0.06	1.40	60.10	0.21	35.95
F	1000	50	50.0	14.0	1600	49	0.11	0.13	0.20	1.55	66.75	0.44	42.48
F	2000	100	100.0	28.0	1600	49	0.13	0.14	0.36	1.67	71.75	0.63	78.49
F	1000	100	100.0	14.0	1600	49	0.08	0.08	0.21	1.54	66.21	0.37	72.51
F	1500	150	150.0	21.0	1600	49	0.05	0.06	0.18	1.15	49.69	0.28	86.67
G	1	200	200.0	0.0	2000	39	0.03	0.04	0.05	1.52	65.41	0.12	111.03
G	2000	100	100.0	28.0	2000	39	0.08	0.09	0.26	1.56	67.30	0.42	74.35
G	2500	50	50.0	35.0	2000	39	0.10	0.11	0.31	1.53	66.02	0.51	52.45
G	3000	100	100.0	42.0	2000	39	0.10	0.11	0.37	1.60	68.96	0.58	83.80
G	3000	150	150.0	42.0	2000	39	0.10	0.11	0.37	1.62	69.71	0.58	111.14
G	4000	50	50.0	56.0	2000	39	0.13	0.15	0.48	1.59	68.67	0.75	66.51
G	5000	50	50.0	70.0	2000	39	0.15	0.17	0.60	1.62	69.81	0.92	76.82
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.31	0.76	0.12	1.47	63.18	1.19	24.17
P	1	50	50.0	0.0	1100	68	0.24	0.54	0.13	2.24	96.50	0.91	47.18
P	1000	1	1.0	14.0	1100	68	0.66	0.99	0.38	1.76	75.76	2.03	30.99
P	2000	1	1.0	28.0	1100	68	0.94	1.36	0.62	2.01	86.71	2.93	38.65
F	1	50	50.0	0.0	1600	49	0.07	0.14	0.08	1.95	83.95	0.28	37.25
F	1000	50	50.0	14.0	1600	49	0.14	0.18	0.23	2.16	93.04	0.55	43.27
F	2000	50	50.0	28.0	1600	49	0.19	0.24	0.37	2.30	99.23	0.80	50.17
F	1000	100	100.0	14.0	1600	49	0.13	0.16	0.22	2.31	99.61	0.52	69.84
F	1500	100	100.0	21.0	1600	49	0.15	0.19	0.30	2.38	102.52	0.64	73.08
G	1	200	200.0	0.0	2000	39	0.03	0.04	0.06	2.17	93.53	0.13	107.59
G	2000	100	100.0	28.0	2000	39	0.09	0.10	0.26	2.27	97.94	0.45	70.47
G	2500	50	50.0	35.0	2000	39	0.11	0.13	0.31	2.22	95.50	0.55	49.81
G	3000	100	100.0	42.0	2000	39	0.11	0.12	0.37	2.35	101.31	0.60	78.04
G	3000	150	150.0	42.0	2000	39	0.11	0.12	0.37	2.39	103.01	0.59	105.00
G	4000	50	50.0	56.0	2000	39	0.15	0.17	0.47	2.34	100.75	0.79	60.85
G	5000	50	50	70	2000	39	0.17	0.20	0.57	2.40	103.13	0.94	68.90
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.38	0.94	0.14	1.83	78.85	1.46	25.54
P	1	50	50	0.014	1100	68	0.30	0.70	0.16	2.82	121.32	1.16	48.39
P	1000	1	1	14	1100	68	0.79	1.24	0.40	2.13	91.78	2.44	32.34
P	2000	1	1	28	1100	68	1.12	1.70	0.65	2.47	106.51	3.47	40.00
F	1	50	50	0.014	1600	49	0.08	0.17	0.09	2.40	103.54	0.34	37.92
F	1000	50	50	14	1600	49	0.19	0.25	0.24	2.65	114.03	0.68	44.03
F	2000	50	50	28	1600	49	0.27	0.36	0.39	2.83	121.65	1.02	50.61
F	1000	100	100	14	1600	49	0.19	0.25	0.24	2.80	120.66	0.67	70.11
F	1500	100	100	21	1600	49	0.23	0.30	0.31	2.88	124.04	0.84	73.49
F	1	200	200	0.014	2000	44	0.05	0.08	0.07	2.66	114.48	0.20	108.96
F	2000	100	100	28	2000	44	0.14	0.17	0.32	2.77	119.20	0.63	71.68
F	2500	50	50	35	2000	44	0.16	0.20	0.39	2.72	117.21	0.74	50.81
F	3000	100	100	42	2000	44	0.18	0.22	0.44	2.88	124.17	0.84	78.66
F	3000	150	150	42	2000	44	0.16	0.20	0.44	2.96	127.44	0.80	104.13
F	4000	50	50	56	2000	44	0.22	0.26	0.57	2.88	124.18	1.05	61.29
F	5000	50	50	70	2000	44	0.25	0.30	0.69	2.96	127.25	1.24	68.35

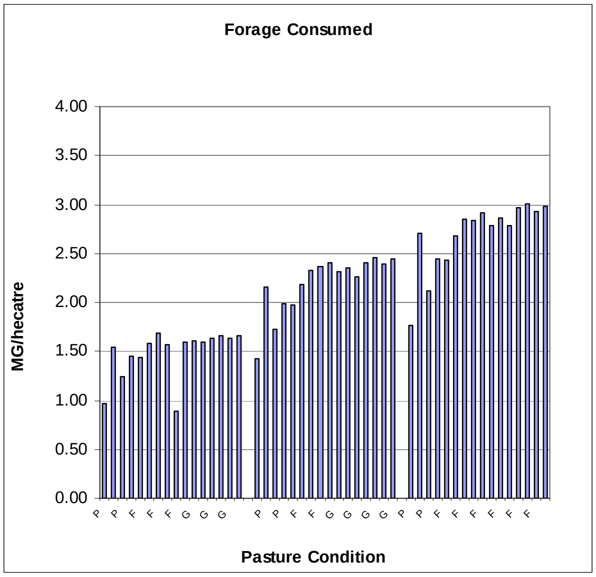

Forage Consumed
MG/hecatre
Pasture Condition

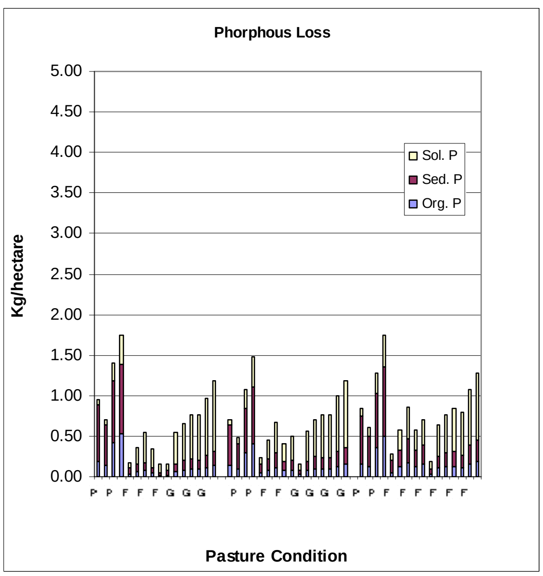

Phorphous Loss
Kg/hectare
Sol. P
Sed. P
Org. P
Pasture Condition

DONIPHAN

Past Cond	4353 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bme at	NgDy s	T Ploss	Nlos s
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	86	0.18	0.71	0.06	0.97	41.80	0.95	30.03
P	1	50	50.0	0.0	1100	86	0.14	0.49	0.06	1.54	66.41	0.70	57.89
P	1000	1	1.0	14.0	1100	86	0.42	0.76	0.22	1.24	53.30	1.40	38.77
P	2000	1	1.0	28.0	1100	86	0.52	0.86	0.36	1.46	62.71	1.74	48.12
F	1	50	50.0	0.0	1600	79	0.03	0.08	0.06	1.44	61.86	0.17	58.78
F	1000	50	50.0	14.0	1600	79	0.06	0.09	0.21	1.58	67.97	0.36	69.67
F	2000	100	100.0	28.0	1600	79	0.08	0.10	0.37	1.69	72.60	0.54	129.55
F	1000	100	100.0	14.0	1600	79	0.05	0.07	0.22	1.57	67.81	0.34	119.27
F	1500	150	150.0	21.0	1600	79	0.02	0.03	0.11	0.88	37.99	0.16	75.83
G	1	200	200.0	0.0	2000	74	0.02	0.05	0.08	1.60	68.71	0.15	198.41
G	2000	100	100.0	28.0	2000	74	0.07	0.09	0.38	1.61	69.47	0.54	135.88
G	2500	50	50.0	35.0	2000	74	0.08	0.12	0.46	1.59	68.45	0.66	97.86
G	3000	100	100.0	42.0	2000	74	0.09	0.12	0.55	1.64	70.59	0.76	153.64
G	3000	150	150.0	42.0	2000	74	0.09	0.12	0.55	1.66	71.26	0.76	202.19
G	4000	50	50.0	56.0	2000	74	0.11	0.16	0.70	1.64	70.41	0.97	124.61
G	5000	50	50.0	70.0	2000	74	0.13	0.18	0.87	1.66	71.28	1.19	143.88
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	86	0.14	0.49	0.08	1.42	61.22	0.71	31.25
P	1	50	50.0	0.0	1100	86	0.09	0.31	0.08	2.15	92.77	0.49	59.03
P	1000	1	1.0	14.0	1100	86	0.30	0.54	0.24	1.73	74.42	1.07	40.09
P	2000	1	1.0	28.0	1100	86	0.41	0.69	0.38	1.99	85.65	1.48	49.62
F	1	50	50.0	0.0	1600	79	0.04	0.12	0.08	1.97	84.74	0.24	60.66
F	1000	50	50.0	14.0	1600	79	0.09	0.14	0.23	2.19	94.12	0.46	70.52
F	2000	50	50.0	28.0	1600	79	0.12	0.17	0.37	2.33	100.14	0.66	81.75
F	1000	100	100.0	14.0	1600	79	0.07	0.11	0.23	2.37	101.94	0.41	110.19
F	1500	100	100.0	21.0	1600	79	0.08	0.12	0.30	2.41	103.80	0.51	116.12
G	1	200	200.0	0.0	2000	74	0.03	0.05	0.08	2.31	99.40	0.16	191.26
G	2000	100	100.0	28.0	2000	74	0.08	0.10	0.38	2.36	101.54	0.56	126.29
G	2500	50	50.0	35.0	2000	74	0.10	0.14	0.46	2.27	97.58	0.70	91.03
G	3000	100	100.0	42.0	2000	74	0.10	0.14	0.53	2.41	103.66	0.77	140.32
G	3000	150	150.0	42.0	2000	74	0.10	0.13	0.53	2.46	105.78	0.76	187.10
G	4000	50	50.0	56.0	2000	74	0.13	0.18	0.68	2.39	102.90	1.00	111.35
G	5000	50	50	70	2000	74	0.15	0.20	0.83	2.45	105.38	1.19	125.75
				High Stocking Rate									
P	1	1	1	0.014	1100	86	0.16	0.59	0.09	1.77	76.20	0.84	32.60
P	1	50	50	0.014	1100	86	0.12	0.39	0.10	2.70	116.41	0.60	60.29
P	1000	1	1	14	1100	86	0.36	0.67	0.25	2.11	90.94	1.27	41.30
P	2000	1	1	28	1100	86	0.50	0.85	0.40	2.44	105.25	1.75	50.81
F	1	50	50	0.014	1600	79	0.05	0.15	0.09	2.43	104.45	0.29	61.38
F	1000	50	50	14	1600	79	0.12	0.21	0.25	2.68	115.39	0.57	70.88
F	2000	50	50	28	1600	79	0.18	0.29	0.39	2.84	122.45	0.85	81.23
F	1000	100	100	14	1600	79	0.12	0.21	0.24	2.84	122.39	0.57	110.23
F	1500	100	100	21	1600	79	0.15	0.24	0.31	2.92	125.61	0.70	115.40
F	1	200	200	0.014	2000	76	0.03	0.07	0.09	2.79	120.04	0.19	188.60
F	2000	100	100	28	2000	76	0.10	0.15	0.39	2.86	123.1	0.64	123.9

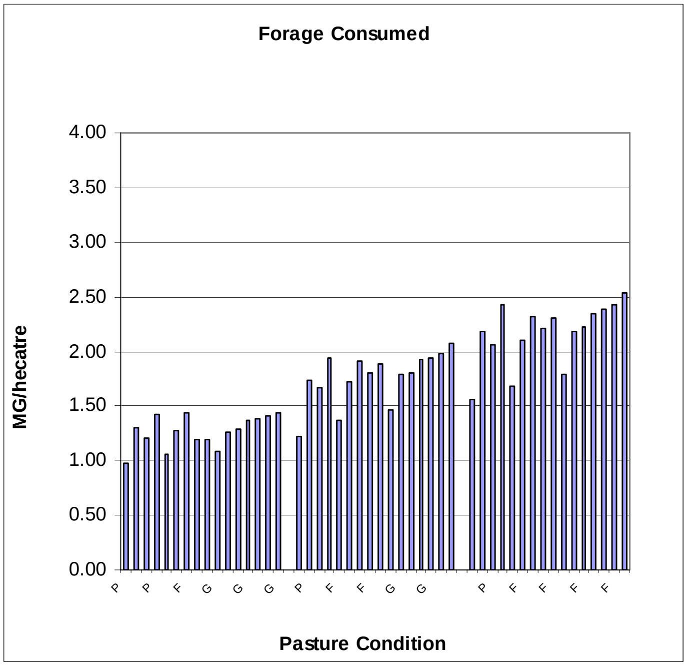
											7		3
F	2500	50	50	35	2000	76	0.12	0.18	0.46	2.78	119.69	0.76	89.92
F	3000	100	100	42	2000	76	0.12	0.18	0.53	2.97	127.76	0.84	136.20
F	3000	150	150	42	2000	76	0.11	0.15	0.53	3.01	129.68	0.79	181.24
F	4000	50	50	56	2000	76	0.16	0.23	0.68	2.93	125.99	1.07	108.40
F	5000	50	50	70	2000	76	0.19	0.27	0.82	2.98	128.10	1.28	121.34

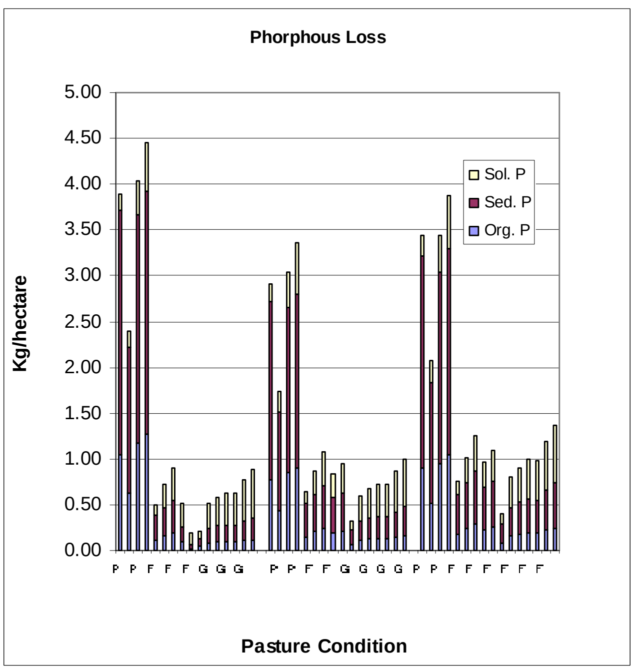




ELDORADO

Past Cond	26 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	1.04	2.68	0.18	0.97	41.94	3.89	30.05
P	1	50	50.0	0.0	1100	68	0.63	1.59	0.19	1.31	56.20	2.40	48.75
P	1000	1	1.0	14.0	1100	68	1.17	2.50	0.37	1.21	52.06	4.04	36.08
P	2000	1	1.0	28.0	1100	68	1.28	2.65	0.53	1.43	61.45	4.45	43.47
F	1	50	50.0	0.0	1600	49	0.12	0.27	0.11	1.06	45.46	0.50	36.26
F	1000	50	50.0	14.0	1600	49	0.16	0.31	0.25	1.27	54.68	0.72	43.63
F	2000	100	100.0	28.0	1600	49	0.19	0.36	0.36	1.44	62.02	0.90	69.24
F	1000	100	100.0	14.0	1600	49	0.09	0.17	0.25	1.19	51.40	0.51	63.85
F	1500	150	150.0	21.0	1600	49	0.02	0.04	0.13	1.19	51.43	0.19	151.84
G	1	200	200.0	0.0	2000	39	0.04	0.09	0.08	1.09	46.73	0.21	88.73
G	2000	100	100.0	28.0	2000	39	0.09	0.16	0.27	1.26	54.39	0.51	68.87
G	2500	50	50.0	35.0	2000	39	0.09	0.18	0.31	1.29	55.52	0.58	54.82
G	3000	100	100.0	42.0	2000	39	0.10	0.18	0.35	1.37	59.07	0.63	75.96
G	3000	150	150.0	42.0	2000	39	0.10	0.18	0.35	1.39	59.73	0.63	93.72
G	4000	50	50.0	56.0	2000	39	0.11	0.21	0.44	1.41	60.49	0.76	65.90
G	5000	50	50.0	70.0	2000	39	0.12	0.24	0.53	1.44	62.13	0.89	74.18
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.77	1.95	0.20	1.22	52.52	2.92	29.35
P	1	50	50.0	0.0	1100	68	0.43	1.09	0.21	1.74	74.87	1.73	48.97
P	1000	1	1.0	14.0	1100	68	0.85	1.81	0.39	1.67	71.90	3.04	36.07
P	2000	1	1.0	28.0	1100	68	0.90	1.90	0.56	1.94	83.72	3.37	44.25
F	1	50	50.0	0.0	1600	49	0.15	0.36	0.13	1.36	58.68	0.64	37.07
F	1000	50	50.0	14.0	1600	49	0.20	0.41	0.26	1.72	74.12	0.87	44.61
F	2000	50	50.0	28.0	1600	49	0.24	0.47	0.37	1.91	82.08	1.08	51.98
F	1000	100	100.0	14.0	1600	49	0.19	0.39	0.26	1.80	77.50	0.84	63.01
F	1500	100	100.0	21.0	1600	49	0.21	0.41	0.32	1.88	80.91	0.94	66.67
G	1	200	200.0	0.0	2000	39	0.07	0.16	0.09	1.46	62.98	0.32	87.94
G	2000	100	100.0	28.0	2000	39	0.11	0.21	0.28	1.80	77.35	0.60	68.32
G	2500	50	50.0	35.0	2000	39	0.12	0.23	0.32	1.81	77.93	0.68	54.41
G	3000	100	100.0	42.0	2000	39	0.13	0.24	0.36	1.92	82.85	0.73	75.82
G	3000	150	150.0	42.0	2000	39	0.13	0.24	0.36	1.94	83.69	0.73	93.77
G	4000	50	50.0	56.0	2000	39	0.14	0.28	0.44	1.98	85.21	0.87	65.90
G	5000	50	50	70	2000	39	0.16	0.32	0.53	2.07	89.13	1.00	73.24
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.90	2.32	0.22	1.56	67.00	3.43	31.23
P	1	50	50	0.014	1100	68	0.51	1.32	0.24	2.19	94.14	2.08	51.27
P	1000	1	1	14	1100	68	0.95	2.08	0.41	2.06	88.69	3.44	38.06
P	2000	1	1	28	1100	68	1.04	2.25	0.58	2.43	104.45	3.87	47.22
F	1	50	50	0.014	1600	49	0.18	0.43	0.14	1.68	72.33	0.75	37.98
F	1000	50	50	14	1600	49	0.24	0.50	0.27	2.11	90.76	1.01	45.63
F	2000	50	50	28	1600	49	0.29	0.58	0.38	2.32	99.74	1.25	52.95
F	1000	100	100	14	1600	49	0.23	0.47	0.27	2.21	95.26	0.97	63.94
F	1500	100	100	21	1600	49	0.25	0.51	0.33	2.31	99.31	1.09	67.56
F	1	200	200	0.014	2000	44	0.09	0.21	0.11	1.80	77.35	0.41	90.60
F	2000	100	100	28	2000	44	0.16	0.31	0.33	2.18	94.02	0.80	70.36
F	2500	50	50	35	2000	44	0.18	0.35	0.38	2.22	95.59	0.90	56.21
F	3000	100	100	42	2000	44	0.19	0.37	0.43	2.35	101.25	0.99	78.11
F	3000	150	150	42	2000	44	0.19	0.37	0.43	2.38	102.52	0.98	95.97
F	4000	50	50	56	2000	44	0.22	0.44	0.53	2.43	104.45	1.19	67.43
F	5000	50	50	70	2000	44	0.24	0.50	0.62	2.54	109.16	1.36	74.79

