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The High Price of Fertilizer

Scott Killpack, Agronomy/Natural Resources Specialist

This article has a good discussion of factors influencing fertilizer and think that you will find it interesting. It was written by John Lory, Nutrient Management Specialist, at the University of Missouri.

Fertilizer prices have been changing rapidly and, at times, in unanticipated directions. I have attended a number of talks in past couple years where industry experts have prognosticated price and supply moving in one direction only to have the opposite happen.

In this era of uncertainty an understanding of what has affected prices in the recent past may help farmers better predict what will happen in the near future.

The recent high point in fertilizer prices for nitrogen, phosphorus and potassium was in late summer and early fall of 2008. A couple global trends worked to push fertilizer prices to record highs.

The rapidly expanding world economy in 2007 and 2008 led to increasing worldwide grain production. Worldwide grain production has increased about 10% in the past two years according to USDA statistics. Expanding grain production increases demand for fertilizer.

Another important trend was the weakening dollar. The US dollar lost more than 20% of its value compared to a number of international currencies. Most nitrogen and potassium fertilizer is purchased outside the country so a weak dollar pushes up US fertilizer costs.

Nitrogen price is dominated by energy costs. Record natural gas prices ushered in record high nitrogen fertilizer costs. Nitrogen imported from overseas is also affected by shipping rates which have been high until the recent economic downturn.

Inputs into phosphate fertilizers include the mined phosphate rock, sulfur to make the acid to treat the rock and ammonia used in making DAP and MAP. The cost of all these inputs increased dramatically in 2008. A short-term disruption in sulfur production in the US caused a shortage in 2008. Both India and China took steps in 2008 that increased phosphate usage in each country while reducing phosphate fertilizer available in the world market. This "perfect storm" of higher input costs coupled with demand exceeding supply created the unanticipated and unprecedented spike in phosphate fertilizer prices.

Potassium market forecasts have anticipated tight supplies and higher prices for at least a couple of years. Potash production was actually lower in 2008 than in 2007 because of infrastructure issues such as the flooding of the Berezniki potash mine in Russia in July 2007. A labor strike in 2008 in Canada further crimped supplies this fall.

As I write this article in early January 2009 nitrogen and phosphate prices are in a downward freefall reaching levels not seen for a couple years. What can we expect next?

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2009 Corn and Soybean Herbicide Update

Scott Killpack, Agronomy/Natural Resources Specialist

The following update was provided by Kevin Bradley, Weed Scientist, at the University of Missouri

Corn Herbicides

Balance Flexx is a new herbicide from Bayer CropSciences that contains the same active ingredient as Balance Pro (isoxaflutole) but this new product contains a safener (cyprosulfamide) that allows it to be applied up to the V2 stage of growth in corn. Balance Flexx is a 2 lb/gallon formulation unlike the 4 lb/gallon Balance Pro formulation and can be applied from 3 to 6 fluid ounces per acre, depending on the soil type and application timing. In our initial research with this product, we have observed good control of a variety of common annual grass and broadleaf weeds like giant foxtail, common ragweed, and waterhemp, especially when tank-mixed with atrazine at either the preemergence or early postemergence timing.

All **Bicep** branded herbicides from Syngenta will now be able to be applied postemergence to corn up to 12 inches in height. The previous postemergence corn height restriction on all Bicep branded herbicides was 5 inches.

Cadet (fluthiacet-methyl) is a new product from FMC that is labeled for postemergence use in corn. Cadet is a PPO-inhibiting herbicide that was once also sold by Syngenta as Action. Cadet can be applied at 0.4 to 0.9 fluid ounces per acre to corn that is in the V2 stage of growth up to 48-inches in height or prior to tasseling, whichever comes first. A non-ionic surfactant or crop oil concentrate should be added to all Cadet applications.

Syngenta is expected to receive an updated label in 2009 that will allow postemergence applications of **Callisto** following preemergence applications of Lumax or Lexar. If Lumax or Lexar are applied at foundation rates, no changes in the soybean replant interval will be necessary. However, if full rates of Lumax or Lexar are applied preemergence and followed by a postemergence application of Callisto, the soybean replant interval will be extended to 18 months.

