

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Crop Watch

Extension

11-20-1998

CropWatch No. 98-26, Nov. 20, 1998

Lisa Brown Jasa

University of Nebraska-Lincoln, ljasa@unlnotes.unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/cropwatch>



Part of the [Agriculture Commons](#)

Brown Jasa, Lisa, "CropWatch No. 98-26, Nov. 20, 1998" (1998). *Crop Watch*. 181.
<https://digitalcommons.unl.edu/cropwatch/181>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Crop Watch by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.



CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 98-26
Nov. 20, 1998

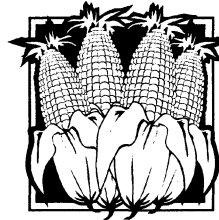
Assessing '98, planning for '99

About 90% of the state's corn harvest is complete, with pockets in western Nebraska where more than half of the acres haven't been harvested yet due to the late freeze and wet conditions. Soybean and sorghum harvest are reported to be more than 95% complete statewide. Dryland yields were good to excellent in many areas with irrigated yields being more variable, but still good. In usually dry areas of western Nebraska, corn yields of 250 bushels per acre were reported.

This year's weather patterns were quite favorable for row crops as well as for a variety of pathogens.

In many areas yield potential was high but actual yield was limited by several factors, including disease.

"In a normal year with a more typical weather pattern, the weather may favor one group of pathogens over another," said Jim Stack, Extension Plath pathologist at the South Central Research and Extension Center. "Unfortunately, this year there was some discreet time favorable to each pathogen group."



Counties that rarely see gray leaf spot had it in abundance this year. In other counties, incidence was greatly increased.

"This was an unusual year for these diseases," Stack said. "I wouldn't make big management decisions about gray leaf spot based on what happened this year. In nine

out of ten years you wouldn't have it like this."

Anthracnose and gray leaf spot posed some of the largest problems in corn with foliar diseases exceeding the damage thresholds for both sorghum and corn. In soybeans, schlerotinia and other diseases also were a problem.

Disease problems may continue through the winter as plant pathologists are already identifying pathogens such as blue eye mold in recently stored grain. What looked like good grain going into storage may have already been colonized by pathogens. It will be especially important this year to monitor grain storage moisture and temperature to avoid losses.

There were pockets of significant insect damage this year but

(Continued on page 223)

Can't wait to hear

Please complete and return the survey in the Oct. 16 Crop Watch. Your response can really help us determine what kind of information you want.

Inside

Updates	208
Record corn harvest	223
Weed control review	224
Soils tests in alfalfa	224
Distance insect courses	225
Soils and irrigation courses	226
1998 Crop Watch index	226

Getting the latest yield data

Getting ready to buy your seed for 1999, but wondering how some specific hybrids or varieties fared under this year's conditions? Are Bt corn and Roundup Ready soybeans performing as well as other hybrids?

Check out unbiased University of Nebraska field trial results on the Web or in publications available from your local Cooperative Extension Office. With the Web version, you can click on the crop and county for which you want results. See <http://ianrwww.unl.edu/ianr/agronomy/varitest2.htm>



Updates

Agronomy Highlights

"New Ways of Doing Business" will be the theme of this year's Agronomy Highlights. The conference, which is free, will be held at the Cornhusker Hotel, 333 S. 13th St., Lincoln, Nebr. on Dec. 15.

The day begins with refreshments at 8:15 a.m. and continues with presentations from 8:40 to 2:40, followed by an open question and answer time. Presentations involving research, teaching and extension activities in agronomy will be highlighted, as well as poster presentations and demonstrations.

Topics will include: agroecological zones of Nebraska; health of Nebraska soils; *Grazing Livestock Systems* — a new interdisciplinary undergraduate major; reducing crop production costs; what an agronomist needs to know about using livestock manure; developing new soybean varieties and marketing them; feasibility of 300 bushel corn; and grazing maize.

Preregistrations with names of those who will be attending are required by Dec. 8 for the meeting and a complimentary noon meal. To preregister call JoAnn Collins at

Plant and Pest Clinic Update

Sample numbers have dropped greatly in the last few weeks. Of the samples submitted to the UNL Plant and Pest Diagnostic Clinic, soybean diseases identified in the clinic were charcoal rot, pod and stem blight, purple seed stain, and anthracnose. Alfalfa diseases included anthracnose, common leaf spot, and stemphylium leaf spot. Crown and root rot were identified on wheat.

