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INTERSEEDING CRP “OPTIONS AND PRECAUTIONS”

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During the 15th Conservation Reserve Program (CRP) sign-up period which ended in May of 1997, 415,447 acres (42.6%) of the 975,478 acres of old CRP land scheduled to expire on October 1st, 1997 were accepted back into the Iowa CRP program. Many of these re-enrollment acres are subject to legume interseeding agreements signed by the landowners. The same bodes true for those entering into the 16th CRP sign-up period which ran from October 14th through November 14th, 1997. CRP contracts are accepted based on their Environmental Benefit Index (EBI) points. The factors used to arrive at an EBI included: water quality, erosion, length of contract, air quality, priority areas, and bid price. For example: 20 extra EBI points were given if the CRP landowner agreed to establish a 20% stand of legumes into a bromegrass sod during the 15th sign-up period.

There are many species of plants that can be seeded to enhance the EBI of a CRP application. Trees, legumes, native forbs, and native grasses can be planted into CRP. The majority of the contracts in Iowa will have trees and native plants planted into blocks and the legumes will be interseeded into the established sod.

It is easy to understand the wildlife benefits of establishing native plant species, but why legumes? Establishing several legume species increases the number and kind of insects present in the CRP stand for wildlife to feed on. The legume seeds also provide a food source for small mammals and birds. Small birds will benefit if sweetclover can be included in the mix. The taller sweetclover plants provide perching areas for birds to scan for both predators and insects on the lower plants and ground. One of the drawbacks of the legume establishment in CRP grass stands is the potential increase in gophers. Gophers like to chew on legume roots!

SOIL FERTILITY

In most cases, fertilizer and lime was applied to establish the original CRP seeding 10 or 11 years ago. Some of these fields were soil sampled and they did not require fertilizer or lime applications. The fertility and lime status of these CRP fields should have changed very little. Still, soil sampling for pH, phosphorus (P), and potassium (K) is recommended. Alfalfa, sweetclover, and crownvetch will require a pH of at least 6.4 for good growth. Birdsfoot trefoil, lespedeza, and the clovers will grow well down to a pH around 6.0. Most of the grasses will do well down to a pH of 5.8 or less. If your soils test low in lime, or P, or K, check with the Natural Resource Conservation Service (NRCS) for their minimum fertilizer recommendations. Prior to seeding, remember that legumes like alfalfa, birdsfoot trefoil, crownvetch, lespedeza, and sweetclover should be properly inoculated.

INTERSEEDING LEGUMES

How are all these CRP acres going to be interseeded? Interseeding legumes into pastures is not new. There are a number of methods to choose from. Here is a brief description of several different interseeding methods one can use and my opinion of their potential for success:
1. **FROST SEEDING** (Good) can be done by broadcasting legumes from late January through early March. Freezing and thawing, plus early spring rains provide the only seed coverage. All commonly grown legumes can be seeded this way. Because of their greater seedling vigor; red clover, alsike clover, and ladino clover are quicker to establish than alfalfa, crowvetch or birdsfoot trefoil. Frost seeded legumes often will have poor establishment in years with abnormally dry springs.

2. **BROADCASTING** (Poor) the seed over the surface in April or early May. This practice can work if frequent rains occur for 2-3 weeks after the seeding. The earlier in April this is done the better chance of establishment.

3. **SLIGHT TILLAGE AND BROADCASTING** (Fair) will have a better chance of establishment than broadcasting over the surface alone. Again, frequent rainfall events 2-3 weeks after the seeding will ensure a greater success. Light disks, harrows, or flexible drags can be used for the tillage. The secret is to rough up the surface just enough to enhance the seed-to-soil contact. Rolling the seeding with a coulter-packer after seeding will help the establishment. Excessive tillage will increase the potential for soil erosion and weed establishment.

4. **NO-TILL DRILLING** (fair) of the legume seed from late March through early May. The earlier the better for establishment. Many drills have tubes to direct the small grain seed down between the disk openers and the small seed is directed to the ground behind the disk openers. Directing the small seed down the small grain tube will better ensure the legume establishment when seeding in CRP with a heavy thatch layer over the soil.

