

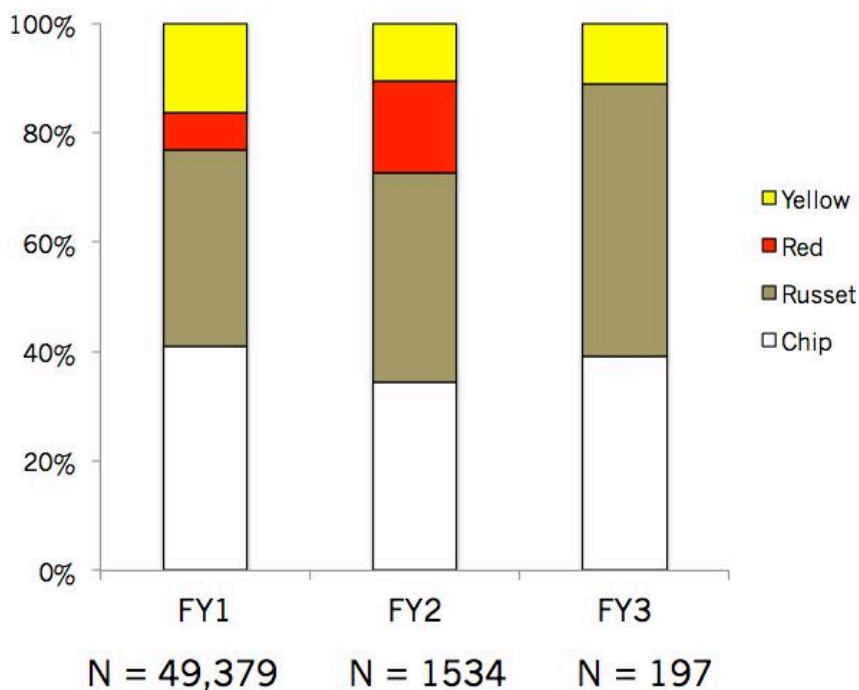
# UW Potato Breeding Report 2016

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The University of Wisconsin potato breeding program strives to develop new varieties for all sectors of the potato industry, including russets for the fresh market and frozen processing, round whites for chip processing, reds, and yellows. Figure 1 shows the proportion of the program devoted to the different market types, in the FY1, FY2, and FY3 generations in 2016. Our target allocation for FY1 and FY2 is 1/3 russets, 1/3 chips, and 1/3 reds and yellows, and the numbers for 2016 were close to this target. Figure 1 also shows the total number of clones at each stage: there were nearly 50,000 clones in FY1, 1534 in FY2, and 197 in FY3.



**Figure 1.** Total number of clones in FY1–FY3 and the percentage allocated to different types.

Replicated trials begin in FY4 at the Hancock Research Station, followed by submission in FY5 to collaborative regional and national testing programs, such as the National Chip Processing Trial (6 entries in 2016), National Fry Processing Trial (6 entries), and North Central Regional Trial (7 entries), which is focused on the fresh market. Clones that advance to FY6 are entered into tissue culture, to begin the process of virus eradication. In 2016 the breeding program cured 9 new varieties of disease, establishing mother plantlets that can be used for certified seed production.

The SpudPro program was developed to facilitate the production of foundation seed at the Lelah Starks “State Farm” in Rhinelander. In 2016 the Foundation Seed Farm had five new varieties in various stages of production (Table 1). W9133-1rus and W8893-1R graduated this year and will be available for seed growers to trial in 2017.

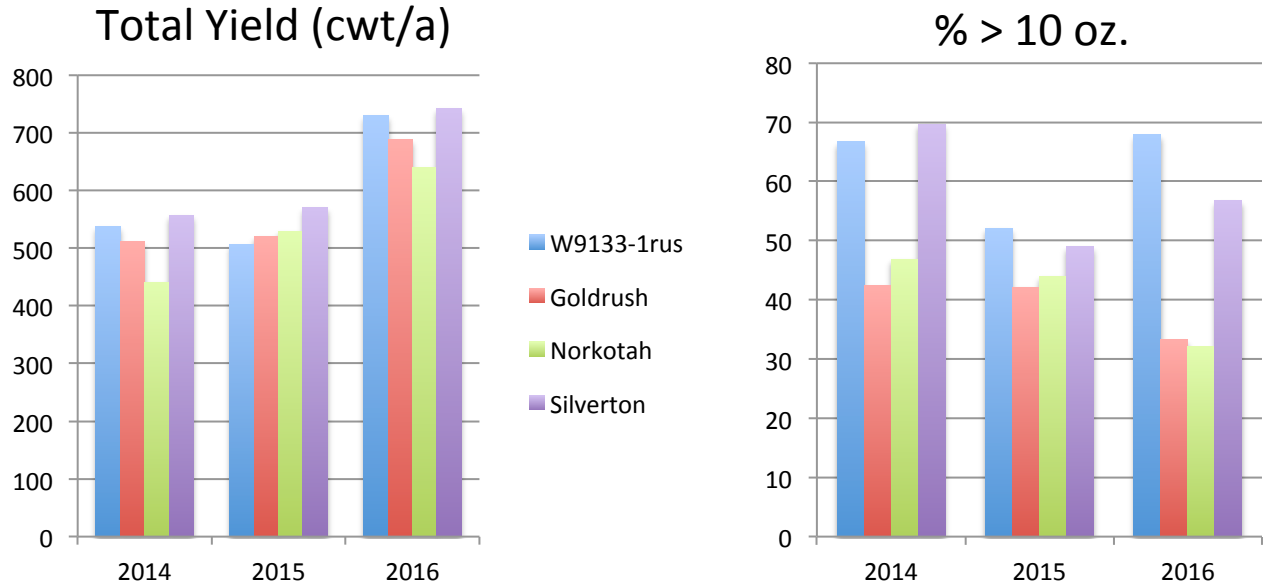
**Table 1.** SpudPro varieties and status in 2016.

