Role of micro-sprinklers in water conservation and pest and disease management in Strawberries

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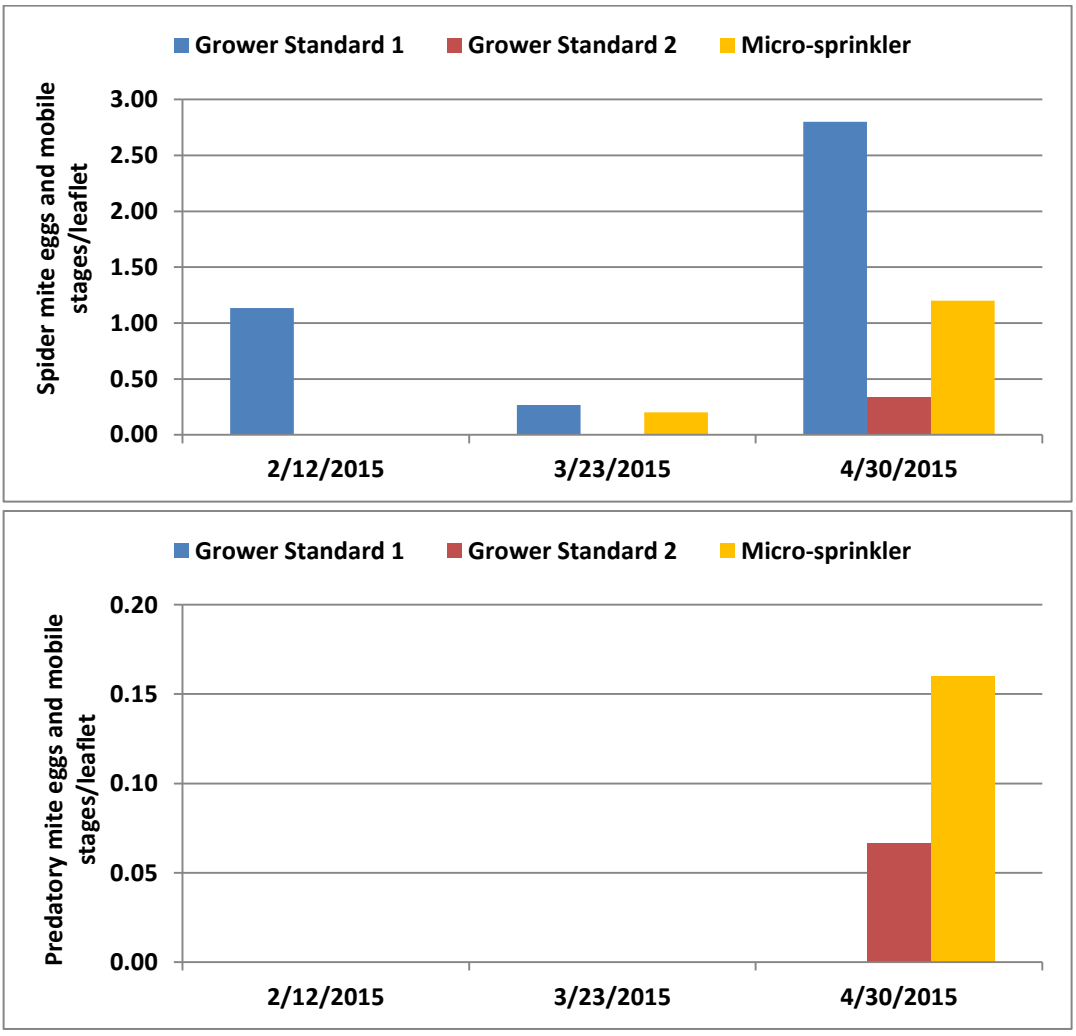
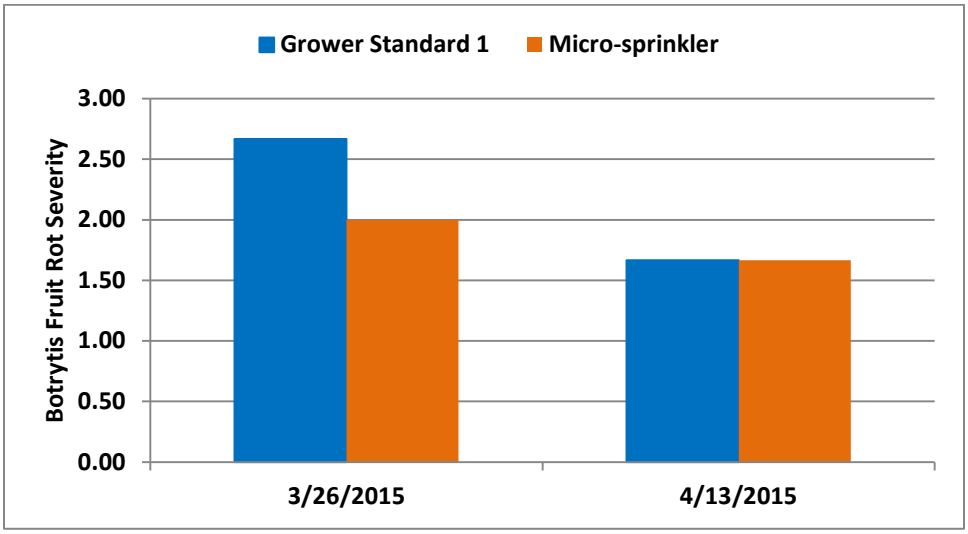
Strawberry crop is grown with a drip irrigation system, but overhead sprinkler irrigation is used during the initial few weeks after planting to leach out the salts from the root zone and to help with plant establishment. A significant amount of water and effort is required for traditional sprinkler irrigation with aluminum pipes. Micro-sprinklers, which are commonly used in orchard systems, could play an important role in strawberry production with the potential to reduce water use and also aid in the management of spider mites and foliar and fruit diseases.

