4-11-1997

CropWatch No. 97-4, April 11, 1997 Special Edition

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CRP to crops

Successful conversion begins with a plan

The Conservation Reserve Program is undergoing some major changes. Many Nebraska contracts that were due to expire in 1996 were extended to Sept. 30, 1997. Eighty-six percent, or 538,197 acres out of the 625,484 eligible to expire, were re-enrolled for a final year. It appears now that there will be no more extensions available to landowners from previous signups. With different eligibility rules in effect for the new Conservation Reserve Program, a significant amount of enrolled acres will be returned to production agriculture, either in livestock or crops.

This issue of CropWatch addresses some of the production questions that may arise for farmers returning CRP acres to crop production in 1997 and 1998. Much of the information is based on research conducted at the Northeast Research and Extension Center near Concord.

Continuous CRP Signup

Even though one CRP signup period just ended, it is important to know that a related program, Continuous CRP Signup, is still open for enrollment. This is a tremendous opportunity for tree planting and some retention of the grasses (grass waterways) currently in CRP. This Continuous CRP sign up is different from the other CRP signups in that the practices being offered are a high priority and almost guaranteed to be accepted if the cropping history is met. Applications are approved on a county level and some contracts can be for 15 years. All crop land that meets the cropping history is eligible and does not have to be highly erodible. Contact your local county FSA or NRCS office for details on the signup and potential practices that are available. This Crop Watch will address some of these practices.

CRP has been effective in reducing soil erosion, increasing wildlife habitat, reducing crop production, improving water quality, and increasing soil productivity. Crop production systems should build on the soil quality developed through CRP.

Keith Jarvi, Extension Assistant
Integrated Pest Management
Northeast District

Special edition:
Converting CRP to crops

University of Nebraska Extension specialists and researchers have been examining the conversion of CRP acres to crop land from several perspectives.

This special edition of Crop Watch exclusively covers issues related to planning and successfully converting those acres.

After CRP . . .

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UNL team begins third year of CRP research

A multi-disciplinary team from the University of Nebraska has been studying the conversion of CRP acres to crop production since the fall of 1994. The research is being conducted on land owned by Charles Paulsen next to the Northeast Research and Extension Center near Concord.

Additional CRP resources

Several publications are available from the University of Nebraska on managing CRP land once contracts expire.

Extension Circular 96-142-S, Conservation Reserve Program: CRP Land Use Guide discusses different management options following the expiration of CRP contracts. The guide also contains worksheets to determine operating costs for various land management practices.

Soil fertility issues in CRP land are discussed in NebFact 96-281, Soil fertility considerations for land coming out of CRP. Copies of these publications are available from the University of Nebraska and county extension offices.

A new publication for producers in western Nebraska was released last week: Converting CRP to Cropland in the Nebraska Panhandle, NebFact 97-121. It discusses strategies and offers three tables on estimated operations and per acre costs for no-till, reduced till, and conventional tillage conversion from CRP to cropland.

A list of suggestions for converting either cool-season or warm-season grass vegetation to crops has been developed by members of the CRP to crops team. These are available from the Northeast Research and Extension Center, Box 111, Concord, NE 68728-0111.

A public tour of the research site at the Northeast Center will be held June 18. A bus tour of CRP lands returned to row crop production, grazing, or alternative land uses will be held in northeast Nebraska on Aug. 19. Information on these tours will be in future issues of Crop Watch.

In fall 1994 a focus group of people from various agricultural interests met to determine research priorities. The highest priorities for cropping systems research are managing existing vegetation, tillage systems, and crop selection/rotation. Other experiments were conducted in insect, weed, and wildlife pest management and nitrogen management in corn. Research will continue at least through 1997. Smooth brome is the primary cover in this CRP field.

