

2004

Crop Watch No. 2004-26, December 10, 2004

Lisa Brown Jasa

University of Nebraska-Lincoln, ljasa@unlnotes.unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/cropwatch>



Part of the [Agriculture Commons](#)

Brown Jasa, Lisa, "Crop Watch No. 2004-26, December 10, 2004" (2004). *Crop Watch*. 284.
<http://digitalcommons.unl.edu/cropwatch/284>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Crop Watch by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.



CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

UNIVERSITY OF
Nebraska
Lincoln

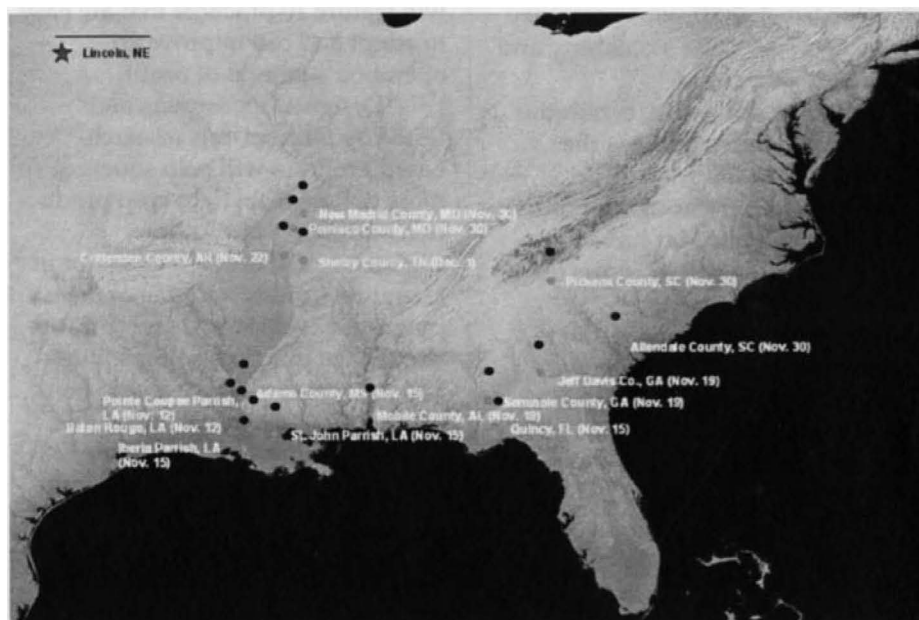
No. 2004-26, December 10, 2004

Soybean rust found throughout southeastern states

Fungicides approved for Nebraska for 2005

Since the initial discovery of soybean rust in early November, it has been identified in several other southern states. Soybean rust was confirmed on November 9 from soybean leaf samples collected near Baton Rouge, Louisiana. Soon after, plant pathologists throughout the southern soybean producing regions began looking for rust symptoms on green soybeans and alternate hosts, such as kudzu. Subsequently, numerous samples have been collected and rust has been confirmed.

On November 12, rust was confirmed at two locations in Louisiana, Pointe Coupee Parish and near Baton Rouge. A few days later the disease was confirmed in



Sites of confirmed soybean rust in the United States as of Dec. 3.

Inside

Saltcear a noxious weed	242
10 ways to boost profits	242
New seed insecticides	243
Irrigation management	244
Relay intercropping	245
Natural gas & nitrogen	247
Nitrogen recommendation ..	247
Taking soil samples	247
Ag brief	250
Maintaining stored grain	249
Events	250

See these and those listed
below at cropwatch.unl.edu

End-of-year tax planning
Drying proso millet

Iberia and St. John Parishes, Louisiana, and from a site in Adams County, Mississippi and near Quincy, Florida. On November 19 positive confirmations were announced at two locations in Georgia — Seminole and Jeff Davis counties -- and in Mobile County Alabama. On November 22, rust was confirmed in Crittenden County, Arkansas. On November 30 rust was confirmed in Pemiscot and New Madrid counties, Missouri and Allendale and Pickens counties in South Carolina. On December 1, soybean rust was confirmed near Memphis, Tennessee.

It appears that soybean rust was widely distributed by hurricane Ivan in September 2004. While this

disease is not expected to overwinter north of the 30° north latitude (north of Baton Rouge), it is predicted that summer weather patterns will move spores north from overwintering, sites such as wheat rust spreads northward in the late spring and summer.

Several products have received EPA approval for soybean rust under a Section 18 emergency use exemption. Those products are: myclobutanil (Laredo), propiconazole (Tilt, Propimax, and Bumber), and tebuconazole (Folicure). Additional products still pending Section 18 approval include tetraconazole (Domark) and a mixed product of propiconazole

(Continued on page 243)

NDA adds saltcedar to noxious weed list

Saltcedar was named Nebraska's newest noxious weed Monday by state Department of Agriculture (NDA) Director Merlyn Carlson. An NDA press release said the designation, which becomes effective Jan. 1, 2005, was necessary "to protect Nebraska's economy and the quality of its land."