Loren J. Giesler
Plant and Pest Diagnostic
Clinic Coordinator

(402) 472-2811 or write: Agronomy Department, Box 830915, University of Nebraska, Lincoln, Nebr., 68583-0915.

In previous years CCA Continuing Education Units were issued for Agronomy Highlights and an application for credit this year has been submitted.

Top rural communities

The Nebraska Rural Development Commission is seeking nominations for the 1998 Nebraska Outstanding 100 and Top 10 Rural Development Initiatives and programs.

For a nomination form, contact Doug Gibbs, (877) 814-4707, or Marilyn Schlake, (800) 328-2851, or

visit the Web at www.ianr.unl.edu/rural/bits.htm for a copy of the nomination form. The deadline for submission is Dec. 15.

Focus on wheat scab

A \$3.5 million national research initiative to solve fusarium head blight in wheat and barley will soon be underway, involving dozens of crop scientists in 20 states.

Fusarium head blight, commonly called scab, is a fungal disease that attacks wheat and barley. No wheat and barley varieties are immune to the fungus, which is responsible for almost 470 million bushels of wheat lost in the United

(Continued on page 223)



CROP WATCH

1998 University of Nebraska

Crop Watch is published from March to November by the University of Nebraska Institute of Agriculture and Natural Resources Communications and Information Technology, PO Box 830918, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order either a printed or electronic (web) subscription or to change your address, write to *Crop Watch* at the above address or call (402) 472-7981. A sample copy of the Web version is available free at <http://www.ianr.unl.edu/cropwatchnews>

Lisa Jasa, Editor
Email: agcm005@unlvm.unl.edu

For more information about a particular subject, write the authors at the addresses below:

UNL Department of Entomology
202 Plant Industry Bldg.
Lincoln, NE 68583-0816

UNL Department of Plant Pathology
406 Plant Science Bldg.
Lincoln, NE 68583-0722

UNL Department of Agronomy
279 Plant Science Bldg.
Lincoln, NE 68583-0918

UNL Department of Agricultural
Meteorology
236 L.W. Chase Hall
Lincoln, NE 68583-0728

1998 review *(Continued from page 221)*

overall insect damage was lower than usual, especially pressure from European corn borers. Bean leaf beetles were more numerous than usual this year and their range continues to expand as areas of soybean production expand.

Looking forward

When Extension specialists were asked what they might recommend for next year based on this year, diversification of seed selection and use of resistant hybrids and varieties were top on the list. Yield data from UNL field trials are available in

Wheat scab

(Continued from page 222)

States from 1991 through 1997, valued between \$1.3 billion to \$2.6 billion, according to a North Dakota State University study.

The Initiative's work will be funded by the U.S. Agriculture Department's Agricultural Research Service (ARS), although much of the work will be done at land-grant universities in scab-threatened areas.

"... this represents an unprecedented partnership between ARS, the land-grant universities, and the private sector," says Stephen Baenziger, UNL professor and wheat breeder, who is involved with the initiative.

Following are the U.S. Wheat and Barley Scab Initiative's research program areas:

1. Variety development and coordinated screening nurseries
2. Epidemiology (how scab develops, spreads) and disease management
3. Food safety, toxicology, and utilization
4. Biotechnology
5. Germplasm introduction and evaluation
6. Chemical and biological control

publications from your local Extension Office or on the web at <http://ianrwww.unl.edu/ianr/agronomy/varitest2.htm>

"It's always important to plant a lot of different varieties or hybrids because we never know what Mother Nature is going to throw at us," said Bob Klein, Extension Cropping Systems Specialist. "When selecting, use different genotypes and avoid planting hybrids that are too closely related."

Lenis Nelson, UNL Extension agronomist, agreed, adding "Producers should select seed carefully, but nothing is a magic bullet for all situations." Diversification helps spread the risk from specific disease

or insect outbreaks.

In several areas, genetically engineered crops were the top producers, providing both yield and crop protection and lessening fears that yield drag was inherent with the new resistant hybrids.

It's important not to rely on these crops too much, Klein added, and to continue using rotation and other cultural practices to limit pests and the potential for developing pest resistance.

Noting the unusual circumstances this year, Stack said, "I would not encourage tillage to control gray leaf spot based on this year, but I would encourage the use of tolerant hybrids."

