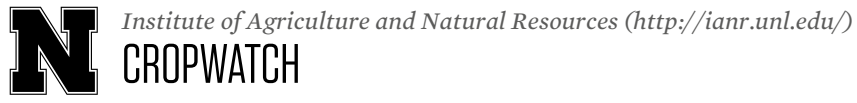


UNIVERSITY OF NEBRASKA-LINCOLN



Interseeding Cover Crops into Corn

NOVEMBER 29, 2016

Angela Bastidas - Ph.D. Student in Agronomy (<http://cropwatch.unl.edu/author/angela-bastidas-phd-student-agronomy>) | Roger Elmore - Extension Cropping Systems Agronomist (<http://cropwatch.unl.edu/author/roger-elmore-extension-cropping-systems-agronomist>)

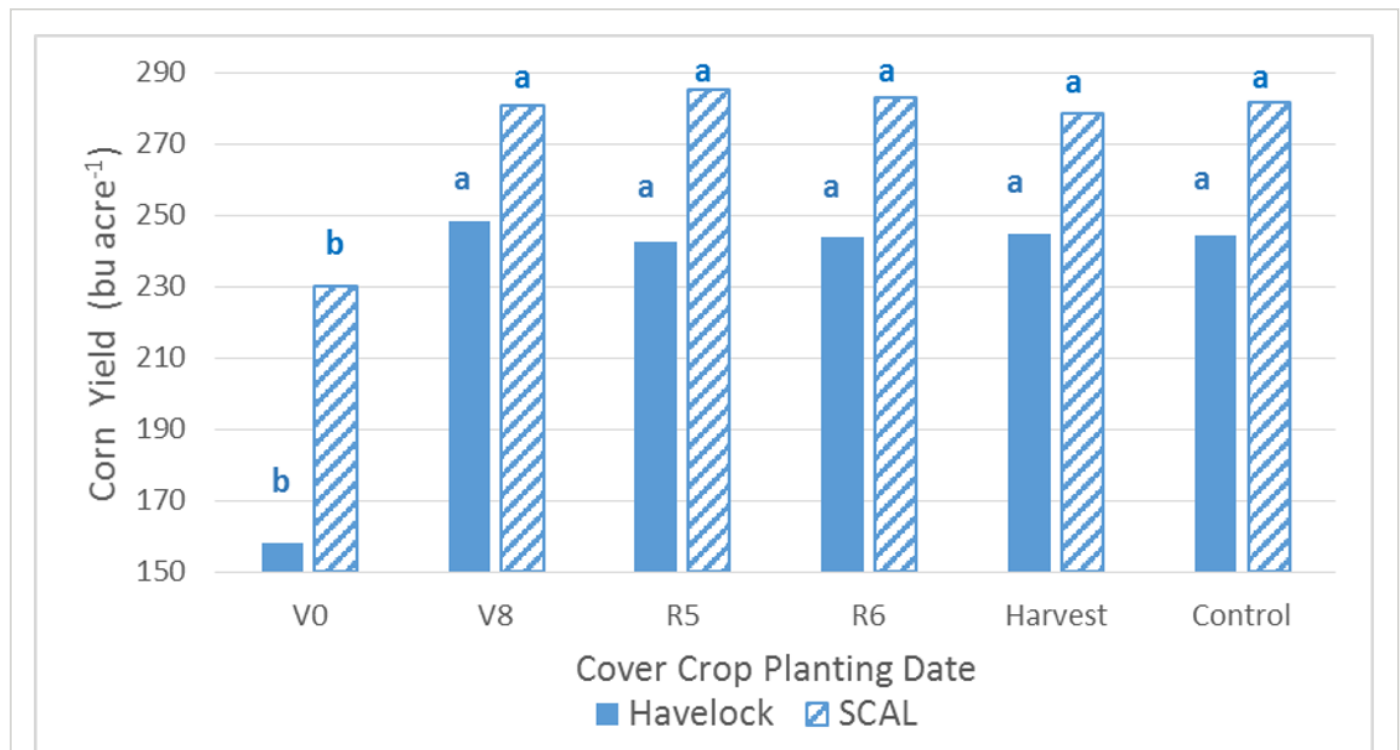


Figure 1. Corn yield as affected by cover crop planting date in the 2015 growing season. Bars with different lowercase letters are significantly different.