Treatments included i) Grower standard 1, ii) Grower Standard 2, and iii) Micro-sprinkler. Grower standard 1 is far from the micro-sprinkler plots and is on a different irrigation valve. Grower standard 2 is closer to the micro-sprinkler plots.

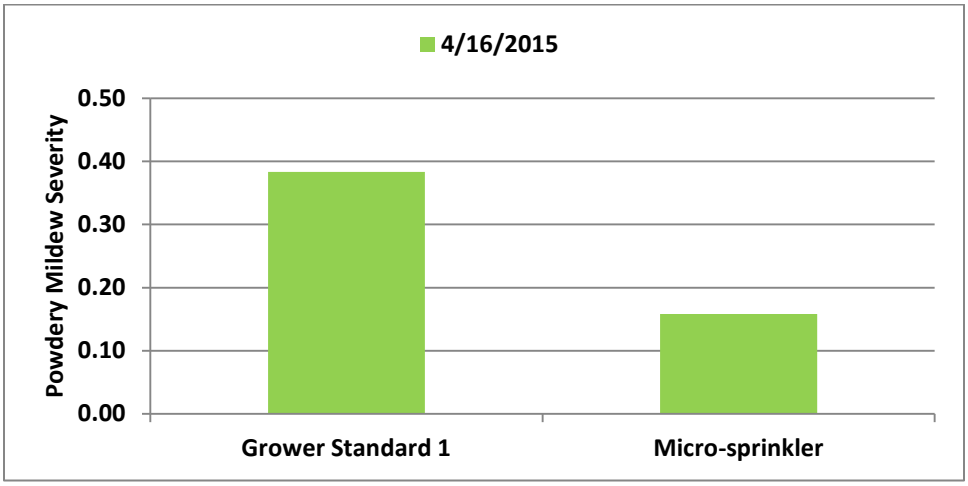
A. Twospotted spider mite and predatory mite populations



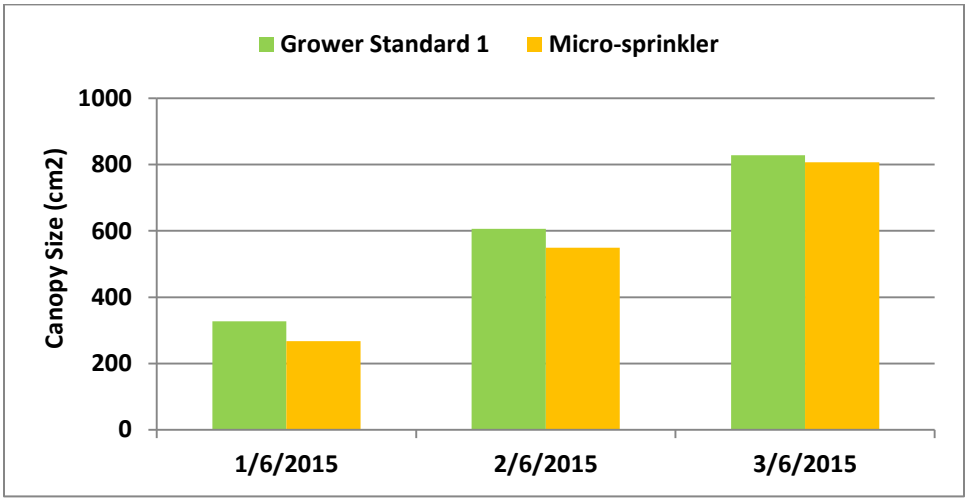
B. **Botrytis severity 3 days after harvest (0=None, 1=1-25%, 2=26-50%, 3=51-75%, and 4=76-100%)**



