Cooperative Extension: Colorado State University, Fort Collins, Colorado 80523

Pest Alert

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The Pest Alert is now found on the World Wide Web at http://www.colostate.edu/programs/pestalert

JULY 17 VEGNET REPORT

During mid July of 2000, rainfall totaled less than 0.50 inches throughout Colorado, western Kansas, western Nebraska and southeastern Wyoming. Temperatures averaged in the upper 80s to mid 90s at most sites during mid July. The regional weather forecast predicts above average rainfall and above average temperatures for the third week July.

There are still no reports of foliar disease problems on sugar beet, onion or bean at this stage. The recent lower temperature and higher rainfall patterns and forecast week could increase the potential for foliar disease development, so maintain an aggressive scouting program.

Please share sightings of pest problems by calling the CSU VegNet Team at 970-491-6987 (Howard Schwartz), 491-7846 (Mark McMillan), or 491-0256 (Kris Otto).

POTATO

Samples of Alternaria blight and Early Blight continue to be sent in and observed in early potato fields throughout the Front Range and northeastern areas of Colorado, and should be managed with protectant fungicides such as the EBDCs (e.g., maneb, mancozeb, penncozeb, dithane, polyram, Quadris), super tin; Bravo may not be very effective against the Alternaria blight, but is effective against Early Blight.

Disease Model: with a May 1 emergence date, the early blight model (threshold of 300) is averaging 460 to 480; and with a May 15 emergence (regrowth) date, the early blight model is averaging 400 - 415 throughout eastern Colorado as of July 16.

The late blight model (threshold of 18) still remains below 8 throughout the Front Range, and below 11 at northeastern sites (Fort Morgan, Wray, Yuma), regardless of the early or mid May emergence date. Maintain an aggressive scouting program, and use the earlier emergence date to schedule more aggressive protection programs for early blight and late blight, if it shows up this year.

DRY BEAN

The bean rust model confirms that there is low potential for disease development based upon scattered outbreaks of light rust late in the 1999 season, no evidence of infected volunteer bean plants this spring, widespread planting of rust-resistant varieties, reduced bean acreage, high temperatures and dry conditions this spring, and forecasts for continued hot, dry conditions throughout the High Plains region in 2000. If rust is detected in susceptible varieties, protectant fungicides such as Bravo at a 14-day phi and Maneb at a 30-day phi have been effective in recent university trials. [Note: There is no Section 18 label for Tilt available for bean producers to use in Colorado or Nebraska during 2000.]

If these high temperature periods persist throughout the vegetative and flowering periods, common bacterial blight will probably be the most reported foliar disease threat this season; especially if storms and/or contaminated irrigation water move the bacterium within and between bean fields. The early to mid-season copper-based bactericide program (with products such as Kocide, Champ, NuCop, etc) initiated during the vegetative to early flowering period (preferably with a ground-rig) can reduce common blight (bacterial brown spot, halo blight) severity later during pod-set and pod-fill. Maintain the protection until pod bump if disease threatens.

The hot, dry conditions this spring have contributed to continued reports of high thrips populations on dry bean plants in northeastern Colorado and surrounding region. Thrips are small, active, cigarette-shaped, yellow-to-brown insects. Onion thrips are most commonly associated with furrow irrigated beans grown in close proximity to winter wheat. Infestations commonly occur as the wheat matures and the onion thrips disperse in search of new food sources. Onion thrips feeding results in leaf cupping and distortion that is made severe by plant stress (low moisture and high temperature).

Consider treatment (Orthene, Disyston, Lannate) if there are more than 15 thrips per plant and damage is observed. Tap the plant on white cardboard or in a white container and then count the thrips that have been knocked off. Onion thrips infestations and damage are often more severe at field edges so be sure to assess the entire field before making a treatment decision. Western flower thrips feed in developing flowers and can cause flower and pod abortion. Five flower thrips per blossom can reduce the number of pods per plant.

ONION

Onion transplants continue to develop rapidly and approach market size in many fields. Maintain the copper-based bactericide program, tank-mixed with an EBDC product on a 7 to 10 day interval to reduce problems with bacterial diseases and any fungal diseases

(Purple Blotch, Botrytis Blast) that could develop as the plants continue to develop and mature in the next few weeks. Rovral could be added for enhanced protection against Purple Botch and/or Botrytis if detected.

