Establishing grass do's and don'ts

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The end of July marked the first every South Dakota Grassland Management School held here in Watertown. The school was hosted by the South Dakota Grassland Coalition in conjunction with many partner organizations, including SDSU Extension. As the local SDSU range and pasture field specialist, I had the opportunity to be very involved in planning and organizing the school.

It would be impossible to summarize all aspects of the school in a single article, but I wanted to share a bit to help landowners start the thought process for establishing grassland mixes, as there is as much art as science when establishing or renovating a grassland stand for either grazing, habitat, or both. Sometimes luck plays a role too! Tools and techniques are constantly evolving, and no longer do we consider successful grass plantings as getting a handful of grass species to grow. Rather, successful and resilient grassland plantings should include a variety of grasses and broadleaf plants (forbs), as this mix generally is more productive, resilient, and usable for both livestock and wildlife while also benefiting the soil.

I'm going to briefly share some of the highlights from the class regarding different situations landowners might find themselves in. These are only very general guidelines, and I strongly suggest consulting a professional with actual experience in grassland restoration. One of the biggest mistakes made in grassland renovation is only getting advice from general agronomist, the local elevator, or the chemical or seed salesmen. This is not to knock those valuable resources or individuals, but there is a lot of nuances to grassland establishment that those folks are generally not experienced in. So, be sure to consult with someone experienced in the type of project you are undertaking.

Establishing grass/forbs in existing cropland. There are a few variables here, but generally this is one of the easiest scenarios for new grass mix establishment. Generally, if the land has been managed with glyphosate tolerant crops for the previous

two to three years and no other chemicals have been applied, it is possible to go directly to a new planting. Generally, the grass/forb mix can be planted in late fall or early spring, and can be either drilled or broadcast seeded (broadcasting can be done all throughout the winter, but the months of November, February, and March seem to work best). This general strategy can be applied to no-till or conventional till fields, but it is generally best to avoid any tillage prior to drilling or broadcasting so as to provide a firm seed bed and not to 'wake up' weed seed that are lower in the soil profile.

If the cropland has had a more complex chemical history or you are simply unsure, one needs to be more cautious. The science of chemical carryover and interactions with simple or complex mixes of grasses and forbs is something that is not well understood, but there are some general considerations. The first is that any chemical utilized to control broadleaf plants in cropland should be assumed to have a carryover effect, even if the label states otherwise. We are generally finding that carryover can and does affect germination of new seeds, even if the plants

themselves are tolerant of the chemical. Good examples would be chemicals such as Milestone or Plateau. Both are often utilized in the grass establishment industry, but both have also shown to have some effect on germination of certain seedlings (especially plants in the legume or sunflower families). So, our general advice here is that if uncertain, take the cautious route and allow a field to have at least 2 years of rest from chemicals other than glyphosate prior to planting your mix. We also recommend that during this interim period the field can be planted to glyphosate tolerant crops or multi-species cover/forage mixes (see below).

Using cover/forage mixes prior to establishing grass stands: Again, this is an emerging art and science, but the general concept here is that cover crops are often less expensive than native grasses/forbs, and thus can serve as a lower-cost surrogate for improving soil health and receptivity prior to the grass planting. The concept here is to use cheap plants to get the soil biology moving and to allow time for any residual chemicals to work their way out of the system so that when you plant the more expensive native seed mix, it has a better chance for survival.

Establishing grass mixes in existing tame grass stands: This one can be a bit more complex, but it isn't real complicated if one follows a couple general rules of thumb. Generally speaking, most of our 'tame' hay or grass fields in this area tend to be dominated by smooth bromegrass, along with Kentucky bluegrass, intermediate wheatgrass, quack, crab, barnyard, or other similar cool or warm season exotic grasses. Thistles, wormwood sage, and other exotic plants might also be a concern. The first step is removing these undesirable plants from the system. Many times we recommend getting some initial return before you destroy the existing stand, this can be accomplished via haying or grazing. Also, haying or grazing can stimulate new growth making the existing vegetation more susceptible to chemical control. A common second step is then to do a late summer/fall application of glyphosate at about 1.5 to 2 oz./acre after the hay/graze to kill the regrowth.

Now, here is where a choice must be made. The field can either 'farmed' for 2-5 years with glyphosate tolerant crops or managed with chemicals and/or fire for a period of time. If cropping, it is generally OK to disk/till the soil the first year to encourage flushing of the tame grass seedbank. This will expose new grasses/weeds that will ultimately be controlled through the cropping process. It also allows for some leveling of the field if necessary. During subsequent cropping years, no-till management is often preferred. Ultimately, a couple years of no-till glyphosate tolerant crops followed by a year or two of diverse forage/covers may provide the best opportunity to flush the seedbank while also improving soil health/receptivity to the new plants. If cropping is not allowed or desired, a year or two of chemical burn down with glyphosate coupled with actual fire to remove decadent vegetation prior to drilling or broadcasting can also work well. The key is to avoid any chemicals that might ultimately hinder germination of new seed when the native mix is planted.

This only provides a brief introduction into the myriad of options for establishing new diverse stands of grass. Start with seeking out a trusted professional for advice, and check on local programs offered through USDA, conservation agencies, or others. As always, contact SDSU Extension with questions and we'll do our best to connect you to the appropriate advisor.