Plots are either hayed, shredded (mowed), or left alone. A burn treatment was originally chosen but local permission to burn was denied, and shredding was chosen as an alternative. Three tillage systems were plow, disk, and no-till. Rotations chosen were continuous corn, corn-soybean-corn, soybean-corn-soybean, and sorghum-soybean-corn. Four replications of each combination were conducted on a total of 144 plots each year. In 1997 data will be collected from 432 plots (third year of rotation in 1995 plots, second year of rotation in 1996 plots, and

(Continued on page 31)
In a nutshell: Recommendations for converting CRP to row crops

Plan your return to crop production after CRP very carefully. Only limited research has been done in Nebraska to answer some of the challenges involved in this conversion. We want to maintain or even continue to improve the soil quality and productivity enhancement made during CRP.

After two years of research in northeast Nebraska, the CRP to Crops Research Team recommends planting no-till soybeans the first year out of the program for individuals returning CRP land to row crop production, where soybeans are adapted. Planting no-till soybeans can maintain the environmental benefits, particularly erosion control, of keeping the field in grass vegetation for 10 years. This research did not show any significant yield differences between no-till, disk and plow treatments with soybeans.

Planting soybeans also allows for more options in controlling grass vegetation during the first year the land is returned to crop production. Roundup Ready soybeans provide a means for weed control unavailable for other crops. Later planting into warmer soils stimulates quick germination and limits exposure to seedling insects, diseases and wildlife. Soybeans compensate better at varying plant populations. The “rotation effect” will be of benefit to corn and other crops planted the second year.

The team highly recommends controlling vegetation the year before planting. Not only will existing vegetation be controlled better, potential rodent problems may diminish when their habitat is removed. While it is possible to control cool season grasses with herbicides in the spring of planting, application timing will be more critical.

Keith Jarvi, Extension Assistant
Integrated Pest Management, Northeast District

CRP to Crops Team

The following individuals served on the CRP to Crops Team:

Keith Jarvi, lead author, Integrated Pest Management, Northeast District
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Terry Gompet, Extension Educator, Agronomy, Eastern Niobrara EPU
Scott Hygnstrom, Extension Wildlife Damage Specialist, UNL
Bill Kranz, Extension Irrigation Specialist, Northeast District
Terry Mader, Extension Beef Specialist, Northeast District
Alex Martin, Extension Weeds Specialist, UNL
Steve Rasmussen, District and Extension Forester, Northeast District
Charles Shapiro, Extension Soils Specialist, Northeast District
Dave Shelton, Extension Agricultural Engineer, Northeast District
John Witkowski, Extension Entomologist, Northeast District

Other contributors to this issue:

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Bob Klein, Extension Cropping Systems Specialist, West Central District
Drew Lyon, Extension Dryland Cropping Systems Specialist, Panhandle District
John Watkins, Extension Plant Pathologist, UNL
Randy Gunn, Resource Conservationist, NRCS, Wayne
Research results (Continued from page 31)

For comparison, in 1995 continuous corn on other fields at the Northeast Center yielded an average 52 bushels per acre and corn planted into soybean stubble yielded 78 bushels per acre. In 1996 continuous corn at the Northeast Center yielded 120 bushels per acre and corn planted into soybean stubble yielded 126 bushels per acre.

Table 1. First year corn yields for the CRP plots at the Northeast Research and Extension Center.

<table>
<thead>
<tr>
<th>Year</th>
<th>No-till</th>
<th>Disk</th>
<th>Plow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>67</td>
<td>74</td>
<td>77</td>
</tr>
<tr>
<td>1996</td>
<td>115</td>
<td>124</td>
<td>138</td>
</tr>
</tbody>
</table>

Sorghum yields are shown in Table 2. In 1995 an early September frost coupled with a late June 12 planting date and drought conditions reduced yields.

In both 1995 and 1996 corn and sorghum planted into plowed plots out-yielded both disk and no-till plots. Deep tillage using the moldboard plow was generally more effective at controlling vegetation.

Table 2. First year sorghum yields for the CRP plots at the Northeast Research and Extension Center.

