

Blackberry Variety Development and Crop Growing Systems

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Items to Cover

- What's really new in varieties from Arkansas
- What's new in varieties from Arkansas
- Major things learned the last year or two
- Older information
- What's left?

The Absolute Newest Thing From
Arkansas - **Prime-Ark[®] Freedom**
The First Primocane-Fruiting Thornless,
EVER!!!



- LARGE – 9-12 g
- 10-11% SS
- Does not appear to have shipping potential
- Target use is local markets and home gardens

Prime-Ark[®] Freedom



- FC crop ripens 7-10 d before Natchez – really early
- Huge primocane crop in California – but in cool places...
- Primocane berries up to 16 g in (cool places)

Floriscane yield and berry weight for **Prime-Ark® Freedom; University of Arkansas Fruit Research Station, Clarksville, established in 2010.**

Cultivar	Yield (kg≅ha ⁻¹)		Weight/berry (g)	
	Floriscane harvests			
	<u>2011^z</u>	<u>2012^y</u>	<u>2011^z</u>	<u>2012^y</u>
Prime-Ark®	6,258 b	10,740 a	9.2 a	8.7 a
Freedom^x				
Natchez	19,773 a	19,448 a	7.6 b	7.3 b
Osage	13,681 ab	14,461 a	5.0 c	5.1 d
Ouachita	12,076 ab	15,716 a	5.5 c	5.8 c
Prime-Ark®	7,866 b	13,238 a	5.5 c	5.4 cd
45 ^x				

^z Mean separation within columns by Duncan's multiple range test and LSMeans where appropriate (P<0.05) .

Fruit data for Prime-Ark® Freedom; University of Arkansas Fruit Research Station, Clarksville.

Cultivar

Characteristic	Prime-Ark®				
	Freedom	Natchez	Osage	Ouachita	45
<i>Floricane harvest date</i> ^z					
First	28 May	6 June	9 June	13 June	6 June
Peak	6 June	13 June	20 June	28 June	18 June
Last	20 June	7 July	25 July	25 July	18 July
Fruit ^y					
Firmness ^w	7.8 (0.5)	7.8 (0.5)	8.3 (0.5)	8.5 (0.6)	8.3 (0.5)
Flavor ^w	7.8 (0.5)	7.0 (0.8)	8.3 (0.5)	8.8 (0.5)	7.8 (0.5)
Soluble solids (%) ^v	10.4 (0.8)	10.3 (1.2)	11.3 (0.9)	12.0 (0.3)	11.4 (0.5)

^zData from 2010 replicated trial.

^yRating scale of 1 to 10 where 10=best.

Postharvest evaluations of **Prime-Ark[®] Freedom** compared to other blackberry cultivars for 2010 at the University of Arkansas Fruit Research Station, Clarksville (7 d in cold storage at ~5 °C).

Cultivar	Overall ^z	Red (%)	Leak (%)	Decay (%)	Soft (%)
Prime-Ark [®] Freedom	38.9 ab	0.0 a	44.4 a	0.0 a	0.0 a
Natchez	21.2 b	5.03 a	27.7 a	0.0 a	16.3 bc
Ouachita	55.1 ab	0.0 a	20.4 a	1.6 a	2.5 a
Prime-Ark [®] 45	72.7 a	0.0 a	19.9 a	0.0 a	0.0 a
Prime-Jan	25.4 b	6.8 a	35.0 a	2.9 a	3.0 a
Tupy	-23.29 c	5.2 a	56.3 b	3.1 a	26.0 c

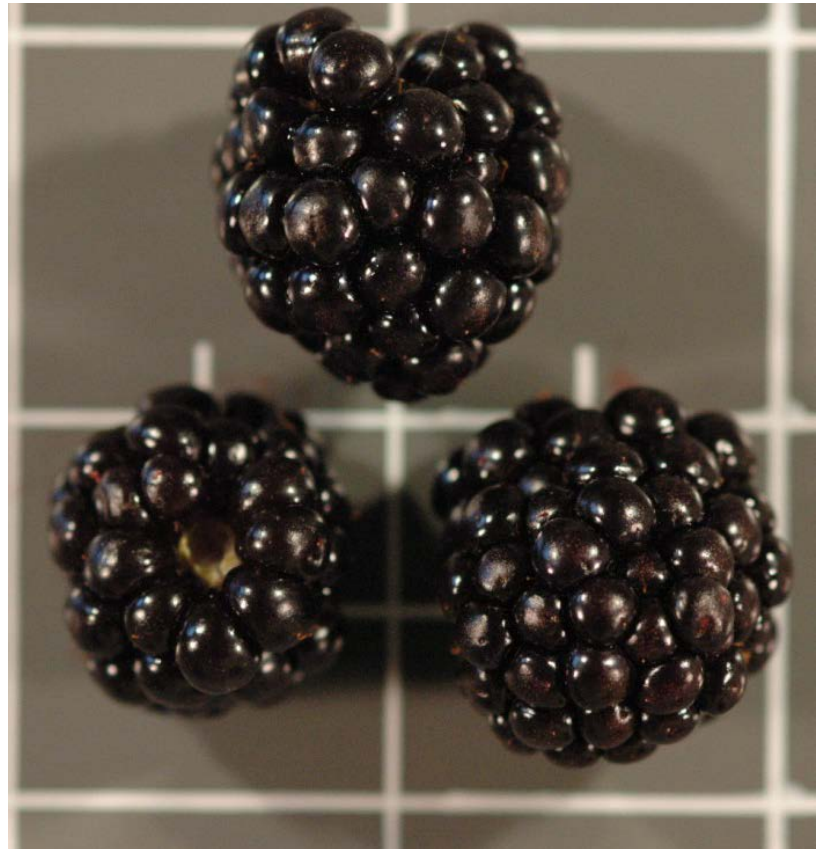
Prime-Ark[®] Freedom



- Will be available late 2013 and 2014
- Tissue culture propagators with first plant supplies

Osage– The Newest Arkansas Thornless Blackberry

- Ripens (In Ark.) between Natchez and Ouachita, ave. June 10 beginning harvest
- Yields have been consistent and good, comparable to higher than Ouachita
- Berry size is medium, 5.0 g, slightly smaller than Ouachita
- Flavor is a key attribute of Osage, lower acid flavor with notable flavor components coupled with high soluble solids
- Good even on “bad flavor days” as noted by JRC over the years
- Great postharvest handling potential



Osage– Why Consider?

