

Variety Trial Update

Feb 2022

General Methods

- Athens and Tifton
- Planted transplants last of Aug – first of Sept. 2021, 2022
 - 8 inch in row with double rows on 6 ft bed centers (21,780/acre)
- Overhead irrigation
 - Inoculated *Alternaria brassicicola* 3 weeks after planting (0.23×10^6 spores/mL)
 - Used a backpack sprayer



Variety trial

- 26 commercially available cultivars

| | Cultivar |
|----|---------------|
| 1 | Abrams |
| 2 | Asteroid |
| 3 | Lietenant |
| 4 | Green Magic |
| 5 | Expo |
| 6 | Hancock |
| 7 | Green Gold |
| 8 | Eastern Crown |
| 9 | Diplomat |
| 10 | Millenium |
| 11 | Emerald Crown |
| 12 | Vallejo |
| 13 | Luna |
| 14 | Gypsy |
| 15 | Belstar |
| 16 | Burney |
| 17 | Marathon |
| 18 | Eiffel |
| 19 | Imperial |
| 20 | Emerald Jewel |
| 21 | King Crown |
| 22 | Eastern Magic |
| 23 | Emerald Pride |
| 24 | Iron Man |
| 25 | Emerald Star |
| 26 | Avenger |

Disease during growth

- Foliar disease ratings during growth (0-100)
- At harvest we weighed plots and then scraped the beads off and did an evaluation for disease (0-100)



Disease during growth

- Large differences in foliar disease ratings –
 - Did not always match head ratings
 - Plants “grew out” of disease – dropped leaves and plants looked good as did heads – only after cutting heads did we find disease
 - Later varieties tended to do a bit better





Marathon



Green Gold

Disease spread during season



- Disease was present early in the season after inoculation, but really didn't take off until later October in both years

Cultivar Trials for *Alternaria* Resistance 2021

- Significant differences were determined between the locations
- Tifton showed higher head severity overall to Athens (46% compared to 37%)
- At both locations, Marathon, Vallejo, Emerald Pride, and Belstar showed low head disease severity.
 - Emerald Pride showed highest overall yield.
- Many cultivars showed medium disease severity (30-64%) but means separation ranking varied.
- Asteroid and Millennium showed high disease severity (>64% at both locations) and Eastern Crown performed the worst in Athens.

