CC153 Adjusting to Drought...Seeding Perennial Grasses and Permanent Pastures

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adjusting to drought...

Seeding Perennial Grasses and Permanent Pastures

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- Use strains adapted to local climatic conditions.
- Seed at right time of year on a well prepared seedbed.

EXTENSION SERVICE - UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE AND U.S. DEPARTMENT OF AGRICULTURE COOPERATING W. V. Lambert, Director
Seeding Perennial Grasses and Permanent Pastures

Where permanent pastures have been depleted in yield of forage or completely destroyed by a combination of excessive use and drought, it is important that they be re-established. This may be difficult in periods of drought. Success will depend on careful timing of the planting in relation to moisture supply.

If you plan to sow pastures, consider the over-all pasture and feed resources of your farm. Try to obtain a balance between cool-season and warm-season grass crops that will provide pasture for a maximum length of season.

If your grass crop is to be grown for seed production, plant it on good land that is suitable for irrigation. Sound practices are of more than usual importance if plantings are to be made under the stress of drought conditions.

Following are some important factors in obtaining satisfactory stands of perennial grasses.

Adaptation of Strains

Plant varieties adapted to the climate and soil and for a special use, such as for cool-season or warm-season pasture, water-way seedings, or seed production.

Cool-season grasses make most of their growth in the cooler seasons of the year, and furnish pasture in the spring and fall. Varieties best adapted to Nebraska include Lincoln, Lancaster and Lyon bromegrass; tall wheatgrass for alkali soils in river valleys; intermediate wheatgrass for well-drained soils; foxtail reed canarygrass for low, dry soils; and crested wheatgrass for the dry uplands.

Warm-season grasses make most of their growth and produce seed during the warmest part of the year. They furnish excellent pasture and seed during the summer. Native warm-season grasses are big bluestem, switchgrass, side-oats grama, sand dropseed and indiangrass.

Legumes may be an important component of a permanent pasture mixture. For example, alfalfa may be seeded at the rate of 3 to 5 pounds per acre in a mixture with cool-season grasses such as bromegrass.

Birdsfoot trefoil may be an important constituent of a mixture with orchardgrass, tall fescue, or some warm-season grasses. Recommended seeding rate for birdsfoot trefoil in mixture is 2 to 4 pounds per acre.

Red clover and sweetclover may be used as short-term legume constituents of a pasture mixture. Although clover is adapted to low wet areas where the reaction of the soil is acid. It would do well in combination with redtop or timothy.

As a general rule, you should buy certified seed. If it is not available, use seed of local origin or from original sources not more than 200 miles from your farm.

Selecting Seed of Suitable Quality

Germination of seed may vary according to the seed size, method of harvesting, maturity, length of drying or age. Old seed may be damaged by insects or improper storage, and this will decrease germination and seedling vigor.

Purity is the trueness of the seed as to variety, presence of weed seeds, seeds of other crops and inert matter like chaff, stems, leaves, dirt, stones, and damaged seeds. Inert matter does not harm the seed but it is an unnecessary expense to the buyer.

Seeds of some grasses are dormant following harvest. Newly harvested seed of switchgrass and indiangrass should be stored for 18 months before planting if germination is low.

Inoculation of legume seed with nitrogen fixing bacteria is recommended. This is to assure (1) that nodulation may occur early in the life of the plant, (2) that all plants will have nitrogen fixing bacteria available, and (3) that the most efficient strains of nitrogen fixing bacteria are present.

Inoculate just enough seed for immediate planting. It is important that birdsfoot trefoil be heavily inoculated because it is believed that the bacteria for nitrogen fixation are not present in Nebraska soils.

Time of Year to Plant

Plant cool-season grasses and cool-season grass-legume mixtures in late summer for fall establishment, or in very early spring if moisture is available. In northwestern and northern Nebraska it is possible to plant crested wheatgrass during the winter for early spring germination.

Plant warm-season grasses only in mid-spring. Choice of date depends on the kind of grass. Bluestem, switchgrass, and indiangrass should be planted in mid-April since they are slow to germinate.

Grama grasses may be planted in May after a crop of annual weed seedlings has been killed. Legume components may be added if desired.

