Blackberry Production in Missouri: Research Results

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Your presenter

Outline

- Introduction
- Advantages of the RCA trellis
- Brief overview of RCA trellis management
- Advances in training techniques
- Conclusion

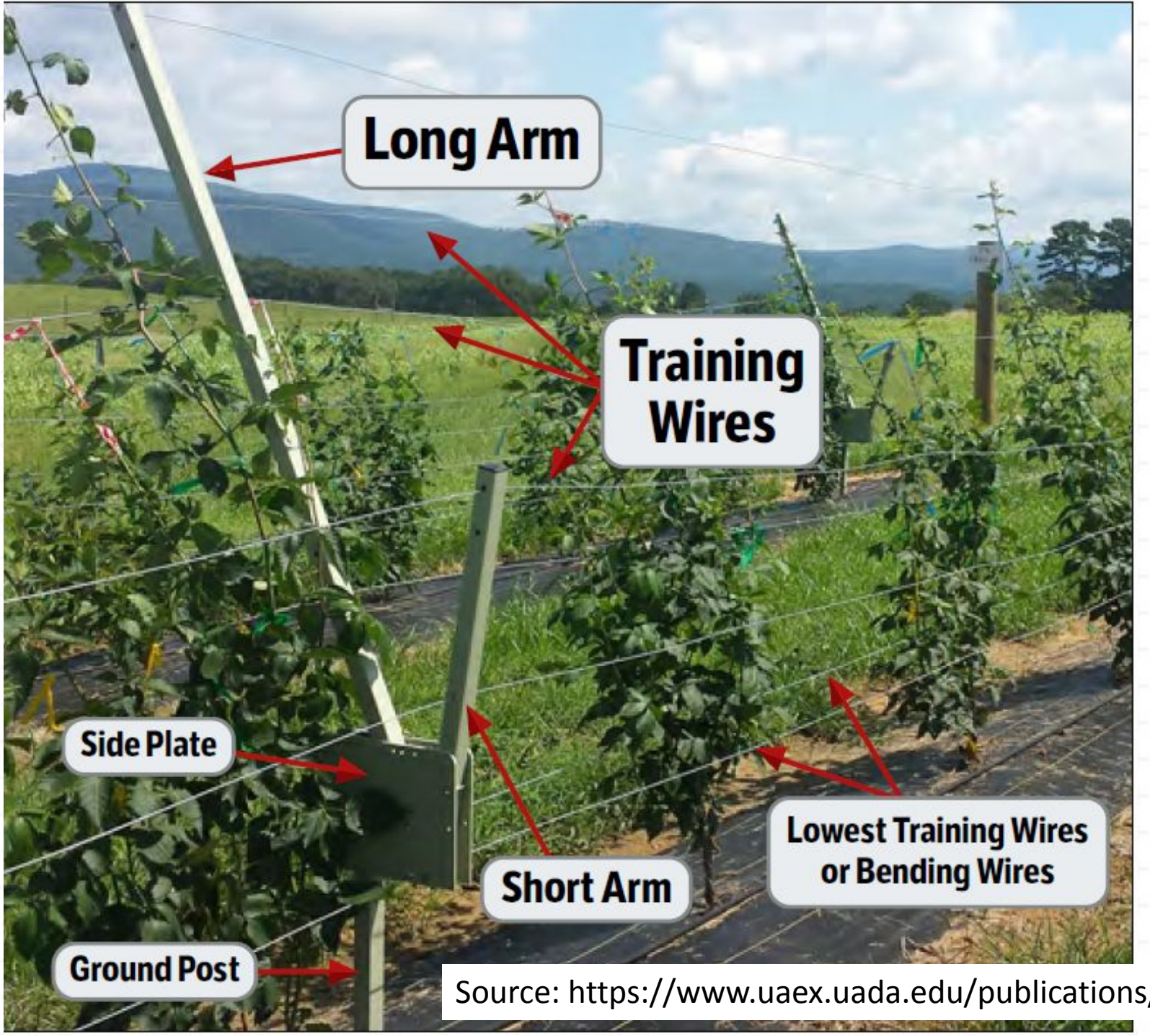
RCA Trellis

- Advantages
  - Easier and efficient harvest, all fruit is on one side of the canopy.
  - Improved productivity
  - Enhanced control of SWD and diseases
  - Less sunscald, fruit is in the shade
  - Winter protection and spring frost protection.
- Disadvantages
  - Expensive.
  - Harder to learn how to train and prune.
  - **Management intensive**
- **High input, but high reward!** (Dr. Gary Gao, OSU)

