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Pest Alert

July 28, 2000

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

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JULY 24 VEGNET REPORT

During the third week of July - 2000, rainfall totals varied greatly throughout our region with less than 0.67 inches throughout western, Colorado, the Front Range of Colorado, western Nebraska, and eastern Wyoming. An inch of rain fell in the Arkansas Valley, with nearly 2.5 inches at Burlington and Tribune. Wray received 1.44 inches and Yuma received more than 4 inches during the last week.

Temperatures averaged in the mid 80s throughout the region, except for western Colorado in the mid 90s. The regional weather forecast predicts average rainfall and above average temperatures for the final week of July.

Scattered disease reports are beginning to filter in to VegNet. The Sugar Beet industry is concerned about the potential for Cercospora Leaf Spot, as their in-field disease forecast model reached the infection threshold last week. Infection was reported late last week in sugar beet fields in western Nebraska (reported by Dick Zeller).

The more moderate temperatures and higher rainfall patterns will increase the potential for foliar disease development on sugar beet, potato, onion, and dry bean crops, 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).

Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating.
Cooperative Extension programs are available to all without discrimination.

POTATO

Maintain the Early Blight Protection Program throughout the Front Range and northeastern areas of Colorado with protectant fungicides such as the EBDCs (e.g., maneb, mancozeb, penncozeb, dithane, polyram, Quadris), super tin.

Disease Model: with a May 1 emergence date, the early blight model (threshold of 300) is averaging 520 to 550 and with a May 15 emergence (regrowth) date, the early blight model is averaging 450 - 470 throughout eastern Colorado as of July 23.

The late blight model (threshold of 18, with disease possible in 7 to 14 days) has increased greatly during the last week and is now at 13 to 17 in the Front Range, 19 at Fort Morgan, and 18 to 24 at northeastern sites (Wray, Yuma), with a May 1 emergence date. A mid-May emergence date lowers the disease values 1 or 2 points, only. There are still no reports of Late Blight in the state as of July 23.

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

Conditions in eastern Colorado and western Nebraska could favor foliar disease outbreaks on susceptible varieties of beans. Scout fields for early signs of rust, white mold or bacterial diseases such as common bacterial blight, bacterial brown spot, and/or halo blight.

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.]

The early to mid-season copper-based bactericide program (with products such as Kocide, Champ, NuCop, etc) initiated during flowering to early pod fill periods can reduce common blight (bacterial brown spot, halo blight) severity later during pod bump. Maintain the protection until pod bump if disease threatens.

White mold is managed by application of fungicides such as Topsin and Benlate at 100 % to full bloom with good coverage of the blossoms to reduce infection sites for the pathogen. Manage irrigation water to dry out plant canopies and soil surfaces between waterings.

The hot, dry conditions this summer 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, 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 seeds per pod and number of pods per plant. Treatment with products such as Orthene can reduced flower thrips losses.

ONION

Onion transplants continue to approach market size and harvest 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. Ridomil/Copper can be added for enhanced protection against Downy Mildew if detected.

Most seeded fields are also growing vigorously as they continue to bulb, 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 still no reports of serious bacterial (or foliar fungal) 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 380 to 440 in the Front Range and Fort Morgan areas, 340 to 350 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 still 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.

ON MANTIDS

The mild winters of the past few seasons have been favorable to the survival of the most commonly recognized mantid, the European mantid or "praying mantid". Following is some information regarding this interesting order of insects:

Mantids are some of the most distinctive and well recognized of all insect groups. The most striking feature are the grasping front legs, well-designed for grabbing and holding prey. To

support the prominent forelegs the prothorax of mantids is very elongated. Mantids also have the remarkable ability to easily turn their triangular heads so that they can see in all directions. Most mantids produced winged adult stages and the males frequently fly. At least six species of mantids can be found in Colorado (Table 1).

All mantids are predators, feeding on a wide variety of insects that they hunt primarily by ambush. Essentially everything of the right size range that moves within their range is fair game, occasionally including grasshoppers and some other pest species. However they mostly prey on non-economically important insects and their reputation as a protector of the garden is quite overblown.

General Life History: Mantids survive winter as eggs. The eggs are laid in masses, sometimes numbering in the hundreds. These egg masses, known as *oothecae* are often insulated with a foamy material that may give them the appearance of a “packing peanut” and are attached to solid surfaces such as rocks, buildings, and dried plant stems. Eggs hatch in late spring (or earlier if kept in the warmth of a building). The minute young mantids feed on small gnats and other insects, sometimes cannibalizing other mantids emerging from the same egg mass. As they grow, they are capable of capturing increasingly larger prey, including grasshoppers, large flies, and bees.

Following several molts development is completed by late summer and the adults are present. Adult males are smaller and more slender than females. Among winged species males are much more likely to fly; females are incapable of flying after they have begun to swell with eggs.

During mating it is sometimes reported that the female eats the male during mate. This does sometimes occur and the male may even continue to mate more vigorously after decapitation. However, this cannibalistic behavior occurs infrequently and usually only if the female is starved.

