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Corn, soybean, sorghum crops weigh in with record harvests

Nebraska’s corn, soybean, and sorghum producers went over the top this year with the largest total production ever.

Total corn production was 1,188,000,000 bushels compared with 854,700,000 bushels last year, according to Nebraska Agricultural Statistics. Total soybean production was 138,460,000 bushels, compared with 100,980,000 last year. Total sorghum production was 94,000,000 bushels in 1996 compared to 56,840,000 bushels in 1995. (See table on page 177.)

While there were some significant storms and hail damage, overall the climate was good and the pests were controllable to contribute to an excellent production season.

Wheat production, however, was down from last year. Total production was estimated at 73,500,000 bushels in 1996, compared to 86,100,000 in 1995.

While this year’s weather and conditions were excellent for corn, wheat sorghum and soybeans, they were less favorable for sunflowers and

(Continued on page 177)

Nebraska research indicates

Field drydown doesn’t cause dry matter loss

University of Nebraska researchers found no evidence of corn dry matter loss following physiological maturity in two years of research at the South Central Research and Extension Center.

The Nebraska study was initiated after an October 1995 Farm Journal article suggested that corn dry matter decreases one percent for every one percent loss in moisture content after physiological maturity as the corn dries in the field.

If the hypothesis of large dry matter losses with field dry down were true, letting corn field-dry over a two-week period would be more costly than harvesting and heat-drying within 24 hours.

In 1995 researchers conducted a preliminary study with one hybrid, Pioneer 3225, and in 1996 they used five hybrids, Ciba Max 21 Bt, Ciba 21 iso (corn borer susceptible), Ciba Max 454 Bt, Ciba 454 iso (corn borer susceptible), and Pioneer 3225 (corn borer susceptible). In the 1996 research they used two replicates, eight harvest dates, and three storage sampling methods (laboratory storage, field dry down after hand harvest, and field dry down after a machine harvest).

In the 1996 research, although kernel moisture contents decreased over the seven harvest dates, grain yield did not change. There were average yield and moisture content differences among hybrids, however these differences were similar across all harvest dates.

Kernel dry matter averaged over all hybrids was 30.8 grams/100 seeds and was consistent across all harvest dates. Pioneer 3225 had lighter kernel weights than the Ciba hybrids, but none of the hybrids’ kernel weight were affected by harvest date. In these samples, we found no evidence of kernel dry matter loss.

If you would like to see yield and kernel moisture numbers, check out the research data on the Web at http://ianrwww.unl.edu/ianr.srec/research/drydown/drydown.htm.

Roger Elmore, Extension Cropping Systems Specialist
South Central District
Variety results on the Web, soon to be in print

Corn, soybean, sorghum, sunflower, and proso millet

We are in the final stages of analyzing the data and printing the books from the variety testing trials throughout the state. The corn book is at the printer and will be available before Christmas. The soybean book is still a few days from going to the printer, and is expected to be available Jan. 2. The sorghum book is expected in mid January.

The good news is that the individual tables are available electronically on the World Wide Web. Anyone with an internet connection can retrieve the information, or any County Extension Office should have access to it. The URL (address) is: http://ianrwww.unl.edu/ianr/agronomy/varist.htm. All the 1996 data is available including sunflower and proso. There are also links to older data on this system.

Lenis Nelson, Extension Crops Specialist, Lincoln

CRP to Crops winter meetings

The Northeast Research and Extension Center continues to conduct research on the return of CRP land to crop production. The third year of a five-year study on returning CRP acres to crop production began this fall. Results of the second year of cropping will be presented in a series of meetings in early 1997.

Meetings planned for this coming year include a research update at the Northeast Research and Extension Center the afternoon of Jan. 27. A Tri-State CRP Conference will be held Feb. 3 at the Sioux City Convention Center. A statewide satellite video conference will be Feb. 10.

More details will be available on these meetings in January. Individuals who have attended previous meetings will receive information by mail after Jan. 1. For more information, contact me at 402-584-2810.

Melinda McVey McCluskey
CRP Research Coordinator

Kansas update

Leaf rust in planted wheat was common across much of Kansas during a recent survey. Incidence and severity generally correlated with the size of the wheat. The larger older wheat had moderate levels of three to five percent. The smaller wheat had trace to light incidence. In the southwest quarter of the state, pressure was moderate to severe.

Wheat streak mosaic may be a problem in wheat fields next spring. High incidence was reported in south central planted and volunteer wheat.

