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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 95-7
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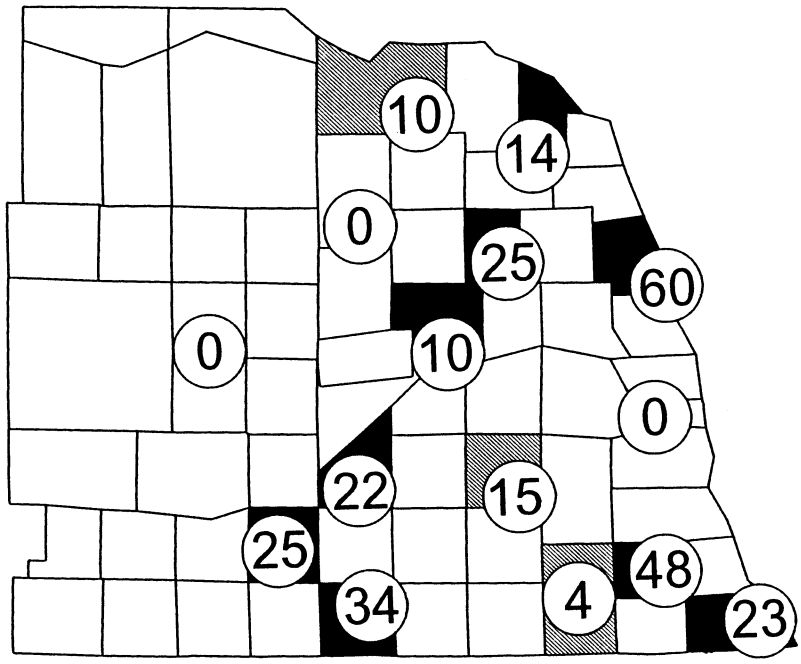
Black cutworm moths ride southern jet into eastern Nebraska

Strong southerly winds in mid-April carried a significant number of black cutworm moths into the eastern third of Nebraska, as indicated by a network of wing-style pheromone traps. The migration appears to have been widespread, and relatively high numbers should prompt scouting of corn fields for possible larval injury later this spring. The map shows trapping locations and numbers of moths captured since April 10. A significant capture is defined as eight or more moths captured over a two-night period.

Our predictive model, based on accumulating 300 growing-degree days (base 50°) from the date of the first significant capture, predicts that first cutting injury to corn by black cutworms may occur as early as May 12 in southeastern counties, about May 15 in western counties, and May 20 in northern counties. The predictive model uses 50-year temperature averages. This year growing degree days have been accumulating more slowly than average, and first injury may occur after these dates.



Black cutworm moth captures April 10-23. Black indicates counties with significant captures (eight or more moths captured over a two-night period).

Black cutworm moths do not overwinter in Nebraska, but migrate on southern winds from Texas and Mexico. Adult females are attracted to weedy fields and waste areas to deposit eggs. The ideal scenario for black cutworms to cause economic injury is when there is cool, moist weather with abundant weedy host plants in fields to be planted to corn. Black

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Inside

Get a good start with high quality seed

The phrase 'high quality seed' means different things to different people. High quality seed is not perfect, but it is a reasonably pure supply of an adapted variety. It is acceptably free of objectionable weed seed, seed-borne pathogens, other crop seed and debris. It is the farmer's responsibility to plant high quality seed.

Sources of soybean seed include:

1. Certified seed from a reputable dealer
2. Non-certified seed from a reputable dealer
3. A neighbor's grain bin
4. Your own grain bin

Let's address the bin run seed issue. Whether it's your own or your neighbor's bin run seed, it's important to know the germination, purity and viability of the seed and whether it carries any disease causing pathogens. Some of the more important soybean diseases associated with seed-borne pathogens are purple seed stain, anthracnose, charcoal rot, seed decay, damping-off and soybean mosaic. Planting pathogen-infested seed often increases the incidence of disease in a field and enhances the risk of stand loss because of seed decay and seedling blight. With diseases such as anthracnose and charcoal rot, continued use of pathogen-infested seed in a continuous cropping system may significantly increase disease incidence and yield losses. Seed infected with purple seed stain or soybean mosaic diseases which show distinct symptoms on the seed coat are often easy to recognize; however, other seed-borne diseases may produce much more subtle symptoms. Just because a seed is not discolored or shriveled doesn't mean it is pathogen free. This is where a seed test such as a moist blotter test is important in detecting a pathogen.

