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of Golden Delicious  
Apple Strains and Types  
for Alabama**

AGRICULTURAL EXPERIMENT STATION  
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**COVER PHOTOS.** The wide range of russetting among different Golden Delicious apples is illustrated by the three varieties pictured.

*Photos by R. E. Stevenson, Department of Research Information*

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*Information contained herein is available to all persons  
without regard to race, color, or national origin.*

# Evaluation of Golden Delicious Apple Strains and Types for Alabama

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**S**INCE ITS DISCOVERY in West Virginia in 1914, Golden Delicious has become one of the most popular and widely grown apple varieties in the world. Its popularity is exceeded only by the Red Delicious variety. When Golden Delicious was first discovered it was immediately recognized as the best yellow apple known to the fruit world, whereas it took many years for Red Delicious to reach its distinction as a leading variety. The excellent eating quality, good flavor, and juiciness make Golden Delicious a high quality dessert fruit. It is also a multi-use apple in that it is excellent for sauce, pies, baking, juice, and salads. Golden Delicious is adapted over a wide range of climates. The fact that Golden Delicious produces abundant pollen and blooms over a long period makes it a good pollenizer for nearly all commercial varieties. Golden Delicious is self-fruitful and heavy fruiting, but it often becomes biennial in bearing. This biennial bearing problem can be prevented or corrected by fruit thinning.

Despite its many desirable attributes, Golden Delicious has certain faults. Fruit bruises easily and the bruises are evident on the fruit surface. The apples shrivel in prolonged storage due to the thin waxy layer on the fruit surface. The major fault of Golden Delicious, however, is its tendency for russet development. Russetting can be induced by cool, damp weather during the early stages of fruit growth and by high humidity in late summer, typical conditions in the Southeast.

The popularity and importance of Golden Delicious is evident by the large number of new strains and types of Golden Delicious that have been introduced in recent years. Most of these new in-

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productions are reported to be superior types of Golden Delicious that do not russet.

The Golden Delicious is much easier to grow and produces larger crops than the Red Delicious. Because of the problem of russet development on Golden Delicious fruit in the Southeast, however, it is not readily accepted by the commercial trade. The research summarized here was initiated to determine if a Golden Delicious apple strain or type that possessed the superior quality of the Golden Delicious apple but did not russet could be grown in Alabama.

## DESCRIPTION OF STUDY

Eighteen strains of Golden Delicious and Golden Delicious type apples were planted in February 1972 at the Piedmont Substation, Camp Hill, Alabama. All trees were on MM106 rootstock except Sungold, which was on seedling rootstock. Single-tree plots of each variety were planted in a randomized complete block design replicated four times.

Date of full bloom and yield were recorded for each tree. In each season, all varieties were harvested the same day except Prime Gold, which ripens 2 weeks earlier than the other varieties. A representative sample of 20 fruit per tree was evaluated for firmness, percent soluble solids, size, ground color, flesh color, and russet. Fruit firmness was measured with a model 1122 Instron fitted with a 7/16-inch plunger. Length and width of fruit were recorded and the length-diameter (L/D) ratio calculated. The fruit was rated for amount of russet on fruit surface and in the stem cavity by the following rating systems:

### Fruit surface rating

- 1 = no surface russetting
- 2 = up to 20% of surface russetted
- 3 = 21 — 40% of surface russetted
- 4 = 41 — 60% of surface russetted
- 5 = 61 — 80% of surface russetted
- 6 = 81 — 100% of surface russetted

### Degree of russetting on surface and in stem cavity

- O = none
- L = light
- M = medium
- H = heavy

The fertility program was based on soil and foliar analysis. Recommended practices were followed for insect and disease control. However, the agrimycin fireblight sprays were not applied in 1978. Paraquat and simazine were used for weed control in the rows and the middles were mowed.