<table>
<thead>
<tr>
<th>Year</th>
<th>No-till</th>
<th>Disk</th>
<th>Plow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>48</td>
<td>53</td>
<td>57</td>
</tr>
<tr>
<td>1996</td>
<td>75</td>
<td>85</td>
<td>97</td>
</tr>
</tbody>
</table>

Soybean yields for various tillage treatments are shown in Table 3 for 1995 and 1996. There were no significant differences between tillage treatments. The average yield for other soybean fields at the Center was 32 bushels/acre in 1995 and 53 bushels/acre in 1996.

Table 3. Soybean yield for the CRP plots at the Northeast Research and Extension Center.

<table>
<thead>
<tr>
<th>Year</th>
<th>No-till</th>
<th>Disk</th>
<th>Plow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>35</td>
<td>36</td>
<td>37</td>
</tr>
<tr>
<td>1996</td>
<td>52</td>
<td>50</td>
<td>53</td>
</tr>
</tbody>
</table>

Second year summary — rotational effects

The crop planted the first year out of CRP influenced crop yields the second year out. These results are based on only one year's data. All crops were planted no-till the second year out of CRP.

Corn yields were approximately 23 bushels per acre greater in the soybean-corn rotation than the continuous corn rotation. Continuous corn treatments yielded 122 bushels per acre compared to 145 bushels per acre for the soybean-corn rotation. Corn rootworms may have been a factor as root ratings of continuous corn were in the mid to upper 3's, indicating a potential for economic damage.

Tillage systems used to prepare the land for planting the first year out of the program also influenced corn yields the second year. Plots that were plowed in 1995 yielded 137 bushels per acre in 1996 compared to 127 bushels for no-till plots and 134 bushels per acre for disk plots.

Soybean yields in the sorghum-soybean rotation were similar to the corn-soybean rotation. Yields in the sorghum-soybean rotation were 49 bushels per acre and in the corn-soybean rotation, 48 bushels per acre.

Look out for seed-attacking insects

Soil insects at seedling establishment are of greatest concern when planting row crops into CRP acres. Seedcorn maggots, wireworms and white grubs are the most important seed-attacking insects in crops planted in sod. Tillage will not eliminate these pests. They survive plowing and/or disking quite well. In fact, spring tillage may increase the chance of seedcorn maggots, as the decaying of freshly tilled vegetation may attract egg laying females.

We discussed the management of soil insects in detail in the March 28 Crop Watch (97-2). Planter box seed treatments protect the seed from most seed attacking insects. Prevent seedcorn maggot damage through seed treatments. For wireworms, use bait stations to determine population levels. For low levels of wireworms (less than one per bait station), use planter box seed treatments. For higher levels use a granular insecticide applied in-furrow. White grubs, while rarely causing economic damage, can only be controlled by granular soil insecticides.

Once the crop emerges, the fields should be scouted as usual for cutworms and other insects and mites.

Keith Jarvi, Extension Assistant
Integrated Pest Management
John Witkowski
Extensin Entomologist
Northeast District
Conservation measures can still pay off

Keep the benefits gained through CRP

The Conservation Reserve Program has provided landowners an excellent opportunity to establish permanent grass and woody vegetation on highly erosive cropground. There is little question that the established grasses, trees and shrubs on CRP ground have greatly improved wildlife habitat, reduced soil erosion and drifting snow problems and have helped protect water quality. The challenge of converting CRP to row crops lies in retaining established vegetation in strategic areas to maintain the positive environmental benefits while complimenting and improving the cropping potential of the field.

CRP vegetation can be retained and used in various ways. Most Nebraska CRP contracts used grasses as the established vegetation, so most opportunities will be in ways to use the existing CRP grass as part of the CRP to crops decision.