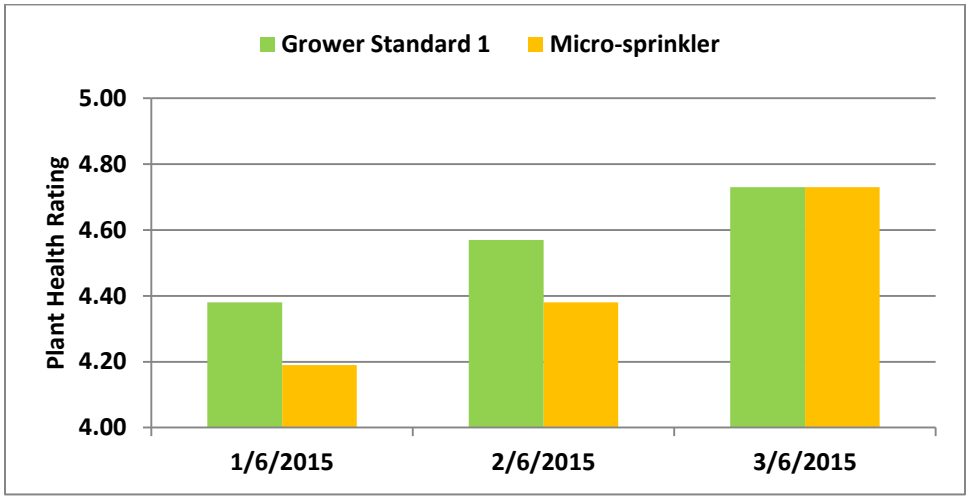
C. **Powdery mildew severity (0=None, 1=1-25%, 2=26-50%, 3=51-75%, and 4=76-100%)**



