



Keeping
Up With
Research
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Graze First-Year Native Grass Plantings¹

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Native grass plantings usually require two or more growing seasons to become established sufficiently to fully occupy a site by vegetative spread and occasional thickening by volunteer, whether uniform seedling distribution and favorable growing conditions occur or not. Historically, newly seeded areas have been protected from grazing during that period in the belief that livestock might injure developing grass seedlings or even destroy the stand,

When the requirements for germination and emergence have been met, competing plants quickly become the major deterrent to rapid seedling development into mature plants. Competing vegetation, a highly aggressive and variable mixture of annual broad leaved weeds, annual grasses, preparatory crop volunteer, and trace amounts of weedy perennial grasses and broadleaved plants, usually emerges and develops much more rapidly than planted native

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grasses. Competition effects are manifested by the planted species remaining more or less in a seedling stage, rather than reduction in seedling numbers the first growing season.

Late planting or spring drought that delays seedling emergence until June or later, and the added stress of competition, causes most of the resulting stands of small, underdeveloped grass plants to die either from recurring summer drought or winter kill before the second growing season. Although more or less stunted from competition, earlier emerging grass seedlings are not so apt to be killed by the combined effects of drought, competing vegetation, and freezing temperatures.

Several competition control methods were tried in numerous tests during a ten-year study at Hays, Kansas. Practical efforts, including seedbed firming, kind and row spacing of seedbed preparatory crop, harvesting part of the preparatory crop to leave various heights and amounts of stubble residue, grass planting date, applying post- and pre-emergent herbicides, and mowing frequencies, did not materially decrease stand establishment time compared with no treatment of competing vegetation. Establishment time could be shortened to the five-month growing season after mid-April planting only by eliminating competition with cost-prohibitive pre-planting fumigation or hand weeding. Otherwise, conventional weed control measures were either too late or not effective enough to reduce grass establishment time to less than two growing seasons.

Since newly planted native grass stands are typically heavily infested with competing vegetation, and practical weed control measures apparently of little value in shortening stand-establishment time, grazing the weeds during grass seed germination, seedling emergence, and plant development was tried as a weed-control measure and to use the weedy vegetation as forage.

In a recent four-year experiment, big bluestem, blue grama, buffalograss, sideoats grama, switchgrass, and western wheatgrass were planted in Harney, silty clay loam in grain sorghum stubble in mid-April. Grazing the newly planted grass plots with stocker steers twice weekly from late-April until mid-August had

little or no influence on grass seedling mortality, or time required for stand establishment compared with no grazing or conventional weed control methods. Dry periods during the study lacked the timeliness and severity to test the hypothesis that partial top removal of competing plants by grazing might benefit grass stand emergence and survival.

Frequent grazing after onset of weedy plant growth was necessary to keep competing vegetation from reaching unuseable growth stages. Grass seedlings escaped early grazing because of their small size. Despite that, weekly mowing of seeded areas to $\frac{3}{4}$ inch during grass seedling emergence and development did not reduce the stands of newly planted grasses compared with unmowed and no grazing treatments. Apparently, grazing grass seedlings and competing vegetation is no more detrimental than close mowing if the grass seedlings are not uprooted while being grazed. There was no evidence of grass seedling being pulled up or otherwise destroyed by grazing steers. Young grass plants were not sought out in preference to competing vegetation. Considering all plants, selective grazing was insignificant until midway through the growing season when relatively unpalatable plants, like mare's tail and curlycup gumweed, were ignored.

Recommendations

1. Chief priority for grazing the weedy vegetation in new grass plantings is to take economical advantage of forage resources that would otherwise be wasted if not used in some manner. Grazing may have the potential of reducing mortality of grass seedlings in years when evapotranspiration losses are so critical that grazing competing weeds might conserve soil moisture necessary for grass seedlings to develop into drought tolerant, winter hardy plants.
2. Grazing newly planted grasses should start when competing vegetation is two to three inches tall. If grass planting is delayed beyond late April and there is enough weedy growth, grazing should be started before grass is seeded.
3. Although yearling steers were used as test animals, there is nothing to indicate that older cattle should not be turned onto new

grass plantings. Sheep, preferring broadleaved herbs to grasses, would be accommodated by most new grass plantings, unless they should show a greater preference for grass seedlings than for the competing vegetation,

4. Livestock numbers should be adjusted to the production of competing vegetation to obtain satisfactory animal performance and to avoid overuse and grubbing of the seeded area, During the spring rapid-growth period, stocking should be increased to keep up with excessive weedy production. Following that, lighter use is then necessary to take advantage of broadleaved weed regrowth and the summer annual grasses that frequently take over when yields of broadleaved weeds are reduced.

5. Stocking should be regulated in an on-and-off manner where saturated soils are subject to puddling.

6. Aids to distributing livestock grazing—drinking water, salt, back rubbers, etc.— should be used to reduce concentrated usage of preferred sites,

7, Livestock should be removed when weed production will no longer supply enough forage, and grazing should be terminated by mid-August so the grazed grass seedlings may complete regrowth before the first killing freeze. With proper stocking relative to forage availability, livestock performance from grazing first-year grass plantings should compensate for a portion of grass planting costs, as well as save the expense of trying ineffective conventional weed control measures,