## RESULTS

The first measurable crop was produced in 1975, and yields increased each succeeding year for most strains and types, table 1. Strains producing the highest yields were Bountiful Ridge Yellow Delicious, Magnolia Gold, Smoothee, VanWell Golden Delicious, and Clear Gold, tables 1-5. Extreme fireblight damage reduced yields in 1978 on Winter Banana, Thewgold, Nugget, and Mutsu.

Winter Banana trees were completely dehorned during the spring and summer by removal of the blighted branches.

Each season all tested strains and types bloomed with or close enough to Red Delicious strains at the Substation to provide adequate pollination of Red Delicious.

Fruit firmness and percent soluble solids did not vary greatly between the strains and varieties tested. However, fruit firmness was higher and percent soluble solids was generally lower for Winter Banana. The 4-year averages were 21.7 pounds firmness and 11.8 percent soluble solids. The other strains and varieties tested varied from 16.2 to 17.8 pounds firmness, except Mutsu averaged 18.8 pounds firmness. Prime Gold and Thewgold averaged 12.5 and 12.3 percent soluble solids. The other strains and varieties tested averaged between 13.1 and 14.0 percent soluble solids.

Magnolia produced the smallest (diameter) fruit of the varieties and strains tested. However, it had the highest L/D ratio and best shaped fruit. The fruit generally was not large enough for tray packing and was suitable only for marketing in bags.

Prime Gold fruit was small and had a poor L/D ratio. Sungold fruit was generally small but it had a high L/D ratio. Winter Banana generally produced large diameter, but oblate, fruit having the lowest L/D ratio of any of the tested strains and varieties.

Prime Gold had no russet on the fruit surface or around the stem. Although Sungold and Mutsu had no russet on the fruit

surface, both had russet around the stem that extended onto the shoulder of the fruit. Winter Banana, VanWell Golden Delicious, Smoothee, Thewgold, and Magnolia russetted only lightly. Magnolia did not russet around the stem end. Fruit of Winter Banana and Thewgold had some russet in the stem cavity but it did not extend onto the fruit shoulder. With Smoothee and VanWell Golden Delicious, russet extended over the fruit shoulder. Magnolia had less russetting than most of the other varieties and strains and it had a high L/D ratio; however, the fruit were smaller. Smoothee produced large fruit with a high L/D ratio and had only slightly more russet than Magnolia.

When all criteria are considered Magnolia, Smoothee, Clear Gold, VanWell Golden Delicious, and Bountiful Ridge Yellow Delicious were the best performing varieties. Magnolia and Smoothee would probably come nearer to being accepted into the commercial trade than any of the other varieties and strains.

Additional strains and types of Golden Delicious that were not included or available when this study was established, but which are now being evaluated, include Ozark Gold, Early Golden, Honey Gold, Criterion, Firmgold, Blushing Gold, Hawaii, Sir Prize, Super Gold, Maigold, and Mor-spur Golden.

Descriptions and photographs of the varieties and strains included in the test are presented on the following pages, followed by tables 1-5 which give detailed results.



1. WAYNE SPUR YELLOW DELICIOUS produced an accumulated yield of 76 pounds of fruit per tree the first 7 years. Fruit size was good with an average L/D ratio. Fruit size, firmness, and percent soluble solids were average. Russet development on both fruit surface and stem end was medium for the seasons 1975 through 1978.



2. WINTER BANANA produced an accumulated yield of 121 pounds of fruit per tree for the first 7 years. The fruit was oblate, but fruit diameter was adequate. The L/D ratio was only 0.778. Little russet was on fruit surface or around the stem end. Trees are highly susceptible to fire-blight. Fruit is very firm and has a lower percent soluble solids than the other strains and varieties tested. Dessert quality was lower than Golden Delicious.