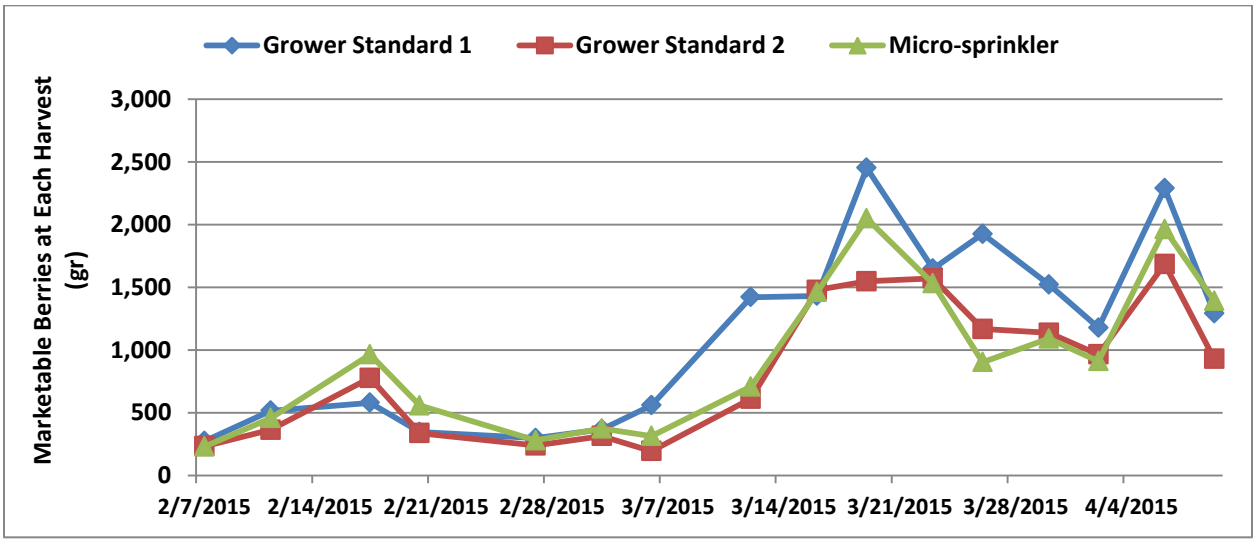
D. **Size of the plant canopy**



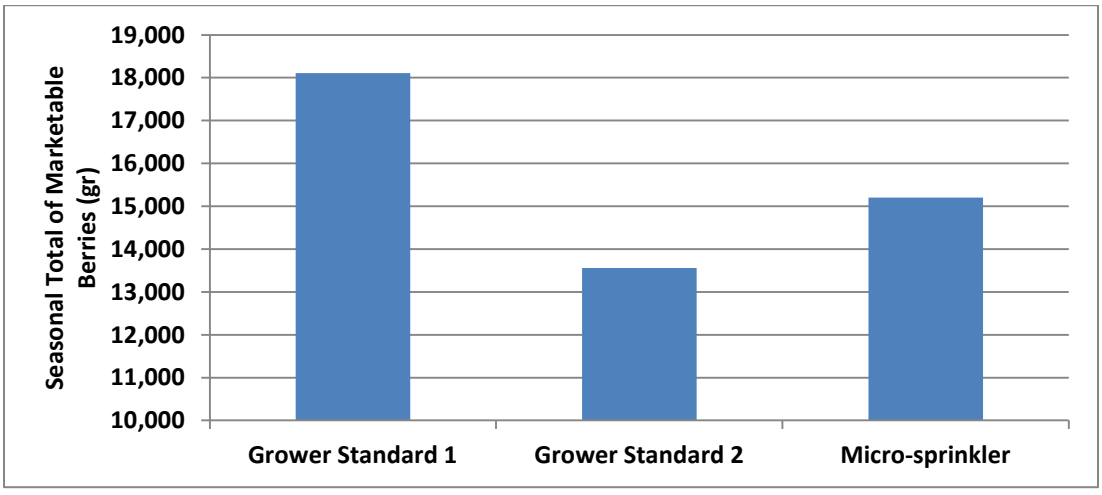
E. **Plant health rating (0=Dead, 1=Weak, 2=Average low, 3=Average high, 4=Good, and 5=Very good)**



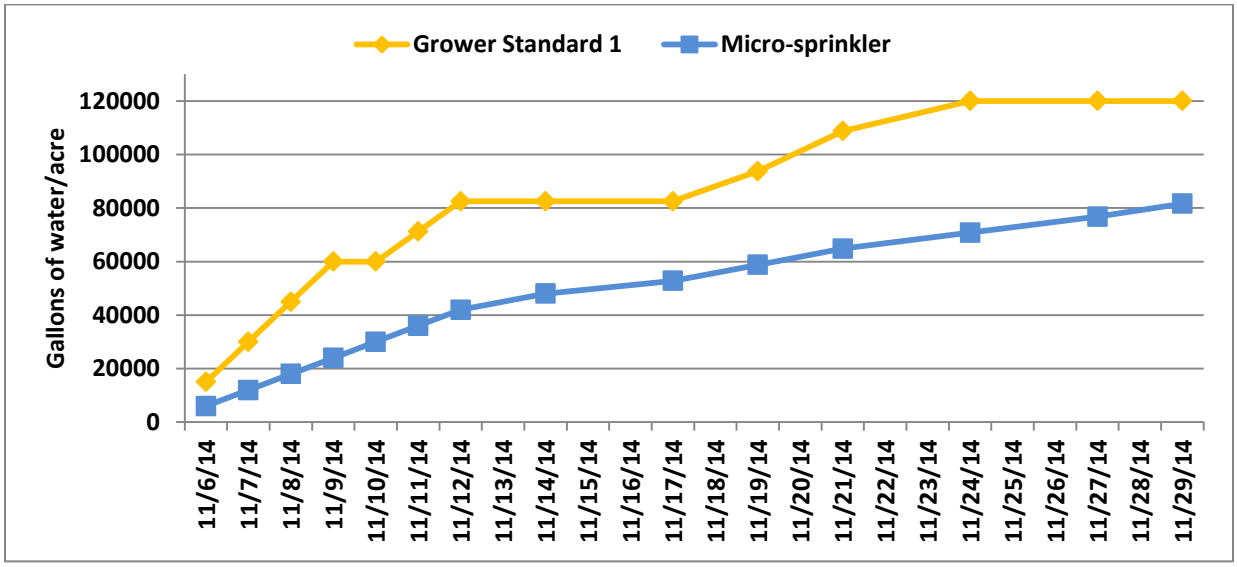
F. **Marketable strawberries on individual harvest dates from early February to early April.**



G. **Total marketable strawberry yield from early February to early April.**



H. Cumulative irrigation volume during three weeks of November, 2014.



Conclusions based on results obtained so far:

A. Spider mite populations are very low to measure the impact of micro-sprinklers.
B. Micro-sprinklers seem to have an impact on the severity of botrytis fruit rot and powdery mildew.
C. Marketable strawberry yield also seemed to be influenced by micro-sprinklers.
D. Micro-sprinklers contributed to a 32% reduction in irrigation water compared to the standard aluminum sprinklers during the first three weeks after planting.

Observations will continue to further evaluate the benefits of micro-sprinklers in strawberry production and pest and disease management.

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