Most seeded fields are also growing vigorously as they approach bulbing stages and may benefit from a protectant bactericide/fungicide application (copper + EBDC product such as maneb, mancozeb, dithane, penncozeb) for the bacterial disease complex. There are a few early seeded fields that are moving beyond the early bulb stage, and these fields may benefit from additional fungicide protection as plant canopies create more favorable microclimates and as the plants become more susceptible physiologically. There are no reports of serious bacterial problems in transplanted or seeded onion, other than a few plants affected by bacterial soft rot in the Front Range.

If one uses an April 1 emergence date for seeded onions, the Purple Blotch disease model (threshold value of 300) is averaging 340 to 390 in the Front Range and Fort Morgan areas, 320 to 340 in the Arkansas Valley and West Slope areas. Therefore, our onion areas have exceeded the threshold and require aggressive scouting programs to detect early infection in the next 7 to 14 days in transplanted and/or seeded fields.

Pink root and Fusarium basal plate rot affected plants continue to be observed in many fields this year, due in large part to the ongoing high temperature stress. Avoid additional stress from root pruning (during cultivation and/or lay-by applications of fertilizer).

Front Range scouts have reported some onion leaf tip death, but no evidence of fungal infection has been observed in our lab. It appears that air pollution (i.e., ozone) may have contributed to this stress and death of leaf tips with some white stippling or spotting of the foliage; especially with the high temperatures during recent weeks. There was concern that this problem was caused by Botrytis, however, we have not observed any of the typical symptoms (small, oval, sunken, scattered, white lesions on leaf tips progressing downward to the base of the leaf) nor have we been able to recover the pathogen in our lab. (Schwartz)

IDENTIFICATION PROTOCOL FOR SUSPECTED AFRICANIZED BEES

Africanized strains of the honeybee are currently widespread in southwestern US and points south. Whether they will ever substantially colonize areas of cold winters (such as Colorado in a "normal" year) is still conjectural.

However, if there is a suspected hive that may be africanized, then there is a procedure for making a positive identification. This is conducted by the USDA-ARS Bee Research Lab in Beltsville, MD. Based on some morphological measurements on a submitted sample, a probability of the strain can be determined. (Note: Africanized strains of honeybees are very similar to, although a tiny bit smaller, than the most common strains of honeybees, e.g., Italian, Carniolan, and Caucasian.)

The procedure for submitting a sample is as follows:

1. Call in advance indicating you are going to make a shipment. The contact is Andrew Oslsamer at the Bee Research Lab. Phone number is (301) 504-8205 or (301) 504-8173.

2. Collect at least 30 bees in a leak proof container containing alcohol.

3. Ship immediately by FedEx Overnight Air, indicating need *for noon delivery*. The address is:

USDA-ARS Bee Research Lab
Bldg. 476 Room 203 BARC-East
Beltsville, MD 20705

(Cranshaw)

EUROPEAN EARWIG: HABITS AND MANAGEMENT

Few insects are so readily identifiable and so widely disliked as the European earwig (*Forficula auricularia*). This is the overwhelmingly dominant species found in the region and is, as the name suggests, a European native that became established locally during the 1950s. They can be found throughout the State, often being most abundant at higher elevations and less common in the Eastern Plains.

The European earwig is an omnivore with very broad food tastes. This includes several types of plant materials, particularly those that are soft, and further provide the dark moist sites earwigs favor during day. Flower blossoms, corn silks (and some corn kernels) and tender vegetable seedlings are commonly fed on by earwigs. They also can be a problem in certain soft fruits, notably ripe peaches. However, the European earwig also feeds on many insects and insect eggs; it has even been purposefully encouraged to help control aphids in apples.

Despite their appearance, earwigs are essentially harmless to humans. If handled or crushed, they can produce a moderately painful pinch from their jaws. The pincers, or cerci, which protrude off the hind end, are used primarily during mating (also to help subdue/manipulate prey) but have little force and at most do not cause a painful pinch. Males have more broadly bowed cerci; those of the females are slender and relatively straight.

