

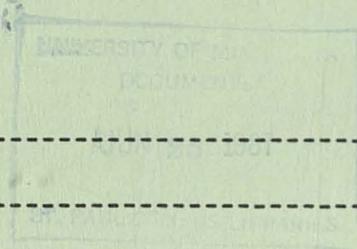
MN 2000 PPN 1986-5



# PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA



PPST05

May 23, 1986

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### Extension Plant Pathology

**RHISOSPHAERA** -- Rhizosphaera needlecast is causing defoliation in blue spruce trees in Minnesota. The affected needles appear dirty and later turn reddish brown. With a hand lens the black spore-containing structures can be seen on the needles, usually in rows where the stomata would be evident on healthy needles. Defoliation is usually most evident in the lower crown, close to the ground. The fungicide chlorothalonil can be applied when new needles are elongating and again when fully elongated during the period of April 15 to June 15.

**BLACK KNOT** -- Black knot of plum caused by a fungus called Dibotryon morbosum has been observed on varieties of plums and cherries. This disease has always been very abundant on wild plums.

The black knots which are easily seen should be removed, including 6-8 inches of apparently healthy stem. If this is not possible, cut back to the branch axil removing some of the healthy appearing stem. Infected wild plum in the area should be eradicated. Fungicide applications are effective just before buds open or as the buds begin to swell. Zineb is effective but not labeled. A combination of benomyl and captan would provide protection until Zineb is labeled.

David W. French  
Professor

FUNGICIDE DISCONTINUED -- The fungicide ZINEB is no longer going to be manufactured by Rhom and Haas or by FMC. It is likely that all small companies which sell Zineb will have no Zineb supply available in the future. In cases where Zineb is used, check the labels for either Maneb or Mancozeb to see if they can be used in place of Zineb. Another product that is a broad spectrum fungicide is chlorothalonil. This may be a good choice for many of the uses one had for Zineb. This material is sold under the name Bravo 500 and Daconil 2787. Ortho also has it as a vegetable disease product and now Chevron sells it as a multi-purpose fungicide. The produce has a broad label for the control of certain diseases of turf, vegetables, fruit, and ornamentals.

CORN -- Fields that were flooded this season following corn planting may show the disease crazy top. This disease is most easily recognized by the large proliferation of leaves on the top of the plant and the lack of a normal tassel. Crazy top can also cause suckering of young plants. The leaves are usually thickened and rubbery. Yellow streaks may occur in some leaves, while the plant remains stunted and the stalk is thickened.

Cool, wet conditions can also favor seedling blight. Plants damaged and killed before emergence or plants that lack vigor, are yellow, or may die are all symptoms of seedling blight. The seed or soil pathogens, such as Fusarium, Penicillium, Pythium, and Rhizoctonia are generally the cause of corn problems. Another potential cause is the corn lesion nematode. Seedling blights are more often present in patches. Seedling blights from seed infection is general over the field. Also, watch for evidence of compaction, ammonia burn, starter fertilizer injury, herbicide, and insecticide injury.

Ward C. Stienstra  
Extension Plant Pathologist

### Agronomy Extension

BLADEX AND DUAL INCOMPATIBILITY -- We have recently heard several reports of incompatibility problems when Dual and Bladex were tank-mixed. The result was a lumpy or stringy mess that was very difficult to remove from the spray tank. This problem appears to occur when the herbicides are not mixed into the spray tank properly. For best results fill the spray tank one-fourth to one-half full of water and start agitation. Next, add the Bladex to the tank. After the Bladex is thoroughly suspended in the water, "pre-wet" the Dual by mixing it with an equal amount of water. Then, slowly add this Dual - water mixture into the spray tank.

The Dual label also recommends adding a compatibility agent at 2-3 pts/100 gallons of spray mixture before adding Bladex into the spray tank.

BLADEX POSTEMERGENCE -- Remember when applying Bladex postemergence to corn to use only the 80W or 90DF formulations. The 4L formulation contains a petroleum base that will increase the injury risk to corn. Do not apply Bladex to corn after the fifth leaf is visible or after weeds exceed 1-1/2" in height. Under droughty conditions, surfactants or vegetable-based oils can be added to Bladex to improve control. Do not use petroleum-based crop oils. When soil moisture and humidity is high, additives should not be used because corn injury may result.

