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New Early Season Plum Developed

AU-Rubrum Cultivar

combines

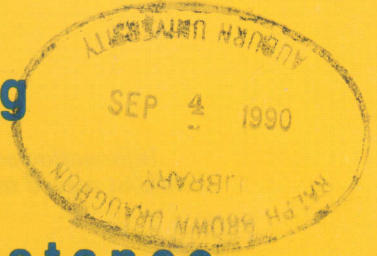
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Alabama Agricultural Experiment Station
Lowell T. Frobish, Director
Auburn University Auburn University, Alabama

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NEW EARLY SEASON PLUM DEVELOPED

AU-Rubrum Cultivar Combines
High Yielding Ability with
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Excellent Fruit Quality

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INTRODUCTION

AU-RUBRUM is a new plum cultivar developed by the Alabama Agricultural Experiment Station, Auburn University, for growing in areas receiving at least 700 hours of chilling temperature below 45°F. It was developed to meet the needs for disease-resistant cultivars. Such resistance is particularly important in the Southeast where prevalence of certain diseases and susceptibility of commercial varieties had discouraged plum production.

CULTIVAR DESCRIPTION

Trees of AU-Rubrum are spreading with dark green leaves. In test orchards in Alabama, the trees were vigorous, disease resistant, and long lived. The plant is self-fruitful, flowers profusely, and sets a heavy crop. The cultivar has proved its ability to produce high yields of excellent quality fruit where certain fruit and tree disease problems occur. It is an early maturing cultivar that produces fruit of excellent size and quality.

Disease Resistance

AU-Rubrum is highly resistant to bacterial canker (*Pseudomonas syringae*, Van hall), bacterial fruit spot [*Xanthomonas pruni* E. F. Smith), Dows], bacterial leaf spot (*X. pruni*), and black knot [*Apisporina morbosa* (Schw.) Ark.], table 1. Trees are tolerant to plum leaf scald (*Xylella fastidiosa*).

¹Professor, Research Associate, Associate Professor, and Technician of Horticulture.

TABLE 1. DISEASE RESISTANCE OF PLUM CULTIVARS IN EXPERIMENTAL PLANTINGS AT AUBURN AND SHORTER, ALABAMA

Cultivar	Disease index ¹					
	Bacterial fruit spot	Bacterial leaf spot	Bacterial canker	Black knot	Brown rot	Plum leaf scald
AU-Rubrum	0	0	1	0	2	1
AU-Amber	0	0	0	5	2	0
AU-Producer	0	0	0	1	2	1
AU-Roadside	0	0	0	0	2	1
Bruce	0	0	0	0	4	4
Crimson	0	0	0	0	1	3
Homeside	0	0	1	1	3	1
Methley	3	5	5	5	3	4
Morris	1	2	2	5	2	2
Ozark Premier	0	1	1	1	3	4
Purple	0	0	0	0	3	5
Santa Rosa	5	5	5	0	3	5

¹Disease index: 0 = 0, 1 = 1-10, 2 = 21-40, 3 = 41-60, 4 = 61-80, and 5 = 81-100 percent of fruit, leaves, and trees infected. Ratings were taken in years when injury from disease was severe on susceptible cultivars.

Fruit Quality

Fruits of AU-Rubrum have dark red (scarlet red, HCC 44A)² skin and flesh. Fruit quality is excellent for fresh market, which makes AU-Rubrum adaptable for home, roadside, and local markets. Fruits were rated acceptable in canned fruit tests, table 2. Fruit have adequate firmness for handling, packing, and shipping to commercial markets, table 5. Maturity date is about 1 week after Methley, table 6.

²Horticulture Color Chart; Royal Horticulture Society, London.

