South Dakota Department of Agriculture

South Dakota

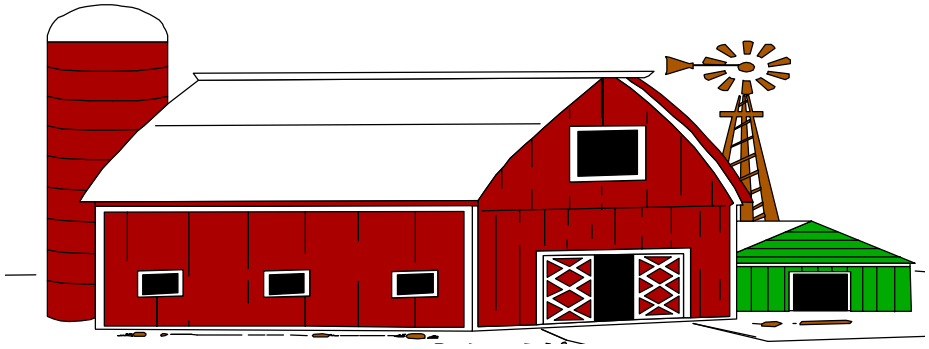
Pesticide Applicator Update

COOPERATIVE EXTENSION SERVICE SDSU

Issue 16 Summer 1997

Reduce Your Health Risks

A study by the University of Iowa indicates women farmers may be more likely to experience infertility and other related health problems. The study, conducted in 1995, considered 216 women who had recently given birth at area hospitals and 281 women treated at the university's infertility clinic. The study, although limited in number and scope, showed that those who worked in farm-related occupations were from 2 to 20 times as likely to experience infertility type problems.



All persons working in agriculture need to reduce their exposure to many risks. When working with pesticides and other farm chemicals, simply wearing gloves and foot protection can significantly reduce potential contamination. Researchers reviewed other occupations but found that those related to farming significantly affected reproduction.

Anecdotal information from South Dakota Poison Control Center Reports show that children may be exposed to pesticides during some of their on-farm activities.

Exposure Happens...Family members are unknowingly exposed to pesticides.

A number of exposures have occurred specifically where young children have contacted pesticide active ingredients from the surface of insecticide ear tags being placed on livestock. A quick swipe of the face or other location transfers the pesticide to that part of the body. Unknowingly, parents have allowed their children to assist in the tagging operations without providing them with appropriate protection.

Simply wearing gloves can go a long way in reducing exposure. However, wiping bare skin with a gloved hand will also transfer the product. SO WHAT CAN WE DO??? Train your helpers! Explain what they are dealing with and the simple steps they can take to reduce or eliminate their exposure. Remember, SAFETY, SAFETY, SAFETY.

Nitrate, Sulfate and Selenium in Water Supplies

Greater than normal precipitation has created a unique hazard in isolated portions of western South Dakota. Water flowing from saline seeps has been found to carry high concentrations of naturally occurring nitrate, sulfate, and selenium.

In a cooperative effort undertaken by the South Dakota Department of Agriculture, the South Dakota Department of Environment and Natural Resources, and the Upper Bad River Project, waters which potentially could be used for a domestic water supply or to water livestock have been found to contain dangerously high levels of nitrate, sulfate, and selenium.

Water originating from seeps can run off into small streams and impoundments where livestock are watered or affect a domestic water supply.

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Unusable Pesticide Registration Underway

Pre-registration for the 1997 Unusable Pesticide collection is underway and will run through September 15. Collections are scheduled for 7 sites with more to be added if needed. The collection sites will be in Rapid City, Pierre, Mitchell, Sioux Falls, Brookings, Watertown and Aberdeen. Collections will be held in early October. The actual dates and location will be released through letters sent out to those who pre-register for the program.

This program is intended to dispose of products that are no longer usable for one of the following reasons:
-Labeled uses have been canceled or suspended (i.e. DDT, Chlordane, Toxaphene, etc.);
-The product is no longer in a usable condition (i.e. dry products that have caked or liquid products that have separated or settled and cannot be remixed);
-The product is unidentifiable and the label is missing, so proper use is impossible;
-Containers are in poor condition (i.e. rusty can with pinholes, paper bag that is falling apart);
-Products that have been in or exposed to flood waters.