Saltcedar is a dense, deciduous shrub or small tree that has the potential to significantly affect native vegetation throughout much of Nebraska. Saltcedar has a long taproot that allows it to access deep water tables and interfere with natural aquatic systems. A single mature saltcedar may produce hundreds of thousands of seeds between April and October. The seeds are then dispersed by wind and water throughout the growing season. The seedlings are tolerant of water, saline soils, and drought and may grow as much as a foot a month.

Saltcedar will join the list of the other noxious weeds in Nebraska, including: Canada thistle, leafy spurge, musk thistle, plumeless thistle, purple loosestrife and spotted and diffuse knapweeds.

For more information on identifying and controlling saltcedar see the Sept. 10, 2004 issue of *CropWatch* at <http://cropwatch.unl.edu/archives/2004/crop04-21.htm#saltcedar> or contact your local extension educator or county weed control superintendent. Questions may also be directed to the NDA Noxious Weed Program Manager at (402) 471-6844.

Correction

An Oct. 22 *CropWatch* article entitled "SCN moving westward; sample now to plan for control" included an incorrect identification. Cyst-X varieties are a selection out of the Hartwig line of resistance.

Farmer research and experiences lay foundation for new cost-saving program

"Ten Easy Ways to Boost Profit \$20/acre." If the title of this new Extension program sounds too good or too patent to be true, it's not. The program offers exactly what it promises and more. Each meeting will feature 10 practices that are easy to adopt and can improve an operation's margin of profit.

"Designed for farmers and tested by farmers, this research-based program will help squeeze more dollars from tight crop production budgets," said Andrew Christiansen, Extension educator in Hamilton County and one of the program developers.

All the practices being featured had to meet several criteria: 1) be easily implemented, 2) underutilized, and 3) have a dollar value that is backed by research and real farm experience. Nebraska farmers tested all the practices being recommended and their experiences are included. Workshop attendees will receive a notebook detailing more than 20 recommended practices and further information later in 2005 on program topics and farmer findings.

Individuals need to register at least seven days prior to the work-

shop. To register, contact the Extension educator in the host county or the Hamilton County Extension Office at P.O. Box 308, Aurora 68818-0308. Cost is \$20 for the first person from an operation and \$10 for another from the same operation. The fee covers the notebook, meal, and 2005 mailings. All workshops begin at 10 a.m. and end at 3 p.m.

Dates and locations

Jan. 12, Neligh
Jan. 20, Fremont
Jan. 25, Osceola
Jan. 26, Lincoln

Feb. 1, North Platte
Feb. 2, Albion
Feb. 9, Seward
Feb. 11, Hartington
Feb. 15, Wahoo
Feb. 22, York
Feb. 23, Geneva
Feb. 24, Aurora

March 1, Hastings
March 2, Auburn
March 8, Minden
March 16, Clay Center
March 18, Columbus
March 23, Stanton



cropwatch.unl.edu

© 2004 University of Nebraska

Crop Watch is published from March to November by Cooperative Extension and Communications and Information Technology in the University of Nebraska Institute of Agriculture and Natural Resources, PO Box 830918, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order a print subscription or to change your address, write to *Crop Watch* at the above address or call (402) 472-7981. The newsletter also is available on the Web at cropwatch.unl.edu

Disclaimer: Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by University of Nebraska Cooperative Extension is implied.

Lisa Jasa, Editor; Email: ljasa1@unl.edu

Soybean rust

(Continued from page 241)

and trifloxistrobin (Stratego). In addition to these, other products may be submitted for Section 18 approval. Federal tolerances for pyraclostrobin (Headline and Pristine) have been established for soybean and as of December 3, Headline had received full label for use on soybean. Products which have soybean rust on the label and are registered in Nebraska include chlorothalonil (Bravo and Echo) and strobilurins (azoxystrobin – Quadris and pyraclostrobin – Headline).

In general, chlorothalonil and strobilurin products have not been shown to be effective in South America after rust is well established in the field. In some studies, increased residual activity has been observed with strobilurins in a tank mix application with a triazole. Therefore, when soybean rust arrives in Nebraska, I would recommend using Section 18 products in the triazole chemical group unless you are making a preventative application prior to arrival of rust. Based on South American trials, the triazole group appears to be very effective. It includes myclobutanil, propiconazole, tebuconazole, and tetraconazole. Surely, over the winter, more products will apply for and receive a Section 18 emergency use exemption.

The Bottom Line: We are ready for soybean rust. It will have an impact on U.S. soybean production, but its annual impact in Nebraska will vary depending on the weather. Nebraska is on the fringe of favorable climate for disease development.

Many University of Nebraska Cooperative Extension programs, including the January Crop Protection Clinics, will feature soybean rust information and updates.

Loren J. Giesler
Extension Plant Pathologist

New options for seedling insect and corn rootworm control

This year producers will have many more planting time options to select from for managing seedling-attacking insects and corn rootworms. Not too long ago, a planter box seed treatment and granular rootworm insecticides were the only choices for these insects.

