ANNOUNCEMENT

- Soybean pest management strategic plan workshop
- Current blue mold status
- Summer black stem and leaf spot of alfalfa
- Grape diseases still need management
- Stable flies
- Spider wars
- Almost time to store corn

TOBACCO

CURRENT BLUE MOLD STATUS
by William Nesmith

The potential for significant blue mold development
continues in the Ohio River Valley, especially in lush tobacco growing in cooler areas of the burley belt. The cloudy, cool, wet weather last week was highly conducive to inoculum production and new infections, especially in the northern and eastern regions. In the last four days, inoculum load has increased dramatically in some fields and that inoculum was moving on Monday morning (July 28) ahead of the storm systems. Most of the crop remains susceptible because it is growing fast with a thin-bodied leaf with little gum. The disease is not just occurring as the classic leaf spots. Instead, we have seen some examples of severe black shank suddenly developing in plantings that have systemic blue mold occurring in the ground suckers. Systemic development of blue mold in the leaf is very common in some fields, resulting in a general yellowing of the leaf. Also, blue mold infected leaves are rapidly being colonized by bacterial soft rots, Cercospora, Rhizoctonia, and Alternaria which can quickly trash the leaf.

I urge the industry to appreciate that much more blue mold is probably under development than is being reported. Most do not report blue mold until the lesions are necrotic to bright yellow and the spore load has already been released! Moreover, most fields are not being scouted between last cultivation and topping - so growers find the activity while topping the crop. Even then, unless an informed crew is topping the crop, the disease is often ignored.

All growers need to appreciate that factors other than weather and plant susceptibility are also influencing this epidemic. The “buy-out mind-set” and “insurance farming” have reduced significantly the number of growers attempting blue mold controls. Consequently, community action to help reduce the blue mold potential is not occurring to the extent it has in the past. Therefore, growers desiring to control blue mold need to shift to a preventive spray schedule rather than timing sprays based on scouting. The inoculum load is now becoming sufficiently large in some areas that the first evidence of blue mold could be a 10-20% loss of leaf surface. Moreover, we are not receiving the level of feedback from the communities to know where all those strong centers are present.

To the best of our knowledge, status reports by region are as follows. These areas remain under a blue mold watch with the counties with confirmed activity under a warning, unless indicated other wise.

PURCHASE of far western Kentucky has not reported blue mold. A blue mold advisory remains in place.

PENNYRILE of southwestern Kentucky has low levels of confirmed blue mold in Christian, Muhlenberg, and Todd counties on burley tobacco.

GREEN RIVER AREA of northwestern Kentucky: Confirmed only from Daviess County as hot spots in fields, but growers from neighboring counties report finding scattered blue mold in fields being topped.

MAMMOTH CAVE AREA of southwestern/south-central Kentucky: Low levels of confirmed activity only from one community in Logan County.

LINCOLN TRAIL AREA of central and west-central Kentucky: Confirmed only from LaRue County with strong activity in a field of lush growing tobacco.

LAKE CUMBERLAND AREA of southern Kentucky: Confirmed activity in Casey, Pulaski, Taylor and Wayne counties with some of the activity being strong.

LOUISVILLE AREA: Strong activity present in some fields in Shelby and Trimble counties. NORTHERN KENTUCKY AREA: Confirmed only in Carroll County, but growers are reporting the disease from other counties.

FORT HARROD AREA of central Kentucky: Disease has been confirmed from Garrard, Lincoln, and Mercer counties, ranging from scattered lesions to strong activity in hot spots of some fields.

BLUEGRASS AREA of central Kentucky: Confirmed in Estill and Madison counties with activity ranging from scattered lesions to heavy activity. Several growers in other counties report that they have low levels of blue mold that is not concerning them.

LICKING RIVER AREA of north central Kentucky: This area has no confirmed cases, but is under a watch, too, because there is activity to the south, west and north. Folks, you have blue mold and may not know it!

NORTHEAST KENTUCKY AREA: This area has not confirmed activity but spores have been moving into the area for several days. You should be finding blue mold by mid-week.

QUICKSAND AREA of southeastern Kentucky: Most counties have not reported blue mold, but some that have, report very strong and damaging levels of blue mold. The disease has been confirmed in Breathitt, Owsley, and Perry and is probably developed widely in this region. Much of the crop has not grown well in this region, which has slowed blue mold buildup.

