



Pest Alert

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AUGUST 9 VEGNET REPORT

During the last week, daily high temperatures averaged in the mid to upper 70s at most sites in the region, except for Grand Junction with an average of 85. During the last week, rainfall averaged less than 1 inch at most sites; however, Kersey, Sterling, Wray, and Yuma sites each received nearly 2 inches. A few sites received less than 0.25 inches of rain last week, and included Avondale, Delta, Grand Junction, Rocky Ford and the Nebraska and Wyoming sites. The upcoming week is forecasted at average moisture and above average temperature at all sites.

Continue to scout crops at least 1 – 2 times weekly for evidence of pest activity. Check with your local consultants and other experts on crop status and the initiation or maintenance of disease protection strategies when either disease is confirmed in the nearby region and/or a disease threat does exist. Remember to rotate fungicide chemistry when possible to avoid selection of fungicide-resistant strains.

DRY BEAN Pests:

As of August 9, the dry bean crop continues with late pod fill to bump phases, and initial reports of rust problems on susceptible varieties of pintos and great northern are coming in from southwestern Nebraska and the eastern border of Colorado. Section 18 labels for Tilt have been activated in northeastern Colorado and apparently in Nebraska as well; remember that Tilt has a 28 day pre-harvest interval with harvest defined as the death of the plant (via cutting or presumably desiccant). Other rust fungicides include Maneb/Manex (30 day phi) and Bravo (14 day phi).

Common bacterial blight is present in many fields, with additional infection evident from bacterial brown spot in many parts of eastern Colorado, western Kansas and southwestern Nebraska. Maintain the copper bactericide program on a 7 – 10 day schedule 2 – 3 weeks preknifing, especially for light red kidney and yellow beans.

White mold reports are widespread from irrigated sites with a history of the disease around the region; most fields are too far along to benefit from fungicide sprays which target 100% to full bloom, not pod fill stages of plant development. Emphasize irrigation water management to extend intervals between irrigations to reduce excess surface moisture beneath the plant canopy.

ONION Pests:

As of August 9, bacterial diseases like Soft Rot persist in the Front Range area, and Xanthomonas Leaf Blight continues to persist in the Arkansas Valley. Slippery Skin and Sour Skin may appear in more fields after the rains and cool to moderate temperatures of the previous 7 – 10 days. Fungicides like the EBDCs (Maneb, Mancozeb, Dithane, Penncozeb) tank mixed with copper based bactericides (Kocide, Champ, Nu Cop among others) at full labeled rates have been extremely effective, especially when a non-ionic surfactant is added in sufficient gallonage. This tank mix will also help reduce other threats such as Botrytis Blast, Downy Mildew and Purple Blotch if present.

Continue to scout fields at least once, and preferably twice, a week for early signs of disease in the field or region. Maintain applications of protectant fungicides including the EBDCs, coppers, Bravo and Rovral in high gallonage plus adjuvant for good coverage on a 7 to 10 day interval. Rotate fungicide chemistry every other application when possible.

If Downy Mildew reappears in the region, continue to include EBDCs and/or Ridomil tank mixes in the spray program. However, recent high temperatures have reduced the threat of serious damage by Downy Mildew.

Botrytis Blast may appear with the recent cool weather, and can be managed with the EBDC and Rovral type of fungicides applied on a 7 – 10 day schedule.

As we approach harvest, remember that air curing in the field and storage shed is very important to remove sources of moisture from the neck tissue and outer scales, thereby reducing the ability of pathogens to colonize and infect bulbs in the field and during storage.

POTATO Pests:

The Late Blight disease model has exceeded the threshold at many sites in Colorado, even assuming a late May emergence date with hours greater than 80 % relative humidity. The first report of Late Blight was confirmed August 5 in the San Luis Valley. There are still no confirmed reports of Late Blight in northeastern Colorado or the surrounding region.

