

Public Abstract

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Title:TALL FESCUE SEED PRODUCTION ALLEY CROPPED IN A HARDWOOD TREE PLANTATION

Alley cropping is an agroforestry practice that utilizes the space between rows of trees to produce an alternate crop. By growing a crop within an orchard an income can be derived during the establishment years of the orchard. Tall fescue demonstrates shade tolerance and may be well suited for the production of certified seed in alley-cropping systems in Missouri. The objective was to evaluate tall fescue seed production in alley cropping system. Three management practices associated with grass seed production were also evaluated; row spacing, nitrogen fertilization, and post-harvest residue management.

An existing hardwood tree plantation was altered by removing every other row of trees to create wide alleys to grow a secondary crop. Turf-type tall fescue was planted in the alleys and for comparison in the open as well. A total of twelve treatments were applied including two row spacings, three fertilizer rates, and two post-harvest management treatments.

In 2004 seed yields in the alley-cropped plots were similar to the open plots; in 2005, all plots had reduced yield and the alley-cropped plots yielded significantly less than the open plots. We attribute the decrease of the second year harvest to poor soil moisture and increased competition from trees. Seed yield was closely related to the number of reproductive culms per meter of row; however, there were no differences among treatments for seed weight and seeds per culm.

This research shows that tall fescue seed yield in an alley-cropping system can be equal to yields from pasture until competition for resources from trees has a negative influence on the crop. A producer who is interested in establishing an orchard should find that certified turf-type tall fescue is a viable crop for an alley-cropping system.