Objective

1. Determine if NEB-26 increases the yield of wheat.
2. Reducing nitrogen fertilizer 50% was NOT tested in this research. An equal amount of fertilizer was applied to both the control and the treated areas.

Research

The study was conducted by Bryan K Hanson, MS Associate Agronomist, North Dakota State University.

Method

NEB-26 was spray applied to the soil surface and immediately incorporated with a rototiller. The experiment design was randomized complete block.

Results

	Control	NEB-26	Increase
Yield (bushels per acre)	39.1	44.1	112.8%

Comments

The objective of significantly increasing the yield of wheat was successfully accomplished.

Conclusions

Quote from Bryan K Hanson, MS Associate Agronomist, North Dakota State University:

"NEB-26 did produce a significant yield increase of 12.8% "

AGMOR

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A yield trail on spring wheat was conducted with NEB-26 during 1995. The trial was conducted at the Langdon Research Center at Langdon, North Dakota. A summary of the study is presented in the abstract with the results available in the conclusion suction.

ABSTRACT:
NEB-26 is an organic, non-toxic soil amendment. It's function is to increase micro-flora populations in the soil which augments the availability of nutrients to plants, especially phosphorus. The objective of this research was to determine if NEB-26 would increase yield and protein content of wheat grown in eastern North Dakota. Two hard red spring wheat varieties, 2375 and Grandin were used. NEB-26 was spray applied to the soil surface and immediately incorporated with a rototiller. The experimental design was randomized complete block. The planting date was May 24 and harvest date was September 7, 1995. The grain from each plot was weighed and measured for yield, test weight and grain protein content.

CONCLUSIONS:
NEB-26 did produce a significant yield increase of 12.8% in one of the two hard red spring wheat varieties tested at the Langdon Research Center. NEB-26 effect on test weight and protein were non-significant for both 2375 and Grandin. Based on the data from this limited one year study, NEB-26 does show some potential for yield increases in cereal grains. Further testing of NEB-26 with increased statistical precision of the trial without scab limitations on yield and higher fertility levels so actual yield does not exceed yield goal is recommended.

For additional information regarding this study please refer to the complete report.

Sincerely,

Bryan K. Hanson

Bryan K. Hanson, MS
Associate Agronomist

SPRING WHEAT

AND

NEB 26

YIELD STUDY

NORTH DAKOTA STATE UNIVERSITY
LANGDON RESEARCH CENTER
LANGDON, NORTH DAKOTA

BRYAN K. HANSON, MS
ASSOCIATE AGRONOMIST

October 1995

ABSTRACT

NEB 26 is an organic, non-toxic, soil amendment. It's function is to increase micro-flora populations in the soil which augments the availability of nutrients to plants, especially phosphorus. The objective of this research was to determine if NEB 26 would increase yield and protein content of wheat grown in eastern North Dakota. Two hard red spring wheat varieties, 2375 and Grandin were used. NEB 26 was spray applied to the soil surface and immediately incorporated with a rototiller. The experimental design was a randomized complete block. The planting date was May 24 and harvest date was September 7, 1995. The grain from each plot was weighed and measured for yield, test weight and grain protein content. The 2375 plots treated with NEB 26 produced a significant yield increase of 12.8% (5 bu/a) compared to the control. No significant yield differences between NEB 26 and the control were noted for Grandin. Differences in protein, test weight, and plant height within each variety were also non-significant.

INTRODUCTION

NEB 26 is an organic, non-toxic, amendment. It's function is to increase soil micro-flora populations which augments the availability of nutrients, especially phosphorous. NEB 26 has demonstrated yield increases in various crops including cereal grains. NEB 26 is recommended to be applied preplant or at the time of planting. The objective of this research was to determine if NEB 26 would increase the yield and protein content of wheat grown in eastern North Dakota.

METHODS AND MATERIALS

A randomized complete block design consisting of four replications was used to test the effects of NEB 26 on the hard red spring varieties 2375 and Grandin. The soil type in the trial area was a Svea loam (Fine-loamy, mixed Pachic Udic Haploborolls).

The 1994 fall soil test was 57-7-315. Fertilizer was applied during the previous fall at the rate of 50 lbs/a of nitrogen. At planting, 20 lbs/a of 0-46-0 was applied. This supplied the recommended level of nutrients needed for a 43 bu/a wheat yield goal.

NEB 26 was applied at the rate of 1 gallon per 25 acres to the treated plots then immediately incorporated to a depth of 2.5 inches. Wind was light to zero with no loss of product due to wind drift. During application the weather was cloudy with occasional light rain.

The trial was planted on May 24, 1995. Seed of 2375 and Grandin hard red spring wheat was treated with carboxin + thiram. The trial was planted immediately following the incorporation of NEB 26. Seeding rate was 1.25 million pure live seeds per acre. Plot size consisted of 7 - 6 inch rows 3.5′ wide by 20′ long. Harvest plot size were trimmed to 3.5′ wide by 16′ long. The grain from each plot was delivered into individual bags as part of the harvesting process. Each bag was marked with the appropriate code to designate the correct plot. After harvest the grain from each bag was dried, cleaned, and weighed for yield and test weight. Grain samples were saved from each plot and sent to NDSU Cereal Science laboratory for protein determinations. Harvest date was September 7.