Maintain protectant sprays (EBDCs, Bravo, Polyram, Quadris, etc.) on a 5 to 7 day interval for Early Blight. If Late Blight is detected in your region, incorporate newer chemistry such as Acrobat and others.

Many fields of potatoes are now being desiccated in northeastern Colorado. Thoroughly destroy foliage and potential sources of inoculum which can threaten later maturing fields downwind. (Schwartz)

AUGUST 15 VEGNET REPORT

During the last week, daily high temperatures averaged in the mid to upper 80s at most sites in the region, except for Rocky Ford and Garden City in the low 90s and center in the mid 70s. During the last week, rainfall averaged less than 1 inch at all sites; however, Delta, Dove Creek, Fort Morgan, Grand Junction, Peckham and Wray each received $\frac{1}{2}$ - $\frac{3}{4}$ inch. The upcoming week is forecasted at average to above average moisture and average to above average temperature at all sites. Western Colorado sites are forecasted at above average moisture and below average temperature.

Continue to scout crops at least 1 – 2 times weekly for evidence of pest activity. Check with your local consultants and other experts on crop status and the initiation or maintenance of disease protection strategies when either disease is confirmed in the nearby region and/or a disease threat does exist. Remember to rotate fungicide chemistry when possible to avoid selection of fungicide-resistant strains.

DRY BEAN Pests:

As of August 15, the dry bean crop continues with late pod to maturity phases, and scattered reports of rust problems continue to come in from southwestern Nebraska and the eastern border of Colorado. Section 18 labels for Tilt have been activated in northeastern Colorado and apparently in Nebraska as well; remember that Tilt has a 28 day pre-harvest interval with harvest defined as the death of the plant (via cutting or presumably desiccant). Other rust fungicides include Maneb/Manex (30 day phi) and Bravo (14 day phi). Most bean fields are within 14 – 21 days of knifing, and light infection (fewer than 25 pustules per plant) should not affect yield or seed size if adequate moisture is present.

Common bacterial blight persists in many fields, with additional infection evident from bacterial brown spot in many parts of eastern Colorado, western Kansas and southwestern Nebraska. Maintain the copper bactericide program on a 7 – 10 day schedule until 14 – 21 days to knifing, especially for light red kidney and yellow beans.

White mold reports are widespread from irrigated sites with a history of the disease around the region; most fields are too far along to benefit from fungicide sprays which target 100% to full bloom, not pod fill stages of plant development. Continue to emphasize irrigation water management to extend intervals between irrigations to reduce excess surface moisture beneath the plant canopy.

ONION Pests:

As of August 15, bacterial diseases like Soft Rot, Slippery & Sour Skin, and a trace amount of Xanthomonas Leaf Blight persist in the Front Range area, while Xanthomonas Leaf Blight is the primary disease in the eastern half of the Arkansas Valley. Fungicides like the EBDCs (Maneb, Mancozeb, Dithane, Penncozeb) tank mixed with copper based bactericides (Kocide, Champ, Nu Cop among others) continue to be effective when applied at full labeled rates with a non-ionic surfactant in sufficient gallonage. This tank mix will also help reduce other threats such as Botrytis Blast, Downy Mildew and Purple Blotch if present.

Continue to scout fields at least once, and preferably twice, a week for early signs of disease in the field or region. Maintain applications of protectant fungicides including the EBDCs, coppers, Bravo and Rovral in high gallonage plus adjuvant for good coverage on a 7 to 10 day interval. Rotate fungicide chemistry every other application when possible.

If Downy Mildew reappears in the region, continue to include EBDCs and/or Ridomil tank mixes in the spray program. However, recent high temperatures have reduced the threat of serious damage by Downy Mildew.

Botrytis Blast may appear with the recent cool weather, and can be managed with the EBDC and Rovral type of fungicides applied on a 7 – 10 day schedule. Include Rovral in the last 1 – 2 sprays to reduce carryover of Botrytis spores from the field through harvest into the curing & storage shed.

