

## Chapter 3. White-Skinned Fresh Market Potato Variety Trial, 2006 <sup>1</sup>

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### **General Comments**

A goal of the white-skinned fresh market variety trial is to identify a round white potato that has better quality and production characteristics than LaChipper. Identification of "specialty" potatoes that expand the marketable varieties produced in Florida is also a priority. Established varieties were included to provide a baseline for the numbered clones.

### **Planting Information**

|                    |   |
|--------------------|---|
| Planting Site      | PSREU - Hastings Farm, Hastings, FL                         |
| Planting Date      | January 31, 2006  |
| Vine Kill Date     | April 28, 2006  |
| Harvest Date       | May 17, 2006  |
| Season Length      | 87 days planting to vine kill; 106 days planting to harvest |
| Fertilizer Program | preplant, 100-43-86 lb/A; sidedress, 65-0-56 lb/A (2 appl.) |
| Irrigation Program | seepage   |

### **Experimental Design**

|                     |                          |
|---------------------|--------------------------|
| Number of Varieties | 12 (Standard: LaChipper) |
| Number of Clones    | 10                       |
| Within Row Spacing  | 8 in (20 cm)             |
| Between Row Spacing | 40 in (102 cm)           |
| Replications        | 4                        |
| Plot Size           | 16 ft (4.9 m)            |

### **Production Statistics**

|                          |                                      |
|--------------------------|--------------------------------------|
| Early Vigor Ratings      | 41 days after planting               |
| Highest Total Yield      | B1870-3 (376 cwt/acre or 42.1 MT/ha) |
| Highest Marketable Yield | B1870-3 (324 cwt/acre or 36.3 MT/ha) |
| Best Appearance Rating   | Ambra (7.0, good to excellent)       |

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**Table 2.** Production statistics for White-Skinned Fresh Market potato selections.