TABLE 2. MEAN QUALITY EVALUATIONS¹ OF 12 CANNED PLUM CULTIVARS

Cultivar	Color	Texture	Flavor	Overall quality ²
AU-Rubrum	8	8	8	8.0
AU-Amber	8	8	8	8.8
AU-Producer	8	8	8	8.0
AU-Roadside	8	8	8	8.0
Crimson	8	8	8	8.0
Giant Cherry	5	6	7	6.0
Methley	8	8	8	8.0
Morris	8	8	7	7.7
Ozark Premier	7	7	6	6.7
Red June	6	8	8	7.4
Sapa	10	8	8	8.6
Starking Delicious	8	7	5	6.7

¹Numerical scores as follows: 9 or 10 = highly acceptable, 7 or 8 = acceptable, 5 or 6 = barely acceptable, and below 5 = unacceptable. Mean scores of an expert panel (3-4 panelists) were obtained on the canned plums after at least 6 weeks warm-storage.

²Overall ratings are the means of all the panelists' three quality ratings.

Yields

The cultivar has been in trials as Crimson M-1 at two locations in the Alabama Agricultural Experiment Station System and in grower trials. It compares favorably with other cultivars in yield. Production has been highest in central Alabama, table 3. Average yields of marketable fruit per tree were 50 pounds, 102 pounds, and 115 pounds, respectively, from 3-, 4-, and 5-year-old trees.

TABLE 3. YIELD OF FRUIT OF AU-RUBRUM AT AUBURN AND SHORTER, ALABAMA

Year	Fruit yield per tree		
	Auburn	Shorter	Average
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
3	53	47	50
4	108	96	102
5	120	110	115
6	50 ¹	40 ¹	45

¹Reduced crop from late frost injury.

Storage

Fruits of AU-Rubrum store as well as Crimson, AU-Producer, and Santa Rosa and better than AU-Roadside, AU-Amber, Homeside, and Methley, table 4.

TABLE 4. PERCENT MARKETABLE PLUM FRUIT AFTER STORAGE AT 32° F

Cultivar	Marketable, by weeks of storage				
	3	6	9	12	14
	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
AU-Rubrum	100	85	65	10	5
AU-Amber	95	70	20	0	0
AU-Producer	100	90	65	30	15
AU-Roadside	95	70	20	0	0
Bruce	20	5	0	0	0
Crimson	100	90	65	30	15
Homeside	95	65	15	0	0
Methley	95	70	20	0	0
Morris	100	90	65	30	15
Ozark Premier	90	65	15	0	0
Purple	100	85	55	25	8
Santa Rosa	100	80	45	20	5

OUTSTANDING CHARACTERISTICS

Tree vigor and tolerance to plum leaf scald are the primary improvements of AU-Rubrum. Trees of AU-Rubrum are vigorous and show only traces of plum leaf scald, whereas trees of susceptible va-

TABLE 5. FRUIT CHARACTERISTICS OF PLUM CULTIVARS

Cultivar	Fruit set	Flesh color	Skin color	Size	Shape	Flavor	Firmness	Stone freeness	Texture	Soluble solids
				<i>In.</i>						<i>Pct.</i>
AU-Rubrum	5 ¹	dark red	dark red	2¼-2½	5 ¹	5 ¹	5 ¹	cling	5 ¹	15.6
AU-Amber	5	yellow	dark red	1¾-2	5	5	4	cling	5	19.2
AU-Producer	5	dark red	dark red to purple	1¾-2	5	5	5	free	5	16.5
AU-Roadside	5	dark red	dark red	2-2¼	5	5	4	semi-cling	5	17.2
Bruce	5	orange to red	orange to red	1¾-2	5	3	2	cling	3	9.4
[6] Crimson	5	crimson red	crimson red	1½-1¾	5	5	5	cling	5	16.3
Homeside	5	cream	orange to light red	2¼-2½	5	5	4	cling	5	18.8
Methley	5	dark red	dark red to purple	1-1¼	5	5	3	cling	5	18.5
Morris	5	light red	light red	1¾-2¼	4	3	5	cling	5	13.4
Ozark Premier	5	cream	red to purple	2-2¼	5	5	4	semi-cling	5	15.7
Purple	5	cream	dark red to purple	1¾-2	5	5	5	semi-cling	4	14.8
Santa Rosa	4	red	dark red to purple	1¼-1½	5	5	5	cling	5	16.7

¹Rating index: 5 = excellent, 4 = good, 3 = fair, 2 = poor, and 1 = very poor.

rieties grow much more slowly and show obvious symptoms of plum leaf scald. Tree vigor is a primary selective criterion in the Southeast, and the relationship of plum leaf scald to phony peach makes resistance important.