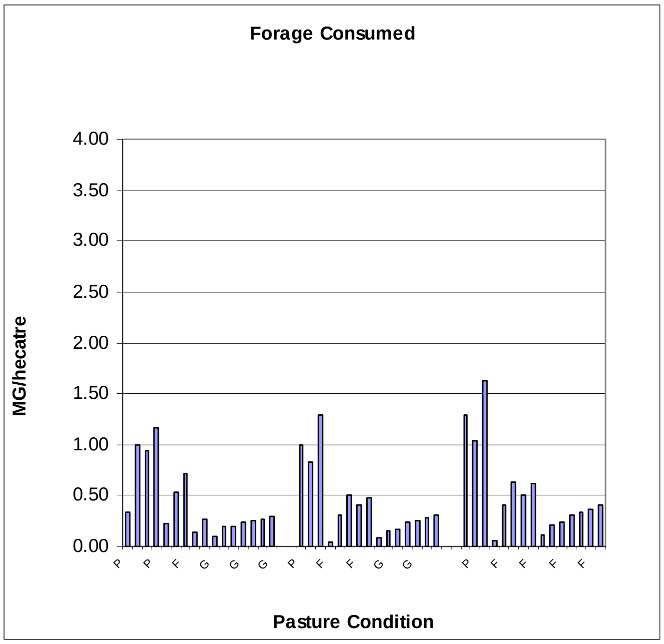

Forage Consumed
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
MG/hecatre
P P F G G G P F F G G P F F F F
Pasture Condition

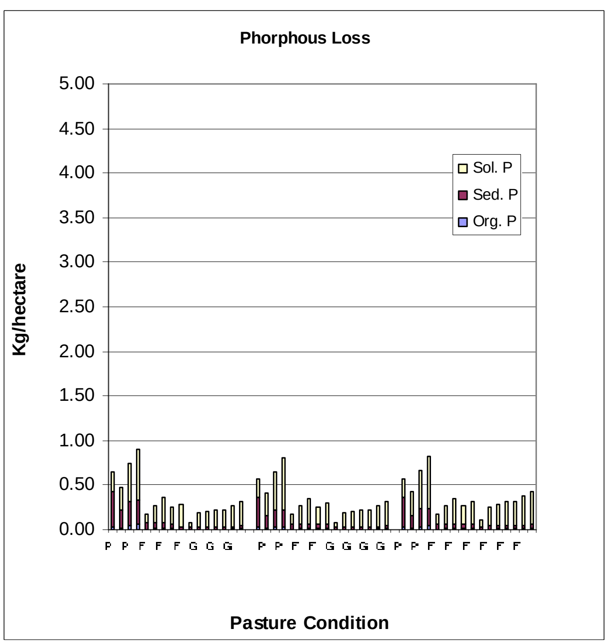

Phorphous Loss
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Kg/hectare
Sol. P
Sed. P
Org. P
P P F F F G G G P P F F G G G G G P P F F F F F F
Pasture Condition

ELSAH

Past Cond	85 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.03	0.39	0.22	0.34	14.70	0.64	27.69
P	1	50	50.0	0.0	1100	68	0.02	0.21	0.24	0.99	42.65	0.47	75.10
P	1000	1	1.0	14.0	1100	68	0.05	0.28	0.42	0.94	40.50	0.74	47.63
P	2000	1	1.0	28.0	1100	68	0.06	0.27	0.57	1.16	50.00	0.90	64.87
F	1	50	50.0	0.0	1600	49	0.01	0.07	0.10	0.22	9.55	0.18	74.88
F	1000	50	50.0	14.0	1600	49	0.01	0.06	0.20	0.53	22.73	0.27	95.77
F	2000	100	100.0	28.0	1600	49	0.01	0.06	0.29	0.72	30.99	0.36	165.00
F	1000	100	100.0	14.0	1600	49	0.01	0.05	0.20	0.14	5.85	0.25	144.43
F	1500	150	150.0	21.0	1600	49	0.01	0.03	0.26	0.27	11.52	0.29	209.50
G	1	200	200.0	0.0	2000	39	0.00	0.02	0.05	0.10	4.30	0.08	222.75
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.15	0.19	8.31	0.18	166.03
G	2500	50	50.0	35.0	2000	39	0.01	0.03	0.17	0.20	8.61	0.21	127.22
G	3000	100	100.0	42.0	2000	39	0.01	0.03	0.19	0.24	10.54	0.23	187.10
G	3000	150	150.0	42.0	2000	39	0.01	0.03	0.19	0.25	10.95	0.23	236.59
G	4000	50	50.0	56.0	2000	39	0.01	0.03	0.23	0.27	11.45	0.27	158.75
G	5000	50	50.0	70.0	2000	39	0.01	0.03	0.27	0.29	12.63	0.32	179.80
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.03	0.33	0.21	0.00	0.00	0.57	26.43
P	1	50	50.0	0.0	1100	68	0.01	0.15	0.25	1.00	43.04	0.41	78.05
P	1000	1	1.0	14.0	1100	68	0.03	0.19	0.42	0.83	35.55	0.65	50.03
P	2000	1	1.0	28.0	1100	68	0.04	0.19	0.58	1.28	55.29	0.81	70.60
F	1	50	50.0	0.0	1600	49	0.01	0.06	0.10	0.04	1.91	0.17	74.37
F	1000	50	50.0	14.0	1600	49	0.01	0.05	0.20	0.31	13.55	0.26	96.44
F	2000	50	50.0	28.0	1600	49	0.01	0.05	0.29	0.50	21.72	0.35	117.83
F	1000	100	100.0	14.0	1600	49	0.01	0.05	0.20	0.40	17.38	0.26	145.97
F	1500	100	100.0	21.0	1600	49	0.01	0.05	0.25	0.48	20.84	0.31	156.66
G	1	200	200.0	0.0	2000	39	0.00	0.02	0.05	0.08	3.61	0.08	222.96
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.15	0.16	6.79	0.18	166.39
G	2500	50	50.0	35.0	2000	39	0.01	0.03	0.17	0.17	7.16	0.20	127.60
G	3000	100	100.0	42.0	2000	39	0.01	0.03	0.19	0.24	10.35	0.23	187.87
G	3000	150	150.0	42.0	2000	39	0.01	0.03	0.19	0.25	10.87	0.23	237.39
G	4000	50	50.0	56.0	2000	39	0.01	0.03	0.23	0.27	11.79	0.27	159.69
G	5000	50	50	70	2000	39	0.01	0.03	0.28	0.31	13.55	0.32	180.94
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.03	0.33	0.21	0.00	0.00	0.57	26.43
P	1	50	50	0.014	1100	68	0.01	0.15	0.26	1.29	55.62	0.42	80.07
P	1000	1	1	14	1100	68	0.03	0.20	0.43	1.04	44.95	0.66	51.70
P	2000	1	1	28	1100	68	0.04	0.19	0.59	1.63	70.14	0.83	73.13
F	1	50	50	0.014	1600	49	0.01	0.06	0.10	0.06	2.46	0.17	74.48
F	1000	50	50	14	1600	49	0.01	0.05	0.20	0.40	17.34	0.27	97.19
F	2000	50	50	28	1600	49	0.01	0.05	0.29	0.64	27.38	0.36	118.98
F	1000	100	100	14	1600	49	0.01	0.05	0.20	0.51	21.85	0.26	146.92
F	1500	100	100	21	1600	49	0.01	0.05	0.25	0.62	26.72	0.31	157.90
F	1	200	200	0.014	2000	44	0.00	0.03	0.07	0.12	5.11	0.11	223.05

F	2000	100	100	28	2000	44	0.01	0.03	0.21	0.21	8.98	0.25	166.57
F	2500	50	50	35	2000	44	0.01	0.04	0.24	0.24	10.20	0.28	127.90
F	3000	100	100	42	2000	44	0.01	0.04	0.27	0.31	13.49	0.31	188.21
F	3000	150	150	42	2000	44	0.01	0.04	0.27	0.34	14.64	0.31	237.77
F	4000	50	50	56	2000	44	0.01	0.04	0.32	0.37	15.88	0.38	160.07
F	5000	50	50	70	2000	44	0.01	0.04	0.38	0.40	17.41	0.43	181.24

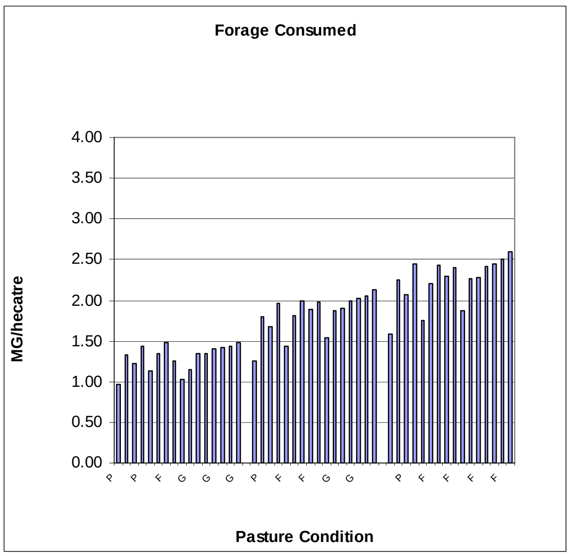


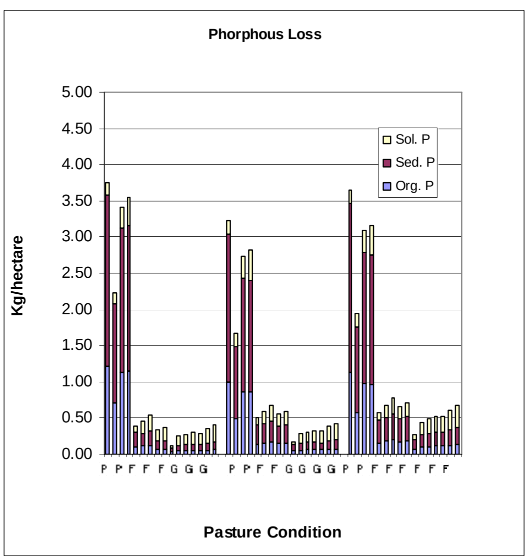


HEALING

Past Cond	175 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	1.21	2.38	0.16	0.97	41.65	3.75	72.54
P	1	50	50.0	0.0	1100	68	0.70	1.37	0.16	1.33	57.30	2.24	105.92
P	1000	1	1.0	14.0	1100	68	1.13	1.99	0.29	1.22	52.39	3.41	81.32
P	2000	1	1.0	28.0	1100	68	1.16	2.01	0.38	1.44	61.90	3.55	91.80
F	1	50	50.0	0.0	1600	49	0.10	0.20	0.08	1.13	48.45	0.39	106.18
F	1000	50	50.0	14.0	1600	49	0.11	0.18	0.16	1.34	57.71	0.45	122.75
F	2000	100	100.0	28.0	1600	49	0.12	0.20	0.21	1.48	63.68	0.53	187.16
F	1000	100	100.0	14.0	1600	49	0.07	0.11	0.16	1.25	53.89	0.34	174.33
F	1500	150	150.0	21.0	1600	49	0.07	0.12	0.18	1.03	44.21	0.37	237.71
G	1	200	200.0	0.0	2000	39	0.03	0.05	0.05	1.14	49.09	0.13	251.96
G	2000	100	100.0	28.0	2000	39	0.04	0.07	0.13	1.34	57.78	0.25	193.32
G	2500	50	50.0	35.0	2000	39	0.05	0.08	0.15	1.35	58.10	0.27	154.61
G	3000	100	100.0	42.0	2000	39	0.05	0.08	0.16	1.41	60.54	0.30	212.21
G	3000	150	150.0	42.0	2000	39	0.05	0.08	0.16	1.42	61.17	0.30	261.20
G	4000	50	50.0	56.0	2000	39	0.06	0.09	0.20	1.44	61.96	0.35	182.89
G	5000	50	50.0	70.0	2000	39	0.06	0.11	0.24	1.48	63.68	0.41	203.53
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	1.00	2.05	0.17	1.25	53.81	3.22	73.08
P	1	50	50.0	0.0	1100	68	0.49	1.00	0.18	1.79	77.17	1.67	107.58
P	1000	1	1.0	14.0	1100	68	0.86	1.57	0.31	1.68	72.34	2.73	82.84
P	2000	1	1.0	28.0	1100	68	0.86	1.55	0.41	1.96	84.38	2.81	95.01
F	1	50	50.0	0.0	1600	49	0.14	0.27	0.09	1.43	61.70	0.50	107.97
F	1000	50	50.0	14.0	1600	49	0.15	0.27	0.16	1.81	77.81	0.58	123.45
F	2000	50	50.0	28.0	1600	49	0.17	0.29	0.22	1.99	85.76	0.67	139.77
F	1000	100	100.0	14.0	1600	49	0.14	0.25	0.16	1.88	81.09	0.56	170.42
F	1500	100	100.0	21.0	1600	49	0.15	0.26	0.19	1.97	85.03	0.60	178.73
G	1	200	200.0	0.0	2000	39	0.04	0.08	0.05	1.53	65.98	0.18	251.04
G	2000	100	100.0	28.0	2000	39	0.06	0.10	0.13	1.87	80.63	0.28	191.89
G	2500	50	50.0	35.0	2000	39	0.06	0.10	0.15	1.90	81.68	0.31	153.34
G	3000	100	100.0	42.0	2000	39	0.06	0.10	0.16	1.99	85.63	0.32	209.93
G	3000	150	150.0	42.0	2000	39	0.06	0.10	0.16	2.02	87.01	0.32	258.11
G	4000	50	50.0	56.0	2000	39	0.07	0.12	0.20	2.05	88.28	0.38	180.02
G	5000	50	50	70	2000	39	0.07	0.13	0.23	2.13	91.82	0.43	197.84
				High Stocking Rate									
P	1	1	1	0.014	1100	68	1.13	2.33	0.19	1.58	68.07	3.64	75.67
P	1	50	50	0.014	1100	68	0.57	1.18	0.20	2.25	96.83	1.95	110.36
P	1000	1	1	14	1100	68	0.98	1.81	0.31	2.07	89.26	3.10	85.79
P	2000	1	1	28	1100	68	0.97	1.78	0.42	2.45	105.48	3.16	99.16
F	1	50	50	0.014	1600	49	0.16	0.32	0.10	1.75	75.54	0.57	109.81
F	1000	50	50	14	1600	49	0.18	0.32	0.17	2.20	94.76	0.68	125.50

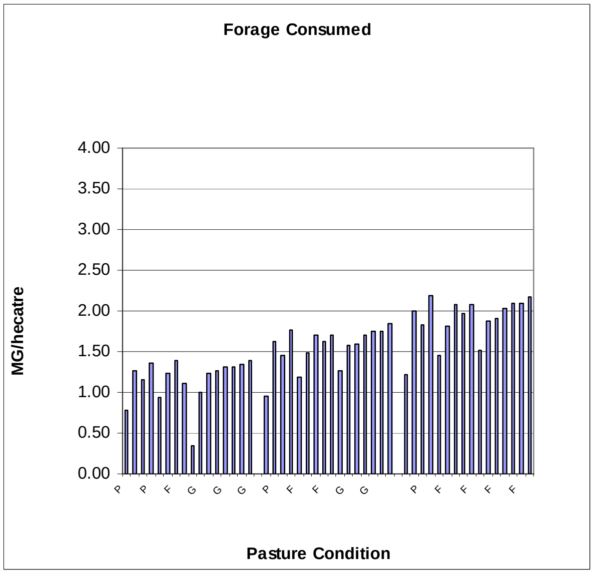
F	2000	50	50	28	1600	49	0.20	0.35	0.22	2.43	104.43	0.78	141.68
F	1000	100	100	14	1600	49	0.18	0.31	0.17	2.29	98.80	0.66	172.56
F	1500	100	100	21	1600	49	0.19	0.33	0.20	2.41	103.65	0.72	180.75
F	1	200	200	0.014	2000	44	0.07	0.13	0.07	1.87	80.71	0.28	251.73
F	2000	100	100	28	2000	44	0.10	0.17	0.17	2.27	97.69	0.44	191.49
F	2500	50	50	35	2000	44	0.11	0.18	0.20	2.28	98.19	0.48	152.61
F	3000	100	100	42	2000	44	0.11	0.19	0.22	2.41	103.71	0.52	208.83
F	3000	150	150	42	2000	44	0.11	0.19	0.22	2.44	105.23	0.52	256.66
F	4000	50	50	56	2000	44	0.12	0.22	0.26	2.50	107.75	0.60	178.42
F	5000	50	50	70	2000	44	0.13	0.24	0.31	2.60	111.96	0.68	195.51

