Riser fertilizer trial for watermelon transplants – Spring 2019

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Experimental design and crop management

Two experimental trials were conducted on the Tifton Vegetable Park at the University of Georgia, Tifton, GA, in the spring 2019. The objective was to evaluate the performance of Riser Fertilizer in watermelon seedlings (trial 1), and during the watermelon transplanting (trial 2). In both trials, treatments consisted in a **control**: where there was no application of Riser Fertilizer, **R-1**: where Riser Fertilizer was applied at label level, and **R-2.5** where Riser Fertilizer was applied at a rate 2.5 times higher than labeled recommendation (table 1).

Table 1. Treatment list used during the Riser Fertilizer trial for watermelon 2019.

Treatment	Description
Control	No product
R-1	1 gallon of Riser to 100 gallons of water
R-2.5	2.5 gallons of Riser to 100 gallons of water

Watermelon transplants were grown for 6 weeks in the greenhouse until treatment application at 04/29/2019. In both trials, treatments were arranged in a randomized complete block design with 4 replications. In the seedling trial, plots were comprised by 32 seedlings, while 4 watermelon plants comprised a plot in the transplanting trial. During the crop development, crop and past management practices followed the University of Georgia recommendations.

Both trials were evaluated at 05/29/2019. In the seedling trial, five watermelon seedlings were randomly selected for evaluation, while all plants of the transplanting trial were used for evaluation. Evaluations consisted on the measurement of aboveground height, root length, and leaf number.

Statistical analyses were performed using the software RStudio Version 3.5.1 (RStudio Team, 2018) to compare aboveground height, root length, and leaf number among treatments. When the *F* value was significant, multiple mean comparisons were performed using the Tukey-Kramer at a *p value* of 0.05.

Results

Seedling trial

There was no significant difference among treatments for root length in the seedling trial. However, the R-1 and R-2.5 treatments had higher aboveground height and number of the leaf than the control treatment (Fig. 1). Particularly, R-2.5 increased the leaf area index and seedlings were health for a longer period of time in trays than other treatments (Fig. 2 and 3).

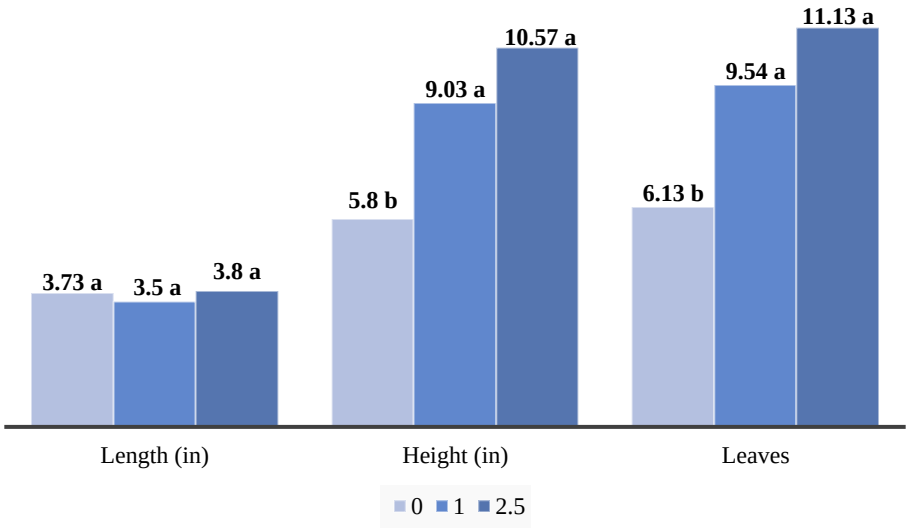

Figure 1. Average of the root length, plant height and number of leaves among treatments on seedling trial (0 = control, 1 = R-1, and 2.5 = R-2.5).

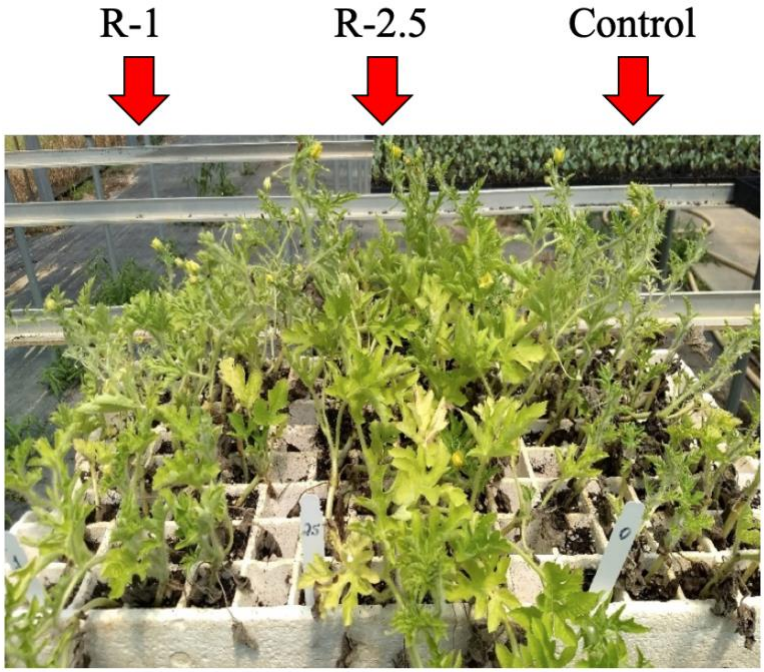

Figure 2. Visual difference of treatments on seedling trial.