Karnal bunt is now reported in Tennessee. Fourteen counties in central and eastern regions have some level of the grain disease. Alabama also has additional reports.

Kansas Department of Agriculture

Disease Update

Crop Watch is published from March to December 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 a subscription or to change your address, write to Crop Watch at the above address or call (402) 472-7981.

Lisa Brown Jasa, Editor

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UNL Department of Agricultural Meteorology
236 L.W. Chase Hall
Lincoln, NE 68583-0728
Nebraska acreage, yield and production for corn, soybeans, sorghum and wheat, 1995-1996*

<table>
<thead>
<tr>
<th></th>
<th>Acres planted (1,000 acres)</th>
<th>Acres harvested (1,000 acres)</th>
<th>Harvested yield, (Bushels/acre)</th>
<th>Total production (Bushels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn for Grain</td>
<td>8,000</td>
<td>8,500</td>
<td>7,700</td>
<td>8,250</td>
</tr>
<tr>
<td>Soybeans for beans</td>
<td>3,100</td>
<td>3,050</td>
<td>3,060</td>
<td>3,010</td>
</tr>
<tr>
<td>Sorghum for grain</td>
<td>1,250</td>
<td>1,250</td>
<td>980</td>
<td>1,000</td>
</tr>
<tr>
<td>Wheat</td>
<td>2,150</td>
<td>2,300</td>
<td>2,100</td>
<td>2,100</td>
</tr>
</tbody>
</table>

*Nebraska Agricultural Statistics

were planted during the same period. Those numbers put Nebraska 7th in national production. Holoubek attributed the increases to soybean breeding programs at the University and in private industry which helped to develop varieties more resistant to diseases and which perform better under adverse conditions.

Seed supplies ‘good’ for ‘97

Overall, corn and soybean seed supplies for spring planting look “good to excellent”, according to seed company representatives. Sorghum supplies may be slightly more limited, depending on the maturity needed, however the supply appears to be better than last year’s. Demand for Roundup Ready soybeans and Bt corn is likely to exceed supplies, however there should be more varieties and hybrids to select from this year. Demand for corn hybrids resistant to gray leaf spot also may exceed supply in some cases.

“'We’re seeing less and less demand for grain sorghum,'” said Jeff Horst, Pioneer Hybrid sales coordinator. “The drought tolerance in corn has improved drastically over the last 15 years and people have switched from sorghum to corn. It’ll take a couple dry years before people switch back.”

For seed companies, having the products producers want requires planning, some guessing, and a lot of breeding and development. Resistant and herbicide tolerant hybrids are expected to be hot for some time to come, according to Blaine Johnson, UNL corn breeder and researcher. Johnson pointed out that it takes generations to breed for a specific element, adding that as researchers strive to incorporate one aspect, another may suffer, requiring additional research and breeding.

While the new hybrids may seem glamorous, Johnson cautioned producers to use them only to solve a specific problem.

“If there isn’t an existing pest problem, go with your proven producers,” he said.

Speciality crops such as high oil, waxy, and white corns, also are gaining producer interest as markets develop and new hybrids are better adapted to larger scale production in Nebraska.

Don’t increase nitrogen based solely on high yields

With excellent yields in 1996, producers may be wondering if they need to increase their fertilizer application in 1997. Based on Nebraska research done under previous high yielding conditions, fertilizer amounts should not automatically be increased. In a previous study there was no indication that higher than average fertilizer applications were required to maintain high yields. In most instances soil test levels did not change dramatically following high yields.

If you’re concerned about your situation, soil tests are still the best indicator of need.

Gary Hergert, Extension Soils Specialist, West Central District
Northeast Center nitrogen rate research shows little yield difference this year

Nitrogen rate demonstrations have been conducted for the last 10 years on farmers fields in northeast Nebraska to determine if the University of Nebraska nitrogen recommendation system is producing maximum economic yields. The general procedure has been to use the farmer's yield goal and give credit for the previous crop, any nitrogen in the irrigation water and soil nitrates. Once the nitrogen rate is calculated, three nitrogen rates are applied to the field: 1) the recommended rate; 2) a rate 50 pounds less than the recommended one; and 3) a rate 50 pounds higher than the recommended one. Different application rates were used at each field, based on the specific situation.

Over the history of the demonstrations there has been an average eight bushel yield increase from the minus 50 pounds to the recommended rate and a three bushel increase when the recommended rate was increased by 50 pounds. In 1996 the overall range of differences was much less. The table below shows the results of seven locations. The average over the seven locations was 169 (rec. -50), 172 (rec.) and 171 (rec. + 50).

