



Table 1. Rescue-N Strip Demonstrations, 2011.

N Treatments	Obs.†	NDVI	Total	NUE	Yield‡
			Applied N lbN/ac	bu/lbN	bu/ac
PP-N	51	-	172	1.2	209
PP+F-N	43	0.694	218	1.0	207
PP+S-N	48	0.696	217	1.0	209
Stats (P<0.05)§		NS	*	*	NS

† Number of field length strips.

‡ Dry yield as reported by yield monitor.

§ \* indicates means are statistically different.

## OBJECTIVES

Apply N fertilizer when corn rapidly accumulates N and dry matter during the mid-vegetative growth stages.

Utilize active sensors as a remote sensing method of applying VRT nitrogen.

## TWO N STRATEGIES

### SPLIT-N

Apply a portion of N prior to planting with additional N applied with agrotain treated urea during the V10 stage.

*Ex: CC rotation*

*PP-N: 200#*

*PP+F-N: 100# + 100#*

*PP+S-N: 100# + sensor N (min. 100#)*

*100# + sensor N (0-100#)*

### RESCUE-N

Apply all N prior to planting with additional N applied with agrotain treated urea during the V10 stage.

*Ex: CC rotation*

*PP-N: 200#*

*PP+F-N: 200# + 50#*

*PP+S-N: 200# + sensor N (min. 50#)*

*200# + sensor N (0-50#)*

ISU Agronomy Extension N rate recommendations as Maximum Return to N (MRTN) can be found at <http://extension.agron.iastate.edu/soilfertility/nrate.aspx>

## 2011 PRELIMINARY RESULTS

Corn yields were the same for all N fertilizer treatments.

- Field management data (including nutrients applied prior to planting) show adequate rates of N,P,&K.
- Little to no fertilizer N losses likely occurred due to excessive rainfall and climatic conditions.

More corn was produced per lb of fertilizer N with the PP-N vs. PP+F-N or PP+S-N calculated using NUE.

Overall, no N rate differences between PP+F-N and PP+S-N.

- GreenSeeker sensor was uncalibrated; operating range was limited between approx. 50-100#.

## SUMMARY

Additional field scale strip trials and small plot research in 2012 using both strategies (split-N and rescue-N) will provide greater insights.

The most appropriate N fertilizer "timing" varies from year to year due to growing conditions and weather.

Applying VRT nitrogen using canopy sensors is tied to application timing.

- A canopy is needed to identify N deficiencies.
- Field specific calibration and a greater operating range will improve their performance.

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