

2006 Potato Variety Report



UNIVERSITY OF FLORIDA

INSTITUTE OF **F**OOD AND **A**GRICULTURAL **S**CIENCES

ACKNOWLEDGEMENTS

Many talented and dedicated people assisted in these experiments. Invaluable technical support was provided by Doug Gergela and Pam Solano. The variety evaluation team is indebted to Dr. Christine Worthington, Dr. Fernando Munoz, Scott Taylor, Bart Herrington, Larry Miller, Billy Wingate, Hugh Burnham, Dan Huff and Zhiwei “Allen” Chen for their hard work. Without the commitment and effort from these individuals, the variety evaluation program would not be possible.

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CHAPTER 1. INTRODUCTION

General Potato Production Information

Potato clones were obtained from university, government, and industry breeding programs. Clones progress through the evaluation program following the track described in the Potato Variety Evaluation Flowchart (Figure 1, page 7).

Potatoes (*Solanum tuberosum* L.) in the Tri-County Agricultural Area (TCAA) around Hastings, Florida are grown in 60-foot wide beds consisting of sixteen rows. Rows are raised with a between row spacing of 40 inches (center to center). The research plots were irrigated with seepage irrigation. A clay layer underlies the topsoil at a depth of three to five feet in the TCAA. In this system, the perched water table depth is managed by water flow into irrigation canals spaced between beds. Potato beds were irrigated continuously over the season except after a rain event.

Variety trials, unless noted, were conducted at the Plant Science Research and Education Unit's Hastings Farm in Hastings, FL. The PSREU is part of the University of Florida/IFAS network of research farms located around the state to conduct research on important horticultural crops. The soil at the field site is classified as Ellzey fine sand (sandy, siliceous, hyperthermic Arenic Ochraqualf; sand 90-95%, < 2.5% clay, < 5% silt).

Potatoes were planted following a sorghum/sudan grass summer cover crop (*Sorghum bicolor* (L.) Moench x *S. arundinaceum* (Desv.) Stapf var. SX17, Dekalb). Cover crop was incorporated into the potato beds in September, 2005. Potato beds were fumigated with 1,3-dichloropropene (Telone II, 6 gal/A) in mid-December 2005. Potato seed pieces were dusted with fungicide (Maxim MZ) prior to planting. Quadris (8 oz/A) was applied in furrow at planting. Aldicarb (Temik, 20 lb/A) was also applied in furrow at planting. Metribuzin (Sencor DF, 16 oz/A) and Metolachlor (Dual II Magnum, 1 pt/A) were broadcast at hilling. Fungicides and insecticides were applied on a schedule based on IPM practices. Fresh market variety plots were vine-killed by chemical desiccation with diquat (Reglone 1 pt/A, 2 applications).

Fertilizer (100-43-86 granular) was incorporated into the beds prior to planting. Two split side-dress fertilizer applications (65-0-56, granular) were made in all trials during the season. Side-dress application dates, depending on the planting date of the respective trial, were March 8, 16, and 27, 2006.

Potato seed pieces were hand cut (approx. 2.5 oz) and hand planted on an 8-inch within row spacing unless otherwise noted. Plant growth characteristics were rated during the season following the descriptions listed in Table 1 (page 8). Plant type was rated at full flower approximately 60 days after planting. No growth enhancers or chemicals to enhance skin color were used in any trial unless otherwise noted.

Plots were harvested with a single-row, commercial potato harvester. Potatoes were graded using commercial grading equipment. Culls were removed and remaining potatoes were separated into six size classes and weighed. Specific gravity was measured on a random 20-tuber sample from each plot using the weight-in-air/weight-in-water method. A random sample was rated for external appearance characteristics. External tuber quality characteristics were rated following the descriptions in Table 2 (page 9). A second 20-tuber sample was collected and each tuber cut into fourths and rated for hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), and brown center (BC). BC was rated as light, moderate, or heavy if the cut pieces displayed the respective defects.

Sub-samples of potatoes from the USPB/SFA and Chipping trial were shipped to Utz Quality Foods. Chips were prepared and rated following the procedures outlined in the Snack Food Association Chipping Potato Handbook (1995). Chip Agtron scores are presented in their respective chapters. An Agtron value of 45 is usually the standard for acceptable potato chip color. Agtron values less than 45 are considered unacceptable. A sub-sample of potatoes was also chipped by Wise Foods. Visual rating scores are not presented due to space limitations.

Seasonal Weather and Growing Conditions

Weather conditions were unseasonably dry during the 2006 potato season (Appendix 1; Tables 34 and 35). January and February saw mostly normal rainfall. March, April and May were noticeably drier than normal in the TCAA. Early June was also dry, allowing later harvest of tubers. Only four mornings had temperature readings at or below freezing. Seepage irrigation ran almost constantly from mid-late February until two weeks prior to harvest. Overall, yields and quality at the research farm were about average.

Production

There were no production technique changes for 2006.

