

Overseeding Summer Sodds With Winter Annuals

One of the most profitable forage management options available to Alabama cattlemen is overseeding or sod-seeding winter annual forage crops on the dormant sods of summer perennial grasses. This has been proven by research conducted by Auburn University Agricultural Experiment Station personnel and verified not only by Extension demonstrations but also by hundreds of individual producers. Yet many cattlemen are overlooking this opportunity. There are more than two million acres of bahiagrass, bermudagrass, and dallisgrass pastures in Alabama, but only a small part of this acreage is overseeded.

Benefits of Overseeding

The term overseeding generally refers to broadcast-seeding of winter annual forage crops over the sods of summer perennials, with or without disking or other tillage. Sod-seeding usually refers to planting annual crops into a sod with a drill-type planter. Either or both of these operations may be used to establish winter annuals on dormant summer pastures in Alabama. For convenience, in this publication the term overseeding will be used to refer to both of these planting methods.

Overseeding extends the length of time during which areas planted to summer perennials are productive. Instead of 6 to 8 months of forage production, overseeding can result in 8 to 10 months of productivity. This type of intensified land use is becoming increasingly essential to profitable agricultural production.

By lengthening the grazing season, overseeding helps cattlemen cut their expensive stored feed requirements. In addition, sods overseeded with winter annuals support grazing animals better than winter annuals planted on prepared land. This can be particularly important during prolonged wet periods or on soils that tend to stay wet during the cooler months.



Lush early May growth of arrowleaf clover overseeded on bahiagrass sod contrasts with non-overseeded area at right.

Winter annual forages can also improve animal nutrition. Winter annuals produce high quality forage – much higher than that produced by summer perennial grasses. Both late winter and spring grazing and early-season hay cuttings are improved in areas that are overseeded.

The timing of this nutritional advantage is also important. Cows have their highest nutritional requirements from two months before calving until they are re-bred. In Alabama most cows calve in later winter or early spring and are bred again within three months after calving. Thus, the high-quality forage production of overseeded winter annuals comes at the time when it can greatly affect calf weight, calf health, and conception rates in cows.

The added benefit of nitrogen fixation from overseeding is gained when legumes are used in the overseeded mixture. A good stand of arrowleaf clover, for example, can fix 80 to 100 pounds of nitrogen per acre, much of which can be used by the grass growing with and after the clover. Where a good stand of legumes has been obtained by overseeding, the first nitrogen application of the season to the summer grass can be omitted.

Improved animal performance as a result of overseeding has been demonstrated by Auburn University research. In a three-year study conducted at the Wiregrass

Table 1. Performance of Beef Cows and Calves on Coastal Bermudagrass Pastures Overseeded with Winter Annuals at Wiregrass Substation, Average of 3 Years (1974-76).*

Species Overseeded on Bermuda Sod	N/Acre Applied Annually	Dates on Pasture	Grazing Days	Cows		Calves	
				Gain/Acre	ADG	Gain/Acre	ADG
Rye plus arrowleaf and crimson clover	100	Jan 8 – Oct 5	268	240	.90	510	1.91
Arrowleaf and crimson clover	0	Mar 11 – Oct 5	211	290	1.37	410	1.94
Ryegrass	150	Feb 14 – Oct 5	240	190	.18	420	1.76
None	100	Apr 6 – Oct 5	187	160	.49	290	1.57

*ADG = average daily gain

Note: When not on pasture, all animals were fed Coastal hay plus supplement.

*Hoveland, C.S., W. B. Anthony, and J.G. Starling. 1977. Overseeding Annual Forages on Coastal Bermudagrass Sod for Beef Cows and Calves. Auburn University Agricultural Experiment Station Bulletin. 496.

Experiment Station, the performance of cows and calves grazed on Coastal Bermudagrass in summer and fed Coastal hay plus supplement in winter was compared with three overseeding treatments on Coastal Bermudagrass. The results, presented in Table 1, confirm that overseeding is a highly desirable practice.

Techniques for Successful Overseeding

Some Alabama cattlemen report that they have tried overseeding with little success. In most cases, overseeding failures are probably caused by inexperience with the technique. Obtaining stands of winter annuals on sod is not difficult if a few basic rules are followed.

Many of the considerations important in planting winter annuals on prepared land also apply to overseeding. Fields selected for overseeding should be well-drained and not subject to flooding. A soil test should be taken from each field and any needed lime should be applied several months before overseeding. Good quality (preferably certified) seed of recommended varieties should be selected. Also, if legumes are overseeded, the seed should be inoculated just before planting.

Overseeded winter annuals can be valuable either as a back-up for a stockering program, or to provide high quality cool-season grazing for dairy cattle or beef brood cows. Cow-calf operators should normally not plan to overseed more than one-third to one-half of their summer pasture acreage. Otherwise it will be difficult to utilize the forage in the spring. Although little or no grazing can be expected from overseeded areas until late winter or early spring due to a later planting date (especially if small grain is not included), the cost of overseeding winter annuals is usually only about half that of planting winter annuals on prepared land.

Date of Planting

The date of planting winter annuals on sod should be later than the date of planting on prepared land. If winter annuals are planted on sod too early, the summer grass will continue to grow and compete with the winter annual seedlings. Although the time the summer grass will go dormant in any given year depends on weather, the usual dates for safe planting on sod in Alabama are: North Alabama: October 1-15, Central Alabama: October 15-30, and South Alabama: November 1-15.

There are two situations in which the date of planting on sod can be earlier than suggested above. The first is when a producer decides to thoroughly disk or till before overseeding and enough cultivation is done that the summer sod is mostly destroyed or weakened. The other (a technique that can be effectively used on bermudagrass but not on bahiagrass) is when paraquat is sprayed on the summer pasture to provide an "early frost" effect. Either of these techniques will reduce the competitiveness of the summer grass and allow overseeding at least 2 to 3 weeks earlier than normal.

