

## Farmland Leasing Workshop, Feb. 11

University of Nebraska–Lincoln Extension in Lancaster County is presenting a free Farmland Leasing Workshop on Wednesday, Feb. 11, 8:30 a.m.–Noon at the Lancaster Extension Education Center, 444 Cherrycreek Road, Lincoln.

### Topics:

- “The Status of Land Values for 2009,” Dr. Bruce Johnson, UNL Professor of Ag Economics
  - “Developing a Fair Lease Arrangement,” Dr. Bruce Johnson, UNL Professor of Ag Economics
  - “Determining and Sharing Irrigation Costs,” Tom Dorn, UNL Extension Educator
  - “Lease Arrangements, Things to Think About,” Rick Damkroger, Harding & Shultz Law
  - “Leases and Risks, a Lender’s Point of View,” Jim O’Hara, Horizon Bank
- For more information, call 441-7180.

One word could describe the nature of farming the past couple of years—volatile. Prices for all commodities increased dramatically in 2007 and the first half of 2008 before taking a plunge. Cash rental prices for crop land followed the run up in grain price, though some would say changes in rental rates tend to lag behind changes in commodity price.

Rent is only one component of the cost borne by the tenant. The

cost for all inputs for crop production followed a similar upward trend as the price of grain. The price for most fertilizers more than tripled over the two years. Seed, herbicides, fuel and farm equipment also increased in price though not quite at the same pace as fertilizer. Higher rent and input costs increased risk exposure for the tenant but the high grain price held promise for unprecedented profit, despite the added expense. Rental rates tenants were willing to pay reflected this optimistic climate.

Of course, landowners were aware of the rapidly rising grain prices. Naturally landowners wanted to participate in the bounty, especially should commodity prices continue to climb.

As a result, a new generation of cash leases, known as flexible cash leases was negotiated between some landowners and tenants. The basic principles of flexible leases are simple. Rental price is based on gross revenue. In one variation of a flexible lease, the rental price will flex on commodity price and the assumed yield is held constant. In the other variation, the rental price will flex based on actual commodity price and actual yield. A partial payment is usually paid in the spring. The fall payment will depend on the grain price multiplied by either the assumed yield or actual yield. Of course, this synopsis ignores many of the details such as how the selling price is determined and other provisions.

—Tom Dorn, UNL Extension Educator

## Soil Fertility and Phosphorus

Tom Dorn  
UNL Extension Educator

The extension office receives several calls each spring asking about proper phosphorus fertilizer application timing and methods. Many times, questions stem from a misunderstanding of the differences in how phosphorus and nitrogen react in the soil and how each are measured by a soil test.

Although nitrogen can be applied in various forms initially, eventually all organic and inorganic nitrogen is converted to nitrate in the soil. Nitrate is not attracted to clay or other anion particles in the soil and therefore remains in the soil solution (soil water) where it can be utilized by plants. Post growing season tests for nitrate nitrogen (NO<sub>3</sub>-N) in the soil test are measuring essentially all of the carryover nitrogen in the soil.

Phosphorus fertilizer, on the other hand, is completely water soluble (completely plant available) when manufactured, but it does not remain this way very long after it is applied to the soil. The process whereby available phosphorus is converted from available to unavailable forms is called “phosphorus fixation.”

Nebraska soils are generally well supplied with phosphorus but only a small fraction of the total phosphorus is available for plant uptake at any one time. Total phosphorus contents average about 4,700 pounds of P<sub>2</sub>O<sub>5</sub> per acre for each foot of soil. Most Nebraska soils contain about 28,000 pounds of total phosphorus as P<sub>2</sub>O<sub>5</sub> in the top six feet of soil. If our crops could use all of this phosphorus, we would have a 500 year supply for growing 150 bushels of corn per acre per year.

Even with many tons of total phosphorus present in the root zone, available phosphorus may be insufficient for maximum crop yields. By testing the soil, our goal is to determine the amount of *available* phosphorus

already present in the soil and decide how much additional phosphorus fertilizer is needed to maximize economic crop returns.

Soil tests which measure available phosphorus are based on lab tests which use chemical processes to extract phosphorus from the soil sample. The result of these extraction techniques are reported as a concentration of *available* P<sub>2</sub>O<sub>5</sub>. The amount is expressed in parts per million (ppm) or milligrams per kilogram (mg/kg). These two measures are equivalent. A few labs will express available phosphorus as pounds per acre. Most topsoil samples are collected from the top six to eight inches of soil. The mass of an acre of topsoil about seven inches deep is approximately two million pounds. Dividing pounds per acre by two converts pounds per acre readings to ppm or mg/kg.

