Managing Risk With Late Season Nitrogen Application

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INTRODUCTION
Corn producers are looking for ways to make more efficient use of nitrogen with less risk of loss. Factors influencing this need for research are a combination of economic and environmental concerns. Current economics in corn production require producers to shift nitrogen management emphasis from economic return as opposed to maximum yield. Changes in climate patterns in Ohio have caused large rain events after extended dry periods. Using late season nitrogen applications allow the producer to spread out nitrogen applications based on crop need and weather events, allowing both more efficient use of nitrogen and limiting nitrogen loss without significant difference in yield.

OBJECTIVE
Determine the effects of nitrogen timing on corn yield and profitability.

METHODS
High clearance equipment has allowed producers to stretch the nitrogen application window in corn. Since 2016, three on-farm collaborators have committed to multi-year late season nitrogen trials in Fulton County. Two on-farm collaborators have committed for these trials in Hardin County. In each Fulton County trial, the check treatment is the farmer’s normal practice of applying all remaining nitrogen at sidedress or approximately 3-leaf (V3) corn. The Hardin County cooperators normal practice of pre or planting remaining nitrogen at check treatment is the farmer’s normal practice of applying all nitrogen at V8 corn.

RESULTS
The results of this study proved that all eight site years showed no significant difference in corn yield whether applied early season, sidedress, or late season. Although late season nitrogen application helps manage risk according to plant need and in season weather conditions, it requires special high clearance application equipment. This equipment can be a limiting factor because of cost, labor, or time required to perform late season nitrogen application across increasing crop acres. Because of this increased expense with no significant increase in yield, this practice may be slow to be adopted by corn producers with limited resources.

CONCLUSIONS
The project contact expresses appreciation to on-farm collaborators J & J Ag, VonSeegmarr Farms and Larry Richer in Fulton County. Hardin County on-farm collaborators were Paul Rafton and Jan Layman. Thanks to the Ohio Corn Checkoff Board and OARDT Fertility Lab for supporting this research. Thanks also to OSU Extension interns for data collection and processing, Fulton County interns assisting with this project were Ross Andre, Ben Eggers and Kallin Ruezt, while Taylor McNamara served as an intern in Hardin County.

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