RELAY- AND DOUBLE0CROP PRODUCTION SYSTEMS FOR WHEAT

Leah Sandler

Dr. Kelly Nelson, Master’s Advisor

ABSTRACT

Cover crops are important to provide organic matter to soils, diversify cropping systems, and provide economic benefits if the correct cropping systems are utilized. Relay-intercrop production involves overlapping growth cycles of two or more crops. This production system is common with legumes seeded into small grains; however, the companion crops may compete for water, nutrients, and sunlight, which may slow development of either crop. Relay-intercropped soybean \([Glycine \text{ max } (L.) \text{ Merr.}]\) production involves seeding wheat in the fall and an intercrop seeding of soybeans into standing wheat \((Triticum \text{ aestivum } L.)\). This cropping system has been proposed to reduce risk associated with double-crop soybean production, move double-crop production farther north, and increase farm profitability. Diversifying crops used in these cropping systems may allow farmers more crop production choices. Double-cropping may also be an alternative to avoid competition for resources among intercrops. Field research was needed to determine what alternative crops would be successful in various cropping systems. The objectives of this research were to 1) determine the feasibility of intercropping alternative crops into standing wheat, 2) observe the effect of wheat row spacing on wheat and alternative crop yields, 3) evaluate the effects of intercropping and double-crop planting dates on alternative crops, and 4) evaluate double-crop planting dates of oil seed radishes on winter annual weed suppression and corn yields.