| Clone            | Total         |         | Marketable Yield <sup>1</sup> |          |  |        | Size   |        |           |        | Size Class |          |        | Specific Gravity |
|------------------|---------------|---------|-------------------------------|----------|--|--------|--------|--------|-----------|--------|------------|----------|--------|------------------|
|                  | Yield (cwt/A) | (cwt/A) | %                             | standard | Distribution by Class (%) <sup>2</sup> |        |        |        | Range (%) |        |            | A2 to A3 |        |                  |
|                  |               |         |                               |          | C                                      | B      | A1     | A2     | A3        | A4     | A1 to A3   |          |        |                  |
| LaChipper        | 323           | 272     | 100                           |          | 1                                      | 9      | 75     | 15     | 1         | 0      | 90         | 15       | 1.068  |                  |
| Adora            | 319           | 237     | 87                            |          | 1                                      | 17     | 81     | 0      | 0         | 0      | 82         | 0        | 1.064  |                  |
| Ambra            | 327           | 258     | 95                            |          | 1                                      | 10     | 82     | 6      | 0         | 0      | 89         | 6        | 1.057  |                  |
| Andover          | 153           | 132     | 49                            |          | 1                                      | 7      | 85     | 7      | 0         | 0      | 92         | 7        | 1.070  |                  |
| Chippewa         | 338           | 277     | 102                           |          | 1                                      | 11     | 82     | 6      | 1         | 0      | 88         | 7        | 1.067  |                  |
| Early Gem        | 277           | 200     | 73                            |          | 1                                      | 17     | 81     | 1      | 0         | 0      | 82         | 1        | 1.060  |                  |
| Fabula           | 287           | 248     | 91                            |          | 0                                      | 5      | 78     | 17     | 0         | 0      | 95         | 17       | 1.054  |                  |
| Harley Blackwell | 322           | 255     | 94                            |          | 2                                      | 15     | 80     | 3      | 0         | 0      | 83         | 3        | 1.075  |                  |
| Katahdin         | 312           | 253     | 93                            |          | 1                                      | 13     | 83     | 3      | 0         | 0      | 86         | 3        | 1.067  |                  |
| Sebago           | 154           | 116     | 43                            |          | 1                                      | 11     | 75     | 12     | 0         | 0      | 88         | 12       | 1.063  |                  |
| Superior         | 302           | 247     | 91                            |          | 1                                      | 11     | 84     | 4      | 0         | 0      | 88         | 4        | 1.072  |                  |
| Yukon Gold       | 292           | 250     | 92                            |          | 1                                      | 6      | 68     | 25     | 0         | 0      | 93         | 25       | 1.070  |                  |
| B1806-8          | 344           | 269     | 99                            |          | 1                                      | 13     | 77     | 9      | 0         | 0      | 86         | 9        | 1.069  |                  |
| B1870-3          | 376           | 324     | 119                           |          | 1                                      | 5      | 61     | 28     | 5         | 0      | 93         | 33       | 1.059  |                  |
| B2211-55         | 334           | 298     | 110                           |          | 1                                      | 5      | 65     | 27     | 1         | 0      | 94         | 29       | 1.075  |                  |
| B2273-75         | 215           | 164     | 60                            |          | 1                                      | 5      | 34     | 39     | 21        | 0      | 94         | 60       | 1.063  |                  |
| B2280-134        | 254           | 203     | 75                            |          | 3                                      | 16     | 80     | 1      | 0         | 0      | 81         | 1        | 1.063  |                  |
| B2287-38         | 350           | 303     | 112                           |          | 1                                      | 11     | 87     | 1      | 0         | 0      | 89         | 1        | 1.063  |                  |
| B2440-122        | 311           | 231     | 85                            |          | 1                                      | 21     | 78     | 0      | 0         | 0      | 78         | 0        | 1.066  |                  |
| B2451-6          | 175           | 128     | 47                            |          | 2                                      | 12     | 82     | 4      | 0         | 0      | 86         | 4        | 1.059  |                  |
| NY41-67          | 369           | 297     | 109                           |          | 1                                      | 6      | 77     | 16     | 0         | 0      | 93         | 16       | 1.071  |                  |
| NY73-49          | 343           | 266     | 98                            |          | 1                                      | 9      | 70     | 21     | 0         | 0      | 90         | 21       | 1.076  |                  |
| MSD <sup>3</sup> | 95            | 91      |                               |          | 1                                      | 7      | 16     | 17     | 6         | 0      | 8          | 16       | 0.006  |                  |
| P Value          | 0.0001        | 0.0001  |                               |          | 0.0001                                 | 0.0001 | 0.0001 | 0.0001 | 0.0001    | 0.0001 | 0.0001     | 0.0001   | 0.0001 | 0.0001           |

<sup>1</sup>Marketable Yield: size classes A1 to A3.<sup>2</sup>Size classes: C = .5 to 1.5", B = 1.5 to 1 7/8", A1 = 1 7/8 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4"<sup>3</sup>Means separated within columns by Tukey's Studentized Range (HSD) Test.