5. **MECHANICAL STAND SUPPRESSION** along with frost seeding (very good), drilling (very good), light tillage (good), broadcasting (fair) can be used. There are number of ways this can be done. In pasture situations this suppression is often accomplished by overgrazing the pasture through the fall, sometimes early spring and then interseeding in the spring. CRP rules WILL NOT allow this. Mowing the grass short in the fall and at least once, 1-2 months after seeding will reduce the grass competition for better legume establishment.

6. **HERBICIDE STAND SUPPRESSION** along with frost seeding (excellent), drilling (excellent), light tillage (very good), broadcasting(fair) has become an accepted practice for renovating pastures. Paraquat (generic) or Gramoxone Extra (Zeneca), both have the same active ingredient and have been commonly used for this. These herbicides are used to burn down the sod within 1 week prior to seeding or up to 3 days after seeding. The burndown activity of this herbicide will kill small annual weeds but only burns off the top of the perennial grasses. The perennial grasses will be suppressed for 3-4 weeks giving time for the legumes to establish.

Another approach to CRP stand suppression is fairly new and does not have a long track record. A translocated non-selective herbicide like Roundup Ultra (Monsanto) or Touchdown (Zeneca) at below labeled “killing” rates is used to kill the annuals and suppress the perennial grass for several weeks. A 1/3 to 1/2 rate is applied in the spring 1 week prior to seeding or up to 3 days after seeding. This approach has been used with success but is risky. It may be too successful and end up killing the perennial grass sod. Normally one would expect volunteer grass seeds to re-establish the perennial sod that was there. You are on your own with this approach. Monsanto, maker of Roundup Ultra and Zeneca, maker of Touchdown do not promote this method.

7. **STRIP BURNDOWN** (excellent) is a novel approach being promoted by Monsanto with their Roundup Ultra herbicide. Touchdown could also be used with this approach. The idea is to strip spray
up to 30-50% of the CRP land area with a killing rate in the fall or in the spring at planting. Spring applications are not recommended until the grass regrowth reaches 8-12" in height. An example of this would be to use 15 degree narrow pattern nozzles on 30" centers to kill the grass in 10-15" strips. The same approach could also be accomplished by plugging 1/2 to 2/3rds of the nozzles on a conventional spray boom. The nozzles can be turned sideways to spray a narrower area. NRCS recommends that the sprayed strips should be 2' or less in width.

You then drill or broadcast in any direction you want. The seed which is drilled or falls in the herbicide killed strips is more likely to survive. One drawback to this approach seen in some 1997 CRP plots, is the increased annual weed growth that comes through these strips. The killed strips do enhance the legume establishment and growth.

These are not the only ways that can be used to interseed legumes in a stand and the weather will have the greatest impact for the interseeding to succeed. Mowing the competing grass once or twice in the spring and summer of establishment will increase the odds of a successful seeding. Derivations of all of these methods could and probably will be used.

HERBICIDES FOR CRP INTERSEEDING

The use of herbicides is one way of insuring a greater success in the establishment of interseeded legumes or native grasses into established CRP sod. Mowing cool season grasses in late summer before any herbicide applications are made is highly recommended. Mowing will expose any ditches, gopher mounds, fox holes, etc., that would damage any spraying or seeding equipment. A slight edge in the herbicide effectiveness may be attributed to better coverage by broadcast sprays made to mowed areas. At least 6-8" of regrowth by the grass should be made before a killing burndown herbicide is used in the fall. At least 8-12" of regrowth is recommended for spring applications.

Prior to interseeding legumes or native grasses into established CRP fields, noxious weed control may be needed. Broadcast sprays of 2,4-D, and Banvel (BASF) alone or in combination applied in the fall works very well on biennial weeds like musk thistle and wild carrot (Queens Anne's Lace). Canada thistle patches can be sprayed in the fall with spot treatments of Banvel, Roundup Ultra (Monsanto), Touchdown (Zeneca), or Tordon 22K (DowElanco). Spots treated with Tordon 22K in the fall will likely kill any legume seeding made the following spring.