This free program has removed over 50 tons of pesticide since 1993.

The program is not meant to be used as an instrument for cleaning out the back log of unused products (products that are still labeled for use, in good condition) that may be setting on a shelf in the back of the storage area. These products need to be used for their intended purpose, according to label instructions, and should be used before more of the same products are purchased. All of the products that are pre-registered will be evaluated and determined if they are eligible for the program and the registrants will be notified by mail.

This program is provided at no cost to those who register, and has successfully removed more than 50 tons of unusable pesticide products from the state since 1993. Pre-registration forms are available from County Extension Offices or from the South Dakota Department of Agriculture by calling 1-800-228-5254.

Farmer RUP Records:
Why Am I Being Inspected?

Private and commercial pesticide applicators who apply restricted use pesticides are affected by USDA's Restricted Use Pesticide (RUP) Record keeping requirement which took effect in May of 1993 and requires private applicators to keep and maintain records of all applications of RUP's.

Some commonly used RUP's include the herbicides: Atrazine, Bicep, Tordon, Bladex, Hoelon, Scout, Gramoxone, Lasso, Buctril, Bronate, Marksman and many more, as well as the insecticides: Counter, Ambush, Thimet, Parathion, Asana, Furadan, Pounce, Dyfonate, Phorate, Dimilin, and many others. Private applicators must record the use of any RUP's they apply within 14 days of application and keep the records for two years. Commercial applicators are already required to keep records of all their applications, but now must provide the producer with the required information with in 30 days of the application.

One hundred eighty eight (188) randomly selected private applicators are being visited in South Dakota by state inspectors to determine the level of compliance with the federal law. These applicators were selected from the database of 21,000 certified private applicators statewide. Inspection reports are given to the USDA but do not contain the applicators' name, this remains confidential. The record audits are designed to proceed quickly, with **most of the visits lasting less than 30 minutes.**

To date, 72 visits have been made in the state with roughly 75% indicating that they did not apply any restricted use pesticides in the last year. Many of the RUP applications are being done by commercial applicators. Of the 25% of the farmers that had applied RUP's, half of the applicators' records were in compliance, with the other half of the applicators' records in varying degrees of non-compliance. The non-compliance records ranged from no records at all to one record short of full compliance.

Who can review the records?
Only the USDA or the designated State or Tribal Lead agency. An attending certified/licensed health care professional can also review your records when treating individuals who may have been exposed to RUP's.

Example record forms are available from your local Extension office. Extension Extra 8128 - Restricted use Pesticide Record Keeping, provides an overview of the regulation as well as a listing of RUP's labeled for use in the state. This and additional information is available from your local extension office or on the Internet at <http://www.abs.sdstate.edu/plantsci/ext/plantsci.htm>

(Continued from page #1) *Nitrate, Sulfate and Selenium in water Supplies*

EPA has set a maximum contaminant level (MCL) for public drinking water of 10 parts per million (ppm) nitrate as nitrogen. In livestock and humans, nitrate reduces the ability of blood to carry oxygen. Acute effects of nitrate in humans are generally found among infants but can affect older children and adults at higher levels. Effective ways to remove nitrate from drinking water are reverse osmosis or distillation.

According to the SDSU Agricultural Experiment Station, water that is below 100 ppm nitrate as nitrogen does not pose a threat to livestock. Water that is between 100 - 300 ppm nitrate as nitrogen by itself will not harm livestock but could pose a threat if consumed in combination with feed high in nitrate. Water that is above 300 ppm nitrate as nitrogen could cause nitrate poisoning and should be avoided.

Livestock affected by nitrate display symptoms including rapid pulse rate, quickened respiration followed by labored breathing, trembling and weakness of muscles and a staggering gait. Death is caused by asphyxiation with little struggle. Field observations of livestock have shown chronic effects of nitrate poisoning such as abortion of offspring, poor growth and feed efficiency, decreased milk production, and infertility.

Selenium (Se) is an element that naturally occurs in the soil at generally low levels. In agriculture, it is used as an animal feed additive in geographic areas of low concentration. Although selenium is an essential nutrient for humans and animals, exposure to high levels of selenium can result in adverse health effects. Health effects in humans include a loss of feeling and control in the arms and legs, loss of fingernails and hair, irritation of eyes and mucous membranes, sneezing, coughing, dizziness, dermatitis, headaches, nausea and garlic breath odor.