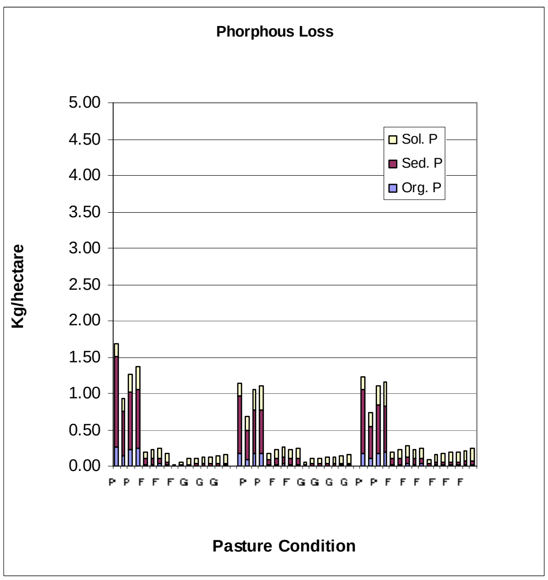




LINKER

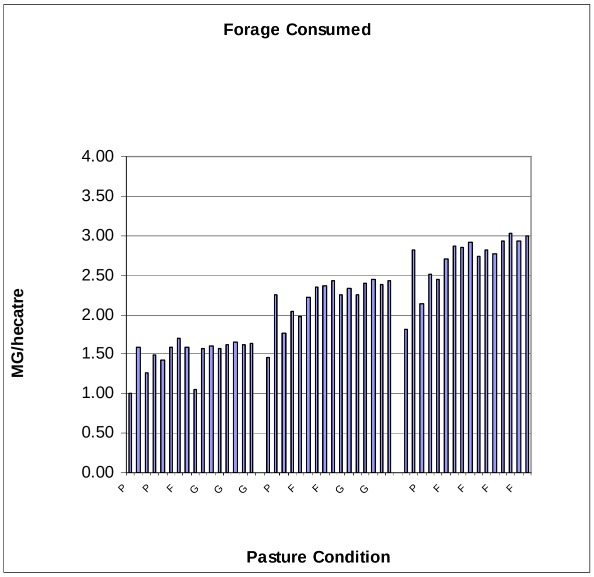
	44	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
Low Stocking Rate													
P	1	1	1.0	0.0	1100	68	0.26	1.25	0.17	0.78	33.78	1.68	29.49
P	1	50	50.0	0.0	1100	68	0.13	0.62	0.17	1.27	54.62	0.92	66.52
P	1000	1	1.0	14.0	1100	68	0.22	0.79	0.26	1.16	49.90	1.27	42.57
P	2000	1	1.0	28.0	1100	68	0.25	0.80	0.32	1.36	58.63	1.37	56.94
F	1	50	50.0	0.0	1600	49	0.02	0.09	0.07	0.94	40.48	0.19	69.81
F	1000	50	50.0	14.0	1600	49	0.03	0.09	0.12	1.23	53.02	0.23	86.86
F	2000	100	100.0	28.0	1600	49	0.03	0.08	0.15	1.39	59.69	0.25	150.81
F	1000	100	100.0	14.0	1600	49	0.01	0.04	0.12	1.12	48.04	0.17	136.76
F	1500	150	150.0	21.0	1600	49	0.00	0.00	0.02	0.34	14.54	0.02	55.32
G	1	200	200.0	0.0	2000	39	0.00	0.01	0.03	0.99	42.80	0.05	214.82
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.07	1.23	53.12	0.10	156.99
G	2500	50	50.0	35.0	2000	39	0.01	0.02	0.08	1.26	54.17	0.11	118.81
G	3000	100	100.0	42.0	2000	39	0.01	0.02	0.09	1.31	56.32	0.12	176.10
G	3000	150	150.0	42.0	2000	39	0.01	0.02	0.09	1.32	56.72	0.12	224.20
G	4000	50	50.0	56.0	2000	39	0.01	0.02	0.10	1.34	57.52	0.13	147.43
G	5000	50	50.0	70.0	2000	39	0.01	0.02	0.12	1.39	59.86	0.15	167.50
Medium Stocking Rate													
P	1	1	1.0	0.0	1100	68	0.17	0.80	0.17	0.95	40.83	1.15	30.66
P	1	50	50.0	0.0	1100	68	0.09	0.40	0.18	1.62	69.71	0.68	70.16
P	1000	1	1.0	14.0	1100	68	0.17	0.61	0.27	1.46	62.89	1.05	46.41
P	2000	1	1.0	28.0	1100	68	0.18	0.58	0.33	1.77	76.26	1.10	62.08
F	1	50	50.0	0.0	1600	49	0.02	0.08	0.08	1.19	51.43	0.17	72.13
F	1000	50	50.0	14.0	1600	49	0.02	0.08	0.12	1.48	63.85	0.23	89.27
F	2000	50	50.0	28.0	1600	49	0.03	0.09	0.15	1.71	73.52	0.27	106.63
F	1000	100	100.0	14.0	1600	49	0.02	0.08	0.12	1.62	69.78	0.22	135.65
F	1500	100	100.0	21.0	1600	49	0.03	0.08	0.14	1.70	73.35	0.24	144.34
G	1	200	200.0	0.0	2000	39	0.00	0.02	0.04	1.26	54.19	0.06	215.81
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.07	1.57	67.76	0.10	157.53
G	2500	50	50.0	35.0	2000	39	0.01	0.02	0.08	1.60	68.85	0.11	119.12
G	3000	100	100.0	42.0	2000	39	0.01	0.02	0.09	1.71	73.60	0.12	175.88
G	3000	150	150.0	42.0	2000	39	0.01	0.02	0.09	1.74	75.07	0.12	223.81
G	4000	50	50.0	56.0	2000	39	0.01	0.03	0.10	1.75	75.21	0.14	146.31
G	5000	50	50	70	2000	39	0.01	0.03	0.12	1.85	79.57	0.16	165.06
High Stocking Rate													
P	1	1	1	0.014	1100	68	0.18	0.87	0.18	1.21	52.24	1.24	32.26
P	1	50	50	0.014	1100	68	0.10	0.45	0.19	2.00	86.17	0.74	73.16
P	1000	1	1	14	1100	68	0.18	0.65	0.27	1.83	78.88	1.11	48.84
P	2000	1	1	28	1100	68	0.19	0.63	0.34	2.19	94.08	1.16	65.22
F	1	50	50	0.014	1600	49	0.02	0.08	0.08	1.46	62.73	0.18	74.00
F	1000	50	50	14	1600	49	0.03	0.09	0.12	1.82	78.20	0.24	91.48
F	2000	50	50	28	1600	49	0.03	0.09	0.15	2.07	89.25	0.28	108.84
F	1000	100	100	14	1600	49	0.02	0.08	0.12	1.97	84.86	0.23	137.85
F	1500	100	100	21	1600	49	0.03	0.09	0.14	2.07	89.27	0.25	146.56
F	1	200	200	0.014	2000	44	0.01	0.03	0.06	1.52	65.56	0.10	216.43
F	2000	100	100	28	2000	44	0.01	0.04	0.11	1.88	80.80	0.16	157.94
F	2500	50	50	35	2000	44	0.01	0.04	0.12	1.90	81.99	0.18	119.80
F	3000	100	100	42	2000	44	0.02	0.04	0.13	2.03	87.34	0.19	175.89
F	3000	150	150	42	2000	44	0.01	0.04	0.13	2.10	90.38	0.19	223.64
F	4000	50	50	56	2000	44	0.02	0.05	0.15	2.09	90.06	0.22	146.82
F	5000	50	50	70	2000	44	0.02	0.05	0.17	2.18	93.83	0.24	165.12

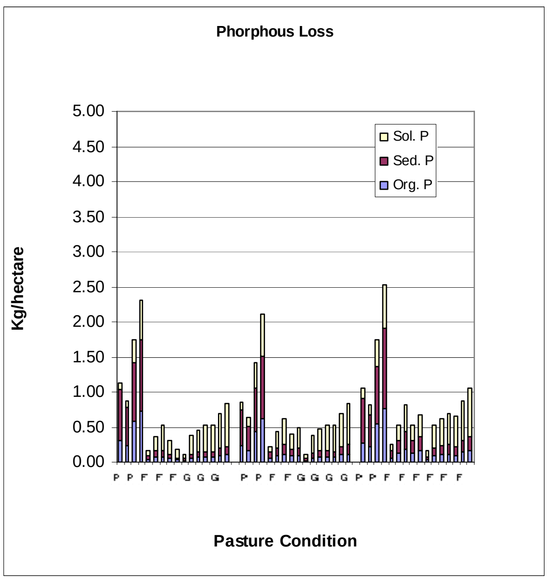

Forage Consumed
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
MG/hecatre
Pasture Condition


Phorphous Loss
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Sol. P
Sed. P
Org. P
Kg/hectare
Pasture Condition

MACADONIA

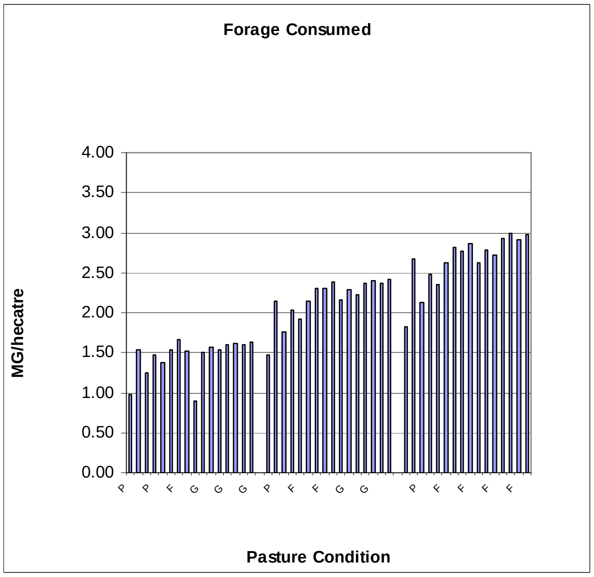
Past Cond	1460 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.31	0.74	0.08	1.00	42.89	1.13	21.25
P	1	50	50.0	0.0	1100	68	0.24	0.53	0.10	1.59	68.40	0.88	43.84
P	1000	1	1.0	14.0	1100	68	0.58	0.83	0.34	1.27	54.63	1.75	27.99
P	2000	1	1.0	28.0	1100	68	0.73	1.01	0.57	1.49	64.13	2.31	35.60
F	1	50	50.0	0.0	1600	49	0.04	0.06	0.06	1.43	61.46	0.16	40.00
F	1000	50	50.0	14.0	1600	49	0.07	0.08	0.20	1.58	68.07	0.36	48.26
F	2000	100	100.0	28.0	1600	49	0.08	0.09	0.35	1.70	73.04	0.52	94.76
F	1000	100	100.0	14.0	1600	49	0.05	0.06	0.21	1.58	68.04	0.32	86.34
F	1500	150	150.0	21.0	1600	49	0.03	0.03	0.13	1.05	45.18	0.18	66.26
G	1	200	200.0	0.0	2000	39	0.02	0.03	0.06	1.57	67.73	0.11	137.16
G	2000	100	100.0	28.0	2000	39	0.06	0.06	0.26	1.60	68.98	0.38	92.92
G	2500	50	50.0	35.0	2000	39	0.07	0.07	0.32	1.57	67.55	0.46	66.04
G	3000	100	100.0	42.0	2000	39	0.07	0.08	0.38	1.63	69.97	0.53	105.98
G	3000	150	150.0	42.0	2000	39	0.07	0.07	0.39	1.65	70.97	0.53	140.50
G	4000	50	50.0	56.0	2000	39	0.09	0.10	0.49	1.62	69.80	0.69	85.34
G	5000	50	50.0	70.0	2000	39	0.10	0.12	0.62	1.64	70.76	0.84	98.96
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.23	0.52	0.11	1.46	62.79	0.86	21.94
P	1	50	50.0	0.0	1100	68	0.16	0.35	0.12	2.24	96.58	0.64	44.27
P	1000	1	1.0	14.0	1100	68	0.43	0.62	0.37	1.77	76.31	1.42	28.59
P	2000	1	1.0	28.0	1100	68	0.62	0.89	0.60	2.04	87.72	2.11	36.34
F	1	50	50.0	0.0	1600	49	0.05	0.09	0.08	1.98	85.29	0.22	41.28
F	1000	50	50.0	14.0	1600	49	0.09	0.11	0.22	2.22	95.38	0.43	48.89
F	2000	50	50.0	28.0	1600	49	0.12	0.14	0.37	2.35	101.15	0.63	57.45
F	1000	100	100.0	14.0	1600	49	0.08	0.10	0.22	2.36	101.65	0.40	79.59
F	1500	100	100.0	21.0	1600	49	0.09	0.11	0.29	2.43	104.51	0.50	83.87
G	1	200	200.0	0.0	2000	39	0.02	0.03	0.06	2.25	96.96	0.11	130.57
G	2000	100	100.0	28.0	2000	39	0.06	0.07	0.26	2.32	100.10	0.39	85.76
G	2500	50	50.0	35.0	2000	39	0.08	0.09	0.32	2.26	97.11	0.48	61.10
G	3000	100	100.0	42.0	2000	39	0.07	0.08	0.37	2.40	103.38	0.53	96.42
G	3000	150	150.0	42.0	2000	39	0.07	0.08	0.37	2.44	105.12	0.53	130.25
G	4000	50	50.0	56.0	2000	39	0.10	0.12	0.48	2.37	102.22	0.70	76.24
G	5000	50	50	70	2000	39	0.11	0.13	0.58	2.44	104.88	0.83	87.24
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.28	0.64	0.14	1.82	78.33	1.05	23.20
P	1	50	50	0.014	1100	68	0.21	0.46	0.15	2.81	121.16	0.83	45.46
P	1000	1	1	14	1100	68	0.54	0.82	0.38	2.14	92.01	1.75	29.79
P	2000	1	1	28	1100	68	0.76	1.14	0.63	2.51	107.87	2.53	37.72
F	1	50	50	0.014	1600	49	0.06	0.11	0.09	2.44	105.07	0.26	41.81
F	1000	50	50	14	1600	49	0.13	0.17	0.24	2.70	116.26	0.54	49.36
F	2000	50	50	28	1600	49	0.19	0.25	0.38	2.87	123.65	0.81	57.30
F	1000	100	100	14	1600	49	0.13	0.17	0.23	2.85	122.53	0.53	79.40
F	1500	100	100	21	1600	49	0.16	0.21	0.30	2.92	125.64	0.67	83.61
F	1	200	200	0.014	2000	44	0.03	0.05	0.08	2.74	118.08	0.16	131.94
F	2000	100	100	28	2000	44	0.09	0.11	0.32	2.82	121.34	0.53	87.07
F	2500	50	50	35	2000	44	0.10	0.13	0.39	2.78	119.55	0.62	61.75
F	3000	100	100	42	2000	44	0.12	0.14	0.44	2.94	126.47	0.70	95.67
F	3000	150	150	42	2000	44	0.10	0.12	0.44	3.03	130.27	0.66	127.90
F	4000	50	50	56	2000	44	0.14	0.17	0.57	2.93	126.36	0.88	75.64
F	5000	50	50	70	2000	44	0.16	0.20	0.69	2.99	128.81	1.05	85.52

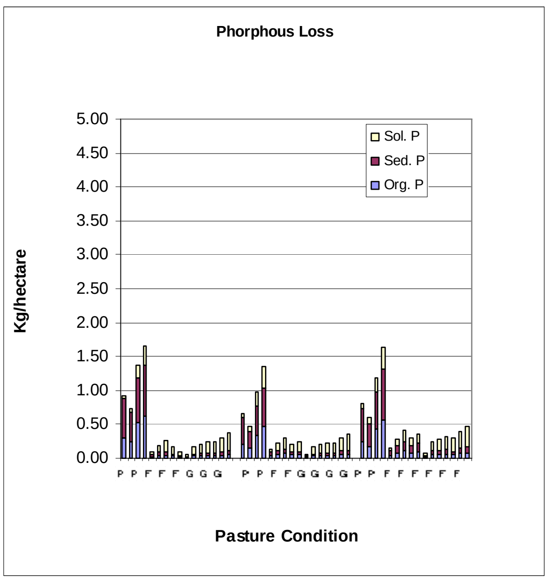

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Sol. P
Sed. P
Org. P
Pasture Condition

NEWTONIA

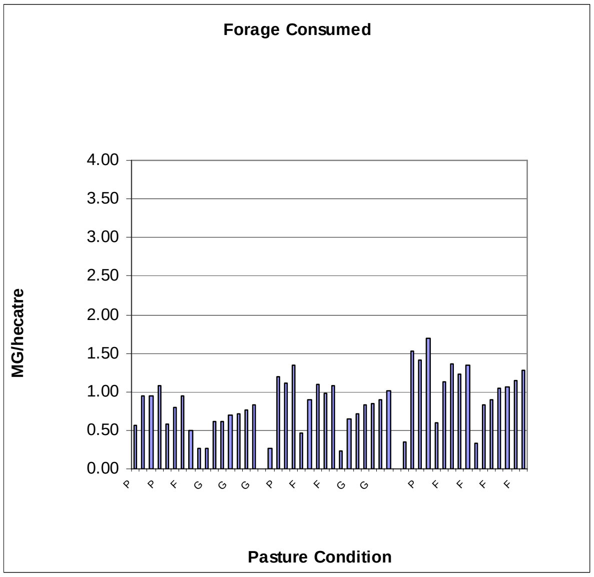
	2224	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.29	0.59	0.05	0.98	42.33	0.93	27.72
P	1	50	50.0	0.0	1100	68	0.24	0.45	0.05	1.54	66.20	0.74	56.78
P	1000	1	1.0	14.0	1100	68	0.53	0.67	0.18	1.24	53.53	1.37	35.94
P	2000	1	1.0	28.0	1100	68	0.61	0.76	0.29	1.47	63.45	1.66	44.73
F	1	50	50.0	0.0	1600	49	0.02	0.04	0.03	1.38	59.23	0.09	57.51
F	1000	50	50.0	14.0	1600	49	0.04	0.04	0.10	1.54	66.38	0.18	68.62
F	2000	100	100.0	28.0	1600	49	0.04	0.04	0.17	1.66	71.46	0.26	128.51
F	1000	100	100.0	14.0	1600	49	0.03	0.03	0.10	1.53	65.68	0.16	118.54
F	1500	150	150.0	21.0	1600	49	0.02	0.02	0.07	0.90	38.84	0.10	121.06
G	1	200	200.0	0.0	2000	39	0.01	0.02	0.03	1.50	64.74	0.06	197.64
G	2000	100	100.0	28.0	2000	39	0.03	0.03	0.12	1.57	67.62	0.17	135.70
G	2500	50	50.0	35.0	2000	39	0.03	0.04	0.14	1.54	66.47	0.21	98.25
G	3000	100	100.0	42.0	2000	39	0.04	0.04	0.17	1.60	69.07	0.24	153.72
G	3000	150	150.0	42.0	2000	39	0.04	0.04	0.17	1.62	69.71	0.24	201.94
G	4000	50	50.0	56.0	2000	39	0.05	0.05	0.21	1.60	68.83	0.31	125.37
G	5000	50	50.0	70.0	2000	39	0.05	0.06	0.27	1.62	69.94	0.38	144.78
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.21	0.40	0.06	1.47	63.25	0.67	28.50
P	1	50	50.0	0.0	1100	68	0.14	0.26	0.07	2.14	92.20	0.47	57.29
P	1000	1	1.0	14.0	1100	68	0.34	0.43	0.19	1.76	75.59	0.97	36.53
P	2000	1	1.0	28.0	1100	68	0.46	0.58	0.31	2.03	87.30	1.35	45.93
F	1	50	50.0	0.0	1600	49	0.04	0.06	0.04	1.92	82.73	0.13	59.71
F	1000	50	50.0	14.0	1600	49	0.06	0.06	0.10	2.15	92.49	0.22	69.75
F	2000	50	50.0	28.0	1600	49	0.07	0.07	0.17	2.31	99.26	0.31	81.18
F	1000	100	100.0	14.0	1600	49	0.05	0.05	0.10	2.31	99.49	0.20	109.76
F	1500	100	100.0	21.0	1600	49	0.05	0.05	0.13	2.39	102.74	0.24	115.74
G	1	200	200.0	0.0	2000	39	0.01	0.02	0.03	2.16	92.82	0.06	190.87
G	2000	100	100.0	28.0	2000	39	0.03	0.03	0.11	2.28	98.20	0.17	127.41
G	2500	50	50.0	35.0	2000	39	0.04	0.04	0.13	2.22	95.55	0.21	92.12
G	3000	100	100.0	42.0	2000	39	0.04	0.04	0.16	2.37	101.89	0.23	141.61
G	3000	150	150.0	42.0	2000	39	0.04	0.04	0.16	2.40	103.38	0.23	188.37
G	4000	50	50.0	56.0	2000	39	0.05	0.05	0.20	2.37	101.88	0.30	112.88
G	5000	50	50	70	2000	39	0.06	0.06	0.24	2.42	104.17	0.36	128.09
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.25	0.49	0.08	1.82	78.46	0.82	29.99
P	1	50	50	0.014	1100	68	0.18	0.33	0.08	2.67	115.05	0.59	58.66
P	1000	1	1	14	1100	68	0.42	0.56	0.20	2.13	91.63	1.19	37.90
P	2000	1	1	28	1100	68	0.57	0.74	0.32	2.49	107.05	1.63	47.20
F	1	50	50	0.014	1600	49	0.04	0.07	0.04	2.36	101.52	0.16	60.46
F	1000	50	50	14	1600	49	0.08	0.10	0.11	2.62	112.73	0.29	70.05
F	2000	50	50	28	1600	49	0.12	0.14	0.17	2.81	121.09	0.42	80.73
F	1000	100	100	14	1600	49	0.08	0.10	0.11	2.77	119.43	0.29	109.82
F	1500	100	100	21	1600	49	0.10	0.12	0.14	2.86	123.00	0.36	115.08
F	1	200	200	0.014	2000	44	0.02	0.03	0.04	2.63	113.13	0.08	187.69
F	2000	100	100	28	2000	44	0.05	0.06	0.14	2.78	119.82	0.25	125.28
F	2500	50	50	35	2000	44	0.06	0.06	0.17	2.73	117.37	0.29	90.56
F	3000	100	100	42	2000	44	0.06	0.07	0.19	2.92	125.80	0.32	137.29
F	3000	150	150	42	2000	44	0.05	0.05	0.19	2.99	128.57	0.29	182.07
F	4000	50	50	56	2000	44	0.07	0.08	0.24	2.92	125.56	0.40	109.26
F	5000	50	50	70	2000	44	0.08	0.09	0.30	2.98	128.17	0.47	122.52