The grasses already established in the field should be left for waterways to reduce soil erosion and runoff from sloped fields into adjacent water resources. Grass waterways will enable the operator to farm the field on the contour more easily and efficiently than if the waterways erode to a point where farm equipment cannot cross safely. If the waterway can not be crossed safely with equipment, then the operator is forced to turn more frequently and farm the field as several smaller, less efficient units. Waterways should be identified and the grass vegetation left intact when the rest of the field is taken out of CRP. Some existing waterways may be eligible for the Continuous CRP signup. Contact your local NRCS for details.

In addition CRP grass vegetation can be left on field edges for turn areas. Many times the edges of the field are planted to “turn-rows” that are less productive because of compaction and crop damage from turning equipment. In addition, if the field is being farmed on the contour, the “end row” area is very erodible because it is perpendicular to the slope of the field. A 30-50 foot turn area can be left and hayed or grazed by livestock in the fall when the row crop stubble is grazed.

Grass strips also can be left on sloped ground to follow the contour to reduce water-caused soil erosion. These strips can be hayed or left for wildlife habitat. Erosion potential is affected by the length of slope that water can work down. Grass strips will interrupt the total length of slope and reduce the erosion potential.

Areas where trees and shrubs were incorporated into the CRP field should be left undisturbed. If trees and shrubs were not part of the CRP contract initially, there are still good opportunities for incorporating them as the field is planted to row crops. In many instances, new tree plantings like shelterbelts, field windbreaks and living snowfences can be enrolled in a 10- or 15-year contract within the crop field.

Field windbreaks help protect the soil from erosion and also protect the developing crop. An average 15% to 20% increase in yield can occur in tree protected acres. Single or two-row tree plantings are approximately 450 to 660 feet apart perpendicular to the prevailing summer winds. One field windbreak, ½ mile long would be less than two acres in area.

Under the current Continuous CRP sign up, these acres can have a 10-15 year contract. These Continuous CRP contracts are approved at the county level and are almost guaranteed as long as the cropping history is intact.

Shelterbelts can be established to protect farmsteads, livestock or road systems. Farmstead windbreaks can reduce energy requirements around the farm and home by 30% and reduce snow removal problems in the winter. Protecting livestock from snowstorms and windchill can significantly reduce animal stress and feed energy requirements. This results in better animal health, lower animal mortality (especially young animals at birthing time), lower feed costs, and increased livestock profits. Living snowfences along road systems reduce the expense of keeping main roads open from drifting snow. These plantings can be included under a Continuous CRP 10-15 year contract.

Combinations of grasses, trees and shrubs can be used to protect riparian areas — those next to a water resource like a high water table, stream or lake. These sites are sensitive and highly susceptible to contamination from pesticides used on agricultural grounds. Plantings

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Conservation benefits (Continued from page 33)

of grasses, trees and shrubs can help protect these areas. Riparian plantings help trap nutrients and pesticides, reduce flooding and erosion, store water, produce highly productive wildlife habitat and are usually desired recreational sites. Usually better use is attained from plant diversity. Areas immediately adjacent to streams or other water resources are priority locations. Riparian buffers are another priority area for the Continuous CRP. These acres, like field windbreaks and shelterbelts, can have a 10-15 year contract.

Trees, shrubs and grasses provide wildlife feeding areas, travel lanes, hiding and resting locations. A wild bird or animal must spend its entire life “out in the environment”. One- to five-acre areas can provide much needed wildlife habitat in our intensive, fence-row to fence-row agricultural system. These small areas could be those that are difficult and actually even costly to farm. Best locations are those away from roads and in the middle of the section or field where the wildlife will be most secluded.

Trees can be planted for woodlot in areas of point rows or odd areas of a field. These tree plantations can include hardwood trees like black walnut, oaks, ash and hackberry for future firewood use or potentially high value lumber trees. The acres planted to trees provide many recreation opportunities and produce more environmental benefits than a simple planting of grass or letting the area grow to weeds. These areas can leave a long-term impact on the local environment for many generations to enjoy and benefit from.