Corn harvest sets a record; all major crop numbers up

Nebraska's corn production, as of November 1, is forecast at 1.24 billion bushels. Production, if realized, would be a record high and 8% more than last year and 4% above the previous record set in 1996. Acreage for harvest as grain, at 8.55 million acres, is unchanged from last month and 2% below last year. Yield, at a record high 145 bushels per acre, is 13 bushels above last year and nearly 19 bushels above the 10-year average. With harvest 83% complete by November 1, both dryland and irrigated yields were averaging above previously forecast levels.

Irrigated corn production is forecast at 874 million bushels, just below the record set in 1996. Irrigated corn acres for grain, at 5.5 million acres, is 1% below 1997. Yield, at 158.9 bushels per acre, is over 2 bushels above the previous high set in 1996 (156.5 bu/ac).

Dryland corn production, forecast at 366 million bushels, is up

14% above the previous record set in 1994. Dryland acreage for grain, at 3.05 million, is 3% below a year ago. Yield, at 120 bushels per acre is a new record high, breaking the 117.2 bushel yield set in 1994. Dryland yield is up 2 bushels from last month and 22 bushels above 1997.

Sorghum grain production is forecast at 68.6 million bushels, 12% above the 1997 crop. Acreage for grain harvest remained unchanged at 700,000 acres, 13% below last year. Yield, at 98 bushels per acre, is 16 bushels above last year.

Soybean production is forecast at a record high 165 million bushels. Acreage for harvest at 3.75 million acres is also a record. A record high pod count offset an abnormally low pod weight to produce the yield forecast of 44 bushels per acre, 3.5 bushels above last year.

Sugar beet production of 913,000 tons is down 10% from 1997.

**Nebraska Agricultural
Statistics Service**

Weed control in '98 and next year

Post harvest provides an excellent opportunity for assessing this year's weed control efforts as well as previewing new directions in herbicide technology which may be incorporated next season. While this year was not without its challenges, a review of our observations may help us avoid similar problems in the future.

With respect to herbicide efficacy and weed control, 1998 was a good year. Many new products were available and generally worked well. Roundup Ready soybeans were planted on a record number of acres and results were generally good across central and eastern Nebraska. There were some cases of velvetleaf and waterhemp surviving Roundup applications, yet Roundup performed very well in the midst of extremely high expectations. Weed competition in some

areas was very tough, and most herbicides looked very good. For the most part, many growers have probably already decided what worked well for them and what did not.

In some fields, soybean leaf curling and crinkling was noticed. Herbicides could not be pinpointed as the culprit and it was later discovered in the Plant and Pest Diagnostic Clinic that these symptoms were from thrips, which serve as a vector for a virus that resulted in random acres of distorted soybean leaves. No ill effect on yield has been reported from these occurrences.

Early precipitation preventing growers from making postemergence herbicide applications in a timely manner was a major problem this year. This resulted in applications made to larger weeds, reducing herbicide

efficacy in some cases. Those growers having effective preemergence treatments were not as affected.

Herbicide injury was very infrequent with the only consistency stemming from applications made during the bout of cold temperatures in June. These cool temperatures reduced the ability of the crop to metabolize the herbicide, resulting in some injury. Many growers found themselves pushing the limits of crop growth stage to make postemergence applications during this period, result in some corn injury. During this period growers also noticed gray blotches on corn leaves resulting from cold temperature injury. These leaf symptoms were temporary and caused no real plant injury. Also worthy of noting was injury due to drift. Most notably was drift of growth regulators such as Banvel or 2,4-D on soybeans, resulting in curled and crinkled leaves.

As for the future, it may seem difficult to speculate what the herbicide industry is going to do. Rest assured, at least for the next few years, technology will continue to explore the herbicide resistant crop (HRC) market. There are many reasons for this focus of technology. Quite simply, HRC's work very well. They allow producers to use an increased herbicide rate resulting in better weed control and no crop injury. HRC's also provide more flexibility in weed management. And finally, the industry is driven in this direction because it is much less expensive to develop HRC's for a given herbicide than to develop and market a new chemical. Bottom line, expect to see many more advances in transgenic crops in the upcoming years.

Jeff Rawlinson
Extension Assistant
Weed Science
Alex Martin
Extension Weed Scientist

Use soil tests to improve alfalfa production in '99

Alfalfa production and profits can increase if you soil test and maybe even fertilize yet this fall.

