

Muskmelon Varieties and the Effects of PlantShield®

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During the last few years a number of new muskmelon cultivars have been released that had not been tested in New England Universities variety trials. In this experiment we evaluated the performance of 18 muskmelon cultivars (Table 1.) and their response to PlantShield®. PlantShield® is a beneficial fungus that actively grows on plant roots protecting the roots from attack by many common root pathogens, thereby, increasing the overall health of the plant. The experiment was set out in a randomized complete block with split-plots and four replications at both the University of Maine Highmoor Farm, Monmouth, ME and the University of New Hampshire Kingman Farm, Madbury, NH. Individual plots consisted of 10 plants split into sub-plots with half the plants receiving the treatment. The PlantShield® treatment was applied as a drench, 500 ml per plant of a 3 oz / 100 gal solution in combination with starter fertilizer. The check treatments received only the starter fertilizer. Transplants were seeded, May 14 and grown in the UNH greenhouse. Transplanting dates were June 8 for New Hampshire and June 9 for Maine. At both locations soil tests were taken and pre-plant fertilizer was incorporated prior to laying plastic mulch. In Maine, ¾ oz A.I. of Sandea was applied after transplanting to control weeds. There was no supplemental irrigation in Maine. In NH, a white clover / annual rye living mulch was seeded between the beds of plastic following melon transplanting to manage weeds. The living mulch was mowed as needed to control plant growth. The NH fields were irrigated weekly with 1-2" of water through drip irrigation tubes placed below the plastic mulch. The melons were harvested at ½ slip and harvest occurred three times per week. Fruit were individually weighed, rated for flesh color and quality, and brix measurements taken.

There were significant differences between the NH and Maine locations with the Maine yields nearly double those in NH (Figures 1 and 2). However, average fruit sizes were not different between locations. One possible explanation for the difference in yield is thought to be due to the living mulch used in NH. The living mulch may have competed for water thus reducing plant growth and fruit set. An alternative explanation is that in the management of the living mulch, mowing between the plastic beds, many of the melon plant vines may have been cut reducing the number of female flowers and fruiting potential.

PlantShield® had no significant effect on yield in this experiment. However there were some interesting trends in that application of PlantShield® increased fruit number in nine cultivars, had no effect on three, and had a detrimental effect on six (Figure 3). PlantShield® also

tended to increase the brix levels. Twelve of the eighteen cultivars had higher brix readings in plots treated with PlantShield® (Figure 4).

Top performing cultivars from the two locations were similar and include the following based on numbers of fruit harvested: Maverick, Earliqueen, Wrangler, Diva, Jaipur. The poor performing cultivars at both locations were also similar and included: Rockstar, Goddess, Athena.

Table 1. Characteristics of melon cultivars^z evaluated in 2007 at University of Maine, Highmoor Farm, Monmouth, ME and University of New Hampshire, Kingman Farm, Madbury, NH.

| <u>Cultivar</u> | <u>Fusarium</u> | <u>PM</u> | <u>Weight (lb)</u> | <u>Days to maturity</u> |
|-----------------|-----------------|-----------|--------------------|-------------------------|
| Aphrodite | 0,1,2 | 2 | 6-8 | 80 |
| Athena | 0,1,2 | Res. | 4 | 79 |
| Crescent Moon | * | Res. | 5-7 | 73 |
| Diva | 0,1,2 | * | 6-8 | 83 |
| Earliqueen | * | * | 3-4 | 74 |
| Eclipse | 2 | 1 | 5-7 | 85 |
| Fastbreak | 2 | Tol. | 3-4 | 74 |
| Goddess | 0,1,2 | 1,2 | 4-6 | 68 |
| Goldstar | * | * | 3-4 | 87 |
| Jaipur | 0,1,2 | 1,2 | 5-6 | 86 |
| Maverick | 0,2 | 1,2 | 4-5.5 | 83 |
| Odyssey | 1,2 | 1,2 | 5-6 | 80 |
| Rockstar | 0,1,2 | 1,2 | 5,7 | 73 |
| Star Fire | 0,2 | 1 | 5-7 | 87 |
| Strike | 0,1,2 | 1 | 6-8 | 85 |
| Wrangler | 0,1,2 | 1,2 | 5-5.5 | 85 |
| Sarah's Choice | * | * | * | * |
| NH 2418 | * | * | * | * |

^z Seed suppliers: Harris Seeds (355 Paul Road; P.O. Box 24966; Rochester, NY 14624-0966), Johnny's Seeds (955 Benton Avenue; Winslow, ME 04901-2601), Seedway (99 Industrial Road; Elizabethtown, PA 17022), Stokes (Box 548; Buffalo, NY 14240-0548)

* Information not available.

