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EFFICACY OF A PREEMERGENCE HERBICIDE FOLLOWING POSTEMERGENCE CONTROL TO REDUCE *SERICEA LESPEDEZA* IN OLD FIELDS MANAGED FOR NORTHERN BOBWHITE

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ABSTRACT

Sericea lespedeza (*Lespedeza cuneata*; hereafter, sericea) is a nonnative forb that commonly invades sites managed for northern bobwhite (*Colinus virginianus*; hereafter, bobwhite). Sericea can reduce habitat quality for bobwhite as it outcompetes native plants that provide forage and cover. Bobwhite eat sericea seed, but seed are relatively indigestible and may limit nutrition intake and reduce the fecundity rate. Postemergence herbicides, including glyphosate, triclopyr, and fluroxypyr+triclopyr, control standing sericea, but do not provide preemergence control, which would increase long-term control because sericea annually produces large amounts of hard seed with high dormancy rates. Imazapic is labeled to provide preemergence control, but no study has evaluated preemergence applications of imazapic following postemergence herbicides to control sericea and promote native plants important for bobwhite. Additionally, data evaluating various rates of imazapic to control sericea are lacking. We currently are evaluating the efficacy of glyphosate and fluroxypyr+triclopyr, applied alone post-emergence and in conjunction with 3 preemergence rates of imazapic, to reduce coverage of sericea at 4 sites in Tennessee and Alabama, USA. We split each site into 8 treatment units and control and assigned the following treatments: glyphosate, fluroxypyr+triclopyr, glyphosate with 48, 96, and 144 ml/ha (4, 8, and 12 oz/acre) imazapic, and fluroxypyr+triclopyr with 48, 96, and 144 ml/ha imazapic. We applied 767 ml/ha (2 qt/acre) glyphosate and 192 ml/ha (16 oz/acre) fluroxypyr+triclopyr in August 2018 to control established sericea. We measured coverage of native forbs, native grasses, and sericea during the 2019 and 2020 growing seasons to determine the efficacy of treatments on sericea and the native plant community. Both glyphosate and fluroxypyr+triclopyr reduced sericea coverage 1 and 2 growing seasons following treatment, but we documented no difference in reduction of sericea coverage between postemergence treatments. We will apply imazapic in March 2021 at 3 different rates to determine whether a preemergence application improves sericea control. Our results on the effectiveness of a preemergence application after postemergence applications should provide valuable information to managers trying to control sericea on lands managed for bobwhite.

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Key words: *Colinus virginianus*, glyphosate, habitat management, herbicide, imazapic, invasive species, northern bobwhite, PastureGard®

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