Given the excellent crop year, one might expect that additional nitrogen would produce exceptional yields; however, this did not happen at the demonstration sites. The historical average is based on a wide range of soil types, including some which are more responsive than others to nitrogen.

For more information about these demonstrations contact Charles Shapiro or Bill Kranz at the Northeast Research and Extension Center. This project is partially funded by the Lower Elkhorn NRD, Upper Elkhorn NRD, and the Holt County Groundwater Education Program.

Charles Shapiro, Extension Soils Specialist Northeast District

<table>
<thead>
<tr>
<th>Effect of University of Nebraska Nitrogen Recommendations on yield in 1996.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nitrogen applied relative to UNL recommendation</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Recommended -50</td>
</tr>
<tr>
<td>Recommended</td>
</tr>
<tr>
<td>Recommended +50</td>
</tr>
<tr>
<td>Significant diff.</td>
</tr>
</tbody>
</table>

**Treatment not used.

Research jury still out on new product — Amisorb

In November Soybean Digest published an article entitled “New Yield-boosting Product Turns Heads.” It described some features of the product Amisorb and preliminary results of some research in Kansas, Illinois, Louisiana, Texas and New Mexico, including greenhouse research by Dr. Fred Below at the University of Illinois.

Amisorb is a polyasparatate (a chain of amino acids, related to the sweetener Nutrasweet) that apparently has the ability to complex certain nutrients and keep them in solution. It is now being promoted as a nutrient uptake enhancer.

It seems clear from the reports of Below’s research that Amisorb indeed has some influence on nutrient uptake and plant growth in greenhouse and solution culture situations. It is much less clear what it will do in the field. There were numerous field trials throughout the Midwest this summer, including one in Nebraska.

At the North Central Regional Committee meeting on Nontraditional Amendments in late November, preliminary results from the 13 states were discussed. Most of the initial results showed little influence on yield except some research from Kansas on winter wheat. Additional lab measurements on nutrient uptake are being completed.

Obviously, it is too early in the research phase to report any results. NCR103 is working on a status report to be released later this winter. As these results are released, we will pass them along to you.

At this point, as with any new, untested product, caution is still probably good advice. Remember, let the buyer beware, it’s your money!

Gary Hergert
Extension Soils Specialist
West Central District
Research shows little yield benefit, increased harvest loss from narrow row corn

Producers, researchers, and the farm press have shown considerable interest in narrow row corn. Much of the recent research has been done in states east and north of Nebraska where narrow rows have shown a yield advantage, presumably because of more uniform light interception and less competitive rooting patterns.

Dryland research was conducted in 1996 at the UNL Rogers Memorial Farm 10 miles east of Lincoln to evaluate the effects of row spacing on corn yield and the effects on harvest loss when harvesting narrow rows with a standard corn head.

Row spacings of 30 inches (standard), 15 inches, and paired rows (8 inches apart on 30-inch centers) were planted with the same 6-row, 30-inch planter. Corn was no-till planted into soybean residue at populations of 21,200 (high) and 16,100 (low) seeds per acre, typical populations for dryland production in southeast Nebraska.

The 15-inch and paired row plots were double planted at a half population with the planter drawbar offset 7.5 inches and 4 inches, respectively, with the tractor following the same wheel tracks. Thus, no rows were planted in the tractor wheel tracks and the resulting population was the same as the 30-inch rows.

Whole plot harvest took place using a standard 6-row, 30-inch corn head and a weigh wagon (Table 1). With the rainfall in 1996, there was a population effect on yield. There was no yield increase with narrower rows. However, on the 15-inch and paired row plots, two rows were forced into one on the combine, resulting in some harvest loss. On all plots, the dropped ears and ears on bent over stalks were picked up and weighed. This “unharvested yield” was added to the combine yield to get the corrected plot yield (Table 2). Visual observations showed that the more a plant was moved over to be harvested, the greater the possibility of the stalk bending over and the ear not being harvested. Ear loss was less in the higher population plots because adjacent plants tended to “hold” each other up, allowing the ears to be harvested.

Producers considering narrow rows or paired rows need to consider all the variables affecting profit, especially machinery costs. This research was conducted with no expense for machinery modification and indicated that standard corn heads probably will be unacceptable for harvesting narrow rows. (For reference, a custom built 11-row, 15-inch corn head may cost about $20,000).

