

PURPOSE: In Maryland, thousands of acres have been planted to native warm-season grasses with native wildflowers to protect water quality and provide wildlife habitat. However, existing plantings often suffer from a lack of species diversity, due to the use of a low diversity wildflower mix for establishment, and because without proper management, the wildflower component can diminish over time. To improve and maintain stand diversity, an appropriate selection of wildflower species and compatible management treatments are required. Objectives include evaluating vegetative response to disturbance and effectiveness of inter-seeding native wildflower mixes to determine the optimal methods for renovating warm-season grass stands to increase diversity and improve wildlife habitat.

“Mesic” site (C2 plot)

“Dry” site (Locust plot)

A. Time of mowing/disking (T)

1. Late Summer Mow and Disk (mid-Aug to mid-Sep)
2. Fall (dormant) Mow and Disk (Nov)
3. Fall (dormant) Mow (Nov) and Spring Disk (Mar)
4. Late Winter/Early Spring Mow and Disk (Mar)

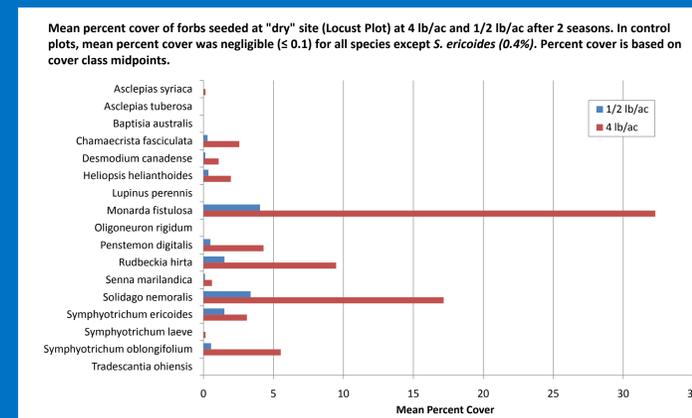
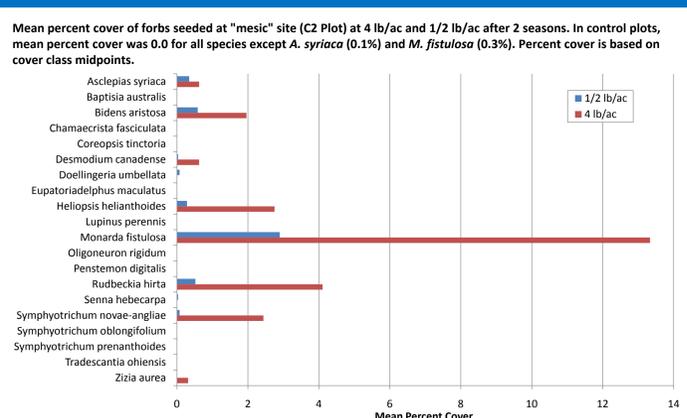
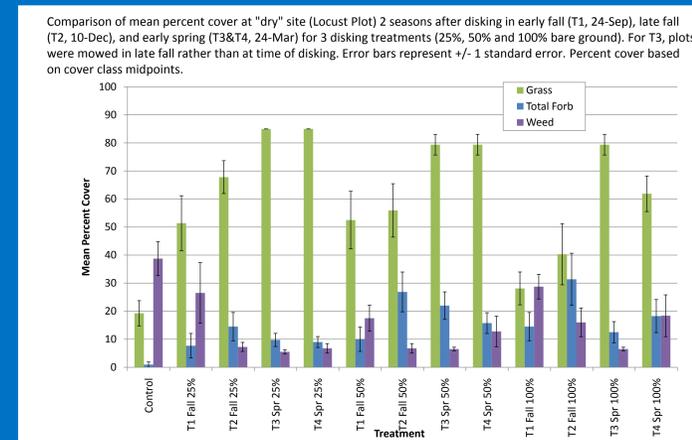
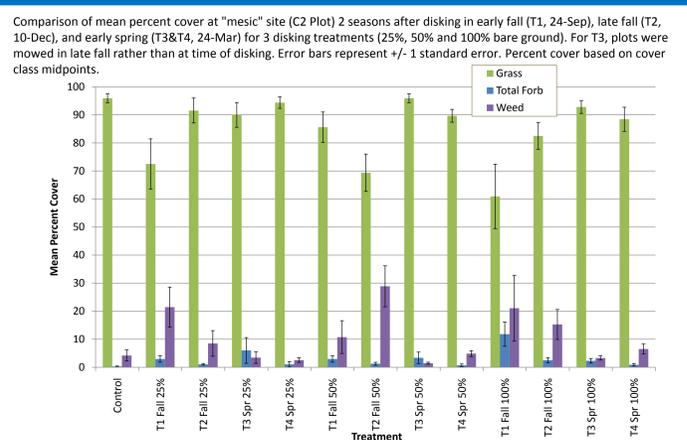
TREATMENTS ON BOTH SITES:

B. Disking intensity based on % bare ground (D = Disk or C = Chisel plow)

1. 25 percent bare ground
2. 50 percent bare ground
3. 100 percent bare ground
4. No disk (control)

C. Overseeding

1. None - Control (x)
2. ½ lb/ac PLS rate (w)
3. ½ lb/ac PLS rate w/small grain nurse crop (g)
4. 4 lb/ac PLS rate (c)



Results

- Disking was overall not very effective at reducing cover of well-established, tall-statured NWSGs. Grass density limited establishment of the seeded wildflowers.
- Disking was shown to be somewhat effective at reducing cover of tall-statured NWSGs in the site with more well-drained soils (i.e. dry site) with predominately indiangrass as the primary NWSG. Plots at this site had indiangrass cover reduced whereas the switchgrass and big bluestem cover remained the same or increased, suggesting that indiangrass is more susceptible to damage by disking.
- NWSGs disked in the fall had less cover than NWSGs disked in spring after 2 seasons, especially on the dry site. This suggests that NWSGs may be more susceptible to critical damage when disked in the fall, or alternatively, spring disking may have a positive effect on NWSGs. The difference in percent cover of NWSGs between fall and spring disk was more pronounced in the 100% bare ground disking treatment, but was apparent in the 25% and 50% disking treatments.
 - Wildflower establishment differed more by species than any other variable. Many wildflowers species established poorly and were not found in any of the plots whereas a few species established very well and were commonly found.

Conclusions

- Overall disking did not achieve the desired level of WSG thinning. Larger scale evaluations should be conducted to determine the most effective and efficient methods for reducing the NWSG cover in established stands. In addition to disking, other methods of disturbance should be evaluated, including plowing and herbicide treatment.
- Susceptibility to disking likely varies among species of WSG's and should be considered when planning a disking treatment.
- The timing of disturbance to NWSGs should be evaluated further. Currently, the most common time for disking and burning NWSGs is in the early spring, because it is more convenient for managers, and it leaves wildlife cover standing through the winter. If fall disturbance is more effective, then current management practices will need to be re-evaluated.
- To maximize effectiveness of renovation practices, wildflower mix composition should be adjusted to ensure that a significant proportion of the mix is comprised of species that have demonstrated establishment at a variety of sites and conditions.