- A complement to Ouachita in size and season to diversify cultivars for this harvest period
- Consistently uniform in drupelet fill whereas Ouachita can have uneven fill
- Is hoped to expand on flavor and enjoyment of blackberries by consumers
- Available in 2013 from tissue culture propagators, wider availability in 2014



Yields of three blackberry cultivars in plantings established in replicated trials at the University of Arkansas Fruit Research Station, Clarksville Arkansas in 2007 with data collected in 2008 and 2009 and a planting established in 2010 with data collected in 2011 and 2012.

Genotype	Yield (lb/acre)				
	2008	2009	2011	2012	Average ^y
Osage	12,341 a	7,849 a	12,206 ab	12,902 a	11,324
Natchez	12,613 a	6,030 a	17,641 a	17,351 a	13,409
Ouachita	7,851 b	4,361 a	10,774 b	14,021 a	9,252

^z Means followed by the same letter are not significantly different at the 5% level within single columns.

^y Average is a mean of the 4 years presented in this table (2008, 2009, 2011, 2012).

Postharvest evaluations of several cultivars of blackberries at Clarksville, AR, Fruit Research Station.

Cultivar	Overall ^z	Marketability ^z	Red (%)	Leak (%)	Soft (%)
Natchez	42.6 ^x	89.7	18.8	20.6	9.2
Osage	59.7	90.5	4.0	16.1	6.9
Ouachita	41.3	88.8	5.7	21.2	6.3
Prime-Ark®45	57.1	90.7	6.6	18.7	4.1
Tupy	3.0	72.1	15.7	48.1	26.5

^zOverall=100-(%decay+%leak+%soft). Percent marketability=100-[sum(% decayed + % soft + % leaky)/3]. A minimum marketability of 85 is desired.

^x All entries are means of 5 years (2008 - 2012), except Tupy entries which are missing 2011 data and therefore means of only 4 years.

Plant and fruit characteristics of four thornless blackberry cultivars at the University of Arkansas Fruit Research Station, Clarksville.

Characteristic	Osage	Navaho	Natchez	Ouachita
Soluble solids (%) ^z	11.2	10.3	10.0	11.1
pH	4.0	3.2	3.3	3.3
Titrateable acidity (g/L) ^y	4.3	13.2	9.0	8.7

^z Means of 6 years 2005, 2006, & 2008-2011.

^y Expressed as citric acid.

Blackberry Planting Considerations

- Order of ripening, Clarksville, Arkansas
 - Natchez: June 5
 - Osage: June 10
 - Ouachita: June 12
 - Navaho: June 20
 - Apache: June 25

Blackberry Varieties: How to decide?

- Order of ripening
 - Natchez: Early, large, popular, sometimes tart, always large and impressive, not as erect
 - Osage: New, consider trying
 - Ouachita: The top Arkansas variety – make sure you plant this one if nothing else
 - Navaho: older, not large, but good for late season and excellent quality
 - Apache: some like, some don't, and reason is white drupes; really watch this in the Valley

What About Primocane-Fruiting Varieties?

- Prime-Ark[®]45 is the variety to try
- This one and all others continue to suffer in the Arkansas heat
- 2011 and 2012 were terrible for PF blackberries in Arkansas; few fruits produced on any plants on primocanes
- *Floriscane crop being used by some growers as is early (near Natchez) and very firm with good quality*
- *Remember...if you miss the PC crop, those buds are waiting for you next spring and summer!*

Prime-Ark[®] 45 in California



Nipomo, CA, Oct 9, 2012

***770,000 plants sold
2009-12 (approx 400
acres)***

***Some success in the
South in NC and SC;
includes floricanne crop***

What About Primocane-Fruiting Varieties and HEAT?

- Breeding is being done in a very hot climate, 2011 and 2012 among hottest ever in Arkansas
- Unfortunately progress thought to be made was not confirmed or supported these years
- What to do?
 - Shadecloth
 - Rotating crossarm trellis????? Dr Takeda?????
 - Floricane crop
 - Values are early, high-quality berries
 - Negative is thorns

What's Coming in Blackberries?

- Some very nice complements to early season Natchez showing promise
- Exceptional firmness now incorporated into thornless plants – crisp-like texture
- Later season improvements in place but not as sweet as desired

Common Trellis for Arkansas Varieties First Year



Arkansas Blackberries, GA, NC



Rotating Crossarm (RCA™) and Conventional – This is something to look at!



Conventional Hedge Row



RCA

Winter Protection Trials



RCA trellis system in winter position without and with winter cover.

With appropriate row cover fabric, this system can protect most varieties of blackberries to ambient temperatures of -15 degrees F.





Is anybody really using this? Yes!



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*Arkansas Fruit Breeding-Still More Good Things Coming! **For Going on 50 Years** AND THANKS FOR YOUR TIME!*



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