

Justification

The use of low input alternative groundcovers for landscapes in the low desert southwestern U.S. is gaining interest. Identifying a locally acceptable groundcover that can be grown and managed with minimum amounts of water and low maintenance requirements will help the southwestern U.S. green industry, golf courses, and landscape designers to save water, reduce energy, labor, and money.

Objectives

1. Develop local research-based information for the feasibility of growing a new groundcover, Kurapia,
2. Evaluate the performance of Kurapia under various rates of drip irrigation,
3. Enhance the turf and landscape managers' awareness about the characteristics of Kurapia.

Methods

White and pink flowered varieties of Kurapia were transplanted from a single 3.8-liter pot into plots measuring 3m by 3m on 13 May 2019. Both varieties were established and sustained during the first year with pre-existing overhead irrigation. In the second year, the two varieties were watered at three levels of drip irrigation: high – 80%, medium – 40%, and low - 20% of water typically applied to bermudagrass. The experiment was established as a 2 x 3 factorial arranged in a randomized complete block design with four replications. Data were collected for Kurapia greenness, flower shedding, and growth rates. Digital image estimates of percent greenness were taken using a mobile phone application, Canopeo®. Green canopy cover values obtained using the Canopeo® app were compared with visual observations. Data were analyzed using JMP ver. 14.3 statistical software and means compared using Student's t-test.

Conclusions

- Both white and pink flower varieties of Kurapia survived 100% and successfully established under low desert Arizona conditions;
- The potential of Kurapia as a groundcover in low desert southwest is promising;
- Once established, Kurapia can be grown at a low irrigation rate that is 40% of water typically applied to bermudagrass when using surface drip irrigation;
- Kurapia remained green throughout the year with low rates of application of water, maintained desired aesthetic value during winter, and eliminated cost of turf overseeding.

Results

- Three months after planting, the white flower variety covered 98% of the plot area and measured 5.1 cm in height while the pink variety covered 72% plot area and measured 8.6 cm in height.
- During the second year, the quality of Kurapia significantly declined when irrigated at 20% compared to the 40% and 80% levels.
- There was no significant difference in Kurapia quality between the 40% and 80% levels of irrigation.
- Once established, Kurapia can be irrigated with 40% of water typically applied to bermudagrass when using surface drip irrigation under low desert Arizona conditions.

