

Desirable Versus Invasive Plant Cover Responses to Burn Frequency During Pasture Establishment

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Accumulation of desirable canopy cover is necessary during pasture establishment to protect pasture soil and provide optimum forage quantity and quality. The objective of this study was to evaluate long-term responses of desirable and invasive cover components of forage swards to burn frequency during pasture establishment in a humid, southeastern environment. Forages were sown or sprigged spring 1997 at Americus, GA in 6 blocks of six 50 by 50 foot plots that included (a) little bluestem + big bluestem + switchgrass + indiangrass (b) little bluestem + sericea lespedeza (c) bahiagrass (d) bermudagrass (e) big bluestem (f) switchgrass. All blocks were burned spring 1998; thereafter, one-half of the blocks were burned every, and one-half every other year. Percent canopy cover was estimated each fall (1998-2002) and analyzed as a split plot design with year after establishment the main plots; burn frequency the subplots. Percentages of 70-yr average rainfall (48in) for 1997 to 2002 were 117,92,60,77,100,98, respectively. Burn frequency had significant and varying impacts on cover of specific desirable and invasive species and these impacts often occurred in interaction with impacts of year after establishment and mixture. For example, little bluestem cover in first mix was not different in year 1 (13%) versus year 5 (17%) after establishment if the mix was burned every year. However, when burned every other year, little bluestem cover in first mix was higher ($P=.016$) in year 5 (38%) versus year 1 (16%). In second mix little bluestem cover was higher ($P=.010$) after year 5 when burned every year (32%) versus every other year (16%). Also bahia as an invasive was reduced after year 5 compared to year 1 in some cases. During pasture establishment, desirable and invasive cover components responded positively and negatively to burn frequency over time and these responses varied within a species when sown in different mixtures.

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