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Factors affecting Balance injury to corn

A pattern of crop response and injury from Balance and Epic is emerging as more reports come in and fields are visited. Damage was most noticeable in field corn in west central, southwest, and northeastern Nebraska. Other preemergence herbicides also may have injured corn this year, but the symptoms weren’t as noticeable as with Balance and Epic.

The active ingredient in both Balance and Epic is isoxaflutole, a pigment inhibitor that can cause a “bleached” yellow or white appearance in corn. Epic also contains Axiom (flufenacet). (See the June 18 Crop Watch for information on Balance’s mode of action.) Balance, a new herbicide, was applied on about four million acres in the Corn Belt this spring. Growers in several states reported damage, with Nebraska seemingly among the hardest hit.

It appears several factors affected the extent of herbicide response or injury. Identifying the causes is not easy, but understanding and correcting them should improve crop management practices regardless of future herbicide selection.

Balance activity increases with higher soil pH, low organic matter content, high soil moisture at and after planting, and a higher application rate. The potential for corn injury with Balance increases with shallow planting (less than 1.5 inches), incomplete covering and firming of the seed furrow, improper herbicide mixing and application, eroded soil, and cool soil. Other factors include spray overlaps, sprayer speed, surface soil condition at planting, and time and amount of (Continued on page 133)

Some implement rescue treatments for corn rootworm larval control

Some rescue treatments are being planned for corn rootworm larval control in south central Nebraska, especially in areas that had high rootworm populations last year. There is no established threshold for larval rootworms. They are difficult to accurately sample in a cost-effective manner. Some consultants use a threshold of two larvae per plant based on visual searching of soil and roots.

Based on our laboratory data on larval response to insecticides, there is a potential for reduced efficacy of Furadan 4F insecticide if it is used in areas with documented resistance to methyl parathion (Penncap-M).

Products based on other active ingredients (e.g., Counter, Lorsban) would be expected to perform better in those areas. Additional information on the current rootworm insecticide resistance situation is available in NebFacts 99-366 and 367.

Generally, European corn borer populations appear to be low based on reports to date. Continue to scout fields, as individual fields may still reach economic thresholds in some areas.

Bob Wright
Extension entomologist
South Central REC
Controlling sorghum weeds postemergence

While controlling weeds in emerged sorghum may not be as simple a task as with soybeans or corn, especially with the influx of GMOs, the job may be somewhat easier with the newly labeled Paramount herbicide. With the immense soil moisture and predicted warm-up, weeds are expected to emerge heavily in sorghum fields that are still bare with little crop cover. In the past, controlling emerged or established grass weeds in sorghum has been all but impossible.

Several options are available to control grass and broadleaf weeds in sorghum. While Paramount will do quite well on many annual grasses, it is inadequate on broadleaf weeds. Tank mixing Paramount with atrazine will offer very good control of broadleaf weeds as well as enhanced grass control.

Producers still have a wide array of treatments to choose from to control broadleaf weeds. Remember to follow label restrictions where crop growth stage is concerned to reduce crop injury. Always read and follow any herbicide label. The following table represents postemergence herbicides labeled for sorghum, use rates, weeds controlled, and adjuvant used in tank mix.

Jeff Rawlinson, Extension Technologist, Weed Science
Alex Martin
Extension Weed Specialist

And the answers ...

In the June 18 issue of Crop Watch, we featured something a little different for us — a quiz on the genetics and breeding of soybeans (see page 126). For all of you waiting for the answers:
1) c, high oleic; 2) d, all of the above; 3) Roundup Ready; 4) d, all of the above; and 5) high oleic.
Balance (Continued from page 131)

rain after planting. Choice of hybrids and seedling vigor also may be factors.