Recently, however, new options for fighting seedling-attacking insects have been released. Several liquid insecticides have become labeled for use, and advances in seed coating technology has allowed insecticide to be applied to the seed, enabling farmers to buy pre-treated seed that is ready to plant. While these new products primarily are for seedling insect control, some have also been labeled for protection against corn rootworms and other crop pests.

Seed-applied insecticides

Seed coating advancements have led to increased protection from more pests, but at a higher cost than the traditional hopper-box treatments. When deciding whether to order treated seed, consider these advantages:

- 1) uniform seed coating;
- 2) ease of use; no mixing or measuring is required, and there is no special equipment to use;
- 3) reduced exposure to insecticide residues and dusts;
- 4) lower rates of active ingredients compared to soil insecticides; and
- 5) some are systemic and will provide some control of foliage feeding-insects such as flea beetles.

As with many products, there also are certain drawbacks that may need to be considered. Consider carefully what each product is designed to do. Also consider that seed treatments *don't*:

- 1) increase plants stands. They only help protect what you plant.

- 2) protect against poor germination due to mechanical damage to seed, poor storage, genetic differences, or poor farming practices;

- 3) give season long protection; and

- 4) protect against all insects.

As stated earlier, the newer seed-applied insecticides are attempting to go beyond the traditional early season protection role. Not only do they protect against early season insects such as wireworms and seedcorn maggots, some are labeled for use against other pests such as flea beetles and corn rootworms.

Older seed treatments were sold as dusts that had to be added into the planter box with the seed. The active ingredients included in many of the products were lindane, diazinon, chlorpyrifos and permethrin. Many times they would be combined with a fungicide for protection from seedling diseases.

Two new products, Cruiser and Poncho, have captured a large portion of the market for seed treatments in corn. They are both neonicotinoids and are applied directly to the seed by commercial seed treaters. These products work on the insect's central nervous system by binding nicotinic acetylcholine receptors. They are effective as contact insecticides and are systemically active. The rates of each product will vary depending on the target insects.

Cruiser (thiamethoxam) is a Syngenta product. It is registered for field, pop, seed, and sweet corn, along with wheat, barley, sorghum, sugar beets, cotton, oilseed rape, and canola. It is likely to be approved by the EPA for soybeans in 2005. The seedling insect rate on

(Continued on page 244)

Corn insecticides *(Continued from page 243)*

corn is 0.125 mg active ingredient per kernel. The corn rootworm rate (the label says light to moderate infestation) is 1.125 mg ai/kernel. Cruiser is labeled for suppression of cutworms, and in 2005 Syngenta will reimburse growers \$4/acre if cutworms reach economically treatable levels in fields treated with Cruiser. The cost for the 0.125 rate of Cruiser in 2004 was about \$11 a bag. This translates to about \$3-5 an acre depending on the number of seeds planted per acre. This compares with the cost of a planter box treatment in the range of \$1.50 to \$2.00 per acre, or a one-half rate of soil insecticide at \$5-8 per acre.

Cruiser most likely will be sold as "Cruiser Extreme Pak" which will be a seed company-applied combination of Cruiser and fungicides Dynasty, Maxim XL, and Apron XL.

Poncho (clothianidin) is a Gustafson product. It was first labeled in June 2003 and was widely used in 2004. It replaced Gaucho and Prescribe (both imidacloprid products) in corn. Gustafson considers it more active systemically and more toxic to insects than imidacloprid. The two common use rates for Poncho are 0.25 mg ai/kernel (Poncho 250) for seedling insects and 1.25 mg ai/kernel (Poncho 1250) for corn rootworms. Both products are labeled for control of black cutworms. The cost of Poncho 250 in 2004 was about \$15

per bag and the cost of Poncho 1250 was about \$46 per bag.

Planter concerns

Seeds treated at high rates of Cruiser and Poncho are visibly thicker due to the amount of active ingredient applied to the seed. While few, if any, growers using these seeds have reported planter problems, it is important for growers to calibrate planters to ensure the proper seeding rate. Also, it is a good idea to use talc or another seed flow enhancer as recommended by the planter equipment manufacturer.

Alternatives

Corn planted in April, when soil temperatures are below 60°F, should be protected from seedling attacking insects. For seedling insects, planter box treatments still work relatively well and at lower cost. Many growers apply liquid insecticides in-furrow with or without starter fertilizer. Included are **Warrior**, **Pounce**, **Regent** and **Capture**. Granular insecticides applied at one-half rate also are an option.

For corn rootworms in Nebraska, crop rotation is still the best alternative. In continuous corn, granular insecticides still provide the best root protection, along with liquids such as Capture and Regent. Adult control to prevent egg laying is still feasible in some areas of Nebraska. Transgenic corn looks to

provide excellent control of corn rootworms in most instances.

