


Updates from Pomegranate Breeding


Zhanao Deng

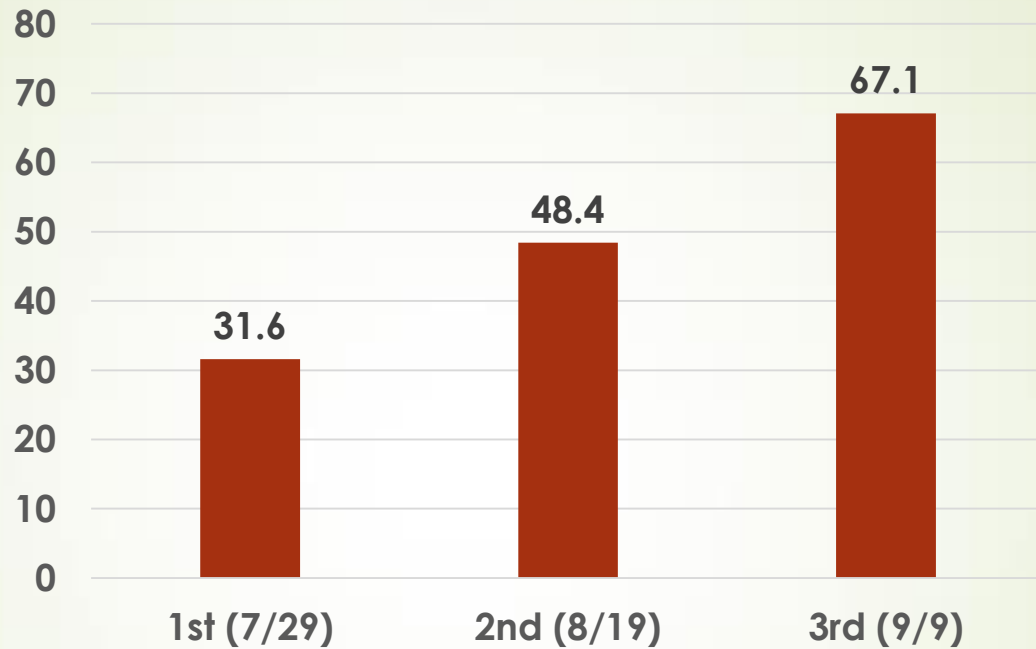
FPA 5th Annual Meeting
Balm, 9/30/16





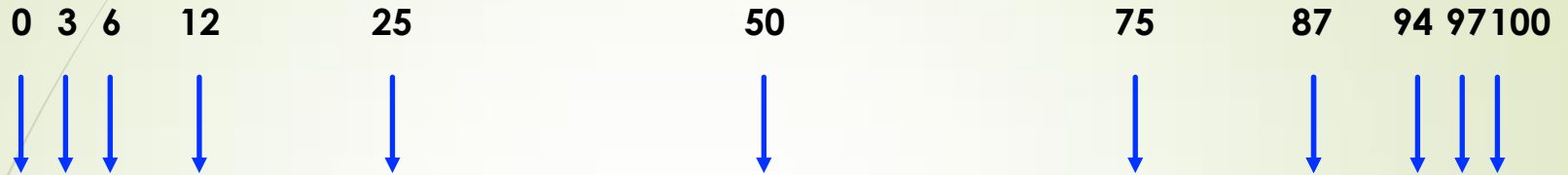
Varietal Differences in Susceptibility to Leaf Spots

- 44 varieties
 - 2 to 3 plants per variety
 - Single plots, not replicated
 - No pesticides or fungicides
 - Visual evaluations: 7/29, 8/19, and 9/9
 - Estimated percentage of leaves with leaf spots
- 



Average % of diseased leaves across 44 varieties
(40% to 50% increase in 3 weeks)

Percent Ranges (0 – 100%)



01 2 3 4 5 6 7 8 9 10

Horsfall-Barrett Scale (0 – 11)

Low
(0% – 12%)