Corvus is a new prepackaged herbicide mixture from Bayer CropSciences that contains the Balance Flexx product described previously plus thiencazone, a new ALS-inhibiting herbicide. Corvus is designed to be a one-pass preemergence herbicide that can be applied from burndown up to the V2 growth stage in corn. Corvus can be applied at rates ranging from 3 2/3 to 5 2/3 fluid ounces per acre depending on soil type. Corvus should provide good control of a variety of annual grass and broadleaf weeds like giant foxtail, common ragweed, lamb-quarters, nightshade, and waterhemp. Tank-mixing this product with atrazine will increase control of tougher weeds like cocklebur, giant ragweed, and morningglory.

Ignite 280 SL is a new formulation of glufosinate that will be registered for use on corn designated as LibertyLink. Ignite contains the same active ingredient as in Liberty but Ignite contains 2.34 lbs glufosinate/gallon unlike Liberty which contains 1.67 lbs/gallon. Ignite may be applied to LibertyLink corn hybrids from emergence through the V5 corn growth stage at 22 fluid ounces per acre. No more than two applications and 44 fluid ounces of Ignite can be applied per growing season. Ignite can be tank-mixed with a variety of other corn herbicides such as atrazine, Callisto, Distinct, Impact, Laudis, etc. In our research, we have no differences safety.

Impact herbicide from AMVAC received a supplemental label for postemergence applications at 1 fluid ounce per acre in situations where weeds have grown beyond the size indicated on the label for the 1/2 or 3/4 fluid ounce rate. In Missouri, we fall into a geography that will allow soybean planting the following season following the 1 fluid ounce Impact rate.

Valor SX is expected to receive a label for preplant applications 14 to 30 days prior to corn planting. This will be the first time that Valor will be able to be used in corn. In the past, Valor has only been registered for use in soybean. Valor SX will only be labeled in minimum or no-till corn at rates from 1 to 3 ounces per acre. Valor should be tank-mixed

with glyphosate and/or 2,4-D or other burndown products when used in this manner. Valor provides some burndown and residual control of a variety of broadleaf weed species.

Soybean Herbicides

Cadet (fluthiacet-methyl) is a new product from FMC that is labeled for postemergence use in soybean. Cadet is a PPO-inhibiting herbicide that was once also sold by Syngenta as Action. Cadet can be applied at 0.4 to 0.9 fluid ounces per acre to soybean that is in the V1 stage of growth to full flowering. A non-ionic surfactant or crop oil concentrate should be added to all Cadet applications. In addition to preemergence use, **Dual II Magnum** will now be labeled for postemergence application in soybean up through the third trifoliolate growth stage. This treatment will only provide control of unemerged weeds and is designed to provide residual control of later-emerging weeds when applied in combination with a postemergence application of glyphosate.

Flexstar GT is a new prepackaged mixture from Syngenta that contains fomesafen (Flexstar) and glyphosate. Flexstar GT is expected to receive a label for use in soybeans by the 2009 growing season. Flexstar GT will be formulated as a 3.29 SL and contains 2.63 pounds of glyphosate acid and 0.66 pounds of fomesafen per gallon of product. Flexstar GT will be labeled at rates ranging from 3 to 3.75 pints per acre in Missouri. At the 3 pint per acre rate, Flexstar GT will deliver 1 pound of glyphosate acid per acre and 1/4 lb fomesafen. This product is intended to provide postemergence control of glyphosate-resistant weeds in soybean like waterhemp.

Limited supplies of **LibertyLink Soybeans** will be available for the first time during the 2009 growing season. LibertyLink soybeans are a new herbicide-resistant crop designed to withstand applications of **Ignite 280 SL**. Ignite 280 SL is a new formulation of glufosinate that will be registered for use on soybeans designated as LibertyLink. Glufosinate is the same active ingredient as in Liberty. Ignite 280 SL contains 2.34 lbs

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glufosinate/gallon unlike Liberty which contains 1.67 lbs/gallon so use rates for Ignite will be different from those growers have become accustomed to with Liberty. The standard use rate of Ignite will be 22 fluid ounces per acre on LibertyLink soybean. No more than two applications and 44 fluid ounces of Ignite can be applied on LibertyLink soybeans in a single growing season. Applications of Ignite can be made from emergence up to but not including the bloom growth stage of soybean. Ignite is much more of a contact herbicide than glyphosate so application timing will be critical to the success of the LibertyLink soybean pro-

gram. A preemergence herbicide followed by at least one in-crop application of Ignite has provided good weed control and excellent yields in our research over the past several seasons.

