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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-17] [July 26, 1991]

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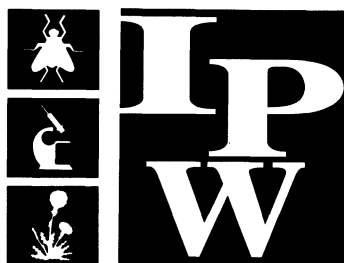
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Insect Science Plant Disease Weed Science

NEWS

UNIVERSITY OF NEBRASKA COOPERATIVE EXTENSION • INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES

No. 91-17

July 26, 1991

In this issue

Insect Science

Capture 2EC approved for mites on corn	95
Identification essential to mite control.....	96
Second generation borers hatch	97
Control blister beetles before horses harmed	97

Plant Disease

Wheat disease management begins before planting ..	98
Phytophthora root rot identified	98

Climatology

Weather and crop data available on computer bulletin board	99
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INSECT SCIENCE

Capture 2EC approved for mites on corn

A *Crisis Exemption* has been approved for synthetic pyrethroid bifenthrin (Capture 2EC, FMC Corporation) miticide/insecticide for the control of twospotted spider mites and Banks grass mites on field corn and seed corn. Gov. Ben Nelson approved this use until September 15.

The approved application rate is 0.08 lb AI/acre or 5.12 fl. oz formulation/acre in a minimum of 2 gallons total spray volume per acre. Note the following restrictions:

- It can only be applied by aircraft;
- Mechanical flaggers must be used;
- Applications are limited to two this season;
- A closed loading system is required;
- Mixer/loaders must wear long sleeves, long pants, chemical resistant gloves, and goggles or a face shield;
- The treated crop cannot be harvested or grazed within 30 days of last application;
- The treated crop cannot be rotated to another crop within 30 days after application;
- It cannot be applied within 500 feet of water bodies containing fish or aquatic invertebrates; and
- It cannot be applied within 1 mile of fish bearing waters that may contain or shelter endangered species. (See supplemental label for Nebraska sites.)

Managing mites, page 96

A certified commercial or private applicator must supervise use of Capture 2EC and the applicator must possess supplemental labeling information at the time of application.

The supplemental label states that this product may be used to control these two species of spider mites in corn fields where the leaves of the lower third of the plant have mite populations which are destroying them and mites and associated damage are moving into the middle third of the plant. Carefully scout fields to determine the need to treat.

Capture 2EC has been tested in corn in Nebraska and surrounding states for several years. Test results indicate that Capture reduces twospotted spider mite infestation levels similarly to Comite, which is also registered for this use. Banks grass mite infestation levels also can be reduced by applying these products, however, other registered products, such as Cygon, are effective in controlling this species and cost much less.

Bob Wright



UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U.S. DEPARTMENT OF AGRICULTURE



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Population increase likely in hot, dry weather

Identification essential to mite control

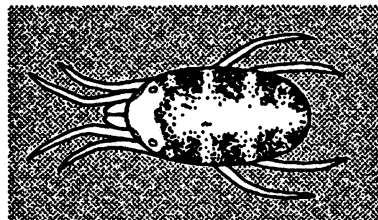
Spider mites are in many Nebraska corn fields, but numbers are not high. If the recent hot dry weather continues, however, the mite population may increase and cause damage.

Spider mite problems are more likely when plants are stressed, particularly by heat and drought. Spider mite problems also are more likely after insecticides are applied to fields in efforts to control other pests, such as European corn borers or corn rootworm beetles, because these pesticides also kill natural enemies of spider mites. Obviously, it is wise to avoid stressing the plants and to not apply insecticides unnecessarily.

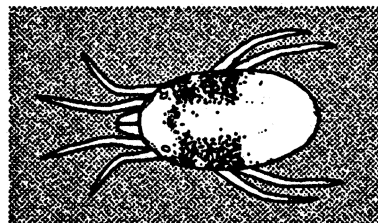
It is important to be able to distinguish between Banks grass mites and twospotted spider mites because they should be managed in very different ways. These mites can be differentiated in the field with just a little magnification (see drawing). Pesticides that will control the Banks grass mite will not necessarily control twospotted spider mites.

