

TECHNICAL NOTES

UNITED STATES DEPARTMENT OF AGRICULTURE
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NATURAL RESOURCES CONSERVATION SERVICE
ALEXANDRIA, LOUISIANA

AGRONOMY TECHNICAL NOTE NO. 86

NO-TILL RYEGRASS ESTABLISHMENT

The highly erodible land conservation provisions of the previous farm bills have had similar effects on livestock and row crop producers. Producers wishing to remain eligible for certain USDA benefits are required to reduce sheet and rill erosion to acceptable levels on highly erodible fields. In order to accomplish this, most producers have switched to practices, which reduce tillage and leave more residues on the soil surface.

Annual ryegrass is an excellent cool season forage crop for use as grazing, hay, and silage (haylage/baleage). It can be successfully grown on most soils and can be planted into a prepared seedbed or overseeded into permanent summer pastures. Annual ryegrass can also be drilled into sod with excellent results using a no-till planting system.

Researchers in Louisiana and Mississippi have developed a system for establishing no-till ryegrass, which produces yields similar to conventionally prepared seedbeds. They emphasize a “systems” approach because to successfully establish a no-till stand all parts of the system must be properly managed. To successfully establish high-yielding, early-season, no-till ryegrass, the following suggestions are offered:

1. For no-till establishment where warm season annuals are the predominant species, apply a 1% solution of glyphosate approximately 30 days prior to planting. This is essential to control competition from warm-season species. Mulch from the killed summer grasses needs time to decompose to reduce competition for sunlight. Time is also needed to allow toxic compounds (ethylene) from the decaying mulch to dissipate. Early burndown applications are also essential to moisture and nutrient conservation. Read and follow all label instructions and safety precautions. Apply a second application if necessary, no less than 7 days prior to planting.
2. For no-till establishment into permanent sod, remove the warm season perennials by either haying or grazing. Leave no more than a 2” stubble height to facilitate planting.
3. Plant with a heavy-duty no-till drill setup on 7-inch centers. Coulters are desirable. Run coulters only slightly deeper than desired planting depth. On drills without a stirring mechanism in the seed hopper, be sure to use double-cleaned seed. Use a vigorous, high-yielding variety. Seed at 30 lbs/acre. Plant during early to mid-September. Several conservation districts and equipment dealers rent no-till drills to producers at reasonable rates.



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4. Apply lime, phosphorus, and potash according to soil test. Fertilizer can be applied either preplant or topdressed. Apply nitrogen within extension service guidelines. Normally, the first application of 80-100 lbs N/ac is made after a stand has been established, followed by a second application of 60-80 lbs N/acre in January. If the field is to be cut for hay, and additional 40-60 lbs N/acre should be applied in March. Producers should fine-tune nitrogen applications according to their desired level of yield.
5. Scout for diseases and insects and treat the field if problems develop. Aphids, grasshoppers, crickets, and armyworms can be troublesome.
6. Begin grazing when the ryegrass is 6 inches tall and graze down to a 3-inch stubble height. After livestock have grazed the ryegrass down to a 3-inch stubble height, remove the animals and allow sufficient time for the stand to regrow to the 6 inch height. If acreage is limited or ryegrass is in short supply, the nutritional needs of livestock can be met by short-duration grazing periods on a regular schedule. The nutritional needs of mature animals can be met by allowing them to graze 3 hours every other day plus hay. Growing animals require 3 hours daily and hay. Rotational grazing and intensive strip-grazing are proven and economical methods of meeting the nutritional requirements of various classes of livestock.

Presented below is economic comparison of conventional till vs. no-till ryegrass. This analysis was prepared by Bill Waits, NRCS, Agricultural Economist, and compares the various input cost of the two systems on a per acre basis.

Ryegrass Production-Conventional Till vs. No-Till Comparison of Input Costs Per Acre

<u>CONVENTIONAL TILL PRODUCTION</u>		<u>NO-TILL PRODUCTION</u>	
Disk harrow (2x)	\$9.60	MTD Broom Sprayer	\$5.60
Triple K (s-tine, field cultivator)	\$7.50	Burndown Herbicide 1 qt/ac (Glyphosphate)	\$13.60
Spike-Tooth Harow	\$1.90	No-Till Drill	\$11.40
Conventional Drill	\$7.10	Ryegrass Seeds – 30 lbs/ac	\$10.50
Ryegrass Seeds – 30 lbs/ac	\$10.50		
<u>Fertilizers</u>		<u>Fertilizers</u>	
100 lbs/ac (0-0-60)	\$13.00	100 lbs/ac (0-0-60)	\$13.00
150 lbs/ac (0-46-0)	\$21.75	150 lbs/ac (0-46-0)	\$21.75
250 lbs/ac (34-0-0) (after established)	\$43.75	250 lbs/ac (34-0-0) (after established)	\$43.75
250 lbs/ac (34-0-0) (January)	\$43.75	250 lbs/ac (34-0-0) (January)	\$43.75
Total	<u>\$158.85</u>		<u>\$163.35</u>

Summary: \$163.35 - \$158.85 = \$4.50/acre increase in cost above Conventional Till

The comparison shows that no-till ryegrass production will cost an estimated \$4.50/acre more than conventional tillage systems. This results from substituting a burndown herbicide and no-till drill for conventional seedbed preparation. However, no-till production will significantly reduce sheet and rill erosion, thereby reducing sedimentation and improving water quality. In addition, no-till production will keep producers in compliance with highly erodible land conservation provisions as well as improve the long-term productivity of their fields. The benefits of a properly applied no-till ryegrass system far exceed the additional \$4.50/acre costs.

By following these recommendations, producers can avoid many of the problems associated with no-till ryegrass production while providing their livestock with high-yielding, palatable high quality forage.

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REFERENCES

1. Cuomo, Greg – Early Establishment of Ryegrass: What about No-Till? Louisiana Agriculture. Summer 1995, Volume 38, No. 3.
2. L.S.U. Agricultural Center Report – A.E.A Information. Series Nos. 126-133.