If the germination test is below 90 percent and the presence of pathogens are detected, switch to a new, preferably, certified seed source. Starting with high quality seed is one of the best insurance policies a farmer can invest in on the way to producing a profitable soybean crop.

John E. Watkins
Extension Plant Pathologist

Black cutworm

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cutworms also can survive in weedy fields where tillage and planting occur just days apart.

Preventative planting time treatment for black cutworm control is **NOT** recommended. Instead use a wait-and-see approach with rescue treatments where needed. Fields should be inspected when first-cutting is predicted to occur and regularly thereafter until corn reaches the five-leaf stage. Appropriate insecticides include Ambush 2E, Pounce 3.2EC, Asana XL, Sevin and Lorsban 4E. Rates are given on product labels.

Jim Kalisch
Extension Assistant, Entomology
Steve Danielson
Extension Entomologist

CROPWATCH

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Lisa Brown Jasa, Editor

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Research: Chlorophyll meters allow quick response nitrogen management

Consultants who want to improve nitrogen efficiency for their customers may be interested in using chlorophyll meters to measure nitrogen status of corn.

Our research shows that the chlorophyll meter can be used to schedule supplemental nitrogen in combination with various preplant nitrogen rates. However, some questions remain: How low must chlorophyll readings go before additional nitrogen is needed? How quickly will plants respond to added nitrogen? How long into the season should or can readings be taken and when is it too late to apply more nitrogen? What is the best at-planting nitrogen rate to improve efficiency?

Nebraska research

A chlorophyll meter measures a plant's "greenness," which is directly related to its nitrogen content. The higher the reading, the more nitrogen in the plant. Usually the meter is used to compare a known adequately fertilized area to the rest of the field. A reading lower than one in that reference area indicates that the plant needs nitrogen.

To determine the impact a 2% and 4% reduction in chlorophyll readings would have on yield (as measured by a SPAD 502 meter), we applied 0, 50, 100, 150, and 200 pounds of nitrogen per acre at planting to different plots at the same site. The 200-pound rate was considered the reference area with adequate nitrogen.

Experiments were conducted on farmers' fields at three Nebraska sites in 1991, 1992, and 1993. All the sites were center-pivot irrigated. Chlorophyll meter readings were taken every 10 to 14 days from about the 10-leaf stage to milk stage. Specific plots received an additional 30 pounds of nitrogen whenever they read below either 2% or 4% of the reference area.

Results

To be considered successful, the chlorometer adjustments must, first, maintain or increase yields, and second, increase nitrogen use efficiency. Nitrogen use efficiency is increased by either increasing yield or decreasing nitrogen use.

Yields increased or stayed the same in all years. In 1991, yields were increased by 12 bushels; in 1992 yields were increased by 8 bushels; and in 1993 yields stayed essentially the same. (In Nebraska, 1993 was a unique year in that rainfall was above average and temperatures were below average.)

Determining the effect on nitrogen use efficiency is more difficult. Results showed that the lowest nitrogen per bushel of corn was the combination of the low at-planting nitrogen rates with the 4% chlorophyll reading reduction treatment. Using the meter and the 2% reduction resulted in more nitrogen use without corresponding yield increases.

A promising tool

This study answered some, but not all, questions. The chlorophyll meter can certainly be used to fine-tune nitrogen applications, but before specific recommendations can be made, levels at which to start fertilizing other than the 2% and 4% need to be examined.