Here is a list of the most common herbicides that can be used to help establish an interseeding into CRP sod:

**AATREX 4L** (Novartis) is a very useful herbicide to help in the establishment of switchgrass. It was just a few years ago that Ciba (now Novartis) discontinued the Aatrex label registration for switchgrass. In February of 1997 an Iowa “special local needs registration” (24C label) was granted for Aatrex 4L applied to establish switchgrass, big bluestem and eastern gamagrass. It was also labeled for the renovation of existing stands of switchgrass, big & little bluestem, indiangrass, sand lovegrass, sideoats gramma, and western wheatgrass. This 24C label limits the use of Aatrex 4L to 1-2 quarts per acre and only to CRP land and land being used to produce biomass for the Department of Energy. This label does not allow grazing or making of hay from CRP acres treated with Aatrex 4L under any circumstance. The “SETBACK” zones established for wells, intermittent streams, lakes, ponds, etc. in 1993 still apply. The Aatrex 4L label with this special 24C label must be in hand during the application.
**GRAMOXONE EXTRA** (Zeneca) is a non-selective burndown herbicide that can be used at the rate of 24 to 48 ounces per acre on CRP or pasture renovation land. Gramoxone Extra is not systemic, it only desiccates the top green portion of the plant. Annual weeds normally die and perennial cool season grasses are only stunted for 3-4 weeks. This stunting period will give the new seeding time to establish with less competition. One advantage of Gramoxone Extra is that it will not kill the perennial grasses. Roundup Ultra (Monsanto) or Touchdown (Zeneca) used at below labeled rates for the suppression of the perennial grasses can sometimes kill the perennial grass under ideal environmental growing conditions. Gramoxone Extra will work best when applied within 1 week before to 3 days after interseeding in the spring.

**PLATEAU** (American Cyanamid) can be used on the warm season grasses (bluestem, indiangrass, sideoats grama, and buffalograss), but *NOT* switchgrass. It can also be used to help establish or release over 40 different species of wildflowers and legumes. It can be applied during the dormant season, during establishment, or as a postemergence application. It is labeled to control over 70 grasses and broadleaf weeds. The label specifically states that it is not to be used on pasture or grass that is to be cut for hay. Recommended rates for warm season grasses range from 4-12 ounces per acre.

**ROUNDUP ULTRA** (Monsanto) is a non-selective systemic herbicide that can be used at low rates for suppression of cool season grasses or can be used as a complete burndown to kill the existing sod. Monsanto is highly recommending the strip burndown approach where 30-50% of the sod is killed in narrow 1'-2' strips in the fall or spring. For smooth bromegrass, tall fescue, and orchardgrass sod, broadcast rates range from 1-1.5 quarts per acre applied in the fall to 2-2.5 quarts per acre in the spring.

**TOUCHDOWN** (Zeneca) is a non-selective systemic herbicide very similar to Roundup Ultra (Monsanto) in performance. It is a 6 pound active ingredient per gallon product without surfactant versus Roundup Ultra with 4 pounds of active ingredient per gallon with surfactant. Like Roundup Ultra it can be used for suppression of CRP grass or as a complete killing burndown. Touchdown’s active ingredient rate per acre is similar to Roundup Ultra. Only one application can be made per year. Available only as a 6 pound active ingredient bulk or mini-bulk in 1997. A 5 pound active ingredient package and bulk product with surfactant included is planned for 1998.

The herbicides mentioned here can be tank mixed to gain a more broad spectrum and residual control program. Make sure to read and follow all label directions. More specific information on these herbicides can be obtained at your county ISU Extension Office or your local ag-chemical dealer.

**PERSISTENT HERBICIDES CAN AFFECT CRP PLANS**

Many owners of CRP have used herbicides in the past to control troublesome weeds and brush. Care should be taken if these same acres are going to be interseeded with additional grasses or legumes or returned back to crop production. Below is a list of the most commonly used persistent broadleaf and brush herbicides that are used on grass pastures and CRP in Iowa. Rotational intervals are reviewed for corn, soybeans, legumes, and grass seedings. All of the labels for these herbicides highly recommend the use of a “Bioassay” to test if any detrimental residues remain in the soil. This involves planting test strips of the plant species you wish to plant either in the field or indoors into soil taken from the field.

**ALLY** (metsulfuron) from Dupont is a popular grass pasture herbicide used for broadleaf weed control. It also has activity on buckbrush, multiflora rose, and Canada thistle. Ally has no grazing restrictions but it does have some very stringent rotation intervals. Because of Ally’s long term soil persistence, it can
damage new seedings of legumes or grasses. The higher the pH the longer the persistence of Ally in the soil. The Ally label prohibits its use on land with soil pH’s above 7.9 (alkaline).