RESULTS AND DISCUSSION

Weather during the month of May, prior to application, was cool and wet with above normal precipitation. Spring wheat planting in the area was delayed up to 3 weeks because of the wet soil conditions. Above normal precipitation was recorded in all months during the growing season.

The trial site may have been influenced by chemical carryover and/or soil type-chemical carryover interaction as an adjacent sunflower trial showed severely restricted growth and development. Two plots in two of the replications, a 2375-check and Grandin-NEB 26, showed visually thinner stands in at least 1/3 of the plot. The coefficient of variability % (a relative measure of variation within the trial), was 7.2 %, well within an acceptable range.

The 2375 plots treated with NEB 26 produced a significant yield increase of 12.8% (5 bu/a) compared to the control. No significant increase in yield between NEB 26 and the control were noted for Grandin. Differences between NEB 26 and the control for test weight, protein and plant height within each variety were non-significant for both 2375 and Grandin.

There was a high incidence of the disease fusarium head blight (scab) in the trial. This resulted in lower yield potential and test weights for each of the varieties. Grandin is more susceptible to yield loss and test weight reduction from scab than 2375.

CONCLUSIONS

NEB 26 did produce a significant yield increase of 12.8% in one of the two hard red spring wheat varieties tested at the Langdon Research Center. NEB 26 effect on test weight and protein were non-significant for both 2375 and Grandin. Based on the data from this limited one year study, NEB 26 does show some potential for yield increases in cereal grains. Further testing of NEB 26 with increased statistical precision of the trial without scab limitations on yield and a higher fertility levels so actual yield does not exceed yield goal is recommended.

NORTH DAKOTA STATE UNIVERSITY
LANGDON RESEARCH CENTER

Bryan K. Hanson

Bryan K. Hanson, MS

October 19, 1995

Date

APPENDIX

AGMOR, INC. WHEAT TRIAL
Langdon Research Center - 1995

Treatment	HT	TW	12% Moist. PROTEIN	YIELD
	cm	lbs/bu	%	bu/a
Grandin - NEB-26	83.5	53.0	15.9	30.6
Grandin - Control	84.8	52.4	15.9	29.4
2375 - NEB-26	90.5	55.6	14.7	44.1
2375 - Control	87.5	55.4	14.6	39.1
HIGH MEAN	90.5	55.6	15.9	44.1
LOW MEAN	83.5	52.4	14.6	29.4
EXP MEAN	86.6	54.1	15.3	35.8
C.V. %	2.5	1.4	3.5	7.2
LSD 5%	3.5	1.2	.9	4.1
LSD 1%	5.0	1.7	1.2	6.0
# OF REPS	4	4	4	4
F-TRT	8.3	19.5	7.9	29.1

BLOCK	HT	TW	PROTEIN	YIELD
1	87.3	54.9	15.2	40.2
2	88.3	53.6	15.2	37.1
3	87.0	53.9	15.3	32.5
4	83.8	54.0	15.4	33.5

LANGDON RESEARCH CENTER
WEATHER DATA

	Precipitation		Temperature	
	94-95	Normal	94-95	Normal
	----inches----		---Degrees F---	
Sept. 94- Apr. 95	11.36	7.72	25.1	24.1
May	3.74	2.12	49.3	51.7
June	3.72	3.10	66.9	61.0
July	5.36	2.78	65.1	66.2
August	6.62	2.61	65.6	64.4
September	.78	2.01	53.5	54.4
Sept. 94- Aug 95	30.80	18.33		

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Education

Master of Science in Agronomy, June 1983
Oklahoma State University

Bachelor of Science in Agronomy, February 1981
North Dakota State University

Employment

Agronomist, North Dakota State University, Langdon Research Center. September 1, 1983 to present. Work emphasis is small grain, oil and specialty crop variety trial and production research.

Crop scout, North Dakota State University, Summers of 1979 and 1980. IPM project from the Extension Service. Work emphasis was to scout farmers fields for insect, disease, and weeds of sunflowers, cereal grains, drybeans.

Born and raised on small grain farm in south central North Dakota.

Publications

Stover, R., B. Hanson and T. Gregoire. 1995. Effect of benomyl fungicide on spring wheat for control of head blight, 1994. Fungicide and Nematicide Tests. 50:234

Stover, R. and B. Hanson. 1995. Fusarium head blight and septoria leaf blotch on hrsw cultivars, 1994. Biological and Cultural Tests. 10:116.

Hanson, B.K. and J.R. Lukach. 1994. Planting rate influence on yield and agronomic traits of hard red spring wheat. American Society of Agronomy Abstracts. p. 154.

Hanson, B.K. and J.R. Lukach. 1992. Barley response to planting rate in northeastern North Dakota. North Dakota Farm Research. North Dakota Agri. Exp. Stn. 49(4):14-19.

Hanson, B.K. and J.R. Lukach. 1990. Flax response to planting rate. North Dakota Farm Research. North Dakota Agri. Exp. Stn. 47(6):22-26.

Hanson, B.K. 1983. Cultural and environmental effects on several seedling emergence traits of winter wheat (Triticum Aestivum L.). Oklahoma State University, M.S. Thesis.