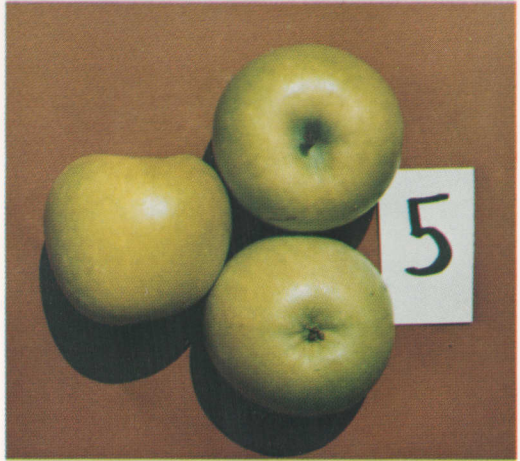
3. VANWELL GOLDSPUR DELICIOUS produced an accumulated yield of 151 pounds of fruit per tree the first 7 years. It produces large fruit of good quality; however, the fruit russets extremely bad.



4. VANWELL GOLDEN DELICIOUS produced an accumulated yield of 227 pounds of fruit per tree during the first 7 years. Its fruit is of high quality with a good L/D ratio. Russet was light on the fruit surface and medium on the stem end. It is a high yielding variety that has not russeted severely. It is a good variety for home and roadside market use.



5. PRIME GOLD produced an accumulated yield of 125 pounds during the first 7 years. Fruit is small with a poor L/D ratio and free of russet on both the surface and around the stem. The fruit ripens about 2 weeks earlier than the other strains and varieties tested. Fruit will drop when it begins to ripen; therefore, stop-drop sprays must be used. It does not have as good dessert quality or flavor as the Golden Delicious.



6. SMOOTHIE produced an accumulated yield of 216 pounds during the first 7 years. It produced large, high quality fruit with a good L/D ratio. Russet was light on fruit surface and medium around the stem end. This is one of the better strains to plant.







7. SUNDALE STURDEE SPUR produced an accumulated yield of 70 pounds of fruit per tree during the first 7 years. Fruit is large with a medium L/D ratio. Russet was medium on fruit surface and heavy around the stem end. It had one of the highest russet ratings of the strains and varieties tested.



9. C&O GOLDSPUR DELICIOUS produced an accumulated yield of 110 pounds of fruit per tree during the first 7 years. Fruit are large with a good L/D ratio. Russet was medium on fruit surface and medium to heavy around the stem end. It had a high russet rating.



10. THEWGOLD produced an accumulated yield of 113 pounds of fruit per tree during the first 7 years. Fruit was very large with a medium L/D ratio. Russet was light on the fruit surface and around the stem end. Each season (1975-78) all the fruit was severely cork spotted, even though calcium and boron sprays were applied for its prevention. The trees were severely damaged by fireblight in 1978.

11. C&O GOLDEN DELICIOUS produced an accumulated yield of 150 pounds of fruit per tree the first 7 years. Fruit quality was good and size was large with a good L/D ratio. Russet was medium on both the fruit surface and around the stem end.



12. SUNGOLD produced an accumulated yield of 113 pounds of fruit per tree during the first 7 years. Fruit size was small, but L/D ratio was high. Fruit was of good quality. The fruit surface showed no russet, except that which extended over the fruit surface at the stem end. This variety produced attractive, smooth finish fruit.



13. BOUNTIFUL RIDGE YELLOW DELICIOUS produced an accumulated yield of 323 pounds of fruit per tree during the first 7 years. This was the highest yielding variety tested. Fruit size was large with a good L/D ratio. Fruit firmness and quality were good. Russet was medium on the fruit surface and around the stem end.







14. NUGGET produced an accumulated yield of 74 pounds of fruit per tree during the first 7 years. Fruit size was large with a good L/D ratio. Russet was medium to heavy on the fruit surface and around the stem end. Severe fireblight damage to the tree occurred in 1978.



15. MAGNOLIA produced an accumulated yield of 222 pounds per tree during the first 7 years. Fruit size was small, but with a high L/D ratio. Russet was light on the fruit surface and the stem end was free of russet. Fruit of Magnolia was among the most attractive and smooth finished of varieties tested; however, size is a limiting factor.



