

2010 Quantum Growth (Quantum Growth) Test

Ron Heiniger Cropping Systems
Specialist North Carolina State
University

The Study

This study was conducted in 2010 at the Borderbelt Research Farm near Whiteville, NC. The site was previously planted to soybean and was tilled prior to planting. 0-0-46 was applied at a rate of 215 lbs per acre prior to planting. On 5 April Dekalb DKC 69-71 treated with Poncho 1250TM was planted in 30 inch rows at a seeding rate of 33,000 seeds acre⁻¹. A starter fertilizer, 10-27-0, was placed beside the seed in a 2 X 2 band at a rate of 20 gal acre⁻¹. At growth stage V7 50 gal acre⁻¹ of 30% UAN solution was broadcast using drop nozzles. No other fertilizer was applied. Weeds were controlled with a pre-emergence application of Dual (2 qt per acre) and atrazine (1 qt per acre) and a lay by application of 22 oz of Roundup mixed with 1 qt of atrazine per acre. Weed control was excellent.

The Experiment

Experimental design consisted of a randomized complete block arrangement with four replications. Plots were four rows wide and 40 ft long. The two treatments consisted of either a non-treated check or Q-Light and VSC applied at three different rates at four growth stages. The first treatment occurred at V4 and consisted of Q-Light and VSC applied at 1 gal per acre. The second and third treatments were applied at V7 and V10 using Q-Light and VSC at 0.5 gal per acre and the final treatment was applied at V12 using Q-Light and VSC at 0.25 gal per acre. For each application Quantum Growth was mixed with water and applied over the top of the corn canopy in a broadcast application using 20 gal of spray solution per acre. Soil samples were taken after harvest (Aug 20) and analyzed for nematode numbers and type. At harvest grain yield, moisture, and test weight were measured on the center two rows of each plot using a K2 Gleaner combine equipped with a HarvestMaster grain gauge. The grain weight from each plot was adjusted to 15.5% moisture before calculating yield.

Statistical comparisons were made using Proc Mixed with mean separations using Fischer's protected LSD.

Results

Early growing conditions at the site were ideal with adequate rainfall and moderate temperatures. However, dry weather from May 20 to the end of the season resulted in stress throughout the period from V10 to maturity.

Analysis of the data found that the Quantum Growth treatment significantly increased yield when compared to the check treatment. This was the result of the difference in nematode numbers found at the site. The Quantum Growth treatment resulted in fewer nematodes. In summary Quantum Growth increased yield by reducing nematode numbers. MARCH 2011 Report on Field Studies 2

Differences in Grain Yield by Treatment

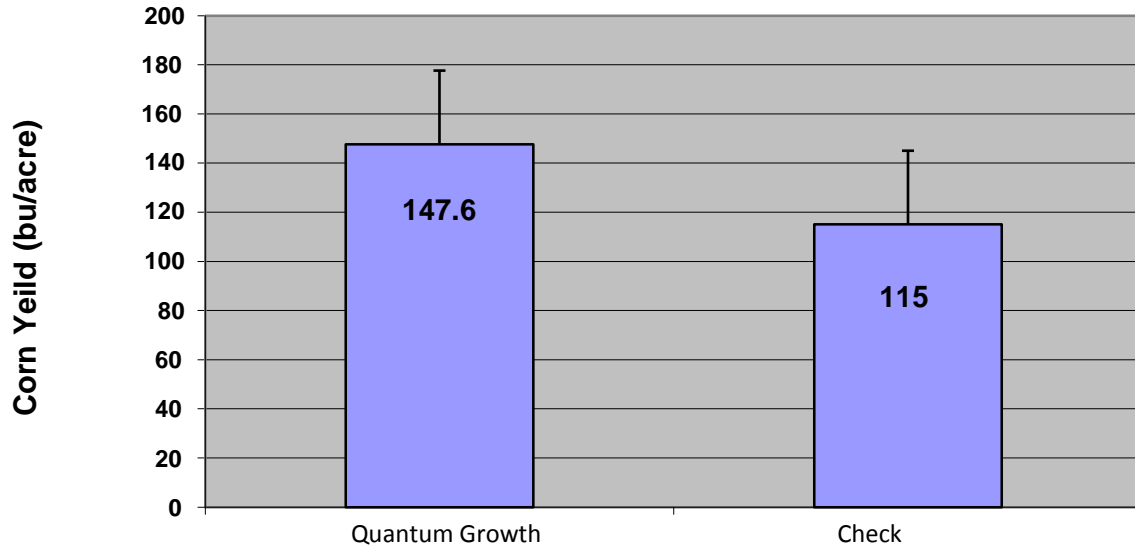


Figure 1. Differences in corn yield between Quantum Growth and a check of 10-27-0. Anything between the top of the colored bar to the top of the error line would not be considered statistically different.