Prefix now has a postemergence label for use in soybeans. Prefix may be applied at 2 to 2 1/3 pints per acre from cracking up to the third trifoliate stage in soybean. Prefix will provide very little control of emerged weeds but will provide residual control of a variety of weeds that may emerge throughout the season like waterhemp. In Roundup Ready soybean, Prefix can be tank-mixed with a glyphosate product to control weeds that are present at the time of the application. Crop oil concentrate should not be

added as a spray adjuvant as this will increase the likelihood of crop injury.

Spartan Advance is a new prepackaged herbicide mix from FMC that contains sulfentrazone plus glyphosate. Spartan Advance is primarily targeted for the sunflower market but also has a label for use in soybeans. It can be applied from 32 to 85 fluid ounces per acre, depending on the soil type, as a preplant or preemergence treatment in soybean. It may also be applied at reduced or "foundation" rates of 23 to 36 fluid ounces per acre in Roundup Ready soybeans where a postemergence application of glyphosate is planned. The sulfentrazone in this premix provides good control of a variety of broadleaf weeds, most

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Will nitrogen prices be higher? Consider where fertilizer demand and energy prices are likely to go. Demand will increase as we approach the growing season in the northern hemisphere and energy costs seem to be increasing once more.

Dropping prices have almost eliminated demand for phosphate fertilizer while retailers and farmers look for the bottom price in the market. Demand has dropped to the point where some phosphate mines are being idled. As recently as October 2008 industry experts were predicting demand would exceed supply for the next three years. With the economic downturn demand has dropped but so has production. My best guess is that we are in for a period of high volatility in phosphate fertilizer prices.

Potash supplies are forecast to remain tight for at least the next three years. If demand continues to fall price will inevitably follow. Up to now events have conspired to keep supply on the tight side despite the economic downturn.

The local fertilizer industry faces some daunting challenges this spring. Those suppliers who bought fertilizer this fall have high priced material that would be sold at a substantial loss at current prices. At the same time many suppliers have hesitated to buy fertilizer in preparation for the spring crunch. Fertilizer tonnage bought in Missouri dropped by over 40% in the second half of 2008 compared to 2007. It is unclear if we have the infrastructure to meet the pent up demand for fertilizer that will inevitably occur as we approach the growing season.

So the only thing we can say with any assurance about fertilizer prices and supply in 2009 is that they will likely be as unpredictable as they were in 2008.

Grow-Finish Educational Series

Wayne Shannon, Livestock Specialist

A series of educational topics on growing & finishing pigs called "PorkBridge" will be presented beginning in March. You can attend from home because the program is presented by phone. All you need is a telephone and a computer with a CD drive. You will be sent a program CD, then at the program time, call a toll free number, listen to the program and follow along as you watch the CD.

March 5, 2009	<i>"Current Swine Health Challenges and Solutions"</i> Dr. John Waddell, DVM Sutton Veterinary Clinic
May 7, 2009	<i>Managing Water"</i> Dr. Tom Guthrie Michigan State University
July 2, 2009	<i>"Energy Use and Conservation for Swine Barns"</i> Dr. Jay Harmon Iowa State University
September 3, 2009	<i>"Manure Value and Alteration of Composition"</i> Dr. John Lory University of Missouri
November 5, 2009	<i>Packer Perspective on Quality of Hogs"</i> Collette Shultz-Kaster & Roger Johnson Farmland Foods
January 7, 2010	<i>Marketing Your Hogs at the Ideal Weight"</i> Dr. Mike Tokach Kansas St. University

The topics and schedule include:

All sessions begin at noon and last 1.5 hours. Cost of \$125 is for series of six sessions, which includes a CD with supporting materials.