16. MUTSU produced an accumulated yield of 71 pounds of fruit per tree during the first 7 years. Fruit size is very large with a high L/D ratio. The fruit surface was free of russet. Russet on the stem end was light to medium. Trees had extreme fireblight damage in 1978.

17. CLEAR GOLD produced an accumulated yield of 192 pounds of fruit per tree during the first 7 years. Fruit size was large with a good L/D ratio. Fruit firmness and quality were good. Russet was medium on the fruit surface and around the stem end.



18. STARKSPUR GOLDEN DELICIOUS produced an accumulated yield of 61 pounds of fruit per tree during the first 7 years. Fruit size was large with a good L/D ratio. Russet was medium on the fruit surface and heavy around the stem end.



TABLE I. PERFORMANCE OF GOLDEN DELICIOUS APPLE STRAINS AND TYPES, PIEDMONT SUBSTATION, 1975

Variety <sup>1</sup>	Yield per tree	Fruit firmness, lb. per sq. in.	Soluble solids	Fruit size		L/D ratio	Ground color <sup>2</sup>	Flesh color <sup>3</sup>	Surface russetting <sup>4</sup>	
				Length	Diameter				Rating	Degree
	<i>Lb.</i>		<i>Pct.</i>	<i>In.</i>	<i>In.</i>					
Wayne Spur Yellow Delicious (W) ...	0.4	15.3	12.8	2.67	3.05	0.875	G	WYT	4.0	M
Winter Banana (V) .....	12.9	20.2	11.5	2.49	3.20	.778	YGT	WYT	1.0	O
Goldspur Delicious (V) .....	9.3	15.5	12.2	2.97	3.32	.895	GYT	WYT	4.4	M+
Golden Delicious (V) .....	10.8	15.3	12.8	3.01	3.26	.923	GYT	YWT	3.8	L+
Prime Gold (H) .....	4.1	15.2	13.5	2.32	2.97	.781	Y	Y	1.0	O
Smoothie (H) .....	4.2	15.7	13.3	2.89	3.27	.884	YGT	WYT	3.3	L
Sundale Sturdee Spur (H) .....	2.6	15.7	12.9	2.76	3.07	.899	GYT	WYT	4.0	M
Goldspur Delicious (C) .....	8.2	15.7	12.7	2.81	3.25	.865	GYT	WYT	4.0	M
Thewgold (C) .....	.6	16.0	11.4	2.97	3.53	.841	GYT	WYT	1.5	L
Golden Delicious (C) .....	5.3	17.2	13.7	2.73	3.08	.886	GYT	WYT	4.8	H
Sungold (C) .....	2.9	15.3	11.1	2.66	3.01	.884	GYT	WYT	1.0	O
Yellow Delicious (B) .....	11.8	15.6	12.4	2.88	3.25	.886	GYT	YWT	3.9	M
Nugget (B) .....	7.1	15.1	13.0	2.84	3.27	.869	GYT	WYT	4.9	M
Magnolia (B) .....	9.7	16.9	13.1	2.57	2.70	.952	GYT	WYT	2.9	M
Mutsu (B) .....	2.8	17.8	11.9	3.06	3.24	.944	GYT	W	1.0	O
Clear Gold (A) .....	3.9	15.9	13.0	2.76	3.09	.893	GYT	WYT	4.5	M+
Starkspur Golden Delicious (S) .....	1.3	16.3	13.4	2.84	3.19	.890	GYT	WYT	5.3	M+

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<sup>1</sup>Letters in parenthesis identify nursery source of trees: W = Waynesboro, V = VanWell, H = Hill Top, C = C & O, B = Bountiful Ridge, A = Auburn, and S = Stark Brothers.

<sup>2</sup>Ground color: G = green, Y = yellow, and T = tint.

<sup>3</sup>Flesh color: W = white, Y = yellow, and T = tint.