Alfalfa needs more nutrients than most other crops we grow. For example, an average ton of alfalfa hay will contain about 50 pounds of nitrogen, 12 pounds of phosphate, 50 pounds of potash, and 4 pounds of sulfur.

Well-nodulated alfalfa plants get most of their nitrogen from the air. That means we should not need to fertilize with nitrogen. All other nutrients must come from the soil or from fertilizer.

Fortunately, many Nebraska soils can provide large quantities of nutrients needed for alfalfa. Most soils, however, can not provide all the nutrients needed for top yields.

so fertilizer is needed.

Soil tests can assess how much nutrition your soil can provide and how much fertilizer is needed.

Before soils freeze, collect samples from existing alfalfa fields and from fields you expect to plant to alfalfa next year. A lab should analyze the samples at a minimum for soil pH and phosphorus. If your soil is light textured or eroded or highly weathered, also test for potassium and sulfur. Then use the results of these soil tests, with your extension educator and fertilizer dealer, to develop a profitable fertility program for next year. Better alfalfa profits will be the result.

Bruce Anderson
Extension Forage Specialist

Insect courses offer practical, in-depth content

Three UNL entomology courses are being offered by distance during the spring 1999 semester. They are: *The Good, the Bad and the Bugly*, *Pest Wars: Biological Control of Insect Pests*, and *Host Plant Resistance*.

Farmers, pesticide applicators, crop consultants, co-ops, county extension educators, vocational agricultural instructors, science teachers and college students will all find these courses helpful.

These courses focus on practical information for people who want to learn at home. Students can take the course noncredit (CCA CEU's pending) or for college credit.

All three courses will be available over the internet and videotapes of the lectures will be sent weekly. To register, call 1-800-755-7765. Additional information is available at <http://www.ianr.unl.edu/ianr/entomol/courses/courses.htm>

The Good, the Bad and the Bugly

The Good, the Bad and the Bugly is an eight-week course that presents the basics of entomology and pest management. It covers insect biology and identification, particularly as these specifics pertain to practical questions. The pest management portion addresses the theory and practice of pest management, including management tactics, sampling, thresholds, pesticide properties, biological control, and environmental risk.

Following the course, participants will be able to:

- 1) recognize major insect groups and understand the basics of insect biology;
- 2) understand the principles of insect pest management;
- 3) recognize the tactics involved in modern insect management, including advantages and limitations to specific methods; and
- 4) recognize and use modern management programs, including sampling, thresholds, and multiple tactics.

Cost is \$300 for a noncredit registration plus \$25 for materials. Individuals who can download handouts from the Internet do not need to pay a materials fee.

Cost is \$353.25 for three UNL undergraduate credits, and a \$25 materials fee (total \$378.25);

Cost is \$467.75 for three graduate UNL credits and a \$25 materials fee (total \$492.75), plus a \$25 UNL Graduate College admission fee.

The Department of Entomology offers a Masters degree via distance education.

Biological Control of Pests

Students enrolled in *Biological Control of Pests*, Entomology 496B/896B, will learn ways to use biological controls to manage insect, weed, and plant disease pests. This accelerated eight-week course blends theory and application in a thorough survey of biological control practices.

Content will cover:

- 1) concept of biological control and the history of its use;
- 2) organisms used in biological control, such as parasitic wasps, predatory beetles, bacterial pathogens, and herbivorous fish;
- 3) how to introduce, augment, and conserve natural enemies of the pest you're trying to control;
- 4) latest methods for monitoring and evaluating biological programs;
- 5) the role of government in biological control; and
- 6) how biological control fits into Integrated Pest Management.

Specifics about course content are available on the web site.

To enroll for credit you'll need 12 hours of biological science courses at the college level, or the instructor's permission. Contact

Steve Danielson, course instructor, at (402)472-8693 for permission.

The noncredit registration fee is \$295. The noncredit registration fee for those taking the course for CCA CEUs, which are pending, is \$350.

For those taking the course for three hours of undergraduate college credit, cost is \$353.25. Tuition for three hours of graduate credit is \$467.25, plus a \$25 UNL Graduate College admission fee if needed. If you enroll for college credit you also can receive CCA CEUs.

Students are required to buy the textbook, *Biological Control*, by Roy G. Van Driesche and Thomas S. Bellows Jr. It is available through the University Bookstore for \$74.95 plus tax and shipping. You can order the textbook via Visa, MasterCard, or check by calling the bookstore at (402) 472-7300.