Rearing Mantids: Egg cases of the Chinese mantid are commonly sold via mail order and the young can be reared easily. However, they should be kept in separate containers because of their cannibalistic habits. Small active insects, such as leafhoppers and fruit flies, are good foods to feed the younger mantids. Midges and other small flies that gather around porch lights can be another source of insects for the newly emerged mantids. As they get older larger foods can be used, such as grasshoppers or crickets. Mantids do need some additional water, which can be provided by misting the inner surface of the rearing container once a week. If fertilized adult females are being reared, they should be provided with a stick or rock on which to lay the egg case. When overwintering egg cases they do require a cold period and are best stored in a cold, protected site such as in outbuildings or on the north side of homes.

Table 1. Mantids Found in Colorado

Common Name	Scientific Name	Comments
European mantid	<i>Mantis religiosa</i>	The most commonly encountered mantid. The European mantid is "the" praying mantid, a European native that is now well established in much of Colorado. These are quite large insects, exceeding 3 inches when full grown, and come in either green or brown forms. A characteristic 'bull's-eye' under the fore leg is useful for distinguishing this species. They are somewhat marginally adapted to Colorado conditions and tend to be most abundant following mild winters.
Chinese mantid	<i>Tenodera aridifolia sinensis</i>	The largest mantid, reaching over four inches when full grown. These are brown, with green or yellow stripes along the side of the wings. The Chinese mantid is widely sold through garden catalogs and some garden centers. However, few, if any survive winters in Colorado.
Carolina mantid California mantid	<i>Stigmomantis carolina</i> <i>Stigmomantis californica</i>	These are two closely related species found primarily in the warmer, southern areas of the state. The California mantid predominates west of the Continental Divide; the Carolina mantid to the east. They are slightly smaller than the European mantid, are green and tend to have short wing covers that fail to cover the tip of the abdomen.
Ground mantids	<i>Litaneutria minor</i> <i>Yersiniops solitarium</i>	The smallest mantids, rarely exceeding one and ½ inches in length. Native to the shortgrass prairies of eastern Colorado they can most often be found running and jumping across rocks and soil, their gray-brown coloration blending well with the background. Life history of ground mantids is generally similar to that of other mantids, although some may produce a second generation. All females, and most males, are flightless.

Order: Mantodea. Some classification schemes classify mantids in the order Dictyoptera or as a suborder of Orthoptera.
(Cranshaw)

TREE BUG/DISEASE BOOK OUT - FINALLY!

After years of work, a major revision of Extension Bulletin 506A is now available. Entitled *Insects and Diseases of Woody Plants of the Central Rockies* it replaces *Insects That Feed on Colorado Trees and Shrubs*, which has been out of print for 2 years.

One obvious change in this new publication is the integration of diseases throughout, including the diagnostic section. General organization is also different, based on the part of the plant affected (e.g., foliage, twigs, trunk, roots, fruit). But perhaps the most striking thing is the use of color. There are close to 600 color photographs used throughout the publication.

Insects and Diseases of Woody Plants of the Central Rockies runs 283 pages (plus introduction sections). Price is \$40 for single copies, \$35 apiece if the order is for 10 or more

copies. If mailed, there is a cost of \$5 for postage and handling on the first copy, \$1 for each additional copy. There is also sales tax.

Orders can be placed through the Cooperative Extension Resource Center (a.k.a. The Other Bookstore). Phone orders can be placed at **1-877-692-9358**; email contacts at **cerc@coop.ext.colostate.edu**. Regularly mailed orders with checks should be placed to: **Cooperative Extension Resource Center, 115 General Services Bldg., Colorado State University, Ft. Collins, CO 80523-4061.** (Cranshaw)

PSYLLIDS MAKING LATE SHOW IN VEGETABLES

A bit delayed and in no where near the numbers of the previous two seasons, numbers of potato/tomato psyllids are starting to build in eastern Colorado. Tomatoes and late maturing potatoes are most at risk of injury.

Damage by this curious insect is produced by the introduction of saliva as they feed with their piercing-sucking mouthparts. The saliva has systemic, toxic effects on some of the host plants and can produce a disease condition known as "psyllid yellows". Foliar symptoms include color changes (yellowing, purpling), distortion and reduced size of the new growth, and a thickening of internodes. Fruit size in tomatoes and tuber size in potatoes can be greatly reduced. There also may be quality changes, such as premature sprouting and rough skin set of potatoes or dull color and mealy texture of tomatoes.

Detection of infestations can be difficult. The nymphal stages are small (about aphid-sized), flat and attached to the underside of leaves. Young stages tend to be creamy yellow and they get pale green when nearing full-development. Distribution on the plants is very clumped; some leaves may have several and most of the rest with few or any. However, one indication of infestation is the peculiar material they excrete while feeding. Known as "psyllid sugar" it is somewhat similar to granulated salt or sugar in appearance and may collect on leaves underneath the feeding insects.

Control in gardens is difficult. Dusting sulfur and diazinon have been most consistent. Permethrin and insecticidal soaps have given erratic control in CSU trials. (Cranshaw)

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Where trade names are used, no discrimination is intended, and no endorsement by the Cooperative Extension Service is implied.

Sincerely,

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