If only Banks grass mites are present, treatment is usually justified if one lower leaf is yellowing from mite damage and colonies are present up to the ear zone. In Nebraska, dimethoate (Cygon) has generally provided acceptable control of Banks grass mite.

If only twospotted spiders are present or both species are present, treatment may be justified when 15-20 percent of the total leaf area is covered with active twospotted



Banks grass mite



Twospotted spider mite

spider mite colonies and moderate damage is apparent. Comite 6.55 EC and Capture 2EC (see page 95) are expected to provide acceptable control of the twospotted mite, based on research data.

For either mite species consider the following:

- reduce moisture stress through timely irrigation;
- treat for insect pests only when economic thresholds are exceeded;
- treat only the heavily infested areas of the field to allow for recolonization by natural enemies of mites;
- increased gallonage (5 gallons minimum) may improve the degree of mite suppression;
- corn that has reached the dent stage is unlikely to benefit from treatment for mites.

For more information about managing the Banks grass mite and twospotted spider mites, refer to NebGuide G75-50, *Spider Mites on Corn*, and EC91-1509, *1991 Insect Management Guide — Corn and Sorghum*.

Bob Wright

IPW News

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Lisa Brown Jasa, Editor

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Three pesticides registered in 1991

In fiscal year 1991, the EPA registered only three new pesticides. This compares to fiscal years 1988, 1989 and 1990, when 13, 15, and six new chemicals were registered for the first time as pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act.

Larry Schulze
Environmental Programs

Second generation corn borers hatching

Egg-laying by second generation European corn borer moths has begun in many areas of the state and hatch has begun in southeastern Nebraska, as of July 19. (See *IPW News* 91-16 for scouting and treatment guidelines.)

Scouting information on corn borers can be accumulated from more than one field visit to more accurately estimate the potential corn borer population in a field. If counts are combined, visits should be at five-day intervals, and counts should not be accumulated over more than 10 days.

If egg counts are high enough to indicate that control would be profitable, best control is obtained if applications are made when the first egg masses begin to hatch, and small larvae are still visible in the leaf axils. Later treatment will allow some of the early hatching larvae to bore into the stalk and escape control.

The last issue of *IPW News* provided predicted dates for egg-laying by second generation European corn borer moths from various locations across Nebraska. The predictions were made with the Nebraska European Corn Borer Software program. Data from one more site has been provided by John Schade, Extension agent, Benkelman.

The following data were used to make predictions:

Number of corn borers in each stage

County	Date	1st	2nd	3rd	4th	5th	pupa
Dundy	7/13	5	22	28	23	19	1

Using the above information and 30-year average weather data for Dundy County, the program computed the following predictions for timing of second generation corn borer egg laying:

Percent egg-laying completed predicted by indicated date

County	5%	25%	50%	75%	95%
Dundy	7/29	8/5	8/11	8/16	8/22

Scout when a 25-50% predicted egg-laying is predicted. Based on field studies in Nebraska, the predictions for 25-50% egg-laying completed tend to be two to three days ahead of what happened in the field. Also, since these predictions are based on 30-year average weather data, if weather conditions differ greatly from long term average conditions, actual egg-laying will be somewhat different.

Bob Wright

Control blister beetles before horses harmed

Blister beetles are most common during the second and third alfalfa cuttings in Nebraska. These relatively large beetles are a concern not because of potential damage to the forage crop, but rather because of how they can harm livestock. Blister beetles contain a substance called cantharidin, which can cause illness and even death when ingested by livestock, particularly horses. Several species of blister beetles live in Nebraska. They can be 1/2 to 1 inch long black, grey, brown or striped. The relatively soft body is long and cylindrical with a fairly long "neck" when viewed from above.