Table 1. Combine harvest yield, bu/A (full plot of 0.06 acre)

<table>
<thead>
<tr>
<th></th>
<th>30-inch</th>
<th>Paired</th>
<th>15-inch</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Population</td>
<td>144.5</td>
<td>145.6</td>
<td>133.7</td>
<td>141.2</td>
</tr>
<tr>
<td>Low Population</td>
<td>120.7</td>
<td>111.1</td>
<td>96.7</td>
<td>109.5</td>
</tr>
<tr>
<td>Mean</td>
<td>132.6</td>
<td>128.3</td>
<td>115.2</td>
<td>125.4</td>
</tr>
</tbody>
</table>

Table 2. Plot yield, bu/A (combine yield + downed ears yield)

<table>
<thead>
<tr>
<th></th>
<th>30-inch</th>
<th>Paired</th>
<th>15-inch</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Population</td>
<td>146.1</td>
<td>148.1</td>
<td>142.0</td>
<td>145.4</td>
</tr>
<tr>
<td>Low Population</td>
<td>121.9</td>
<td>120.5</td>
<td>115.4</td>
<td>119.3</td>
</tr>
<tr>
<td>Mean</td>
<td>134.0</td>
<td>134.3</td>
<td>128.7</td>
<td>132.3</td>
</tr>
</tbody>
</table>

Hand harvest of the plots and the corrected plot yields showed few differences in yield this first year. The research will be continued, exploring more harvesting options, populations, and row spacing combinations. Additional on-farm research will be conducted with cooperating producers. If interested, contact your nearest Extension Educator.

If there is little or no yield advantage, narrow row corn may not pay for major modifications unless it was time for machinery replacement anyway.

Paul Jasa
Extension Engineer

Don’t forget to complete and return your survey.
We appreciate your input.

Thanks!
Winter wheat condition good going into winter

The condition of winter wheat throughout the state is reported as good to excellent. Ample fall moisture in western Nebraska was both a blessing and a bit of a curse. Early planted wheat that was up and growing when the rains began in early September thrived as the result of the unusually good fall moisture. However, much of the wheat that was planted, but not yet fully emerged, required replanting due to soil crusting and burial — the result of soil sloughing off the ridges and washing into the furrow. Producers who had not yet planted wheat were forced to wait until the rains stopped in late September. Wheat planted then germinated quickly with the good soil moisture and warm soil temperatures. Wheat planted then had excellent stands, but fall vegetative growth was minimal. This should not be a problem as long as the ridges stay in good shape or winter winds stay under control. If neither situations occurs, the lack of fall growth could result in soil loss and crop destruction over the winter or early spring.

In eastern Nebraska, winter wheat stands are good and plants are well established. Black point and scab were a concern this past fall at planting time, but do not appear to be a problem now. Kansas has reported a high incidence of leaf rust and wheat streak mosaic virus this fall. If the rust survives the winter in central Kansas, it could cause Nebraska wheat growers, especially those in eastern Nebraska, some problems next spring.

Nobody knows what Mother Nature has in store, but for now, the Nebraska winter wheat crop is off to a good start.

Drew Lyon, Extension Crops Specialist, West Central District
Roger Elmore, Extension Crops Specialist, South Central District
Bob Klein
John Watkins, Extension Plant Pathologist, UNL

Use winter to assess, plan, prepare equipment for planting

With harvest still fresh in mind, many producers are already planning for next year’s growing season. They are evaluating the strengths and weaknesses of this year’s management, trying to improve their production and profitability. Many are looking to the future, buying seed, herbicides, and fertilizer now to take advantage of year-end price breaks and income tax benefits. Rather than just purchase components together, now is the time to evaluate and plan the entire crop production system.

Producers also need to plan ahead to make no-till and ridge-till planting systems successful, evaluating each operation in the field and assessing how it affects the total system. The first step in reduced till production — spreading the previous crop residue during harvest — has already gone by. Uniform distribution of the residue, including the chaff (or pods), makes most effective use of the residue for soil and water conservation.

Some producers use residue movers on their planters to reduce problems with non-uniform residue distribution. These residue movers should be added to the planter now rather than when problems develop at planting. However, considering their $200 to $300 cost per row, many producers, especially those with 12-row or larger planters, have found it more effective to correct the problem at the source by adding a chaff spreader to the combine and improving residue distribution. These producers spend $800 to $1200 on the combine rather than $2400 to $4800 for residue movers.

