

Precision Phosphorus Feeding Incentive Program

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"P" PROJECT REVIEW

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Phosphorus Reports

Now that you have gotten your first "P Reports" and you know your phosphorus intake and requirements what do you do? Well that depends on were you and your nutritionist decide the best phosphorus level is for your situation. Certainly to get the incentive payment your phosphorus intake needs to be at 115% of the phosphorus requirement or less. Remember this is the average for the year and it is not necessary for every report to be at or below this level. Also the first report you received was a baseline and not figured in the calculation for the incentive payment.

If you figure you need or would like to reduce the P in your ration here are some things to consider. The easy way is to take out any inorganic source of phosphorus. These sources can be in the mineral added to your grain mix or in a free choice supplement. However, not many of our herds are feeding a free choice mineral with phosphorus.

Next check the amounts

of feeds such as whole cottonseeds or distillers grains in the ration. Are you feeding the maximums (usually 6-7 lbs./cow/day)?

S	2
15	8
P	5
Phosphorus	
30.974	

If you are, lower amounts might be advisable

without adding significantly to the cost of the ration. Economics should be considered here. Since forages are typically low in phosphorus, rations should be balanced to have the maximum amount in the formula without adverse effects on milk. Also, high forage rations are desirable from a cow health standpoint. Feeds such as citrus pulp (.12% P) and soybean hulls (.17% P) are low phosphorus feeds that might be economical and add some unique characteristics to the ration.

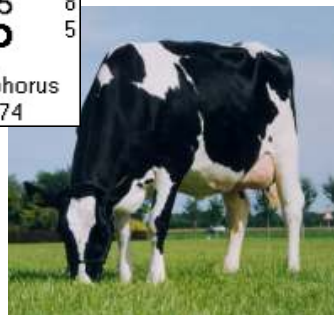
Finally, use of some urea to reduce soybean meal could result in less phos-

phorus being included. Using .2 lbs. of urea could replace approximately 1 lb. of soybean meal. One pound of soybean meal

contains about 3 grams of phosphorus. Not a lot but maybe enough to get to the incentive payment. Of course the rumen degradable and undegradable protein

should be considered when substituting urea for soybean meal.

One more thing. We think we have the "P Reports" worked out. That has taken some time because we modified the dry matter intake equation and now the projected intake is about 5% less than what was calculated in the first reports. That means 50 lbs. of dry matter intake goes to 47.5 lbs. All reports have been recalculated and phosphorus intake is reduced by about 4 percentage points. We think we have things the way we want them. Thanks for staying with us.



Project Personnel...



Above (Left to Right): Drs. Mark Hanigan, Katharine Knowlton, Bob James, and Charlie Stallings



Tina Horn, Dairy Extension Agent, Augusta County, and John Welsh, Dairy Extension Agent, Rockingham County



Kevin Craun (left) and Scott Winfield



Beverly Cox

Note on Manure Testing...

So far, 45 farms have submitted manure samples to Clemson for analysis.

If you weren't eligible for testing in the Spring, please keep the materials that were sent to you for use in the fall.

Group C will be mailed manure testing materials for the fall later this summer.

As you may know this project is funded by the Natural Resources Conservation Service (NRCS) and the Virginia Department Conservation and Recreation (DCR). It is supported by Virginia Cooperative Extension and the Department of Dairy Science at Virginia Tech. Virginia Tech faculty are Drs. Katharine Knowlton, Charlie Stallings, Bob James, and Mark Hanigan. Tina Horn, Area Dairy Agent in Augusta County, has assisted with herd signup as has Carl Stafford an Extension Agent in Culpepper.

Additionally, Beverly Cox—a graduate student in Dairy Science—is work-

ing intensively with 10 selected herds.

New personnel are John Welsh, Kevin Craun, and Scott Winfield. John is the new Area Dairy Agent in Rockingham County and will be promoting the program and making herd contacts. Both Tina and John can help with technical assistance related to the project. Kevin Craun has been hired as a full time field technician and is located at Wyers Cave. Scott Winfield is a part time technician located at Stuarts Draft. Both Kevin and Scott have been signing herds up on the project and now have started visiting herds for the yearly

check sample that we need. If you have not heard from them yet you will over the next few months. All three of these guys and Tina have or are currently milking cows. They understand what is involved in producing milk on the farm and will work with you as needed. Also we in the Department of Dairy Science stand ready to assist in any way we can.

Note on Sample Checks...

The grants funding this project stipulate project personnel **must** conduct the testing at least once each year.

Kevin, Scott, John and Tina are working toward meeting this requirement now. They sampled 15 farms in May, 22 in June and plan to sample another 20 in July.

Stats to date...

Currently there are 147 farms participating in the feeding incentive program. See Table I for a breakdown.

As of Friday, June 23, 2006 Cumberland Valley had analyzed 591 samples for this project with over 41% of the samples received being TMRs.

At this point, we've received 244 "P" Reports with a minimum phosphorus level of 95 and a maximum of 194. You should receive a P report for each sampling period—although it will follow the feed-stuff analysis by several weeks. If you haven't received a report within 3-4 weeks of your regular analysis, please let us know.

See Chart I to determine how your P levels compare.

Farm Breakdown

Group	A	B	C	I	D
Number of Farms	49	45	42	10	1
Begin Date	Jan 06	Mar 06	May 06	Jan 06	To begin Fall 06
Current Sampling Period	4	3	2	on-going	—

Table I.