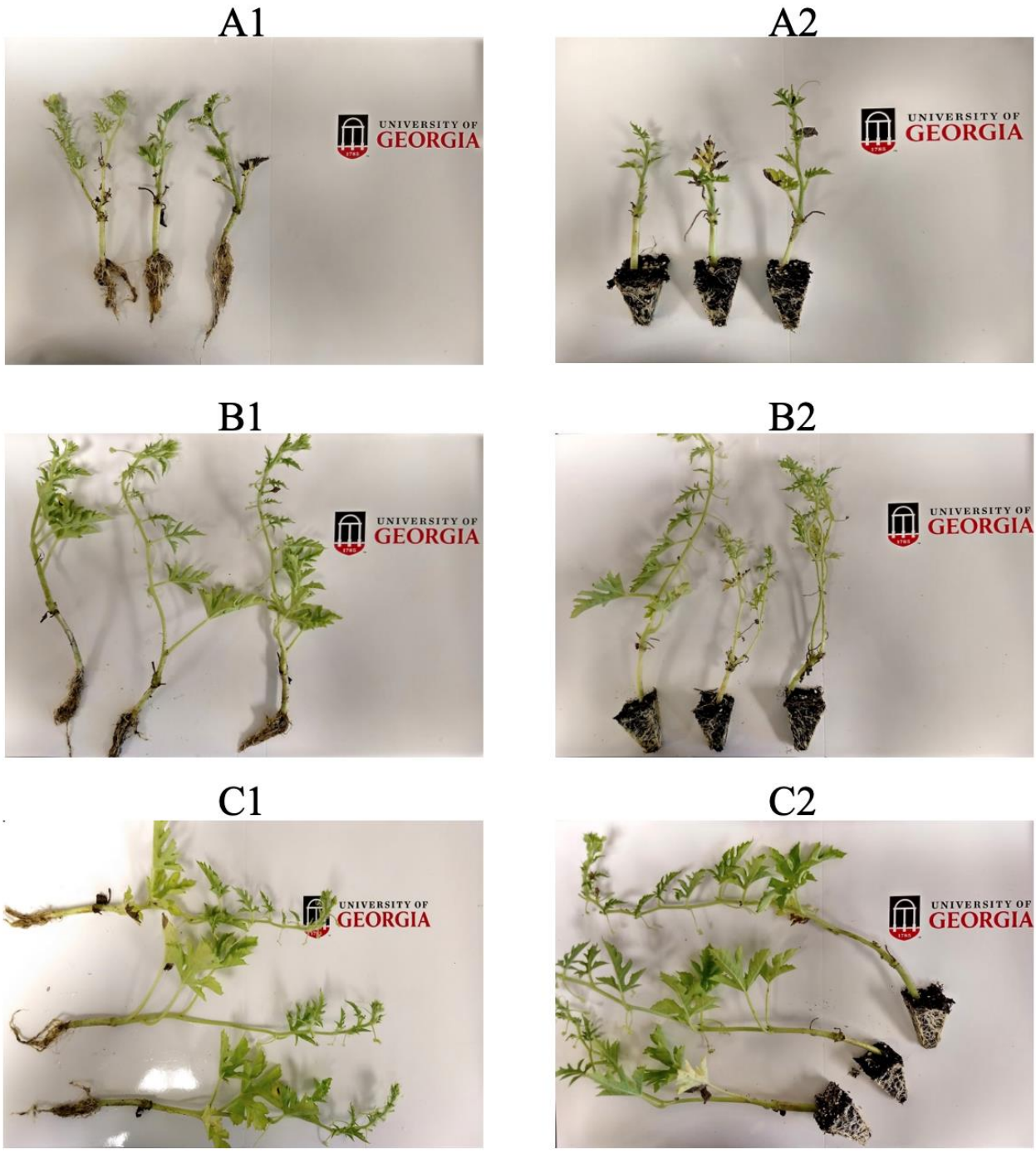

Figure 3. Difference on aboveground height and number of leaves of seedlings receiving the control treatment (A.1 and A.2), the R-1 treatment (B.1 and B.2), and R-2.5 treatment (C.1 and C.2).

Transplanting trial

Regarding the transplanting trial, the application of R-2.5 ensured higher aboveground height to watermelon plants than control and R-1 treatments. Similar results were no measure for root length and leaf number, and treatments had no significant differences (Fig. 4). Although there was no fertilizer application on control treatment, it was observed more stems and smaller leaves in the control compared to R-1 and R-2.5.