Recommendations

Cruiser and Poncho both give excellent control of seedling attacking insects such as wireworms and seed corn maggots. Although black cutworms are suppressed or controlled, either product (along with others) may be overwhelmed by large numbers of cutworms. Dingy, darksided, or other cutworms that overwinter as partially grown larvae cause most cutworm problems in Nebraska. This may affect control, and there is little data about controlling these species. Fields treated with Cruiser and Poncho should still be scouted for cutworm problems and rescued if necessary.

Corn rootworm control with these seed treatments has been erratic in various University trials. Often these seed treatments will not prevent root damage to the same extent that soil insecticides do. More yield trials are needed to establish a definite relationship between seed treatments and other corn rootworm control options. Caution should be used when choosing these products as a primary rootworm control. Ideally, they should be used in fields with low to moderate pressure, although it is difficult to determine which continuous corn fields would fall into those categories.

Data can be found on these products on the UNL Department of Entomology web site at entomology.unl.edu.

Keith Jarvi, IPM Extension Assistant, Northeast REC

Irrigation management workshop in Grand Island

A University of Nebraska Cooperative Extension workshop, "Irrigation -- Soil and Water Management," will be Dec. 17 from 8:30 a.m. to 4:30 p.m. at College Park in Grand Island.

Topics will include: new water distribution agreements in the Republican and Platte river valleys, geohydrology of the Republican and Platte watersheds, plant response to

deficit irrigation, economics of irrigation management decisions, soil quality and tillage for water conservation, soil water measurement technologies and in-season irrigation management decisions.

Cost is \$65 prior to Dec. 10 and \$75 afterward. For more information go to the web site at ardc.unl.edu/registration.htm or call (402) 624-8000.

Notice

This is the final print edition of *CropWatch* for 2004. Updates will be posted to the Web site intermittently this winter at cropwatch.unl.edu

Relay intercropping: Working out the wrinkles

Note: The relay intercropping system discussed here and the field trials being conducted on it in central Nebraska were first described in the September 19, 2003 *CropWatch*, available online at cropwatch.unl.edu/archives/2003/crop03-23.htm. The following update addresses some of the 2004 observations of researchers and producers, who are now using this system on more than 5,000 acres in central Nebraska.

A group of innovative Nebraska producers are working to refine management practices and optimize profitability in their two-year seed corn/ wheat/soybean rotation. After several years of experience with this relay intercropping system, they are comparing notes and learning from each other's experience. The interesting observation is that each producer is working on a little different puzzle as they adapt the system to their enterprise. While it will take more time to fine-tune the details of relay intercropping, several universal observations have led to the following comments.

Which crop receives the light

An Argentine farmer and his consultants who were well along in developing a similar relay cropping system recommended planting the soybean crop about one month before wheat harvest. Their idea was that soybean seedlings would be 8-10 inches tall when the wheat is harvested, short enough to pass under the combine head without damage. This all assumes that the soybean crop germinates in a timely manner and grows normally.

Delayed germination (probably due to a lack of soil water) would not result in damage at harvest. In contrast, excessive soybean height at wheat harvest likely may result in the upper leaves being clipped. When this happens, the plant may lose its apical dominance, giving priority to development of the lateral buds rather than the main terminal bud and stem. When this occurs, yield is lost.

Growth characteristics of soybean seedlings are strongly influenced by the amount of light they receive. Seedlings deprived of light tend to have longer internodes and grow tall and spindly. This causes problems because soybean pods form at the plant nodes. If the plants get taller than the sickle height of the combine head used for wheat harvest, the nodes (and potential pods) are lost.

It stands to reason that the row spacing of the drilled wheat and bushiness of the crop influence light availability. During 2004, producers experimented with openings for the soybean crop ranging from about 6 inches to 22 inches. As expected, the wider the opening, the shorter the stature of the soybeans.

Planting soybeans more than a month before wheat harvest can be a disaster, especially if the amount of light reaching the seedlings is significantly less than normal (e.g., narrow opening for the soybean crop). Producers who ended up with soybeans that had extended above the sickle height when the wheat was finally harvested (wheat harvest was delayed 7-10 days this year because of wet weather) experimented with several header attachments to deflect the tall plants away from the sickle (see photos, page 246). These devices were marginally

(Continued on page 246)



(Top) Wheat was blanket seeded into a field; soybeans were then planted into rows. (Bottom) With this relay intercropping system, typically two rows of wheat are planted in the 30-inch spacing between the ridges of the previous seed corn crop and then soybean is planted between the wheat rows.

Relay intercropping *(Continued from page 245)*

acceptable due to different problems. A composite design developed for 2005 captures the major attributes of the failed attachments and improves on the weaknesses.

Seeding problems

Commercially available no-till air seeders typically have the depth wheels for adjacent rows on the same side of the row (i.e., all wheels on the right or all on the left of seed). This can lead to problems when planting into soil that still has ridges. Typically, two rows of wheat are planted in the 30-inch spacing between the ridges of the previous corn crop. As such, one depth wheel rides on the high side of the furrow and the other rides on the low side.