Most blister beetles feed on grasshopper eggs in the soil when in the immature stages in the spring and early summer. For this reason, they might be considered beneficial insects. They emerge from the soil as adults in mid-summer and tend to congregate in large numbers on flowering weeds and blooming alfalfa. This is when they become pests.

People often ask "How many blister beetles does it take to harm a horse?" The degree of damage depends on the species of beetle and size of the horse. Research at Kansas State University and other locations around the country indicates that a normal size horse would have to consume 30 to 50 or more beetles in 24 hours to cause death. However, as few as two to four beetles may cause illness in

horses. Other livestock are affected by cantharidin but not to the degree of horses.

Following the management practices outlined below may reduce the likelihood of blister beetle poisoning.

1. Feed only first cutting alfalfa hay to horses. Most blister beetles will not be present as adults until after the first hay harvest in Nebraska.
2. During the second and third cuttings, harvest alfalfa before the bloom stage and eliminate flowering weeds near the alfalfa field well ahead of harvest.
3. Scout alfalfa for blister beetles and consider using an insecticide to reduce beetle numbers if they are present before harvest.
4. If you suspect that blister beetles are present in alfalfa that is ready to be harvested, do not use a crimper because this will kill the beetles and ensure that they remain in the hay. If the hay is mowed and raked, the beetles are less likely to be killed at cutting and will probably leave the field for better habitat elsewhere.

For more information on blister beetles and their management, refer to the *1991 Insect Management Guide for Alfalfa, Soybeans, Wheat, Range, and Pasture* (EC91-1511), which is available at your local Extension office.

Steve Danielson

Amount rather than intensity key to pesticide washoff

It's not the intensity, but the volume of rain and the type of pesticide that counts when it comes to washing pesticides off plants. The first tenth of an inch of rain removes almost all of the pesticide that is going to wash off, regardless of how long it takes for that amount to fall, according to studies by a USDA ARS scientist in Baton Rouge, LA.

"It doesn't matter whether it takes a minute or an hour — a heavy storm or a sprinkle — for a tenth of an inch of rain to fall, it's that volume that's the significant factor, not how hard the raindrops hit the leaves," said Guye Willis in an April article in *Agricultural Research*.

Organochlorine pesticides like lindane, Kelthane and methoxychlor were the least susceptible to being washed off by rainfall, while the more water-soluble chemicals were the most susceptible.

For example, 0.1 inch of rain will wash off about 50 percent of a water-soluble pesticide that was on the plant when the rain began, but only about 2 percent of the organochlorine pesticide, which has limited solubility in water.

Larry Schulze
Environmental Programs

PLANT DISEASE

Wheat disease management begins before planting

Take steps this fall to help prevent diseases in winter wheat next spring. Since it's difficult to predict which diseases will become problems, growers need to prepare for those that are most common and damaging. These include root rot, wheat streak mosaic, and wheat leaf rust.

Cultivar selection, seed quality, post-harvest weed control, and planting date are critical factors in overall wheat health management. Not all cultivars are resistant to wheat leaf rust, and those that are may not always be the best yielders. Growers should not put all their eggs into one basket and choose a single cultivar, but rather they should use the concept of cultivar complementation. This involves selecting cultivars that complement each other agronomically and in their resistance to leaf rust and other diseases.

Planting quality seed is good insurance for establishment. Growers unsure about their seed quality can have it

tested or can buy certified seed. Effective post-harvest weed control eliminates volunteer wheat and grassy weeds that will carry over the wheat curl mite and the wheat streak mosaic virus. It also reduces moisture loss due to weed stubble fields.

The planting date is probably the factor having the greatest influence on wheat diseases in Nebraska. Wheat that is planted too early is prone to root rot, wheat streak mosaic, and fall infection by leaf rust. Follow the recommended planting dates for your region.