WOODS AREA of southeastern Kentucky: This area also has some counties with very strong activity, with confirmed cases from Knox and Jackson, but growers are reporting it is active in other counties. This area is situated due north of strong activity in east Tennessee and weather conditions have been favorable for infections for inoculum moving from there.

WESTERN WEST VIRGINIA: Blue mold has not been confirmed to our knowledge, but our sources indicate that transplants from east Tennessee ended up in the region. Thus, we have placed your region under an advisory.

SOUTHERN OHIO: Blue mold has been confirmed only from Adams, Brown, and Scioto counties.

SOUTHEASTERN INDIANA: Blue mold has been confirmed recently in Jefferson, Switzerland, Ripley, and Ohio counties of southeastern Indiana, but no reports have come from southern counties.

Eastern Tennessee, western North Carolina, and western Virginia also have active blue mold in burley tobacco that are impacting our region with spores.

In counties under a watch, reduce the plant’s susceptibility to blue mold by using Actigard 50W if the plants are large enough, otherwise, start sprays with Acrobat MZ if located with 25 miles of active blue mold. In counties under a warning, at least one spray of Acrobat MZ should be made to reduce inoculum even if Actigard will be used. In fields of young tobacco (prior to topping) with active blue mold,
use aggressive spray programs with Acrobat MZ to get the disease under control, plus activate the plant’s immune system with Actigard. In fields at the topping stage, Actigard may help improve resistance, but topping and including MH-type materials in the sucker control program are even more important.

Foliar fungicide sprays properly made prior to the outbreak or very early-on can greatly reduce the potential damage from blue mold. Use Acrobat MZ at 2.5 lbs /100 gallons of water, adjusting the concentration and volume of fungicide to the stage of growth, according to the label. Repeat the applications at weekly intervals. The systemic aspect of this fungicide makes it especially valuable in blue mold control early in the epidemic, because it greatly reduces systemic infections in the lower stem and midribs. It must be applied well and at close intervals when tobacco is growing rapidly to be effective. Appreciate that in a weeks time, a rapidly growing tobacco plant between layby and topping can increase its growth by 50%, meaning half of the foliage has not received fungicide even when you are spraying on weekly intervals!

Application guidelines for the fungicides labeled for blue mold control in the field in Kentucky can be found in Kentucky Pest News, issue number 983, April 28, 2003 or at the web address - http://www.uky.edu/Agriculture/kpn/kpn_03/pi030428.htm

FORAGE CROPS

SUMMER BLACK STEM AND LEAF SPOT OF ALFALFA
by Paul Vincelli

Summer black stem and leaf spot disease has been diagnosed on alfalfa samples from various parts of the state recently, in both UK Plant Diagnostic Laboratories. The disease causes leaf spots that have a light brown to silvery brown color, and may be surrounded by a diffuse yellow margin. Two or three spots can cause a leaflet to drop in a short time, which leads to significant loss of forage yield and especially quality. Leaf spots are most abundant on lower leaves. Infections on stems are a reddish brown to dark brown.

The fungus that causes this disease, Cercospora medicaginis, is spread by wind-blown spores, and it survives the winter in fallen leaf and stem residue in alfalfa fields. Thus, it is a very common disease, one that growers really cannot prevent from developing in their fields. It is favored by leaf wetness with temperatures in the mid-70’s to low 80’s EF, so recent cooler weather helps limit its spread. If weather permits, the disease often increases rapidly in the last week or so before harvest.

There are no alfalfa varieties with substantial levels of resistance. All producers can do is limit the impact that disease activity has on yield by taking regular cuttings. Allowing alfalfa growth to build up gives the disease a chance to also build up, resulting in defoliation and, therefore, loss of the highest-quality forage—the leaves. Cutting before much defoliation occurs captures that yield in the bale instead of letting it go to waste on the ground. Furthermore, the fallen leaves act as a source of spores for the next cutting or two, so cutting before much defoliation occurs help protect future cuttings by “keeping the field clean”.