Tifton, GA

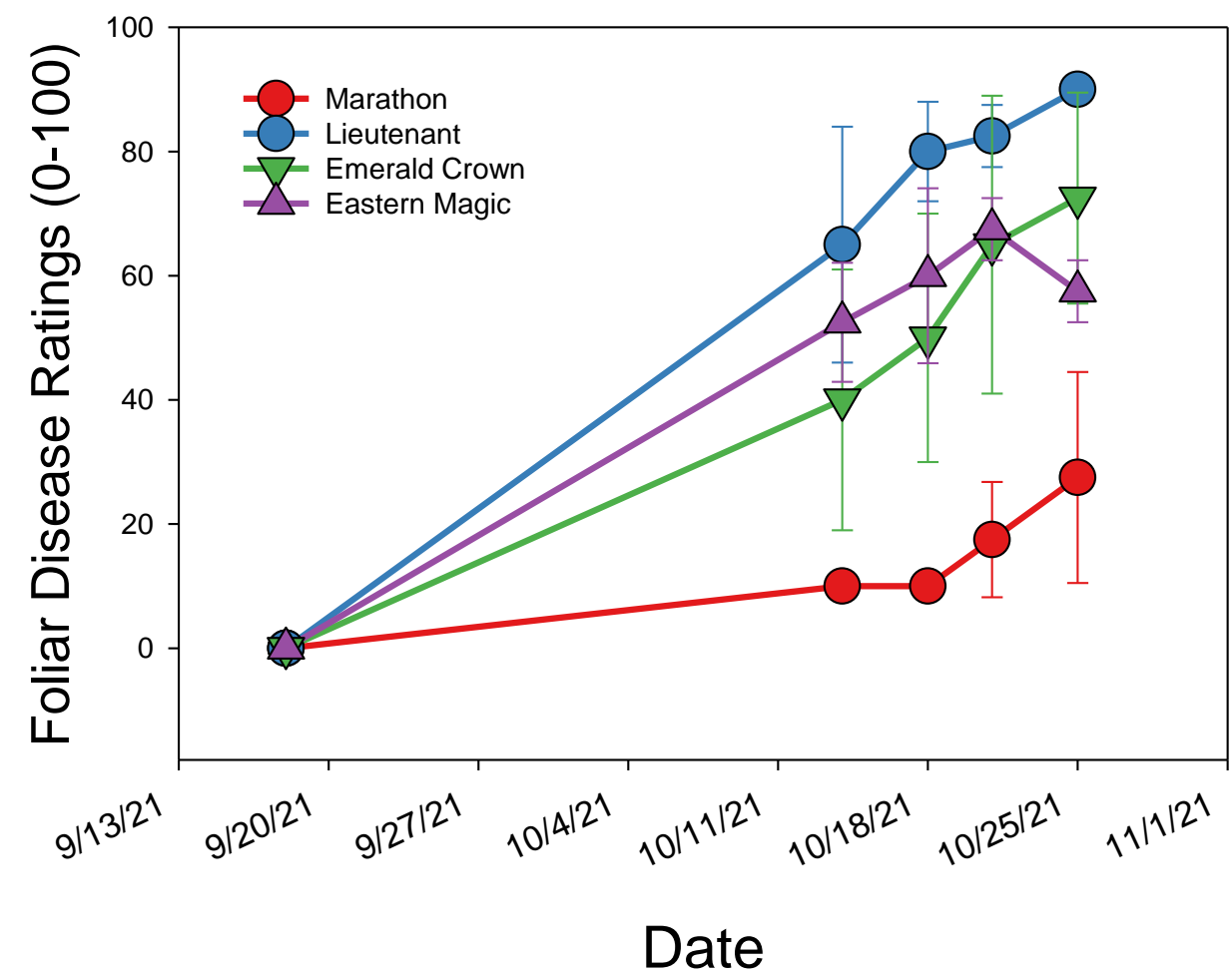
| Tukey's means separation | Cultivar | % Head Disease Severity | kg harvested per plot |
|--------------------------|---------------|-------------------------|-----------------------|
| a | Marathon | 2.7 | 6.2 |
| a | Vallejo | 5.6 | 7.4 |
| ab | Emerald Pride | 8.4 | 8.5 |
| abc | Burney | 17.5 | 7.6 |
| abcd | Expo | 17.8 | 1.5 |
| abcde | Belstar | 19.3 | 7.8 |
| abcde | King Crown | 22.9 | 3.4 |
| abcdef | Eastern Magic | 27.0 | 4.1 |
| abcdefg | Imperial | 41.2 | 6.8 |
| abcdefg | Gypsy | 41.8 | 7.7 |
| bcdefg | Avenger | 44.6 | 2.5 |
| cdefg | Diplomat | 48.9 | 6.8 |
| cdefg | Iron Man | 53.8 | 7.2 |
| cdefg | Emerald Jewel | 54.3 | 4.7 |
| defg | Green Magic | 55.2 | 7.2 |
| efg | Emerald Star | 58.1 | 6.1 |
| efg | Emerald Crown | 59.3 | 6.8 |
| fg | Green Gold | 59.8 | 7.8 |
| fg | Hancock | 60.2 | 6.1 |
| fg | Eastern Crown | 62.6 | 4.8 |
| g | Abrams | 64.1 | 5.2 |
| g | Asteroid | 65.4 | 4.2 |
| g | Millennium | 68.4 | 5.9 |
| g | Luna | 72.8 | 4.8 |
| g | Eiffel | 76.0 | 4.8 |
| g | Lieutenant | 77.8 | 4.3 |

Athens, GA

| Tukey's means separation | Cultivar | % Head Disease Severity | kg harvested per plot |
|--------------------------|---------------|-------------------------|-----------------------|
| a | Belstar | 0.3 | 6.5 |
| ab | Marathon | 1.2 | 6.6 |
| abc | Vallejo | 2.8 | 8.6 |
| abc | Emerald Pride | 5.6 | 9.1 |
| abc | Iron Man | 19.5 | 8.1 |
| abc | Hancock | 19.5 | 7.5 |
| abcd | Burney | 21.7 | 8.4 |
| abcde | King Crown | 25.5 | 5.6 |
| abcde | Avenger | 27.3 | 5.2 |
| abcdef | Gypsy | 29.7 | 8.7 |
| abcdef | Imperial | 30.8 | 8.3 |
| bcdef | Eastern Magic | 31.5 | 7.9 |
| cdef | Expo | 33.1 | 2.7 |
| defg | Emerald Star | 36.6 | 6.0 |
| defg | Diplomat | 38.6 | 8.5 |
| defgh | Emerald Jewel | 44.2 | 7.9 |
| defgh | Eiffel | 45.9 | 8.1 |
| defghi | Abrams | 48.0 | 6.8 |
| defghi | Lietenant | 48.1 | 8.7 |
| defghi | Green Gold | 52.4 | 7.9 |
| efghi | Luna | 53.1 | 7.9 |
| fghi | Emerald Crown | 60.5 | 7.9 |
| ghi | Asteroid | 64.2 | 7.5 |
| ghi | Millennium | 65.6 | 7.5 |
| hi | Green Magic | 76.6 | 8.5 |
| i | Eastern Crown | 80.6 | 6.5 |

Foliar and Head Relationships? Tifton

Example Cultivar Foliar Ratings



| | Head Disease Severity | Yield (kg plot ⁻¹) |
|---------------|-----------------------|--------------------------------|
| Marathon | 2.7 | 6.2 |
| Eastern Magic | 27 | 4.0 |
| Emerald Crown | 59.3 | 6.8 |
| Lieutenant | 77.8 | 4.3 |

Cultivar Trials for *Alternaria* Resistance

Lowest Head Disease Severity



Cultivar Trials for *Alternaria* Resistance

Highest Head Disease Severity