As we approach harvest, remember that air curing in the field and storage shed is very important to remove sources of moisture from the neck tissue and outer scales, thereby reducing the ability of pathogens to colonize and infect bulbs in the field and during storage.

POTATO Pests:

The Late Blight disease model has exceeded the threshold at many sites in Colorado, even assuming a late May emergence date with hours greater than 80 % relative humidity. The first report of Late Blight was confirmed August 5 in the San Luis Valley. There are still no confirmed reports of Late Blight in northeastern Colorado or the surrounding region.

Maintain protectant sprays (EBDCs, Bravo, Polyram, Quadris, etc.) on a 5 to 7 day interval for Early Blight. If Late Blight is detected in your region, incorporate newer chemistry such as Acrobat, Curzate and others.

Many fields of potatoes are now being desiccated in northeastern Colorado. Thoroughly destroy foliage and potential sources of inoculum which can threaten later maturing fields downwind. (Schwartz)

PLANT CLINIC CLOSED UNTIL AUGUST 19

With the recent changes in plant clinic staffing and current staff (Barbara Ambruzs and me) previously planned programs, we will close the plant clinic from August 9 through August 19. In the meantime, I would urge you to contact your county Cooperative Extension local master gardener staff for home horticulture. In the case of nursery or golf courses problems, or the JEFFCO clinic (phone 303-271-6620).

The clinic will be checked by Susan Nemeth and Lindsey Yerkes and some of the faculty and specialists. Any insect specimens sent in will be forwarded to the appropriate specialist for action. Other high priority, urgent, commercial plant pathology requests or queries should be directed to the following people in the appropriate areas.

Commercial vegetables, bean and potato---Dr. Schwartz.....(970) 491-6987
Small grain and corn-----Dr. Hill.....(970) 491-7463
Trees and woody ornamentals-----Dr. Jacobi.....(970) 491-6927
Turf-----Dr. Koski.....(970) 491-7070

I will be checking my voice mail regularly (970-491-6470) and can respond to urgent calls. If you need immediate assistance call the main office, (970-491-5261), and they will attempt to redirect your query to the appropriate specialist. (Brown)

YELLOWJACKETS CRANKING UP

Yellowjackets are one of the few insects I have trouble finding something nice to say about. They are, by far, the most common stinging insect in Colorado, accounting for, conservatively, 95% of all "bee" stings. (This gives the highly beneficial honey bee an undeserved black eye in public esteem.) Yellowjackets also are often "in your face", visiting outdoor dining areas seeking to share a bit of burger or sip on soft drinks. Such activity increases dramatically in late August and early September, when colonies are at their peak.

A bit of background on yellowjacket biology. The only stage that survives winter are fertile females (potential queens) produced late in the season that have mated. They disperse in fall seeking protected sites to make it through the cold season. The old colony is abandoned and not reused. With it, the great majority of the colony members, the workers (infertile females) and males, perish.

New colonies originate from an overwintered female that successfully survives winter and is able to establish a new colony. These are usually located in abandoned nests of rodents, but wall voids or other hollow areas can be used. As all the work of establishing the colony falls on the overwintered

female (e.g., nest construction, foraging for food) the first workers tend to be on the puny side, being malnourished. However, they then assist in colony maintenance and, gradually, the colony expands. By the end of the summer, the colony that began from the single queen may include hundreds of individuals. On average, at the end of the season, they are larger having been better fed and some future queens and males are produced at this time.