Life History and Habits: Earwigs overwinter in the adult stage. They become active during warm days in late winter. The female earwig produces a nest within a small dug underneath a rock or in some other protected site. A cluster of about 50 eggs is produced, which are tended by the mother and typically hatch in April. After eggs hatch the mother continues to guard and care for the young earwigs for several weeks until they have molted and are ready to leave the nest. The young then forage on their own, becoming fully grown in about one month. Often the mother lays a second smaller egg mass in May or June. There is only one generation per year, but developing earwigs are present throughout the growing season. Foraging occurs at night, with them moving to dark, sheltered areas during the day. As the season progresses they increasingly tend to aggregate in these shelter sites. Although the European earwig possesses wings, they are not thought to fly.

Control: Earwig populations naturally fluctuate greatly from year to year suggesting that they are under some substantial natural controls. However these are poorly understood. A tachinid fly parasite of the European earwig, *Bigonicheta spinipennis*, is known to occur in Colorado. Earwigs may also suffer from a parasitic nematode (*Mermis micronigrescens*). Fungal diseases (*Metarhizium anisopliae*) are other natural enemies of this insect.

The habit of earwigs to seek shelter during the day causes them to collect under boards, burlap, moistened newspapers or similar objects. (All dahlia flowers seem to be a magnet!) They can then be collected from these sites and destroyed. Earwig traps have also been tested. For example, Rick Zimmerman at the Rogers Mesa Research Center in Hotchkiss has developed a trap for use in peach orchards. This consists of a piece of hollow plastic (from fencing) with holes drilled in the sides for access. The interior is packed with corrugated cardboard for shelter and he provides wheat bran as food to further retain the insects. Attractants, notably fish oil and some ripe fruits, have also been suggested to such traps, but Rick has not seen much effect from the addition of these.

It is also possible that mulching around plants may also limit earwig use of flowers for daytime shelter, reducing flower damage. Spring tillage should disturb earwigs with developing nests in the garden - although most early season development is occurring under rocks or boards that would not be affected by this practice.

Baits containing the insecticide carbaryl (Sevin) are available from some nurseries and can be used for earwig control. Garden sprays containing carbaryl or permethrin should also be effective. These treatments should be directed around the base of plants or under sheltering sites where earwigs tend to concentrate their activity. (Cranshaw)

WHITE GRUB CONTROLS - SOME CHANGES

Late summer is the peak period when white grub injury to lawns occurs. Communities within the Arkansas River Valley, Tri-River area, and along the Platte in eastern Colorado are particularly hard hit by these insects. Problems most often involve the "annual white grubs" or "masked chafers", species of *Cyclocephala*. White grubs with a multi-year life cycle (species of *Phyllophaga* and *Polyphylla*) may locally predominate in parts of eastern Colorado.

Typically the optimum time to control white grubs is coincident with the end of the egg hatch period when larvae are small and most easily controlled. For most areas of the state with grub problems this occurs in late July and early August. Older larvae become much more difficult to control.

There have been some dramatic improvements in chemical control options that have emerged for white grubs during the past decade - and these are finally dribbling down to the homeowner level. In particular there are two insecticides that are both much more effective and much less toxic than previously available products (e.g., diazinon, carbaryl). One of these is imidacloprid; available for several years by lawn care companies under the trade name Merit. It can also be found in some garden centers as a product in the Bayer Advanced Insect Control line, sold as "Season Long Grub Control". There is also halofenzamide, an insecticide in the insect growth regulator class that disrupts normal development. For commercial uses this is sold as MACH-2; the homeowner-marketed formulation is Scott's Grub-Ex. (Note: Previously, Scott's Grub-Ex contained imidacloprid.)

There also remains the option of a biological control organism - insect parasitic nematodes. These have to be mail order purchased, but are applied as a spray/drench like any other

grub-control product. The nematodes are capable of entering the grubs within which they subsequently reproduce, killing them in a couple of days following infection. The nematodes that are effective for this purpose are found in the genus *Heterorhabditis*.

Additional information can be found in Extension fact sheets 5.516 (Billbugs and White Grubs) and 5.573 (Insect Parasitic Nematodes) and bulletin XCM-38, Insect Management Recommendations for Turfgrass, Shade Trees, and Shrubs. These are available through The Other Bookstore, which can be accessed for phone orders at (877) 692-9358 or by email (CERC@vines.colostate.edu). (Cranshaw)

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Sincerely,

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