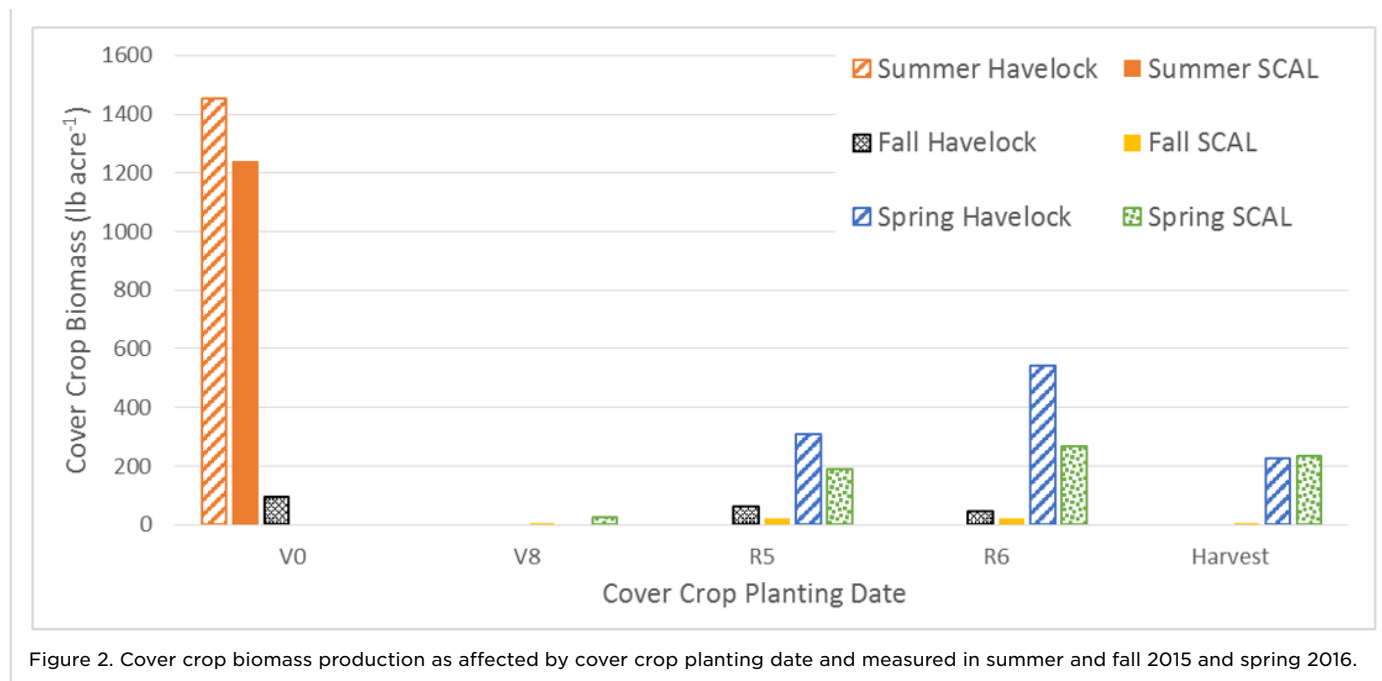


Figure 2. Cover crop biomass production as affected by cover crop planting date and measured in summer and fall 2015 and spring 2016.

Background

In the US Midwest, cover crop use has been limited by the relatively short growing season remaining after the primary crop is harvested. When wheat, seed corn, or sweet corn is grown in a rotation, planting cover crops after harvest sometimes could provide a longer season potential; but, where grain corn and soybean are the predominant cash crops, their relatively long growing seasons leave a short window for cover crop establishment and biomass production. Increasing biomass is critical for cover crop effectiveness; planting time, weather conditions, length of the growing season, and cover crop specie(s) are the most important factors to consider.

Study Description

The study was conducted in the 2015 and 2016 growing seasons under both rainfed (Havelock Farm, Lincoln, Lancaster County) and irrigated (South Central Agricultural Laboratory, Clay Center, Clay County) conditions in Nebraska. The treatments consisted of four cover crop planting dates into corn (hand broadcast) and four single-species cover crops (rye [*Secale cereale* L.], radish [*Raphanus sativus* L.], hairy vetch [*Vicia villosa* Roth] and soybean [*Glycine max* L.]) and a three-species mixture, representing the most commonly used in the region. Growth, development, leaf chlorophyll, plant height, stem diameter and yield were measured for corn; cover crop biomass was collected in summer, fall and the following spring; and soil temperature and soil water content were monitored. Plant population, plant height and yield were examined for the subsequent rotation (soybean).

Applied Questions

Is corn affected by interseeding cover crops? All corn measurements were affected when cover crops were planted at the same time as the corn, but we found no detrimental effects on corn when cover crops were planted at or after corn canopy closure (V8 corn stage, *Figure 1*) Rye seeded at corn planting negatively affected corn the most followed by the mixture and radish. Soil temperature and water content were not affected by cover crop treatments.

How are the cover crops impacted by planting date? Maximum cover crop biomass was produced during summer followed by spring while fall biomass was greatly reduced. Cover crops planted at R6 corn stage (at physiological maturity) produced higher spring biomass than cover crop planted at V8, R5 or after corn harvest (*Figure 2*). Rye and