Host Plant Resistance

This eight-week course, Entomology 496D/896D, will cover:

- 1) how plants can defend themselves naturally;
- 2) how insects have adapted to overcome these mechanisms through coevolution;
- 3) how to screen and breed for insect resistance;
- 4) the relationship of plant resistance to insects in an integrated pest management (IPM) system;
- 5) the major sources of genes for resistance: native genes and transgenes; and
- 6) how to compare the development of insect resistance with plant pathogen resistance and herbicide tolerance

The course textbook is *Host Plant Resistance to Insects* by N. Panda and G.S. Khush. It can be ordered from University Bookstore using Visa, Mastercard, or check by calling the bookstore at (402) 472-7300.

**Bob Wright, Extension Entomologist
SCREC, Clay Center**

Soils and irrigation — study at home this winter to increase your bottom line

If you want to learn more about how soils influence crop production or how to better manage your irrigation system, two University of Nebraska Cooperative Extension home study courses are available this spring.

The **Soils and Irrigation Management** home study courses each offer a textbook and quizzes that can be taken at home and submitted to participating Extension educators for grading. Cost for each is \$60. Certified Crop Consultant credits are available for each: 10 for the soils course and 13 for the irrigation course.

Written by UNL Extension specialists and educators, these courses provide indepth information on each of the subjects in a practical setting. To register for either course, contact your nearest Cooperative Extension Office.

Soils Home Study Course

This is an introductory course designed to meet the needs of agricultural producers, crop consult-

ants, fertilizer dealers, and other agribusiness people in making management decisions regarding soils and fertilizer. Lessons cover physical properties and development of soils, nitrogen management, soil pH, organic matter, phosphorus and potassium, micro nutrients, soil testing, and the scientific basis for making fertilizer recommendations.

Following the Soils Home Study Course, participants will:

- 1) better understand how soil fertility affects crop production;
- 2) take more accurate soil samples;
- 3) save money by applying nutrients when it's most cost effective and they are least apt to be lost;
- 4) understand why recommendations from different labs vary and how to select the best recommendation for individual management plans; and
- 5) select the best fertilizer for individual needs.

Irrigation Management Home Study Course

This is a comprehensive course covering irrigation management, crop water use, flow measurement, basic water calculations, irrigation efficiencies, sprinkler irrigation basics and energy costs for irrigation pumping.

This is the second level of the Cooperative Extension distance irrigation curriculum. The first level is in a publication, *Managing Irrigation and Nitrogen to Protect Water Quality* (EC98-786), which is available at Cooperative Extension offices. This course builds on that publication, providing more depth on irrigation management. A third curriculum level is being developed.

Following this course, participants will be able to: reduce irrigation application amounts and increase uniformity of application, thereby reducing deep percolation and runoff. The end result can be reduced irrigation costs, increased efficiency, increased yields and reduced surface and groundwater contamination.

CROP WATCH

To subscribe, fill out the form below and send to:

Crop Watch
University of Nebraska
Box 830918
Lincoln, NE 68583-0918

Payment method (\$30 subscription)

___ Check payable to the University of Nebraska

___ Credit Card

___ Visa ___ MasterCard

Name

Credit card number

Address

Expiration date

City, State, and Zip

Signature

Subscribe to *Crop Watch*

On the Web or in the mail

A print subscription is assumed unless you check Web. If ordering a Web subscription, please include your Email address.