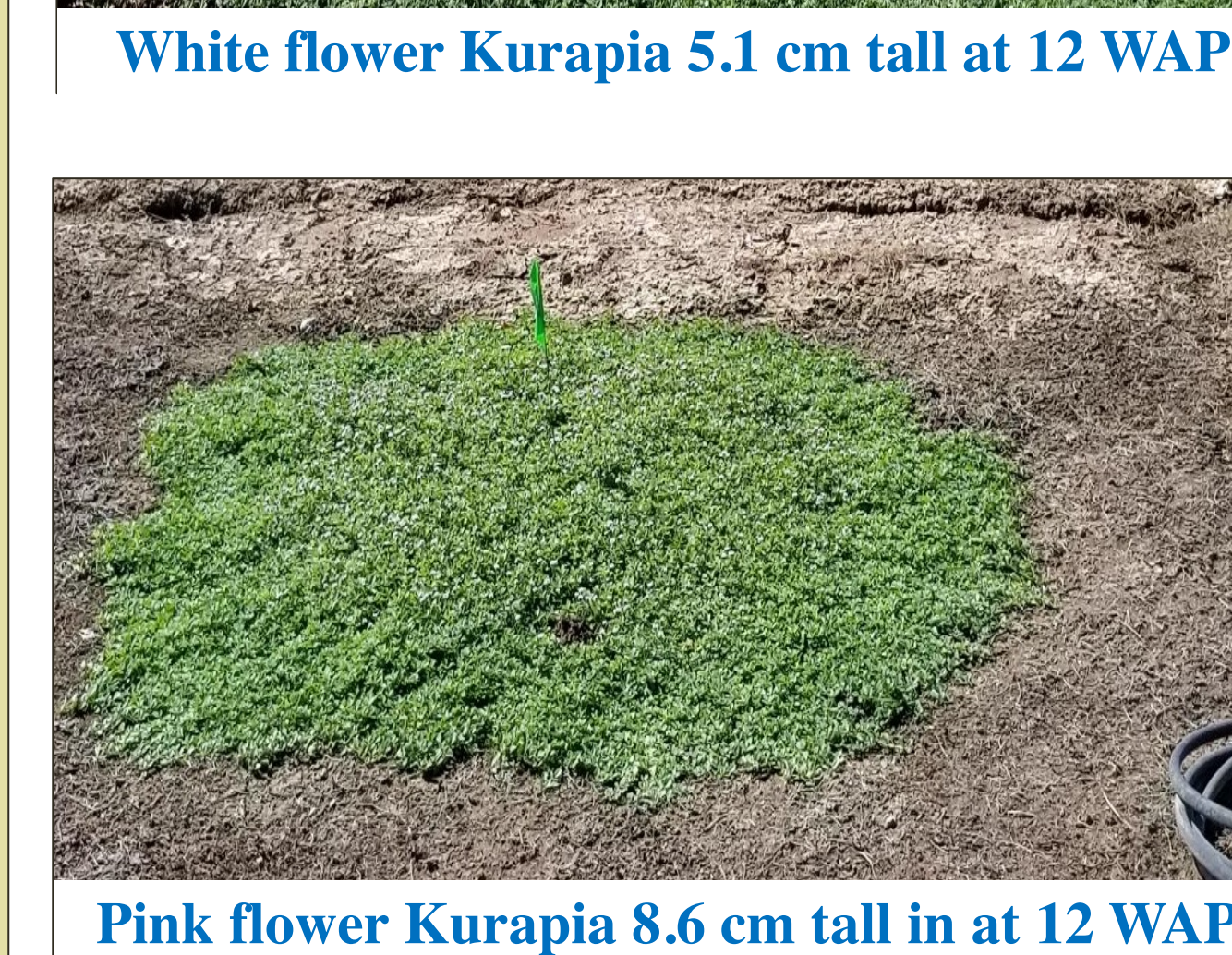
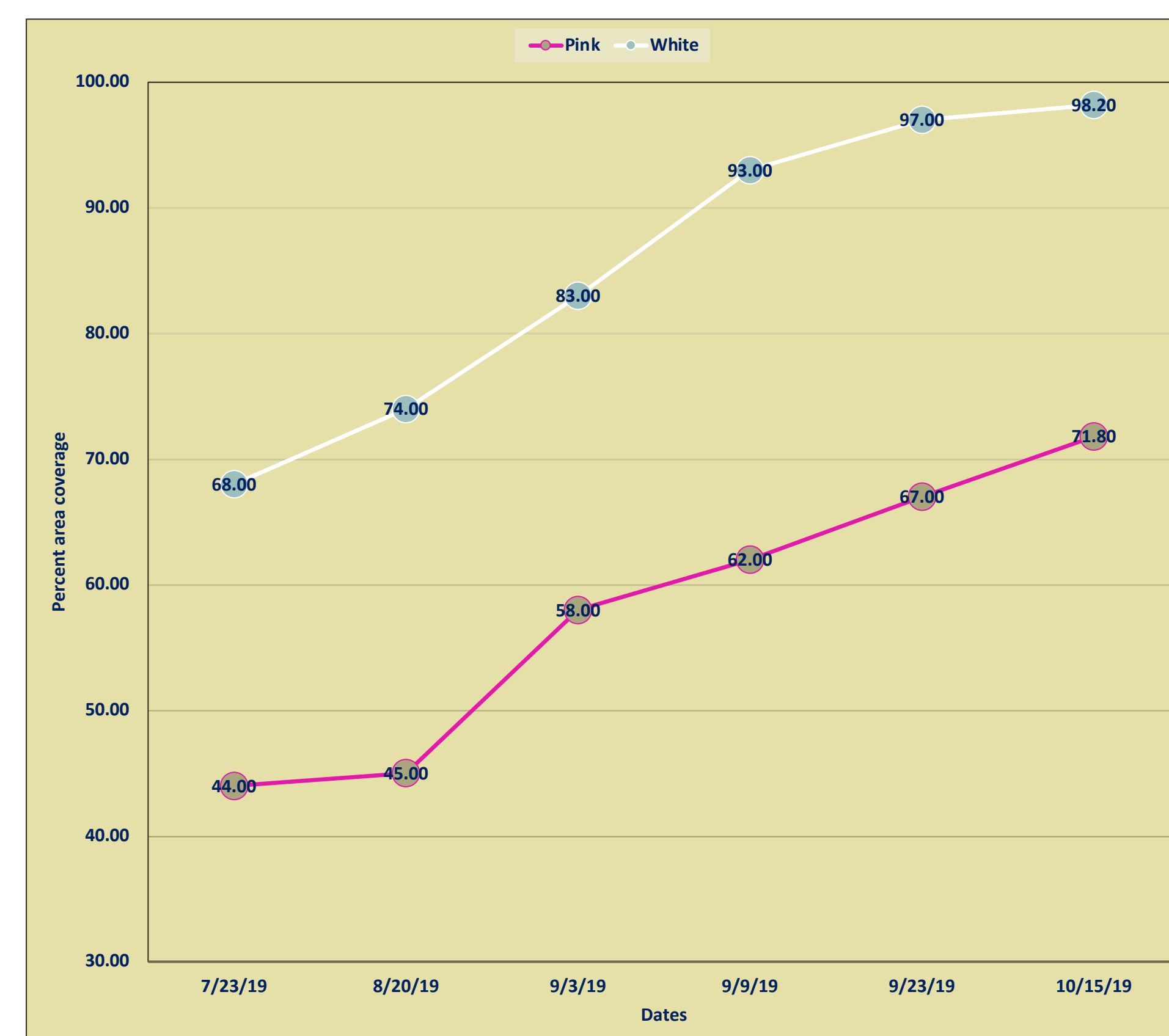


Figure 1. White and pink flowered varieties of Kurapia covered surface area (left) and height (middle) in Litchfield Park, AZ in 2019. The ability of Kurapia groundcover to suppress weeds and remain green compared to turfgrasses at Phoenix, AZ in February 2019 (right).