When tuning up their planting equipment in the off-season, producers need to remember the three steps of planting: cut and handle residue, penetrate the soil to the desired seeding depth, and establish proper seed-to-soil contact. By evaluating each step separately, producers can determine the strengths or weaknesses of their planting equipment before making adjustments or adding attachments. Before buying any attachments to solve problems, determine how the attachment functions to solve that problem.

Heavy fall precipitation fills profile, some soils even saturated

Heavy precipitation in October and November should insure that adequate soil moisture will be available for the start of the 1997 growing season. In fact, some areas of central, east central, south central, and southeast Nebraska have received too much precipitation. Farmers who haven’t completed harvest activities may have to wait until soils freeze and can support heavy farm equipment.

Preliminary rainfall totals for November indicate that it will be one of the top five wettest on record. The 30- and 90-day outlooks continue to show a tendency toward above normal precipitation over the southern three-fourths of the state, east of the Panhandle. There is no definable trend indicated for precipitation.

If above normal precipitation continues this winter, it could pose potential problems this spring. Since soil surfaces are near saturation in many areas, above normal precipitation this winter would sharply increase the likelihood of serious flooding along streams and rivers throughout most of the state.

Al Duthcher
State Climatologist
Agricultural Meteorology

(Continued on page 180)
and will it improve planter performance.

Producers have plenty of opportunities during winter to look for product information at trade shows and agribusiness open houses and dinners. As many of these events are sales-driven, producers have to remember what product is being sold for what situation and how it fits into their crop production system. Often the purchase of one item may affect another or may influence future crop decisions, especially with herbicide rotation restrictions or potential carryover problems.

Another “plan before buying” example relates to seed purchases. Many seed companies now are selling herbicide resistant or tolerant varieties to allow help adjust herbicide rates.

However, if the herbicide flexibility and accompanying seed is needed to address specific weed problems, buy now. Suppliers are running out of these varieties.

Producers can be more profitable by planning ahead and making crop production decisions based on their entire system and management ability. Some components are related, such as a soil tests to determine soil pH and organic matter to help adjust herbicide rates.

Paul Jasa
Extension Engineer

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1. How would you categorize your occupation?
   __ Farmer __ Business/sales manager __ Aerial/ground applicators
   __ Consultant __ University extension/research __ Farm manager/investor
   __ Fert./imp dealer __ Chemical/seed industry rep. __ Other (specify) ____________

2. If you are a producer, how many acres do you farm and what crops do you produce?
   __________________________________________________________________________

3. If you are a consultant, how many acres of what crops do you service? ________________
   __________________________________________________________________________

4. What is most valuable about CropWatch? __________________________________________________________________________

5. What is least valuable about CropWatch? __________________________________________________________________________

6. Are there any subject matter changes you would like to see? __________________________________________________________________

7. Have you changed any pest management or crop production practices as a result of information in Crop Watch? Yes ______ No ______ If so, in what areas? (Please check all that apply.)
   __ Pesticide selection __ Pesticide timing __ Weed scouting
   __ Insect Scouting __ Disease awareness/scouting __ Surface sampling
   __ Deep soil sampling for nitrates __ Reduced rates of pesticides __ Reduced rates of herbicides
   __ Split application of fertilizer __ Crop rotation __ Chemigation of fertilizer
   __ Chemigation of pesticides __ Modified tillage practices __ Herbicide rotation
   __ Irrigation scheduling __ Production practices (Please describe) ____________
   __ Other (Please describe) __________________________________________________________________________

8. Can you give an example of the change indicated in Question 7 and/or assign a dollar value per acre of any savings that might have occurred because of it __________________________

9. Are you getting the information you need on a timely basis? __________ If not, please give specific examples. __________________________________________________________________

10. With “1” being most important and “15” being least important, please rank the following subject matter areas in the order of their importance for you.
    __ Cropping systems __ Insect control __ Disease control
    __ Biological control __ Pesticide updates __ Meeting/training notices
    __ Fertility concerns __ Variety trials __ Chemigation
    __ Tillage issues __ Crop water use data __ Soil temperature data
    __ Information sources __ Weed control
11. Do you use Bt corn (___ Yes; ___ No) or Roundup Ready soybeans (___ Yes; ___ No)?

12. Has your pesticide, fertilizer, or water use increased, decreased or remained the same in the last five years? If there has been a change, what is the reason? ________________________________________________________________

13. How many other people read your newsletter after you're done? ________________________________

14. Are there other ways than mail that you would like to receive the newsletter? If so, please indicate below:
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