Some differences in the behavior/biology of yellowjackets and honey bees include:

- **Appearance:** Honey bees tend to be generally orange with black bands, but can range in color (e.g., cream colored or yellow forms exist). They are always very hairy, a consequence of their habit of collecting pollen. Yellowjackets show more vivid yellow and black banding and are not hairy.
- **Stinger:** The stinger of the honey bee is barbed and remains, with the poison gland, after being inserted into skin; the honey bee subsequently dies. Yellowjackets have a smooth stinger that is pulled out after the sting and thus are capable of multiple stings.
- **Feeding habits:** Honey bees feed on nectar and pollen, rarely visiting other sources of sugars, such as honeydew (produced by aphids and soft scales) or soft drinks. Yellowjackets are general scavengers and occasional predators. They tend to feed on protein-rich materials (e.g., insects, dead earthworms, fish or meat) when rearing young. They then switch to predominately a carbohydrate diet later in the season. Accessible garbage cans may become major areas of foraging.
- **Nest construction:** Honey bee nests are constructed of wax, a material they produce from special glands on their abdomen. Essentially all honey bee colonies are found in hives maintained by beekeepers, although some may occur in hollow trees or in wall voids of buildings. (These "wild"/feral honey bees are much less common in recent years due to the devastating effects of tracheal mites and Varroa mites that first made their way into Colorado during the late '80s.) Yellowjacket nests are constructed of a paper-like material, made up of chewed wood pulp and are enclosed in a papery envelope. They occur below ground or, less commonly, in wall voids.

At this time of year, yellowjacket control primarily involves either attempting to eliminate nuisance colonies or waiting for the problem to pass. If colonies can be located, then use of a standard "Wasp and Hornet" spray is recommended. These typically involve a combination of two insecticides, a short persisting but fast "knockdown" type (e.g., pyrethrin, tetramethrin, sumithrin) and something that is more persistent (e.g., chlorpyrifos, propoxur). They usually contain a propellant that allows the spray to be directed as a jet towards the nest entrance from several feet away. As the colony entrance may wind and extend for a foot or more below ground, multiple applications often are needed. Treatments should be applied after dark or during cool mornings when the yellowjackets are not flying.

If the colony is not in a location where they pose a stinging problem, then they often are best left ignored. Come freezing weather the colony will self-destruct.

Some preventive tips can help reduce future problems. Access to hollow sites used for nesting should be sealed prior to late spring when new nests are established. (One particular site I have observed that is used commonly is tubular children's play equipment.) There are also Wasp Traps for sale at some nurseries and through some garden catalogs. These have been shown in some settings to be effective for yellowjacket control, particularly for the common Colorado species (*Vespula pensylvanica*). They involve an attractant bait and a funnel-shaped trap. These are best employed early in the season, when colonies are small; at season's end the high yellowjacket populations present will be little affected.

WHAT IS A WASP - HORNET - YELLOWJACKET - BEE?

I think one of the most common questions I get regarding insect classification, particularly around this time of year, surrounds the differences between the various stinging wasps and bees. This is a good taxonomic question that gets a bit muddled from the common names that are applied to this diverse group of insects.

First of all bees and wasps are members of the order Hymenoptera, along with ants and a few "weirdo" groups including sawflies and horntails.

Essentially all bees develop on a diet of pollen and nectar. Also, they are almost always hairy bodied, a morphological boost for pollen collecting. The most well known are social bees that produce a colony including the honeybee (*Apis mellifera*) that produce a perennial colony and bumble bees (*Bombus* spp.) that annually establish new colonies. However there are many types of solitary bees - species that have the habit of individually creating a colony that is dug into the ground or excavated from some soft substrate. (Of course, in these cases the female does all the nest construction work and provisioning of the young.) Leafcutter bees (usually *Megachile* spp.) and various digger bees are examples of species that have this habit. All of the above rear their young on nectar and pollen, the few exceptions to this habit among Colorado bees are those that are parasites of other bees.

The definition of a "wasp" gets a bit dicier. Perhaps the best separation between almost all Colorado bees and wasps are their feeding habits and "body hair". All wasps develop as a predator or parasite of other insects or are scavengers. Wasps have generally a minor role in pollination (primarily done by the males) and have a comparatively much less "hairy" body than bees.

But then there are wasps and there as wasps. The way that I categorize them at this level are that there are: 1) parasitic wasps; 2) solitary hunting wasps; and 3) social wasps.