Among all these, this year’s cool, wet soils at and just following planting may have accentuated the problem. Corn emerged slowly and seeds and plants were in contact with the herbicide for an extended period. This injured some seed and increased herbicide uptake and slowed herbicide metabolism in seedlings. Some fields have had as much as 12 inches of rain since the herbicide was applied. When temperatures warmed, yellow plants recovered within three days; however when rates were too high, some corn turned white a week later and died. The cool, moist conditions at planting, however, do not entirely account for the extent of damage being seen this year. Balance was tested in Nebraska field trials for the last four years and was not associated with similar injury, even after similar periods of rain. Corn in at least one trial did turn yellow and then recovered. Following is a synopsis of some of the patterns of herbicide response and injury identified in those areas hit hardest:

Soil type and seedbed condition. Injury appeared to be more common where tillage was used to prepare the seedbed. (Injury in reduced till fields appears to be associated with moist soil surface conditions at planting that prevented good soil coverage of the seed.) Injury was also more likely in compacted soils (including wheel tracks and field edges) where root development was restricted and roots stayed were exposed to the herbicide for an extended period. Field edges often appeared more damaged, likely because applications overlapped when equipment was turned, the sprayer was started before the planter moved, and check valves were not used.

Ecofallow fields that were treated preemergence had less injury than tilled fields. Some of the herbicide may have been temporarily held on the wheat residue and gradually released into the soil after rains. Also, there is less washing of soil (erosion) over the row with ecofallow corn because less loose treated soil is available to move and soil covered with wheat straw is less likely to move. In tilled fields the herbicide was moved into the seed zone more quickly.

Severe injury was visible where water stood on Holdrege loam soils after herbicide application; however, injury did not appear to occur on Platte loams under similar circumstances.

The label suggests different herbicide rates for different soil types. Even when suggested rates were followed, Balance injured corn on some McCook loams. In many fields there is a mixture of soil types with varied pH and organic matter content. Injury is worse on fields that have been leveled, terraces built, and erosion has exposed the subsoil. The soils in some of these areas have a pH of 8 or 9 and the organic matter is less than 1.5%, with some as low as 0.7%. The Balance label stipulates that the average organic matter (in the upper 12 inches) must be more than 2%.

Surface soil conditions varied at planting. In one continuous corn field where Balance was broadcast applied after planting, the first two rounds were not injured but the remaining rows had various degrees of injury. The first two rounds were made when surface soil was dry, but a shower delayed planting until the next day when the corn residue and soil surface were damp. When the soil did not cover the seed row uniformly, corn was injured.

In another field the farmer had tandem disk harrowed around the edge. Corn with Balance was not injured in the disked portion, but was injured where not disked. Apparently the disk dried out the soil sufficiently to allow soil to cover the seed. Another field disked the day before planting showed no Balance injury.

Herbicide rate. Injury was reported with rates varying from 0.75 to 2 oz/A; naturally injury was greater with 2 oz/A. Some fields treated by the same applicator had no injury at the high rate but some at lower rates. This is probably related to rain at planting. With the weather conditions this year and the wide range of micro-environments in fields, rates were too high in many instances for preemergence applications. Herbicides with safeners have less Balance injury. The safener in Surpass or Fulltime appears to reduce Balance injury.

Corn hybrids. Some crop consultants reported that hybrids exhibited varying levels of sensitivity to Balance; however this is difficult to assess without more formal evaluation. Cold tolerance, seedling vigor or the pH tolerance of various hybrids also might be a factor.

Mixing and application errors. More injury appears to be associated with applications made by farmers rather than those by commercial applicators. Several fields showed injury at the site where herbicide application began or continued after refilling. It appears that the granules in these instances did not dissolve readily. Premixing and good agitation were important to prevent settling in the tank. Some sprayers do not have sufficient agitation to keep Balance in suspension; Balance needs to be pre-slurried before adding to these spray tanks.

Bandling tended to cause more injury than broadcast applications probably because the band width was measured when the planter was out of the ground. This can cause a 20% increase in application rate. Using other than even-flow sprayer tips would deposit more herbicide in the row center. Also, more injury

(Continued on page 134)
Balance (Continued from page 133)

was observed going uphill due to decreasing ground speed.

**Planting depth.** In many fields with corn injury, corn was planted less than 1.5 inches deep, some as shallow as 0.75 inches. Planting too deep also was a problem. Plants from seeds planted at 1.25 inches were yellow, at 2.0 inches they were white and yellow striped, and seedlings at 2.5 inches were white and almost dead.

