UNIVERSITY OF NEBRASKA–LINCOLN

Institute of Agriculture and Natural Resources (http://ianr.unl.edu/)

CROPWATCH

Finding the Balance Between Corn Yield and Cover Crop Biomass

NOVEMBER 29, 2016

Angela Bastidas - Ph.D. Student in Agronomy (http://cropwatch.unl.edu/author/angela-bastidas-phd-student-agronomy) | Chris Proctor - Weed Management Extension Educator (http://cropwatch.unl.edu/author/chris-proctor-weed-management-extension-educator-0) | Roger Elmore - Extension Cropping Systems Agronomist (http://cropwatch.unl.edu/author/roger-elmore-extension-cropping-systems-agronomist)

This is one of several briefs on NU cover crop research (http://cropwatch.unl.edu/2016/unl-cropwatch-december-9-2016) featured in this week's CropWatch.

Background

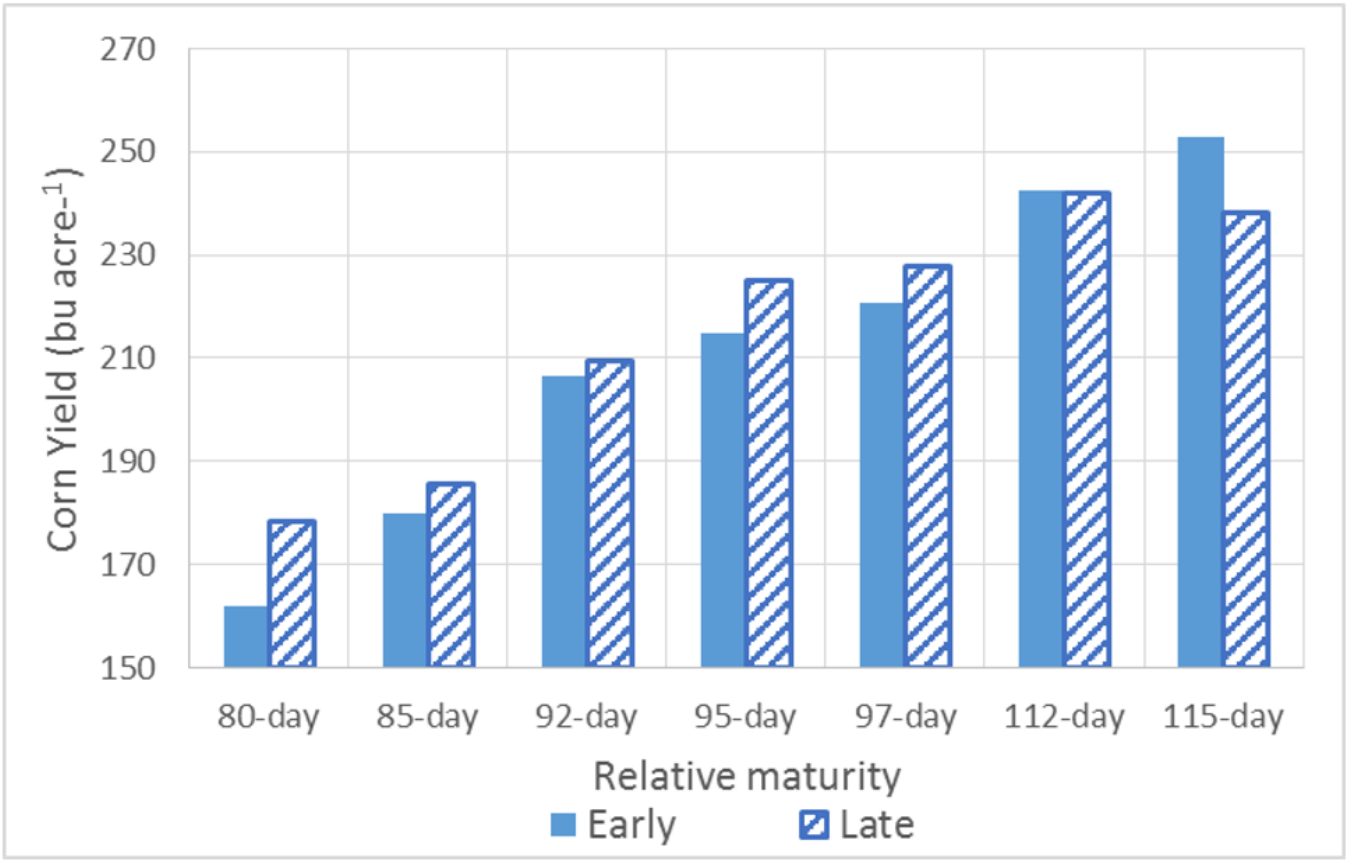

Figure 1. Corn yield as affected by planting date and hybrid maturity. One year of data (2015 growing season).

