Broccoli

Breeding Objective:

Open-pollinated type able to withstand summer heat

Key Traits for Variety Selection:

Earliness, medium head size (~5" diameter), high side-shoot production, good growth in cool spring soils with low N availability, convex dome, small bead size, blue-green heads, medium plant height (~ 3'), strong stems, moderate head to leaf ratio, and even maturity

Broccoli: Origin

- **Parents**: Arcadia, Decathlon, Excelsior, Shogun, San Miguel, Barbados & 17 OSU inbred lines
- Random mated *without* selection 1997-2000
  - Conventional production system
  - One environment (OSU-Corvallis)

Broccoli: Improvement

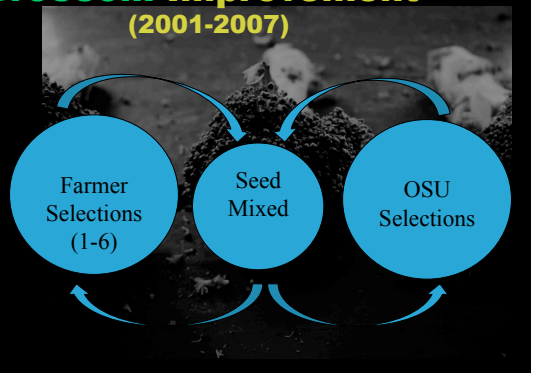
- Random mated *with* selection (head size, vigor, freedom from downy mildew, heat tolerance) 2001-present
- Farmer participatory component added 2001
  - (Farmer Cooperative Genome Project; Organic Seed Partnership)
- All farmer production under organic conditions
- OSU work moved to transitional ground in 2004, certified organic in 2010

Broccoli: Improvement

- 500 - 1000 seeds sent to each grower (plot size 250 – 500 plants)
  - Plant, select best 25%, allow random mating, harvest seed
- Keep plants regularly spaced
- Avoid selecting border plants
- Select from all portions of the plot
- Keep at least 50 plants to minimize inbreeding
- Isolate from other *Brassica oleracea* crops (Brussels sprouts, cabbage, kohlrabi, kale, collards, cauliflower)

Broccoli: Improvement

(2001-2007)



Broccoli: OSU Development (2008-2013)

- 2008 – Plant OP Population, select single plants (SPS)
- 2009 - Plant SPS to rows, select for uniformity
- 2010 – Repeat process
- 2011 – Select among and within "best" families
- 2012-2013 – Begin replicated trials, develop varietal description

Broccoli: Farmer Varieties

- Julie Puhich – Common Ground Farm
  - Single Plant Selection Scheme
  - Working variety for farm and local area
- Jonathan Spero – Lupine Knoll Farm
  - Mass Selection Scheme
  - Released Solstice Broccoli (Oregon Long Neck)
    - 5th Generation Seed Selection

Check Varieties


Oregon State Selections


Farmer Selections


Julie
1st cut @ LB
7.7.11


Jona-than