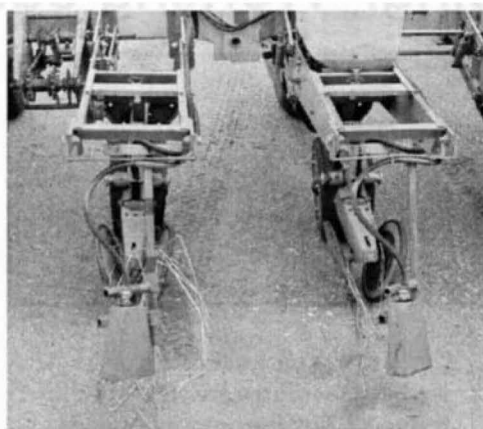
The depth of individual row units can be adjusted to compensate for the position of the depth wheels, but if the drill does not consistently trail properly relative to the furrow, planting depth can be quite irregular. One of the major reasons why some air-seeders don't trail consistently is that the spacing of the implement tires does not match the row spacing of the previous corn crop (e.g., some tires may ride on top of the ridge, some on the side or some in the furrow).

Harvesting soybeans

Standing wheat residue is frequently a problem for soybean harvest. The standing residue decomposes at the soil surface first and will break off at that level when pushed by the head rather than being cut off by the sickle and fed through the combine. Producers found that harvesting the soybeans at an angle to the rows greatly improved how the wheat straw and soybeans were fed into the combine head.

Head blight (scab)

Fusarium, a major species of fungi that helps decompose corn residue, is responsible for inoculating wheat with the disease organ-



(Above) To plant soybeans into the standing wheat, one farmer added shields to move the wheat plants to either side. **(Below)** In another case, a farmer adjusted the coulters to better place the seed on the ridge.



isms that cause scab. Wheat is especially susceptible for about a one-week period at heading. Conditions that contribute to the severity of the infection are warm temperatures and high humidity. Producers can't do anything to moderate the temperature, but they can refrain from irrigation during that period. Another consideration is what might be done to reduce the source of Fusarium spores that evolve into the disease. At this time, it is not known whether the sporulation process (essentially production and redistribution of spores) is accentuated by disruption of the decomposing corn residues. Some have suggested that sporulation (a biological process) is affected by temperature, humidity,

and possibly the nitrogen status of the decomposing residue. For these reasons, it is probably advisable to avoid disturbing the corn residue during heading of the wheat crop. Studies were initiated in the fall of 2004 to evaluate the timing of sporulation and determine if nitrogen content of the corn residue can be manipulated to affect timing of the process.

Nutrient supply

Wheat grain with 14% protein contains about 1.2 lb nitrogen per bushel and the straw contains another 0.5 lb/bushel or so. If soil residual nitrogen and mineralized nitrogen are not adequate to accommodate the expected yield (i.e., about 1.7 lb nitrogen per bushel), a nitrogen deficiency is likely to develop and yields will be reduced. Similarly, wheat grain contains about 0.2 lb phosphorus per bushel. Comments by producers and consultants in the northwest United States indicate the importance of good plant nutrition at planting. They recommend adding nitrogen (e.g., 11-52-0 fertilizer) if phosphorus is band applied at wheat planting.

Sometimes it also might be convenient to apply enough phosphorus fertilizer to the wheat to meet the needs of the following soybean crop. Producers shouldn't overlook the possibility of sidedressing wheat in the spring with granular nitrogen or anhydrous ammonia; however, spraying liquid nitrogen on wheat in the spring can be risky in that it will burn the leaves if the temperature gets above 75° F or so. A little extra nitrogen sidedressed to the wheat probably will not threaten ground water quality because the subsequent soybean crop will serve as an effective scavenger of residual soil nitrogen.

Jim Schepers
USDA-ARS Soil Scientist, Lincoln

Changes in natural gas supplies nationally affecting local nitrogen availability and use

If you've been watching the evening news, you've noticed that national and world energy prices have increased from last year. Using the perspective of "Think globally, act locally," this two-story focus will examine the global nitrogen and energy picture and then discuss how Nebraska's producers can plan and adjust their fertilizer programs accordingly (*see below*).

Only about 2% of U.S. natural gas is used to produce nitrogen, however, that 2% accounts for 80-90% of the cost of producing nitrogen fertilizer, according to information from the natural gas industry. With natural gas prices expected to be as much as 11% higher than last year, this will have an effect.

Most nitrogen sold in the United States is either anhydrous ammonia or products derived from anhydrous ammonia, such as urea, ammonium nitrate, urea ammonium nitrate solution, ammonium sulfate and phosphate mixtures containing nitrogen. It requires a great deal of energy to combine gas from the atmosphere and hydrogen from natural gas to make ammonia. In 1999 the average price of natural gas was about \$2 per 1000 cubic feet. In January 2001 that price spiked to almost \$9 per 1,000 cubic feet. At the beginning of 2002 it declined but has been steadily increasing since then. Currently the price is near \$6 per 1,000 cubic feet. (Source: U.S. Department of Energy,

Energy Information Agency, at <http://eia.doe.gov/>.)