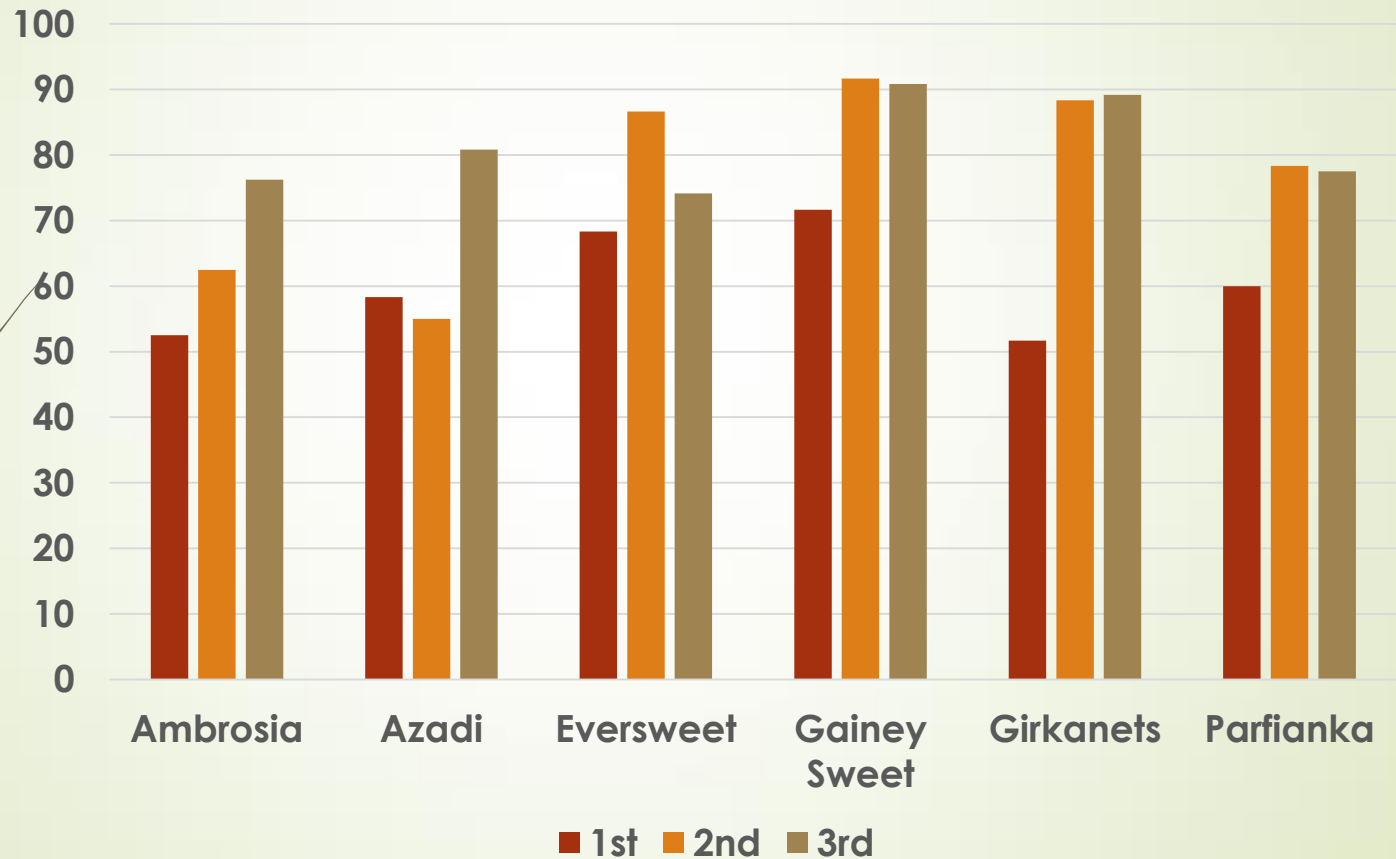


Moderate
(12% – 50%)

