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

Pest Alert

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NOTE: BEGINNING JANUARY, 2001, PEST ALERT WILL ONLY BE AVAILABLE ON THE WEB.
FOR ELECTRONIC NOTIFICATION, PLEASE EMAIL YOUR ADDRESS TO bspm@lamar.colostate.edu. (Check out our complete web site!)

POTATO UPDATE

August 6, 2001 UPDATE: There are still no confirmed reports of Late Blight in our region, presumably due to clean seed pieces and/or hot dry conditions, even after the threshold was crossed in most locations earlier this season. See Pest Summary at http://www.csuag.com

Potato Early Blight Models are above the threshold level of 300 at all locations across northeastern Colorado. See Pest Summary. Maintain the protectant fungicide program on a weekly basis with products which include EBDCs (maneb, mancozeb, Penncozeb, Dithane, Polyram), Bravo/Equus, SuperTin, Quadris with an adjuvant if recommended on the fungicide label.

Last week's weather was warmer with some moisture throughout eastern Colorado. More moisture with average high temperatures is forecast for eastern Colorado this week. Scout fields and continue an aggressive program with your protectant fungicides until vine kill.

Most of the early to mid-season fields are near or in harvest. Remember to achieve good vine kill, and allow the vines to dry for a couple of weeks prior to harvest to reduce tuber contamination by spores (especially of Late Blight if it should occur in your field).

ONION UPDATE

August 6, 2001 UPDATE: Purple Blotch forecast models are well above the threshold level of 300 throughout Colorado, so scout aggressively for early signs of disease. The disease was confirmed on seeded onions from all onion areas during the last two weeks. Aggressively scout fields and initiate protectant programs. There are still NO reports of Downy Mildew on transplanted or seeded onions, but a fungicide program may be beneficial if the threat and cooler and/or moister weather conditions occur during mid August.

Effective fungicides for Purple Blotch and Botrytis include Bravo, EBDC (maneb, mancozeb, ManKocide, penncozeb, Dithane), and Ridomil package mixes (with EBDC, copper, Bravo/Equus). Bravo/Equus, ManKocide and EBDCs are protectants that may have to be applied every 7 - 10 days, while the Ridomil provides protection against Downy Mildew for 14 days or longer in the threat persists. The EBDC and Bravo/Equus products, Quadris and Rovral are effective against Purple Blotch. Quadris and Rovral will provide extended protection for more than 7 – 10 days. Add an adjuvant if recommended on the fungicide label to improve plant coverage.

Bacterial soft rot and other bacterial diseases are now present in most fields throughout Colorado, and you should include a copper-based bactericide (Champ, NuCop, Kocide, ManKocide, etc) plus EBDC and adjuvant as older transplants begin to bulk up. Our research has shown that the addition of an EBDC fungicide (low rates early in the season, changing to high rates after bulbing when fungal diseases threaten) provides more control of bacteria from the copper. As onions continue to increase bulb size, the bacterial disease complex will become more prevalent.

Most of the transplant fields are now harvested or in the final stages. Remember to cure the onions before and/or after topping to reduce disease spread, especially of Bacterial Soft Rot, Black Mold and Botrytis. Use air curing in the storage shed to further dry out the exposed neck and outer, soft scales.

DRY BEAN UPDATE

August 6, 2001 UPDATE: There are no reports of bean rust in the region. When rust is confirmed in new crop fields this year, fungicide options include Maneb/Manex (30 day preharvest interval), Bravo (14 day interval), and Tilt (28 day interval); Tilt will have a Section 18 label for 2001 in Colorado until August 31. Aggressively scout new crop fields for evidence of early development by rust before implementation of pesticide programs. Monitor COAGMET weather patterns and pest forecast models, and share pest sightings with VEGNET personnel.