In most years, wheat diseases can be effectively controlled through good management practices rather than fungicides. However, it's always wise to have a fungicide source in case leaf rust, Septoria leaf blotch, and tan spot develop.

John Watkins

Phytophthora root rot identified in soybeans

Several plants showing symptoms of *Phytophthora* root and stem rot were examined in the Plant Disease Clinic last week. This disease is caused by a common soil fungus, *Phytophthora megasperma*, that is classified as a water mold. Water molds produce swimming spores. Because of this, the fungus requires flooded or water-logged soils as an aid to the infection process.

Phytophthora rot is most often observed in low areas of the field and in areas with compacted soils. A yellowing is followed by leaf wilting. Petioles of wilted leaves droop. Lower leaves become brown, but remain attached to the

plant. The best diagnostic symptom of the disease is a brown discoloration of the stem and lower branches that extends from below the soil line upward several inches. The tap root is dark brown and the entire root system may be rotted. Eventually, the entire plant dies.

There are no rescue treatments for this disease. Seed and soil treatments with metalaxyl (Apron® and Ridomil®, respectively) offer some protection, but crop rotation, improved drainage, and the use of multiple race resistant varieties are the best disease management measures.

David Wysong

Weather and crop data available on computer bulletin board

The High Plains Climate Center's computerized Remote Bulletin Board System (RBBS) is a simple way to gather weather, climate, and crop data for many locations in Nebraska. The phone number for the RBBS is (402) 472-6615. Use baud settings of 300, 1200 or 2400 and set data bits to 8, stop bits to 1, and parity to none. This information is free, except for the cost of the telephone call.

After dialing the bulletin board you will receive the message "Welcome to weather". You will then be prompted for your first name, last name, and a password. You supply your own password, so make note of it and use the same one each time you log on the system. The menus on WEATHER allow you to select options by entering one character responses. A new user should select H at the main menu and review the *How to Get Started* section.

WEATHER allows you to download files while connected by modem 24 hours a day, seven days a week. The system can accommodate two users simultaneously. If you get a busy signal, try again later. If you have any trouble, you can call our computer systems analyst, Jim Hines, at (402) 472-6708, for assistance.

Station specific weather data

Information retrieval requires that you understand the system used for naming files. Each file name consists of a prefix which identifies the station and an extension which identifies the type of information in the file. The prefix is determined by the two-letter state code and the station number. For example, NE01.HR contains the hourly data for yesterday from station 01, which is located at Mead.

For example, the Ainsworth station in Nebraska is number 23. If you want hourly data for the 24-hour period ending at midnight you would retrieve the file:

NE23.HR

Use the D (for download) command from the MAIN MENU to retrieve the desired files. You can chain your commands together. For example:

D;NE23.HR;A

will download the hourly data from the Ainsworth, NE station in ASCII.

Possible file name extensions

.YTD for daily data from the beginning of the year to the current date (updated monthly).

.J4D for daily data from the last 14 days.

.90 for daily data from 1990.

.ET for evapotranspiration data.

.HR for yesterday's hourly data.

.HR1 for hourly data from two days ago.

.HR2 for hourly data from three days ago.

.NML normals for each day of the year.

Prefixes and station names used to name files

NE01	Mead
NE03	Champion
NE04	McCook
NE05	Dickens
NE06	Arthur
NE07	West Point
NE09	South Central Station
NE10	Northeast Station
NE11	Panhandle Station
NE12	North Platte
NE13	Gudmundsen's Ranch
NE14	Sidney
NE15	Lincoln — Havelock
NE17	Ord — Bartlett
NE22	Grant
NE23	Ainsworth
NE24	Gibbon
NE25	Gordon
NE26	Silverthorn
NE30	O'Neill
NE46	Rising City
NE48	Tarnov
NE51	Mead Turf Farm
NE52	Curtis UNSTA
NE53	Lexington
NE54	Central City
NE55	Lincoln IANR
NE56	Arapahoe Prairie
NE61	Holdrege
NE62	Alliance West
NE63	Alliance North
NE65	Elgin
NE82	Halsey
NE87	Beatrice
NE96	Red Cloud

Continued on page 100

Weather (Continued from page 99)

Some files include data from more than one station and do not follow the naming convention. These files are:

Help files

AWDNVAR.DLY	Explanation of AWDN variables listed in daily files.
AWDNVAR.HRY	Explanation of AWDN variables listed in hourly files.