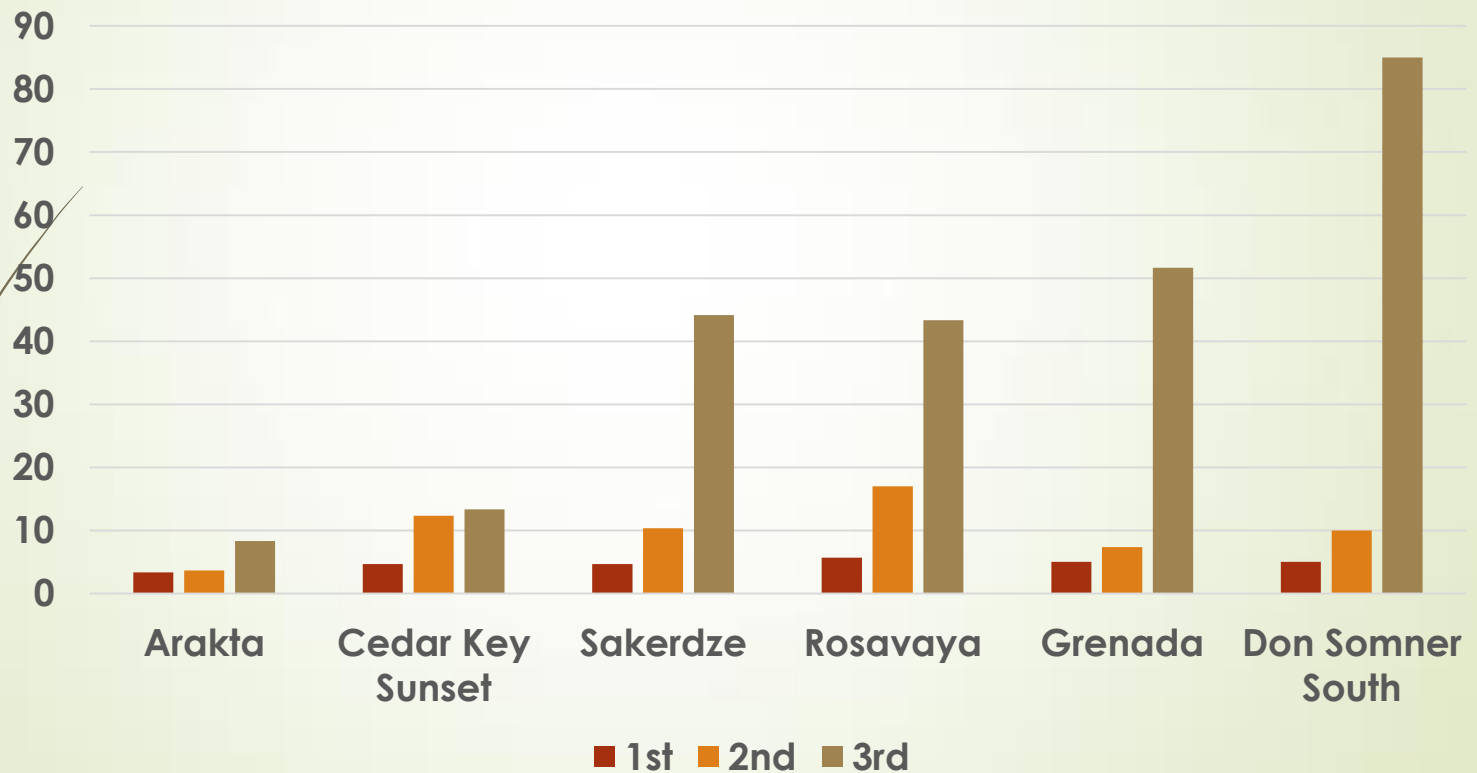


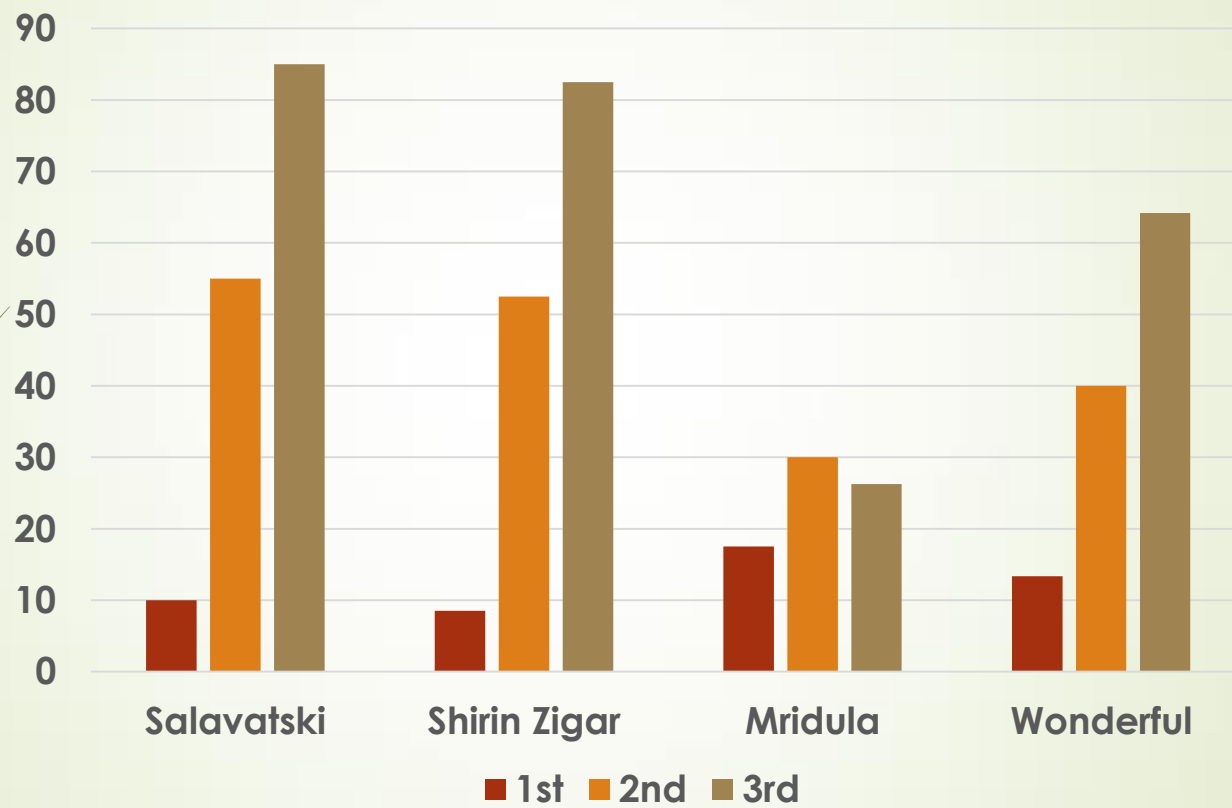
High
(50% to 100%)


Highly Susceptible Varieties



Resistant and Moderately Resistant Varieties








Resistant	Moderately resistant	Susceptible	Highly susceptible
2 varieties	6 – 7 varieties	8 varieties	26 varieties
Arakta, Cedar Key Sunset	Larkin, Sakerdze, Grenada, Rosavaya, Eve, Mridula Angel Red?	Don Sommer South, Molla-Nepes, Afganski, Jimmy Rope, Wonderful, Bhagwa, Al-Sirin-Nar, Bala Miursal	Christina, Sin Pepe, Mdovyi Vahsha, Ambrosia, Azadi, Parfianka, Surh-Anor, Girkanets, Vkusnyi, Gainey Sweet, etc.



