

Influence of Aquatrols AquaGro® L with PsiMatric™ Technology On Water Management and Crop Growth

(Horticultural Soils & Nutrition Consulting, Williamston, MI)

Research Cooperator: Dr. C. L. Bethke

Objective: To demonstrate the influence of incorporation and injection of AquaGro L with PsiMatric technology on water management and runoff in cycled wet to dry bedding plant production.

Study Details

Location:

Research Greenhouse, Williamston, MI

Materials:

- Substrate – Baccto Bark 2000 (peat and bark blend) with no surfactant.
- Containers – Trays of 12 x 4.5-inch (11.3 cm) pots.
- Crops – Plugs of Rudbeckia Daisy, New Guinea Impatiens, and Licorice Vine

Treatments:

- Untreated water on crops in substrate with AquaGro L incorporated at 4 oz./yd³. (TS/UW)
- AquaGro L at 10 ppm in irrigation on crops in substrate with no surfactant. (US/TW)
- AquaGro L at 10 ppm in irrigation on crops in substrate with AG L incorporated at 4 oz. (TS/TW)
- Control – Untreated water on crops in untreated substrate. (US/UW)

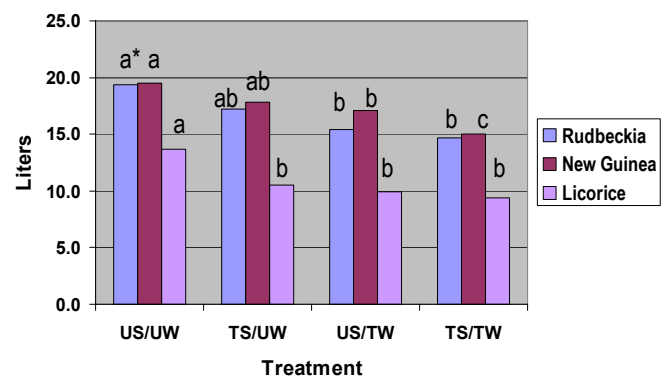
Trial year:

- 1999

Information collected:

- Total water used to grow crop
- Amount of run-off and leachate
- Frequency of watering
- Amount absorbed
- Crop growth measurements

Total Water to Grow Crop

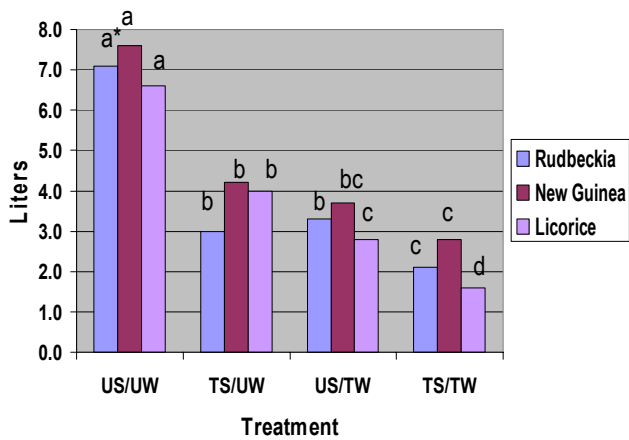


Results

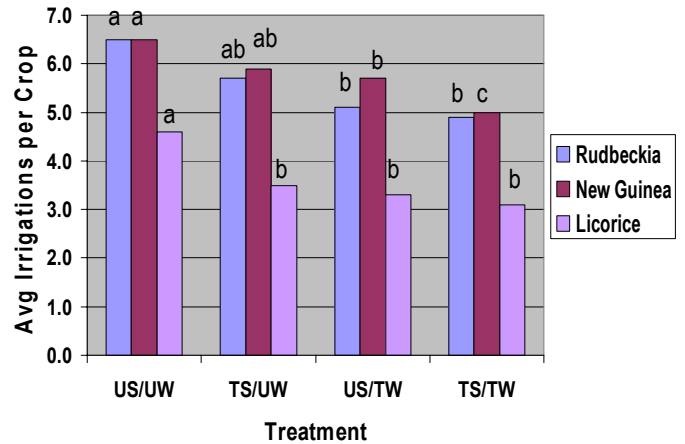
- Both incorporation into substrate and continuous injection had positive effects.
- Total water used was reduced an average of 26% per crop when AquaGro L was incorporated in substrate and applied in irrigation.
- Average run-off and leachate volume was reduced between 41% and 59% with AquaGro L.
- A significant reduction in number of irrigations and total water used to grow the crops was achieved across all crops.
- The total amount of water absorbed did not vary, however AquaGro L allowed significantly more water to be absorbed per irrigation.
- AquaGro L appeared to help plants better tolerate water stress.

(continued on next page)

Run-off and Leachate Volume



Average Number of Irrigations



* Treatment combinations per crop followed by different letters are statistically significant for that crop at p=0.05.

Conclusion

Aquatrols AquaGro L with PsiMatric Technology significantly improves water management efficiency by increasing the interval possible between irrigations, increasing ease of rewetting and water absorption and decreasing water and fertilizer runoff. Best performance was observed when the surfactant was both incorporated into the substrate and injected into applied water.