Cool Bean Advisor

UNIVERSITY OF WISCONSIN AGRONOMY, SOYBEAN RESEARCH, UNIVERSITY OF WISCONSIN-EXTENSION

Starter Fertilizer for Winter Wheat – Two Year Results

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Research trials were initiated in the fall of 2016 and 2017 at four locations (Arlington, Sharon, Chitlon and Fond du Lac) to assess the impact of starter fertilizer on early season growth, grain yield, and grain quality of soft red winter wheat. Dry granular starter fertilizer was applied in-furrow with the seed at planting time. Treatments were selected based on common availability of dry starter fertilizers and previous research using these rates. No early growth, vigor, or phytotoxicity differences were noted in any of the fertilizer treatments compared to the non-treated control. Normal, UWEX recommended corrective and nitrogen fertilization practices were used at each location in addition to the individual fertilizer treatments.

Table 1. Materials, methods, and location information.

Year:	**2017-2018**		
Expt. No.	**17093-94-95, 18093-94-95-96**		
Title:	**Effect of Starter Fertilizer on Winter Wheat Yield**		
Personnel:	**Dr. Shawn Conley, John Gaska, and Adam Roth**		
Organization:	**University of Wisconsin-Madison, Dept. of Agronomy**		
FIELD INFORMATION		**2016-2017**	**2017-2018**
Arlington	Nitrogen:	55 lb N/a	55 lb N/a
	Herbicide:	Husky 15 fl oz/a	Husky 15 fl oz/a
	Planted:	4-Oct-16	25-Sep-17
	Harvested:	18-Jul-17	19-Jul-18
	Soil fertility:	pH: 6.9 O.M.: 3.7 % P: 42 ppm K: 112 ppm	pH: 7.3 O.M.: 3.4 % P: 31 ppm K: 119 ppm
	Previous crop:	soybean	soybean
Fond du Lac	Nitrogen:	55 lb N/a	55 lb N/a
	Herbicide:	Husky 15 fl oz/a	Husky 15 fl oz/a
	Planted:	10-Oct-16	26-Sep-17
	Harvested:	25-Jul-17	19-Jul-18
	Soil fertility:	pH: 6.7 O.M.: 2.5 % P: 17 ppm K: 69 ppm	pH: 7.4 O.M.: 2.2 % P: 48 ppm K: 123 ppm
	Previous crop:	soybean	soybean
Sharon	Nitrogen:	55 lb N/a	55 lb N/a
	Herbicide:	Husky 15 fl oz/a	Husky 15 fl oz/a
	Planted:	5-Oct-16	29-Sep-17
	Harvested:	18-Jul-17	18-Jul-18
	Soil fertility:	pH: 6.4 O.M.: 3.5 % P: 33 ppm K: 154 ppm	pH: 6.5 O.M.: 4.1 % P: 41 ppm K: 166 ppm
	Previous crop:	soybean	soybean
Chilton	Nitrogen:	Lost to winterkill	55 lb N/a
	Herbicide:		Husky 15 fl oz/a
	Planted:		26-Sep-17
	Harvested:		24-Jul-18
	Soil fertility:		pH: 7.3 O.M.: 2.6 % P: 25 ppm K: 107 ppm
	Previous crop:		barley
EXPERIMENTAL PROCEDURE			
Exp. design:	RCB		
Replicates:	4		
Variables:	6 starter fertilizer treatments		
Locations:	3 in 2017 and 4 in 2018		
Tillage:	No-till at all locations, except Chilton in 2017: chisel plow and field cultivator		
Seeding rate:	1.5 million seeds/a		
Plot size:	Planted:	8' x 25'	
	Harvested:	5' x 21'	
Row spacing:	7.5"		
Cultivar:	2016-17:Pioneer 25R40, 2017-2018: FS624		

Table 2. Grain yield and test weight of various starter fertilizer treatments.

Starter fertilizer	Analysis N	P	K	Rate	Actual N	P	K	Grain yield	Test weight
	%			lbs/a	lbs/a			bu/a	lbs/bu
NTC				0				90.1	55.3
Starter-L	9	23	30	50	5	12	15	90.1	55.3
Starter-H	9	23	30	100	9	23	30	90.7	55.3
DAP-L	18	46	0	50	9	23	0	92.4	55.5
DAP-H	18	46	0	100	18	46	0	91.9	55.3
Potash	0	0	62	50	0	0	31	90.5	55.4
Means								91.0	55.3
Probability (Pr>F)								0.4003	0.8976

Results

No differences in yield were seen in any of the in-furrow fertilizer treatments compared to the non-treated control. We were encouraged that no deleterious effects of the fertilizer were seen in early season growth and development of the wheat.