<sup>4</sup>Russet rating system:

**fruit surface rating**

- 1 = no surface russetting
- 2 = up to 20 percent of surface russeted
- 3 = 21-40 percent of surface russeted
- 4 = 41-60 percent of surface russeted
- 5 = 61-80 percent of surface russeted
- 6 = 81-100 percent of surface russeted

**degree on surface and stem cavity**

- O = none
- L = light
- M = medium
- H = heavy



TABLE 2. PERFORMANCE OF GOLDEN DELICIOUS APPLE STRAINS AND TYPES, PIEDMONT SUBSTATION, 1976

Variety <sup>1</sup>	Date of full bloom	Yield per tree	Fruit firmness, lb. per sq. in.	Soluble solids	Fruit size, diameter	Ground color <sup>2</sup>	Russet rating <sup>3</sup>		
							Surface Rating	Stem end, Degree	Stem end, degree
		<i>Lb.</i>		<i>Pct.</i>	<i>In.</i>				
Wayne Spur Yellow Delicious (W) .....	4-2	22.8	16.6	12.7	3.00	GYT	3.43	M	H
Winter Banana (V) .....	3-30	83.5	21.7	10.1	2.96	GYT	1.33	O	L
Goldspur Delicious (V) .....	4-2	53.2	16.9	12.8	3.14	GYT	4.23	M-H	H
Golden Delicious (V) .....	4-1	46.3	16.8	13.6	3.05	GYT	2.25	O-L	M-H
Prime Gold (H) .....	4-2	26.3	17.6	12.3	2.95	GYT	1.00	O	O-L
Smoothie (H) .....	4-2	78.1	17.1	12.6	3.15	GYT	1.43	O-L	M
Sundale Sturdee Spur (H) .....	4-8	22.9	16.7	14.2	2.89	GYT	4.69	M-H	H
Goldspur Delicious (C) .....	4-2	38.9	16.1	11.8	3.19	GYT	3.83	M	H
Thewgold (C) .....	3-30	61.3	16.0	11.4	3.50	GYT	1.72	O-L	O
Golden Delicious (C) .....	3-30	53.5	17.1	13.0	3.08	YGT	4.03	M-H	M
Sungold (C) .....	3-30	28.3	15.9	12.7	2.94	Y	1.00	O	L-M
Yellow Delicious (B) .....	4-2	91.8	17.1	13.0	3.13	GYT	3.83	M	M-H
Nugget (B) <sup>1</sup> .....	4-2	23.7	17.2	12.6	3.08	GYT	4.44	M-H	M-H
Magnolia (B) .....	4-8	54.5	16.6	13.0	2.66	GYT	3.93	H	O-L
Mutsu (B) .....	3-26	19.3	17.8	12.5	3.41	GYT	1.00	O	M
Clear Gold (A) .....	3-30	50.8	17.0	13.2	3.07	GYT	4.38	M-H	M-H
Starkspur Golden Delicious (S) .....	3-30	8.8	18.1	13.2	3.03	GYT	5.10	M-H	H

<sup>1</sup>Letters in parenthesis identify nursery source of trees: W = Waynesboro, V = VanWell, H = Hill Top, C = C & O, B = Bountiful Ridge, A = Auburn, and S = Stark Brothers.

<sup>2</sup>Ground color: G = green, Y = yellow, and T = tint.

<sup>3</sup>Russet rating system:

**fruit surface rating**

- 1 = no surface russetting
- 2 = up to 20 percent of surface russetted
- 3 = 21-40 percent of surface russetted
- 4 = 41-60 percent of surface russetted
- 5 = 61-80 percent of surface russetted
- 6 = 81-100 percent of surface russetted

