

## Public Abstract

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Title: Increasing Land and Forage Utilization by Missouri Cow/Calf Operations Using Silvopature Practices

Although rotational grazing has improved pasture management significantly in recent years, the need continues to exist for beef producers to increase land utilization and maintain a high level of forage production during the entire growing season. Two experiments were conducted primarily focusing on methods which allow producers to improve the number of animal grazing days on their operations by implementing silvopastoral systems and increasing forage quality of pastures by applying legumes and warm season grasses. A silvopastoral system was placed under a two-year rotational grazing experiment to determine whether it would support grazing pressure in a shaded environment. Mature pregnant cows were rotated onto five one hectare pastures four times during the two-year period. It was determined that a silvopasture practice can in fact be productive under grazing pressure if managed correctly. Samples of cool season grasses, warm season grasses, and legumes were collected at similar maturities from multiple years and different locations across the state of Missouri. An in depth analysis was performed on the forages to determine changes in nutritive value throughout the growing season. It was determined that warm season grasses and legumes have the ability to enhance forage quality at times when the potential of cool season grasses is limited. Furthermore, it was demonstrated that wet chemistry analysis is a poor indicator of digestibility in some forage types, and in-vitro digestibility is a better represents cell wall digestibility.