RCA Trellis

- History
  - Dr. Herb Stiles – Virginia Tech, 1970's-1980's
  - Dr. Fumi Takeda – USDA Kearnesville
  - Trials across US
  - Recent developments at University of Arkansas

Dr. Fumi Takeda, USDA (https://ohioline.osu.edu/factsheet/anr-0104)



Source: https://www.uaex.uada.edu/publications/MP575.pdf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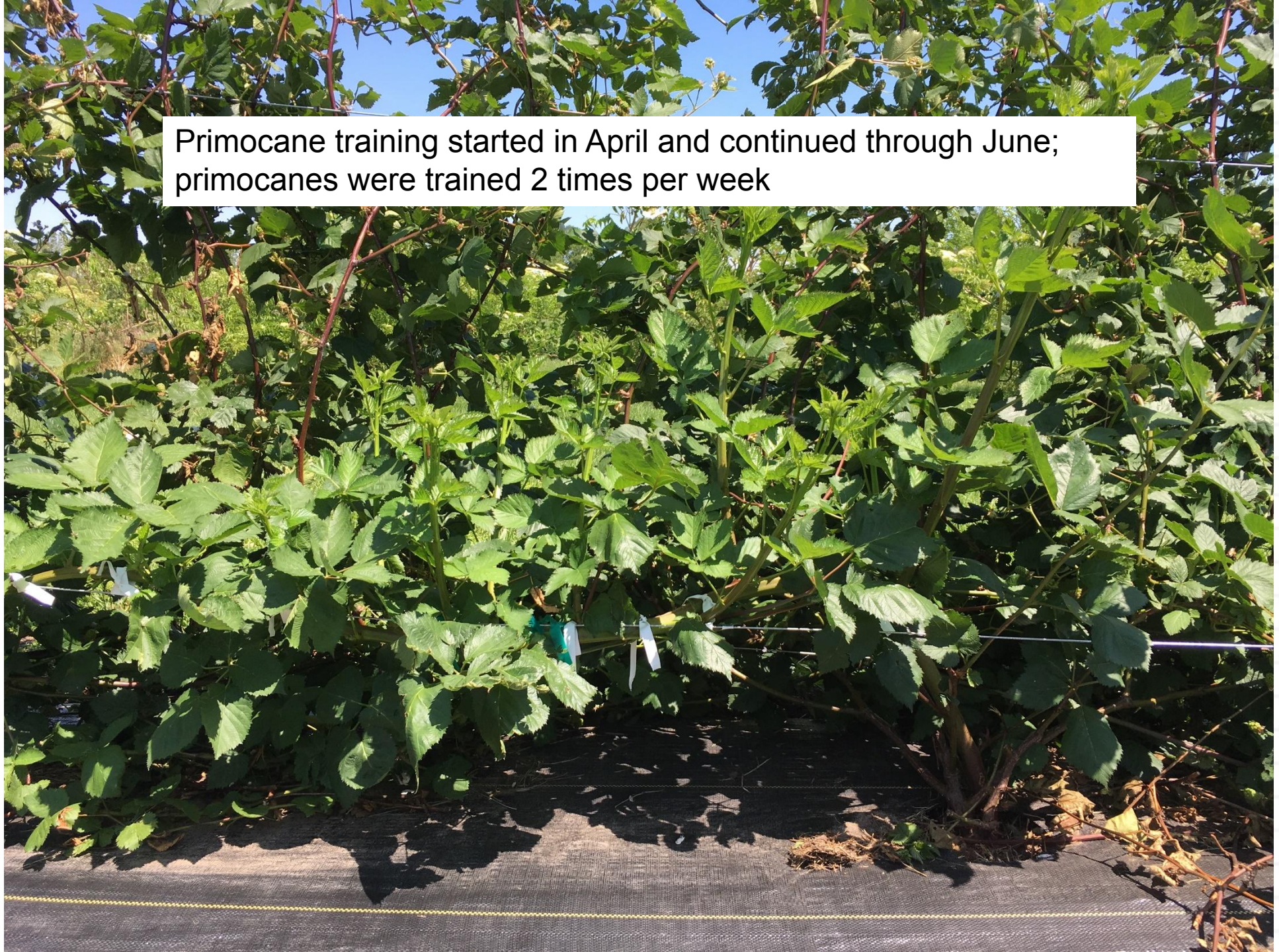