Name	Type	Status
W8893-1R	Red	FY2
W9133-1rus	Russet, tablestock	FY2
W9433-1rus	Russet, tablestock	FY1
W9576-11Y	Yellow	FY1
W8890-1R	Red	Minitubers

W9133-1rus has nice russeting and a blocky shape (Figure 2), although smaller tubers can be a bit round. The vines often show signs of early dying, but total yields have been comparable to benchmark varieties under 120-day seasons at the Hancock Research Station (Figure 3). The size profile appears more similar to Silverton than Goldrush or Norkotah (Figure 3).



**Figure 2.** W9133-1rus

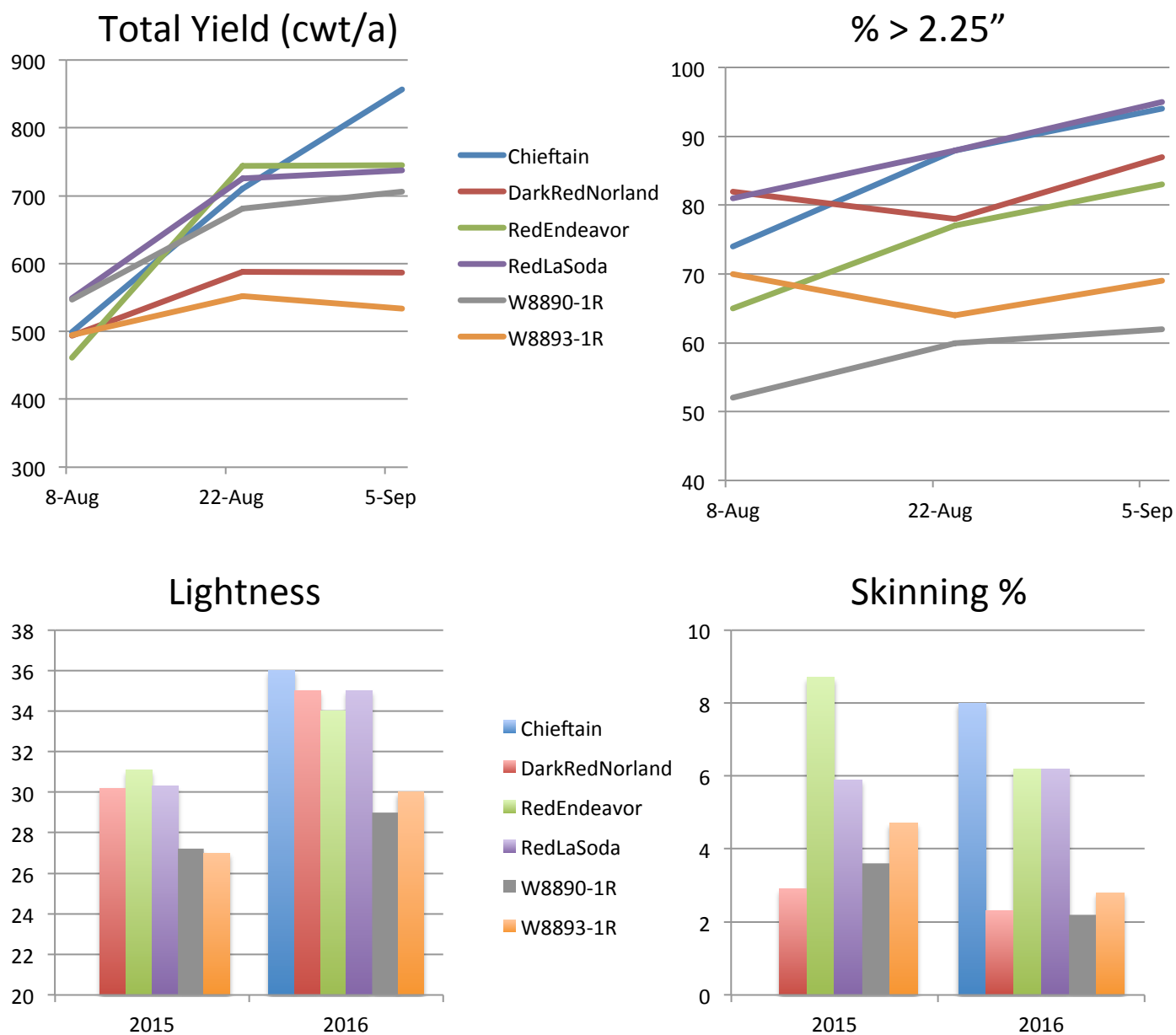


**Figure 3.** Comparing the total yield and size distribution (% marketable yield > 10 oz.) for W9133-1rus against standard fresh market varieties at the Hancock Research Station (120-day season).

The other 2016 SpudPro graduate is W8893-1R, which produces attractive round tubers with shallow eyes (Figure 4). This variety has good skin set characteristics: almost as good as Norland and significantly better than Red Endeavor (Figure 5). W8893-1R also has consistently darker skin than Dark Red Norland and Red Endeavor, but it is susceptible to *Verticillium* wilt and does not have the same yield potential as the benchmark varieties (Figure 5).



**Figure 4.** W8893-1R

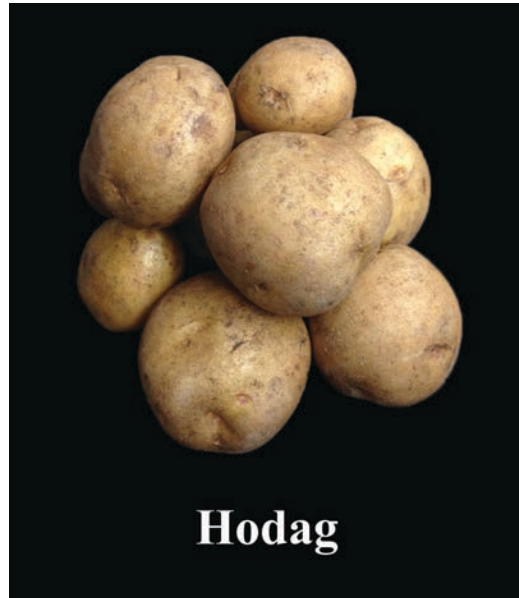


**Figure 5.** Comparison of W8893-1R and W8890-1R to benchmark red varieties, at the Hancock Research Station. *Top row:* Total yield and size distribution for three harvest dates in 2016. *Bottom row:* Lightness (0–100%) and skinning percentage, calculated from image analysis of tuber photos.

**Table 2.** 2016 certified seed acreage of recent UW variety releases

Release Year	Variety	Market	WI Acres	US Acres	Change from 2015
2016	W8405-1R	Fresh market red	2	2	+2
2015	W6609-3	Chip processing	13	13	+11
2015	Hodag (W5955-1)	Chip processing	21	21	+14
2014	Red Endeavor	Fresh market red	53	76	-12