This study indicated that the 2% treatment, while decreasing nitrogen per bushel, was not as effective as the 4% treatment. The University of Nebraska recommendation is to apply additional nitrogen when the reading is 5% below reference.

Other observations:

— The meter works best when starting the season with low to moderate nitrogen levels, using it to indicate a probable nitrogen deficiency, and applying additional nitrogen accordingly. This achieves the most nitrogen efficiency and helps prevent over-application.

— It appeared that the 30-pound additional application increment may not be adequate to bring corn readings up to the reference reading at the next reading time.

— It has not been determined at which growth stage the readings and fertilization should stop.

— Nevertheless, chlorophyll meters, when used with proper fertilization and water management, can help increase nitrogen use efficiency. We look forward to more research to help make these meters an even more effective diagnostic tool.

Charles Shapiro
Extension Soils Specialist

Correction

The herbicide Shotgun contains 1.0 lbs of 2,4-D and 2.25 lbs of Atrazine per gallon. A March 17 *Cropwatch* article, *New Herbicides*, incorrectly listed the contents.

John W. McNamara
Extension Assistant, Weed Science

Check herbicide success with burndown

The cold wet spring has delayed herbicide applications and planting of no-till and ridge-till fields. Many of the early season weeds are broadleaves such as henbit, horseweed (marestail), kochia, lambsquarters, prickly lettuce, pennycress, and tansy mustard. These weeds continue to grow rapidly and it is important that herbicide treatments be applied to no-till fields to control this vegetation.

The following tables show herbicide performance for the "burndown" of established weeds. For more complete information consult the 1995 Herbicide Use Guide available from area Extension Offices.

John W. McNamara
Extension Assistant, Weed Science
Alex Martin, Extension Weeds Specialist

Weed response to burndown herbicides*

No-till corn and grain sorghum

Herbicide	Chickweed	Downy Brome	Dandelion	Henbit	Horseweed (Marestail)	Mustards	Prickly Lettuce	Tall Knotweed	Foxtail	Lambsquarters	Field Sandbur	Kochia	Kochia-Triazine Resistant	Russian Thistle	Smartweed—Annual	Velvetleaf	Sunflower	Winter Wheat
2,4-D Ester (1.0 pt)**	7	1	7	6	10	10	9	6	1	9	1	7	4	7	7	8	10	1
Banvel (0.5 pt)**	10	1	9	7	7	9	9	9	1	7	2	9	9	9	8	7	10	1
Gramoxone Extra (1.5 pt)	10	7	5	9	7	10	8	8	7	7	9	9	9	6	6	8	10	6
Roundup (1.0 pt)	10	10	5	9	6	10	6	9	9	7	10	7	7	9	7	7	9	10
Roundup (1.5 pt)	10	10	7	9	8	10	7	9	10	9	10	8	8	9	8	9	9	10
Roundup + 2,4-D (1.0 pt + 1.0 pt)	10	10	8	9	9	10	9	9	9	9	10	9	9	9	9	10	10	10
Atrazine (2.0 qt)	10	7	4	10	8	10	9	10	7	10	6	10	1	9	10	10	10	6
Bladex (2.0 qt)	10	7	4	10	10	10	7	10	8	10	7	10	1	9	9	9	10	5
Atrazine + 2,4-D (2.0 qt + 1.0 pt)	10	8	6	10	10	10	10	10	8	10	7	10	6	9	10	10	10	7
Bladex + 2,4-D (2.0 qt + 1.0 pt)	10	7	6	10	10	10	10	10	8	10	7	9	4	9	10	9	10	6
Atrazine + Banvel (2.0 qt + 0.5 pt)	10	8	8	10	10	10	10	10	9	10	7	10	10	9	10	9	10	5
Gramoxone + Atrazine (1.5 pt + 2.0 qt)	10	10	5	10	9	10	10	10	9	10	10	10	9	9	9	10	10	10
Roundup + Atrazine (1.0 pt + 1.5 pt)	10	10	9	10	10	10	10	10	9	10	10	10	10	10	10	10	10	10
Gramoxone + Bladex (1.5 pt + 2.0 qt)	10	10	5	10	9	10	10	10	10	10	10	9	9	9	8	9	10	10
Extrazine II (4.0 qt)	10	7	6	10	9	10	10	10	8	10	7	10	2	9	10	9	10	7
Extrazine + 2,4-D (4.0 qt + 1.0 pt)	10	8	7	10	10	10	10	10	8	10	8	10	4	9	10	9	10	6
Gramoxone + Extrazine (1.5 pt + 4.0 pt)	10	10	6	10	10	10	10	10	10	10	10	10	9	9	10	10	10	10

