



Agricultural Academy Henan Province
Cotton, maize and sesame



Research Summary

Objective

1. Determine if NEB-26 increases the yield of cotton, maize and sesame.
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 Dr. Zhang Haiyang of the Agricultural Academy Henan Province.

Method

NEB-26 was uniformly sprayed onto granular nitrogen fertilizer and applied to the NEB-26 plots. The control plots received an equal amount of granular nitrogen fertilizer without NEB-26. A random plot test was designed with three replicates.

Test Results

Crop	Control (kg / ha)	NEB-26 (kg / ha)	Yield
Cotton	1,144.5	1,239.0	108.3%
Maize	6,327.0	7,144.5	112.9%
Sesame	876.2	967.5	110.4%

Comments

The objective of increasing the yield of cotton, maize and sesame was successfully accomplished.

This study included research findings on NEB-26 and NEB-33. NEB-33 is a granule that includes the same active ingredient as NEB-26. AGMOR no longer produces NEB-33 due to the fact that NEB-26 is more effective and more profitable.

Objective

1. Determine if NEB-26 increases the yield of wheat on three soil types.
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 Dr. Zhang Haiyang of the Agricultural Academy Henan Province.

Method

A random plot test was designed with three replicates. NEB-26 was uniformly sprayed onto granular nitrogen fertilizer in advance and then the fertilizer treated with NEB-26 was applied when the wheat was in its seedling stage. The trials were conducted on three soil types: loam soil, sandy loam soil and clay soil.

Test Results

Wheat	Control (ton/ha)	NEB-26 (ton/ha)	Yield
Loam Soil	4,546.65	5,129.12	112.8%
Sandy Loam Soil	4,014.60	4,261.85	106.2%
Clay Soil	4,234.24	4,805.70	113.5%

Comments

The objective of increasing the yield of wheat on all three soil types tested was successfully accomplished.

This study included research findings on NEB-26 and NEB-33. NEB-33 is a granule that includes the same active ingredient as NEB-26. AGMOR no longer produces NEB-33 due to the fact that NEB-26 is more effective and more profitable.

Test Report on NEB at Henan Province of China in 1997

by Dr. Zhang Haiyang.

NEB is an organic, non-toxic feeding stimulant produced by Agmor, USA that has been tested and proved to be effective on many crops and vegetables in USA. In order to introduce the product into China, Henan Agricultural Academy undertook tests on the effectiveness of NEB on crops in different soil conditions in 1997. The test results are as follows:

1. Material and Methodology

1.1 Tests of NEB-26 and NEB-33 on wheat in different soils

The tests were conducted on a variety of wheat named Yumai 21 in sandy loam, loam, and clay soils. For each soil type, three treatments were done:

A No nitrate fertilizer and no NEB.

B 150 Kg nitrate nitrogen fertilizer per hectare only.

C 150 Kg nitrate nitrogen fertilizer per hectare and 375 ml of NEB-26 (or 2.2 kg of NEB-33).

A random plot test was designed and was repeated three times. The immediately preceding crop was maize. NEB-26 or NEB-33 was uniformly sprayed on or mixed into granular nitrate fertilizer in advance, and then the prepared fertilizer was applied on the wheat in its seedling stage. When the wheat was harvested, the yields were collected and counted individually for each plot.

1.2 NEB-26 and NEB-33 on maize, cotton, and sesame.

A Nitrate nitrogen fertilizer application only.

B Both nitrate nitrogen fertilizer and NEB application

The testing plots are separately arranged and repeated three times. The application rates for nitrate fertilizer and NEB are listed Table 1.

Table 1. Application rates of Nitrogen fertilizer and NEB

Crop	NEB-26	NEB-33	Nitrogen Fertilizer
Unit	ml/ha	Kg/ha	Kg/ha
Maize	720	4.5	150
Cotton	935	5.6	150
Sesame	720	4.5	75

The preceding crop was wheat. Testing soil was loam soil. Nitrate fertilizer and NEB were mixed and applied in the soil. When the crops were mature, they were harvested and their yield was counted separately for each plot.