Steve Rasmussen
Extension Forester
Northeast District
Randy Gunn
Resource Conservationist
NRCS, Wayne

Manage residue to maintain its value

CRP fields have 10-11 years of plant residue, the condition of which ranges from actively growing to completely decayed. Research indicates the amount of plant residue can range from about 5 tons per acre for cool season grasses to 10 tons for warm season grasses.

The first step in returning CRP acres to crop production should be to obtain an approved cropping conservation plan from the NRCS. Producers must meet conservation compliance requirements for soil erosion. These usually call for 20-50% residue cover after planting.

No-till crop production systems usually are the best option for conserving soil and water on lands that were in CRP. No-till planting systems using a knife anhydrous ammonia application can have 80% or more residue cover after planting. Disk systems have a greater range in residue cover after planting depending on the number of tillage operations, size and depth of blades on the disk, angle of disk, and residue present before tillage. The range usually is from 10% to 40% residue cover after planting. Expect to use multiple diskings to prepare a field for planting into CRP acres, with lower residue cover.

Moldboard plow systems are one way to control existing vegetation, particularly if control of warm season grass has not been accomplished in the previous year, to handle rough terrain, and/or to establish certain crops. However, this system has the greatest erosion potential. Less than 5% residue cover is usually present in conventional cropping systems that include moldboard plows. It appears that farmers planting into sod will be allowed to plow one year without losing compliance. A three-year conservation plan will be written with average residue cover being important. In succeeding years after plowing, residue requirements may be increased to compensate for residue cover lost through plowing.

Ideally, farmers should plan ahead and prepare fields the summer and fall previous to cropping. The crop, planting date, and planting or drilling equipment all have an impact on the residue management plan. Most current model planters, if properly adjusted and equipped with adequate weight and heavy-duty down-pressure springs, are capable of planting into heavy residue. Be sure that disk opener blades are sharp, and that the correct contact between double disk openers is maintained.

Some drills also may be able to plant through CRP residue. Planting date is important, as is the time the soil is exposed to winds and water. March, April, and May are the high wind erosion months for most of Nebraska. May, June, September and October are high rainfall months.

Dave Shelton
Extension Agricultural Engineer
Northeast District
Crop selection considerations

Soybeans recommended crop after CRP

Following CRP, strongly consider planting soybeans if they are adapted to your growing area. They can be planted no-till using a properly adjusted planter. Some drills also can plant successfully into heavy residue. Again, the planter or drill must be properly adjusted, and may need to have additional weight. Since soybeans are planted later, the soils are warmer and drier, and the crop residue is drier and easier to cut and move out of the way.

The soybeans may benefit from a starter nitrogen application. (Nitrogen should not be placed in the row but can be applied if soil is between the seed and the fertilizer; less than 20 lbs of nitrogen should be needed). Soybeans do not respond to phosphorus until Bray 1 levels are below 10 ppm. Soybeans at the Northeast Center near Concord did well without any fertilizer application and yields were similar for no-till and till systems. Soil-applied inoculant with *Rhizobium spp.* is recommended.

If corn is selected as the first crop after CRP, consider applying 50 lbs of additional nitrogen over the rate recommended for the yield goal because existing residue may “tie up” or immobilize the nitrogen. Because of earlier planting dates for corn and the heavy residue conditions in CRP fields, the soil tends to be cooler and wetter. The possible cooler soil temperatures in no-till may delay corn emergence and plant growth, so selecting medium or short maturity corn hybrids with early season vigor usually will be desirable. Also, equipping the planter with spider wheel residue movers may help the soil in the row to warm faster and improve emergence and early growth.

Research at the Northeast Research and Extension Center at Concord showed lower yields for no-till corn versus disk and moldboard plow systems following CRP. (Residue movers were not used). Slow emergence, reduced stands, nitrogen tie-up, and less grass vegetation control are all possible factors. Increasing the seeding rate 10%-20% may help compensate for these problems. Sorghum will be similar to corn as a first crop after CRP, and performed similarly at the Northeast Center.