There are widespread reports of bacterial diseases in eastern Colorado. Aggressively scout fields and continue the protectant program with copper bactericides through flowering and early pod set; until 2 – 3 weeks preknifing. Bacterial disease management with copper-based bactericides such as Champ, Kocide, and NuCop should be initiated as a preventive program at 30, 40 and 50 days post-planting. Add an adjuvant if recommended on the bactericide label. Initiate or continue copper sprays on hail-damaged fields of beans; wait a

few days if more than 50% of the canopy was stripped by storm damage to allow new growth to emerge and benefit from the protection. Do not use sulfur-based products as curatives for wounds, sulfur will just burn tissue and act as a defoliant at high rates; wounded tissue will

dry out naturally and not be a further disease threat to surviving tissue.

Fields with a history of white mold should be managed by the timely application of appropriate fungicides such as Topsin at 100 % flowering (every plant with 1 or more open blossoms) to full bloom. The objective is to get the fungicide on to flowers to protect them from being colonized by fungal ascospores on the soil surface and within the plant canopy. Fungicide coverage and penetration into the canopy are critical; 25 – 30 gal/A with a ground rig, 10 gal/A by air, and less than ¼ inch/A during chemigation. Irrigation management with extended intervals between applications can keep the soil surface and plant canopy dry without stressing pod set and seed fill and reduce losses from white mold. (Schwartz)

INSECTS ON ONIONS

There are three species of caterpillars showing up in commercial onions in Mesa, Delta and Montrose Counties. While some caterpillars have been present for some time this summer, numbers appear to be increasing. Mid-August is a critical time in bulb sizing, and defoliation at this time can lead to reduced yield and size. Caterpillars in onions are not an every year occurrence in western Colorado. I spoke with a producer who has been growing onions for more than 40 years, and he said he had seen worms in his onions on only one other occasion.

The worms all feed from the inside of the leaf, which makes control difficult. Damage appears as a dead leaf or leaf portion. There will be a circular entrance hole, and the larva will be inside the circular, hollow leaf. The leaf will be filled with frass (excretement), which can become moldy under the proper conditions. Young larvae feed on the inside surface of the leaf, and older larvae feed all of the way through the leaf.

Younger larvae are easier to kill with insecticides, but they cannot be reached because of their feeding location. Older larvae can feed on insecticide residues on the outer surface of the leaf, but they are more resistant to insecticides. Typically, the best insecticides for caterpillar control are pyrethroid insecticides, or Lannate (a Carbamate insecticide). Less than perfect control has been experienced with almost all insecticides that have been used on a commercial basis. There is no research data on worms in onions under our conditions.

The three species of caterpillars seen so far include:

Green cloverworm, Plathypena scabra - This native insect is a common inhabitant of alfalfa fields, but it has a wide host range that includes many vegetable crops. It is not typically considered a pest of onions. It is a greenish larva without obvious hairs. It has white or sometimes reddish stripes along the sides of the body, which disappear in mature larvae. The larvae have four pairs of abdominal prolegs.

Yellow striped armyworm, Spodoptera orthinogalli - This tropical insect migrates northward each year, and sometimes becomes a pest of various crops. In the past, it has primarily shown up late in the season on fourth cutting alfalfa. In 2000, some fields around

Fruita were infested early in the season, and the worms became abundant in onions during the fall.

The worms are quite variable in appearance, and can be green to black in color. Most yellow striped armyworms have a longitudinal stripe running the length of the abdomen. Some larvae have uniformly sized black triangular spots adjacent to the longitudinal stripes. The best diagnostic characteristic is the white margins of the sutures of the segments forming the head. If the white sutures form an inverted V when viewed from the front, the larva is probably yellow striped armyworm.

An **unidentified looper** has been found feeding on onions in Montrose County. The larva is similar to cabbage looper, but identification will have to be based on the adult moth, which has not yet emerged in the rearing cage. The looper is pale green in color, and has three pairs of abdominal prolegs. They move in an inchworm type fashion, which makes identification as a looper relatively simple.

If anyone has questions on any of these insects, please contact Bob Hammon, Western Colorado Research Center, 1910 L Rd, Fruita CO 81521, (970) 858-3629 voice, 970-858-0461 fax.