It appears that little corn injury has occurred with preplant treatments, especially in ecofallow.

**Rainfall and soil temperature.** Areas with less rain had less injury on similar soils. The intensity of the rain also may be important. When a heavy rain occurred right after planting, injury was worse. Some growers on sandy loam soils (1.2% organic matter and 6.3 pH) had no injury even though they applied Balance preemergence, irrigated, and had rain. Even where there was overlap on these sandy loams no injury occurred.

In a few northeast Nebraska fields corn emerged and appeared normal during the two- to three-leaf stage, but started to turn white after receiving 1.5 to 2 inches of rain in one day. This indicates that the amount of rainfall plays an important role. In this example the first two to three leaves of the corn plant remained green, the fourth and fifth leaves are white and the newest leaves (six and seven) are green. The fact that the sixth and seventh leaves are green indicates that the plants are recovering. The same symptomology occurred in southwest Nebraska. By closely examining these plants, you can see during which plant stage the heavy rainfall occurred. Plants where all leaves remain white usually die.

Although injury may be associated with cool, wet soils, something else is involved. In 1999, we had more Balance injury with 2 oz/A than in 1995 with 3 oz/A at North Platte on a Holdrege loam. In 1999 rain (1.3 inches) occurred between 9 to 12 days after planting. In 1995, 4 inches of rain occurred between the eighth and thirteenth day after planting. We did not have injury with the 2 oz/A rate in 1996, 1997, and 1998 even though we had similar amounts of rain. In 1996 we had 3 inches three to four days after planting. In 1998, we had 1 inch 10 to 13 days after planting with no injury. In 1999 we had injury on a Holdrege loam in one of five experiments. In four of these experiments, no rain occurred before planting; however, in the fifth example, where there was injury, there had been 0.41 inches of precipitation before planting. The moist soil may not have covered the seed well.

**Other considerations.** This year a lot of yellow corn occurred in fields due to iron chlorosis and insufficient nitrogen in fields both treated and not treated with a herbicide. Fields in the river valleys were especially bad. White corn can also be associated with the genetic make up of the corn. In past years occasional white corn plants have been observed and were likely genetically related. Larger areas are likely herbicide carryover, misapplication, or drift. Command carryover and Amitrole also cause white corn. Roundup drift also can cause corn plants to turn white and yellow.

Field update

Paul Hay, Extension educator in Gage County: Wheat is moving toward maturity and warm weather this week could mean cutting sometime next week. A few farmers just finished planting this week and there is a rush to get furrowing done since corn is growing well despite the cloudy wet days.

Our 1999 crop water use weather data features three emergence dates for corn, soybeans, and milo in response to the wet planting season. Many farmers took advantage of the cool weather to run air on the stored grain this past week.

**According to the label**

According to the Balance label, there are three conditions for use:

1) water table > 25 ft,
2) no sandy loam, loamy sand, or sand surface soils, and
3) subsoils need an average organic matter (in the upper 12 inches) of greater than 2%.

Application rates vary according to soil type. On medium- and fine-textured soil the suggested rate is 2 to 3 oz/A for early preplant treatments applied 8 to 14 days before planting. On coarse-textured soils the rate is 1.5 to 2 oz/A for the early preplant treatments. For preplant applications 0 to 7 days before planting or preemergence applications the rate is 2.0 to 2.5 oz/A on medium- and fine-textured soils. On coarse-textured soils the rate is reduced to 1.25 oz/A.

CROP WATCH

June 25, 1999
Wheat diseases: little impact on yields

Several diseases were observed during a recent wheat survey through west central Nebraska. Leaf rust was present in all fields surveyed; rust severity within fields varied considerably. The highest rust severities occurred in fields southwest of McCook. With a few exceptions, most fields had rust levels from light to moderately severe on the upper leaves. Due to the earliness of the wheat crop’s maturity and the lateness of the rust’s development, it shouldn’t have a major impact on yields.