Figure 1. Average number of fruit harvested per plot of melons grown at University of Maine, Highmoor Farm, Monmouth, ME and University of New Hampshire, Kingman Farm, Madbury, NH in 2007.

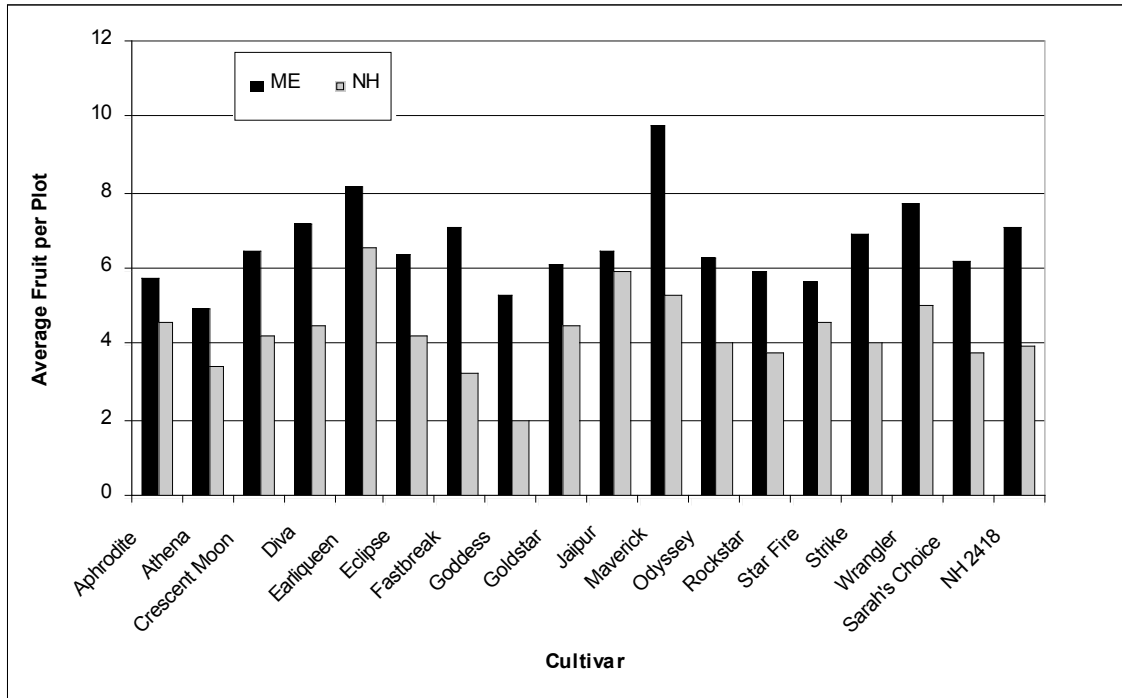


Figure 2. Average plot yield of fruit harvested from melons grown at University of Maine, Highmoor Farm, Monmouth, ME and University of New Hampshire, Kingman Farm, Madbury, NH in 2007.

