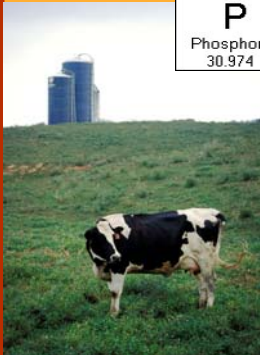
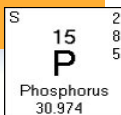


TARGETED
ENVIRONMENTAL
SOLUTIONS FOR
VIRGINIA'S
DAIRY
FARMS

Precision Phosphorus Feeding Incentive Program



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“P” PROJECT REVIEW

VOLUME 2, ISSUE 1

JANUARY 2007

Leading the way...

It's been nearly 12 months since the initiation of the phosphorus incentive program in Virginia. This project is a collaborative effort of dairy producers, Virginia Tech and various groups interested in promoting good environmental stewardship. We know that we need to be concerned about protecting our streams and waters for all to enjoy in the years to come. This is one of the most ambitious projects we've ever attempted. It supports both the environmental and economic objectives of Virginia's dairy farms, and it's useful to remember *that* is the reason for all this effort.

For the past year, just under 200 farms have been sampling feeds, monitoring their dietary phosphorus, and making diet adjustments to meet their cows' needs while reducing the phosphorus content of their manure. This is an enormously positive step by the dairy industry in demonstrating our concern for the environment. We've all faced some bad press in the past regarding possible contamination of our water resources. With over 100,000 cows in the state, the dairy industry represents a visible source of manure. This sometimes leads to bad press, usually based upon incomplete and bad information. Finger pointing is easy when no good, objective information is available.

This project documents the

proactive stance that dairy producers are taking to show their concern for the environment. We are also generating information that can be used to make future recommendations based upon good science rather than someone's opinion based upon emotion.

Your participation enables us to develop good field data which will tell us what's happening on dairy farms. We can examine the influence of region of the state, herd size and production, nutrition and feed management, herd management practices and the impact of readily available byproduct feeds on the balance of nutrients on Virginia dairy farms. The strong participation of our cooperators is allowing us to stop "flying in the dark", not knowing the true status of phosphorus nutrition on Virginia dairies.

One unexpected benefit of this project - You're getting a lot of good press. This project has been a great source of positive publicity for the Virginia Dairy Industry. We've received many inquiries about our findings and progress from other states and government agencies. They are looking forward to our results and using the information to develop cost effective programs for the future.

What will I stand to gain personally from this effort?

There are three clear benefits to collaborating farms.

- Each participant receives free analyses of up to three feed samples every other month. That's a value of over \$300 annually. The information in these analyses can give you some idea of how well your ration meets the nutrient specifications recommended by your nutritionist. If there are some differences it's a good idea to find out why. Your results are shared with your nutritionist and our research team in Blacksburg and no one else.

- You'll have increased interaction with our well-trained extension personnel, and can let us know directly what information you need. The project has provided us with an opportunity to visit over 200 dairies in the state in less than 12 months. You have let us know what your needs are, which will guide our extension programming in the future.

- You may qualify for incentive payments. Farms whose average dietary phosphorus is within 15% of requirements across a year will receive an incentive payment of \$6 per cow (up to 400 cows). Is this big money? Maybe not, but I'd bet you can find a use for it!

This phosphorus incentive program is succeeding far beyond our expectations. Without your cooperation, this success wouldn't be possible, so... Thank You.

The Next Step...

As first year testing for the initial group draws to a close, we will be preparing summary statements for each farm. January 31 will be our cut-off date for Group A to complete all required (Year 1) testing. Those who have fallen behind in testing and were not able to catch up will be 'rolled-over' into Group B.

Results and P Reports for each farm will be examined and verified before final calculations can be made. A standard deviation will be calculated and one outlier will be discarded with the remaining P intakes being averaged.

There may be some cases where additional information will be necessary in order to generate a summary statement.

Those who qualify for the incentive payment will receive the additional paperwork required at that time.

Note on Manure Testing...

The Agricultural Service Lab at Clemson analyzed 46 manure samples for Spring 2006 and 26 samples for Fall 2006. Please see the plan listed below to determine when you need to test. Review the materials included with your manure sampling kit to determine if you need to test

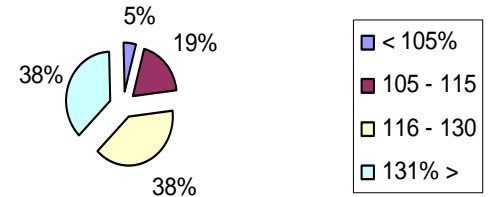
Manure Testing Plan	
Group	Season
A	Spring
B	Spring
C	Fall
D	Spring

Stats to date...