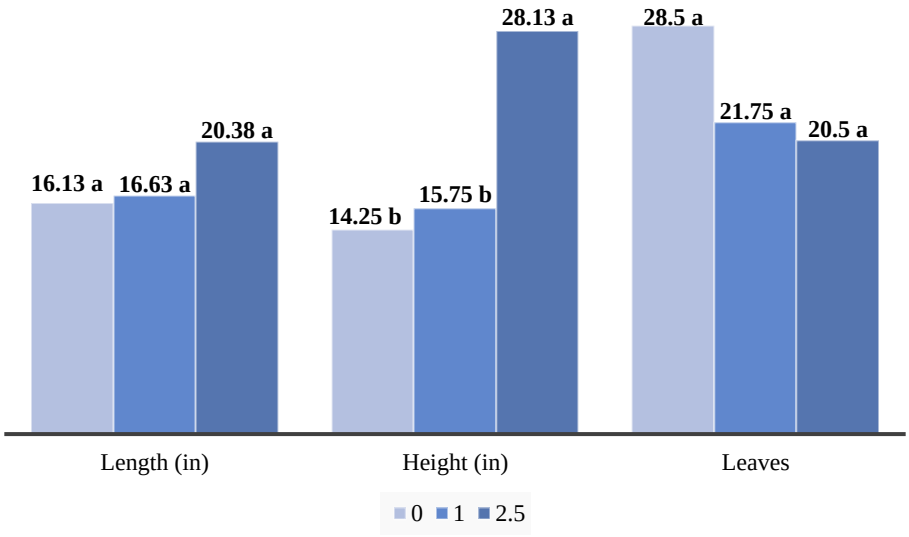

Figure 4. Average of root length, plant height and number of leaves among treatments on transplanting trial (0 = control, 1 = R-1, and 2.5 = R-2.5).

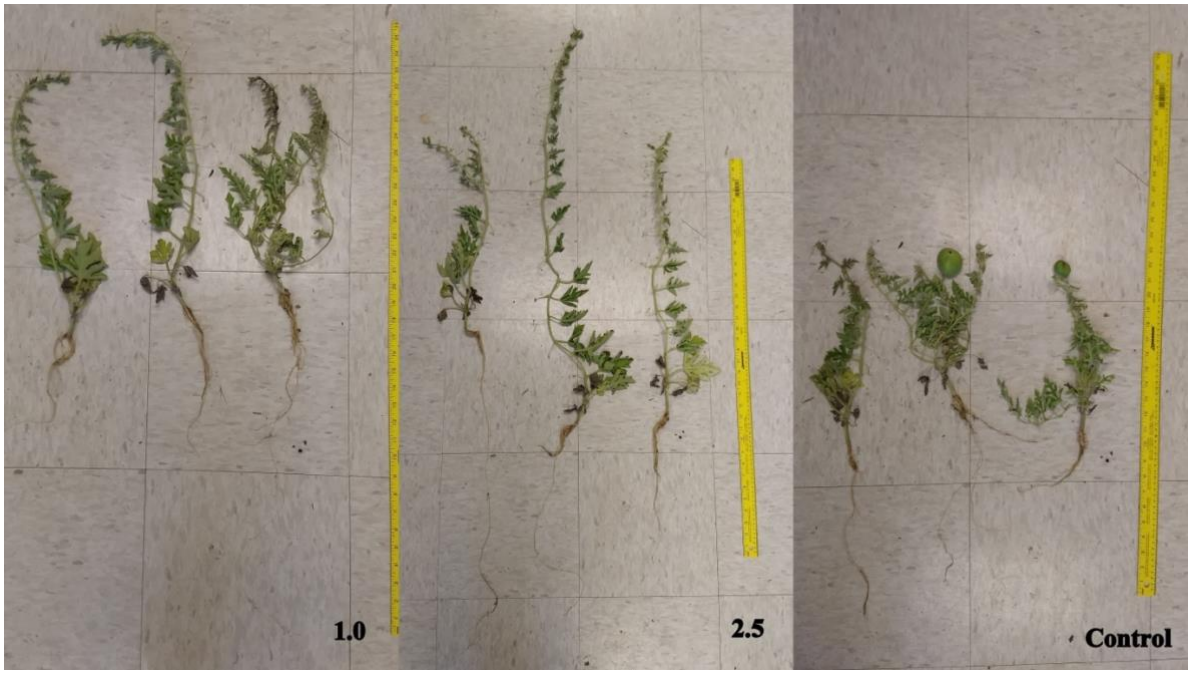

Figure 5. Difference on aboveground height and number of leaves of plants receiving the R-1, R-2.5, and control treatment.

Conclusion

Overall, treatments receiving the Riser fertilizer at any rate presented no injuries or damage on crop development. Contrarily, Riser fertilizer at label rate or 2.5 times higher than label rate performed better than the control. It should be highlighted that there was no fertilizer supplementation at seedlings or plants receiving the control treatment, and fertilizer application is strongly recommended on watermelon transplant. Thus, field experiments should be performed comparing the Riser fertilizer against other commercial products, before recommendations on fertilizer management for early stage watermelon being developed.