Rating percent control
10 — 96-100%
9 — 90-95%
8 — 85-90%
7 — 80-84%
6 — 70-79%
5 — 60-69%
4-2 — less than 60
1 — 0

*This guide presents burndown information only. It *does not* reflect residual weed control.
**Preplant interval: 2,4-D — 7 days for soybean, 10 days for sorghum.
Banvel — 6 months for soybean, 14 days for sorghum.

Weed response to burndown herbicides*

No-till soybean

Herbicide	Chickweed	Dandelion	Downy Brome	Henbit	Horseweed (Marestail)	Mustards	Prickly Lettuce	Tall Knotweed	Foxtail	Lambsquarters	Field Sandbur	Kochia	Kochia-Triazine Resistant	Russian Thistle	Smartweed—Annual	Velvetleaf	Sunflower	Winter Wheat
2,4-D Ester** (1.0 pt)	4	7	1	4	7	10	9	6	1	9	1	6	4	9	7	8	10	1
Canopy/Preview (6/7 oz)	10	7	3	8	8	10	9	9	4	9	4	7	7	9	9	8	8	3
Command (1.5 pt)	1	3	5	1	2	6	6	6	6	6	6	8	8	6	7	9	5	6
Command + Prowl (1.5 pt + 3.0 pt)	1	3	7	1	2	6	6	7	7	6	6	9	9	7	7	9	6	6
Gramoxone Extra (1.5 pt)	10	5	7	9	7	10	9	9	7	8	7	9	9	9	6	8	10	6
Gramoxone + Canopy/Preview (1.5 pt + 6/7 oz)	10	6	8	9	9	10	10	10	9	10	9	9	9	9	9	9	10	6
Gramoxone + Lorox/Linex (1.5 pt + 1.6 lb)	10	6	7	9	7	10	10	10	9	10	9	10	10	10	4	9	10	7
Gramoxone + Pursuit (1.5 pt + 4 oz)	10	6	8	9	8	10	9	10	9	9	9	9	9	9	9	9	10	6
Gramoxone + Scepter (1.5 pt + 4 oz)	10	6	7	9	7	10	9	10	9	10	9	9	9	9	8	9	10	6
Gramoxone + Sencor/Lexone (1.5 pt + 12 oz)	10	6	8	9	8	10	9	10	9	10	9	10	10	10	8	10	10	7
Pursuit (4 oz)	8	4	2	7	4	8	7	3	5	5	7	7	7	6	8	9	8	1
Pursuit Plus (2.5 pt)	9	4	2	7	5	8	8	4	6	5	7	7	8	6	8	9	8	1
Roundup (1.0 pt)	10	5	10	9	6	10	6	9	9	7	10	7	7	9	7	7	9	10
Roundup (1.5 pt)	10	7	10	9	8	10	7	9	10	9	10	8	8	9	8	9	9	10
Roundup + 2,4-D (1.0 pt + 1.0 pt)	10	8	7	9	9	10	8	9	9	9	10	9	9	9	9	10	10	10
Roundup + Canopy/Preview (1.0 pt + 6/7 oz)	10	8	10	9	10	10	10	10	10	10	10	10	10	10	9	9	10	10
Roundup + Scepter (1.0 pt + 4 oz)	10	7	10	9	9	10	8	10	10	10	10	10	10	10	9	9	10	9
Roundup + Pursuit (1.0 pt + 4 oz)	10	8	10	9	10	10	9	10	10	10	10	10	10	10	10	10	10	9
Roundup + Sencor/Lexone (1.0 pt + 2-4 oz)	10	8	10	9	9	10	9	10	9	10	10	8	7	10	8	8	10	10
Roundup + Lorox/Linex (1.0 pt + 1.6 lb)	10	8	10	9	7	10	10	10	9	10	10	10	10	10	8	9	10	10
Scepter (.66 pt)	9	4	1	7	4	9	6	3	3	5	5	7	7	5	7	7	8	1
Sencor/Lexone (12 OZ)	10	5	7	8	5	10	7	8	5	5	6	9	1	7	7	8	8	5

