Title: Heading Height for Primocane and Timing of Floricane Removal in Apache Blackberry

Final Report SRSFC – Extension Proposal

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Objectives:

1. To investigate the impact of primocane topping height and cane support on yields during the floricane year
2. To determine the effect of time of floricane removal on primocane growth and fruiting on floricanes

Justification:

1. For erect-type thornless blackberry cultivars, the suggested topping height for primocanes is approximately 40 inches. Raising the topping height to approximately 65 inches has been proposed to increase yields. However, when primocanes are topped at this height, some type of support for them is needed as the leverage exerted on canes when leafed out may be sufficient to cause breakage. It was also decided to investigate whether supporting canes when topped at 40 inches might have an impact on yields.

2. The timing of floricane removal following harvest was investigated to determine if it had an impact on primocane growth and fruiting on floricanes. From a pest control standpoint and ease of working in the planting, removing floricanes immediately after harvest offers benefits. However, if floricanes remain photosynthetically active after harvest, they might contribute to more primocanes, increased primocane growth and increased fruit bud initiation resulting in increased yields the following year.

Methodologies:

Work was done in an 8-year-old planting of Apache blackberries at the Plateau Research and Education Center in Crossville, TN.

1. Primocane topping height and the use of support systems. The support system was a simple

vertical trellis with the lower wire at 30 inches aboveground and the upper wire at 60 inches aboveground. The three treatments used were:

- topping primocanes at 40 inches and no support
- topping primocanes at 40 inches and supporting canes
- topping primocanes at 65 inches and supporting canes

2. Timing of floricane removal. The three treatments used were:
   - removal of floricanes immediately following fruiting (last harvest was August 3)
   - removal of floricanes on Oct. 3 (this time is generally after at least one significant frost has been received at the Plateau Research & Education Center in Crossville, TN)
   -removal of floricanes prior to the initiation of new growth in spring (January 3 was selected for this treatment)

Fruit was harvested twice a week beginning on July 5, 2011 and ceasing on August 3, 2011. Weights were recorded for all treatments at each harvest date.

Results: A 20 foot section of row was used for each treatment. A summary of the results is shown below:

Effect of Time of Floricane Removal and Primocane Topping Height on Yield

	Yields (pounds)			
Time of Floricane Removal	**Primocane Topping @ 40" with No Cane Support**	**Primocane Topping Height 40" with Cane Support**	**Primocane Topping Height 65" with Cane Support**	**Total**
Immediately Postharvest	38.10	22.95	41.42	**102.47**
October 3, 2011	35.73	40.36	16.65	**92.74**
Jan. 3, 2012	11.50	48.82	45.80	**106.12**
Total	**85.33**	**112.13**	**103.87**	**301.33**

Conclusions:

Floricane removal:

Floricane removal on Jan. 1 resulted in higher yields than when floricanes were removed immediately after harvest or on October 3. However, floricane removal immediately following the last harvest resulted in yields substantially above the October 3 floricane removal date and only slightly below those of January 3. Floricane removal immediately after harvest did make working in the planting easier. Removal of pruned floricanes was easier and the potential for

damage to primocanes was less than later in the season. Due to relatively dry conditions throughout the growing season, disease incidence did not appear to be greater in the plots where primocanes were allowed to remain until fall or winter. However, floricane removal as soon after harvest as possible should be considered, especially for plantings being managed as organic.

Topping height and support systems for primocanes: Based on this trial, topping primocanes higher did not appear to give a yield advantage; however, providing cane support for primocanes even when they are topped low (40 inches) did appear to have a beneficial impact on yields. Even where primocanes were topped low (40 inches), cane breakage appeared to be greater than with either or the supported treatments did. If a planting was located in a site having fairly persistent, strong winds, cane support should be regarded as an essential practice.

Results from this demonstration would suggest a need for further study on primocane topping heights and training systems. Little difference was seen in regards to the number of lateral branches in regards to primocane topping heights. It may be worthwhile to consider fertilizer regimes when considering primocane topping heights.

Impact Statement:
Support systems will be recommended for all blackberry thornless plantings, even those with lower primocane topping heights especially in sites subject to constant or strong winds. The rationalization for this recommendation is as follows: Wherever possible, row orientation for blackberries should be north-south as the reduced mutual shading within the canopy should lessen disease pressure and potentially increase yields as has been found to be the case with other crops. However, such orientation means that rows may run perpendicular to prevailing westerly winds and the potential for cane damage due to wind, especially following rains sufficient to loosen and soften the soil, exists. A support system would be a hedge against this.

Citations:
None to date