Two factors in this year's higher natural gas prices were an increased demand for a clean energy supply to generate electricity and losses from hurricane Ivan. According to the Department of Energy, natural gas prices this winter could be about 11% higher than last year. Although natural gas is abundant across the world, it is not easily distributed. In fact, in many places, oil fields just burn off excess natural gas. Insufficient natural gas pipeline and limited storage capacity also have contributed to U.S. price increases. North American production has

(Continued on page 248)

Getting the most benefit from your nitrogen

Natural gas prices and nitrogen fertilizer prices are closely linked. In the last two years, as natural gas prices have increased, anhydrous ammonia prices have increased.

The U.S. Department of Energy is projecting further increases as we head into the winter and overall energy demand increases. Projections show natural gas prices increasing from current levels of \$6 per 1000 cubic feet to \$7 per 1000 cubic feet during December, January and February and then decreasing in the spring. Winter is the prime time for domestic fertilizer production for next spring's inventory. With winter prices expected to be up, early estimates are that nitrogen prices may be up 12-15% from last year.

Producers developing nitrogen fertilizer plans for next spring may want to consider the following:

1. Plan early. Start talking to fertilizer suppliers. Look at different

options for locking in prices.

2. Soil test this fall. In much of the Panhandle a lot of corn is still in the field, however most of the corn across the state has been harvested. With the drier year and less irrigation water, many fields should have a good level of residual nitrate.

Take deep soil samples from 3-4 feet for nitrate-N to develop more precise fertilizer nitrogen recommendations. See your local Extension office or the UNL Cooperative Extension web site for NebGuides

(Continued on page 248)

Taking soil samples

Current recommendations suggest dividing fields and sampling areas no larger than 40 acres and preferably 20 acres. For furrow irrigated fields it's a good idea to sample the upper, middle and lower ends because of differential leaching.

Suggested sampling depths are 0-8 inches, 8-24 inches and 24-48 inches. Collect 15-20 cores from the surface and 6-8 cores from the subsurface to be analyzed for nitrate nitrogen. Grid sampling (one sample for every 2 ½ acres or less) is more costly but will help create a nutrient level map that provides greater information. Zone sampling (based on soil type and yield maps) also can be used to develop more precise nitrogen recommendations.

National trends

(Continued from page 247)

lagged and companies are hesitant to invest in expensive liquid natural gas terminals that would allow shipping natural gas from overseas. Obviously, we need an improved natural gas infrastructure.

When the price of natural gas fluctuates around \$6 per 1000 cubic feet, it has proven to be too high for many domestic fertilizer producers who then cut back capacity or close down production. This is the situation for some areas this winter. Meanwhile, the price of natural gas in Russia, Venezuela, Trinidad and the middle east remains cheap, at \$1-\$2 per 1,000 cubic feet.

Industry changes

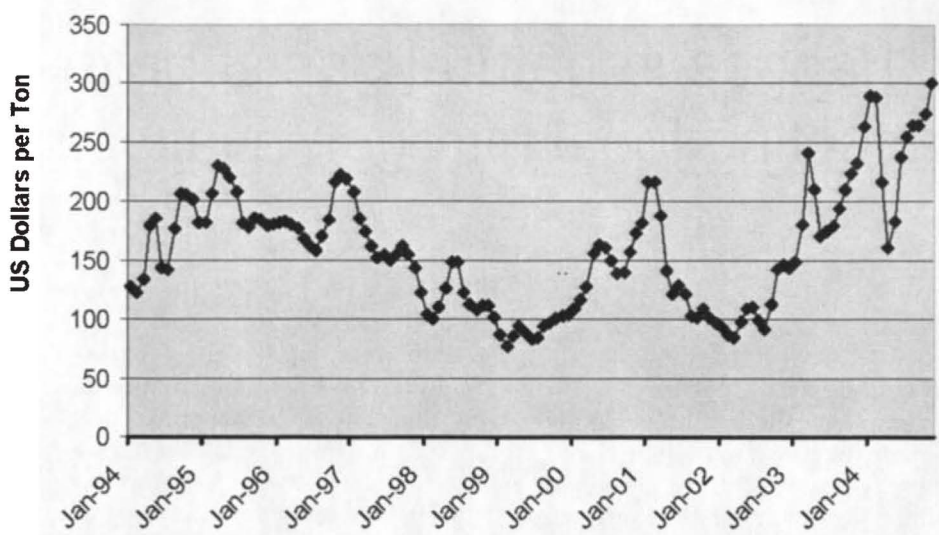
Here in the United States, fertilizer companies are merging and readjusting to achieve economies of scale and looking to other countries with cheap natural gas resources who may import it into the United States.

