extension
ALABAMA A&M & AUBURN UNIVERSITIES

Cultivar Selection for Acorn Squash Production

► In an ongoing effort to provide science-based answers to production-related issues, cultivar variety trials were conducted to support the vegetable industry in Alabama. Recent evaluations resulted in guidelines for acorn squash cultivar selection in organic production systems.

An acorn squash cultivar trial was conducted during the fall of 2022. Trials evaluated nine cultivars (table 1) grown under conventional management practices at the Chilton Research and Extension Center of Auburn University. The center is located in Clanton, Alabama.

Crop Management Practices

- **Planting date:** July 19, 2022
- **Bed-spacing:** 6 feet center to center
- **Row-spacing:** 18 inches within bed
- **In-row plant spacing:** 36 inches
- **Plant population:** 2,420 plants/acre
- **Harvest date:** October 11, 2022
- **Irrigation:** Irrigation water was applied daily using a drip system installed under white plastic mulching. Irrigation supplied 1.2 inches of water per week.
- **Fertilizer:** After transplanting, plants were fertilized once a week until harvest through drip irrigation using a 20-20-20 fertilizer for a total of 150 pounds of nitrogen/acre.
- **Pest management:** Crop management practices for disease, insect, and weed control followed recommendations of the Alabama Cooperative Extension System or the "Southeastern US Vegetable Crop Handbook."

Table 1. Acorn Squash Cultivars Evaluated During Fall 2022

Cultivar	Fruit Color	Fruit Shape
Ace of Spades	Dark green	Oval
Autumn Delight	Dark green	Round
Autumn Perfection	Dark green	Round
Celebration	Orange/green	Flat
Mashed Potato	White	Oval
Royal Ace	Dark green	Round
Table Ace	Dark green	Round
Table Treat	Dark green	Round
Tay Belle	Dark green	Flat

- **Data collection:** At harvest, fruit were cut, and weight recorded to calculate the total yield. Fruit height (inches) and diameter (inches) were also recorded from three fruit. All data was used for statistical analysis and cultivar comparison within each system. Statistical analysis was performed with RStudio software using Fisher's Least Significant Difference Test with a p-value of 0.05.

Results

Acorn squash total yield was the highest for cultivars Tay Belle (9,931 pounds/acre) and Mashed Potato (9,864 pounds/acre), but the lowest for cultivars Autumn Perfection (6,343 pounds/acre) and Table Ace (5,333 pounds/acre) (table 2).

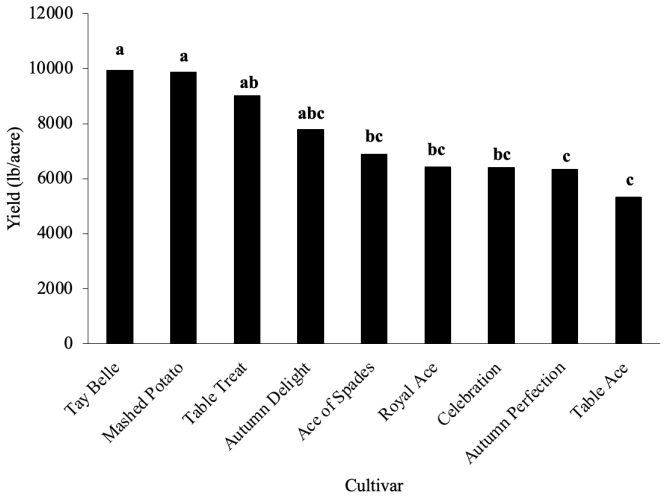


Figure 1. Total yield of acorn squash cultivars.

Acorn squash fruit weight and yield per plant were the highest for cultivar Autumn Perfection (1.70 pounds/fruit and 7.01 pounds/plant) and the lowest for cultivar Ace of Spades (1.08 pounds/fruit and 3.16 pounds/plant). The number of fruit per acre was the highest for cultivar Mashed Potato (8,712.0 fruit/acre), and the lowest for cultivar Autumn Perfection (3,811.5 fruit/acre).

The highest acorn squash fruit was measured for cultivar Mashed Potato (5.19 inches) and lowest for cultivar Celebration (3.31 inches). Fruit diameter was the highest for cultivar Autumn Perfection (4.37 inches) and lowest for cultivar Celebration (3.78 inches) and Mashed Potato (3.60 inches).

Overall, all cultivars performed well. Few plants presented powdery mildew disease at the end of the season due to favorable weather conditions for the pathogen; however, it did not affect crop yield. Total yield is responsive to the number of fruit per acre and fruit weight. Therefore, cultivars Mashed Potato and Tay Belle would be the best option, according to our data.

Table 2. Acorn Squash Fruit Weight, Yield Per Plant, Number of Fruit Per Acre, Height, and Diameter According to Cultivar

Cultivar	Fruit Weight (pounds)	Yield Per Plant (pounds)	Number of Fruit Per Acre	Height (inches)	Diameter (inches)
Ace of Spades	1.08 e*	3.16 d	6,352 bcd	4.41 bc	3.85 cd
Autumn Delight	1.26 bcd	4.75 bc	6,171 bcd	3.88 d	4.09 bc
Autumn Perfection	1.70 a	7.01 a	3811 e	4.71 b	4.37 a
Celebration	0.88 f	3.27 cd	7,260 abc	3.31 e	3.78 d
Mashed Potato	1.13 de	5.34 b	8712 a	5.19 a	3.60 d
Royal Ace	1.15 cde	3.30 cd	5,505 cde	4.19 cd	4.19 ab
Table Ace	1.24 bcd	4.00 bcd	4416 de	4.40 bc	3.85 cd
Table Treat	1.31 b	4.73 bcd	6,655 abc	4.10 cd	4.26 ab
Tay Belle	1.30 bc	5.19 b	7,683 ab	4.41 bc	4.33 ab

* Values followed by similar letters within a column indicate no significant difference among varieties, according to Least Significant Difference mean test.


Ace of
Spades

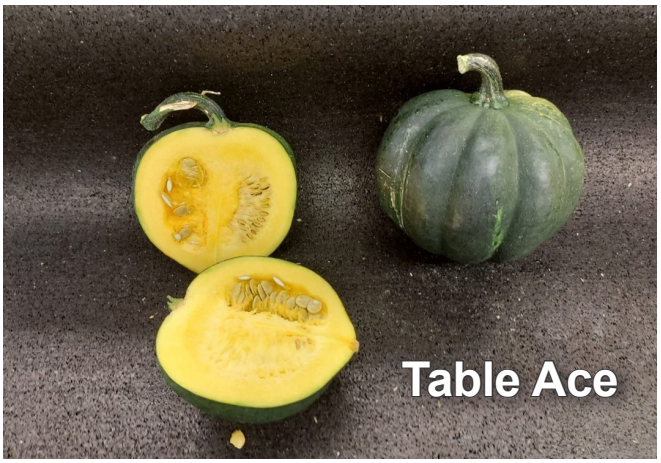

Autumn
Delight


Autumn
Perfection


Celebration


Mashed
Potato


Royal Ace



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