**Table 3.** Plant growth and tuber characteristics of White-Skinned Fresh Market potato selections.

| Clone            | Plant Growth Characteristics <sup>1</sup> |             |           |               | Tuber Characteristics <sup>2</sup> |     |     |     |     |     |                          |
|------------------|---|-------------|-----------|---------------|------------------------------------|-----|-----|-----|-----|-----|--------------------------|
|                  | % Stand                                   | Early Vigor | Vine Type | Vine Maturity | IFC                                | SC  | ST  | TS  | ED  | APP | Tuber Comments           |
| LaChipper        | 85  | 6.3         | 8.7       | 7.0           | 1.0                                | 8.0 | 7.5 | 3.0 | 4.5 | 6.0 | sl. flat, some lenticels |
| Adora            | 96  | 6.8         | 8.0       | 6.5           | 2.0                                | 7.0 | 7.5 | 5.0 | 6.0 | 5.5 | lenticels, sl. lumpy     |
| Ambra            | 80  | 5.0         | 8.5       | 7.0           | 3.0                                | 7.0 | 6.5 | 4.0 | 6.0 | 7.0 | sl. flat, lenticels      |
| Andover          | 46  | 5.8         | 7.3       | 7.0           | 1.5                                | 6.0 | 5.0 | 3.0 | 6.5 | 5.0 | some scab                |
| Chippewa         | 95  | 6.3         | 9.0       | 7.0           | 1.5                                | 8.0 | 6.5 | 3.5 | 6.5 | 6.0 | sl. flat, some lenticels |
| Early Gem        | 90  | 4.5         | 8.0       | 7.3           | 1.0                                | 5.0 | 3.5 | 4.5 | 6.5 | 4.5 | some mishapen            |
| Fabula           | 49  | 4.8         | 7.7       | 9.0           | 2.0                                | 6.5 | 6.0 | 3.5 | 6.0 | 6.0 | some lenticels           |
| Harley Blackwell | 94  | 6.8         | 8.8       | 7.5           | 1.5                                | 7.0 | 5.5 | 2.5 | 6.0 | 6.0 | nice white flesh, small  |
| Katahdin         | 97  | 5.3         | 9.0       | 7.0           | 1.5                                | 6.5 | 6.5 | 3.5 | 6.5 | 4.0 | sl. flat, some scab      |
| Sebago           | 44  | 5.3         | 8.0       | 7.0           | 1.5                                | 7.0 | 7.0 | 4.0 | 5.5 | 4.0 | some lenticels           |
| Superior         | 98  | 6.5         | 8.3       | 7.0           | 1.5                                | 6.5 | 5.5 | 3.0 | 6.0 | 5.5 | sl. flat                 |
| Yukon Gold       | 82  | 4.5         | 8.0       | 7.3           | 3.5                                | 7.0 | 7.5 | 3.5 | 5.5 | 6.0 | sl. fat, pink eyes       |
| B1806-8          | 83  | 6.5         | 9.0       | 8.0           | 3.5                                | 6.5 | 6.0 | 3.5 | 7.0 | 4.5 | sl. flat, poor skin set  |
| B1870-3          | 93  | 7.0         | 8.0       | 7.3           | 1.5                                | 7.0 | 6.5 | 3.5 | 6.0 | 5.5 | some lenticels           |
| B2211-55         | 98  | 5.0         | 8.0       | 8.0           | 1.5                                | 6.0 | 5.5 | 3.5 | 6.0 | 4.5 | some skinning            |
| B2273-75         | 36  | 6.5         | 8.0       | 7.5           | 3.0                                | 6.0 | 5.5 | 3.0 | 5.5 | 4.5 | lenticels                |
| B2280-134        | 93  | 4.8         | 8.0       | 8.8           | 1.5                                | 6.0 | 5.5 | 2.5 | 5.5 | 5.0 | alligator skin           |
| B2287-38         | 100                                       | 5.8         | 9.0       | 8.0           | 1.5                                | 6.5 | 6.5 | 3.5 | 6.0 | 5.5 | sl. flat                 |
| B2440-122        | 89  | 5.0         | 8.0       | 8.8           | 3.0                                | 7.0 | 6.5 | 3.5 | 7.0 | 5.5 | lenticels                |
| B2451-6          | 45  | 5.8         | 8.0       | 7.0           | 1.5                                | 6.0 | 5.5 | 3.5 | 6.0 | 5.0 | sl. flat                 |
| NY41-67          | 97  | 8.8         | 8.0       | 7.3           | 2.0                                | 7.0 | 6.5 | 3.5 | 6.0 | 6.0 | sl. flat, some lenticels |
| NY73-49          | 95  | 6.5         | 9.0       | 8.0           | 1.5                                | 7.0 | 6.0 | 3.5 | 5.5 | 4.5 | lenticels                |

<sup>1</sup>See rating system outlined in Chapter 1.<sup>2</sup>See rating system outlined in Chapter 1.