In August, Agrilience purchased the assets of River Materials near the port of Galveston, Texas. This will help facilitate the import of bulk fertilizer products manufactured by plants in other countries. Agrilience also brings bulk fertilizer into Louisiana ports, however, politics and environmental policy can affect this. To increase barge traffic and nitrogen transport, the Mississippi River needs to be dredged and locks need to be rebuilt. Many of these efforts have been delayed due to environmental concerns.

Anhydrous sales decrease

Another major change in agriculture is that sales of anhydrous ammonia continue to shrink with urea and urea ammonium nitrate sales increasing. The high natural gas prices have caused a

(Continued on page 248)



World ammonia prices 1994-2004

Planning for nitrogen (Continued from page 247)

and directions for soil sampling.

3. Follow University recommendation for nitrogen fertilizer. They are research-based and developed to provide optimum economic yields. On-going research (Nebraska Soil Fertility Project) shows that current nitrogen and phosphorus recommendations for corn are adequate to meet the high yields (220-270 bu/ac) we are currently achieving.

4. Comparison shop. Look at different products and do some "fertilizer arithmetic" to compare the actual cost per pound of nutrients, especially with mixed grade fertilizers. Work with a reputable dealer who can provide accurate estimates, timely delivery and well-maintained equipment. Always remember that it's the service after the sale that is important. Also look to unbiased information from Cooperative Extension educators and specialists.

5. Look at alternative nitrogen sources. With the high concentration of livestock feeding in many areas of Nebraska, manure is a valuable resource. It not only supplies nitrogen and phosphorus but micronutrients and sulfur in addition to adding carbon to the soil organic pool. With high nitrogen

costs, it's a good idea to price manure for its total nutrient content value plus transportation costs. Even applying lower rates of manure (10-15 tons per acre) and then supplementing nitrogen next summer based on crop nitrogen status is a good way to reduce costs.

There are "rules of thumb" on the amount of nitrogen, phosphorus and micronutrients in manure, but it's best to have it analyzed by a lab to determine its nutrient content. Nitrogen availability from manure can range from 50% to 70% the first year depending on the source (fresh, stockpiled, composted).

Nitrogen fertilizer is still one of the best investments in crop production. With nitrogen prices expected to increase, it's a good time to accurately measure soil organic matter and residual nitrate levels then set a realistic yield goal to determine nitrogen needs. This will provide the most profit for your production potential. This is of greater importance as we anticipate limited irrigation water throughout many areas of western and central Nebraska in 2005.

Gary W. Hergert, Extension
Soils Scientist, Panhandle REC

National trends

(Continued from page 248)

number of companies to close inefficient or older facilities in the United States. Terra Industries has agreed to buy the bankrupt Mississippi Chemical company this fall to expand manufacturing capabilities and diversify its natural gas sources. It also will provide for a joint venture with natural gas and ammonia production in Trinidad.

Two other large players in the market are Cargill and IMC (International Minerals Corporation). Last spring Cargill Crop Nutrition and IMC Global agreed to combine their fertilizer businesses into one large company called Mosaic. The merger was approved by the Department of Justice August 31.

So what does this mean to farmers in the Midwest?

Sales and distribution of nitrogen fertilizer likely will be significantly different for the next generation of farmers.

- Globalization will continue to affect local fertilizer prices. As foreign suppliers become more important, farmers will need to make their nitrogen plans sooner than they have in the past. The best advice is to work closely with a reputable dealer to plan purchases to ensure nitrogen will be available.

- A new online service, the Crop Nutrient Exchange, lets producers lock in fertilizer prices 12 months in advance.

- Agrilience has been taking buying and sell orders on the Chicago Mercantile Exchange since last summer.

- World markets eventually change things locally and the number of fertilizer suppliers may decrease in the future. Larger hubs with 20,000-40,000 ton sheds may be the rule as we go into the next few years.

Gary W. Hergert, Extension Soils Specialist, Panhandle REC

Protect your investment, maintain stored grain quality

This year many producers started harvest when corn was around 20% moisture, and many harvested all their corn while it was above 17% moisture. The corn price at harvest had fallen well below county loan rates, prompting producers with on-farm storage to either put grain under FSA loan or take the LDP then store grain and hope for a better price. The net result was that millions of bushels more corn was dried and stored on-farm than in recent years.

It is imperative that this grain be managed to preserve its quality. Once quality is lost, nothing can be done to improve it. The two biggest factors that affect quality are mold growth and storage insects. The two most important factors which producers can control to reduce mold and insect damage are moisture content and grain temperature.

Insects are far less active at temperatures below 50° F and many are killed below 32° F. Temperature affects mold growth as well. Mold growth is reduced below 50° F and nearly stops below 40° F. Internal heating in the grain from microbial and mold activity is greatly reduced below 16% moisture content. For these reasons, the university recommends drying corn to 15% moisture and cooling it to 30-40° F if the grain will be held into winter. If it is to be held until summer, corn should be dried to 14% moisture by May. Soybean moisture content should be two points lower than corn, 13% for winter delivery and 12% for spring delivery, respectively.

