



Farm Views

Warm Winter Improves Corn Flea Beetle Survival

Caution Urged When Using Anhydrous Ammonia

Anhydrous ammonia is so familiar, it's easy for agricultural producers to take it for granted, but anhydrous ammonia should always be handled with utmost caution.

Anhydrous means "without water." Anhydrous ammonia NH_3 is a gas at normal atmospheric pressures but is pressurized to a liquid for more efficient transport. Anhydrous ammonia has a tremendous affinity for water and will draw water out of any substance it comes in contact with. When depressurized, the anhydrous flashes into a gas. When gaseous anhydrous is injected into the soil, it immediately combines with water that is present in the injection zone and becomes ammonium NH_4^+ which, because of its positive electrical charge, is held on the negatively charged clay and organic matter particles in the soil.

It is the tremendous affinity for water that makes anhydrous dangerous to handle. Just as anhydrous ammonia draws water out of the soil, it will also draw water out of human tissue. Skin and eyes exposed to anhydrous ammonia will appear to be burned due to the extreme drying effect resulting from

anhydrous drawing the water out of the cells. While skin will heal, anhydrous in the eyes can quickly cause blindness. Fumes breathed into the lungs can burn tissue and may result in suffocation. But, handled with caution, anhydrous ammonia is an effective and inexpensive plant nutrient, which makes it the most popular nitrogen source used in agriculture.

As expected, anhydrous safety involves careful handling of hoses and equipment to prevent unwanted escape into the air. Handlers must also prevent any accidental contact by wearing protective clothing and equipment. Always work upwind of machinery, hoses, valves, couplers and applicator tubes. Don't step in front of fittings or valves. Wear insulated gloves made especially for protection against anhydrous ammonia. Protect eyes with non-vented goggles and wear a respirator equipped with filters made specifically for protection against anhydrous ammonia fumes when connecting or disconnecting hoses or filling anhydrous tanks.

see ANHYDROUS AMMONIA on page 11

Entomologists have developed a simple means to estimate the overwintering survival of corn flea beetles. They simply add the average temperatures for December, January and February. Areas where the sum of the average temperatures is above 98° F may see high winter survival of the corn flea beetle while areas from 80° F to 98° F are expected to see normal survival.

Corn flea beetle feeding causes direct damage, but perhaps more importantly, the beetle is a vector of Stewart's Wilt. Due to the mild winter weather, corn flea beetle survival is expected to be average or above average this year.

A map, developed by Al Dutcher, state meteorologist, High Plains Climate Center, shows Lancaster County having temperatures totaling 88° F to 94° F over the three months and Gage County showing totals of 94° F to 98° F. Although conditions in parts of southern Nebraska were favorable for overwinter survival of flea beetles, it does not necessarily mean flea beetle numbers will be high, since flea beetle numbers were generally not at economic treatment levels in many areas of Nebraska in 2001.

Corn flea beetles overwinter as adults in protected areas near



Corn flea beetles feed by feeding by scraping the epidermis of the leaf.

Scout for corn flea beetles on seedling corn. Treatment may be warranted on dent corn if 50 percent of plants show severe flea beetle injury (plants look silvery or whitish, or leaves begin to die), and five or more flea beetles per plant are found. If susceptible in-breds or hybrids are grown, an insecticide may be needed when two to three flea beetles per

plant are present and 10 percent of the plants show severe flea beetle injury.

- A variety of foliar insecticides are effective in controlling flea beetles (Lorsban 4E, 2-3 pints per acre; Sevin XLR Plus, 1-2 quarts per acre, Asana XL, 5.8-9.6 fluid ounce per 1000 row-foot; Lannate LV 0.75-1.5 pints per acre; Pounce 3.2 EC 4-8 fluid ounce per acre; Warrior T 2.56-3.84 fluid ounce per acre).

For more information on Stewart's Wilt, see Neb-Fact 01-473 *Stewart's Wilt of Corn*. This can be picked up at the extension office or can be accessed on the Web at:

www.ianr.unl.edu/pubs/plantdisease/nf473.htm. (TD)

Note: Mention of Trade Names is for clarity and should not be considered an endorsement by the University or Lancaster County Extension. Source: Bob Wright, Extension Entomologist, South Central REC.

corn fields. They become active in April and feed on a variety of grasses before corn emerges. Corn flea beetles can directly injure corn by feeding on seedling plants; however, probably more importantly, they vector the bacterium which causes Stewart's Wilt.

To minimize damage caused by flea beetle feeding:

- Avoid hybrids or in-breds known to be more susceptible to Stewart's Wilt (see seed catalog or local seed company representative).
- Avoid early planting dates if susceptible in-breds or hybrids are planted.
- Seed treatments containing imidacloprid (Gaucho™, Gaucho Extra™ and Pre-scribe™) are systemic and provide some protection from feeding by flea beetles and other early season soil insects.

Are We Headed for Another Dry Year?