Spring small grains are usually a poor choice for the first crop after CRP. They need to be planted early and many drills (even no-till drills) cannot seed small grains successfully into large amounts of residue. Preparing seedbeds for these early planted crops, which probably would include destroying most of the crop residue, would be extremely difficult and also leave the soil subject to erosion. Producers may be inclined to moldboard plow or burn in order to establish these crops.

Western Nebraska

In western Nebraska winter wheat growers face the challenge of establishing a crop in the fall when the CRP contract expires. Because of limited moisture, producers face a high likelihood of crop failure if they try to establish winter wheat the year their contract expires. With the drier climate in the western part of the state it becomes even more important to control all existing vegetation. Killing the grass plants will be

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Crop selection (Continued from page 35)

difficult. The wheat may require extra nitrogen. If soil moisture levels are low, fallow and plant winter wheat the next fall. In addition, take-all disease may be a serious risk. Producers considering these factors may want to consider planting no-till corn, grain sorghum, proso millet, or sunflower the next spring. These crops, except proso millet, could be planted no-till with a planter equipped with spider wheel residue movers.

Alfalfa is another possibility, although it might be difficult to establish. It would need to be inoculated.

Producers in western Nebraska may want to consider implementing a system of intensive crop rotations. Converting CRP land to crop production offers producers an excellent opportunity to establish more intensive crop rotations. By growing two crops in three years or three crops in four years, producers gain several important benefits.

First, they reduce the use of fallow in the rotation. Fallow is a major contributor to soil quality degradation and is an inefficient water conservation practice. Tillage during fallow aerates the soil and hastens the decomposition of organic matter. No plants are allowed to grow during fallow, so no organic matter input occurs, and the soil may be eroded by wind and water. Weeds, insects and other pest cycles are disrupted when summer crops are rotated with winter wheat. For example, downy brome, jointed goatgrass, and rye are much less troublesome in winter wheat grown in rotation with summer crops such as proso millet or sunflower.

Summer crops often respond very favorably to no-till practices. The use of no-till for a portion of the rotation reduces over-all tillage and more crop residue is maintained near the soil surface. A producer who plans to establish a more intensive crop rotation that includes no-tilled summer crops may be less concerned about using tillage, even plowing, for the initial breakout of the CRP land. The long-term benefits of such a cropping system may outweigh the short-term detrimental effects of a one-time plowing on soil quality.

A potential plan (Fig. 1) for CRP conversion would involve disking or plowing one-third of the field to be summer fallowed prior to seeding winter wheat in the fall. On the other two-thirds of the field, Roundup would be applied at a rate of 32 oz/A in early May and again at 24 oz/A in early June if needed. Also, fertilizer would be applied, and a summer crop such as proso millet would be no-till seeded.

If soil moisture is limited in the top three feet of soil, the summer crop should not be planted, and the area should be fallowed for a fall crop or a summer crop the next year. Annual grass weeds may be a problem in no-till millet the first year out of CRP. If annual grass weed problems are anticipated, the producer may use some tillage or substitute a broadleaf summer crop such as sunflower. In year two, half of the millet ground would be fallowed and half would be re-seeded to another summer crop. By year three, a three-year system of winter wheat-summer crop-fallow would be established. Such a plan would provide income in the first year after contract expiration and establish a more intensive system to maintain the benefits of CRP for a longer time.

Figure 1. A potential plan for CRP conversion.

<table>
<thead>
<tr>
<th>Total field size divided by thirds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer fallow</td>
</tr>
<tr>
<td>Winter wheat</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Year 1</td>
</tr>
</tbody>
</table>

Keith Jarvi, Extension Assistant
Integrated Pest Management
Charles Shapiro, Extension Soils Specialist
Bob Klein, Extension Cropping Systems Specialist
Drew Lyon, Extension Dryland Cropping Systems Specialist
Extra nitrogen may be warranted after CRP

Soil testing, tillage selection, and your cropping plan are all factors affecting fertility management after CRP.