2 Results and Discussion

2.1 The effectiveness of NEB-26 and NEB-33 in different soils

Winter wheat treated with NEB-26 and NEB-33 was much better in growth and yield than the wheat with nitrate fertilizer applied only at the seedling stage in plots on sandy loam, loam, and clay soils. The yield increase was obvious for both NEB-26 and NEB-33, but no big difference was observed between two NEB's in yield increase. With the same application rate of NEB-26 and NEB-33, the effect on loam and clay soil was better than that on sandy loam. The yield increase for crops treated with NEB-26 on sandy loam, loam, and clay soils was 6.2%, 12.8% and 13.5% respectively (see Table 2). The yield increase for NEB-33 was 5.4%, 12.9% and 11.4% respectively on sandy loam, loam, and clay soils (see Table 3).

Table 2 Effects of NEB-26 on Yield of winter wheat Yumai 21 **Unit: Kg/ha**
Treatment: A, no NEB and no nitrate fertilizer applied. B, Nitrate Fertilizer only applied. C, Both NEB and Nitrate Fertilizer applied. D, Yield Increase (%)

	A	B	C	D
Sandy Loam Soil	3706.95	4014.6	4261.85	6.2
Loam Soil	4125.60	4546.65	5129.12	12.8
Clay Soil	3964.56	4234.24	4805.70	13.5

Table 3 Effects of NEB-33 on Yield of winter wheat Yumai 21 **Unit: Kg/ha**
Treatment: A, no NEB and no nitrate fertilizer applied. B, Nitrate Fertilizer only applied. C, Both NEB and Nitrate Fertilizer applied. D, Yield Increase (%)

	A	B	C	D
Sandy Loam Soil	3585.75	3676.20	3876.15	5.4
Loam Soil	4419.75	4808.4	5428.36	12.9
Clay Soil	4025.85	4299.6	4790.30	11.4

2.2 The effects of NEB-26 and NEB-33 on autumn crops.

Yield increases were observed on maize, cotton and sesame which were planted in summer and treated with NEB-26 and NEB-33. With NEB-26 applied before seeding, the yield increase on maize, cotton and sesame was 12.9%, 8.3% and 10.4% respectively (see table 4).

Table 4 Effects of NEB-26 on Autumn Crops**Unit: Kg/ha**

Treatment: A, Nitrate fertilizer and no NEB. B, both NEB and Nitrate Fertilizer applied.
 C, Yield Increase (%)

	A	B	C
Maize	6327.0	7144.5	12.9
Cotton	1144.5	1239.0	8.3
Sesame	876.2	967.5	10.4

With NEB-33 applied before seeding, the yield increase on maize, cotton and sesame was 10.2%, 11.6% and 8.7% respectively (see table 5).

Table 5 Effects of NEB-33 on Autumn Crops**Unit: Kg/ha**

Treatment: A, Nitrate fertilizer and no NEB. B, both NEB and Nitrate Fertilizer applied.
 C, Yield Increase (%)

	A	B	C
Maize	5973.0	6580.5	10.2
Cotton	1018.5	1137.0	11.6
Sesame	1066.8	1159.3	8.7

In the test plots, the percentage of Fusarium wilt on cotton treated with NEB-26 and NEB-33 was 8.2%, while that of the control crop was 11.5%, a 3.3% decrease. The percentage of Fusarium wilt on sesame treated with NEB-26 and NEB-33 was 3.4% , while that of the control crop was 7.8%, a 4.4% decrease.

3 Conclusion

Yields of wheat, maize, cotton , and sesame were increased significantly with the application of NEB-26 and NEB-33. In cotton and sesame applied with NEB, the occurrence of Fusarium wilt showed a marked decline. For different soils, the effects on loam and clay loam soils were much better than sandy loam.

Acknowledgement

I would be pleased to thank Agmor for providing the NEB in the tests, Mr. Charles Stubin who gave us assistance and encouragement, and Mr. Niu Qingpo from Beijing Innova whose efforts were instrumental in making the tests successful.