183 farms participating
 1445 samples analyzed
 699 "P" Reports generated
 71% = minimum P Level
 215 % = maximum P Level
 30,074 = total cows



Phosphorus Report Breakdown --
 All Reports
 (Expressed as P Consumed as % of Required)



Farm Breakdown

Group	A	B	C	I	D
Number of Farms	47	42	42	10	42
Begin Date	Jan 06	Mar 06	May 06	Jan 06	Oct 06
Current Sampling Period	7	6	5	on-going	2
Number of Cows	6791	6090	5725	2901	8567

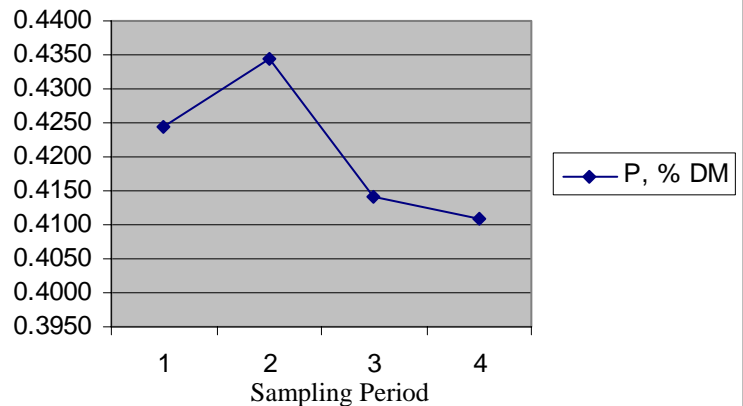
Preliminary data...

Although we have not gathered data for a complete year at this point, it is possible to look at what we are observing with respect to phosphorus content of rations. Looking at results from Group A we see that the average baseline was .425% P expressed as a percent of the dry matter in the ration.

At the fourth sampling for this group P was reduced to .411%, a reduction of .014%.

Expressing this in 46 lbs. of dry matter consumed per day results in a reduction of .00644 lbs. P or almost 3 grams of P per cow per day. For a 100 cow herd this is .644 lbs. reduction or 292 grams each day. On a yearly basis this translates to 235 lbs. of P that would not be in the manure produced on that farm. Expressing this on all of the 30,000 cows in our project results in a reduction of 193.2 lbs. of P per day or 70,518 lbs. (35 tons) per year. We expect further reductions as the project continues.

Group A
 P, % DM



FAQ's: (aka Frequently Asked Questions)

- Q. I've taken all the mineral that has P out of the ration and my P Report indicates I am still above the 115% level. Why is this?
- A. Factors contributing to your higher levels probably have to do with byproduct feed usage, P content of forages and level of milk production.
- Q. What feeds have high levels of P?
- A. Wheat bran (1.18%), wheat midds (1.08), corn gluten feed (1.05), cottonseed meal (1.08), and fish meal (2.68).
- Q. I don't use any of those feeds and still have high P levels. Why?
- A. Some other byproduct feeds have higher levels than most forages or grains and may be a factor. These are brewers grains (.61), distillers grains (.74), and whole cottonseeds (.63).
- Q. Are there any low P feeds available that can be added to rations?
- A. Yes, some of these are citrus pulp (.12), cottonseed hulls (.14), soybean hulls (.15), and beet pulp (.09)
- Q. I use pasture extensively and still have high P reports. Why?
- A. Intensively managed pasture averages .44% P which is greater than the requirement for most herds.
- Q. My P Report varies between 125% of requirement to 110% and there seems to be no consistent pattern. Why?
- A. This is more than likely a sampling issue. Sampling of feeds should be done according to our suggested protocol for mixed feeds. Use 8-10 lbs. of selected feed, place on flat surface and divide into quarters, remove half the sample by removing opposite quadrants, combine the remaining two quadrants, mix well, and repeat until there are 1 to 2 lbs. of sample.
- Q. My P Report indicates that I am feeding only 80% of the P requirement. What's going on?
- A. If the feeds tested low, this could be the case, but levels should be verified before making changes. Another possibility is that all feeds were not specified on the submission form and we may not have accounted for all sources. This is one reason all P reports will be verified individually in a summary which will be mailed to you before final decisions regarding payment will be made.