Two other characteristics, ripening date and skin color at maturity, may be taken collectively as another important advantage of AU-Rubrum. Its fruit ripens 7 days later and is more fully colored at any comparable stage of maturity than Methley, tables 5 and 6.

Another improvement of AU-Rubrum is increased tree longevity. In test orchards at two locations in Alabama, trees of AU-Rubrum remained in extremely vigorous condition for 10 years.

TABLE 6. BLOOM AND HARVEST DATES AND YIELD OF PLUM CULTIVARS

Variety	Auburn			Headland		
	Bloom date	Harvest date	Yield ¹	Bloom date	Harvest date	Yield ¹
AU-Rubrum	3-22	6-19	5	3-24	6-16	5
AU-Amber	3-17	5-30	5	3-18	5-27	5
AU-Producer	3-20	6-27	5	3-21	6-24	5
AU-Roadside	3-22	7-4	5	3-22	6-29	5
Bruce ²	3-20	6-29	2	3-22	6-26	3
Crimson	3-22	7-14	5	3-22	7-5	5
Homeside	3-20	7-5	5	3-20	7-1	5
Methley ³	3-22	6-10	3	3-24	6-7	5
Morris	3-22	6-17	5	3-22	6-14	5
Ozark Premier	3-20	7-10	4	3-23	7-5	5
Purple	3-24	7-20	5	3-28	7-15	5
Santa Rosa ⁴	3-24	7-5	3	3-26	7-1	5

¹Yield index: 0 = 0, 1 = very low, 2 = low, 3 = fair, 4 = good, and 5 = excellent.

²Trees short lived due to ring spot virus.

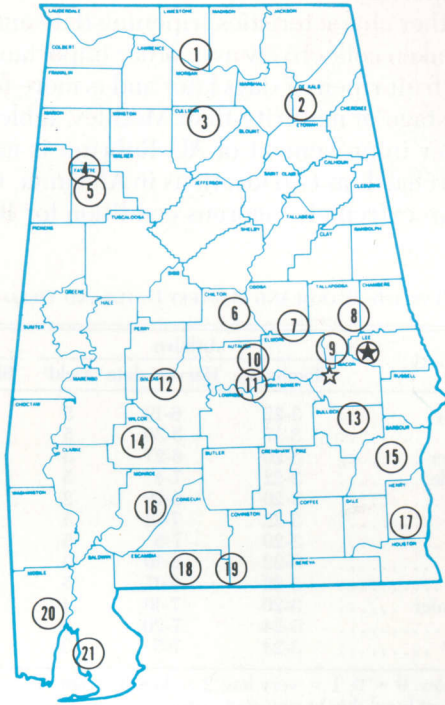
³Trees short lived due to black knot and bacterial canker.

⁴Trees short lived due to bacterial canker.

Alabama's Agricultural Experiment Station System

AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Plant Breeding Unit, Tallassee.
10. Forestry Unit, Autauga County.
11. Prattville Experiment Field, Prattville.
12. Black Belt Substation, Marion Junction.
13. The Turnipseed-Ikenberry Place, Union Springs.
14. Lower Coastal Plain Substation, Camden.
15. Forestry Unit, Barbour County.
16. Monroeville Experiment Field, Monroeville.
17. Wiregrass Substation, Headland.
18. Brewton Experiment Field, Brewton.
19. Solon Dixon Forestry Education Center,
Covington and Escambia counties.
20. Ornamental Horticulture Substation, Spring Hill.
21. Gulf Coast Substation, Fairhope.