Nebraska On-Farm Research Network

Years:	2013
Title:	Mid Season Nitrogen (Small Plot Research)
Crop:	Corn
County:	Nemaha
Study ID:	045127201301
Objective:	To determine & document the effect of Mid-Season Nitrogen on the profitability of corn production. Check
Treatments:	50 lbs (46-0-0) 75 lbs (46-0-0) 100 lbs(46-0-0)

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Information: 2013 Mid Season Nitrogen

MID SEASON NITROGEN APPLICATION

Under certain environmental conditions, corn may show significant nitrogen deficiencies in the growing season during a critical period of development (R1-R6). This may be due to exceptionally wet soil conditions which cause nitrogen losses from the soil from leaching or saturated soils which leads to denitrification. Nitrogen can also be lost from runoff when applied on top of the soil surface. Sometimes corn can show nitrogen deficiency symptoms when supplemental nitrogen is unable to be applied due to wet soil conditions or the corn becoming too tall for side-dressing.

Previous on-farm research conducted in Missouri indicates mid-season nitrogen application may be economically feasible. In Northwest Missouri in 2013, local ag suppliers were flying on urea to nitrogen deficient corn fields. This experiment was conducted to test the feasibility of this management practice.

Experiments were initiated during the summer of 2013. Nitrogen was applied to 3 different fields of nitrogen deficient corn in Nemaha County.

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Information: 2013 Mid Season Nitrogen

MID SEASON NITROGEN APPLICATION (Continued)

On July 12, nitrogen was applied at the rates of 0, 50 , 75 and 100 lbs N/ac in corn field near. A soil sample taken July 11 in the plot area indicated there was only 5 lbs of nitrate-nitrogen in the top 3' of the soil profile.Nitrogen was applied in a dry form as urea (46-0-0). This method simulated nitrogen being top-dressed with a high clearance ground applicator or through aerial application. The experiment was designed as a complete randomized block design with 4 replications. Each plot was 25' x 10' (4-30" rows). At harvest time, (October 4), 15' of the 2 middle rows were hand-harvested. Corn was shelled, tested for moisture and yields were calculated on a 15.5% moisture basis.

N 32% Liquid 120 lbs N per A - 5/12/2013, Broadcast P K Lime Sulfur Liquid 11-0-0-24 Zinc Liquid Chelate 1 pt/acre 5/15/2013; Starter FEAST Liquid 6-18-6-45 5 gal/acre 5/15/2013 Planter in furrow.

NOTE: This was small plot research located in the growers field.

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Results: 2013 Mid Season Nitrogen

	Yield	Cost/A	Gross Income	Net Income
Check	71.04 B	--	$0.00	$0.00
50 lbs N	105.31 A	$30.75	$143.93	$113.18
75 lbs N	105.5 A	$38.63	$144.73	$106.10
100 lbs N	122.98 A	$46.50	$218.15	$171.65
Prob>/T/	0.0112**			

Costs with N at .315/lb & $15/ac application - Applied 7/10/13 (46-0-0)
Pioneer 1625HR HX1-LL-RR2 26,000 5/15/2013 2" - Silage 9/10/13 (Ins Appraised 133)
Wet @ planting. Dry June-August. Hot June-July (Apr 4, May 2, Jun --, Jul 2, Aug 2). $4.20 for marginal income calculations

Summary: Mid Season Nitrogen

This experiment showed a significant increase in yield when nitrogen was applied mid-season to the nitrogen deficient corn. At current corn prices this practice was economically viable and shows promise. Success of mid-season surface applied nitrogen application is dependent upon sufficient rainfall after nitrogen application. Future on-farm research experiments will be conducted if nitrogen deficient corn fields are identified to evaluate the feasibility of mid-season nitrogen application.

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