

BORON ON WHEAT

Lloyd Murdock, John James and Dottie Call
Department of Agronomy

This study was initiated because of a nutrient survey in Kentucky in 1999 and 2000 indicated that some fields of wheat had marginally low boron (B) levels in the flag leaf at initial heading. There has also been a yield response of the application of foliar B on more coarse textured soils in the southeastern part of the U.S. In order to look at this possibility, a field was chosen to look at B applications and its effect on yield.

METHOD:

The soil was a Pembroke silt loam and the field was located on a field on the UK Research and Education Center at Princeton, Ky. The area was tilled for seeding with a disc and a rotterra and was fertilized according to soil test and UK recommendations prior to tillage. Pioneer 25R26 wheat was planted at 35 seeds/ft² on Oct. 16 and Warrior insecticide was sprayed on Oct. 31. N was topdressed at 40 lb/ac on February 19 and 60 lb/ac on March 20.

Trial Design

The B soil test was 1.3 lb/ac on the trial area. This is marginally low according to Jim Woodruff of U.S. Borox. The treatments are as follows:

1. Control (no B added)
2. 2 lb/ac B broadcast at planting
3. 0.25 lb/ac B in fungicide spray at heading
4. 0.25 lb/ac B soil applied with N in March
5. 0.50 lb/ac B soil applied with N in March

Four replications of each treatment were used.

RESULTS:

The yields were very high and the results for the different treatments are shown in Table 1. There was no yield response to adding boron on any of the treatments. It did not seem to make any difference when B was added or how much which indicates that B was supplied in sufficient quantities naturally from the soil. The B released from the organic matter and the B contained in the soil were sufficient for a high yielding wheat crop.

Treatments	Yield (Bu/Acre)
1. Control	108.4a*
2. 2 lb/ac B on soil in Fall	110.0a
3. 0.25 lb/ac B foliar at heading	107.6 a
4. 0.25 lb/a B on soil at jointing	111.2 a
5. 0.50 lb/a B on soil at jointing	111.6 a

*a indicates no significant differences in the yield due to the different treatments.