Other diseases noted on the survey were scab, tan spot, barley yellow dwarf and wheat streak mosaic. The incidence of these five diseases was low in all fields surveyed. Scab causes the premature senescence of individual spiklets or portions of the heads after soft dough stage. Often a salmon-colored growth of fungus mycelium forms as a ring at the base of spiklets or along the edge of glumes. Scab was found only in a few of the fields surveyed, and the incidence was very low in those fields. Symptoms of tan spot ranged from dark brown spots to tan blotches on the leaves. The incidence of tan spot is high, but severity in the upper leaves is low. Barley yellow dwarf appears as a bright yellowing of the flag leaves. The incidence of this disease is moderate across the state. Barley yellow dwarf viruses are aphid transmitted and the symptoms being observed now are probably due to spring infection. This affects yield much less than fall infection. No severely infected fields with wheat streak mosaic were found; incidence of wheat streak was low which typified the normal background infection found this time of the season.

With harvest fast approaching, it appears that diseases will not be a major factor affecting yields statewide.

John E. Watkins
Extension Plant Pathologist

Sand chafers emerging in northeast Nebraska

Sand chafers, the small beetles that resemble miniature June beetles (or Japanese beetles), are beginning to emerge from the soil in northeast Nebraska in what appears to be high numbers. Field scouts have known about this beetle for years as an annoying pest that is attracted to light clothing and has a habit of crawling down your neck as you try to scout fields. As many of you recall, there was concern last year that feeding by the larvae in late summer caused possible yield loss and/or lodging problems in corn fields with large larval populations last year.

The emerging beetles will mate and lay eggs over the next two to four weeks. The eggs will hatch in mid to late July and begin feeding on roots of various plants. Beginning in mid-July, growers with concern about this insect should monitor fields by digging roots at least on a once a week basis in suspected problem fields. We are going to try to monitor several fields in northeast Nebraska to gather more information on this common insect. We have no data to show that treating the beetles will increase yields.

For more information, check out the Sand chafer article at our Website at http://www.ianr.unl.edu/ianr/nerc/jarvi.htm.

Keith Jarvi, Extension Assistant, Integrated Pest Management
In soybeans

Imported longhorned weevil moves in

The imported longhorned weevil is an uncommon pest of soybean in Nebraska. Most people have never seen one; however, heavy infestations have been reported the last two years in several fields in Colfax and Stanton counties, resulting in chemical treatment. As the name implies, the imported longhorned weevil came to us from foreign shores. A native of eastern Asia, the weevil was first recorded in New York in 1929 and had reached Iowa by the 1940s. Currently, the western edge of its range is eastern Nebraska.

The adult is a small, plump, mottled gray weevil about 3/16 inch long. The antennae are half the length of the body and elbowed near the middle. All adults are female and reproduce without males. In spring, eggs are laid in the soil in weedy and grassy areas, hatching in 8-12 days. The white, grub-like larvae feed on a variety of plants, and then pupate in early June. Adults begin emerging in mid-June and begin feeding on the foliage of over 100 plants, including soybean. There is one generation per year. The adults do not have wings and so are flightless. This has implications for both scouting and treatment.

Adults injure soybean by feeding on leaf tissue and smaller veins, resulting in ragged leaves with scalloped edges. Economic damage is more likely to occur when large numbers of weevils move from grassy and weedy areas into late-planted soybeans, where plants are small. Under heavy infestation, over a dozen weevils per seedling are common. Because the weevils are flightless, they primarily are pests along field edges that are next to grassy or weedy areas. The exceptions are fields the first year out of grass or pasture (CRP), where infestation can occur throughout the field.

Scout from mid-June through early July when the adults are emerging. If the field was grass or pasture last year, scout throughout the field. Otherwise, focus on the field edge next to grass or weeds. Refer to the economic threshold table to determine whether treatment is necessary. If treatment is warranted along the field edge, make sure and treat deep enough into the field. In Iowa, 68% defoliation by the weevil has been measured 30 feet from the field margin. Other research in Iowa found Lorsban to provide effective control; however, because adult weevils may emerge over a prolonged period (mid-June through early July), re-infestation can occur. More research is needed to develop the best control strategies.

We began finding a few adult weevils in grassy areas last week (June 16) in Colfax and Stanton counties. Please report any infestations to Tom Hunt, Extension entomologist at the Haskell Agricultural Laboratory, Northeast REC, Concord, Nebr., (402) 584-2863.