The drinking water standard for Se is 50 parts per billion (ppb). Water with levels greater than this amount should not be used for drinking. Effective ways to remove selenium from drinking water are by reverse osmosis or distillation. Chlorinating or boiling will **not** reduce levels of selenium in drinking water.

Selenium toxicity in livestock can be caused by high levels of selenium intake derived from water or forage or a combination of both. Alkali disease is a term that describes selenium poisoning which results in loss of long hairs, apparent roughness of the coat, interruption of the growth of the horns or hoofs, and signs of tenderness of the feet. Livestock that are affected by alkali disease will often graze on their knees due to the soreness of the fore-feet. Death resulting from selenium poisoning is caused by respiratory failure.

Certain native plants indicate the presence of high levels of selenium in soil. Plants of this type found in South Dakota include Two-grooved poisonvetch, Racemed poisonvetch, and Prince's Plume. These plants can contain lethal levels of selenium and can be an indicator that high levels of selenium are present.

Saline seeps can also be a source of ***sulfate*** in water. Water high in sulfate can affect livestock causing stress such as diarrhea and decreased water and feed intake, leading to reduced productivity. Historically in South Dakota, consumption of high levels of sulfate has increased the occurrence of polioencephalomalacia (polio unrelated to human polio) in cattle. Research has shown that water high in sulfate can contribute to polio when consumed in conjunction with low dietary copper.

The Departments of Agriculture and Environment and Natural Resources, as well as the Cooperative Extension Service, are making information available to anyone who requests it. If you suspect you have a problem, please call the following to obtain more information:

Drinking Water Supplies:

SDSU Water Quality Laboratory	(605) 688-4211
Local Cooperative Extension Agent	
Local Community Health Nurse	
Departments of:	
Environment and Natural Resources	1-800-438-3367
Health Laboratory	1-800-738-2301

Livestock Feed and Water Supplies:

Department of Agriculture	1-800-228-5254
SDSU Station Biochemistry	(605) 688-6171
SDSU Animal Disease Research and Diagnostic Laboratory	(605) 688-5171
Local Cooperative Extension Agent	
Local Veterinarian	

Four More Counties Block Cleared

Four additional counties have been block cleared for prairie dog control. These counties include: Jerauld, Lyman, Hyde and Tripp (except northwest Tripp County - north of Highway 44 and west of Highway 183, which is not block cleared). Block cleared areas do not include tribal and federal lands in South Dakota unless specifically mentioned.

Labels for gas cartridges and aluminum phosphide products require anyone planning to use these products for the control of prairie dogs in South Dakota to first contact the U.S. Fish and Wildlife Service (USFWS) to determine if black-footed ferret surveys are required. Exceptions to this requirement are those areas which have been "BLOCK CLEARED."

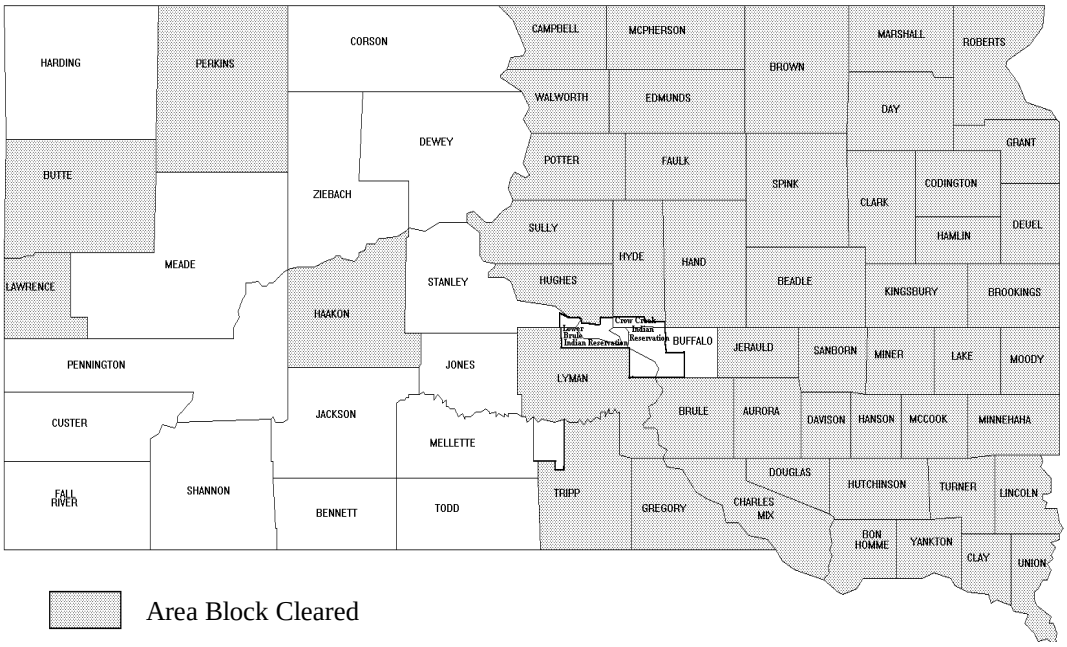
Block cleared areas have been declared "ferret free" or unlikely to support black-footed ferrets. Anyone planning to control prairie dogs using gas cartridges or aluminum phosphide products in a block cleared area is not required to contact the USFWS prior to control efforts.