It is important not to overseed too early, but also to plant as soon as there is reasonably good assurance that the summer grass will not make any significant amount of additional growth. This is particularly true if small grains are to be planted because the primary advantage small grain offers is fall and winter production. Much of this advantage is lost with late plantings. In addition, late planting allows little time for seed to germinate and for seedlings to become established. This increases susceptibility to winter kill.

Removal of Surface Residue

Failure to get the summer grass grazed down or clipped closely and removed is one of the main reasons for overseeding failures. For example, research trials have shown arrowleaf clover overseeded on a 1-inch stubble of bahiagrass to produce a yield of 2,290 pounds, but only 1,620 pounds on a 3-inch stubble and 1,350 pounds on a 6-inch stubble. A crimson clover yield of 1,070 pounds on a 1-inch stubble was cut to 780 pounds on 3-inch stubble and 430 pounds on 6-inch stubble. Research and on-farm experience have shown, however, that large-seeded species such as vetch and small grain are much more tolerant of surface residue.

Burning for removal of surface residue is better than leaving a thick stubble in areas where small-seeded species are to be planted, but it is often difficult to get a good burn over an entire field. Therefore, burning is generally less desirable than grazing or close clipping.

Tillage Before Planting

Overseeding techniques vary greatly from producer to producer, and tillage varies from none to extensive. The need for tillage is influenced by many factors, including amount of residue on soil surface, soil type, date of overseeding, and species to be overseeded.

Auburn University research shows that good stands of ryegrass and clover can be obtained by broadcasting seed over a dormant sod without any cultivation, if this is done at the proper time and the stubble height is very low. However, if overseeding conditions are not ideal, or if somewhat earlier planting is desired, some tillage may be quite beneficial. In most situations, one or two light diskings before broadcasting the seed increase the chances of obtaining a stand.

Disking (even heavy disking) usually has little or no adverse effect on bahiagrass or bermudagrass stands, and on old sods it sometimes actually improves growth the following year. Bahiagrass is particularly tolerant of tillage, and tillage is particularly helpful in obtaining a stand of winter annuals on this species. If tillage is used, it is not necessary to penetrate the sod more than 2 to 3 inches. Use of a drag after any tillage will help improve the seedbed and smooth the soil surface. Be aware, however, that tillage sometimes increases weed populations in fields.

Mixtures and Seeding Rates

Recommended seeding rates for various winter annual forages are presented in Table 2. Just about any combination of winter annuals may be used for overseeding. The selection should depend mainly on the amount of forage needed, the time when it will be needed, and the relative costs of seed. Other points to bear in mind in selecting species to overseed are the benefit of nitrogen fixation by legumes; the need for planting as early as possible in order to benefit from using small grains; and the need for a sod-seeder or drill to plant small grains at the proper depth.

Table 2. Recommended Seeding Rates and Depths for Overseeding Winter Annual Forage Crops

Winter Annual	Seeding Rate (lbs/acre)	Seeding Depth (inches)
Rye, wheat, or oats	60-90	1-2
Ryegrass	15-20*	0-½
Arrowleaf clover	5-8*	0-½
Crimson clover	15-20*	0-½
Vetch	25-35	0-1

*If this species is broadcast over the surface of the sod without any tillage, it is advisable to increase the seeding rate by 20 percent.

Seed Placement and Planting

Placement of seed is as important when planting winter annuals on sod as it is when planting them on prepared land. Almost any winter annual forage crop adapted in Alabama can be overseeded on dormant summer pastures, but requirements for planting vary. Small grain seeds need to be covered with soil; therefore, it is best to use a drill-type planter. Ryegrass and clover seed can germinate on top of the ground if they are in firm contact with the soil and adequate moisture is present. In areas where a good deal of soil has been exposed by tillage, it is advisable to cultipack after broadcasting clover or ryegrass seed or both.

It is sometimes difficult to obtain a stand of clover on sod because of crickets. If the cricket population is high where clovers are to be overseeded, it may be advisable to apply an insecticide. Check with Extension personnel or others knowledgeable about pesticides to determine what material and rate to use.

Fertilization

Auburn University recommendations are to apply phosphorus and potassium at or near planting time according to soil test. Application of nitrogen should depend on planting date and the species being overseeded. If only grasses are being overseeded, 30 to 60 pounds of nitrogen should be applied per acre (60 pounds for early plantings or where small grains are being planted and a substantial amount of fall and early winter growth is needed). An additional 60 pounds per acre should be applied in late February.

For legume-grass mixtures, 30 to 60 pounds of nitrogen should be applied in the fall, depending on the situation. If the legume comprises 30 percent or more of the ground cover in spring, no additional nitrogen is required. If only legumes are overseeded, no nitrogen should be applied in either fall or late winter.

It is best to delay fall applications of nitrogen until after the seedlings have emerged. This allows you to make sure a stand is present before applying fertilizer, and it also helps reduce the chance of stimulating summer grass growth.

Grazing Management

As with winter annuals planted on prepared land, overseeded winter annuals should not be grazed until they are around 6 inches high. However, if the weather after planting is such that the permanent pasture begins to grow enough to compete with the young seedlings, the area should be quickly grazed off.

Overseeded areas should be stocked heavily in the spring to make use of the forage and to make sure the winter annuals do not “shade out” the summer grass. Failure to remove excess growth of a thick stand of winter annuals can greatly thin the stand of summer grass.



ANR-227

Don Ball, *Extension Agronomist*, Professor, Agronomy and Soils, Auburn University

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, and other related acts, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.

Reviewed for Web August 2007, ANR-227

© 2007 by the Alabama Cooperative Extension System. All rights reserved.