Primocane training started in April and continued through June; primocanes were trained 2 times per week

Harvest began early June and continued through early October; fruit harvest 3 times per week

Floricane removal began as soon as harvest concluded for each cultivar

Training laterals began as soon as the floricanes were removed and out of the way; laterals were trained once per week


Before pruning


November 20, 2017
After pruning

November 20, 2017

The trellis was lowered into the winter position

Rowcovers were placed on
8 December 2017


The rowcovers were applied December 15 2016

Results of the Cultivar Trial

- Floricane harvest in 2017 and 2018
- Primocane harvest in 2017 only
- Harvest 1-3 times per week
- Yield per plot and weight of 25 random berry sample per plot
- All data analyzed using SAS and Fisher’s LSD at the 0.05 level.

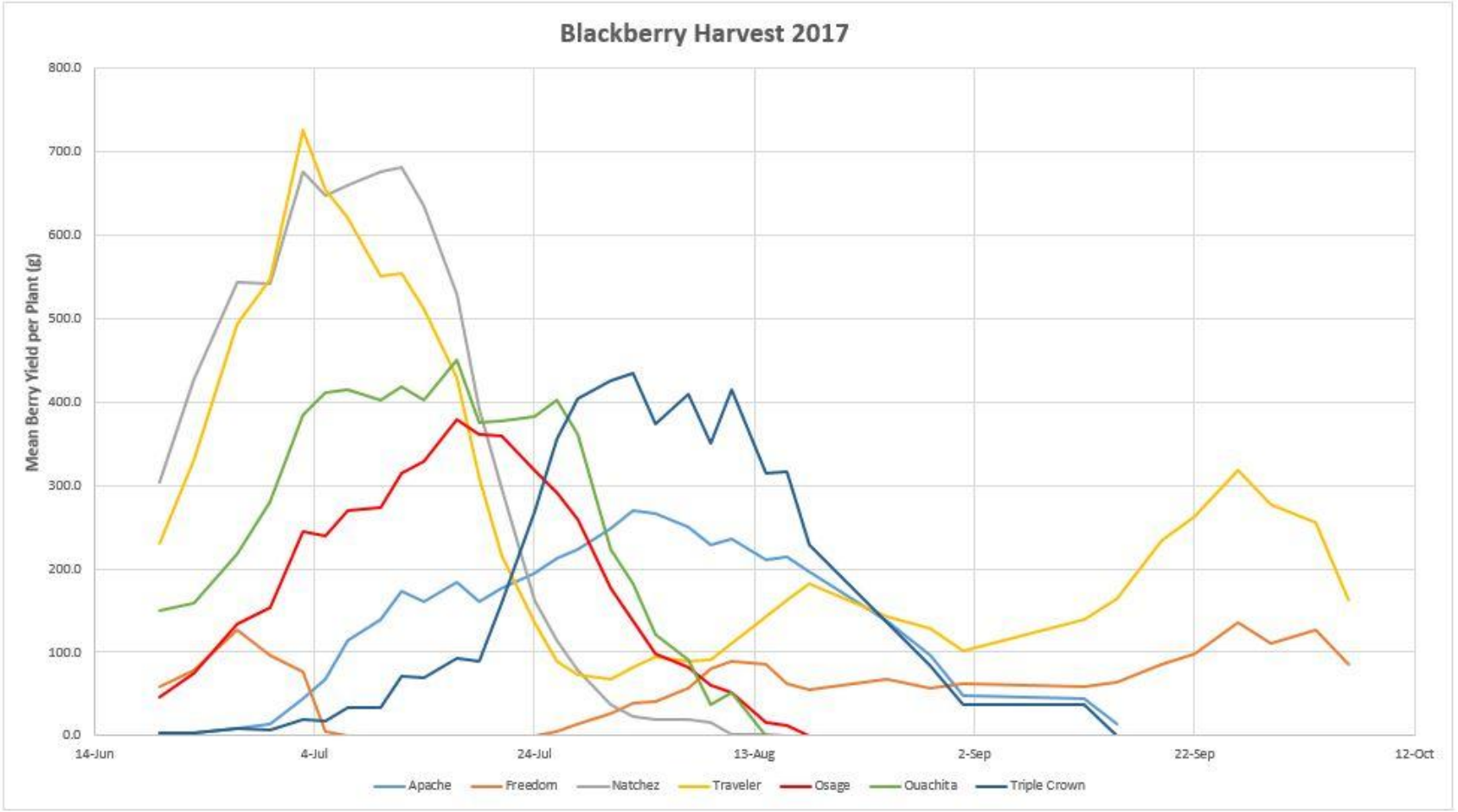

Natchez
A-2
B/1 G Traveler
Blackberry Trellis/Cultivar Trial
2017 Harvest Data Date 6/20/17
Row A on north side, Plot 8 on east side
Row/Plot | Cultivar | Yield | 25 berry weight
A/8 | G Traveler
A/7 | Ouachita
A/6 | Osage
A/5 | Osage
A/4 | Ouachita | 1430 | 161
A/3 | Triple Crown
A/2 | Natchez | 2020 | 240
A/1 | G Natchez
B/8 | G Natchez | 1282 | 166
B/7 | Apache | 136
B/6 | Freedom | 509
B/5 | Triple Crown | 231
B/4 | Natchez | 1241 | 124
B/3 | Osage | 230 | 226
B/2 | Freedom | 370 | 135
B/1 | G Traveler | 1931
C/8 | G Traveler | 1313 | 143
C/7 | Apache | 133 | 12 berries
C/6 | Triple Crown
C/5 | Freedom | 431 | 219
C/4 | Apache | 64 | 202
C/3 | Natchez | 1249 | 195