FIGURE 1. POTATO VARIETY PROGRAM EVALUATION FLOWCHART

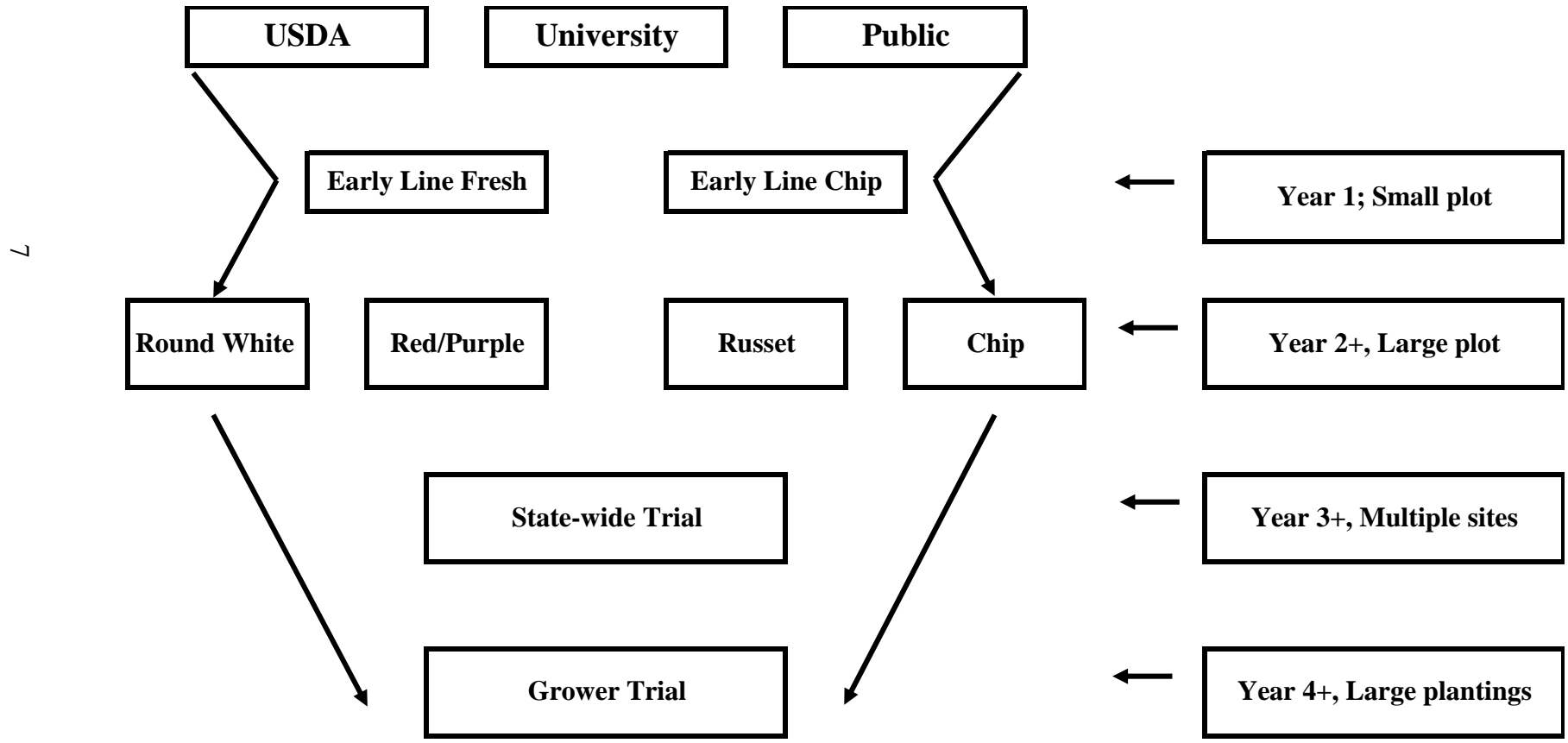


TABLE 1. PLANT GROWTH CHARACTERISTICS

Rating	Early Vigor (plant height)	Vine Type	Vine Maturity at Harvest/Vine Kill
1	no emergence	decumbent – poor	dead
2	leaves in rosette	decumbent – fair	+–
3	plants < 2 in	decumbent – good	yellow and dying
4	plants 2 to 4 in	spreading – poor	+–
5	plants 4 to 6 in	spreading – fair	moderately senesced
6	plants 6 to 8 in	spreading – good	+–
7	plants 8 to 10 in	upright – poor	starting to senesce
8	plants 10 to 12 in	upright – fair	+–
9	plants > 12 in	upright – good	green and vigorous

Adapted from Sisson and Porter, 2002.

TABLE 2. INTERNAL AND EXTERNAL POTATO TUBER CHARACTERISTICS

	Internal	Skin	Skin	Tuber	Eye	Overall
Rating	Flesh Color	Color	Texture	Shape	Depth	Appearance
1	White	Purple	Partial Russet	Round	Very Deep	Very Poor
2	Cream	Red	Heavy Russet	Mostly Round	+-	+-
3	Light Yellow	Pink	Mod. Russet	Round to Oblong	Deep	Poor
4	Medium Yellow	Dark Brown	Light Russet	Mostly Oblong	+-	+-
5	Dark Yellow	Brown	Netted	Oblong	Intermediate	Fair
6	Pink	Tan	Slightly Netted	Oblong to Long	+-	+-
7	Red	Buff	Mod. Smooth	Mostly Long	Shallow	Good
8	Blue	White	Smooth	Long	+-	+-
9	Purple	Cream	Very Smooth	Cylindrical	Very Shallow	Excellent

Adapted from Sisson and Porter, 2002.