Tom Hunt, Extension Entomologist, Haskell Ag Lab

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<th>Imported longhorn weevil economic thresholds (weevils per plant)</th>
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Early season corn diseases developing

Seedling blights

Early season weather conditions were ideal for the development of corn seed and seedling diseases (right) this year. Fields in several counties experienced seedling blights caused by *Pythium* or *Fusarium* or both. In a few cases, fields were replanted but the problems persisted, resulting in a poor stand in the replanted field. In problem fields, seeds took longer to germinate and seedlings took longer to emerge from the low temperature, high moisture soils. These conditions provided an extended opportunity for soil-borne pathogens to infect and colonize the developing plant. In some cases, seeds failed to germinate, and in other cases the seedling was killed by one or a combination of damping-off pathogens. Surviving plants were stunted and yellow (lower right); some seedlings may appear normal but have impaired root function. This could affect final yield.

Low soil temperatures and high soil moisture conditions were ideal for the *Pythium* spp. that cause seedling blights. In most samples observed, the diagnostic structures (i.e., oospores) of *Pythium* were extensive in the mesocotyl and roots of the corn seedlings. In some seedlings, both *Pythium* and *Fusarium* were observed in the same seedlings. The extent of colonization of the seedlings and the widespread distribution across whole fields indicate that severe stress on the corn plants occurred. In some cases, the weather conditions alone could account for the level of disease. In other cases, additional factors (e.g., herbicide injury) may have put stress on the plants predisposing them to the seedling diseases. The primary cause can be extremely difficult to determine after the fact.

Corn seed is generally treated with one or more fungicides to prevent seed decays and seedling blights. Most seed is treated with a combination of *Maxim* and *Apron* (above) while the remaining seed is treated with a combination of *Captan* and either *Apron* or *Thiram*. These are excellent products that under most conditions perform very well. However, the severe weather conditions this spring probably reduced their efficacy.

In addition to the diseases caused by fungal pathogens, seedlings in some fields were damaged by nematodes. The UNL Diagnostic Clinic in Lincoln determined the pathogen in one field to be the Needle Nematode (*Longidorus* sp.). Usually found in sandy soils, the needle nematode can be very damaging. Correct diagnosis of suspected nematode-infested fields is critical to effective management.

Foliar Diseases

Lesions on the lower leaves of seedlings were evident in some fields. Usually these early season lesions are not diagnostic and can easily be confused with each other as well as with damage from wind, sand, and hail. A variety of diseases have been diagnosed. At this stage of plant development it is difficult to project whether these early season foliar diseases will have any impact on final yield. However, because of the early appearance of these diseases, scouting will be essential to prevent late season damage. The following diseases were diagnosed: yellow leaf blight (pathogen: *Phyllosticta maydis*), northern leaf spot (*Helminthosporium carbonum*), anthracnose leaf blight (*Colletotrichum graminicola*) and holcus spot (*Pseudomonas syringae*). So far, no samples have been diagnosed positive for Gray Leaf Spot (*Cercospora zeae-maydis*).

Jim Stack, Extension Plant Pathologist, South Central REC
Vigilance is warranted

Controlling purple loosestrife

This is the second of two stories related to the increase of purple loosestrife in Nebraska. The first appears in the May 19 Crop Watch.

Many concerned individuals and groups are working to stop the spread of purple loosestrife. In Nebraska it is estimated that about 15,000 acres of wetland is already infested. We must do whatever we can do today to stop the spread of this weed.

Purple loosestrife is a tough plant to control and there are no magic and immediate control solutions. It requires an integrated management approach, which includes:

1. **Prevention and Education:** Educating the public is a major part of preventing the spread of loosestrife. This summer we will be mapping the sites along the Missouri river, especially the area from Ponca to Yankton, where it is prevalent.

2. **Manual control:** Pulling and digging plants can be very effective for small areas. Pulling is most effective on plants that are 1-2 years old. Loosestrife spreads vegetatively from stems, therefore, regeneration from discarded plants is likely. They should be dried and burned.

