BLACK RASPBERRY FOLIAR FERTILIZATION STUDY

Dr. Shawn Wright, Dr. Rafiq Islam, Al Welch, Christie Welch, Lynn Miller, Brad Bapst, Thomas Harker, and Brad R. Bergefurd,
The Ohio State University South Centers
1864 Shyville Road, Piketon, Ohio 45661-9749

This study evaluates the impact of nitrogen source and application methods on the yield of Mac Black and soil properties.

Methods:

Tissue cultured Mac Black raspberries (*Rubus occidentalis* L.) obtained from Nourse Farm⊗ were planted at the Ohio State University South Centers (Piketon, OH) on June 15, 2001. Six plants were randomly assigned to an individual plot. Final plot size of raised bed plots was 0.5'x3'x15' (HxWxL) plot with a rounded crown. Initial plot preparation occurred on June11, 2001 and included plowing, disking and rototilling the plot area to a depth of 10 inches. Soils are a Doles silt loam (fine-silty, mixed, mesic, Aeric Fragiaqualfs). Composted yard waste was broadcast at a rate of 2 tons/acre on the entire plot and then disked to incorporate it. Fertilizer was broadcast using a Viacon spreader after mixing at the rate of 145 lbs/acre P_2O_5, 91 lbs/acre K_2O, 0.5 lbs/acre boron and 5 lbs/acre zinc as recommended following soil testing. Landscape fabric (tightly woven polypropylene 5 oz. fabric needle punched and UV stabilized, and 98.7% opaque to light purchased from A. M. Leonard) was applied over the plot rows and planting holes 2.5'on center were cut with a propane torch. There is 3' between plots. Plants were hand planted and watered in using Peter's 9-45-15 @ 0.5 oz/gallon water. Drip irrigation tubing was installed over the landscape fabric and plants irrigated as necessary. Recommended pest management practices were followed to control weed, disease and insect pressure. The inter-row area (8') was mowed as needed.

Experimental design is a Latin Square with 4 reps of 4 treatments. Bristol and Jewel varieties are planted in the guard rows and receive standard fertilization.

Treatments

1 – The control is a split nitrogen application applied through drip irrigation following a standard application rate and source of nitrogen.

2 – Consists of foliar sprays

1st Spray	Nutrient Express 18-18-18 @ 5 #/acre + Cytokin @ 1 pint/acre + Greenstim @ 1 quart/acre + Nu-Film 17 @ 8 ounces/acre.
2nd Spray	Nutrient Express 18-18-18 @ 5 #/acre + Greenstim @ 1 pt./acre + Nu-film 17 at 8 oz/acre Repeat 2nd Spray every 10 days up until 5 days prior to harvest.
3rd Spray	Sugar Express 5 days prior to harvest @ 7 #/acre.

3 – drip irrigation and foliar fertilization

Early Spring	High NRG-N + 9-24-3 + Sure-K @ 5 gal/acre + Micro 500 @1qt/acre through drip tube
Early Fruit	Green and Grow @ 1qt/acre foliar
½-size Fruit	Calcium flavonol @ 1 qt/acre foliar
Post Fruiting	High NRG-N @ 5 gal/acre through drip tube

4 – drip irrigation and foliar

Spring	45# N through trickle drip tube.
From initiation to fruit set	10-10-10 every 10 days @ 2.5 gal/acre + 1 pt/acre trace mix foliar
Fruit set until final harvest	3-18-18 every 10 days @ 2.5 gal/acre foliar
Mid-September	3-18-18 @ 2 gal/acre foliar
1st week of October	3-18-18 @ 2 gal/acre foliar

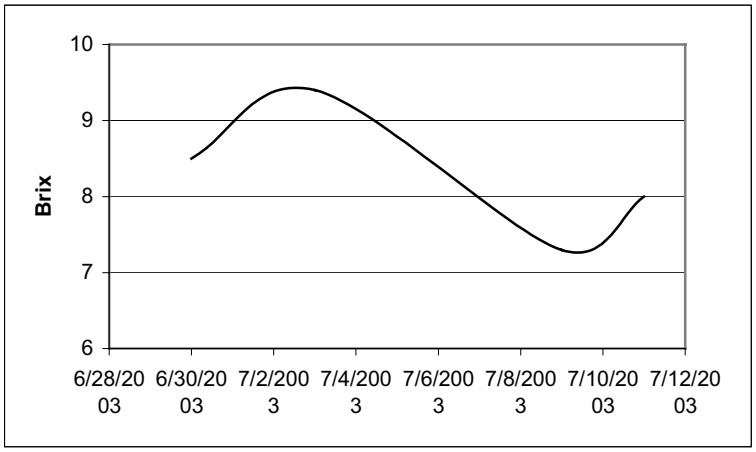
In 2002 floricanes were removed and fertilizer treatments applied following procedures listed above as primocane growth began. Standard pruning practices will be followed with except, primocanes will be thinned to maintain the same number of canes per each crown. Otherwise, canes will be tipped, and laterals and floricanes pruned according to standard practices.

Results:

Because of spatial variability within the plot area there was a significant plot by date and plot by treatment interaction for chlorophyll analysis.

There was no statistical difference in average berry weight (1.8 grams) based upon treatment.

There was no statistical difference for Brix based upon treatment, however there was a slight difference across dates. This is not unexpected given the unusually wet weather and the variation is small enough to be imperceptible by the consumer.



There was no effect of treatment on the marketable, cull, or total yield.

Table 1. Yield per treatment averaged across plots.

	1	2	3	4
June 30	702.4	511.3	649.6	916.9
July 3	882.2	611.3	913.5	728.2
July 7	78.0	61.1	71.1	63.4
July 9	248.0	276.8	270.6	162.2
July11	225.2	212.3	181.7	135.1
Total	2135.7	1672.7	2086.4	2005.7

Discussion:
This project will continue for several more years to evaluate the different fertilization programs.

⊗Mention of a specific variety or supplier does not constitute endorsement of materials or suppliers to the exclusion of other varieties or suppliers that may be suitable.