Effect on Nematode Numbers

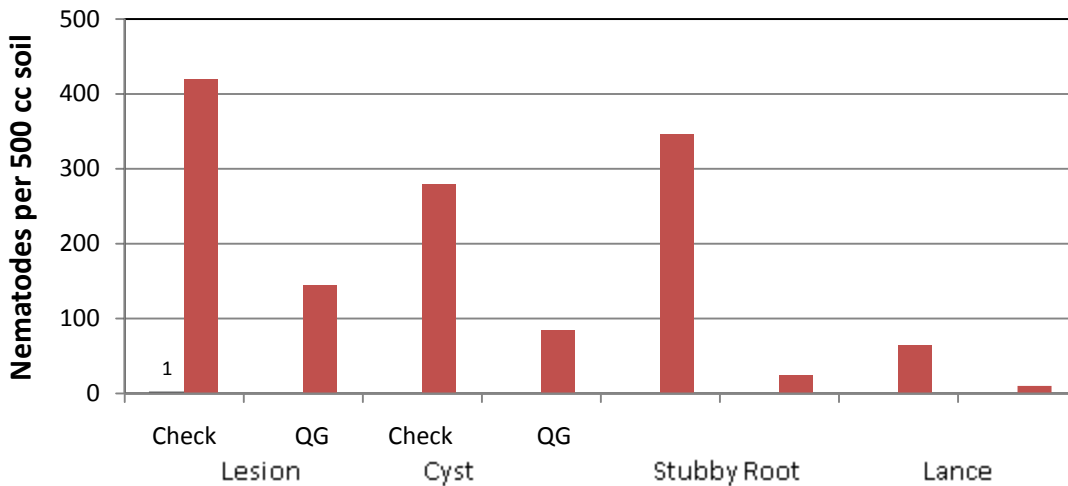


Figure 2. Differences in nematode numbers between Quantum Growth and a check of 10-27-0. Samples consisted of a single sample from each treatment collected over the four replicated plots.

DATA

| Plot Number | Treatment ID | Description | Replication | SEQ# | Plot | Weight | UNCOMPWT | Moisture | Tstwght |
|-------------|--------------|-------------|-------------|------|------|--------|----------|----------|---------|
| 101 | a | 10-27-0 | 1 | 5 | 102 | 30.2 | 28.39 | 21.7 | 67.4 |
| 202 | a | 10-27-0 | 2 | 22 | 206 | 30.9 | 28.8 | 19.8 | 69.7 |
| 301 | a | 10-27-0 | 3 | 39 | 310 | 35.9 | 33.44 | 20 | 70.3 |
| 402 | a | 10-27-0 | 4 | 48 | 412 | 37.9 | 34.73 | 19.7 | 70.9 |
| 102 | b | Quantum | 1 | 21 | 106 | 34.6 | 32.9 | 20.7 | 66.5 |
| 201 | b | Quantum | 2 | 10 | 203 | 38.3 | 35.65 | 20.8 | 67.3 |
| 302 | B | Quantum | 3 | 47 | 312 | 47.5 | 43.85 | 20 | 72.3 |
| 401 | b | | 4 | 16 | 404 | 52.1 | 48.56 | 19.9 | 70 |

| Plot Number | Treatment ID | Description | Replication | Plot Length | Plot Width | Plot Area sq ft | Dry (15,5%) Weight | Dry Yield | Avg. |
|-------------|--------------|-------------|-------------|-------------|------------|-----------------|--------------------|-----------|--------|
| 101 | a | 10-27-0 | 1 | 40 | 5 | 200 | 26.31 | 102.32 | |
| 202 | a | 10-27-0 | 2 | 40 | 5 | 200 | 27.33 | 106.31 | |
| 301 | a | 10-27-0 | 3 | 40 | 5 | 200 | 31.66 | 123.13 | |
| 402 | a | 10-27-0 | 4 | 40 | 5 | 200 | 33.00 | 128.36 | 115.03 |
| 102 | b | Quantum | 1 | 40 | 5 | 200 | 30.88 | 120.08 | |
| 201 | b | Quantum | 2 | 40 | 5 | 200 | 33.41 | 129.96 | |
| 302 | b | Quantum | 3 | 40 | 5 | 200 | 41.51 | 161.46 | |
| 401 | b | Quantum | 4 | 40 | 5 | 200 | 46.03 | 179.03 | 147.63 |