Forage Consumed
MG/hecatre
Pasture Condition
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00

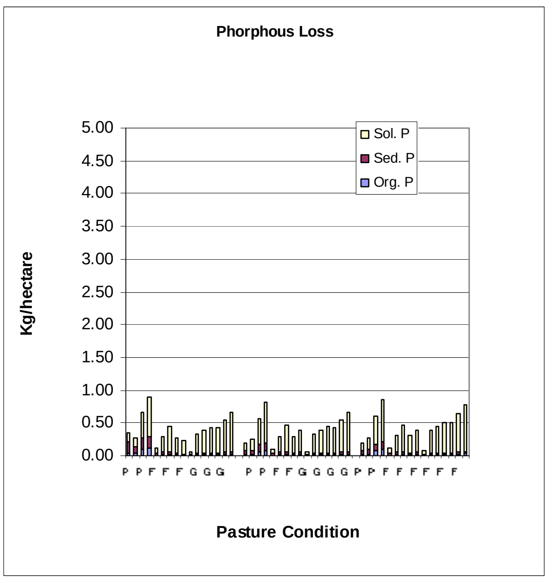

Phorphous Loss
Kg/hectare
Pasture Condition
Sol. P
Sed. P
Org. P
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00

NOARK

	394	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.05	0.17	0.13	0.57	24.61	0.36	9.73
P	1	50	50.0	0.0	1100	68	0.03	0.11	0.15	0.95	40.98	0.28	20.40
P	1000	1	1.0	14.0	1100	68	0.10	0.17	0.39	0.95	40.77	0.65	12.59
P	2000	1	1.0	28.0	1100	68	0.13	0.17	0.60	1.08	46.55	0.90	15.94
F	1	50	50.0	0.0	1600	49	0.01	0.03	0.08	0.58	24.83	0.12	13.38
F	1000	50	50.0	14.0	1600	49	0.02	0.03	0.24	0.79	33.97	0.29	15.84
F	2000	100	100.0	28.0	1600	49	0.03	0.03	0.39	0.95	40.80	0.45	25.66
F	1000	100	100.0	14.0	1600	49	0.01	0.02	0.23	0.49	21.12	0.27	22.72
F	1500	150	150.0	21.0	1600	49	0.01	0.02	0.21	0.27	11.69	0.24	22.60
G	1	200	200.0	0.0	2000	39	0.00	0.01	0.05	0.26	11.20	0.07	31.34
G	2000	100	100.0	28.0	2000	39	0.02	0.02	0.29	0.61	26.33	0.32	23.06
G	2500	50	50.0	35.0	2000	39	0.02	0.02	0.34	0.62	26.71	0.38	18.00
G	3000	100	100.0	42.0	2000	39	0.02	0.02	0.39	0.70	30.32	0.43	25.34
G	3000	150	150.0	42.0	2000	39	0.02	0.02	0.39	0.71	30.76	0.43	31.61
G	4000	50	50.0	56.0	2000	39	0.02	0.03	0.50	0.77	33.06	0.55	21.51
G	5000	50	50.0	70.0	2000	39	0.03	0.03	0.60	0.83	35.53	0.65	24.02
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.02	0.06	0.11	0.26	11.25	0.19	9.34
P	1	50	50.0	0.0	1100	68	0.02	0.06	0.16	1.20	51.61	0.25	20.93
P	1000	1	1.0	14.0	1100	68	0.06	0.11	0.40	1.10	47.55	0.57	13.26
P	2000	1	1.0	28.0	1100	68	0.08	0.11	0.62	1.34	57.75	0.82	16.54
F	1	50	50.0	0.0	1600	49	0.01	0.02	0.07	0.47	20.23	0.11	13.54
F	1000	50	50.0	14.0	1600	49	0.02	0.03	0.25	0.90	38.94	0.30	16.08
F	2000	50	50.0	28.0	1600	49	0.03	0.03	0.40	1.09	47.02	0.46	18.71
F	1000	100	100.0	14.0	1600	49	0.02	0.03	0.25	0.98	42.38	0.30	23.35
F	1500	100	100.0	21.0	1600	49	0.02	0.03	0.33	1.08	46.51	0.38	24.65
G	1	200	200.0	0.0	2000	39	0.00	0.01	0.05	0.22	9.66	0.07	31.46
G	2000	100	100.0	28.0	2000	39	0.02	0.02	0.29	0.64	27.76	0.32	23.36
G	2500	50	50.0	35.0	2000	39	0.02	0.02	0.34	0.71	30.44	0.38	18.30
G	3000	100	100.0	42.0	2000	39	0.02	0.02	0.40	0.82	35.45	0.44	25.80
G	3000	150	150.0	42.0	2000	39	0.02	0.02	0.40	0.84	36.27	0.44	32.13
G	4000	50	50.0	56.0	2000	39	0.02	0.03	0.50	0.90	38.80	0.55	21.91
G	5000	50	50	70	2000	39	0.03	0.03	0.60	1.01	43.33	0.66	24.36
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.02	0.07	0.12	0.34	14.76	0.20	9.40
P	1	50	50	0.014	1100	68	0.02	0.07	0.18	1.52	65.55	0.28	21.38
P	1000	1	1	14	1100	68	0.07	0.12	0.42	1.40	60.47	0.60	13.73
P	2000	1	1	28	1100	68	0.09	0.12	0.64	1.69	72.57	0.85	17.09
F	1	50	50	0.014	1600	49	0.01	0.02	0.08	0.59	25.61	0.11	13.65
F	1000	50	50	14	1600	49	0.02	0.03	0.26	1.13	48.47	0.31	16.33
F	2000	50	50	28	1600	49	0.03	0.03	0.41	1.37	58.81	0.47	19.07
F	1000	100	100	14	1600	49	0.02	0.03	0.26	1.23	52.82	0.31	23.59
F	1500	100	100	21	1600	49	0.02	0.03	0.34	1.35	58.20	0.39	25.00
F	1	200	200	0.014	2000	44	0.00	0.01	0.06	0.33	14.19	0.08	33.48
F	2000	100	100	28	2000	44	0.02	0.02	0.34	0.84	35.99	0.38	24.99
F	2500	50	50	35	2000	44	0.02	0.03	0.40	0.89	38.48	0.45	19.46
F	3000	100	100	42	2000	44	0.02	0.03	0.47	1.04	44.79	0.52	27.38
F	3000	150	150	42	2000	44	0.02	0.03	0.47	1.06	45.60	0.51	34.11
F	4000	50	50	56	2000	44	0.03	0.03	0.59	1.14	49.05	0.65	23.01
F	5000	50	50	70	2000	44	0.03	0.03	0.71	1.28	54.98	0.77	25.57



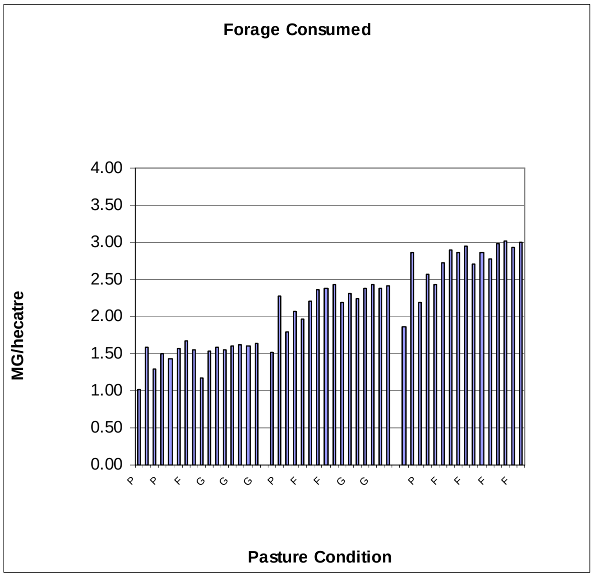
Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

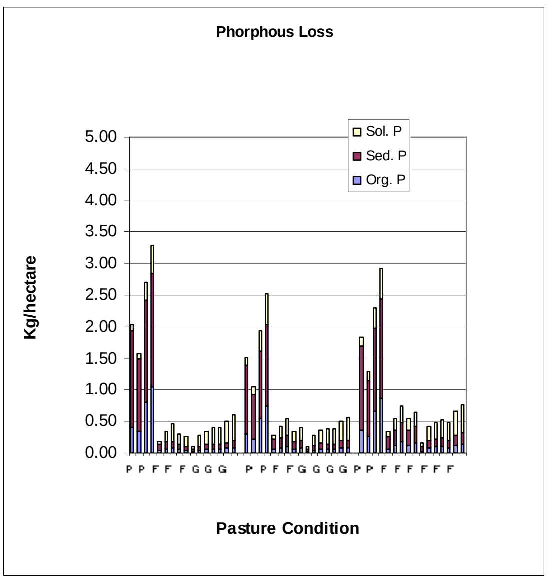


Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

PERIDGE

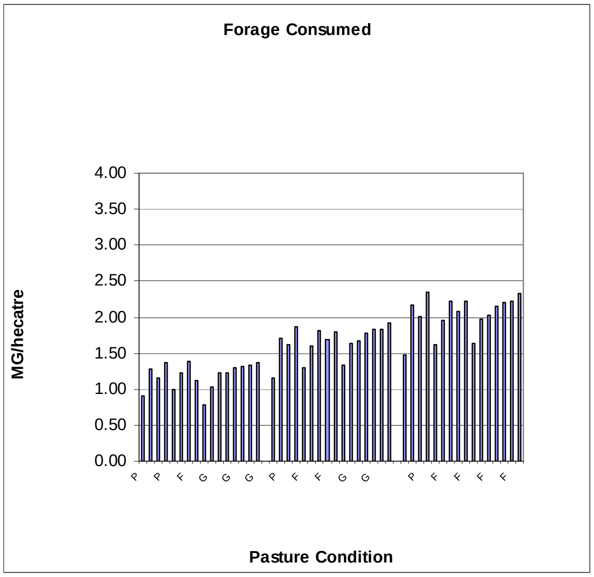
Past Cond	1339 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.41	1.53	0.10	1.02	43.78	2.04	28.70
P	1	50	50.0	0.0	1100	68	0.33	1.15	0.09	1.58	68.16	1.58	49.55
P	1000	1	1.0	14.0	1100	68	0.81	1.60	0.29	1.29	55.45	2.70	34.23
P	2000	1	1.0	28.0	1100	68	1.04	1.80	0.45	1.49	64.31	3.29	40.19
F	1	50	50.0	0.0	1600	49	0.04	0.11	0.05	1.43	61.46	0.19	45.52
F	1000	50	50.0	14.0	1600	49	0.07	0.11	0.16	1.57	67.57	0.33	54.44
F	2000	100	100.0	28.0	1600	49	0.08	0.11	0.27	1.68	72.15	0.46	97.79
F	1000	100	100.0	14.0	1600	49	0.05	0.08	0.17	1.54	66.52	0.30	91.17
F	1500	150	150.0	21.0	1600	49	0.04	0.06	0.16	1.18	50.70	0.25	122.70
G	1	200	200.0	0.0	2000	39	0.02	0.04	0.04	1.53	65.86	0.10	142.99
G	2000	100	100.0	28.0	2000	39	0.05	0.06	0.18	1.58	67.93	0.29	96.88
G	2500	50	50.0	35.0	2000	39	0.06	0.08	0.21	1.55	66.88	0.35	69.78
G	3000	100	100.0	42.0	2000	39	0.06	0.08	0.26	1.61	69.19	0.39	109.26
G	3000	150	150.0	42.0	2000	39	0.06	0.08	0.26	1.62	69.74	0.40	143.86
G	4000	50	50.0	56.0	2000	39	0.07	0.10	0.32	1.60	68.97	0.50	88.09
G	5000	50	50.0	70.0	2000	39	0.09	0.11	0.40	1.63	70.19	0.60	101.52
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.30	1.08	0.12	1.53	65.69	1.51	28.77
P	1	50	50.0	0.0	1100	68	0.21	0.71	0.12	2.28	98.34	1.04	49.12
P	1000	1	1.0	14.0	1100	68	0.55	1.07	0.32	1.80	77.36	1.94	34.11
P	2000	1	1.0	28.0	1100	68	0.75	1.30	0.48	2.08	89.38	2.53	40.00
F	1	50	50.0	0.0	1600	49	0.06	0.17	0.06	1.97	84.71	0.28	46.32
F	1000	50	50.0	14.0	1600	49	0.09	0.16	0.17	2.21	94.98	0.42	52.61
F	2000	50	50.0	28.0	1600	49	0.11	0.16	0.27	2.35	101.36	0.54	60.08
F	1000	100	100.0	14.0	1600	49	0.07	0.11	0.17	2.39	102.76	0.35	82.91
F	1500	100	100.0	21.0	1600	49	0.08	0.12	0.22	2.42	104.35	0.41	86.78
G	1	200	200.0	0.0	2000	39	0.02	0.04	0.04	2.19	94.09	0.10	137.86
G	2000	100	100.0	28.0	2000	39	0.05	0.07	0.18	2.31	99.50	0.29	91.84
G	2500	50	50.0	35.0	2000	39	0.06	0.09	0.21	2.24	96.55	0.36	65.66
G	3000	100	100.0	42.0	2000	39	0.06	0.08	0.24	2.38	102.33	0.38	101.39
G	3000	150	150.0	42.0	2000	39	0.06	0.08	0.25	2.42	104.37	0.39	134.37
G	4000	50	50.0	56.0	2000	39	0.08	0.11	0.30	2.38	102.58	0.50	79.78
G	5000	50	50	70	2000	39	0.09	0.11	0.37	2.42	104.23	0.57	90.41
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.37	1.33	0.13	1.86	79.92	1.84	30.13
P	1	50	50	0.014	1100	68	0.26	0.88	0.14	2.86	123.23	1.29	50.21
P	1000	1	1	14	1100	68	0.66	1.32	0.33	2.19	94.42	2.30	35.27
P	2000	1	1	28	1100	68	0.87	1.56	0.50	2.56	110.25	2.93	40.99
F	1	50	50	0.014	1600	49	0.06	0.20	0.07	2.42	104.35	0.34	46.65
F	1000	50	50	14	1600	49	0.13	0.24	0.18	2.72	117.01	0.55	52.70
F	2000	50	50	28	1600	49	0.18	0.29	0.28	2.89	124.52	0.75	59.53
F	1000	100	100	14	1600	49	0.13	0.24	0.18	2.86	123.16	0.54	81.67
F	1500	100	100	21	1600	49	0.16	0.26	0.23	2.95	127.19	0.65	85.11
F	1	200	200	0.014	2000	44	0.03	0.07	0.05	2.71	116.76	0.15	140.67
F	2000	100	100	28	2000	44	0.08	0.12	0.22	2.86	123.31	0.43	92.40
F	2500	50	50	35	2000	44	0.09	0.14	0.26	2.78	119.57	0.49	66.15
F	3000	100	100	42	2000	44	0.10	0.14	0.30	2.98	128.24	0.53	100.71
F	3000	150	150	42	2000	44	0.08	0.11	0.30	3.01	129.69	0.49	134.94
F	4000	50	50	56	2000	44	0.12	0.17	0.37	2.94	126.46	0.66	79.14
F	5000	50	50	70	2000	44	0.14	0.19	0.44	2.99	128.84	0.77	87.88

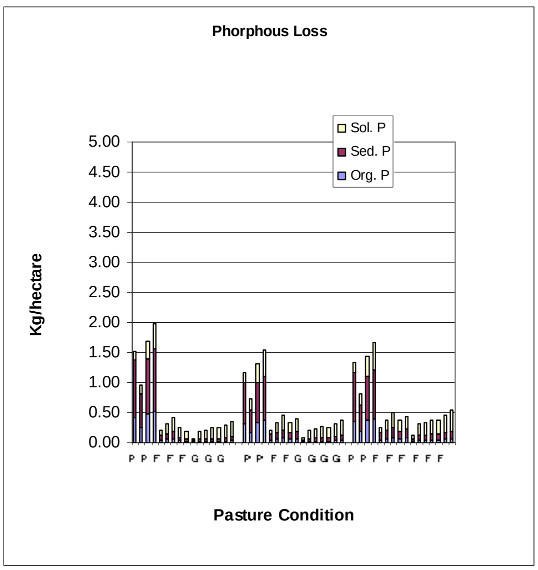

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

RAZORT

	1118	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.42	0.96	0.15	0.90	38.74	1.52	56.59
P	1	50	50.0	0.0	1100	68	0.25	0.56	0.15	1.28	54.99	0.97	94.48
P	1000	1	1.0	14.0	1100	68	0.47	0.92	0.30	1.15	49.68	1.69	68.67
P	2000	1	1.0	28.0	1100	68	0.53	1.02	0.43	1.38	59.27	1.98	82.27
F	1	50	50.0	0.0	1600	49	0.04	0.09	0.07	1.00	43.00	0.21	95.75
F	1000	50	50.0	14.0	1600	49	0.05	0.10	0.16	1.23	52.94	0.31	113.48
F	2000	100	100.0	28.0	1600	49	0.07	0.12	0.23	1.39	59.70	0.42	178.26
F	1000	100	100.0	14.0	1600	49	0.03	0.06	0.16	1.12	48.18	0.25	163.93
F	1500	150	150.0	21.0	1600	49	0.02	0.04	0.12	0.78	33.42	0.18	162.07
G	1	200	200.0	0.0	2000	39	0.01	0.02	0.04	1.03	44.16	0.07	241.56
G	2000	100	100.0	28.0	2000	39	0.02	0.04	0.13	1.22	52.51	0.19	183.91
G	2500	50	50.0	35.0	2000	39	0.02	0.04	0.15	1.23	53.13	0.22	145.56
G	3000	100	100.0	42.0	2000	39	0.03	0.05	0.17	1.30	55.81	0.24	203.08
G	3000	150	150.0	42.0	2000	39	0.03	0.05	0.17	1.31	56.47	0.24	251.59
G	4000	50	50.0	56.0	2000	39	0.03	0.05	0.21	1.33	57.44	0.30	174.01
G	5000	50	50.0	70.0	2000	39	0.03	0.06	0.26	1.38	59.28	0.35	193.31
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.31	0.70	0.16	1.15	49.61	1.17	57.93
P	1	50	50.0	0.0	1100	68	0.17	0.38	0.18	1.71	73.63	0.72	97.82
P	1000	1	1.0	14.0	1100	68	0.33	0.66	0.32	1.62	69.69	1.31	71.59
P	2000	1	1.0	28.0	1100	68	0.37	0.73	0.45	1.86	80.07	1.55	86.91
F	1	50	50.0	0.0	1600	49	0.04	0.09	0.08	1.30	55.95	0.22	98.14
F	1000	50	50.0	14.0	1600	49	0.06	0.11	0.17	1.60	68.88	0.34	115.47
F	2000	50	50.0	28.0	1600	49	0.08	0.14	0.24	1.81	77.93	0.46	133.50
F	1000	100	100.0	14.0	1600	49	0.06	0.11	0.17	1.69	72.72	0.34	163.01
F	1500	100	100.0	21.0	1600	49	0.07	0.12	0.20	1.80	77.69	0.39	172.03
G	1	200	200.0	0.0	2000	39	0.01	0.03	0.04	1.33	57.33	0.09	242.44
G	2000	100	100.0	28.0	2000	39	0.03	0.05	0.13	1.63	70.29	0.20	184.28
G	2500	50	50.0	35.0	2000	39	0.03	0.05	0.15	1.67	71.82	0.23	146.11
G	3000	100	100.0	42.0	2000	39	0.03	0.06	0.17	1.78	76.69	0.26	203.52
G	3000	150	150.0	42.0	2000	39	0.03	0.06	0.17	1.83	78.67	0.26	251.79
G	4000	50	50.0	56.0	2000	39	0.04	0.07	0.21	1.83	78.84	0.31	174.31
G	5000	50	50	70	2000	39	0.04	0.08	0.25	1.93	82.91	0.37	193.03
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.35	0.81	0.18	1.47	63.31	1.34	59.93
P	1	50	50	0.014	1100	68	0.19	0.44	0.20	2.16	93.05	0.82	100.53
P	1000	1	1	14	1100	68	0.37	0.74	0.33	2.01	86.70	1.44	74.31
P	2000	1	1	28	1100	68	0.40	0.80	0.47	2.34	100.71	1.67	90.75
F	1	50	50	0.014	1600	49	0.05	0.11	0.09	1.62	69.80	0.25	100.30
F	1000	50	50	14	1600	49	0.07	0.13	0.17	1.95	84.07	0.38	118.16
F	2000	50	50	28	1600	49	0.09	0.16	0.25	2.22	95.71	0.50	136.36
F	1000	100	100	14	1600	49	0.07	0.13	0.17	2.08	89.51	0.37	165.87
F	1500	100	100	21	1600	49	0.08	0.15	0.21	2.23	95.85	0.43	175.02
F	1	200	200	0.014	2000	44	0.02	0.05	0.06	1.64	70.51	0.13	243.67
F	2000	100	100	28	2000	44	0.04	0.08	0.18	1.98	85.19	0.30	185.62
F	2500	50	50	35	2000	44	0.05	0.08	0.21	2.02	86.96	0.34	147.15
F	3000	100	100	42	2000	44	0.05	0.09	0.24	2.16	92.80	0.38	204.57
F	3000	150	150	42	2000	44	0.05	0.09	0.24	2.21	95.11	0.38	252.53
F	4000	50	50	56	2000	44	0.06	0.11	0.29	2.22	95.54	0.46	174.95
F	5000	50	50	70	2000	44	0.06	0.13	0.35	2.33	100.39	0.54	193.29