Nitrogen

Residual nitrogen after grasses is usually very low and extra nitrogen may be needed. The proper nitrogen rate can best be determined by setting a realistic yield goal and following nitrogen recommendations in current NebGuides. Research at the Northeast Research and Extension Center indicates an additional 50 lbs of nitrogen over the recommendations may be necessary due to immobilization of nutrients.

Broadcasting dry or liquid nitrogen sources on old sod is not recommended because nitrogen can be tied up (immobilized) as well as lost to the air through volatilization. This also is a consideration for nitrogen applied in irrigation water during the growing season. For best results, nitrogen should be knifed in below the residue/sod layer. Nitrogen release from sod through mineralization is difficult to predict. CRP which contained legume-grass mixtures eventually will release more nitrogen than grass stands, but not necessarily the first year.

For tilled soil, there are more nitrogen management options. Broadcast nitrogen sources can be used if they are tilled in one to two days after application. Other methods such as preplant, sidedress, and through irrigation also can be effective.

Soil nitrate levels likely will be low after CRP so apply some starter nitrogen as a narrow band over the row or as row-applied nitrogen (plus other needed nutrients) at a rate of 20-40 lb/a for corn and sorghum.

After the eight-leaf stage, monitor the crop to determine how tillage, residue and mineralization are affecting nitrogen uptake and release. A detailed description for using a chlorophyll meter to monitor nitrogen status is in NebGuide G93-1171, Using a Chlorophyll Meter to Improve Nitrogen Management.

Another technique is to use the Presidedress Nitrate Test (PSNT). The PSNT is intended for land that has not received fertilizer, but modifications can be made for sampling and interpretations. A soil sample from 0-1 and 1-2 feet when corn or sorghum is 6 to 12 inches tall can indicate whether sufficient soil nitrate is available for the crop and can guide sidedress nitrogen application.

Soybeans should be inoculated with Rhizobium spp. or nitrogen deficiency may develop.

Phosphorus, potassium, lime, zinc

Sample the top 8 inches of soil to determine levels of the immobile nutrients phosphorus, potassium and zinc.

Tillage may complicate phosphorus management. If soil levels are very low (<5 ppm Bray P, 2 ppm Olsen P), broadcast phosphorus will be needed for two to three years to increase fertility. An alternative is to have one large application — a three-year supply — tilled into soils that are not too acid (<pH 6) or too alkaline (>pH 7.4 non-calcareous) if no-till will be followed. Do not apply broadcast phosphorus on no-till fields.

Starter fertilizer usually will provide adequate phosphorus unless soils are extremely low. If extremely low, schedule a broadcast operation and tillage for incorporation as part of the crop production system. Manure application is also an excellent way to improve soil phosphorus levels.

Due to the large amounts of residue, phosphorus release also can be delayed after CRP. Research at the NEREC showed early season phosphorus deficiency symptoms on soil that tested high in phosphorus and received no starter, but by midseason crop growth differences disappeared. For low and medium testing soils, row-applied phosphorus will be a good option for no-till. For tilled soil, either band or broadcast can work effectively.

Similar nutrient/tillage choices for nitrogen and phosphorus hold for potassium, sulfur and zinc.

Most Nebraska soils have adequate potassium. Sulfur deficiency is usually a problem only on low organic matter, sandy soils irrigated with water containing low sulfate. Zinc deficiency is usually a problem only on eroded soils, leveled land, and on high pH soil. Moderate deficiency can be handled with zinc added to starter fertilizer, while more deficient soils will need broadcast application incorporated with a tillage operation.

Soil tests will indicate whether there is a need for lime. If lime is needed, avoid applying a full rate to no-till fields. When possible, apply lime with tillage.

Gary Hergert, West Central District Charles Shapiro, Northeast District Extension Soils Specialists

Manage disease threat to small grains after CRP

Small grains may be the most susceptible crops to disease after CRP and may be troubled by root-infecting fungi that cause root and crown rot and take-all. While seed treatments may help, planting wheat immediately after CRP could be a problem. Planting wheat after fallow would be a much better choice. The disease potential of crops after CRP has not been adequately researched, but corn, soybeans, and sorghum planted into smooth brome at the Northeast Center have not experienced disease problems in two years of study.