**degree on surface and stem cavity**

- O = none
- L = light
- M = medium
- H = heavy

TABLE 3. PERFORMANCE OF GOLDEN DELICIOUS APPLE STRAINS AND TYPES, PIEDMONT SUBSTATION, 1977

Variety <sup>1</sup>	Date of full bloom	Yield per tree	Fruit firmness, lb. per sq. in.	Soluble solids	Fruit size, diameter	L/D ratio	Ground color <sup>2</sup>	Russet rating <sup>3</sup>		
								Surface Rating	Degree	Stem end, degree
		<i>Lb.</i>		<i>Pct.</i>	<i>In.</i>					
Wayne Spur Yellow Delicious (W) ...	4-1	10.8	20.7	14.6	3.01	0.896	GYT	3.5	M—	M
Winter Banana (V) .....	3-28 <sup>4</sup>	21.5	29.0	12.7	2.93	.792	YGT	1.5	L—	L+
Goldspur Delicious (V) .....	4-1	55.5	21.3	13.0	3.09	.863	GYT	4.3	M	M+
Golden Delicious (V) .....	4-1	75.9	21.8	14.0	3.11	.896	YGT	2.9	L	M
Prime Gold (H) .....	4-1	39.0	18.9	14.0	2.84	.841	YGT	1.0	O	O
Smoothee (H) .....	4-1	44.6	22.4	15.1	3.13	.916	YGT-GYT	2.4	L	M
Sundale Sturdee Spur (H) .....	4-1	27.7	20.7	14.8	3.11	.877	GYT	5.0	H	H
Goldspur Delicious (C) .....	4-1	18.3	20.9	14.3	3.23	.883	GYT	4.3	M	M+
Thewgold (C) .....	3-28	28.3	23.1	12.5	3.49	.879	GYT	1.4	O-L	L+
Golden Delicious (C) .....	4-1	40.8	22.0	14.1	3.02	.888	YGT-GYT	3.9	M	M
Sungold (C) .....	3-28	48.0	20.4	14.3	2.91	.933	Y-YGT	2.3	O-L	M+
Yellow Delicious (B) .....	4-1	76.6	22.0	14.1	3.11	.886	GYT	4.2	L-M	M
Nugget (B) .....	4-1	28.8	21.3	13.6	3.23	.884	GYT	4.8	M	H—
Magnolia (B) .....	3-28	54.0	18.0	13.5	2.71	.920	Y-YGT	1.1	O	O
Mutsu (B) .....	3-28	28.7	23.8	14.1	3.48	.891	GYT	1.5	O	L+
Clear Gold (A) .....	3-28	74.4	21.8	14.8	3.07	.915	YGT-GYT	4.2	M—	M
Starkspur Golden Delicious (S) .....	4-1	32.8	21.8	13.3	3.11	.897	GYT	5.2	H—	H—

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<sup>1</sup> Letters in parenthesis identify nursery source of trees: W = Waynesboro, V = VanWell, H = Hill Top, C = C & O, B = Bountiful Ridge, A = Auburn, and S = Stark Brothers.

<sup>2</sup> Ground color: G = green, Y = yellow, and T = tint.

<sup>3</sup> Russet rating system:

- fruit surface rating**  
 1 = no surface russetting  
 2 = up to 20 percent of surface russetted  
 3 = 21-40 percent of surface russetted  
 4 = 41-60 percent of surface russetted  
 5 = 61-80 percent of surface russetted  
 6 = 81-100 percent of surface russetted

**degree on surface and stem cavity**

- O = none  
 L = light  
 M = medium  
 H = heavy

<sup>4</sup> Twenty-one strains of Red Delicious were in full bloom on 3/28.

