Effect of AmiSorb on irrigated corn

1998
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Objectives:

Controlled studies under laboratory conditions have shown that AmiSorb can increase root branching and root hair development. Farmers are interested in how these effects may be exhibited in the field and how they may affect yield.

The objective of this study was to determine the effect of AmiSorb additions applied with the starter and at sidedress time on corn grain yield.

Methods

Two hybrids were grown under irrigation at the Haskell Agricultural Laboratory in 1998. The same experiment was conducted on an Alcester silt loam and a Nora-Crofton silt loam. The Alcester site was under a lateral irrigation system on 1-2% slopes and the Nora-Crofton site was under a small center pivot on 5-10% slopes. Both experiments were split plots with the whole plots being corn variety and the subplots the AmiSorb treatment. Each site was replicated six times. The cultural practices are listed below:

Item	Alcester – Lateral	Crofton-Nora -- Center Pivot
Varieties	Pioneer 33A14 and 34R06	Same
Previous crop	Corn	Corn
Soil organic matter (%)	3.3	2.75
Soil pH (ppm)	6.15	7.1
Soil nitrates (lb. N/acre)	35	29
Soil phosphorus (Bray #1)	33	10.9
Soil potassium (ppm)	452	265
Soil zinc (DTPA ppm)	0.92	1.39
Preplant tillage	Field cultivation and disk	Same

Preplant fertilizer	75 lb. N/acre as anhydrous ammonia	Same
Planting date	5/7/98	Same
Insecticide	Force (label rates)	Same
Herbicide	Extrazine (label rates)	Same
Sidedress N date	6/25/98	6/26/98
Harvest date	10/13/98	Same

The experimental units were four rows wide. The experiments were planted with a John Deere Max-Emerge planter with four new row units installed in the winter of 1998. The planter had coulters and knives arranged to apply liquid fertilizer two inches to the side of the seed furrow and three inches below ground.

Both hybrids were corn-borer resistand with Yield Gard Gene (trademark of Monsanto Company). Pioneer 33A14 was rated slightly higher than Pioneer 34R06 for root strength (7 vs 6), stalk strength (6 vs 5) and brittle stalk (4 vs 3). Pioneer 33A14 was also a longer season hybrid (113 vs 109 days relative maturity).

Five treatments were applied to each variety. They were the following:

Treatment	Starter	Amisorb rate	Sidedress N	Amisorb rate	Lateral	Pivot
		Qt/acre	Lb./ acre	Qt/acre	Bu/acre	Bu/acre
1	No	None	50	None	160.5	156.9
2	Yes	None	50	None	167.4	155.5
3	Yes	1	50	None	158.6	160.7
4	Yes	1	50	1	164.8	162.4
5	Yes	2	50	None	162.8	158.9
Significance					NS	NS

Results:

Analysis of variance of the corn grain yield using Proc Mixed in SAS indicated that there were no significant differences between the varieties, among the AmiSorb treatments or in the interaction between the variety and tbe AmiSorb treatments.

Variety	Lateral	Pivot
	Bu/acre	Bu/acre
Pioneer 33A14	161.2	159.7
Pioneer 34R06	164.5	158.1
Probability of Significant F	NS	NS

Using Proc GLM plant population and grain moisture were analized. There were no differences in grain moisture. An interaction of treatment and variety was found for plant population. Most of the differences were in the effect of the starter without Amisorb (treatment 2). Pioneer 33A14, treatment 2, had an average population greater than the mean and Pioneer 34R06 had a population below the mean.

Conclusions:

Amisorb did not affect corn grain yield on either soil or with any rate or timing in 1998. This was not surprising since the control treatment without any starter was not different from the treatments with starter applied.