C/2 | Ouachita | 352 | 189
C/1 | G Natchez | 1469
Freedom - Calyxeal Study attached
ANDY'S
240
Brecknell


start! Walking
start! Making a Difference
HEART WALK
20 Years

2017 Floricane Harvest

Cultivar	First Harvest	Peak Harvest Reached	Final Harvest
Natchez	June 6	June 27	July 26
Traveler	June 6	June 20	July 24
Freedom	June 16	June 20	July 3
Osage	June 16	July 3	August 7
Ouachita	June 16	June 27	August 2
Apache	June 30	July 10	September 1
Triple Crown	July 10	July 26	August 18

2017 Harvest



2017 Floricane Harvest

Cultivar	Total Yield /plant(kg)	Total Yield /plant(lb)	Berry Size (g)
Prime-Ark® Freedom	0.47 e *	1.03 e	8.8 a
Prime-Ark® Traveler	6.69 ab	14.72 ab	4.9 e
Apache	4.32 d	9.50 d	8.1 b
Natchez	7.62 a	16.76 a	7.4 c
Osage	4.70 cd	10.34 cd	5.1 e
Ouachita	6.20 abc	13.64 abc	6.2 d
Triple Crown	5.17 bcd	11.37 bcd	4.6 e

*** Means within columns with the same letters are not different according to Fisher's Least Significant Difference test ($P < 0.05$)**

2018 Floricane Harvest

Cultivar	Total Yield /plant (kg)	Total Yield /plant (lb)	Berry Size (g)
Prime-Ark® Freedom	3.51 d*	7.72 d	7.3 a
Prime-Ark® Traveler	7.84 ab	17.25 ab	4.0 c
Apache	4.83 cd	10.63 cd	6.4 ab
Natchez	9.22 a	20.28 a	6.2 b
Osage	7.10 abc	15.62 abc	4.7 c
Ouachita	5.53 bcd	12.17 bcd	4.5 c
Triple Crown	9.23 a	20.31 a	4.0 c

* Means within columns with the same letters are not different according to Fisher's Least Significant Difference test ($P < 0.05$)

2017 Primocane Harvest

Cultivar	First Harvest	Peak Harvest Reached	Final Harvest
Freedom	July 26	August 9	October 1
Traveler	July 26	August 11	October 1