**Table 4.** External and internal defects of White-Skinned Fresh Market potato selections.

| Clone                   | % External Tuber Defects |            |            |                |                          | Total Culls <sup>1</sup> | % Internal Defects <sup>2</sup> |        |        |        |        |        |   |
|-------------------------|--------------------------|------------|------------|----------------|--------------------------|--------------------------|---------------------------------|--------|--------|--------|--------|--------|---|
|                         | Growth Cracks            | Mis-shapen | Sun-burned | Rotten & misc. | Total Culls <sup>1</sup> |                          | HH                              | BR     | CRS    | IHN    | L      | M      | H |
| LaChipper               | 0                        | 1          | 2          | 3              | 6                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Adora                   | 0                        | 1          | 1          | 6              | 9                        | 0                        | 0                               | 1      | 0      | 0      | 0      | 0      |   |
| Ambra                   | 0                        | 0          | 4          | 8              | 12                       | 0                        | 0                               | 0      | 0      | 1      | 0      | 0      |   |
| Andover                 | 0                        | 0          | 1          | 5              | 6                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Chippewa                | 0                        | 0          | 2          | 5              | 7                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Early Gem               | 5                        | 4          | 1          | 1              | 12                       | 0                        | 0                               | 0      | 1      | 0      | 0      | 0      |   |
| Fabula                  | 0                        | 0          | 2          | 6              | 9                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Harley Blackwell        | 0                        | 0          | 2          | 3              | 5                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Katahdin                | 0                        | 0          | 3          | 3              | 5                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Sebago                  | 0                        | 0          | 8          | 9              | 17                       | 0                        | 0                               | 0      | 2      | 2      | 0      | 0      |   |
| Superior                | 0                        | 1          | 0          | 7              | 8                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| Yukon Gold              | 0                        | 2          | 4          | 2              | 8                        | 3                        | 0                               | 0      | 0      | 1      | 0      | 0      |   |
| B1806-8                 | 0                        | 0          | 3          | 5              | 8                        | 0                        | 0                               | 1      | 1      | 0      | 0      | 0      |   |
| B1870-3                 | 0                        | 0          | 4          | 4              | 8                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| B2211-55                | 0                        | 0          | 2          | 3              | 5                        | 0                        | 0                               | 0      | 0      | 1      | 0      | 0      |   |
| B2273-75                | 0                        | 0          | 4          | 15             | 19                       | 5                        | 0                               | 0      | 0      | 3      | 1      | 3      |   |
| B2280-134               | 0                        | 0          | 1          | 0              | 2                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| B2287-38                | 0                        | 0          | 0          | 2              | 2                        | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| B2440-122               | 0                        | 1          | 2          | 1              | 4                        | 1                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| B2451-6                 | 0                        | 1          | 5          | 8              | 13                       | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| NY41-67                 | 0                        | 6          | 1          | 7              | 14                       | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| NY73-49                 | 0                        | 4          | 3          | 8              | 15                       | 0                        | 0                               | 0      | 0      | 0      | 0      | 0      |   |
| <i>MSD</i> <sup>3</sup> | 0                        | 3          | 4          | 11             | 13                       | 5                        | 0                               | 0      | ns     | ns     | ns     | 2      |   |
| <i>P Value</i>          | -                        | 0.0001     | 0.0065     | 0.0044         | 0.0002                   | 0.0486                   | -                               | 0.5528 | 0.4736 | 0.5561 | 0.4736 | 0.0012 |   |

<sup>1</sup>Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

<sup>2</sup>Percent tubers; HH, hollow heart; BR, brown rot; CRS, corky ring spot; IHN, internal heat necrosis.

Brown Center: L = Light, M = Moderate, H = Heavy

<sup>3</sup>Means separated within columns by Tukey's Studentized Range (HSD) Test.