Soil testing labs use several different chemical tests to extract phosphorus. The proper test for a given soil sample depends on the chemical properties of the soil, especially the amount of free lime and soil reaction (pH). In all cases, the tests themselves would have no value unless they were associated with field studies by soil scientists who correlate lab test data with yield response to phosphorus fertilization.

Soil test labs categorize the levels of the various nutrients on a relative scale.

Very low and low ratings indicate, based on field correlation studies, you should expect a yield response to an application of that nutrient a high percentage of the time, providing the other essential nutrients are adequate for optimum yield. Most soil test labs will recommend application of sufficient amounts of phosphorus to replace the amount extracted by the crop, based on the yield goal, plus an extra amount to slowly build the soil test level when the test results are rated low or very low.

Medium ratings indicate a yield increase would be expected part of the time. The amount of

the nutrient recommended by soil test labs varies depending on the philosophy of the lab. Some labs recommend based on replace and build philosophy, others recommend only the amount shown to result in a significant yield response in widespread field correlation studies.

High ratings indicate the nutrient is present in the soil in sufficient amounts so you would expect a yield increase from additional fertilization only rarely.

Readings rated very high indicate the nutrient is not expected to be a limiting factor.

For annual crops, such as wheat, corn, milo or soybeans; the most efficient way to apply phosphorus is to apply it in a band at the time of planting. An alternative in tilled soil, is a broadcast application before planting when it can be incorporated into the soil. Generally, band applications of phosphorus fertilizers require only one-half the rate of phosphorus per acre to achieve the same yield results as broadcast and incorporated applications because the more concentrated band is not converted to unavailable forms (fixed) as quickly.

Top dressing phosphorus can be effective for perennial crops such as alfalfa and forage grasses. These crops have very vigorous crowns from which many fine roots originate, thus phosphorus uptake can occur from the upper portion of the soil profile. Make applications in early spring when crown growth is most active and soil surfaces tend to be moist.

On new alfalfa plantings, if the soil pH is neutral (pH 6.0 to 7.0), a common practice is to apply triple the annual rate of phosphorus fertilizer and incorporate it into the soil prior to seeding. This should be effective for three to four years for alfalfa growth. For high lime soils, with high rates of phosphorus fixation, annual or every-other-year topdress applications are suggested for alfalfa.

## Private Pesticide Applicator Certification Opportunities

Federal and state law states a private pesticide applicator must be certified and licensed to buy, use, or supervise the use of a Restricted-Use Pesticide (RUP) to produce an agricultural commodity on property they own or rent—or—on an employer’s property if the applicator is an employee of the farmer. No pesticide license is needed if the applicator will only be applying General Use Pesticides (GUPs) or if you hire a commercial applicator to apply RUPs to your property.

If you do not have a current private pesticide certification and you plan to buy or apply any RUP products, you will need to receive the same certification training as described below for people who need to be recertified.

All training sessions meet the requirements for both initial certification or recertification as private pesticide applicators.

If your private applicator certification expires in 2009, you will receive (or have already received) a notification letter from the Nebraska Department of Agriculture (NDA). Be sure to keep the letter from NDA and bring it with you to the training session you choose or when you pick up home study materials. The NDA letter contains a bar-code form which tells NDA what they need to know about you.

Regardless of the certification method chosen, all applicants will receive an invoice from the NDA for the \$25 license fee. Note: we cannot collect the license fee at

the extension office. The certification and license is good for three years, expiring on April 15, 2012 for those who certify this spring. You should receive your new license within three weeks.

Starting in 2009, private pesticide applicators will have four alternative methods to obtain either recertification or initial certification. One of the methods—certify at a Crop Production Clinic—is no longer an option since the Crop Production Clinics were held in January.

### Traditional Training Sessions

Three private pesticide applicator training sessions have been scheduled in 2009 at the Lancaster Extension Education Center, 444 Cherrycreek Road in Lincoln.

The dates and times are:

- Thursday, Jan. 29 from 8:30–11:30 a.m., repeated 6:30–9:30 p.m.
- Saturday, Feb. 7 from 8:30–11:30 a.m.

A \$30 extension training fee will be collected at the training session (make checks out to Lancaster County Extension).

### Self-Study Option

The second option is to pick up the self study book and associated materials at the extension office. You are expected to read the chapters, then you must answer the written test questions in the back of the book. When you bring the book back to the office, the test will be graded by our staff while you wait (usually about five minutes). You will have an opportunity

to see the test results and see the correct answers to any questions you have answered incorrectly.

The \$60 training fee for this method of obtaining certification will be collected when the home study book is picked up.

### Testing Option

The third option is to take a written (closed-book) examination given by the NDA. You must call ahead for an appointment with NDA at 471-2394. There is no training fee if you choose this option. You will need to pay the \$25 license fee. You should receive your new license within two weeks after you receive a passing grade on your written test.