Print

Web

Email address

1998 Crop Watch index

- Agronomy, Department of**
New staff, 22
- Alfalfa**
Hail damage, 107
Irrigation, 151
Leafhopper resistance, 7
Planting, 32, 182
Potato leafhoppers, 137, 140, 145
Rust, 203
Spring black stem, 98
Stand assessment, 24, 87
Weed control, 7, 187
Weevils, 55, 60, 79, 87, 119
- Biological products, corn, 40, 105**
- Biopesticides, 105**
- Blue River Basin research, 171**
- Compaction, 19**
- Contributors, 6, 22**
- Corn**
Biological controls, 40
Crop stress, 112
Cultivating, 133
Cutworms, 62, 71
Diseases, 40, 113, 137, 189, 199
Dryland vs sorghum, 33
Earworms, 2
Estimating maturity, 197
Estimating yields, 193
European corn borer, 114, 127, 157, 161
Management worksheets, 115, 163
Flood damage, 122
Frost damage, 109, 112
Hail damage, 107, 119
Harvest losses, 208
Herbicides, postemergence, 95
Hybrid selection, 4
Insects, 37, 99, 159
Nitrogen, evaluating, 212
Planting, 43
Replanting, 109, 130, 131
Review, 221
Root injury test, 146
Rootworm, 99, 127, 143, 146, 157
Rotation, 143
Restrictions, 35
Roundup Ready, 29
Stalk borers, common, 84, 98
Stalk rot, 188
Stands, poor, 41
Tipping back, 207
Yields, 223
Crop Watch, 1, 11, 212, 215
Subscription form, 225
- Survey, 215, 219
- Disease**
Alfalfa, spring black stem, 98
Corn, 40, 113, 137, 189, 199
Corn, hybrid selection, 4
Crop Diagnostic Clinic, 30
Dry bean rust, 165, 172
Gray leaf spot, 218
High Plains Virus, 4
Rust, in alfalfa, 203
Sorghum, 200
Soybean, 2 56, 74, 113, 183
Soybean seed, 1, 3, 183
Sugarbeets, 167
Wheat, 23, 41, 91, 113, 215
- Dry bean**
Field day, 165, 181
Rust, 165, 172, 173
Mobile nursery, 173
Worksheet, 172
- Education**
Agricultural Biotechnology conference, 214
Agronomy Highlights, 217
Corn grazing school, 160
Corn tour, 188
Crop management/diagnostic, 67, 125
Crop Protection Meetings, 1999, 217
Diagnostic clinic, 175
Ecofarming, 93
Entomology courses, 225
Entomology distance degree, 206
Field Scout Training, 22, 80
Irrigation home course, 225
Organic Crop Training, 217
Prairie restoration seminars, 187
SCREC Field Day, 173
Seed Conference, 217
Soils home course, 225
Specialty crops field day, 168
Wheat field days, 80
Wheat video conference, 22
- Fertility**
Anyhydrous ammonia, 186
Animal manure contract, 50
Corn nitrogen status, 212
Hailed crops, fertilizing, 121
Liquid nitrogen-herbicide combinations, 77
Compatibility tests, 77
Nitrogen, planting, 70
Nitrogen sources, assessment, 88
Soil test results, 118
- Soybeans, 53
Variable rate, 27
Wheat, 11
- Field updates, 12, 24, 32, 42, 52, 62, 72, 77, 82, 90, 97, 100, 108, 110, 115, 120, 128, 138, 144, 154, 162, 168, 181, 184, 190, 206, 208, 210, 216**
- Genetically altered crops**
Agricultural Biotechnology conference, 214
Herbicide resistance, 31
Monsanto pursues misuse, 218
Process of crop development, 45
Roundup Ready corn, 29
Roundup Ready soybean, 168
Seeding rate, 159
Sprayer clean-up essential, 69
Transgenic event, creating, 75
Yield drag or lag, 92
- Grain storage, 8, 189-192, 194-198, 199, 204, 202, 205**
Economics, 194
Treating bins, 195
Grazing standing corn, 196
- Herbicides**
Assessing 1998, 224
Atrazine runoff, 170, 171
2,4-D
Amine or ester, 61
At tassel, 166
Axiom, 42
Banding, 103
Combination, with nitrogen, 77
Guide, 181
Injury, 117
Mixing, order of, 97
Paramount approved, 129
Postemergence, 94, 124
Preemergence used
postemergence, 78
Reach-back control, 81
Reducing drift, 68
Replanting, herbicide restrictions, 104
Resistance, 31, 49
Rotation restrictions, 35
- Insects**
Alfalfa weevils, 55, 70, 79, 87, 119
Army cutworms, 9, 21
Bean leaf beetles in corn, 81, 89, 175
Blister beetles, 145
Chinch bugs, 145

Continued on page 224

Index (Continued from page 223)

Cutworms, 62, 71
 Earworms, 2
 European corn borer, 99, 114, 127, 157, 161
 False chinch bugs, 145
 Grasshoppers, 74, 127
 Greenbugs, 145
 Hessian Fly, 185
 Millers, pesky, 108
 Potato leafhoppers, 137, 140, 145
 Rootworm, corn, 99, 127, 139, 142, 157
 Soil, control, 37
 Spider mites, 145
 Stalk borers, common, 84, 98, 108
 Stink bugs
 Sugarbeet maggot flies, 97
 Sunflower, 171
 Tarnished plant bugs, 139
 Update, 145
 Western bean cutworm, 159