COLORADO PESTICIDE REGISTRATION DATABASE

The Colorado Department of Agriculture's Pesticide Section now has a query site on their web page http://www.ag.state.co.us/DPI/PPRS/PPRSQuery.htm that will be updated daily so that you can determine if a product is registered for the current year and if it meets Colorado's requirements for organic status (only the active has to be non-synthetic). The site currently must be searched using Microsoft Internet Explorer. The site can be searched using the EPA Registration Number or the product name. If using the product name it is important to note that it must be the full and complete name to get a match. The use of the wild card (%) may produce an extensive list. (McDonald)

MINOR CROP PEST MANAGEMENT

The Colorado Environmental Pesticide Education Program includes the Minor Crop Pest Management Program funded in part by USDA IR-4. IR-4 (Interregional Research Project No. 4) is the principal public effort to gain EPA-approved tolerances for safe and effective pest control products on minor crops such as fruits, vegetables, herbs, and others. IR-4 also develops data to assist in the registration of pest control tools for floral, forestry, nursery, and turf crops. IR-4 conducts field trials and residue chemistry under Good Laboratory Practices as required by EPA. For more information about IR-4 nationally, see http://www.cook.rutgers.edu/~ir4 and here in Colorado, see http://www.colostate.edu/Depts/SoilCrop/extension/CEPEP/IR4.htm.

The 2001 national research program is in full swing. IR-4 is conducting 107 residue studies supported by 588 field trials. This year the CSU Minor Crop Pest Management Program is conducting 14 field residue trials for pesticides in spinach, onion, potato, sunflower, sugar

beet, dry beans, apple, pear, and tart cherry. We are also working on a herbicide trial comparing products for use in proso millet in eastern Colorado.

Fort Collins, Colorado will be the site of IR-4's 25th annual Food Use Workshop, September 11-13, 2001. It will be held at the Holiday Inn - University Park. This important event attracts growers, researchers, extension agents, and government and industry personnel with interest in extending the range of safe and effective pest control products for use on minor crops. Critical minor crop pest control chemical and biopesticide needs are identified at the Workshop. The outcome of the Workshop will determine the prioritization of IR-4's 2002 research projects. Separate daylong sessions will be held for the three pest management disciplines. Weed management is the topic for September 11, insect management on September 12, and disease management on September 13. For information on attending the Food Use Workshop, contact Sandra McDonald, smcdonal@lamar.colostate.edu or 970-491-6027.

GYMNOSPORANGIUM RUST SHOWING ON HAWTHORNE & APPLE LEAVES

Many people working in their gardens or walking along the streets are noticing the blister-like spots that have developed on hawthorn and apple leaves. The spots are a little raised and usually yellow to orange in color. If you look at the underside of the leaf you can see small finger-like tendrils coming out of the spots. This is the spore producing stage of the fungus that infects the junipers.

In many years this stage is not all that apparent. This is because it takes humidity at just the right time to make the spores available to infect the apple or the hawthorn. It should be noted that there is a whole family of the Gymnosporangium rusts and not just one. Not all infect the same hosts, although most have the juniper host in common.

In the spring the galls on the juniper turn into jelly-like orange balls that in the warm, wet environment produce spore horns or finger-like appendages. The spore horns produce millions of microscopic spores that are then blown up to 3-5 miles to susceptible deciduous hosts such as apple, pear and hawthorn.

While the disease does little lasting damage to either host, it is unsightly (unless you are a plant pathologist). Control approaches concentrate on trying to 1) separate the alternate hosts as far from one another as possible; 2) use resistance, there are some good resistant apple varieties and 3) use fungicides.

The availability of appropriate fungicides for the homeowner is very limited. Daconil is a very good one but we are told that Daconil is being withdrawn from the home market. That pretty well leaves materials like ferbam, thiram, maneb or the systemic triforine containing fungicides. The new strobilurin, Heritage is also effect, but difficult to find and very expensive. (Brown)

HIGH PLAINS VIRUS CAUSING DAMAGE IN SOME FRONT RANGE SWEET CORN FIELDS

We have seen instances this year of very severe High Plains Virus disease in area sweet corn. This disease was first found in Colorado in 1963 in the Wiggins area. It has since been shown to be wide spread in the area from the West Slope to Kansas, Nebraska and the Texas Panhandle. It has even been reported from Brazil and Israel. Over the last few years it has not been readily found on the Front Range, but it has become a recurring problem for sweet corn producers on the West Slope.