The black-footed ferret is an endangered species and is protected under the Endangered Species Act. Block clearance is specific to black-footed ferrets and does not relax the pesticide labeling protection requirements for other endangered and threatened species or liability under other laws. It also does not release the applicator from other label requirements. While black-footed ferrets are presumed not to occur in the block cleared areas and contacting the USFWS is not required, it is the applicator's responsibility to ensure no black-footed ferrets or other wildlife are present before using these products to control prairie dogs.

The South Dakota Department of Agriculture has been pursuing the block clearance of all South Dakota counties to relax the need for conducting black-footed ferret surveys in areas where it has been determined there is no potential for black-footed ferret occurrence. Since 1993, 50 of the 66 South Dakota counties have been block cleared. We will continue block clearance efforts until all counties have been evaluated for their potential to be block cleared.

The Department has been aided in its block clearance efforts by County Weed and Pest Supervisors, County Extension Agents, the U.S. Forest Service, the USFWS, the South Dakota Department of Game, Fish & Parks, USDA APHIS/Animal Damage Control and private citizens.

For more information, call the SD Department of Ag., Endangered Species Program at 1-800-228-5254.



Steps To Protect Honey Bees From Insecticides

Pesticides are important tools in the management of pests in crop production. However, many pesticides are highly toxic to honey bees, other beneficial insects and wildlife. One of the keys to reducing bee kills is communication between the farmer, the beekeeper, and the applicator. To protect hives, a beekeeper requires prior notification of a pesticide application so he can take measures to protect his colonies. Any beekeeper within a 2-3 mile radius of a treatment area should be notified since honey bees may forage that far from their hive.

During daylight, bees usually will forage from the hive when temperatures are above 55-60 ºF. Foraging does not occur at night, but honey bees may continue to forage until late evening if conditions warrant. Bee visitation in a given crop depends on the abundance and attractiveness of the bloom. Don't spray a crop in bloom unless it is absolutely necessary. If it is necessary to spray a crop in bloom, do the spraying when there is minimal bee activity preferably during the late evening (after 8:00p.m.) and early morning (before 8:00 a.m.).

Bee kills may be reduced by controlling blooming weeds in or near the treatment area. Pesticide drift to neighboring fields that are attractive to honey bees may also cause losses.

When using pesticides hazardous to honey bees, notify beekeepers so they may protect their colonies. If an applicator is unsure where beehives are located, they can call the state apiary inspector, South Dakota Department of Agriculture in Pierre. Phone: (605) 773-3796.

Precautions For Beekeepers :

1. Record locations, let grower and commercial applicators know the location of the bee yard.
2. Select the safest locations to avoid direct spraying or drift.
3. Post your identity, address and telephone number in each apiary so growers and/or applicators can notify you of impending spray applications.
4. Cooperate with the grower and pesticide applicators in the area.