   If pulling is not feasible, removing the flower heads can reduce the spread of the seeds. Simply cut the heads in July and August (before the flower sets seed). Seed formation starts at the bottom of the flower and progresses to the tip. Before cutting off the seed head, check to see that no ripe seeds are present.

3. **Cutting:** Cutting can actually spread loosestrife if the cuts are not removed because the cut stalk portions can sprout. Place plant parts in a carton or protected site so that they can dry completely without danger of being spread by wind, water, human or animal activity and then burn them.

4. **Burning:** Experimental burning of some drained sites did not provide control; however, it might have limited value as the part of an integrated approach.

5. **Herbicides** can be used for larger areas. The available herbicides include Rodeo or Roundup Ultra, aquatic formulation of 2-4-D, and Garlon. They should be applied close to the bloom stage or later. Garlon can be applied only in seasonally dry wetlands provided that water is not contaminated. These products are non-selective, therefore, avoid injuring native vegetation. As always, read and follow the product label directions. The spray solution volume is on a spray-to-wet basis. It can be

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**Purple loosestrife report form**

Type of area
___ Marsh or wetland ___ Pond or lake ___ Stream or river
___ Canal ___ Meadow or pasture ___ Roadside ditch ___ Urban

Plant density
___ Fewer than 20 ___ 20 - 99 ___ more than 1000

Area estimate (square yards or acres)

Location
County ___________ Township ___________
Nearest town ___________ Distance from town ___________
___ Private land ___ State land ___ Federal land

Survey date
Date of survey __/__/____
Have you previously reported this area? ___ Yes ___ No
If "yes", when __/__/____
Has the area increased ___ Yes ___ No

Reporter (optional)
Name ___________ Address ___________
City ___________ Zip Code ___________

Please fill out one form for each site and bring it to the nearest UNL Cooperative Extension office or mail it to:

Stevan Knezevic
Haskell Agricultural Laboratory
Concord, NE, 68728-2828.
Stewart’s wilt in corn identified

While not usually a problem in Nebraska, Stewart’s wilt was diagnosed in a southeast Nebraska corn field this week. Stewart’s wilt is often widespread in the Corn Belt occurring as far west as Iowa. This disease is most serious on sweet corn and inbred lines for hybrid seed production. The bacterium that causes Stewart’s Wilt (*Pantoea stewartii*; previously named *Erwinia stewartii*) overwinters within corn and is dispersed by the corn flea beetle (*Chaetocnema pulicaria*). Although other insects can transmit the bacterium, only the corn flea beetle is important to the epidemiology of Stewart’s Wilt. The incidence of Stewart’s Wilt can be predicted based on the overwinter survival of the beetle vector. When the winter is mild, the population of flea beetles will be high and the potential for Stewart’s Wilt will be correspondingly high. The weather conditions in winter 1997-98 resulted in a high enough surviving population of the corn flea beetle to cause direct damage by feeding. There were no reports of Stewart’s Wilt in Nebraska during the 1998 growing season. Last winter also was mild with conditions favorable to corn flea beetle survival and providing a potential for Stewart’s Wilt. One case of Stewart’s Wilt was detected in Nebraska this month. Other suspected cases are being examined. Stewart’s Wilt was confirmed by Loren Geisler of the UNL Plant and Pest Diagnostic Clinic using a serological detection kit. The disease occurred on certain breeding lines of field corn in Lancaster County. Typical leaf lesions on young seedlings (left) progressed to leaf blight and death of some plants (right). If corn flea beetle feeding damage is evident on plants and lesions begin to develop on the leaves, seek diagnosis for the problem. Samples can be sent to the Plant and Pest Diagnostic Clinic in Lincoln (448 Plant Sciences, University of Nebraska, Lincoln, NE 68583-0722) and confirmed serologically ($20/sample). As with any disease, correct diagnosis is critical to the development of an effective management plan. Stewart’s Wilt can also be a problem later in the season; it commonly causes a leaf blight at or after pollination. Consequently, diagnosis of suspect plants early in the season is important.

Jim Stack, Extension Plant Pathologist, South Central REC

Purple loosestrife (Continued from page 137)

from 20 to 100 gal of spray solution/area. This summer we will be testing several other herbicides.