2014	Oneida Gold	Fresh market yellow	60	64	+29
2013	Pinnacle	Chip processing	54	54	+4
2012	Lelah	Chip processing	0	19	-14
2010	Accumulator	Chip processing	29	99	+28
2010	Nicolet	Chip processing	13	29	-41

A number of new chip processing varieties have been released since 2010 (Table 2). Pinnacle and Accumulator appear to be maintaining or gaining traction in the marketplace, while Tundra, Lelah, and Nicolet declined in acreage. In March 2016 the Spudpro Committee chose the name ‘Hodag’ for W5955-1 (Figure 6), in honor of the mythical creature from the Rhinelander area. Hodag stored until May 2016 in a 1000 lb box bin trial at the Hancock Storage Research Facility and produced high quality chips in a commercial processing run. For 2016–17 the variety is being stored in a 2000 cwt bulk bin at the Hancock Station. In small-plot trials Hodag has consistently demonstrated resistance to common scab, at levels similar to Pike. Its yield potential is similar to Snowden but with more oversize tubers. Specific gravity for Hodag is similar to Snowden.



## Hodag (W5955-1)

**Parentage:** Pike x Dakota Pearl

**Developer:** University of Wisconsin-Madison

**Plant Variety Protection:** Pending

**Utilization:** Chipstock

**Vine Maturity:** Full season, similar to Snowden.

**Yield Potential:** High yield potential, similar to Snowden.

**Specific Gravity:** Similar to Snowden.

**Disease Profile:** Good resistance to common scab, similar to Pike. Tolerant of *Verticillium wilt*.

**Storability:** Maintains light chip color 4-6 weeks longer than Snowden.

**Appearance:** Round tubers with shallow eyes.

**Weaknesses:** More oversize tubers than Snowden.

### Incentives for Production

Hodag rivals Snowden in yield and specific gravity, but stores longer and has better resistance to common scab.



**Figure 6.** Information about Hodag, a new chip processing variety