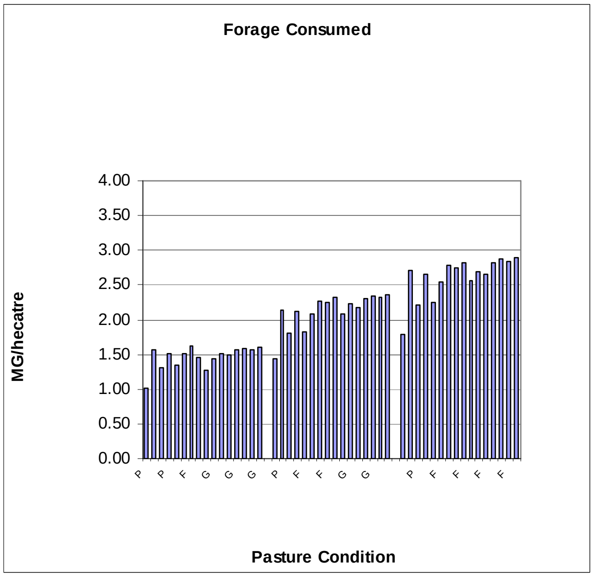

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

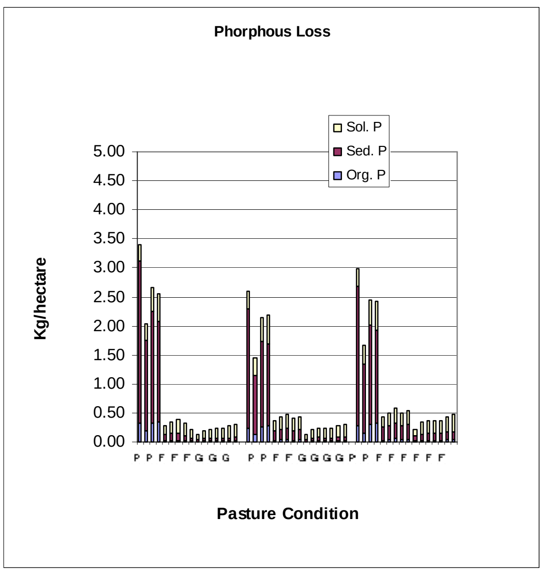

Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

SECESH

Past Cond	210 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	B P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.32	2.79	0.29	1.02	43.78	3.40	23.44
P	1	50	50.0	0.0	1100	68	0.19	1.56	0.28	1.57	67.53	2.03	53.02
P	1000	1	1.0	14.0	1100	68	0.33	1.93	0.40	1.31	56.20	2.66	32.53
P	2000	1	1.0	28.0	1100	68	0.35	1.72	0.47	1.52	65.46	2.55	42.41
F	1	50	50.0	0.0	1600	49	0.02	0.12	0.14	1.34	57.78	0.28	57.37
F	1000	50	50.0	14.0	1600	49	0.02	0.12	0.21	1.52	65.41	0.35	71.75
F	2000	100	100.0	28.0	1600	49	0.03	0.12	0.25	1.62	69.90	0.40	135.60
F	1000	100	100.0	14.0	1600	49	0.02	0.09	0.21	1.47	63.08	0.32	123.96
F	1500	150	150.0	21.0	1600	49	0.01	0.06	0.15	1.27	54.64	0.22	153.11
G	1	200	200.0	0.0	2000	39	0.01	0.04	0.08	1.43	61.64	0.12	200.67
G	2000	100	100.0	28.0	2000	39	0.01	0.05	0.14	1.52	65.38	0.20	142.22
G	2500	50	50.0	35.0	2000	39	0.01	0.05	0.16	1.50	64.60	0.22	104.73
G	3000	100	100.0	42.0	2000	39	0.01	0.05	0.17	1.56	67.29	0.24	162.79
G	3000	150	150.0	42.0	2000	39	0.01	0.05	0.17	1.58	68.06	0.24	211.60
G	4000	50	50.0	56.0	2000	39	0.02	0.06	0.20	1.57	67.65	0.27	135.19
G	5000	50	50.0	70.0	2000	39	0.02	0.06	0.22	1.60	68.87	0.31	156.13
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.24	2.05	0.30	1.44	61.86	2.60	24.86
P	1	50	50.0	0.0	1100	68	0.13	1.03	0.30	2.15	92.43	1.46	55.64
P	1000	1	1.0	14.0	1100	68	0.25	1.48	0.41	1.80	77.49	2.14	34.75
P	2000	1	1.0	28.0	1100	68	0.28	1.41	0.49	2.13	91.53	2.18	44.92
F	1	50	50.0	0.0	1600	49	0.02	0.18	0.15	1.82	78.53	0.36	58.75
F	1000	50	50.0	14.0	1600	49	0.03	0.18	0.22	2.08	89.59	0.43	72.34
F	2000	50	50.0	28.0	1600	49	0.04	0.19	0.26	2.26	97.31	0.49	85.84
F	1000	100	100.0	14.0	1600	49	0.03	0.17	0.21	2.25	96.67	0.41	115.53
F	1500	100	100.0	21.0	1600	49	0.03	0.17	0.24	2.31	99.63	0.44	122.65
G	1	200	200.0	0.0	2000	39	0.01	0.04	0.08	2.08	89.59	0.13	195.88
G	2000	100	100.0	28.0	2000	39	0.01	0.06	0.14	2.22	95.73	0.21	136.47
G	2500	50	50.0	35.0	2000	39	0.01	0.06	0.16	2.17	93.64	0.23	99.89
G	3000	100	100.0	42.0	2000	39	0.01	0.06	0.17	2.31	99.52	0.24	153.32
G	3000	150	150.0	42.0	2000	39	0.01	0.06	0.17	2.34	100.57	0.24	200.18
G	4000	50	50.0	56.0	2000	39	0.02	0.07	0.19	2.33	100.13	0.28	124.39
G	5000	50	50	70	2000	39	0.02	0.07	0.22	2.36	101.57	0.30	142.49
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.28	2.39	0.31	1.80	77.37	2.99	26.87
P	1	50	50	0.014	1100	68	0.15	1.19	0.32	2.70	116.34	1.66	58.06
P	1000	1	1	14	1100	68	0.29	1.72	0.42	2.22	95.58	2.44	36.96
P	2000	1	1	28	1100	68	0.32	1.60	0.50	2.66	114.43	2.42	48.65
F	1	50	50	0.014	1600	49	0.03	0.24	0.16	2.25	96.83	0.42	60.67
F	1000	50	50	14	1600	49	0.04	0.24	0.22	2.55	109.65	0.51	73.42
F	2000	50	50	28	1600	49	0.06	0.27	0.26	2.78	119.52	0.58	86.66
F	1000	100	100	14	1600	49	0.04	0.23	0.22	2.75	118.46	0.49	116.33
F	1500	100	100	21	1600	49	0.05	0.25	0.24	2.83	121.77	0.53	123.26
F	1	200	200	0.014	2000	44	0.01	0.09	0.12	2.56	110.30	0.21	195.12
F	2000	100	100	28	2000	44	0.02	0.12	0.20	2.69	115.95	0.34	134.54
F	2500	50	50	35	2000	44	0.03	0.12	0.21	2.65	114.22	0.36	98.09

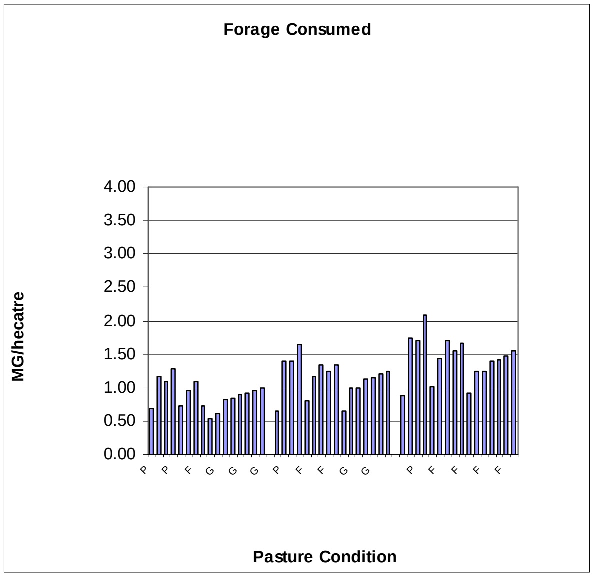
F	3000	100	100	42	2000	44	0.03	0.12	0.23	2.82	121.35	0.38	149.39
F	3000	150	150	42	2000	44	0.03	0.12	0.23	2.88	124.06	0.37	195.15
F	4000	50	50	56	2000	44	0.03	0.14	0.26	2.83	121.93	0.44	120.05
F	5000	50	50	70	2000	44	0.04	0.14	0.29	2.89	124.55	0.47	135.53

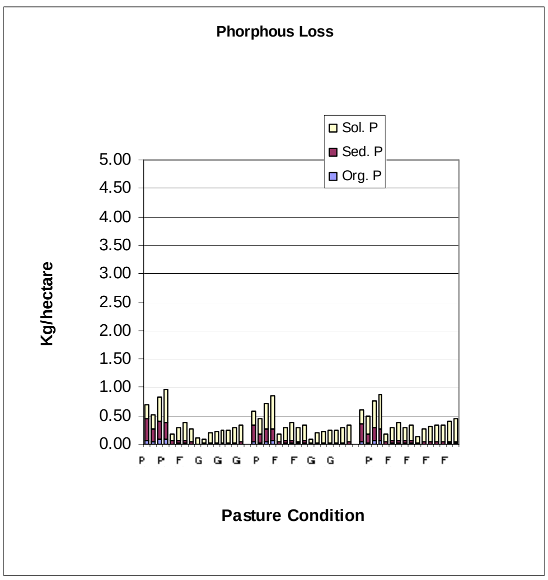




WABEN

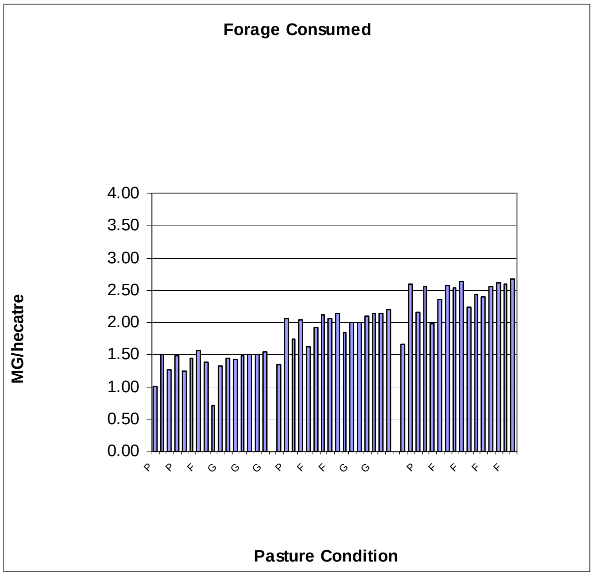
	44	Ha	Hyd Class	B									
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.07	0.38	0.25	0.69	29.87	0.70	35.83
P	1	50	50.0	0.0	1100	68	0.04	0.22	0.26	1.17	50.24	0.53	80.34
P	1000	1	1.0	14.0	1100	68	0.08	0.31	0.44	1.10	47.30	0.84	50.88
P	2000	1	1.0	28.0	1100	68	0.09	0.30	0.57	1.28	55.32	0.96	65.69
F	1	50	50.0	0.0	1600	49	0.01	0.05	0.13	0.73	31.51	0.19	76.76
F	1000	50	50.0	14.0	1600	49	0.01	0.05	0.23	0.97	41.58	0.29	92.93
F	2000	100	100.0	28.0	1600	49	0.02	0.05	0.30	1.09	46.73	0.37	156.20
F	1000	100	100.0	14.0	1600	49	0.01	0.03	0.22	0.73	31.42	0.27	140.53
F	1500	150	150.0	21.0	1600	49	0.00	0.01	0.10	0.53	22.81	0.11	75.63
G	1	200	200.0	0.0	2000	39	0.00	0.02	0.07	0.61	26.06	0.09	193.94
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.17	0.82	35.20	0.20	144.17
G	2500	50	50.0	35.0	2000	39	0.01	0.02	0.19	0.83	35.87	0.22	111.47
G	3000	100	100.0	42.0	2000	39	0.01	0.02	0.21	0.90	38.61	0.24	161.31
G	3000	150	150.0	42.0	2000	39	0.01	0.02	0.21	0.91	39.39	0.24	202.94
G	4000	50	50.0	56.0	2000	39	0.01	0.02	0.26	0.95	41.01	0.29	137.18
G	5000	50	50.0	70.0	2000	39	0.01	0.03	0.30	0.99	42.48	0.33	154.60
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	68	0.05	0.28	0.25	0.65	27.80	0.58	37.16
P	1	50	50.0	0.0	1100	68	0.03	0.15	0.28	1.40	60.39	0.45	83.57
P	1000	1	1.0	14.0	1100	68	0.06	0.21	0.46	1.41	60.54	0.72	54.96
P	2000	1	1.0	28.0	1100	68	0.06	0.20	0.59	1.64	70.66	0.85	71.75
F	1	50	50.0	0.0	1600	49	0.01	0.04	0.13	0.80	34.41	0.18	78.33
F	1000	50	50.0	14.0	1600	49	0.01	0.04	0.23	1.16	50.13	0.29	96.99
F	2000	50	50.0	28.0	1600	49	0.02	0.05	0.31	1.35	57.93	0.38	114.98
F	1000	100	100.0	14.0	1600	49	0.01	0.04	0.23	1.24	53.23	0.29	143.26
F	1500	100	100.0	21.0	1600	49	0.01	0.05	0.28	1.34	57.50	0.33	152.18
G	1	200	200.0	0.0	2000	39	0.00	0.02	0.07	0.66	28.29	0.09	195.16
G	2000	100	100.0	28.0	2000	39	0.01	0.02	0.17	0.99	42.59	0.20	146.55
G	2500	50	50.0	35.0	2000	39	0.01	0.02	0.20	1.00	43.14	0.22	113.47
G	3000	100	100.0	42.0	2000	39	0.01	0.02	0.22	1.13	48.57	0.25	163.41
G	3000	150	150.0	42.0	2000	39	0.01	0.02	0.22	1.15	49.72	0.25	204.89
G	4000	50	50.0	56.0	2000	39	0.01	0.02	0.26	1.20	51.63	0.29	138.59
G	5000	50	50	70	2000	39	0.01	0.03	0.30	1.24	53.55	0.33	155.53
				High Stocking Rate									
P	1	1	1	0.014	1100	68	0.05	0.30	0.26	0.87	37.55	0.61	38.44
P	1	50	50	0.014	1100	68	0.03	0.16	0.30	1.74	74.82	0.48	85.91
P	1000	1	1	14	1100	68	0.06	0.22	0.47	1.71	73.71	0.75	57.43
P	2000	1	1	28	1100	68	0.06	0.21	0.60	2.08	89.44	0.88	74.85
F	1	50	50	0.014	1600	49	0.01	0.04	0.13	1.01	43.58	0.19	79.87
F	1000	50	50	14	1600	49	0.01	0.05	0.24	1.44	61.91	0.30	98.98
F	2000	50	50	28	1600	49	0.02	0.05	0.32	1.70	73.23	0.38	117.19
F	1000	100	100	14	1600	49	0.01	0.04	0.24	1.55	66.53	0.30	145.26
F	1500	100	100	21	1600	49	0.01	0.05	0.28	1.67	71.96	0.34	154.40
F	1	200	200	0.014	2000	44	0.00	0.02	0.10	0.92	39.70	0.12	206.54
F	2000	100	100	28	2000	44	0.01	0.03	0.24	1.24	53.44	0.27	155.23
F	2500	50	50	35	2000	44	0.01	0.03	0.27	1.25	53.96	0.30	120.38
F	3000	100	100	42	2000	44	0.01	0.03	0.30	1.39	59.94	0.34	173.39
F	3000	150	150	42	2000	44	0.01	0.03	0.30	1.42	60.99	0.34	217.37
F	4000	50	50	56	2000	44	0.01	0.03	0.35	1.47	63.43	0.40	146.96
F	5000	50	50	70	2000	44	0.01	0.04	0.41	1.54	66.52	0.46	164.77

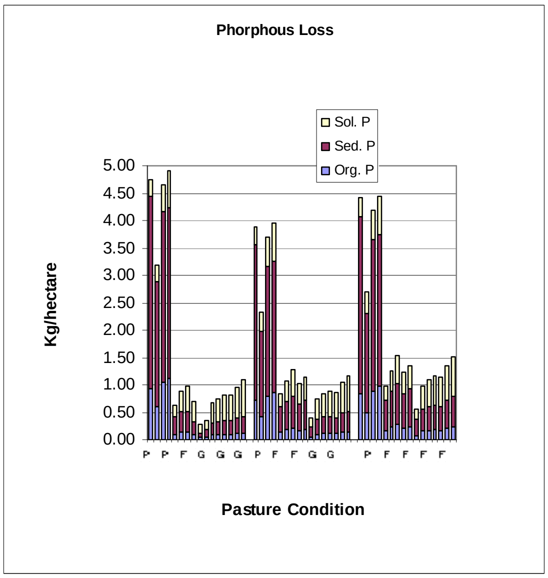

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
P P F G G G P F F G G P F F F F
Pasture Condition