FRUIT CROPS

GRAPE DISEASES STILL NEED MANAGEMENT
by John Hartman

Grape disease pressure is extremely high this year. Disease-favorable weather and poor disease management practices promoted infections early in the season which continue throughout the summer. Severe black rot, Phomopsis cane and leaf blight, anthracnose, and powdery mildew have been observed in the field and on specimens sent to the plant disease diagnostic laboratory. Black rot is perhaps the most common malady of grape leaves and fruits. Leaves are badly spotted and shriveled on the vines while fruits are completely rotted and mummified. Nevertheless, there are growers who paid attention to timely fungicide coverage who have abundant grapes to harvest.

For growers who have managed diseases well, the spray interval from now until harvest can generally be extended to 14 to 21 days (depending on rainfall). Growers with significant disease, but still enough grapes to protect, should be prepared to respond to black rot infection periods. The amount of inoculum present in some vineyards is very high and almost any rainfall event will result in significant spore release. For black rot, application of one of the sterol inhibitors such as Nova, Bayleton, or Rubigan, within 72 hrs of the start of the infection period can arrest developing infections.

Growers preferring the security of protectant fungicides are well past the timing for application of mancozeb because it has a 66-day preharvest interval. One of the other protectant fungicides such as captan (0 days to harvest), ferbam (7 days), ziram (21 days), and copper (0 days) may be used. Combine the protectant fungicide with one of the sterol inhibitors such as Nova, Bayleton, or Rubigan. Another option is to apply one of the strobilurin products such as Abound, Flint, or Sovran (14 day preharvest interval for all three).

As the fruit bunches begin to close, be prepared to make fungicide applications for Botrytis bunch rot control. Tight-clustered varieties are more susceptible to Botrytis bunch rot. Examples include tight-clustered hybrids (Vignoles, Seyval) and most vinifera grapes, especially Riesling and Pinot noir. Use either Rovral, Vangard, or Elevate following the guidelines in the 2003 Kentucky Commercial Small Fruit and Grape Spray Guide (ID-94). Be aware of the need to manage powdery mildew and downy mildew diseases both before and after harvest. Consult the spray guide for suggestions of materials and timing.
GRAPE VERAISON AND GRAPE BERRY MOTH
by Ric Bessin

Second generation grape berry moth larvae can cause serious damage to commercial vineyards by feeding on the berries shortly before harvest. There may be 2 or 3 generations per year. Larvae of the 2nd and 3rd generations enter berries and feed within, passing from one berry to another under protection of webbing. Infested berries may appear off-color or shriveled with fine webbing. There is often a noticeable entry hole on the surface of the damaged berry. Damage by grape berry moth may increase mold, rots and numbers of fruit flies. While it may only damage a few berries in a cluster, it is impractical for growers to remove damaged berries and webbing from clusters.

Insecticidal control of second generation is more difficult due to an extended flight period of moths as well as the difficulty of getting adequate spray coverage inside the cluster as berry size increases. Pheromone traps are available to monitor for adult moth activity and enhance timing of insecticides for grape berry moth control. Insecticides are frequently used at veraison to control grape berry moth. See ID-94 for a list of recommended insecticides.

Recent studies in some states have shown mating disruption with synthetic pheromones to be an effective alternative in situations where there is no immigration of moths from outside sources. Mating disruption relies on releasing enough of the pheromone in the vineyard so that males cannot find female moths. Pheromone is imbedded in 8-inch plastic twist-ties using 400 twist ties per acre. Commercial systems available for mating disruption for this insect are recommended for vineyards at least 5 acres in size.

STORED GRAIN

ALMOST TIME TO STORE CORN
by Doug Johnson and Sam McNeill

Before long the combines will be back in the field, this time with corn headers on. Now is the time to begin thinking about how and where to store all the corn that is not going directly to market. Below is a check list that we have developed to help you keep up with what is going on. By adding some dates, location identifications, and a few check marks, it may also be used to serve as a record for your corn storage program.

More and more often we get calls from buyers wanting to know where the commodity was grown and how it was handled. This is an easy way to help answer those questions. Also, you will find listed the currently labeled insecticides for use on stored corn. Remember, these products are changing rapidly. Be sure to check the label of any insecticide you use. You may also want to check with your buyer, they may have further restrictions.

Whatever you do, with out question the two most important fundamentals of grain storage are: plan ahead and put clean, dry, grain in clean, dry bins!

UK-IPM Checklist for Controlling Insects in Stored Corn is on pages 7 and 8 of this edition of the Kentucky Pest News.