The **parasitic wasps** lay their eggs in or on some insects. (Species in the families Braconidae and Ichneumonidae are particularly commonly encountered.) Their young develop on the unfortunate host, almost invariably killing it. Although females often have a long, scary looking stinger (which is used primarily to lay eggs in some insects they are non-aggressive and produce little, if any, pain if a sting does occur.

The **solitary hunting wasps** primarily involve two families of wasps, Sphecidae and Pompilidae. General habits of both are in many ways similar. The female creates rearing cells in some sort of nest, goes out and collects prey that she paralyzes and returns it to the nest cell, then, when the nest cell is adequately provisioned, lays an egg and seals it. The type of nest depends on the species. Some hunting wasps dig into soil, others create mud nests and many excavate the pith of hollow plants. One of the main differences of the two families are that the Sphecid wasps hunt insects; pompilids hunt spiders. Also different is the sting - some of the pompilid spiders have about the most painful sting of any insect, while the sphecid wasps have a mild sting.

Then there are the **social wasps** (all in the family Vespidae), that are the group that most encounter human in unfortunate stinging incidents. All the social wasps share some habits: colonies are established annually, abandoned completely and dying off in fall after leaving a few fertilized queens to scatter around the vicinity and attempt a new colony the next season; nests are made of "paper" produced from masticated wood pulp; populations of colonies show dramatic differences in activity during the growing season, as they annually increase exponentially from late May through September; and they don't leave a stinger, as do honey bees.

Basically there are three groups of social wasps. The most common are the yellowjackets, accounting for the overwhelming majority of stinging incidents in the state (see above). These are all

in the genus *Vespula* and the most noxious species is the western yellowjacket (*Vespula pensylvanica*). Yellowjackets produce a paper nest but the site of the nest is concealed, in an abandoned rodent nest below ground, behind an exterior wall, in hollows of children's playground equipment, etc. Yellowjackets have diverse tastes. Although they feed on some insects, they readily scavenge sweets and protein-rich foods. They can be serious nuisance problems around uncovered garbage and at outdoor dining areas in late summer.

Perhaps more commonly observed, but far less commonly involved in sting incidents are the "hornets". These make paper enclosed nests in trees, shrubs and under eaves that may exceed the size of a football. They are produced by members of the genus *Dolichovespula*. The baldfaced hornet, a large black and white wasp, is the most commonly encountered member of this group. Hornets are primarily predators of other insects, rarely visiting garbage or outdoor dining areas.

Then there are "umbrella wasps". These similarly make their nest cells of a papery material, but do not enclose it with a papery envelope. Colorado species that have this habit are in the genera *Polistes* and *Mischocyttarus*. As with the hornet these have a generally beneficial habit, rearing their young on insects that they capture, but will sting when defending the hive.
(Cranshaw)

POLICY PAPER ON ROLE OF USE-RELATED INFORMATION PUBLISHED

On July 14, 1999, EPA published a Federal Register notice announcing the availability of a draft document for public comment- The Role of Use-Related Information in Pesticide Risk Assessment and Risk Management. This paper is being released for a 60-day public comment period, as part of a process developed in conjunction with the Tolerance Reassessment Advisory Committee (TRAC) to ensure that EPA's policies related to implementing the Food Quality Protection Act (FQPA) are transparent and open to public participation. The paper announced in this notice summarizes the types of use-related information used by EPA in risk assessment and risk management, where the data come from, and how the Agency employs these data.

The Federal Register notice includes questions on which EPA is particularly seeking comment. The paper is available through the OPP Docket and on the Internet at:

www.epa.gov/pesticides/trac/science/.

Comments can be submitted in person, by mail, or electronically as described in the Federal Register notices. The Federal Register notice is available electronically at www.epa.gov/fedrgstr. (McDonald)

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

Sincerely,

William M. Brown, Jr.
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Extension Plant Pathologist