Given high propane and natural gas prices in 2004, many producers with adequate dryer bin space elected to dry grain using low heat or natural air whenever possible. This extended the drying season well into November for many producers. The bright side is, much of the corn was quite cool by the time the grain

reached storage moisture throughout the bin. This should have helped ensure the grain was both dry and cool going into winter. Producers who finished earlier in the fall probably had to push one or two additional cooling fronts through to bring the grain down to the recommended winter temperatures of 30-40° F.

A bin of corn is a huge investment and should be monitored at least monthly through the storage period. Check grain temperature with a grain temperature probe near the sidewall and near the center of the bin at least monthly. If there is more than a 10° F difference in temperature, run the aeration fan to push a temperature front through the grain.

Even if the temperature probe did not indicate problems, the next step in the monthly check is to open the roof hatch and start the aeration fan and climb up to check the air escaping from the main hatch. Is the air warmer than expected? Does it have a musty or moldy smell? Can you feel high humidity in the exhaust air as it hits you in the face or do you see condensation forming on the bin roof on a cold day? These can be signs of a wet spot somewhere in the grain mass that may have been missed by the temperature probe.

If you detect a potential problem, open all the hatches and continue to run the aeration fan to push a temperature front through the grain. If the bin is equipped with a stirring device, make a round or two while aerating to break up pockets of high moisture grain. If the bin does not have a stirring device, it may be wise to remove several hundred bushels of grain from the bin to locate and break up wet spots.

(Continued on page 250)

Events

For further information on these meetings sponsored by UNL Cooperative Extension, check stories in this or previous issues of *CropWatch* or on the Web at cropwatch.unl.edu/events.htm.

December

- **Irrigation -- Soil and Water Management**, December 17, Grand Island
- **Skip-row Rainfed Corn Trial Results**, Dec. 21, 10 a.m. at McCook and 1 p.m. at Imperial
- **Skip-row Rainfed Corn Trial Results**, Dec. 22, 9 a.m. at Ogallala and 1 p.m. at Sidney
- **Skip-row Rainfed Corn Trial Results**, Dec. 23, 10 a.m., North Platte

January

- **Crop Protection Clinics and Pesticide Applicator Sessions**

Jan. 5, Fremont	Jan. 14, Norfolk
Jan. 6, Auburn	Jan. 18, Scottsbluff
Jan. 7, Beatrice	Jan. 19, Ogallala
Jan. 11, York	Jan. 20, Broken Bow
Jan. 12, Hastings	Jan. 21, Holdrege
Jan. 13, O'Neill	Jan. 24, Lincoln

- **Planter, Drill and Sprayer Clinics**

Jan. 4 at Imperial
Jan. 5 at McCook
Jan. 6 at Lexington

- **Sorghum Seminars**

Jan. 10, McCook
Jan. 11 Orleans
Jan. 12 Hardy
Jan. 13 Milligan

February

- **Nebraska Agricultural Technologies Association (NeATA) Conference and Trade Show**, Feb. 2-3, Grand Island
- **2005 Corn/Soybean Profitability Workshops**
 - Feb. 14, Concord
 - Feb. 15, Saline County
 - Feb. 16, Central City
 - Feb. 17, Kearney
 - Feb. 18, Cambridge

April

- **No-till Planting (Into Corn Residue) Demonstrations**
 - April 16 at Imperial
 - April 17 at Arapahoe
 - April 18 at Gothenburg

Grain storage

(Continued from page 249)

The length of time required to push a temperature front through grain depends on the airflow rate. To estimate the time required, divide 15 by the airflow rate in cfm/bushel. (A temperature front will take 15 hours with 1 cfm per bushel, 30 hours with 0.5 cfm per bushel and 150 hours with an airflow rate of 0.1 cfm per bushel.) Check grain temperature at several locations to determine when the cooling front has been pushed completely through the grain.

When using aeration, avoid dropping grain temperature to below-freezing levels. If this occurs, rewarm the grain as soon as air temperatures are back into the 30s. A frost dam can develop if you wait until spring to try and push through a warming front using warm, moist, springtime air.

Finally, when not running the aeration system, remember to close roof hatches to prevent rain and snow from getting into the bin. Also cover the fan opening whenever it's not running to prevent problems caused by drawing in moist air at the bottom of the bin and up through the grain.

Tom Dorn, Extension Educator,
Lancaster County

Ag briefs

Doug Anderson, Extension Educator based in Fillmore, Nuckolls, and Thayer counties: Overall it's been a good year, not great, but good. Dryland corn had average yields, and irrigated fields had slightly less than normal. Cool temperatures in late July and August were a factor. Milo was harvested with few problems except for dry down in some areas. Dryland soybean yields were good but could have been great if we had received a couple inches of rain in August. Most fall field work is done.