Rating Percent Control

10 — 96-100%
9 — 90-95%
8 — 85-90%
7 — 80-84%
6 — 70-79%
5 — 60-69%
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1 — 0

* This guide presents burndown information only. It *does not* reflect residual weed control.

** Preplant interval: 2,4-D — Seven days for soybean.

Nebraska Weed Tour scheduled for June 19-22

The itinerary has been set for the 1995 Nebraska Weed Tour. The tour will begin in eastern Nebraska. The itinerary is:

Monday, June 19
1:00 p.m., Near Concord at the Northeast Research and Extension Center
5:00 p.m., Tilden, meet at the main intersection in town.

Tuesday, June 20
9:00 a.m., Lincoln, 84th and Havelock
3:00 p.m., Clay Center, South Central Research and Extension Center

Wednesday, June 21
8:30 a.m., North Platte, West Central Research and Extension Center
4:00 p.m. (MDT), Sidney, High Plains Agricultural Laboratory

Thursday, June 22
8:30 a.m. (MDT), Scottsbluff, Panhandle Research and Extension Center

Soil temperatures

One-year analysis and seven-day summary ending on April

	Ave.	*Norm.*	*Dep.*	*Hi/Day*	*Lo/Day*	*Last Reading*
Ainsworth	38.7	55.3	-16.6	46/7	34/4	46.3
Alliance	38.8	53.5	-14.7	42/7	35/2	41.6
Arthur	36.3	53.7	-17.4	41/7	34/5	41.4
Beatrice	47.4	58.9	-11.5	50/7	46/5	49.9
Central City	46.4	58.5	-12.1	50/7	43/2	50.4
Clay Center	46.1	58.1	-12.0	51/7	45/1	51.2
Concord	44.3	56.5	-12.3	49/7	42/2	48.5
Curtis	43.3	57.3	-14.0	47/7	39/2	47.2
Elgin	43.2	56.2	-13.0	47/7	40/2	47.0
Gordon	38.7	52.5	-13.8	43/5	35/3	41.0
Grant	35.6	56.8	-21.2	41/7	34/5	40.7
Holdrege	45.8	57.9	-12.1	49/7	44/2	49.2
Lincoln	49.7	58.7	-9.0	55/7	48/5	54.9
McCook	44.4	58.6	-14.2	47/7	42/2	46.5
Mead	47.0	58.1	-11.1	51/7	45/5	50.6
North Platte	41.9	56.0	-14.1	45/7	36/2	45.4
O'Neill	44.5	55.6	-11.1	49/7	39/2	49.2
Ord	45.5	56.6	-11.1	51/7	41/2	50.7
Red Cloud	48.8	59.0	-10.1	55/7	47/5	55.0
Rising City	46.7	57.7	-10.9	51/7	45/2	51.0
Scottsbluff	40.9	54.6	-13.6	43/6	38/3	42.9
Shelton	46.9	58.0	-11.0	53/7	45/2	52.6
Sidney	39.5	53.3	-13.8	41/6	37/3	41.3
Tarnov	45.6	56.5	-11.0	50/7	43/2	50.1
West Point	45.7	56.9	-11.1	49/7	44/4	48.9

Soil temperature at 4 inches