CAPTINA

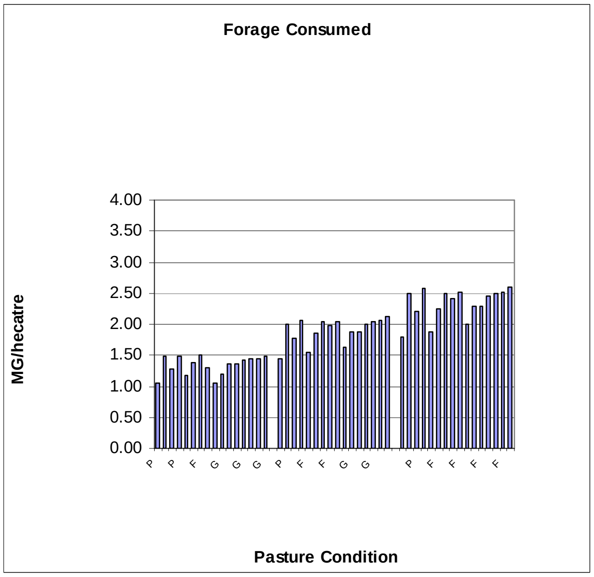
Past Cond	5150 Lit kg/ha	Ha qCNit kg/ha	Hyd Class Tn kg/ha	C P	MnBm	Curve No	Org P	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
				Low Stocking Rate									
P	1	1	1.0	0.0	1100	79	0.92	3.52	0.31	1.00	43.23	4.75	33.94
P	1	50	50.0	0.0	1100	79	0.61	2.27	0.31	1.51	65.10	3.19	49.05
P	1000	1	1.0	14.0	1100	79	1.04	3.11	0.50	1.27	54.78	4.65	37.64
P	2000	1	1.0	28.0	1100	79	1.13	3.11	0.66	1.49	63.96	4.90	42.53
F	1	50	50.0	0.0	1600	69	0.09	0.32	0.21	1.26	54.11	0.63	52.79
F	1000	50	50.0	14.0	1600	69	0.14	0.38	0.36	1.44	62.07	0.88	62.38
F	2000	100	100.0	28.0	1600	69	0.14	0.37	0.47	1.57	67.50	0.98	104.98
F	1000	100	100.0	14.0	1600	69	0.09	0.24	0.36	1.38	59.50	0.69	99.13
F	1500	150	150.0	21.0	1600	69	0.03	0.09	0.16	0.71	30.65	0.28	59.84
G	1	200	200.0	0.0	2000	61	0.04	0.15	0.16	1.33	57.37	0.35	149.39
G	2000	100	100.0	28.0	2000	61	0.09	0.22	0.37	1.44	61.84	0.68	108.30
G	2500	50	50.0	35.0	2000	61	0.09	0.23	0.42	1.43	61.36	0.75	82.17
G	3000	100	100.0	42.0	2000	61	0.10	0.25	0.47	1.49	64.07	0.82	121.67
G	3000	150	150.0	42.0	2000	61	0.10	0.24	0.47	1.51	64.90	0.81	155.16
G	4000	50	50.0	56.0	2000	61	0.11	0.28	0.57	1.50	64.79	0.96	102.06
G	5000	50	50.0	70.0	2000	61	0.12	0.30	0.66	1.55	66.55	1.09	115.99
				Medium Stocking Rate									
P	1	1	1.0	0.0	1100	79	0.73	2.82	0.33	1.34	57.66	3.88	34.02
P	1	50	50.0	0.0	1100	79	0.42	1.55	0.36	2.05	88.28	2.33	49.95
P	1000	1	1.0	14.0	1100	79	0.79	2.38	0.53	1.74	74.80	3.70	38.32
P	2000	1	1.0	28.0	1100	79	0.86	2.41	0.69	2.04	87.87	3.96	44.03
F	1	50	50.0	0.0	1600	69	0.13	0.48	0.23	1.63	69.98	0.84	54.27
F	1000	50	50.0	14.0	1600	69	0.18	0.51	0.37	1.93	83.11	1.06	63.66
F	2000	50	50.0	28.0	1600	69	0.22	0.58	0.48	2.11	90.88	1.28	73.49
F	1000	100	100.0	14.0	1600	69	0.17	0.49	0.37	2.07	89.05	1.03	94.42
F	1500	100	100.0	21.0	1600	69	0.19	0.52	0.42	2.14	92.27	1.14	99.35
G	1	200	200.0	0.0	2000	61	0.05	0.18	0.17	1.83	78.99	0.41	147.98
G	2000	100	100.0	28.0	2000	61	0.10	0.27	0.38	2.01	86.52	0.75	106.58
G	2500	50	50.0	35.0	2000	61	0.11	0.29	0.42	1.99	85.69	0.83	80.84
G	3000	100	100.0	42.0	2000	61	0.12	0.29	0.47	2.11	90.77	0.88	117.89
G	3000	150	150.0	42.0	2000	61	0.11	0.28	0.47	2.15	92.46	0.86	150.04
G	4000	50	50.0	56.0	2000	61	0.14	0.34	0.56	2.13	91.79	1.04	97.53
G	5000	50	50	70	2000	61	0.15	0.36	0.65	2.20	94.63	1.16	109.16
				High Stocking Rate									
P	1	1	1	0.014	1100	79	0.84	3.23	0.35	1.66	71.53	4.41	35.64
P	1	50	50	0.014	1100	79	0.48	1.82	0.39	2.58	111.28	2.69	51.82
P	1000	1	1	14	1100	79	0.89	2.76	0.54	2.16	92.83	4.19	40.20
P	2000	1	1	28	1100	79	0.97	2.77	0.71	2.56	110.11	4.45	46.64
F	1	50	50	0.014	1600	69	0.16	0.57	0.24	1.98	85.12	0.97	55.78
F	1000	50	50	14	1600	69	0.22	0.65	0.38	2.35	101.12	1.26	65.10
F	2000	50	50	28	1600	69	0.28	0.76	0.49	2.58	111.03	1.52	74.63
F	1000	100	100	14	1600	69	0.22	0.63	0.38	2.53	108.76	1.22	95.60
F	1500	100	100	21	1600	69	0.24	0.68	0.43	2.63	113.15	1.36	100.41
F	1	200	200	0.014	2000	65	0.08	0.28	0.20	2.23	96.08	0.56	149.23
F	2000	100	100	28	2000	65	0.15	0.40	0.42	2.43	104.82	0.98	107.03
F	2500	50	50	35	2000	65	0.17	0.44	0.47	2.39	103.06	1.09	81.19
F	3000	100	100	42	2000	65	0.18	0.46	0.52	2.56	110.20	1.15	117.64
F	3000	150	150	42	2000	65	0.17	0.44	0.52	2.61	112.25	1.13	149.44
F	4000	50	50	56	2000	65	0.20	0.52	0.62	2.60	111.79	1.34	96.99
F	5000	50	50	70	2000	65	0.22	0.57	0.72	2.67	115.10	1.51	107.75

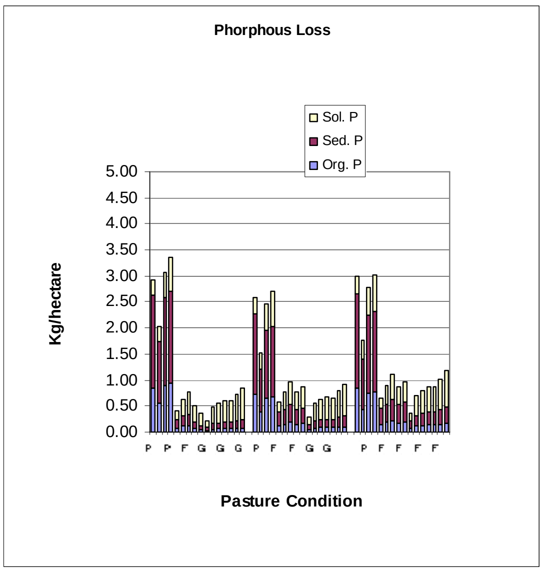

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

JAY

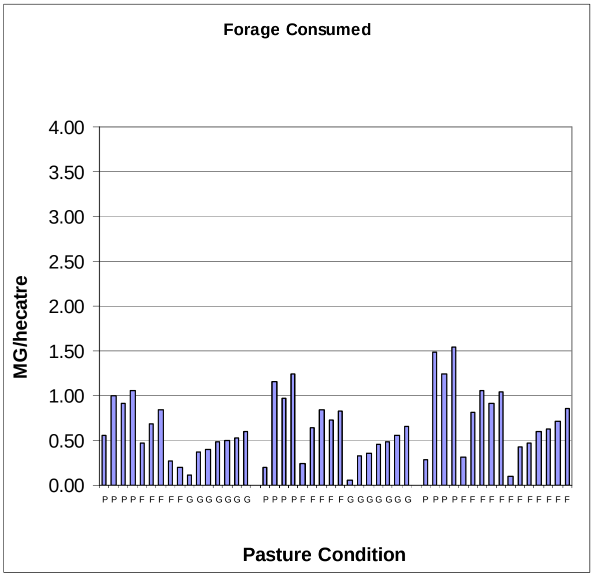
	985Ha		Hyd ClassC										
Past Cond	Lit kg/haq	CNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
			Low Stocking Rate										
P	1	1	1.0	0.0	1100	79	0.85	1.79	0.28	1.04	44.85	2.91	44.83
P	1	50	50.0	0.0	1100	79	0.56	1.18	0.29	1.48	63.86	2.02	67.90
P	1000	1	1.0	14.0	1100	79	0.88	1.70	0.48	1.29	55.44	3.07	50.30
P	2000	1	1.0	28.0	1100	79	0.94	1.78	0.65	1.49	64.13	3.36	57.38
F	1	50	50.0	0.0	1600	69	0.08	0.16	0.17	1.18	50.69	0.42	90.86
F	1000	50	50.0	14.0	1600	69	0.11	0.20	0.32	1.37	59.18	0.63	106.05
F	2000	100	100.0	28.0	1600	69	0.13	0.22	0.43	1.51	65.08	0.78	167.67
F	1000	100	100.0	14.0	1600	69	0.07	0.12	0.33	1.30	55.87	0.51	156.65
F	1500	150	150.0	21.0	1600	69	0.05	0.08	0.23	1.05	45.16	0.36	124.24
G	1	200	200.0	0.0	2000	61	0.03	0.07	0.12	1.20	51.81	0.22	238.28
G	2000	100	100.0	28.0	2000	61	0.06	0.10	0.33	1.35	58.31	0.49	177.55
G	2500	50	50.0	35.0	2000	61	0.06	0.11	0.38	1.35	58.30	0.56	138.53
G	3000	100	100.0	42.0	2000	61	0.07	0.12	0.42	1.42	61.09	0.61	195.84
G	3000	150	150.0	42.0	2000	61	0.07	0.12	0.42	1.43	61.78	0.61	244.69
G	4000	50	50.0	56.0	2000	61	0.08	0.14	0.51	1.45	62.30	0.73	166.47
G	5000	50	50.0	70.0	2000	61	0.08	0.16	0.61	1.49	64.13	0.85	186.65
			Medium Stocking Rate										
P	1	1	1.0	0.0	1100	79	0.72	1.55	0.31	1.44	61.81	2.59	45.76
P	1	50	50.0	0.0	1100	79	0.38	0.81	0.32	1.99	85.69	1.52	69.71
P	1000	1	1.0	14.0	1100	79	0.66	1.29	0.51	1.78	76.55	2.46	51.74
P	2000	1	1.0	28.0	1100	79	0.69	1.33	0.68	2.07	89.00	2.71	59.90
F	1	50	50.0	0.0	1600	69	0.12	0.25	0.19	1.54	66.34	0.57	92.59
F	1000	50	50.0	14.0	1600	69	0.15	0.28	0.34	1.85	79.72	0.78	107.28
F	2000	50	50.0	28.0	1600	69	0.18	0.34	0.45	2.03	87.48	0.97	122.37
F	1000	100	100.0	14.0	1600	69	0.15	0.28	0.33	1.97	84.87	0.76	153.08
F	1500	100	100.0	21.0	1600	69	0.17	0.30	0.39	2.05	88.16	0.86	160.54
G	1	200	200.0	0.0	2000	61	0.05	0.10	0.13	1.64	70.54	0.28	237.99
G	2000	100	100.0	28.0	2000	61	0.08	0.14	0.33	1.88	81.03	0.55	176.91
G	2500	50	50.0	35.0	2000	61	0.09	0.16	0.38	1.89	81.20	0.63	138.00
G	3000	100	100.0	42.0	2000	61	0.09	0.16	0.42	2.01	86.47	0.67	194.26
G	3000	150	150.0	42.0	2000	61	0.09	0.16	0.42	2.04	87.85	0.66	242.26
G	4000	50	50.0	56.0	2000	61	0.10	0.19	0.51	2.06	88.80	0.80	163.83
G	5000	50	50	70	2000	61	0.11	0.20	0.60	2.13	91.64	0.91	181.07
			High Stocking Rate										
P	1	1	1	0.014	1100	79	0.84	1.82	0.33	1.79	77.11	2.99	47.92
P	1	50	50	0.014	1100	79	0.44	0.96	0.36	2.50	107.84	1.76	72.36
P	1000	1	1	14	1100	79	0.75	1.50	0.53	2.21	95.34	2.78	54.24
P	2000	1	1	28	1100	79	0.78	1.54	0.71	2.59	111.30	3.03	63.33
F	1	50	50	0.014	1600	69	0.15	0.30	0.21	1.87	80.49	0.66	94.47
F	1000	50	50	14	1600	69	0.19	0.35	0.35	2.24	96.40	0.89	109.48
F	2000	50	50	28	1600	69	0.22	0.42	0.46	2.50	107.57	1.10	124.50
F	1000	100	100	14	1600	69	0.18	0.34	0.35	2.41	103.63	0.87	155.13
F	1500	100	100	21	1600	69	0.20	0.37	0.40	2.52	108.45	0.98	162.59
F	1	200	200	0.014	2000	65	0.07	0.14	0.17	2.01	86.50	0.37	237.66
F	2000	100	100	28	2000	65	0.11	0.21	0.39	2.29	98.39	0.71	175.93
F	2500	50	50	35	2000	65	0.13	0.23	0.44	2.29	98.45	0.79	137.03
F	3000	100	100	42	2000	65	0.13	0.25	0.49	2.45	105.67	0.86	192.77
F	3000	150	150	42	2000	65	0.13	0.25	0.48	2.50	107.77	0.86	240.06
F	4000	50	50	56	2000	65	0.15	0.29	0.59	2.52	108.67	1.02	161.76
F	5000	50	50	70	2000	65	0.17	0.32	0.69	2.61	112.19	1.17	178.13

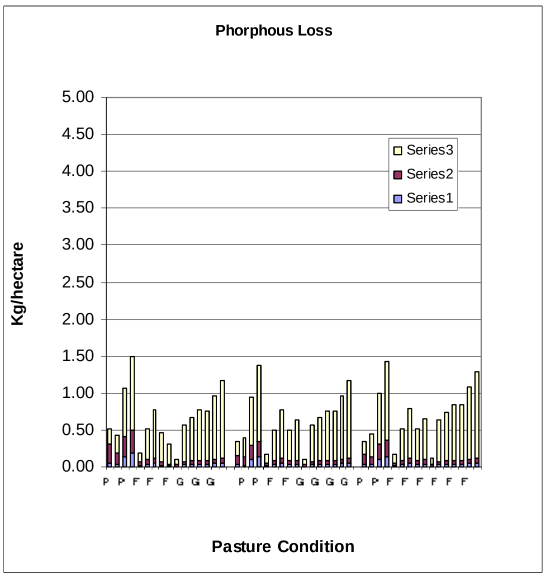

Forage Consumed
MG/hecatre
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Sol. P
Sed. P
Org. P
Kg/hectare
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition

NIXA

		5752	Ha	Hyd Class	C			Cost Nit	0.63	Valu BM	39.19	Cost Litter	
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
		Low Stocking Rate									Low Stocking Rate		
P	1.0	1	1	0	1100	79	0.05	0.26	0.21	0.55	23.77	$ 0.52	$ 23.05
P	1.0	50	50	0	1100	79	0.04	0.16	0.24	1.00	42.91	$ 0.44	$ 59.83
P	1000.0	1	1	14	1100	79	0.14	0.27	0.64	0.91	39.07	$ 1.06	$ 33.04
P	2000.0	1	1	28	1100	79	0.20	0.30	0.99	1.05	45.30	$ 1.49	$ 43.94
F	1.0	50	50	0	1600	69	0.01	0.05	0.12	0.47	20.38	$ 0.19	$ 42.07
F	1000.0	50	50	14	1600	69	0.04	0.07	0.41	0.69	29.72	$ 0.51	$ 50.62
F	2000.0	100	100	28	1600	69	0.05	0.07	0.65	0.85	36.52	$ 0.78	$ 87.90
F	1000.0	100	100	14	1600	69	0.03	0.05	0.39	0.28	11.87	$ 0.46	$ 78.32
F	1500.0	150	150	21	1600	69	0.01	0.02	0.27	0.20	8.67	$ 0.31	$ 68.80
G	1.0	200	200	0	2000	61	0.01	0.03	0.08	0.12	5.08	$ 0.11	$ 104.60
G	2000.0	100	100	28	2000	61	0.03	0.04	0.49	0.38	16.21	$ 0.57	$ 73.18
G	2500.0	50	50	35	2000	61	0.04	0.05	0.58	0.39	17.00	$ 0.67	$ 53.91
G	3000.0	100	100	42	2000	61	0.04	0.05	0.68	0.48	20.67	$ 0.76	$ 80.99
G	3000.0	150	150	42	2000	61	0.04	0.05	0.68	0.49	21.24	$ 0.76	$ 104.25
G	4000.0	50	50	56	2000	61	0.05	0.06	0.86	0.53	22.84	$ 0.96	$ 65.39
G	5000.0	50	50	70	2000	61	0.06	0.06	1.04	0.60	26.02	$ 1.16	$ 73.02
		Medium Stocking Rate										#REF!	#REF!
P	1.0	1	1	0	1100	79	0.03	0.13	0.18	0.20	8.61	$ 0.34	$ 22.35
P	1.0	50	50	0	1100	79	0.03	0.11	0.26	1.15	49.62	$ 0.39	$ 61.86
P	1000.0	1	1	14	1100	79	0.10	0.19	0.66	0.98	42.10	$ 0.95	$ 35.34
P	2000.0	1	1	28	1100	79	0.14	0.21	1.02	1.24	53.38	$ 1.37	$ 46.85
F	1.0	50	50	0	1600	69	0.01	0.04	0.11	0.24	10.40	$ 0.17	$ 42.33
F	1000.0	50	50	14	1600	69	0.03	0.06	0.41	0.64	27.60	$ 0.50	$ 51.49
F	2000.0	50	50	28	1600	69	0.05	0.07	0.66	0.84	36.11	$ 0.78	$ 60.58
F	1000.0	100	100	14	1600	69	0.03	0.05	0.41	0.73	31.26	$ 0.50	$ 79.71
F	1500.0	100	100	21	1600	69	0.04	0.06	0.54	0.82	35.49	$ 0.64	$ 84.16
G	1.0	200	200	0	2000	61	0.01	0.03	0.07	0.06	2.58	$ 0.11	$ 104.57
G	2000.0	100	100	28	2000	61	0.03	0.04	0.49	0.32	13.90	$ 0.56	$ 73.62
G	2500.0	50	50	35	2000	61	0.04	0.05	0.58	0.36	15.47	$ 0.67	$ 54.50
G	3000.0	100	100	42	2000	61	0.04	0.05	0.68	0.46	19.92	$ 0.76	$ 81.59
G	3000.0	150	150	42	2000	61	0.04	0.05	0.68	0.48	20.67	$ 0.76	$ 104.77
G	4000.0	50	50	56	2000	61	0.05	0.05	0.86	0.56	23.95	$ 0.96	$ 66.22
G	5000	50	50	70	2000	61	0.05	0.06	1.05	0.66	28.40	1.16	74.07
		High Stocking Rate											
P	1	1	1	0	1100	79	0.03	0.14	0.18	0.28	12.07	0.35	22.52
P	1	50	50	0	1100	79	0.03	0.12	0.30	1.49	64.16	0.45	63.46
P	1000	1	1	14	1100	79	0.10	0.20	0.69	1.25	53.66	0.99	36.67
P	2000	1	1	28	1100	79	0.14	0.22	1.05	1.55	66.65	1.42	48.50
F	1	50	50	0	1600	69	0.01	0.04	0.12	0.31	13.44	0.17	42.61
F	1000	50	50	14	1600	69	0.03	0.06	0.42	0.81	34.85	0.51	52.20
F	2000	50	50	28	1600	69	0.05	0.07	0.68	1.06	45.77	0.79	61.53
F	1000	100	100	14	1600	69	0.03	0.05	0.43	0.91	39.38	0.51	80.46
F	1500	100	100	21	1600	69	0.04	0.06	0.56	1.04	44.84	0.65	85.12
F	1	200	200	0	2000	65	0.01	0.03	0.08	0.11	4.54	0.12	111.29
F	2000	100	100	28	2000	65	0.03	0.04	0.55	0.42	18.29	0.63	78.03
F	2500	50	50	35	2000	65	0.04	0.05	0.65	0.47	20.31	0.74	57.71
F	3000	100	100	42	2000	65	0.04	0.05	0.76	0.60	26.02	0.85	86.41
F	3000	150	150	42	2000	65	0.04	0.05	0.76	0.63	26.95	0.85	110.96
F	4000	50	50	56	2000	65	0.05	0.06	0.96	0.72	30.85	1.07	70.21
F	5000	50	50	70	2000	65	0.06	0.07	1.17	0.85	36.81	1.29	78.68