LIVESTOCK

STABLE FLIES: A MAJOR PAIN
By Lee Townsend

Stable flies are blood suckers that look much like house flies, except that they have piercing-type mouthparts which jut like bayonets from the front of their heads. These insects visit cattle and horses only to feed. They spend the rest of their time resting on walls, rafters, ceilings or vegetation. When feeding, stable flies orient themselves with their heads pointing upward. They prefer to feed low on the animal, usually on the lower parts of the legs or the flanks. Both sexes feed on warm-blooded animals including horses, cattle, hogs and man. The bite of the stable fly is so painful that cattle will stamp or kick trying to rid themselves of these pests. Studies have shown that heavy stable fly infestations of 50 or more per animal will reduce feed efficiency by 10 to 13 percent.

Stable flies are usually found in dairy or feed lot type operations. They prefer to breed in a mixture of rotting or fermenting straw and manure, or other types of rotting and fermenting vegetable matter. Stable flies are becoming pasture pests in areas where round bales are used extensively. These flies are able to develop as larvae in the rotted hay at the base of improperly stored large hay bales.

Each stable fly female produces about 500 eggs and it takes from 20 to 60 days for them to complete their life cycle.

It is difficult to control stable flies by applying insecticide onto animals because the flies usually feed on the lower part of the legs. Sprays are not satisfactory since they are easily washed off the legs when the cattle walk through water or wet grass. Space sprays (foggers) or residual sprays can help reduce numbers but breeding site elimination is the most effective means of control.

HOUSEHOLD

SPIDER WARS
by Mike Potter

Numerous calls are received each year about spiders. Typically, the caller wants to know if the spider they've seen is dangerous, and what if anything should be done in terms of control.

Many different kinds of spiders live in and around buildings. Some, such as the house, cellar, and garden spiders, construct webs to help entrap their prey. Others, like the wolf spiders, are free-roaming and make no webs. The vast majority of spiders are harmless, and in fact are beneficial because they prey upon flies, crickets and other insects. They generally will not attempt to bite humans unless held or accidentally trapped. Moreover, the majority of spiders have fangs too small or weak to puncture human skin. Of the hundreds of species found in Kentucky, only the black widow and brown recluse are dangerous.
Fortunately, both are relatively uncommon, and have markings that can be used to distinguish them from other non-threatening species.

Even though most spiders are harmless, few people are willing to tolerate them inside the home. Their unsightly webbing and fecal spots outweigh the beneficial aspects of spiders to most homeowners. This column provides practical tips on spider control for concerned clients.

**General Control Measures (all species)**

1. Routine, thorough house cleaning is the most effective way to eliminate spiders and discourage their return. A vacuum cleaner and broom are the householder’s most useful tools for removing spiders, webs, and egg sacs. Egg sacs in particular should be removed since each may yield hundreds of new spiders.

2. Spiders prefer quiet, undisturbed areas such as closets, garages, basements, and attics. Reducing clutter in these areas makes them less attractive to spiders.

3. Large numbers of spiders often congregate outdoors around the perimeter of structures. Moving firewood, building materials, and debris away from the foundation can reduce migration indoors. Shrubs, vines and tree limbs should be clipped back from the side of the building. Maintaining a vegetation-free zone next to the house also lowers the moisture content of the foundation and siding, making them less attractive to termites, carpenter ants, rodents and decay.

4. Install tight-fitting window screens and door sweeps to exclude spiders and other insects. Inspect and clean behind window shutters, and inside the orifices of gas barbecue grills.

5. Consider installing yellow or sodium vapor light bulbs at outside entrances. These lights are less attractive than incandescent bulbs to night-flying insects, which, in turn, attract spiders.

6. To further reduce spider entry from outdoors, insecticides can be applied as a “barrier treatment” around the base of the foundation. Pay particular attention to door thresholds, garage and crawlspace entrances, and foundation vents. Pyrethroid insecticides (e.g., Spectracide Triazicide (lambda-cyhalothrin), Bayer Advanced Multi-Insect Killer (cyfluthrin), Ortho Home Defense System (bifenthrin)) are most effective, but may need to be reapplied periodically throughout the summer.

**Brown Recluse/Black Widow**

Both of these spiders are potential health threats. They are timid, however, and will only bite in response to the threat of being injured. Most bites occur while putting on a shoe or piece of clothing in which a spider has hidden, or while unpacking boxes, sorting through clutter, etc.