As this article is written, nearly all of the western plains and all of the Rocky Mountains and inter-mountain area of the U.S. has been designated by the Drought Mitigation Center as being in various stages of drought.

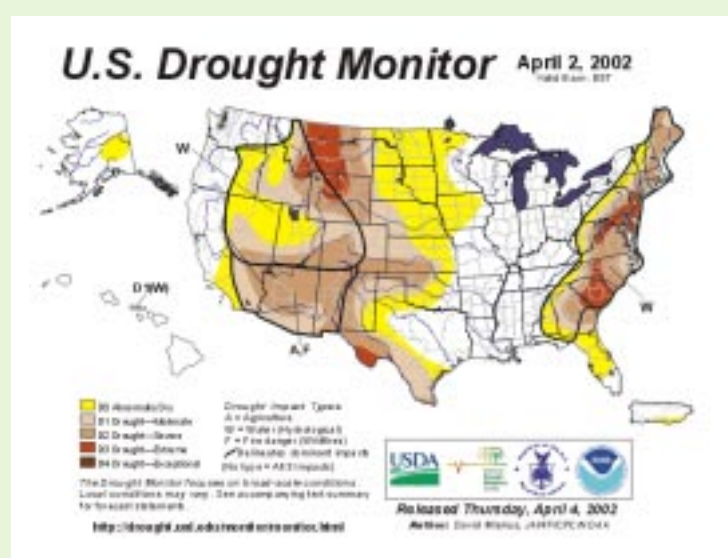
The most recent Drought Severity map is reproduced at right.

Eastern Nebraska was downgraded from normal to abnormally dry on April 4. Western Nebraska has been designated as having moderate drought conditions for some time now. Snow pack is much below normal in much of the Rockies. This will impact the runoff flow in the Colorado and Platte river systems.

For comparison, Lancaster county was designated as having a moderate drought throughout the spring of 2000.

What Changes Should Farmers Make in a Dry Year?

The obvious change is to conserve moisture as much as possible. Each tillage pass results in the loss of at least an inch of moisture from the upper soil profile. Reducing or eliminating tillage can make a huge yield difference when



moisture is lacking. Another benefit to reduced tillage is the mulching effect of crop residues that remain on the soil surface. Weeds compete with crops for moisture. Obtain weed control early using shallow tillage or burn-down herbicides and keep crops as weed-free as possible.

With below-normal soil moisture prevalent in much of Nebraska, producers may consider changing how they use fertilizer this spring. Dry soil influences how fertilizer can be applied and what happens to it after application.

Application Rates

Producers should carefully consider application rates this

spring, particularly for nitrogen, which is usually based on expected yield. With low subsoil moisture in much of the state, the yield potential for dryland crops will be reduced compared to recent years. Farmers should be realistic when setting yield expectations, and consider fertilizing for lower yields than last year on dryland fields.

Anhydrous Ammonia

The primary concern with anhydrous ammonia application into dry soil is retention of the fertilizer. Silt

see DRY YEAR on page 11

Security Concerns for Pesticides or Fertilizers

Recent terrorist events have created the need for people handling pesticides and fertilizers to re-evaluate the security of those materials. There are a number of concerns about poisonous or explosive materials ending up in the wrong hands.

Consider the following:

- How easy do you make it for an unauthorized person to gain access to pesticides and fertilizer? Can your vehicles or buildings be entered during times when employees are not present? Are locks and doors secure enough to deter a casual thief?
- If you are a pesticide dealer, how easy is it for an unfamiliar person to buy pesticides or fertilizer from your sales staff? Do all of your employees who sell pesticides or fertilizers know all of your customers and/or the people designated to pick up these products? Does your staff ask for identification of unfamiliar customers? Does your staff ask where these products will be used?
- Do you or your staff know what a "sentinel event" is? A sentinel event is a situation or specific occurrence that may indicate someone is testing their plans or your security. Sentinel events could be obvious or unnoticeable. Sentinel events could be things

such as unsuccessful forced entry marks on locks or doors, unusual or curious tire marks near pesticide or fertilizer storage facilities, dead animals found in unexpected areas (not road kill), unexplained spills or stains in or near pesticide or fertilizer storage areas, unexpected discovery of tools stolen or left in storage areas or unusual telephone calls requesting the availability of fertilizer or pesticides.

The Nebraska Department of Agriculture and University of Nebraska Cooperative Extension wants the public to avoid developing unneeded paranoia about their security, however, we feel it is prudent to raise your awareness of the issues impacting all of us in today's world. If you would like further information on security issues or sentinel events, call Tim Creger or Rich Reiman at the NDA 471-2394. Information may also be found on the NDA Web site at: www.agr.state.ne.us/division/bpi/pes/security.htm. A link to this information and other information has been added to the Crops/Pesticides page of the Lancaster County Web site (lanaster.unl.edu/ag/crops/pesticid.htm). (TD)

Source: Tim Creger, Nebraska Department of Agriculture, Pesticide Program Manager