The virus causes a severe mosaic, firing of the leaf margins and stunting. Early infections can cause death. It is normally spread by the wheat curl mite but limited seed transmission has been documented by Bob Forster in Idaho. In at least one instance this summer we have documented a situation where it is clearly seed borne and in much higher numbers than reported previously. Tami Blunt and Brent Swan, working with me, have completely mapped the field in question and Tami has run the serology to identify the virus. We also had our identification verified by 2 other labs just to make sure we were not picking up a different virus.

We are very interested in determining if this virus is showing up in other locations this summer and ask that field workers note and collect any suspect plants. Then contact Tami Blunt in the Plant Clinic at CSU (970-491-6950) and get directions on how to submit the material so Tami can do the identification tests. (Brown)

KARNAL BUNT UPDATE

Well the politics of Karnal bunt are still with us, even if the disease is not. The newest thing is that Kansas is now requiring any seed coming into the state to be tested and certified to be Karnal bunt free. A recent article in the High Plains Journal by Jennifer Latzke (8-6-01) reported that Jim Sipes, a seed grower in Manter, Kansas and the current president of the Kansas Crop Improvement Association, is advocating more stringent certification rules than presently exist. In fact they are requiring all seed, even research seed from areas ***known to be Karnal bunt free*** to be tested.

In the article it points out “that Kansas wheat has been certified to be Karnal bunt free since 1996”. Kansas is now going to require individual seed lots from outside Kansas to be certified Karnal bunt free even though they are ***coming from certified Karnal bunt free areas based on the same system that Kansas says they are Karnal bunt free***.

There is a need for some clarification here. Kansas is a part of the national cooperative Karnal bunt survey, the same as Colorado. The same protocols for sampling, laboratory testing and certification have been used here and in the other wheat producing states that are certified to be Karnal bunt free as in Kansas. If Kansas is so proud of their system and puts such value on it, why are they refusing to accept the same procedures from other states? Colorado has been in the same program since 1996 and Colorado is certified to be Karnal bunt free as well.

Now I am certainly sympathetic to Mr. Sipes's concerns because he perceives his and his family's welfare to be at stake. But when he states that "we know almost all Karnal bunt is transmitted by seed," I am afraid that we do not know that. There is very little research on the fungus and many smut spores are known to be blown long distances, be carried by birds and livestock or even in blowing soil. In fact the available research is very limited and what we do know points out the insignificance of the fungus biologically.

What Kansas is doing is effectively and unilaterally putting quarantine on all seed from outside Kansas. It is this same short sightedness that caused the Karnal bunt problem in the first place. In the late 80s (after the fungus had been known to be in Mexico over 10 years) the U.S. growers pushed to have quarantine placed on Mexico for Karnal bunt. I hope that it was not that Mexican wheat was becoming competitive. It would be tragic if the Karnal bunt situation turned into a market management tool between states.

Karnal bunt as a plant disease is a wimp! What makes it a problem is not the impact on yield, quality or human health but rather the politics initiated by the U.S. in quarantines. The U.S., with the wheat growers' support, were the first to establish this quarantine against Mexico and of course other countries followed our lead. The American Phytopathological Society, the premier scientific society in the world dealing with plant diseases, has gone on record as stating that:

1—the Karnal bunt disease is insignificant,
2---eradication of Karnal bunt will not work,
3---Karnal bunt quarantines will not work,

and that:

4—the U.S. should concentrate on deregulation of the disease and implement management practices to minimize any potential of the disease becoming a real problem.

Deregulation is the only scientifically justified answer. The problem really is that the U.S. has never deregulated a plant disease once it was on the quarantine list. Even more unlikely, is that neither the wheat industry nor the Animal Plant Health Inspection Service (APHIS) will ever stand up and say, "we screwed up"! (Brown)

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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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