The female black widow is about 1/2-inch long, shiny black and usually has a red hourglass mark on the underside of the abdomen. In some varieties the hourglass mark may be reduced to two separate spots. Most adult brown recluse spiders are about the size of a dime to a quarter with legs extended. Coloration ranges from tan to dark brown, with the abdomen often darker than the rest of the body. The feature that most readily distinguishes the brown recluse from many other harmless spiders is a somewhat darker violin-shaped marking on the top of the leg-bearing section of the body. The neck of the violin "silhouettes" points toward the rear (abdomen) of the spider. Closer examination under magnification will reveal only three pairs of eyes toward the front of the head — most other spiders have eight eyes. Although both the black widow and brown recluse have distinctive markings, a spider is a spider to most people. Concerned homeowners or victims of spider bites should be advised to bring the specimen in for confirmation.

Spider bites are difficult to diagnose, even by physicians. Black widow venom is a nerve toxin and its effects are rapid. The victim suffers painful rigidity of the abdomen and usually tightness of the chest. Victims should seek medical attention promptly. The bite of the brown recluse is usually painless until 3 to 8 hours later when it may become red, swollen and tender. Later the area around the bite site may develop into an ulcerous sore from 1 to 10 inches in diameter. Healing often requires a month or longer, and the victim may be left with a deep scar. Prompt medical attention can reduce the extent of ulceration and further complications. Not all brown recluse bites result in ulcerations and scarring.

The brown recluse may be found living indoors or outdoors. Black widows are more often encountered outdoors. Thorough inspection of cracks, corners, and other dark, undisturbed areas with a bright flashlight is an essential first step in determining the location and extent of infestation. Indoors, pay particular attention to basements, attics, crawl spaces, closets, under/behind beds and furniture, inside shoes, boxes of stored items, and between hanging clothing. Brown recluse spiders also may be found living above suspended ceilings, behind baseboards, and inside ductwork or floor/ceiling registers. Another way to detect infestations in these areas is to install several glueboards or sticky traps. Designed to capture mice and cockroaches, these devices can be purchased at grocery or farm supply stores. Placed flush along walls and in corners, they are useful monitoring tools and will also capture large numbers of spiders.

Brown recluse and black widow spiders also live outdoors in barns, utility sheds, woodpiles, and underneath lumber, rocks, and accumulated debris. To avoid being bitten, wear work gloves when inspecting inside boxes or when moving stored items.

Each of the management tips (1-6) mentioned above for spiders in general are useful for the black widow and brown recluse. Removal of unnecessary clutter is especially helpful in making areas unattractive to these pests. Indoor infestations of brown recluse and black widow also warrant treatment with insecticides. Insecticides should be applied into areas where spiders are living, making an attempt to
contact as many spiders and webs as possible with the treatment. Most household insecticides with spiders listed on the label will kill spiders provided the spider is treated directly. Spot treatment with pyrethroids such as those mentioned earlier is especially effective. In attics, storage sheds, and other inaccessible or cluttered areas, total-release foggers (e.g., Raid Max, containing cylathrin=cyfluthrin) will have a better chance of contacting spiders that are hidden.

Severe infestations of brown recluse or black widow spiders require specialized skills, persistence and equipment to eradicate. In these situations, it would be prudent to call a professional pest control operator.

**DIAGNOSTIC LAB HIGHLIGHTS**

by Julie Beale and Paul Bachi

Last week in the Diagnostic Laboratory, we diagnosed spring black stem (Phoma), summer black stem (Cercospora), Cercospora leaf spot and leaf hopper burn on alfalfa; Rhizoctonia root and stem rot, tobacco ringspot virus and lightning injury on soybean; angular leaf spot, blue mold, frogeye leaf spot, black shank, alfalfa mosaic virus, potassium and nitrogen deficiencies, manganese toxicity, chemical injury, and ozone injury on tobacco.

On fruits and vegetables, we diagnosed powdery mildew and black rot on grape; Phytophthora root rot on blueberry; anthracnose on raspberry; cedar-apple rust on apple; brown rot and nitrogen deficiency on peach; bacterial spot, Pythium root rot and sunscald on pepper; bacterial canker, early blight, Septoria leaf spot, leaf mold (Fulvia), root knot nematode, catfacing, blossom end rot and phosphorus deficiency on tomato.