Jeff Gunsolus  
Extension Weed Control

WEED CONTROL IN DIRECT-SEEDED ALFALFA -- I have had several questions on the control of field pennycress and shepherdspurse when direct-seeding alfalfa. A tillage operation before seeding should control any plants that are now up. The use of 2,4-D to control emerged weeds before seeding alfalfa is not labeled or recommended because of potential alfalfa injury. 2,4-DB (Butyrac or Butoxone) can be applied after the alfalfa has emerged and is in the 2 to 4 trifoliolate leaf stage. 2,4-DB will control many broadleaf weeds, including field pennycress and shepherdspurse.

Beverly R. Durgan  
Extension Agronomist-Weed Control

### Extension Entomology

ASTER YELLOWS INDEX -- In last week's Plant Pest Newsletter (pp. 48-49), I referred to the Aster Yellows Index developed by Dr. Chapman of the University of Wisconsin. This index is a measure of the risk that aster leafhopper (ALH) will transmit aster yellows disease to the

vegetable crop being sampled for ALH. The index is calculated as follows:

$$\text{Aster Yellows Index} = \% \text{ infectivity of ALH} \times \text{No. of ALH per 100 sweeps}^*$$

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+ This information provided by Dr. Chapman early in the season. Minnesota estimates will be provided by Dr. Ragsdale from June onwards. The current estimate is 3%.

\* With a standard 15" diameter insect sweep net, being used to sweep the foliage of the crop in question.

For example, with the current estimate of infectivity at 3%, if 20 leafhoppers were found per 100 sweeps, then the Index = 3 x 20 = 60.

Crops very susceptible to aster yellows, such as lettuce and celery, are likely to suffer damage symptoms from the disease, and hence loss of saleable yield, at a much lower index than are less susceptible crops, such as carrots and onions. Thus Dr. Chapman has been able to determine action thresholds, in terms of the aster yellows index for lettuce, celery and a wide range of carrot cultivars, as shown in the table below. As with all action thresholds, if the value calculated by the user for his or her particular situation exceeds the action threshold, action to control pests is advised. If it is less than the action threshold, control measures will probably be a waste of money.

<u>Crop</u>	<u>Aster Yellows Index Action Threshold</u>
Lettuce	25
Celery	35
Carrots	
Susceptible	50
Intermediate	75
Resistant	100

Thus in the example above, if the crop where the Aster Yellows Index of 60 was found was lettuce, celery, or a susceptible cultivar of carrots, 60 would be above the action threshold, and a spray would be advisable. If, however, the crop was an intermediate or resistant cultivar of carrots, or onions, treatment would not be cost effective; rather the crop should be sampled again for ALH in 2 to 3 days. Leafhoppers are very mobile insects, so numbers can change dramatically in a short time.

Onions are so resistant that Dr. Chapman did not provide an action threshold for them; however, at very high rates of disease transmission

onions may suffer symptoms of Aster Yellows Disease - it causes them to sprout in storage. A list of which carrot cultivars are resistant, which are intermediate, and which are susceptible, was given in last week's newsletter. For insecticide recommendations to control aster leafhoppers see extension folder AG-FO-1885.

Aster leafhoppers (ALH) have been reported infesting the barley grown as a cover crop among young seedlings of onions and carrots. At this stage the onion and carrot crops are too small to sweep sample, but sweeps could be taken in the barley. However, Dr. Chapman's thresholds are not calculated for this situation; so they probably cannot be used as a definitive guideline here. If the index calculated from sweeping the barley is below the threshold index, there is probably little risk to the carrots or onions. Even if the calculated index in the barley is above the threshold for the vegetable crop, there may be less risk to the vegetables than the index implies if the ALH prefer the barley. This may vary according to the stage of the barley, the stage of the vegetable crop, and between vegetable crops.

ALFALFA WEEVIL -- Reports are starting to come in (5/20 & 5/21) indicating Alfalfa Weevil (AW) damage that exceeds the action threshold of 30-35% of terminals showing feeding damage. In Goodhue County near Cannon Falls fields were reported with damage levels that ranged from only 15% up to 46%. Alfalfa in those fields was in the bud stage - i.e., ready to cut. If the hay is cut promptly, the current fine weather should enable it to dry fast and many weevil larvae may be killed. The hay should be picked up as soon as possible, and the stubble then checked to determine whether harvest has provided adequate control. If 8 or more AW larvae per square foot have survived the harvest, or severe feeding damage to stubble regrowth is visible, apparently delaying it, and larvae are present, a spray will be necessary to stop the weevils from causing serious delay to the regrowth.

