

Potato as an inbred line-based crop.

Part 2

Shelley Jansky, USDA-ARS and UW-Madison
David Douches, Michigan State University
Amy Charkowski, Colorado State University

Recap of 2017 presentation

- Breeding new varieties is challenging
 - Cultivars are tetraploid and heterozygous
 - Segregate when crossed
 - Each variety is a completely new genetic combination



Recap of 2017 presentation

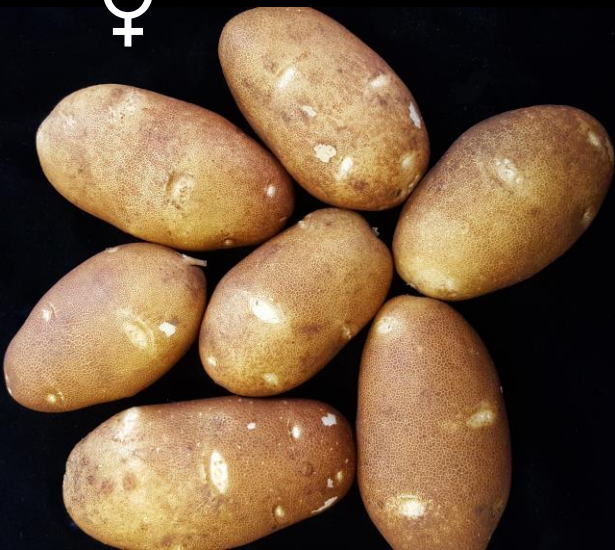
- New breeding system
 - Cultivars are diploid hybrids from inbred lines
 - Can create a new variety that is identical to an existing one, but with additional traits
 - Propagated by true seed



Advantages of new system

1. Incrementally improve cultivars

♀



Inbred line



Hybrid



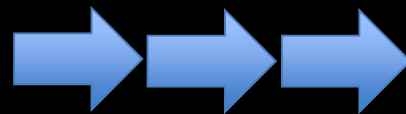
♂



Inbred line

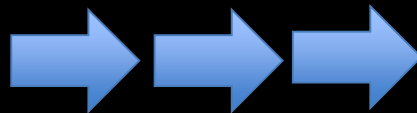
“Expo”





♀

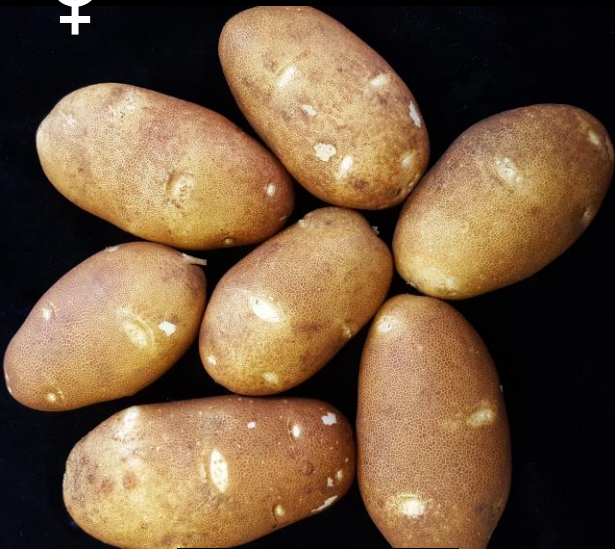




♂



♀



“Expo 2”



♂



Advantages of new system

1. Incrementally improve cultivars
2. Propagate from true seed

True Seed

- Easy to produce and store



True Seed



True Seed

- Faster response to calamities



True Seed

- Quickly bulk up seed of new varieties

Expo

A new dual purpose russet with excellent processing quality.



True Seed

- Less disease transmission



Advantages of new system

1. Incrementally improve cultivars
2. Propagate from true seed
3. Genetic gains from breeding