On ornamentals, we saw Rhizoctonia root rot on chrysanthemum; black spot on rose; fertilizer burn on azalea; scale and spider mite on euonymus; black root rot on holly; Phytophthora root rot on hydrangea and rhododendron; powdery mildew on dogwood; Fusarium canker, Cristulariella leaf spot, transplant shock and iron deficiency on maple; and Rhizosphaera needle cast on spruce.

**INSECT TRAP COUNTS**

UKREC, Princeton KY

July 18-27, 2003

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NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.
UK-IPM CHECKLIST FOR CONTROLLING INSECTS IN STORED CORN
(July 2003)

Doug Johnson, Extension Entomologist
Sam McNeill, Extension Agricultural Engineer
University of Kentucky

Before Harvest / Pre-Binning

• Clean all equipment used to handle grain (Examples: combines, carts, trucks, receiving pits/hoppers) thoroughly to remove old grain, trash, and debris that might contaminate the new crop. Use pressurized air/water.

☐ Remove all “old” grain from inside storage bins. Use a shovel, broom and vacuum. Every kernel counts!

☐ Check for holes and cracks in bin roofs and walls. Seal them to prevent leaks and entry of insects and rodents. (Look closely around ladders, roof vents and other openings).

☐ Treat the interior floor and bin walls with an approved insecticide.

☐ Remove spilled grain around pits/hoppers, and storage bins.

☐ Mow, spray or remove weeds/grass/vegetation around storage bins.

☐ Treat the outside base of bins and the surrounding area with an approved insecticide.

☐ Fumigate the space beneath the perforated bin flooring.

☐ Warning!!! Fumigation is complicated and dangerous. If possible, hire a commercial fumigator. Restricted use pesticide certification is required for purchasing the fumigants. Specialized training from a commercial applicator is strongly recommended. Specialized equipment, including gas masks, self-contained breathing apparatus, and fumigant gas detection equipment is required for safe, effective and economical applications. Obtain and read the product label and manufacturer’s instructions.

During Harvest / Binning

☐ Operate combine(s) to minimize grain damage, trash and fines or clean grain mechanically.

☐ Store corn at 15, 14 or 13% moisture when holding for 6, 9, or more than 9 months, respectively.

☐ Consider applying a grain “Protectant” to the bulk grain mass after drying and cooling. Do NOT apply before heated air drying or to hot grain!!

☐ Consider applying a “Cap out” treatment to the grain surface (Do not apply if a Protectant is used).

Post-Harvest / After Binning

☐ Use “pitfall” traps to monitor insect activity. Use three traps per bin. Check traps weekly in August and September. In colder months trap for four days each month.

☐ If insects are detected have them identified and classified as primary or secondary feeders. Be especially interested in the true “weevils”.

☐ If insects are numerous enough to result in a discount or you are planning to hold the grain into the next warm season consider having the grain fumigated.

☐ Monitor grain temperature and moisture monthly.

☐ In September, run fans to cool corn to near 60°F.

☐ In October, run fans to cool corn to near 50°F.

☐ In November, run fans to cool corn to near 40°F.

☐ After cooling to 40°F, seal fans with plastic to prevent air movement in the bin.
Operate fans any time the need arises to control temperature or moisture.

**Insecticides and Fumigants Recommended for Corn**

We recommend that you do **not** use malathion for any treatments. Most forms of malathion are no longer labeled for use. More importantly, the product no longer provides adequate insect control. See: ENT-16 Insecticide Recommendations for Corn.

**Empty bins** - applied to walls and floor: Tempo® SC Ultra. **DO NOT APPLY TO GRAIN!**

**Under Floor Fumigants** - Chloropic® (Can not currently be shipped; you will only find it if your local dealer has some on hand or in large e.g 200 lb. bottles), Methyl-Bromide, Phostoxin® / Fumtoxin®. **THESE PRODUCTS ARE EXTREMELY DANGEROUS.**

**Protectant** - applied directly to the bulk grain: Storcide® or Actellic® 5E.

“**Cap out**” treatment applied to the top 4" of grain - (Do not make this application if a protectant has been applied to the bulk grain) Actellic® 5E for beetles or products containing Bacillus thuringiensis, e.g. Dipel®, Javelin®, Sok-B.t.® etc. for Indian meal moth.

**Bulk Grain Fumigants** - Phostoxin® / Fumtoxin®.