# Sod Seeding Annuals into Perennial Pastures to Improve Carrying Capacity

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Maintaining adequate amounts of grass in pastures for pairs can become increasingly difficult as the grazing season progresses. Even with good rainfall, perennial grass pastures stress beginning mid-summer as a result of declining day length and cooler night temperatures. Additionally, many perennial grass pasture species like orchardgrass and creeping foxtail are generally not long-lived and some, like Kentucky bluegrass, are not tremendously productive. Therefore, when fall approaches and grass production decreases, calf performance and cow condition can decline quickly.

Conversely, many annual forage species are significantly more productive than perennial species. Cool-season annual forages like cereal oats, cereal rye, wheat, barley, annual ryegrass, and brassica species (e.g., turnips and radishes) can produce as much as 2-2.5 times as much palatable forage as perennial pasture grass species. Warm-season annual species such as teff grass and millets can produce as much as 3-4 times as much forage as perennial pasture species. If depleted pastures are a recurring problem, seeding an annual forage species into perennial grass pastures may be an option to increase pasture carrying capacity, especially for late-summer and fall grazing. It is important, however, to recognize that the full yield potential of these forage species will not be recognized in such a high nutrient competition environment. A sod-seeded annual will generally increase carrying capacity of a perennial grass pasture by at least 50%.

No single species is 'the best' for sod-seeding into perennial grass pastures, although some species do work better than others depending on the ultimate objectives. Producers needing additional forage for early- to mid-summer may want to consider using a winter annual species such as cereal rye, wheat, or barley; which will be seeded during the previous summer. If late-summer grazing is desired, millets and teff grass may work best. It is generally not recommended to sod-seed sorghums or Sudangrass into perennial grass pastures due to the high risk of prussic acid poisoning. The high competition for nutrients in an annual/perennial mix will generally not allow these species to grow enough to mitigate the risk of prussic acid poisoning. Forage availability for mid-fall to early-winter will be best provided by species such as cereal oats or brassicas.

Seeding date will depend largely on selected forage species and when forage will be needed. Cereal winter annual grain species for forage next spring should be seeded in mid- to late-summer. Warm-season annuals should be seeded in early- to mid-June to provide forage late-summer. Forages for mid-fall to early-winter grazing should be seeded by the first week of August to allow for adequate forage growth.

A general one-third rule of thumb for seeding rate of sod-seeded forages works pretty well. Seeding one-third of the monoculture seeding rate of an annual forage species into a perennial grass pasture will optimize nutrient availability and sunlight requirements of both species. For example, the full, monoculture seeding rate for cereal oats is 2.5 bu/ac. If cereal oats are going to be sod-seeded into a perennial grass pasture for late-season grazing, seed 30% of the full seeding rate or ¾ bu/ac into the pasture in late-July or early-August.

Using a no-till drill is the only method advised for sod-seeding into grass pastures. Broadcasting has not been shown to be an effective establishment method. Producers who do not own a no-till drill should contact the local conservation district or USDA Natural Resources Conservation Service (NRCS) office to determine if a no-till drill may be leased. If seeding small seeds, such as turnips or radishes, make sure the drill has a small seed attachment - most do, but older drills may not. The importance of the small seed attachment is that the seeding rate of turnips, as an example, will be 2-3 lbs/ac. The large seed box cannot be calibrated down to such a small seeding rate. If the drill does not have a small seed attachment, be sure to bulk up the seed with a filler to 15 lbs/ac or so. This will allow the seed box to properly meter the seed at the rate desired. Seed fillers can range from recycled paper to inert granular materials, although most will mix in granular urea fertilizer to carry a small seeding rate.

It is often a good idea to apply nitrogen fertilizer when sod-seeding an annual into a perennial grass pasture because the perennial grass will use most of the available nitrate, leaving little for the establishing annual. Simply applying a starter fertilizer at 20-30 lbs/ac will be sufficient in most situations; if the perennial grass is starved for nitrogen, more may be needed.

Overall the cost of sod-seeding annuals into perennial pastures will vary greatly depending on species, fertilizer, equipment, etc. However, it would be beneficial to consider the value of the additional forage rather than just the up-front cost. There is tremendous value in weaning a heavier calf, reducing feed costs for the cow herd in late-summer and fall, and having cows go into winter in good condition. It can be difficult to put an exact dollar amount on this, but in most cases, it can be argued it is worth more than the $30-$40/ac invested in sod-seeding annual forages.