To register, contact Sherry Hoyer, Iowa Pork Industry Center
Phone: 515-294-4496.

To participate in the first session, register by February 20.

Importance of the Calf's First Meal

Wayne Shannon, *Livestock Specialist*

That first meal that the newborn calf gets is essential to the calf's health. The newborn calf is virtually devoid of circulating antibodies and is completely vulnerable to disease. Thus, the calf relies on antibodies acquired from colostrum for protection against common disease-causing organisms (pathogens). Significant amounts of antibodies obtained from high-quality colostrum are transferred across the small intestine and into the blood during the first few hours of life (passive immunity). Not only does this passive immunity influence newborn calf survival, but studies show it affects both pre- and post-weaning health, and growth rate clear throughout the feedlot phase.

Blood antibody levels of newborn calves are affected by several factors: concentration of colostrum ingested, interval after birth to first suckling, feeding method, and genetic, physiological and/or environmental factors. Colostrum con-

centration and interval from birth to first feeding are the most important factors.

Antibody concentration is highest in first milking colostrum. Antibody concentration is variable among cows, however concentrations are the lowest in first lactation heifers. Cows and heifers that are in good body condition at calving are more likely to produce adequate amounts of high-quality colostrum than are cows and heifers that are thin at calving and losing body weight.

Age at first feeding is extremely important. The calf is able to absorb colostrum antibodies for only a short time. After 6 to 12 hours of age, the ability to absorb antibodies begins to decline at an increasing rate until 24 hrs of age, when absorption ceases. This decline can be measured by the decline in the level of immunoglobins in the blood.

In order for the calf to consume an adequate amount of colostrum, the calf must

be able to stand and walk, find the teat and suckle. Also, the cow must be standing, have a good maternal bond and have teats small enough for the calf to grasp. Any problems in these areas can lead to late and/or decreased colostrum intake. Calves born without assistance are quicker to stand and nurse than calves resulting from hard pulls.

Calves that do not suckle should be fed at least 2 quarts of fresh or frozen colostrum within the first 6 hrs of birth and another 2 quarts within the next 12 hrs. Bottle feeding or esophageal feeder, although inferior to natural suckling, are better than no access to colostrum.

Management practices should focus on the calf to receive adequate antibody passage by ensuring that the dam is able to deliver a healthy calf and the calf is able to consume adequate amounts of high-quality colostrum shortly after birth.

Hay Probes Available for Use

Rich Hoormann, *Agronomy Specialist*

The Extension Centers in Montgomery, Warren and Lincoln have Penn. State hay probes available for use at no charge.

With the variability of quality in last year's hay crop, it pays to find out the quality of hay you put up or purchase. The probes are the cutter type that requires an electric drill or a brace drill. The Warren and Lincoln County probes can be used by both type drills. Call your office for details and availability of equipment.

Take a look at the quality variability found in last year's hay crop found by using a hay probe and sending to a laboratory for a quality analysis.

		Grass 1st	Grass 2nd	Johnson-grass	Little Bluestem	Sudex	Fescue 1st	Brome 1st
-----Dry Weight Calculations-----								
Dry Matter	%	85.3	86.5	84.9	89.8	77.0	85.2	78.1
Protein	%	7.3	8.6	9.7	4.1	9.8	10.7	10.1
A D Fiber	%	49.0	43.9	46.0	48.6	53.2	41.7	44.8
T D N	%	46.7	51.7	49.7	47.2	42.7	53.8	50.8
NE Lactation								
MCAL/LB		0.45	0.51	0.48	0.46	0.40	0.53	0.50
NE Gain	MCAL/LB	0.14	0.22	0.19	0.15		0.25	0.20
NE Maint	MCAL/LB	0.39	0.47	0.43	0.39	0.32	0.50	0.45
Digst Energy								
MCAL/LB		0.39	0.47	0.43	0.39	0.32	0.50	0.45
Nitrogen	%	1.17	1.38	1.56	0.66	1.58	1.71	1.62
Calcium	%	0.33	0.48	0.55	0.33	0.41		
Phosphorus	%	0.13	0.15	0.12	0.02	0.12		
Nitrate (NO3)		Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.