AW damage exceeding the action threshold was also reported from 3 fields in Houston County and fields in southern Winona County. Again, these fields are ready for harvest, so cutting the crop is the farmer's best choice of control for the weevil. Most larvae in these fields are reported to be in the second or third of their four developmental stages. The fourth stage consumes much more alfalfa than the younger stages, so that if harvest is delayed, and the larvae are allowed to live, damage will become severe. If harvest must be delayed, then it would be wise to apply an insecticide if weevil damage is over threshold. The delay then will need to be at least as long as the pre-harvest interval of the insecticide, however. As alfalfa quality declines the longer harvest is delayed, cutting the hay is the most cost effective option when possible. Should an insecticide be required, see extension bulletin AG-BU-0500 for recommendations.

OTHER ALFALFA INSECTS -- Two individual sightings of a green leafhopper (probably potato leafhopper) were reported May 22 from

alfalfa in Houston County. At this early stage of the season, some other related species of green leafhopper are sometimes also found, but always in low numbers. As it was not possible to collect the specimens reported, they cannot be positively identified. However, judging from past records, we can expect the first potato leafhopper immigrants from the south to arrive any time now. It all depends on the weather fronts. A wide variety of other insects have been seen in the alfalfa, but none have been reported at damaging levels. CLOVER LEAF WEEVIL (CLW) larvae have been observed in most fields where AW larvae were seen. CLW are rarely a problem as they are very susceptible to a fungus disease and so seldom reach high numbers. Pest managers should take care not to mistake them for AW larvae. CLW larvae have a light brown head, whereas AW larvae have a black or very dark brown head. Otherwise they are similar in appearance.

Penny Ives  
Extension Entomologist

CUTWORM UPDATE -- The return of fair weather has reduced the influx of black cutworm moths. During the last trapping period (May 15-21), significant captures were reported in only 2 counties. Murray County reported a total of 12 moths over 3 nights beginning May 17. Steele Co. reported a total of 8 moths over 2 nights beginning May 15. Reminder: Leaf feeding by larvae from the flight of May 7 - May 14 should be observed the last week of May with cutting detected about June 3-8.

Scattered reports of dingy cutworm leaf feeding and cutting have been received from SC and SE Minnesota. Carefully watch the feeding behavior of any detected cutworm infestation. Cutting should appear or intensify within the next week. Leaf feeding alone does not justify insecticide application and should be viewed only as a sign of cutworm presence and the necessity for more frequent scouting. Cutworm species, development of both corn and the cutworm, and weather affect the amount of stand loss that occurs. Actual treatment decisions based on cut plants are more economically reliable than treatment decisions based on leaf feeding. Focus attention on fields when cutting is detected and treat when cutting exceeds 6%.

STALK BORER AND HOP VINE BORER -- Both insects migrate from grassy areas where eggs were laid last fall into corn fields. Young stalk borer larvae may feed in the whorl. This leaf feeding may be mistaken for early cutworm feeding. Carefully open the whorls of damaged plants and search for 1/8 - 1/4" larvae with distinct stripes. If none are found, examine the soil near the base of the plant for cutworm larvae. Later feeding by stalk borer in the whorl produces tattered leaves. The early feeding habits of hop vine borer are not well known. Both stalk borer and hop vine borer larvae tunnel into the stalk. This tunneling can produce a "dead heart" symptom or kill plants outright.

SEEDCORN MAGGOT -- Adults have emerged over the last week in southern Minnesota. Because the females seek out moist soil to lay their eggs, freshly worked or planted fields can attract flies. Damage by the larvae can be easily prevented by a seed treatment. If farmers planting soybeans or corn notice small flies, about the size of a housefly, flitting about close to the soil surface, a seed treatment containing diazinon, lindane, or chlorpyrifos will prevent stand loss.

WIREWORMS -- Any fields with significant stand loss from wireworms that may require replanting would provide an excellent opportunity to evaluate our insecticide recommendations. If you know of a field with wireworm problems please contact Ken Ostlie at (612) 624-9272.