Crop water use

ET	A summary of evapotranspiration for select crops at all automated weather station locations.
NE.ET	Evapotranspiration for select crops at all Nebraska stations.

Crop Growth

PHNOLWHT.NE	Wheat phenological growth stage Nebraska AWDN sites.
PHNOLCRN.NE	Corn phenological growth stage at Nebraska AWDN sites.
PHNOLSOY.NE	Soybean phenological growth stage at Nebraska AWDN sites.
PHNOLSGM.NE	Sorghum phenological growth stage at Nebraska AWDN sites.
CROPGDD.ESP	Explanation of the growing degree day calculation for crops.
GDD.NE	Growing degree day assessment for Nebraska stations.
SOIL.NE	Seven-day soil temperature summaries for Nebraska stations.

Climate updates

DAILY — A list of yesterday's weather, ending at midnight. (This file contains more than 80 characters per line).

PRECAWDN.NE — Nebraska AWDN station precipitation totals and departures from normal for selected time periods.

AGCLIM — Advisory prepared by the University of Nebraska's Agricultural Climate Situation Committee and updated the second working day of each week April through August.

In addition to the AWDN weather information, the following weather, climate, and advisory bulletins issued by the National Weather Service are available.

Nebraska and local area forecasts

NEDAILY.FCT	Daily weather forecast for Nebraska
NEEXTEN.FCT	Extended weather forecast for Nebraska.

NEZONE.FCT	Local zone weather forecasts for Nebraska; selected city and surrounding area forecasts.
NEWXSUM	Nebraska state weather summary.
NENWSFCT.DIS	Nebraska NWS state prognostic forecast discussion.
NEBRAG.FCT	Nebraska daily agricultural forecast.
NBFF.FCT	Local area forecast for Scottsbluff.
KGRI.FCT	Local area forecast for Grand Island.
KLBF.FCT	Local area forecast for North Platte.
KLNK.FCT	Local area forecast for Lincoln.
KOFK.FCT	Local area forecast for Norfolk.
KOMA.FCT	Local area forecast for Omaha.

National Weather Service long range forecasts

US6-10DA.FCT	6-10 day US weather forecast (updated Tuesday, Thursday, Sunday).
US30DAY.FCT	30 day US weather forecast (updated on the 15th & 30th).
US90DAY.FCT	90 day US weather forecast (updated on the 30th).
US 1-2DAY.DIS	1-2 day NMC US weather prognostic forecast discussion.
US3-5DAY.DIS	3-5 day NMC US weather prognostic forecast discussion.
US6-10DA.DIS	6-10 day NMC US weather prognostic forecast discussion.
US30DAY.DIS	30 day NMC US weather prognostic forecast discussion.
US90DAY.DIS	90 DAY NMC US weather prognostic forecast discussion.

Weather and climate observations

PRECIP.GRI	Grand Island precipitation report.
PRECIP.LBF	North Platte precipitation report.
PRECIP.LNK	Lincoln precipitation report.
PRECIP.OFK	Norfolk precipitation report.
PRECIP.OMA	Omaha precipitation report.
KBFF.CLM	Scottsbluff daily climate report.
KGRI.CLM	Grand Island daily climate report.
KLBF.CLM	North Platte daily climate report.
KLNK.CLM	Lincoln daily climate report.
KOFK.CLM	Norfolk daily climate report.
KOMA.CLM	Omaha daily climate report.
NENWS.OBS	NWS observations for Nebraska.
SA1.DTA	Selected NWS observations for the HPCC region.

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