TABLE 4. PERFORMANCE OF GOLDEN DELICIOUS APPLE STRAINS AND TYPES, PIEDMONT SUBSTATION, 1978

Variety <sup>1</sup>	Yield per tree	Fruit firmness, lb. per sq. in.	Soluble solids	Fruit size		L/D ratio	Ground color <sup>2</sup>	Russett rating <sup>3</sup>		
				Length	Width			Surface		Stem end,
	Lb.		Pct.	In.	In.			Rating	Degree	degree
Wayne Spur Yellow Delicious (W) ...	41.8	13.2	15.0	2.42	2.81	0.861	YGT	3.9	L	L
Winter Banana (V) .....	3.3	15.8	12.9	2.20	2.86	.769	YGT-GYT	2.8	L	O-L
Goldspur Delicious (V) .....	32.8	13.0	14.7	2.55	2.95	.864	GYT	4.7	L+M	H
Golden Delicious (V) .....	94.0	14.3	14.0	2.54	2.92	.870	YGT	4.2	L+M	M
Prime Gold (H) .....	55.3	19.6	10.0	2.14	2.65	.808	GYT	1.0	O	O
Smoothee (H) .....	89.1	14.3	13.4	2.52	2.87	.878	GYT	2.5	L	M+
Sundale Sturdee Spur (H) .....	17.2	12.8	14.3	2.55	3.10	.823	YGT-GYT	4.7	M	M+
Goldspur Delicious (C) .....	44.3	12.8	14.6	2.58	2.99	.863	YGT	4.7	M	M
Thewgold (C) .....	23.0	15.6	14.0	2.70	3.17	.852	GYT	2.8	L	L+
Golden Delicious (C) .....	50.0	14.5	14.4	2.52	2.89	.872	YGT-GYT	3.8	L	L+
Sungold (C) .....	34.1	15.4	15.2	2.42	2.66	.910	YGT	1.1	O	M
Yellow Delicious (B) .....	142.9	15.2	14.2	2.58	2.97	.869	YGT-GYT	4.1	L	L+
Nugget (B) .....	13.8	13.2	14.3	2.62	2.99	.876	YGT-GYT	5.2	M	M
Magnolia (B) .....	103.3	13.2	13.8	2.17	2.45	.886	YGT	1.0	O	O
Mutsu (B) .....	20.2	15.9	14.0	2.79	3.25	.859	GYT	1.1	O	L
Clear Gold (A) .....	63.2	15.0	14.5	2.53	2.93	.863	YGT	4.4	L+M	M
Starkspur Golden Delicious (S) .....	18.0	14.1	15.4	2.62	3.06	.856	GYT	3.8	L+	M+

<sup>1</sup>Letters in parenthesis identify nursery source of trees: W = Waynesboro, V = VanWell, H = Hill Top, C = C & O, B = Bountiful Ridge, A = Auburn, and S = Stark Brothers.

<sup>2</sup>Ground color: G = green, Y = yellow, and T = tint.

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- 6 = 81-100 percent of surface russetted

**degree on surface and stem cavity**

- O = none
- L = light
- M = medium
- H = heavy

Date of full bloom: April 7-9.