Cultivar	Total Yield/Plant (kg)	Total Yield/Plant (lb)	Berry Size (g)
Freedom	1.91 b*	4.20 b	7.8 a
Traveler	3.32 a	7.30 a	4.9 b

* Means within columns with the same letters are not different according to Fisher's Least Significant Difference test ($P < 0.05$)

Taste Test Results

- Three taste testings in 2017:
  - Webb City Farmers Market, Webb City (n=20)
  - Summer Blackberry Workshop, Mount Vernon (n=11)
  - July Master Gardeners of Greene County chapter meeting, Springfield (n=15)

Blackberry Taste Test Ratings – Overall Acceptance

Cultivar	Webb City	Mt Vernon	Springfield	Average
Apache	3.55[z]	3.45	3.80	**3.60**
Natchez	3.74	4.00	3.47	**3.74**
Ouachita	3.30	3.10	2.85	**3.08**
Osage	3.70	3.80	3.87	**3.79**
Triple Crown	3.22	3.00	3.50	**3.24**
Freedom	3.90	3.33	3.47	**3.57**
Traveler	3.55	2.73	3.80	**3.36**

[z] Likert scale where 1= terrible and 5=fantastic

RCA Trellis and Profitability

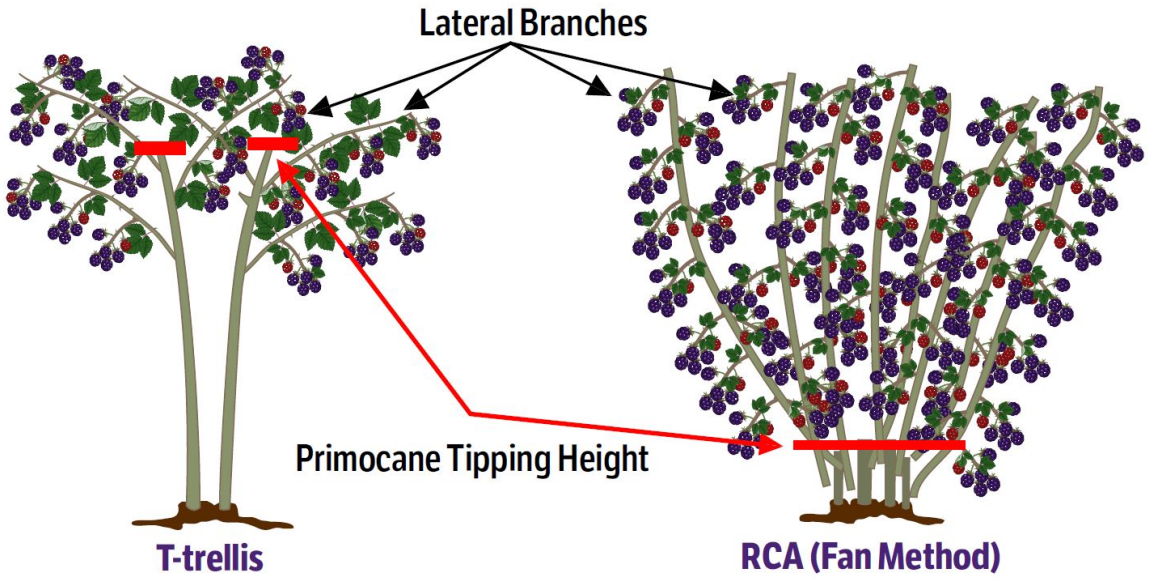
- Advantages
  - Easier and efficient harvest, all fruit is on one side of the canopy.
  - Improved productivity
  - Enhanced control of SWD and diseases
  - Less sunscald, fruit is in the shade
  - Winter protection and spring frost protection.
- **Disadvantages**
  - **Expensive.**
  - **Harder to learn how to train and prune.**
  - **Management intensive**

RCA Trellis and Profitability

- Alternative training methods (UA project)
  - Goal – fill the trellis with primocane growth
  - Reduce labor costs
  - Simplify pruning

RCA Trellis and Profitability

- Fan method
  - Tip primocanes at 10-12”
  - Train laterals to fill canopy
  - Reduced labor 26%
  - Good canopy fill, reduced cane breakage during trellis rotation