Ally is labeled for some established native bluestem and grama grasses. It can also be applied to established bluegrass, orchardgrass, bromegrass, fescue, and timothy. Broadcast labeled rates of Ally range between 1/10th to 3/10ths of an ounce per acre. Rates above 2/10ths of an ounce per acre require a field bioassay before rotating to a susceptible crop. For broadcast rates less than 2/10ths of an ounce, the following rotational intervals must be followed before seeding:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Minimum Rotation Interval</th>
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</thead>
<tbody>
<tr>
<td>red clover, white clover</td>
<td>12 months</td>
</tr>
<tr>
<td>sweet clover</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>bluegrass, orchardgrass</td>
<td>6 months</td>
</tr>
<tr>
<td>bromegrass, ryegrass, timothy</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>fescue</td>
<td>18 months</td>
</tr>
<tr>
<td>unlisted crops, i.e.:</td>
<td>34 months</td>
</tr>
<tr>
<td>corn and soybeans</td>
<td>&quot; &quot;</td>
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</tbody>
</table>

CURTAIL (clopyralid & 2,4-D) and CURTAIL M (clopyralid & MCPA) are two broadleaf grass pasture herbicides from DowElanco. Curtail can be applied at 2-4 quarts per acre and Curtail M is labeled at 1.75 to 4.75 quarts per acre. The rotational interval for grasses and corn is 30 days, alfalfa is 12 months, and for soybeans it ranges between 12 and 18 months depending on soil and rainfall conditions. The label highly recommends to do a bioassay before planting any sensitive broadleaf crops into CRP.

STINGER (clopyralid) another product from DowElanco also has some strong rotation restrictions for broadleaf species. Stinger is a product that is often used at the rate of 2/3rds to 1 pint per acre for Canada thistle control in grass pastures and CRP. Field corn and grasses can be planted any time after a Stinger application, 10.5 months for alfalfa, and for soybeans it ranges from 10.5 to 18 months depending on soil and rainfall. The label highly recommends to do a field bioassay before planting any sensitive broadleaf crops into CRP.

TORDON 22K (picloram) from DowElanco is another popular grass pasture herbicide that can carryover and harm susceptible seedings. Tordon 22K controls a wide range of broadleaf and woody plants. Most broadleaf plants (i.e.: alfalfa, clover, lespedeza, birdsfoot trefoil) are VERY susceptible to Tordon 22K. Tordon 22k is normally applied at rates from 1/2 to 1 pint per acre. Rates of 1-2 quarts per acre are sometimes used in select areas for control of tough deep rooted perennial weeds. Rates up to 1 gallon per acre can be used for spot treatments.

No matter what the rate applied was, the Tordon 22k label recommends a rotation interval of 36 months or using a field bioassay before planting any sensitive broadleaf species. A bioassay is also recommended before seeding grasses.

Further information on rotational restrictions and how to do a bioassay for these herbicides can be obtained by calling DowElanco at (800-258-3033) or Dupont at (800-574-4769). Remember to always read and follow label instructions, and to keep records of where you applied the herbicides.
REMEMBER TO GET NRCS APPROVAL

Whatever your planned method on interseeding is going to be, contact your local NRCS office for approval. Rules regarding the mowing, seeding, tillage, and herbicide applications to CRP ground are subject to change and individual NRCS county office interpretation.

ADDITIONAL ISU CRP INTERSEEDING RESOURCES

1. “INTERSEEDING AND NO-TILL PASTURE RENOVATION” PM-1097, 4p. (no charge)

2. “WARM SEASON GRASSES FOR HAY AND PASTURE” PM-569, 4p. (no charge)

3. “IMPROVING PASTURE BY FROST SEEDING” PM-856, 4p. (no charge)

4. “METHODS FOR INTERSEEDING LEGUMES INTO CRP SOD” CRP-20, 4p. (no charge)

5. “ISU CRP RESOURCE MANUAL” 3 ring binder of assorted CRP information. Can be checked out at your ISU Extension county office.

6. “ISU CRP HOME PAGE”. Over 20 CRP publications and fact sheets. Links to CRP information at the United States Department of Agriculture (USDA), Farm Service Agency (FSA), Natural Resource Conservation Service (NRCS), and the Iowa Department of Natural Resources (DNR) can also be found here:

<http://www.exnet.iastate.edu/Pages/communications/CRP/>