Precautions For Applicators Using Insecticides

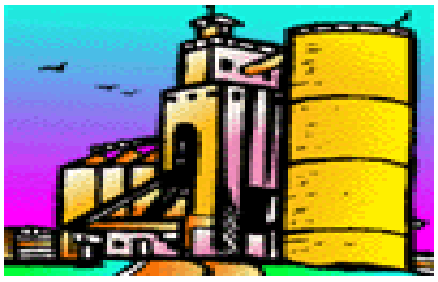
1. Be sure treatments are justified or needed on each field. Survey pest populations to avoid unnecessary pesticide use.
2. If spraying is necessary, time treatments to minimize hazard to beneficial insects (such as late evening hours or early morning hours, prior to bloom, etc.).
3. Avoid drift or direct spraying of apiary sites.
4. Whenever possible, select pesticides that have relatively low hazard to bees. Choose the least hazardous pesticide formulations or tank mixes.
5. Determine if bees are foraging in target area so protective measures can be taken.
6. Become familiar with bee foraging behavior and types of pesticide applications that are hazardous to bees.
7. Recognize that beekeepers cannot always move their colonies prior to spray applications. Learn about the beekeeper's pesticide poisoning problems.
8. Communicate and cooperate with beekeepers. If spraying is necessary, provide sufficient notice so the beekeepers can take precautions to avoid losses.

Tank Changes In Bulk Pesticide and Fertilizer Storage Facilities

Reminder to Operators

South Dakota state regulations require that the Department of Agriculture be notified of any alterations to existing Bulk Pesticide and Fertilizer Storage Facilities prior to the alterations being made. Any changes in the tanks in the secondary containment are considered alterations. The Department requests the following information for any alterations in the tanks in the facility.

1) Capacity in gallons
2) Dimensions of tank (Diameter and height)
3) Cone bottom or Flat Bottom
4) If Cone Bottom: Distance from floor to bottom of cone and from floor to top of cone.
5) Construction material (stainless steel, poly, mild steel, etc.)



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30,000 copies were printed by the Department at a cost of $.10 each.

DEPARTMENT OF AGRICULTURE
Division of Agricultural Services
Foss Building, 523 East Capitol
Pierre, South Dakota 57501-3188

Bulk Rate
U.S. Postage
PAID
Permit # 1209
Sioux Falls, SD

Enforcement Case Update

Northeast SD- A commercial applicator paid a $550 civil penalty for drift from an application of Roundup and 2,4-D made to a field that surrounded a homesite that damaged trees at the homesite..
- A commercial applicator paid a $440 civil penalty for drift from an application of Roundup and 2,4-D made to a field adjacent to a rural housing development that damaged trees and other desirable vegetation at several homesites.
- A commercial applicator paid a $330 civil penalty for drift from an application of Tordon and 2,4-D to road ditches which damaged trees at an adjacent farm site.

South Central SD- A commercial applicator paid a $385 civil penalty for making an application of Princep to a shelterbelt that had green ash trees. The Princep label lists the species of trees on which it can be used and the label did not include green ash. The manufacturer has subsequently revised it's label to include additional species.

Southeast SD- A certified private applicator paid a $480 civil penalty for a second violation, drift of Roundup and 2,4-D had damaged corn in an adjacent field.

North central SD- A commercial applicator paid a $300 civil penalty for drift from an application of Roundup and 2,4-D which damaged trees in a nearby homesite and wheat in an adjacent field.
- A commercial aerial applicator paid a $330 civil penalty for drift of Accent and Banvel from a field of corn that damaged trees in an adjacent shelterbelt. The Banvel label indicates to not spray when wind is blowing in excess of 5 miles per hour and moving in the direction of adjacent sensitive crops.
- A licensed pesticide dealer paid a $350 civil penalty for making a recommendation inconsistent with labeling. While making a purchase of Roundup and 2,4-D ester for burn down of an alfalfa field, an applicator was told that he could replant the field to alfalfa after 7 days following the application (the 2,4-D ester label requires 3 months wait). The farmer replanted the field to alfalfa 19 days after the application and it did not grow.
- A commercial applicator paid a $300 civil penalty for an application of 2,4-D to a field of millet that caused drift damage to adjacent trees and garden plants at a homesite. The wind was blowing from the target site towards the homesite at the time of the application.
- A commercial applicator agreed to pay a $300 civil penalty for an application of a tank mix of Accent, Buctril, Clarity and Quest on corn that was about two feet tall. The Clarity label has a statement that when mixed with Accent, apply before the corn exceeds 12 inches in height.