Phosphorus Content of Feeds...

Even though many of you have seen this table before, we are including it again for Group D—the 42 farms who are just now coming onto the project. The original article from the July 2006 P Project Review may be accessed through VTDairy at www.vtdairy.dasc.vt.edu under Environmental Stewardship. It is also archived by Virginia Cooperative Extension in the July 2006 issue of the Dairy Pipeline. You may retrieve the article by visiting the VCE's site at www.ext.vt.edu/news/periodicals/dairy/2006-07/july2006.pdf.



	*NRC P, % DM	**CVAS P, % DM
Forages		
Alfalfa hay, immature	.31	.34
Alfalfa hay, mature	.28	
Grass hay, immature	.34	.27
Grass hay, mature	.26	
Barley silage	.30	.36
Corn silage	.26	.23
Rye silage	.42	.42
Pasture, intensively managed	.44	
Grains		
Barley	.39	
Corn	.30	.28
Protein meals		
Cottonseed meal	1.15	1.08
Peanut meal	.64	
Soybean meal	.70	.69
Fish meal	3.05	2.68
Whole seeds		
Cottonseeds	.60	.63
Soybeans	.60	.58
By-products		
Brewers grains, dry	.67	
Brewers grains, wet	.59	.61
Corn gluten feed	1.00	1.05
Distillers grains	.83	.74
Hominy	.65	.50
Wheat bran	1.18	
Wheat midds	1.02	1.08
Low P feeds		
Bread waste	.20	.25
Citrus pulp	.12	.12
Cottonseed hulls	.12	.14
Molasses, sugarcane	.10	
Soybean hulls	.17	.15
Sugar beet pulp	.09	

* NRC — National Research Council
 ** CVAS—Cumberland Valley Analytical Services

What Goes into Calculating P intake?

- The dry matter intake—calculated from NRC 2001.
- Phosphorus content of your feeds—from the independent analyses conducted by Cumberland Valley Analytical Services.

Scenario 1: 1300 lbs. BW

75 lbs. milk, and 3.6 % fat
 TMR 49.1 lbs. DM * .40% P =
 .1964 lbs. P * 454 = 89.2 grams P
 Required P = 78.2 grams
 % of required = (89.2/78.2) * 100 =
 114%

Scenario 2: 1300 lbs. BW

55 lbs. milk, and 3.6 % fat
 TMR 42.4 lbs. DM * .40% P =
 .1696 lbs. P * 454 = 77 grams P
 Required P = 62 grams
 % of required = (77/62) * 100 =
 124%



VirginiaTech

Invent the Future

DEPARTMENT OF Dairy Science, Virginia Tech

Precision Phosphorus Feeding Incentive Project

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www.vtdairy.dasc.vt.edu

...continued from page 3

Scenario 3: 1200 lbs. BW

75 lbs. milk, and 3.6 % fat

TMR 47.7 lbs. DM * .40% P =
.1908 lbs. P * 454 = 86.6 grams P

Required P = 77.2 grams

% of required = $(86.6/77.2) * 100 =$

112%

Scenario 4: 1200 lbs. BW

55 lbs. milk, and 3.6 % fat

TMR 41 lbs. DM * .40% P =
.164 lbs. P * 454 = 74.5 grams P

Required P = 61 grams

% of required = $(74.5/61) * 100 =$

122%



But what happens when there are multiple feeds?

- One feed is designated as ad lib—TMR, pasture, corn silage
- The other feeds need to be assigned an amount fed—parlor pellets, hay, TMR
- The dry matter intake is proportioned between the feeds.
- We need to know P content of each feed

	<u>Fed</u>	<u>DM fed</u>	<u>P %</u>	<u>P grams</u>
TMR	84.7	43.4	.379	74.6
Parlor pellets	5.0	4.4	.72	14.3
Total	89.7	47.7	.41	88.8

P required = 73

P provided = 89

P fed % of required

$89/73 * 100 = 122$

For more information regarding this project, please visit http://www.vtdairy.dasc.vt.edu/environmental_stewardship.htm

Cooperating Partners for this project:

Natural Resources Conservation Service (NRCS)
Virginia Department of Conservation and Recreation (DCR)
Virginia Cooperative Extension (VCE)
Cumberland Valley Analytical Services (CVAS)
Dairy Science Department of Virginia Tech (DASC-VT)