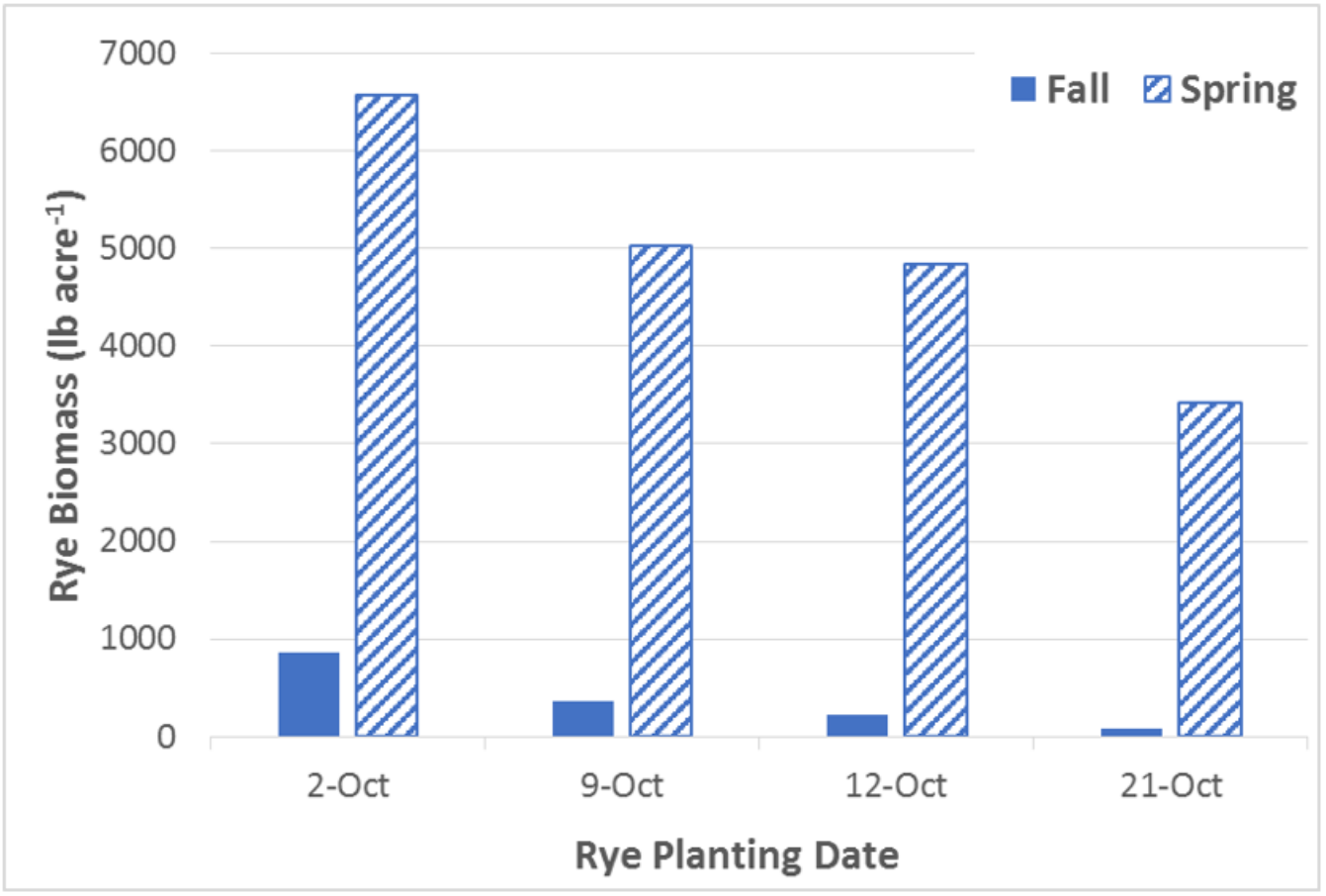

Figure 2. Cover crop biomass as affected by cover crop planting date. One year of data (fall 2015, spring 2016).

Cover crops can provide either ecosystem services or forage benefits but understanding how they fit in cropping systems is still limited. In the US Midwest, fall-seeded cover crops are limited by the relatively short growing season remaining after the primary crop is harvested. Since increasing biomass is critical for cover crop effectiveness, there is the possibility of lengthening the cover crop growing season by modifying corn management to enhance cover crop productivity.

Study Description

The study was established in the 2015 and 2016 growing seasons under both rainfed (Havelock Farm, Lincoln, Lancaster County) and irrigated (South Central Agricultural Laboratory-SCAL, Clay Center, Clay County) conditions in Nebraska. The objective of this study was to assess the effects of planting date (early and late), plant population (low, average, and high) and corn maturity (80 to 115 days relative maturity [RM]) on corn yield to allow different dates for cover crop establishment after corn harvest. At each location, two blocks were established: one for measuring corn yield and one for planting a cover crop (rye [*Secale cereale* L.]) at different planting dates according to estimated harvest maturities of the hybrid's different relative maturities. Fall and spring rye cover crop biomass were collected.

Applied Questions

How is corn yield affected by changes in management? Corn yield was affected by plant population and relative maturity, and planting date and relative maturity, confirming that early planting is for late-season hybrids and the