Phosphorus Report Breakdown

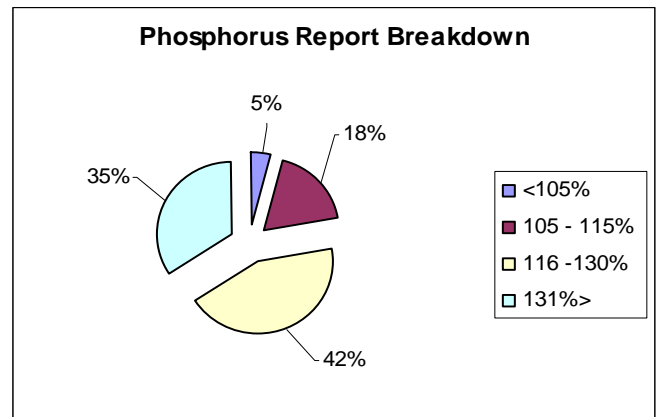


Chart I.

More about those “P” Reports...

Phosphorus levels in rations in our herds vary considerably. Looking at the P Reports of herds on our project we see significant differences in the P intake expressed as a percent of the requirement. Most herds are between 100 and 150%. A few are less or greater than this. This calculation is based on a calculation of the requirement of the herd based on the 2001 NRC using the average cow body weight, milk production, and fat test. The average cow phosphorus intake in grams per day is calculated by projecting dry matter intake per cow per day and multiplying by the phosphorus concentration in the feeds or TMR. The concentration is what you receive from Cumberland Valley Analytical Services. Dividing the phosphorus intake by the requirement gives the percent that is reported on the P Report.

So what are some of the considerations when the phosphorus intake is high relative to the requirement? First, concentration of phosphorus in the TMR or other feeds will usually be the primary consideration. Reducing this will result in less phosphorus consumed.

Next make sure milk production is reported accurately because higher levels of milk results in greater required phosphorus. For instance, a herd averaging 40 pounds of milk per cow per day needs about 30 grams of phosphorus less than a herd averaging 80 pounds. Body weight and fat test do have an impact on projected dry matter intake and can impact the amount of projected phosphorus consumed. However, changing body weight by 100 pounds changes projected intake only about one and a half pounds. This would change the phosphorus intake by approximately 3 grams per

day. Fat test changes will affect calculated dry matter intake and phosphorus required. Differences of .5 units of fat test results in a reduction of dry matter intake of 1.8 pounds and phosphorus intake of 1.3 grams. Therefore, changes in fat test will result in changes in calculated phosphorus required and consumed.

To summarize, phosphorus concentration in your feeds and level of milk production are the two most important factors in calculating the overall herd phosphorus status. Body weight is important when calculating dry matter intake but less important from a phosphorus standpoint. Fat percent does impact intake and the phosphorus requirement. Accurate information on your herd is important for the P Report to be meaningful. Please provide us this information as feeds are submitted for analysis so we can update on a regular basis.

“Accurate information on your herd is important for the P Report to be meaningful.”

A reminder about sampling...

At the beginning of the trial you were sent enough sampling bags (18) and mailers (6) for submitting up to three samples per sampling period for a total of six sampling periods. That does not mean you need to send 3 samples each time. We want the TMR

for analysis. If you feed only one TMR to the entire herd send only that mix in one bag. If you do not have a TMR then you can submit the individual feeds up to three. If there are multiple TMR's send a sample of each one.

If there are more than

3 individual feeds we will use book values for the minority feeds and/or use the analysis from previous tests. Pasture has been a concern and we have tried to get a representative sample when appropriate for analysis.



Area project meetings are being planned for the fall.

If you'd like to meet with project personnel more extensively to discuss the project, or just to learn more, this will be a great opportunity to do so. Details to follow.



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Invent the Future

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Phosphorus content of feeds...



The National Research Council's 2001 recommendations for phosphorus in rations

in most Virginia herds would be .32 to .38% of the dry matter. Since forages are typically low in phosphorus relative to protein meals and certain by-product feeds (cottonseeds, wheat bran and midds, brewers grains, distillers grains) it is possible to sometimes reduce phosphorus by feeding more forage. For this to occur the forage must be of good to excellent quality. See the following table for P concentrations in forages from the 2001 NRC as well as Virginia summaries from Cumberland Valley Analytical Services (CVAS) for 2005. There are some slight differences but most values are similar. Phosphorus content of forages does vary with maturity. More mature legumes and grasses do tend to have less phosphorus. Also rye silage and intensively managed pas-

tures have higher concentrations than corn or barley silages. However, overall, forages do have lower concentrations of phosphorus than many other feeds used in dairy rations. When we bring feeds into the ration to supply protein many times we also bring phosphorus. This is true for the protein meals, whole seeds, and by-product feeds. The grains such as barley and corn have less P.

The question arises as to what can be done when the phosphorus content of the ration is excessive and no inorganic sources are included in the ration. I have identified some feeds that are low in phosphorus (.20% P or less). Some of these are readily available such as citrus pulp, cottonseed hulls, and soybean hulls. Others may have application under certain circumstances and limitations. In conclusion, to manage phosphorus content of rations it is necessary to analyze phosphorus levels and look for alternative feeds in some cases.



	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	