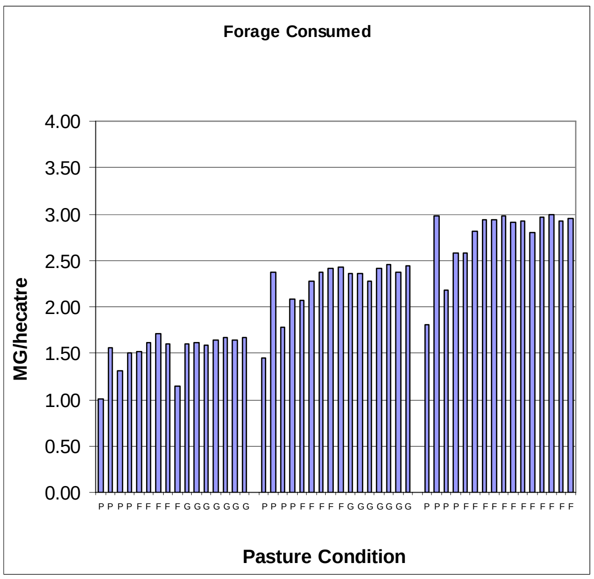

Forage Consumed
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
MG/hecatre
Pasture Condition

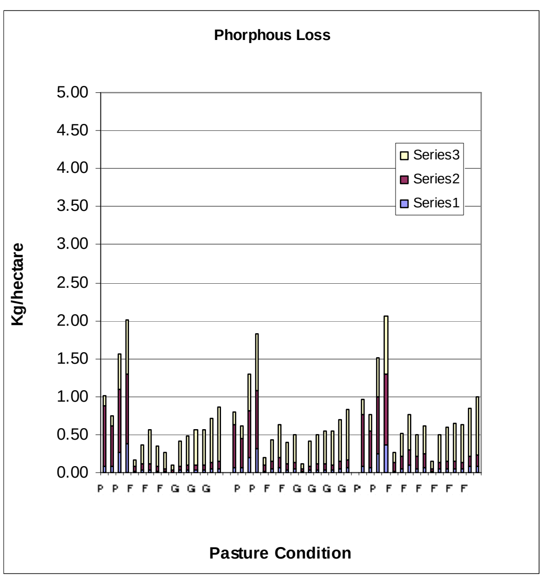

Phorphous Loss
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Series3
Series2
Series1
Kg/hectare
Pasture Condition

TONTI

Past Cond	Lit kg/ha	3039 qCNit kg/ha	Ha Tn kg/ha	Hyd Class P	C MnB m	Curve No	Org P	Cost Nit Sed P	0.63 Sol P	Valu BM Bmeat	39.19 NgDys	Cost Litter T Ploss	Nloss
		Low Stocking Rate									Low Stocking Rate		
P	1.0	1	1	0	1100	79	0.09	0.79	0.14	1.01	43.49	$ 1.02	$ 11.26
P	1.0	50	50	0	1100	79	0.08	0.54	0.12	1.56	67.27	$ 0.74	$ 25.91
P	1000.0	1	1	14	1100	79	0.27	0.83	0.45	1.30	56.12	$ 1.56	$ 16.29
P	2000.0	1	1	28	1100	79	0.39	0.92	0.70	1.51	65.01	$ 2.01	$ 21.52
F	1.0	50	50	0	1600	69	0.01	0.07	0.08	1.51	65.16	$ 0.16	$ 37.78
F	1000.0	50	50	14	1600	69	0.03	0.08	0.26	1.61	69.49	$ 0.37	$ 47.66
F	2000.0	100	100	28	1600	69	0.04	0.07	0.44	1.71	73.56	$ 0.56	$ 107.33
F	1000.0	100	100	14	1600	69	0.02	0.05	0.27	1.60	68.91	$ 0.35	$ 95.66
F	1500.0	150	150	21	1600	69	0.02	0.03	0.21	1.15	49.48	$ 0.26	$ 97.99
G	1.0	200	200	0	2000	61	0.01	0.03	0.07	1.60	68.88	$ 0.11	$ 172.24
G	2000.0	100	100	28	2000	61	0.03	0.05	0.33	1.61	69.43	$ 0.41	$ 112.49
G	2500.0	50	50	35	2000	61	0.03	0.06	0.39	1.59	68.46	$ 0.48	$ 75.88
G	3000.0	100	100	42	2000	61	0.04	0.06	0.46	1.65	70.88	$ 0.56	$ 130.44
G	3000.0	150	150	42	2000	61	0.04	0.06	0.47	1.66	71.63	$ 0.56	$ 177.88
G	4000.0	50	50	56	2000	61	0.05	0.08	0.58	1.64	70.52	$ 0.71	$ 101.82
G	5000.0	50	50	70	2000	61	0.06	0.09	0.72	1.66	71.59	$ 0.86	$ 120.13
		Medium Stocking Rate											
P	1.0	1	1	0	1100	79	0.07	0.56	0.17	1.45	62.58	$ 0.80	$ 11.97
P	1.0	50	50	0	1100	79	0.06	0.39	0.17	2.37	102.21	$ 0.62	$ 26.17
P	1000.0	1	1	14	1100	79	0.20	0.61	0.48	1.78	76.52	$ 1.30	$ 16.94
P	2000.0	1	1	28	1100	79	0.31	0.77	0.74	2.08	89.47	$ 1.82	$ 22.14
F	1.0	50	50	0	1600	69	0.02	0.09	0.10	2.08	89.37	$ 0.20	$ 38.98
F	1000.0	50	50	14	1600	69	0.04	0.10	0.29	2.28	98.07	$ 0.43	$ 47.88
F	2000.0	50	50	28	1600	69	0.06	0.13	0.44	2.37	102.11	$ 0.64	$ 58.32
F	1000.0	100	100	14	1600	69	0.04	0.08	0.27	2.41	103.68	$ 0.39	$ 83.44
F	1500.0	100	100	21	1600	69	0.04	0.09	0.35	2.43	104.49	$ 0.49	$ 89.39
G	1.0	200	200	0	2000	61	0.01	0.03	0.07	2.35	101.38	$ 0.12	$ 161.37
G	2000.0	100	100	28	2000	61	0.03	0.06	0.32	2.36	101.74	$ 0.41	$ 101.25
G	2500.0	50	50	35	2000	61	0.04	0.07	0.38	2.28	98.04	$ 0.49	$ 68.81
G	3000.0	100	100	42	2000	61	0.04	0.07	0.44	2.42	104.01	$ 0.55	$ 114.87
G	3000.0	150	150	42	2000	61	0.04	0.07	0.44	2.46	105.73	$ 0.55	$ 159.29
G	4000.0	50	50	56	2000	61	0.05	0.09	0.56	2.38	102.30	$ 0.70	$ 87.71
G	5000	50	50	70	2000	61	0.06	0.10	0.67	2.44	105.02	0.84	$ 101.37
		High Stocking Rate											
P	1	1	1	0	1100	79	0.08	0.69	0.20	1.80	77.68	0.97	12.77
P	1	50	50	0	1100	79	0.07	0.48	0.21	2.98	128.39	0.77	27.11
P	1000	1	1	14	1100	79	0.24	0.76	0.51	2.19	94.11	1.51	17.81
P	2000	1	1	28	1100	79	0.37	0.93	0.77	2.58	110.95	2.07	23.11
F	1	50	50	0	1600	69	0.02	0.12	0.12	2.58	111.0	0.26	39.41

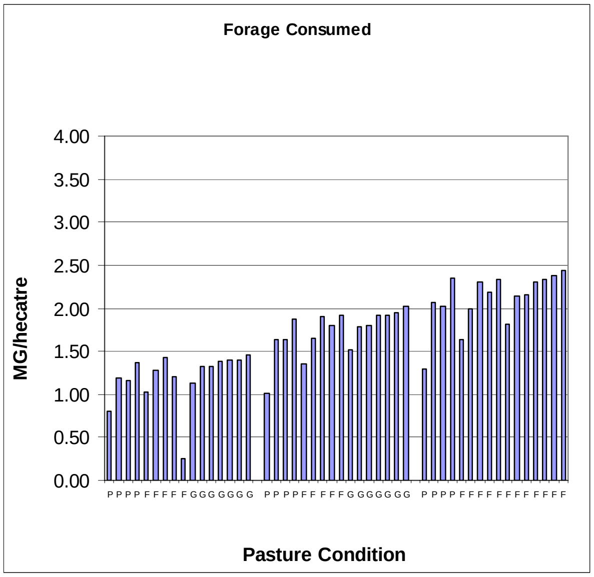
											1		
F	1000	50	50	14	1600	69	0.06	0.16	0.31	2.81	120.99	0.52	47.98
F	2000	50	50	28	1600	69	0.09	0.20	0.46	2.93	126.24	0.76	57.34
F	1000	100	100	14	1600	69	0.06	0.15	0.29	2.94	126.67	0.50	83.66
F	1500	100	100	21	1600	69	0.07	0.17	0.37	2.98	128.11	0.62	88.71
F	1	200	200	0	2000	65	0.01	0.05	0.09	2.91	125.35	0.14	157.43
F	2000	100	100	28	2000	65	0.04	0.09	0.37	2.93	126.05	0.50	97.74
F	2500	50	50	35	2000	65	0.05	0.10	0.44	2.81	120.82	0.60	66.88
F	3000	100	100	42	2000	65	0.06	0.10	0.50	2.97	127.88	0.66	110.03
F	3000	150	150	42	2000	65	0.05	0.09	0.50	2.99	128.83	0.64	152.35
F	4000	50	50	56	2000	65	0.08	0.13	0.64	2.92	125.65	0.84	84.55
F	5000	50	50	70	2000	65	0.09	0.15	0.76	2.96	127.24	1.00	97.28





CARYTOWN

		127.3	Ha	Hyd Class	D			Cost Nit	0.63	Valu BM	39.19	Cost Litter	
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
		Low Stocking Rate									Low Stocking Rate		
P	1.0	1	1	0	1100	86	0.23	1.20	0.11	0.80	34.35	$ 1.54	$ 31.22
P	1.0	50	50	0	1100	86	0.13	0.63	0.11	1.20	51.53	$ 0.87	$ 71.89
P	1000.0	1	1	14	1100	86	0.27	0.90	0.21	1.16	49.99	$ 1.37	$ 43.96
P	2000.0	1	1	28	1100	86	0.30	0.92	0.28	1.38	59.22	$ 1.50	$ 57.68
F	1.0	50	50	0	1600	79	0.05	0.23	0.11	1.03	44.26	$ 0.39	$ 73.10
F	1000.0	50	50	14	1600	79	0.05	0.16	0.22	1.28	55.19	$ 0.43	$ 89.33
F	2000.0	100	100	28	1600	79	0.06	0.16	0.29	1.43	61.61	$ 0.51	$ 153.84
F	1000.0	100	100	14	1600	79	0.03	0.09	0.23	1.20	51.73	$ 0.35	$ 140.02
F	1500.0	150	150	21	1600	79	0.00	0.01	0.03	0.25	10.90	$ 0.04	$ 19.87
G	1.0	200	200	0	2000	74	0.02	0.07	0.11	1.13	48.64	$ 0.20	$ 218.36
G	2000.0	100	100	28	2000	74	0.04	0.11	0.31	1.33	57.06	$ 0.46	$ 158.75
G	2500.0	50	50	35	2000	74	0.04	0.12	0.35	1.32	57.01	$ 0.52	$ 119.56
G	3000.0	100	100	42	2000	74	0.05	0.13	0.40	1.39	59.81	$ 0.57	$ 177.11
G	3000.0	150	150	42	2000	74	0.05	0.13	0.40	1.40	60.23	$ 0.57	$ 226.00
G	4000.0	50	50	56	2000	74	0.05	0.15	0.48	1.40	60.40	$ 0.69	$ 147.55
G	5000.0	50	50	70	2000	74	0.06	0.16	0.57	1.46	62.83	$ 0.80	$ 167.89
		Medium Stocking Rate											
P	1.0	1	1	0	1100	86	0.18	0.92	0.12	1.02	43.82	$ 1.22	$ 33.03
P	1.0	50	50	0	1100	86	0.10	0.51	0.13	1.63	70.16	$ 0.73	$ 75.63
P	1000.0	1	1	14	1100	86	0.21	0.70	0.23	1.63	70.23	$ 1.14	$ 47.08
P	2000.0	1	1	28	1100	86	0.23	0.71	0.30	1.87	80.67	$ 1.23	$ 62.78
F	1.0	50	50	0	1600	79	0.04	0.21	0.12	1.35	58.03	$ 0.38	$ 74.78
F	1000.0	50	50	14	1600	79	0.07	0.24	0.23	1.64	70.77	$ 0.54	$ 91.37
F	2000.0	50	50	28	1600	79	0.09	0.28	0.30	1.90	81.70	$ 0.67	$ 109.01
F	1000.0	100	100	14	1600	79	0.07	0.23	0.23	1.81	77.76	$ 0.53	$ 139.15
F	1500.0	100	100	21	1600	79	0.08	0.25	0.26	1.92	82.78	$ 0.59	$ 147.76
G	1.0	200	200	0	2000	74	0.02	0.11	0.12	1.52	65.55	$ 0.26	$ 218.79
G	2000.0	100	100	28	2000	74	0.06	0.16	0.31	1.78	76.82	$ 0.53	$ 158.82
G	2500.0	50	50	35	2000	74	0.06	0.18	0.35	1.80	77.37	$ 0.59	$ 119.98
G	3000.0	100	100	42	2000	74	0.07	0.19	0.39	1.92	82.51	$ 0.64	$ 176.72
G	3000.0	150	150	42	2000	74	0.07	0.19	0.39	1.93	82.91	$ 0.64	$ 224.91
G	4000.0	50	50	56	2000	74	0.08	0.21	0.47	1.95	84.12	$ 0.76	$ 146.31
G	5000	50	50	70	2000	74	0.09	0.24	0.55	2.02	86.82	0.88	164.44
		High Stocking Rate											
P	1	1	1	0	1100	86	0.20	1.04	0.13	1.29	55.52	1.37	34.60
P	1	50	50	0	1100	86	0.12	0.59	0.14	2.07	89.17	0.85	79.01
P	1000	1	1	14	1100	86	0.24	0.83	0.23	2.03	87.30	1.30	50.79
P	2000	1	1	28	1100	86	0.25	0.78	0.30	2.35	101.00	1.34	66.50
F	1	50	50	0	1600	79	0.05	0.24	0.13	1.64	70.64	0.42	76.60
F	1000	50	50	14	1600	79	0.08	0.27	0.23	1.99	85.88	0.59	93.42
F	2000	50	50	28	1600	79	0.10	0.32	0.31	2.31	99.46	0.74	111.75
F	1000	100	100	14	1600	79	0.08	0.27	0.23	2.19	94.40	0.58	141.09
F	1500	100	100	21	1600	79	0.09	0.29	0.27	2.34	100.63	0.65	150.18
F	1	200	200	0	2000	76	0.03	0.13	0.13	1.82	78.40	0.29	219.87
F	2000	100	100	28	2000	76	0.06	0.19	0.31	2.14	91.98	0.57	159.36
F	2500	50	50	35	2000	76	0.07	0.21	0.35	2.15	92.55	0.64	120.61
F	3000	100	100	42	2000	76	0.08	0.22	0.39	2.31	99.42	0.69	177.23
F	3000	150	150	42	2000	76	0.07	0.22	0.39	2.33	100.27	0.68	225.31
F	4000	50	50	56	2000	76	0.09	0.25	0.47	2.38	102.38	0.81	146.63
F	5000	50	50	70	2000	76	0.10	0.28	0.55	2.43	104.75	0.93	164.23


Forage Consumed
MG/hecatre
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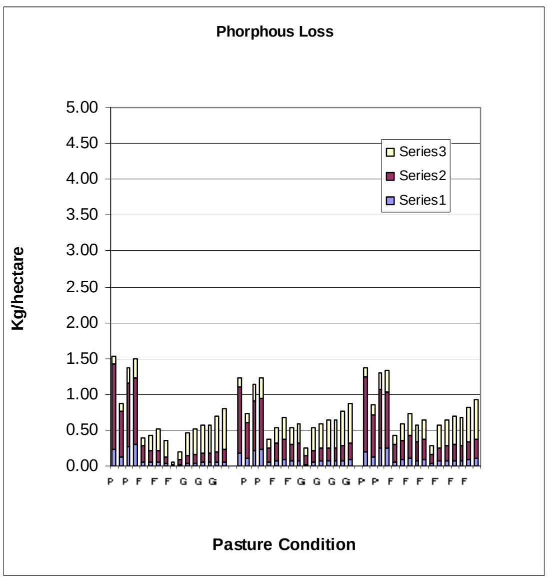
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Pasture Condition


Phorphous Loss
Kg/hectare
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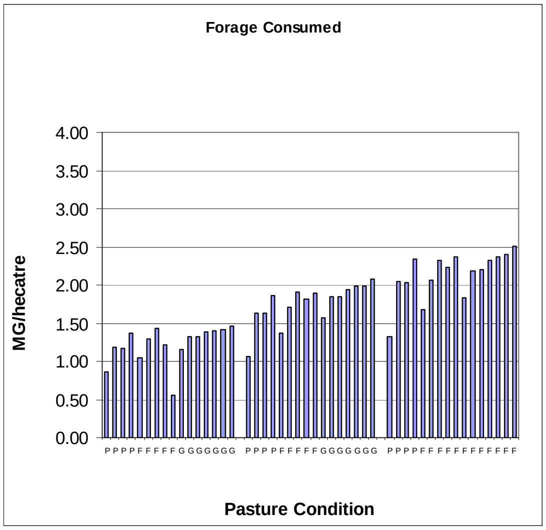
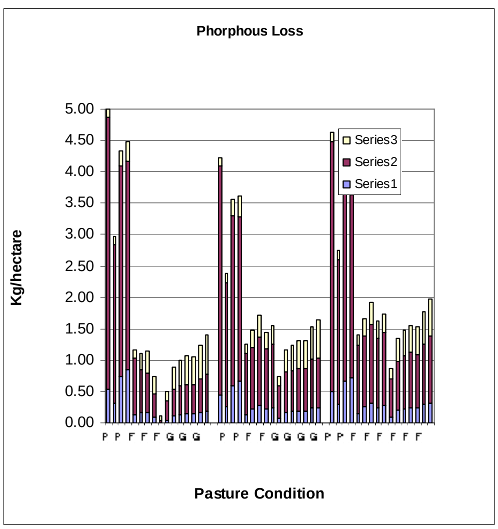
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Series3
Series2
Series1
Pasture Condition