John Watkins
Extension Plant Pathologist
Begin control summer before planting

Good vegetation, weed control essential

Established cool season and warm season grasses and other plant species present in CRP acres will need to be controlled if conversion is to be successful. In many cases, control will improve if begun in the late summer or fall before returning CRP acres to crops. Any plants not controlled will compete with the crops and act as a weed.

Other plant species may include annual, biennial, and perennial weeds, including woody plants. This vegetation may be controlled by either deep tillage or herbicides. Herbicides should be strongly considered because deep tillage will expose the soil to erosion.

Timing of the herbicide application is important, and will vary slightly depending on local weather conditions. (See Table 1.) Nebraska producers can not apply chemicals to kill grasses for spring seeded crops before July 15 during the final year of a CRP contract. This may be too late for some grasses. CRP cover can be destroyed beginning July 1 of the final contract year for fall seeded crops. Producers choosing these options must first obtain a conservation plan from NRCS. Both of these, the spring and fall seeded options, will not reduce the CRP payment in the final year. Producers can begin preparing land for fall seeded crops after May 1 of the final contract year, but they will sacrifice two months of CRP payments.

Cool season grasses commonly undergo drought stress in the fall in western Nebraska. In many years, spring herbicide applications may work better than fall applications. It may be necessary to re-treat re-growth four to six weeks after the initial spring application.

Roundup and Touchdown, which translocate herbicides for grass control, are recommended. Banvel or 2,4-D are recommended if broadleaf plants are present. Spray drift is a concern with all pesticides, but especially with Banvel or 2,4-D. Add 17 lbs of spray grade ammonium sulfate and non-ionic surfactant to Roundup or Touchdown if needed.

Getting good coverage may be a problem. Grazing, haying, shredding, or burning dead vegetation one to two months before herbicide application will remove old growth and stimulate new growth, increasing coverage and uptake on the green foliage. In previous years shredding, burning or mowing has been allowed for weed control. The choice of these methods depends on the type and quantity of vegetation present, and the quantity desired for erosion protection and soil quality maintenance.

In no-till, winter and summer annuals, biennials, and perennial weeds may be present in crops. If soybeans are planted, Roundup Ready soybeans may be a good choice. Besides the later planting date of soybeans, which would give more opportunity to re-treat perennial grass vegetation, the Roundup Ready soybeans provide an opportunity to control most weeds.

As with any crop production system, plan your weed management program carefully. For annual weeds expect the same weed problems that were in the field before CRP. In research plots at the Northeast Center near Concord, grass weeds were the most numerous. Small-seeded broadleafs also appeared after return to crop production. However, weed populations were less than or equal to populations found in regular cropland. If weeds become a problem in one crop and are difficult to control, rotating to a crop where these weeds are easier to control may be your best option.

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Table 1. Vegetation Control to Prepare CRP Acres for Planting

<table>
<thead>
<tr>
<th>Species</th>
<th>Initial Herbicide Application*</th>
<th>Re-treat if Needed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm Season Grasses</td>
<td>Roundup 2.0 qt + 0.5-1.0 pt</td>
<td>Roundup 1.0 qt + 1.0 pt</td>
</tr>
<tr>
<td>(switchgrass, big bluestem, Indiangrass)</td>
<td>Banvel if broadleaf weeds are present</td>
<td>2,4-D if broadleaf weeds are present</td>
</tr>
<tr>
<td>Cool Season Grasses</td>
<td>Late Summer</td>
<td>Late spring or early summer</td>
</tr>
<tr>
<td>(smooth brome, wheat grasses)</td>
<td>Fall</td>
<td>Spring</td>
</tr>
</tbody>
</table>

*Grasses need to have 6" to 8" of active growth and should not be under drought stress.