6. Biological control does not eliminate the target weeds, but it can suppress weed population to a non-significant level. Purple loosestrife population can be suppressed using its natural enemies — insects introduced mostly from Europe, where the weed originated. Five insects have been approved for release. These insects have historically kept this plant under control on that continent. The list includes: root weevil (*Hylobius* sp.), two beetles (*Galerucella* sp.), and two flower-feeding weevils (*Nanophyes* sp.). The use of these insects is monitored and should be integrated with other control methods.

7. Monitoring: Monitor the sites for several years. New shoots may come up from plant remnants. How can you help? Landscapers and horticultural stores have used purple loosestrife as an ornamental planting for years. Encourage the use of other plants that do not pose a threat to the environment. Quick and effective use of biological and chemical control measures will only be possible in those areas where there is good documentation of infested sites. That is why it is important that every site be documented with a Purple Loosestrife Report Form. If you identify purple loosestrife sites along the wetlands in your area, please fill out the ‘report form’ listed below or contact Stevan Knezevic, UNL Extension Weeds Specialist at Concord (402-584-2808) or Doug Smith in Allen (402-635-2129).

Stevan Knezevic, Extension Weed Specialist, Haskell Agricultural Laboratory, Concord
Rains delay crops; pattern to continue

With planting season rapidly ending, we can observe how this spring’s weather may affect the rest of the growing season. The abundance of moisture during the last two months has resulted in two major problems: crop emergence varies widely across the state and subsoil moisture reserves are adequate to surplus.

According to the Nebraska Agricultural Statistics Service, the corn crop had completely emerged by June 20. Soybean emergence had reached 91%, while sorghum emergence was at 88%. Top-soil and sub-soil moisture for the state have identical ratings of 2% short, 85% adequate, and 13% surplus.

State averages for wheat as of June 20 indicate that 100% of the crop is headed, with 37% turning color and 1% ripe. Seventy-five percent of the wheat is turning color across the southern third of the state, about 35% is turning color across the central third of the state, while only 10% of the crop is turning color in the northern third.

Since April 1, abundant rainfall across the state alleviated short-term soil moisture deficits that developed from September through March. Precipitation across the western third of the state since April 1 has averaged 120% of normal, 160% of normal across the central third of the state, and 140% of normal across the eastern third of the state.

The continuous nature of the rains this spring delayed corn planting; it wasn’t until May 23 when 50% of the corn crop was reported to have emerged. Twenty five percent of the crop had emerged by May 14 and 75% had emerged by May 30. Based on the five-year average, the corn crop is 7-10 days behind schedule from planting delays alone. Below normal temperatures the last two weeks means the crop is likely two to three more days behind schedule.

It should be noted that producers probably switched to shorter season varieties to compensate for planting delays. Therefore, the crop may not be as far behind schedule as previously indicated. Calculations indicate that if the growing season averages 1°F cooler than normal, the corn crop will fall an additional seven days behind schedule. Temperatures must remain near normal for the rest of the growing season to minimize the potential for freeze damage this fall across western and northern Nebraska.

The latest 30- and 90-day outlooks have backed away from the significant cooling forecasts projected for the growing season last month. The July outlook indicates a tendency toward drier than normal conditions across the northeastern third of the state. The rest of the state has equal chances of receiving below normal, normal, or above normal precipitation. In addition, there are equal chances of receiving below normal, normal, or above normal temperatures across the entire state in July.

The 90-day outlook for the July through September period, indicates a slight tendency toward below normal temperatures across the entire state. However, the area with the highest probability of receiving below normal temperatures has been shifted eastward to include eastern Iowa, Illinois, and Indiana. There is no trend for precipitation across Nebraska during the period, which means that there are equal chances of receiving below normal, normal, or above normal precipitation during the period.

The current La Nina is projected to last into early 2000. Forecasts indicate that the fall of 1999 and spring of 2000 should be similar to this year. Fall temperatures are projected to be normal to below normal, while winter and spring temperatures should be warmer than normal.

Al Dutcher, State Climatologist
Agricultural Meteorology