Irrigation
 Alfalfa, 151
 Crop water use data, 132
 Evapotranspiration, 141
 Last irrigation, 177
 Worksheet, 177
 Soil moisture tests, 141
 Soybeans, 147, 151

Machinery
 Angled closing wheels, 28
 Attachments, selecting, 44
 Cleaning agents, 135
 Dual tires, 19
 In-tank nozzles, 134
 Nozzles, 116, 117
 Planter adjustments, 40
 Sprayers, cleaning, 69, 134, 135
 Sprayers, adjusting, 78, 116
 Tractor Museum, 60

Pastures, 85, 120
 Woody plants, 106

Pesticide drift, reducing, 68, 116, 117

Pesticide labels, 144, 216

Plant Pathology
 Giesler, Loren, 6

Plant/Pest Diagnostic Clinic
 Samples, 30
 Updates, 58, 76, 87, 108, 123, 140, 164, 186, 214

Pollution, runoff, 170, 171

Replanting, 104, 109, 117, 130, 131
 Residue management, 122
 Resistance
 Insecticide, 143

Resources

Corn publication, 73
 Dry grain aeration system, 202
 Herbicide Guide, 181
 IPM guide, 98
 Irrigation/fertility pub., 140

Safety, 43
 Anhydrous ammonia, 186

Site specific management, 20
 Aerial photos, 153
 Bare soil photography, 25
 Calendar, 20
 Variable rate fertility, 27
 Weeds, mapping, 180, 183
 Yield maps, field notes, 132
 Yield monitor calibration, 209

Sorghum

Disease, 200
 Insect control, 66, 145
 Markets, new, 65
 Paramount approved, 129
 vs dryland corn, 33
 Yields, 65

Soybean

Bean leaf beetles, 89, 175
 Chlorosis, 56
 Cultural practice update, 58
 Cyst nematodes, 186
 Damping off, 128
 Disease, 1, 2, 3, 56, 74, 113, 183
 Fertility, 53
 Flood damage, 123
 Hail damage, 119
 Inoculation, 54, 63
 Insect control, 37
 Irrigating, 147, 151
 Protected varieties, 3
 Replanting, 101, 130, 131
 Rotation, economics, 63, 142
 Roundup Ready, 158
 Sclerotinia stem rot, 2, 59, 183
 Seed quality, 1, 3, 4, 216
 Seed treatments, 3
 Stand loss, evaluating, 101
 Variety development, 51, 169
 Weed control, 57, 102, 162
 Yields, 223

Sugarbeet

Cercospora leaf spot, 167
 Insects, 97

Sunflower, 171**Tillage**, atrazine runoff, 170**Trees**

NRD program, 26
 Pine care, 18

**Please return
 your survey from
 the last issue.**

Turf

Diseases, 70

Weather patterns, 5, 112, 169

Frost damage, 109, 112
 GDD/water use data, 142, 152, 160, 166, 174, 182, 188, 198
 Hail damage, 107, 119
 Planting date trends, 48
 Precipitation, 97, 150
 Soil temperature, 30

Weed control (see *Herbicides too*)

Alfalfa, 7, 187
 Burn-down herbicides, no-till, 43
 Correction, 62
 Herbicides, 15
 Herbicide resistance, 31, 49
 La Nina, 126
 Mapping, 180, 183
 Musk thistles, 60
 Perennials, 213
 Postemergence control, 94, 102
 Rawlinson, 22
 Rotation restrictions, 35
 Shelterbelts, in, 209
 Soybean, 57, 102, 162
 WeedSOFT, 18
 Weed tour, 28, 103
 Correction, 32
 Wheat, 24, 34, 149
 Wipers, bean bars, 150

Wheat

Crop survey, 83
 Disease, 23, 41, 91, 113, 215
 lack of, 91
 Fertilization, 11
 Field days, 80, 83
 Field updates, 12
 Frost damage, 109
 Grasshoppers, 73, 127
 Hail damage, 119
 Harvest, 138
 Insects, 185
 Leaf rust, 23
 Planting, 185
 Soilborne wheat mosaic, 41
 Tan spot, 74
 Varieties, 14
 Vernalization, 14
 Video conference, 22, 164, 176
 Weed control, 24, 34, 149