CHEROKEE

		19.5	Ha	Hyd Class	D			Cost Nit	0.63	Valu BM	39.19	Cost Litter	
Past Cond	Lit kg/ha	qCNit kg/ha	Tn kg/ha	P	MnBm	Curve No	OrgP	Sed P	Sol P	Bmeat	NgDys	T Ploss	Nloss
		Low Stocking Rate									Low Stocking Rate		
P	1.0	1	1	0	1100	86	0.53	4.34	0.13	0.86	37.00	$ 5.00	$ 31.73
P	1.0	50	50	0	1100	86	0.32	2.53	0.13	1.19	51.20	$ 2.98	$ 71.70
P	1000.0	1	1	14	1100	86	0.73	3.36	0.24	1.16	50.07	$ 4.33	$ 44.37
P	2000.0	1	1	28	1100	86	0.84	3.33	0.31	1.37	59.02	$ 4.48	$ 58.23
F	1.0	50	50	0	1600	79	0.12	0.91	0.13	1.05	45.17	$ 1.16	$ 2.06
F	1000.0	50	50	14	1600	79	0.16	0.69	0.25	1.29	55.52	$ 1.10	$ 8.57
F	2000.0	100	100	28	1600	79	0.17	0.63	0.34	1.43	61.62	$ 1.13	$ 53.59
F	1000.0	100	100	14	1600	79	0.09	0.38	0.26	1.22	52.36	$ 0.73	$ 39.50
F	1500.0	150	150	21	1600	79	0.01	0.04	0.07	0.55	23.71	$ 0.11	$ 8.97
G	1.0	200	200	0	2000	74	0.05	0.31	0.14	1.16	49.88	$ 0.49	$ 18.41
G	2000.0	100	100	28	2000	74	0.11	0.42	0.36	1.33	57.20	$ 0.89	$ 58.40
G	2500.0	50	50	35	2000	74	0.13	0.46	0.40	1.32	57.02	$ 0.99	$ 19.52
G	3000.0	100	100	42	2000	74	0.14	0.48	0.44	1.38	59.63	$ 1.06	$ 77.49
G	3000.0	150	150	42	2000	74	0.14	0.48	0.44	1.40	60.45	$ 1.06	$ 26.55
G	4000.0	50	50	56	2000	74	0.16	0.54	0.53	1.41	60.69	$ 1.24	$ 47.88
G	5000.0	50	50	70	2000	74	0.19	0.59	0.63	1.46	62.71	$ 1.40	$ 68.83
		Medium Stocking Rate										#REF!	#REF!
P	1.0	1	1	0	1100	86	0.45	3.64	0.14	1.05	45.41	$ 4.23	$ 33.60
P	1.0	50	50	0	1100	86	0.25	1.97	0.15	1.62	69.90	$ 2.37	$ 74.80
P	1000.0	1	1	14	1100	86	0.59	2.71	0.26	1.64	70.50	$ 3.55	$ 7.47
P	2000.0	1	1	28	1100	86	0.67	2.62	0.33	1.87	80.37	$ 3.62	$ 2.64
F	1.0	50	50	0	1600	79	0.13	0.97	0.14	1.37	59.00	$ 1.25	$ 74.07
F	1000.0	50	50	14	1600	79	0.22	0.99	0.26	1.71	73.68	$ 1.47	$ 0.73
F	2000.0	50	50	28	1600	79	0.28	1.09	0.35	1.91	82.22	$ 1.71	$ 07.57
F	1000.0	100	100	14	1600	79	0.21	0.96	0.26	1.82	78.38	$ 1.44	$ 37.80
F	1500.0	100	100	21	1600	79	0.25	1.01	0.30	1.90	81.78	$ 1.56	$ 46.50
G	1.0	200	200	0	2000	74	0.07	0.52	0.14	1.57	67.52	$ 0.73	$ 18.32
G	2000.0	100	100	28	2000	74	0.17	0.64	0.36	1.85	79.55	$ 1.16	$ 57.97
G	2500.0	50	50	35	2000	74	0.18	0.65	0.40	1.85	79.59	$ 1.23	$ 19.09
G	3000.0	100	100	42	2000	74	0.19	0.67	0.44	1.94	83.36	$ 1.30	$ 75.99
G	3000.0	150	150	42	2000	74	0.19	0.67	0.44	1.98	85.16	$ 1.30	$ 24.32
G	4000.0	50	50	56	2000	74	0.23	0.78	0.52	1.99	85.73	$ 1.54	$ 45.82
G	5000	50	50	70	2000	74	0.24	0.78	0.61	2.08	89.50	1.63	163.78
		High Stocking Rate											
P	1	1	1	0	1100	86	0.50	3.98	0.14	1.33	57.27	4.62	35.42
P	1	50	50	0	1100	86	0.30	2.30	0.16	2.05	88.09	2.75	77.83
P	1000	1	1	14	1100	86	0.66	3.08	0.26	2.03	87.23	4.00	50.23
P	2000	1	1	28	1100	86	0.73	2.91	0.34	2.34	100.79	3.98	66.38
F	1	50	50	0	1600	79	0.15	1.10	0.15	1.68	72.18	1.40	75.89
F	1000	50	50	14	1600	79	0.25	1.14	0.27	2.06	88.73	1.65	92.95
F	2000	50	50	28	1600	79	0.32	1.24	0.35	2.32	99.99	1.91	109.96

F	1000	100	100	14	1600	79	0.24	1.11	0.27	2.23	95.98	1.62	140.23
F	1500	100	100	21	1600	79	0.28	1.16	0.31	2.37	102.11	1.74	149.01
F	1	200	200	0	2000	76	0.09	0.62	0.15	1.83	78.66	0.86	219.39
F	2000	100	100	28	2000	76	0.20	0.78	0.36	2.19	94.23	1.34	158.35
F	2500	50	50	35	2000	76	0.23	0.84	0.40	2.21	94.96	1.47	119.43
F	3000	100	100	42	2000	76	0.25	0.87	0.44	2.32	99.91	1.56	176.31
F	3000	150	150	42	2000	76	0.24	0.85	0.44	2.37	102.08	1.53	224.52
F	4000	50	50	56	2000	76	0.29	0.97	0.52	2.39	103.11	1.78	145.73
F	5000	50	50	70	2000	76	0.32	1.06	0.60	2.50	107.81	1.98	163.73

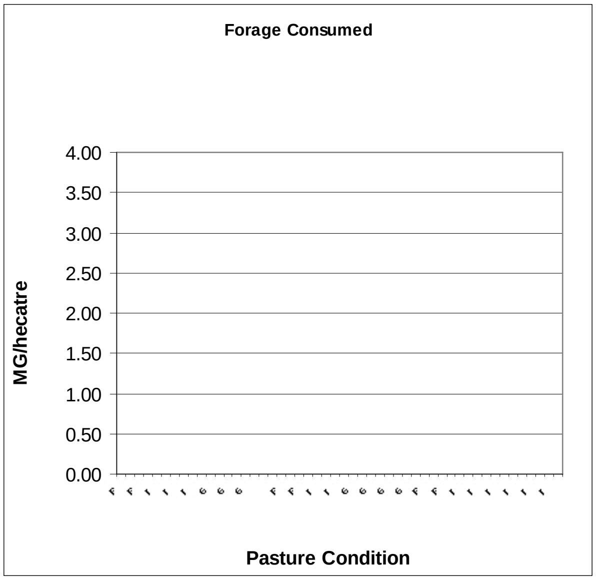




HECTOR

Past Cond	Lit kg/ha	6.201 qCNit kg/ha	Ha Tn kg/ha	P	Hyd Class	D	MnBm	Curve No	Org P	Cost Nit Sed P	0.63 Sol P	Valu BM Bmeat	39.19 NgDys	Cost Litter T Ploss	Nloss
		Low Stocking Rate											Low Stocking Rate		
P	1.0	1	1		0		1100	86	0.12	0.52	0.01	0.00	0.00	$ 0.66	$ 21.92
P	1.0	50	50		0		1100	86	0.08	0.33	0.01	0.00	0.00	$ 0.42	$ 69.21
P	1000.0	1	1		14		1100	86	0.38	0.52	0.13	0.00	0.00	$ 1.03	$ 41.11
P	2000.0	1	1		28		1100	86	0.57	0.70	0.24	0.00	0.00	$ 1.51	$ 60.94
F	1.0	50	50		0		1600	79	0.08	0.33	0.01	0.00	0.00	$ 0.42	$ 69.21
F	1000.0	50	50		14		1600	79	0.34	0.46	0.13	0.00	0.00	$ 0.94	$ 89.29
F	2000.0	100	100		28		1600	79	0.54	0.66	0.24	0.00	0.00	$ 1.44	$159.5 4
F	1000.0	100	100		14		1600	79	0.33	0.45	0.13	0.00	0.00	$ 0.91	$139.1 3
F	1500.0	150	150		21		1600	79	0.00	0.00	0.00	0.00	0.00	$ -	$ -
G	1.0	200	200		0		2000	74	0.07	0.30	0.01	0.00	0.00	$ 0.38	$218.5 4
G	2000.0	100	100		28		2000	74	0.54	0.66	0.24	0.00	0.00	$ 1.44	$159.5 4
G	2500.0	50	50		35		2000	74	0.64	0.77	0.30	0.00	0.00	$ 1.72	$119.8 9
G	3000.0	100	100		42		2000	74	0.74	0.88	0.36	0.00	0.00	$ 1.98	$180.1 4
G	3000.0	150	150		42		2000	74	0.74	0.88	0.36	0.00	0.00	$ 1.98	$230.1 3
G	4000.0	50	50		56		2000	74	0.94	1.09	0.47	0.00	0.00	$ 2.50	$150.8 2
G	5000.0	50	50		70		2000	74	1.13	1.30	0.58	0.00	0.00	$ 3.02	$171.5 6
		Medium Stocking Rate													
P	1.0		1		1	0	110 0	86	0.12	0.52	0.01	0.00	0.00	$ 0.66	$ 21.92
P	1.0		50		50	0	110 0	86	0.08	0.33	0.01	0.00	0.00	$ 0.42	$ 69.21
P	1000.0		1		1	1 4	110 0	86	0.38	0.52	0.13	0.00	0.00	$ 1.03	$ 41.11
P	2000.0		1		1	2 8	110 0	86	0.57	0.70	0.24	0.00	0.00	$ 1.51	$ 60.94
F	1.0		50		50	0	160 0	79	0.08	0.33	0.01	0.00	0.00	$ 0.42	$ 69.21
F	1000.0		50		50	1 4	160 0	79	0.34	0.46	0.13	0.00	0.00	$ 0.94	$ 89.29
F	2000.0		50		50	2 8	160 0	79	0.54	0.66	0.24	0.00	0.00	$ 1.44	$109.6 2
F	1000.0		100		100	1 4	160 0	79	0.33	0.45	0.13	0.00	0.00	$ 0.91	$139.1 3
F	1500.0		100		100	2 1	160 0	79	0.44	0.56	0.19	0.00	0.00	$ 1.18	$149.3 2
G	1.0		200		200	0	200 0	74	0.07	0.30	0.01	0.00	0.00	$ 0.38	$218.5 4
G	2000.0		100		100	2 8	200 0	74	0.54	0.66	0.24	0.00	0.00	$ 1.44	$159.5 4
G	2500.0		50		50	3 5	200 0	74	0.64	0.77	0.30	0.00	0.00	$ 1.72	119.89
G	3000.0		100		100	4 2	200 0	74	0.74	0.88	0.36	0.00	0.00	$ 1.98	$180.1

													4
G	3000.0	150	150	42	2000	74	0.74	0.88	0.36	0.00	0.00	$1.98	$230.13
G	4000.0	50	50	56	2000	74	0.94	1.09	0.47	0.00	0.00	$2.50	$150.82
G	5000	50	50	70	2000	74	1.13	1.30	0.58	0.00	0.00	3.02	171.56
		High Stocking Rate											
P	1	1	1	0	1100	86	0.12	0.52	0.01	0.00	0.00	0.66	21.92
P	1	50	50	0	1100	86	0.08	0.33	0.01	0.00	0.00	0.42	69.21
P	1000	1	1	14	1100	86	0.38	0.52	0.13	0.00	0.00	1.03	41.11
P	2000	1	1	28	1100	86	0.57	0.70	0.24	0.00	0.00	1.51	60.94
F	1	50	50	0	1600	79	0.08	0.33	0.01	0.00	0.00	0.42	69.21
F	1000	50	50	14	1600	79	0.34	0.46	0.13	0.00	0.00	0.94	89.29
F	2000	50	50	28	1600	79	0.54	0.66	0.24	0.00	0.00	1.44	109.62
F	1000	100	100	14	1600	79	0.33	0.45	0.13	0.00	0.00	0.91	139.13
F	1500	100	100	21	1600	79	0.44	0.56	0.19	0.00	0.00	1.18	149.32
F	1	200	200	0	2000	76	0.07	0.30	0.01	0.00	0.00	0.38	218.54
F	2000	100	100	28	2000	76	0.54	0.66	0.24	0.00	0.00	1.44	159.54
F	2500	50	50	35	2000	76	0.64	0.77	0.30	0.00	0.00	1.72	119.89
F	3000	100	100	42	2000	76	0.74	0.88	0.36	0.00	0.00	1.98	180.14
F	3000	150	150	42	2000	76	0.74	0.88	0.36	0.00	0.00	1.98	230.13
F	4000	50	50	56	2000	76	0.94	1.09	0.47	0.00	0.00	2.50	150.82
F	5000	50	50	70	2000	76	1.13	1.30	0.58	0.00	0.00	3.02	171.56


Forage Consumed
4.00
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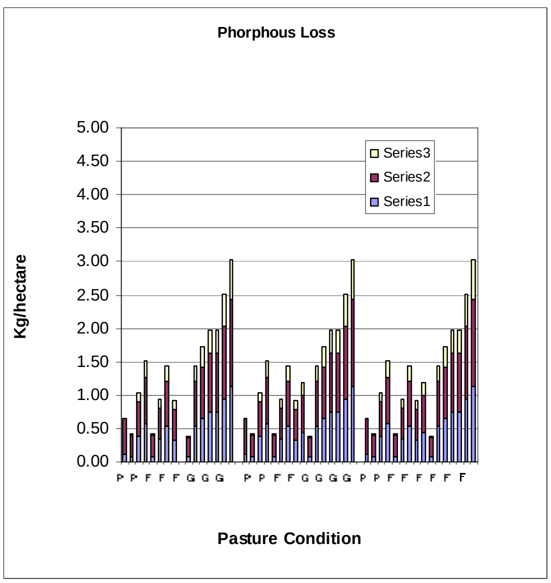
3.00
2.50
2.00
1.50
1.00
0.50
0.00
MG/hecatre
Pasture Condition


Phorphous Loss
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Series3
Series2
Series1
Kg/hectare
P P F F F F G G G G
P P F F G G G G G
P P F F F F F F F
Pasture Condition

STIGLER

Past Cond	Lit kg/ha	367.5 qCNit kg/ha	Ha Tn kg/ha	Hyd Class P	D MnB m	Curve No	Org P	Cost Nit Sed P	0.63 Sol P	Valu BM Bmeat	39.19 NgDys	Cost Litter T Ploss	Nloss
		Low Stocking Rate									Low Stocking Rate		
P	1.0	1	1	0	1100	86	0.62	1.13	0.10	1.03	44.20	$ 1.85	$ 60.36
P	1.0	50	50	0	1100	86	0.35	0.63	0.10	1.56	67.33	$ 1.08	$ 87.46
P	1000.0	1	1	14	1100	86	0.50	0.88	0.15	1.34	57.60	$ 1.52	$ 68.82
P	2000.0	1	1	28	1100	86	0.41	0.71	0.19	1.57	67.42	$ 1.31	$ 78.85
F	1.0	50	50	0	1600	79	0.06	0.10	0.09	1.42	61.05	$ 0.25	$ 89.64
F	1000.0	50	50	14	1600	79	0.07	0.12	0.15	1.58	68.17	$ 0.34	$ 103.74
F	2000.0	100	100	28	1600	79	0.07	0.11	0.19	1.67	71.92	$ 0.37	$ 168.01
F	1000.0	100	100	14	1600	79	0.05	0.08	0.15	1.52	65.60	$ 0.28	$ 155.95
F	1500.0	150	150	21	1600	79	0.03	0.04	0.09	1.08	46.35	$ 0.16	$ 133.09
G	1.0	200	200	0	2000	74	0.04	0.06	0.09	1.53	65.87	$ 0.19	$ 231.33
G	2000.0	100	100	28	2000	74	0.05	0.09	0.19	1.59	68.42	$ 0.34	$ 174.69
G	2500.0	50	50	35	2000	74	0.06	0.10	0.22	1.57	67.77	$ 0.38	$ 137.97
G	3000.0	100	100	42	2000	74	0.06	0.10	0.24	1.63	70.00	$ 0.40	$ 195.32
G	3000.0	150	150	42	2000	74	0.06	0.10	0.24	1.64	70.41	$ 0.40	$ 243.70
G	4000.0	50	50	56	2000	74	0.07	0.12	0.29	1.63	70.13	$ 0.47	$ 169.15
G	5000.0	50	50	70	2000	74	0.07	0.13	0.34	1.65	71.12	$ 0.54	$ 190.92
		Medium Stocking Rate											
P	1.0	1	1	0	1100	86	0.49	0.89	0.11	1.46	62.81	$ 1.49	$ 60.97
P	1.0	50	50	0	1100	86	0.24	0.44	0.11	2.11	90.83	$ 0.79	$ 88.79
P	1000.0	1	1	14	1100	86	0.39	0.70	0.16	1.82	78.44	$ 1.24	$ 70.43
P	2000.0	1	1	28	1100	86	0.40	0.71	0.20	2.17	93.46	$ 1.31	$ 81.44
F	1.0	50	50	0	1600	79	0.08	0.14	0.10	2.00	86.10	$ 0.33	$ 90.29
F	1000.0	50	50	14	1600	79	0.10	0.16	0.15	2.21	95.10	$ 0.41	$ 103.40
F	2000.0	50	50	28	1600	79	0.10	0.18	0.19	2.37	101.99	$ 0.47	$ 116.91
F	1000.0	100	100	14	1600	79	0.09	0.15	0.15	2.34	100.74	$ 0.40	$ 144.43
F	1500.0	100	100	21	1600	79	0.10	0.16	0.17	2.42	104.18	$ 0.43	$ 151.70
G	1.0	200	200	0	2000	74	0.04	0.07	0.10	2.25	96.83	$ 0.21	$ 225.20
G	2000.0	100	100	28	2000	74	0.06	0.10	0.19	2.35	101.17	$ 0.36	$ 166.50
G	2500.0	50	50	35	2000	74	0.07	0.12	0.22	2.31	99.50	$ 0.41	$ 130.14
G	3000.0	100	100	42	2000	74	0.07	0.12	0.24	2.43	104.42	$ 0.42	$ 183.92
G	3000.0	150	150	42	2000	74	0.07	0.11	0.24	2.45	105.31	$ 0.42	$ 230.64
G	4000.0	50	50	56	2000	74	0.08	0.14	0.28	2.43	104.55	$ 0.51	$ 156.08
G	5000	50	50	70	2000	74	0.08	0.15	0.33	2.47	106.37	0.56	174.26
		High Stocking Rate											
P	1	1	1	0	1100	86	0.58	1.07	0.11	1.78	76.76	1.77	63.10
P	1	50	50	0	1100	86	0.29	0.53	0.11	2.63	113.43	0.94	91.10
P	1000	1	1	14	1100	86	0.46	0.84	0.16	2.21	94.95	1.47	72.77
P	2000	1	1	28	1100	86	0.45	0.84	0.20	2.68	115.20	1.49	84.45
F	1	50	50	0	1600	79	0.12	0.21	0.11	2.44	104.92	0.44	91.19
F	1000	50	50	14	1600	79	0.14	0.25	0.16	2.69	115.68	0.55	103.56
F	2000	50	50	28	1600	79	0.16	0.29	0.20	2.88	124.02	0.65	116.27
F	1000	100	100	14	1600	79	0.14	0.24	0.16	2.84	122.24	0.53	144.65

F	1500	100	100	21	1600	79	0.15	0.26	0.18	2.91	125.43	0.59	151.34
F	1	200	200	0	2000	76	0.06	0.10	0.11	2.71	116.65	0.27	221.06
F	2000	100	100	28	2000	76	0.09	0.16	0.20	2.83	121.87	0.44	162.28
F	2500	50	50	35	2000	76	0.10	0.17	0.22	2.81	120.89	0.48	127.72
F	3000	100	100	42	2000	76	0.10	0.17	0.24	2.97	127.79	0.51	176.86
F	3000	150	150	42	2000	76	0.09	0.16	0.24	3.02	129.85	0.49	222.51
F	4000	50	50	56	2000	76	0.11	0.20	0.28	2.97	127.96	0.59	149.38
F	5000	50	50	70	2000	76	0.12	0.22	0.33	3.01	129.71	0.66	165.99