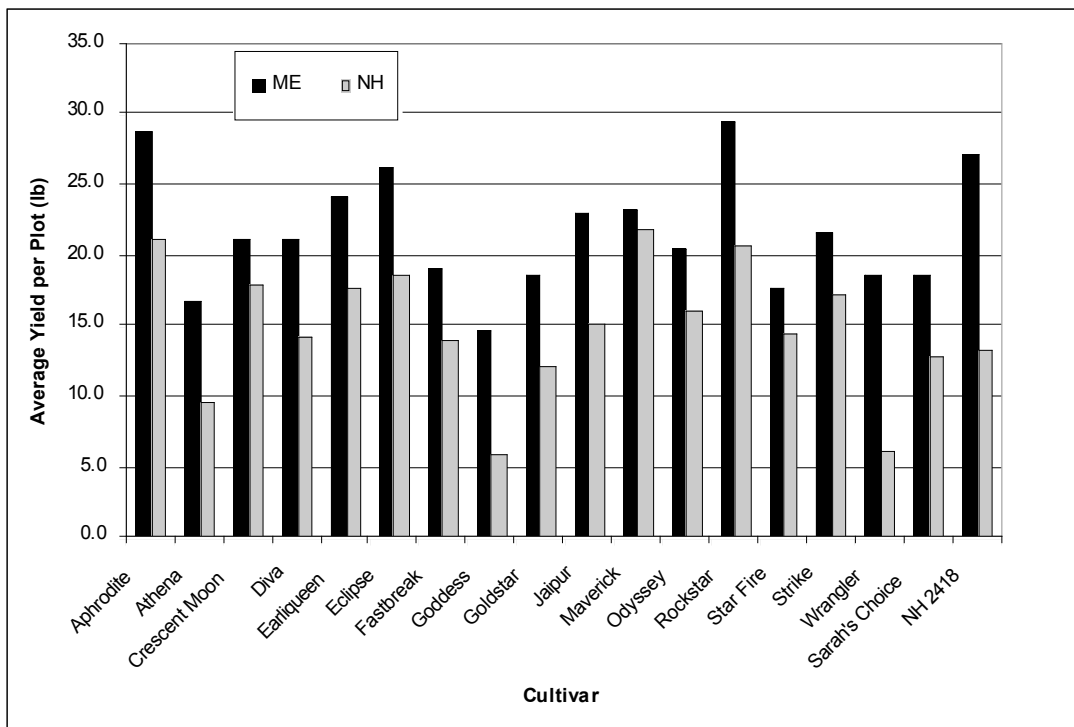


Figure 3. Average number of fruit per plot of melons grown at University of Maine, Highmoor Farm, Monmouth, ME and University of New Hampshire, Kingman Farm, Madbury, NH, receiving PlantShield® or no PlantShield® treatment.

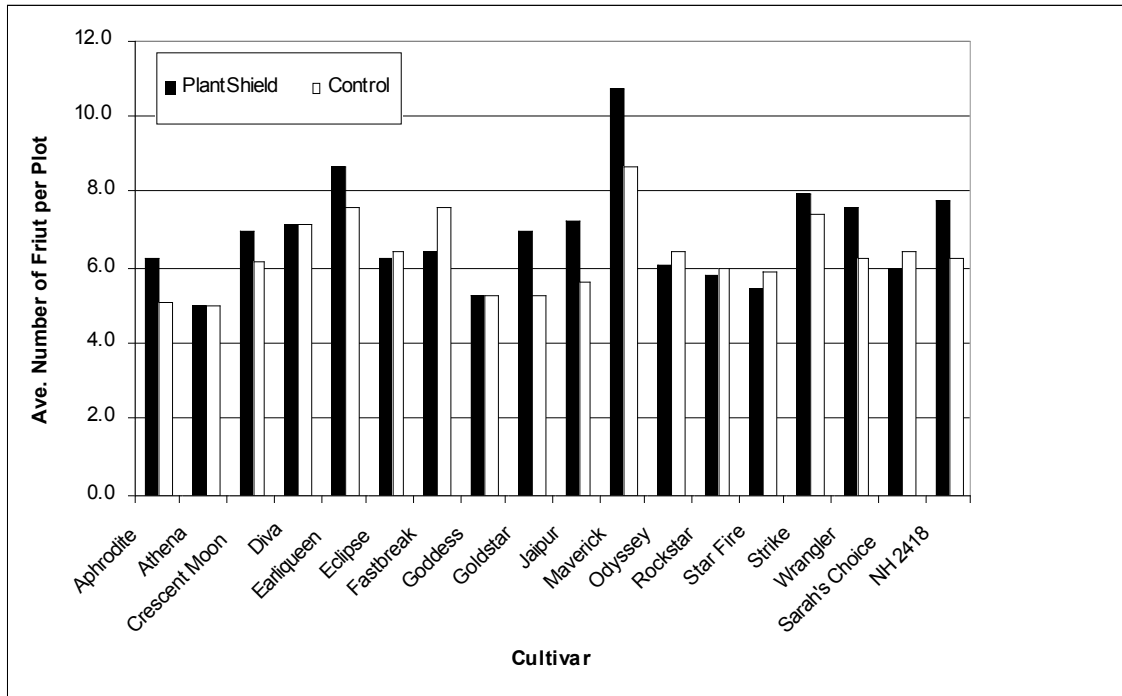


Figure 4. Average brix readings of melons grown at University of Maine, Highmoor Farm, Monmouth, ME and University of New Hampshire, Kingman Farm, Madbury, NH, receiving PlantShield® or no PlantShield® treatment.