TABLE 5. AVERAGE PERFORMANCE OF GOLDEN DELICIOUS APPLE STRAINS AND TYPES, PIEDMONT SUBSTATION, 1975-78

Variety <sup>1</sup>	Date of full bloom	Accumulated yield/tree	Fruit firmness, lb. per sq. in.	Soluble solids	Fruit size		L/D ratio	Ground color <sup>2</sup>	Fruit color <sup>3</sup>	Russett rating <sup>4</sup>		
					Length	Width				Surface Rating	Degree	Stem end, degree
		Lb.	Pct.	In.	In.							
Wayne Spur Yellow Delicious (W) ...	4-3	76	16.5	13.8	2.55	2.97	0.877	GYT	WYT	3.70	M	M
Winter Banana (V) .....	4-1	121	21.7	11.8	2.35	2.98	.778	YGT	WYT	1.66	O-L	L
Goldspur Delicious (V) .....	4-3	151	16.7	13.2	2.76	3.13	.874	GYT	WYT	4.40	M	H
Golden Delicious (V) .....	4-3	227	17.1	13.6	2.78	3.08	.896	YGT-GYT	YWT	3.29	L	M
Prime Gold (H) .....	4-3	125	17.8	12.5	2.23	2.84	.810	YGT-GYT	Y	1.00	O	O
Smoothee (H) .....	4-3	216	17.4	13.6	2.70	3.09	.893	YGT-GYT	WYT	2.40	L	M
Sundale Sturdee Spur (H) .....	4-5	70	16.5	14.0	2.66	3.04	.866	GYT	WYT	4.60	M	H
Goldspur Delicious (C) .....	4-3	110	16.4	13.3	2.70	3.15	.870	GYT	WYT	4.21	M	M-H
Thewgold (C) .....	4-1	113	17.7	12.3	2.84	3.43	.857	GYT	WYT	1.86	L	L
Golden Delicious (C) .....	4-2	150	17.7	13.5	2.63	3.01	.882	YGT-GYT	WYT	4.13	M	M
Sungold (C) .....	4-2	113	16.8	13.5	2.54	2.87	.909	YGT	WYT	1.35	O	M
Yellow Delicious (B) .....	4-3	323	17.5	13.4	2.73	3.11	.880	GYT	YWT	4.00	M	M
Nugget (B) .....	4-3	74	16.7	13.4	2.73	3.14	.876	GYT	WYT	4.84	M-H	M-H
Magnolia (B) .....	4-4	222	16.2	13.4	2.37	2.63	.919	GYT	WYT	2.23	L	O
Mutsu (B) .....	3-31	71	18.8	13.1	2.93	3.35	.898	GYT	W	1.15	O	L-M
Clear Gold (A) .....	4-1	192	17.4	13.9	2.65	3.05	.890	GYT	WYT	4.37	M	M
Starkspur Golden Delicious (S) .....	4-2	61	17.6	13.8	2.73	3.10	.881	GYT	WYT	4.85	M	H

[17]

<sup>1</sup> Letters in parenthesis identify nursery source of trees: W = Waynesboro, V = VanWell, H = Hill Top, C = C & O, B = Bountiful Ridge, A = Auburn, and S = Stark Brothers.

<sup>2</sup> Ground color: G = green, Y = yellow, and T = tint.

<sup>3</sup> Flesh color: W = white, Y = yellow, and T = tint.

<sup>4</sup> Russett rating system:

- fruit surface rating**  
 1 = no surface russetting  
 2 = up to 20 percent of surface russetted  
 3 = 21-40 percent of surface russetted  
 4 = 41-60 percent of surface russetted  
 5 = 61-80 percent of surface russetted  
 6 = 81-100 percent of surface russetted

**degree on surface and stem cavity**

- O = none  
 L = light  
 M = medium  
 H = heavy

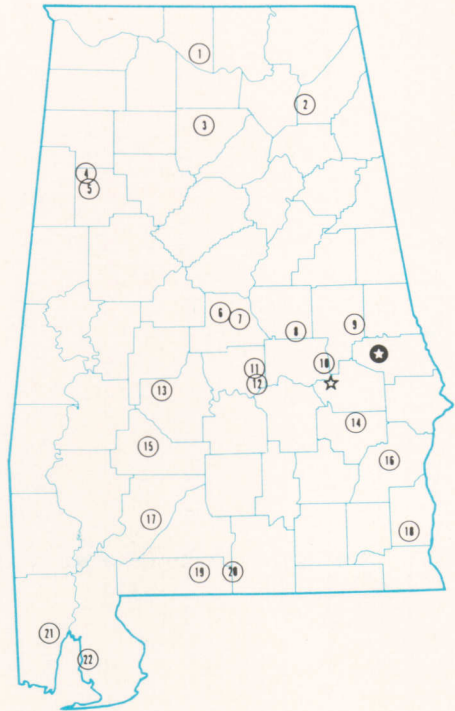






## Alabama's Agricultural Experiment Station System AUBURN UNIVERSITY

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. Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. The Turnipseed-Ikenberry Place, Union Springs.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Solon Dixon Forestry Education Center, Covington and Escambia counties.
21. Ornamental Horticulture Field Station, Spring Hill.
22. Gulf Coast Substation, Fairhope.