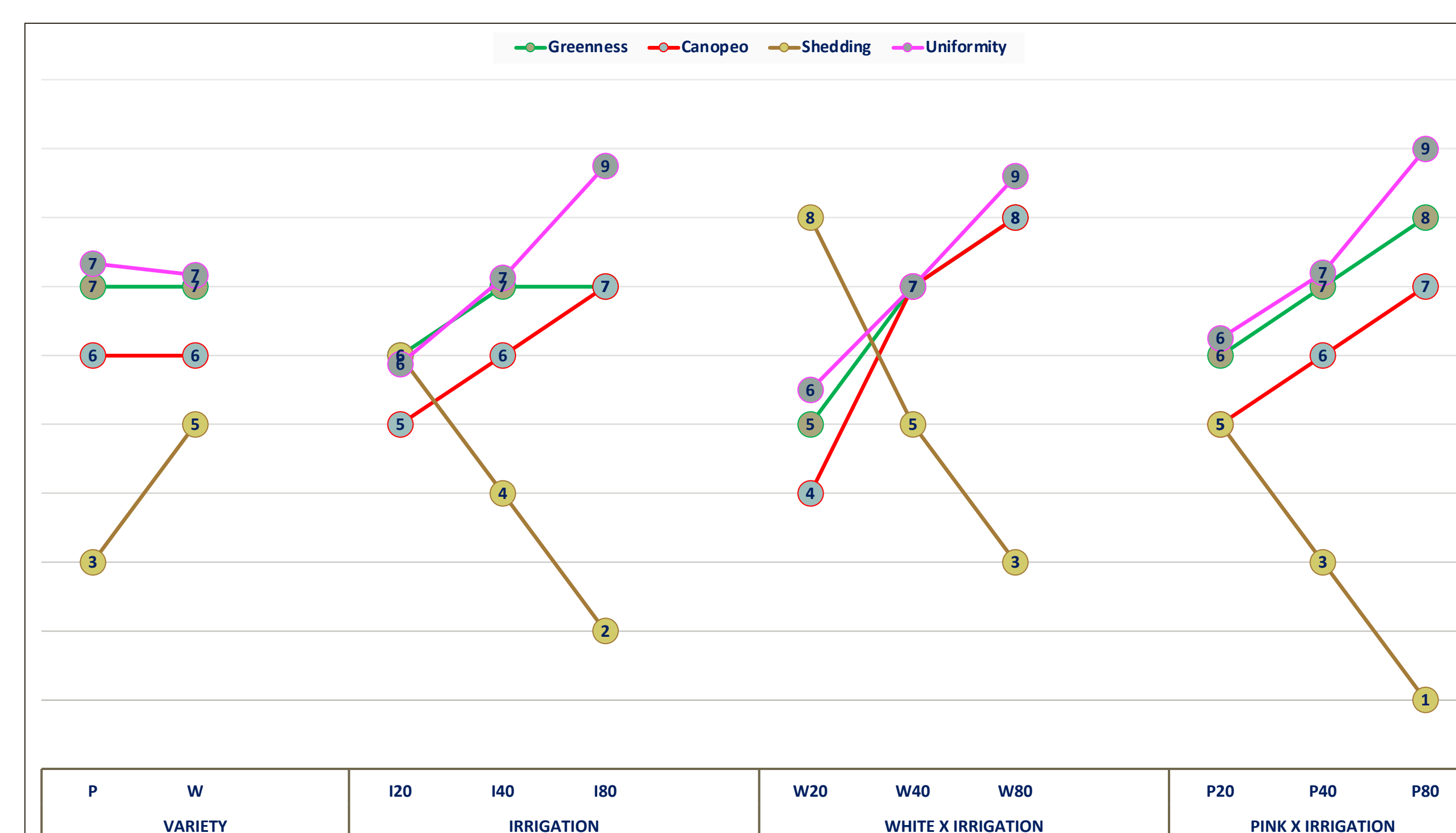


Figure 2. Greenness, uniformity, and flower shedding of Kurapia at irrigation rates of 20, 40, and 80%.

Variety – P=pink, W=white; Irrigation - I20=20%, I40=40%, I80=80%

Greenness - 1 = brown or yellow, 5 = light green, 9 = dark green); flower shedding - 1 = 10% shedding, 5 = 50% shedding, 8 = 80% shedding

Acknowledgements

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