Kenneth R. Ostlie  
Extension Entomologist

DIAL U WEEKLY SUMMARY REPORT -- The following table highlights clinic contacts of special interest for the week of May 13-19, 1986.

HOST

DIAGNOSIS

Ash (Fraxinus)

Anthracnose

We continue to receive many reports of anthracnose on green ash. It is too late for effective chemical control this year. (See last week's PPN.) In some cases, minor leafdrop has been reported.

Oak

Anthracnose

See Oak Anthracnose writeup on page 61 of this issue.

Birch

Birch Leafminer

Birch leafminer mines are appearing. It is not too late to control in most cases, but sprays should not be delayed. Make applications with Orthene.

Turf

Mound Building

We have received calls on ants in lawns. Although it is assumed that they are damaging the turf, they cause no injury and control is not necessary based on turf health. See AG-F0-1008.

## Turf

### Black Flies

Gnats (black flies) are out and we have been getting calls about them. There is little the homeowner can do. Wear light-colored clothes, long sleeves and pants to minimize their attacks. When possible avoid areas where they are known to be. Repellants do not usually deter them.

## Shrubs

### Plant Selection

It's difficult to envision what mature shrubs will look like in the landscape. Before buying, you may wish to visit the Arboretum, ten miles west of the Twin Cities on Hwy 5. They have examples of all the trees and shrubs that are suitable for planting in Minnesota.

## Turf

### Weed Control

Still lots of turf questions. With all the windy weather we've had, extra caution is in order. Spray only on calm days, and hold the spray nozzle close to the ground. If it rains within 24 hours, repeat as soon as weather permits.

## Apple

### Winter Injury

Last winter turned out to be a tough one for young apple trees. Many looked fine in the autumn but failed to leaf out well this spring. Winter injury may have occurred because abundant autumn rainfall slowed the normal hardening off process. All you can do is pull them out and replant.

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Jill Pokorny  
Plant Pathology

Jeff Hahn  
Entomology

Deb Brown  
Horticulture

OAK ANTHRACNOSE--Oak anthracnose is a fungal leafspot disease which occurs mainly on white oaks but also on bur oaks. It typically appears as large irregular light brown spots, which may coalesce and encompass the majority of the leaf surface. Disease development is favored by cool wet weather, especially early in the season. Blighted leaves may fall, and twigs may be infected or killed by the fungus.

This disease may be confused with oak wilt, but there are features which readily distinguish the two:

- 1) Oak anthracnose is most severe on white oaks whereas oak wilt is most severe on red oaks.
- 2) Oak anthracnose will produce individual blotches on leaves, often in the center of the leaf. Although blotches may coalesce, causing large areas of browning, the browning will not be restricted to the margins only, as is the case with oak wilt.
- 3) Symptoms of oak anthracnose are most severe on the lower, inside branches where the humidity level remains higher. Symptoms of oak wilt will appear on the extremities of branches, often in the upper crown.

Although it may be unsightly, oak anthracnose seldom causes more than minor damage to an established, healthy tree, and chemical control is not usually necessary. If defoliation occurs early in the season, the tree can usually produce more leaves, though the second flush may consist of smaller and fewer leaves. If a tree suffers severe defoliation for several years in a row, branch dieback may occur.

Since the fungus overwinters in infected leaves and twigs, it is helpful to remove and destroy fallen leaves in the autumn and to prune out dead branches. Remember, do not prune oaks in April, May, or June because of the danger of attracting the beetles which spread the oak wilt fungus. Trees that have been defoliated, or with dead twigs and branches from previous infections, might benefit from a spring application of fertilizer to increase vigor. Water the trees during dry periods, if practical.

Chemical control may be advisable on a tree which has been defoliated for several years in a row, or on a young, newly transplanted tree, especially one infected in the previous year. Fungicides should be applied just after bud break and repeated two to three times at 7 to 10 day intervals if the weather is wet. A spray program begun before the onset of symptoms, as a preventive measure, will be much more effective than one begun after symptoms are obvious. Benomyl, tribasic copper sulfate, and Bordeaux mixture include fungicides labeled for control of anthracnose on oak.

Jill D. Pokorny  
Extension Educator, Plant Pathology

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