Seedbed Preparation

Prepare a firm, mellow seedbed. Subtilting under residues is best. If the seedbed is plowed or disked, it will need re-packing well in advance of planting. It is important to have a firm seedbed, so that seed will not be drilled too deeply.

Following in dry years conserves moisture until planting time. If a good mulch is on the surface of the soil, evaporation losses will be less than if the mulch were not present. Mulching conserves moisture, and is essential to the success of plantings in periods of extreme dryness. The soil should have enough moisture so that a light rain will bring about germination.

Keep the seedbed free of weeds. Use fallow cultivations to prevent seed set on weeds. Avoid deep tillage that turns up a new supply of weed seed. By seeding cool-season grasses in late summer for fall establishment, you can partially avoid the weed problem encountered in the spring.

Protect the seedbed against erosion with a mulch or the stubble of another crop. Sorghum, sudangrass, or corn stalks make good cover for spring planting. Oats stubble is good protection for late summer planting.

To provide fertility, use barnyard manure which will also serve as a mulch. Phosphate may be lacking on sandy soils, and nitrogen may be needed on low organic soils.

Use suitable equipment. A corrugated roller is almost indispensable for obtaining good stands. A header is necessary where stubble mulches are too heavy to permit harrowing.

Depth of Planting

The right depth to plant grass seed is determined by size of the seed, heaviness of the soil, moisture conditions, and the time required for emergence. (See the table on page 6 for recommended depth of planting.)

Plant small seed at shallow depths. In sandy soils, plant seed somewhat deeper than in heavy soils. Seed must come into contact with moist soil in order to germinate and produce seedlings.

The deeper the seed is sown, the longer the time required for seedlings to emerge. Time of emergence differs with the species. Bromegrass may germinate in less than a week, but bluestem and switchgrass may require moisture for germination. Seeds planted in dry soil will not germinate until a rain.

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How to Plant

Early preparation is necessary in order to have a firm seedbed. Pack the soil firmly around the seed. Use a drill if the seed will feed through, and if correct and uniform depth can be maintained. A drill with press wheels may pack the soil enough if it was packed with a roller before drilling.

Plant small or heavy seeds of grasses and legumes in one operation and large or chaffy seeds in another. If the seeds are broadcast, covering can be accomplished by one operation. Broadcast small seeds on a treader surface to prevent covering too deep. Then cover by rolling.

Boxes for cotton seeders and special plates for planters are available to seed chaffy material like big bluestem or indiangrass.

Proper Management of New Plantings

Weed control may make the difference between success and failure in dry years. Spray broad-leaved weeds with 2,4-D if legumes are not included in the newly seeded mixture.

Plant and maintain the grass in cultivated rows if the planting is for seed production.

Protect the newly seeded pasture from grazing the first season. This will enable the plants to make growth and become well-established before winter. Grazing will remove the leaves, which are the all-important factory for producing more leaves, stems, and roots.

Suggested Mixtures

Here are some suggested pasture mixtures for use on Nebraska farms.

<table>
<thead>
<tr>
<th>Cool-season mixtures</th>
<th>lbs./acre</th>
<th>Warm-season mixtures</th>
<th>lbs./acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromegrass (or) Intermediate Wheatgrass</td>
<td>10-12</td>
<td>Big bluestem</td>
<td>6-8*</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>9-12</td>
<td>Switchgrass</td>
<td>3-4</td>
</tr>
<tr>
<td>Orchardgrass (or) Tall fescue</td>
<td>5-7</td>
<td>Sand lovegrass</td>
<td>1-2</td>
</tr>
<tr>
<td>Birdsfoot trefoil</td>
<td>2-5</td>
<td>Big bluestem</td>
<td>9*</td>
</tr>
<tr>
<td>(For wet or acid soils.)</td>
<td></td>
<td>Sand lovegrass</td>
<td>2</td>
</tr>
</tbody>
</table>

Redtop (or) Timothy | 2-5 | Blue grama | 5-6 |
| Alsike clover | 3-6 | Side-oats grama | 2-3 |
| Red clover | 2-4 | Buffalograss | 1-2* |

* Live pure seed. See footnote 3 on page 6.

This circular is a publication of the Drought Committee of the Nebraska College of Agriculture. It was prepared by Vern Young- man, D. G. Newell, M. K. McCarty, Philip Cole, and Thomas W. Dowe.