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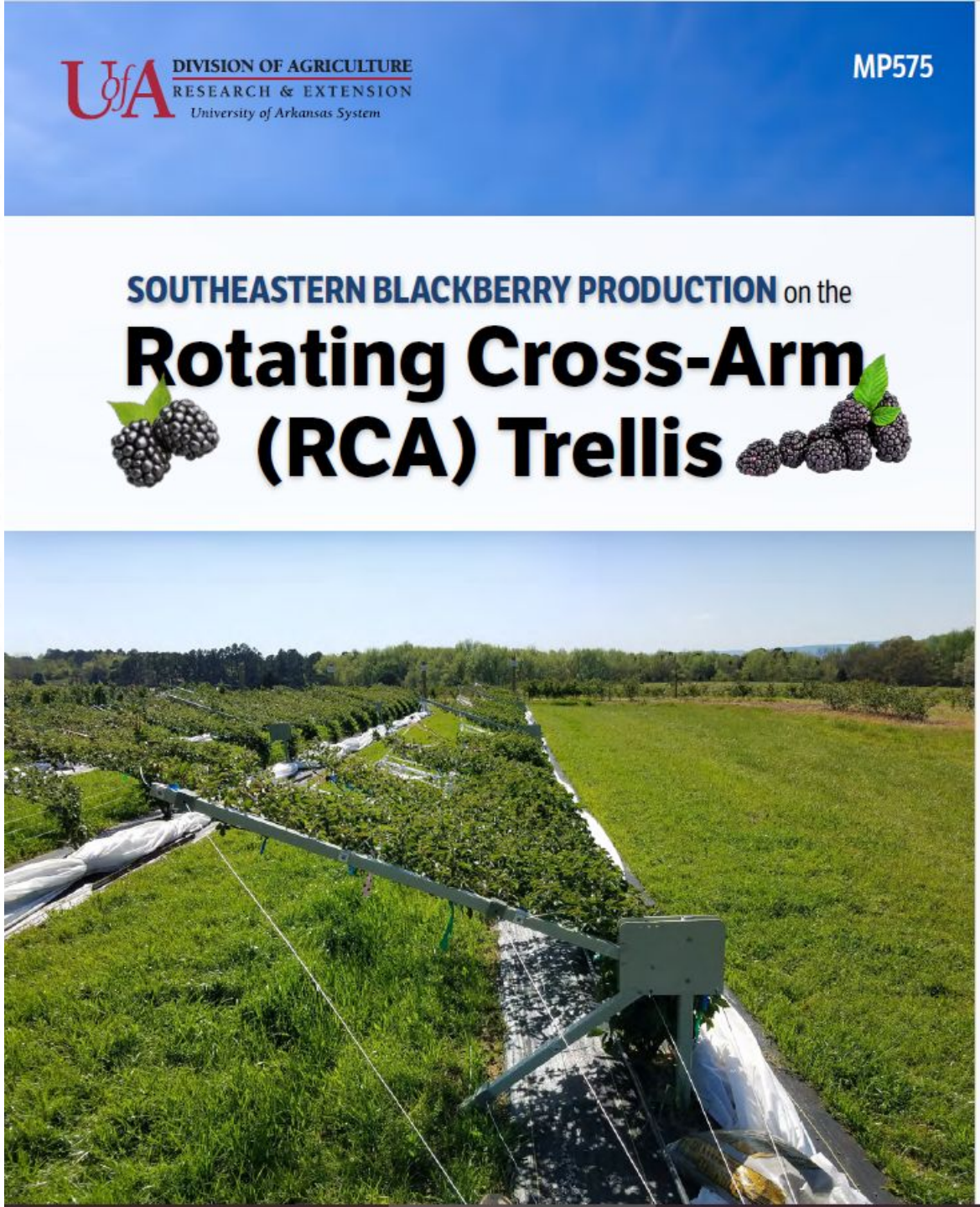
Fan training

Primocane bending training

- https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/horticulture/commercial-fruit-production/rca-trellis-blackberry.aspx



Arkansas Blackberry School

- https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/horticulture/commercial-fruit-production/blackberry-school.aspx

Learn how to produce commercial blackberries in Arkansas.

Thank You!

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