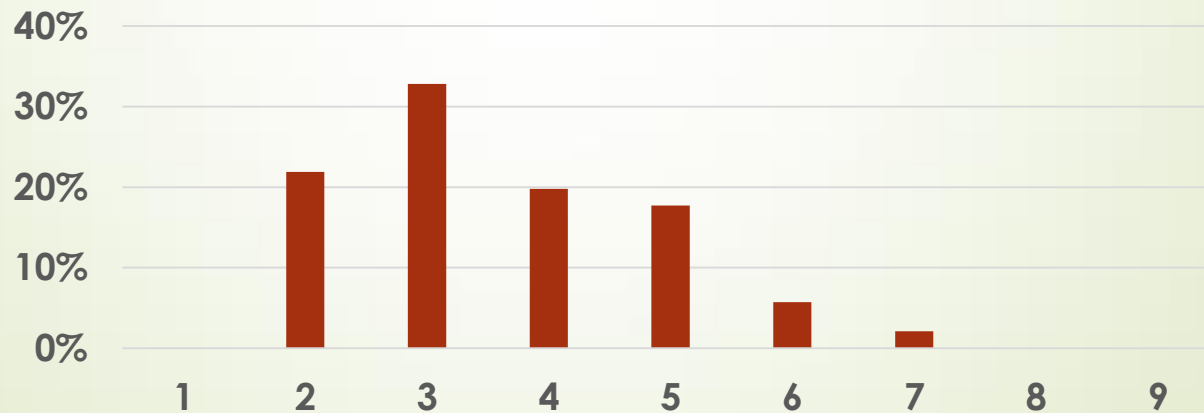
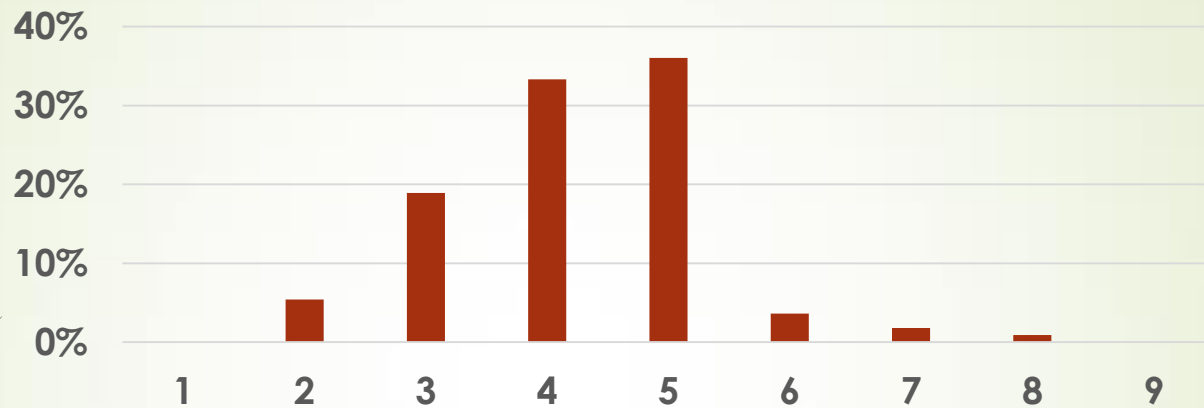
Clonal Variation in Angel Red?



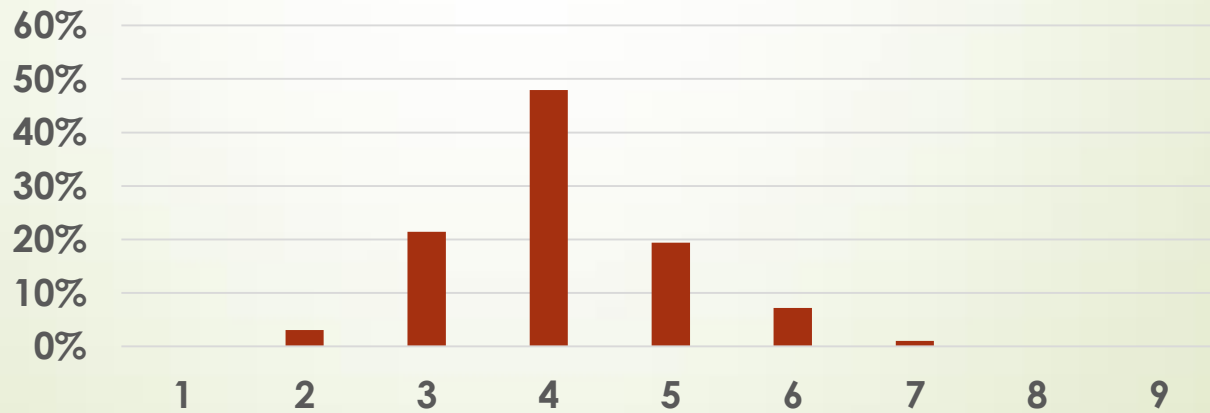
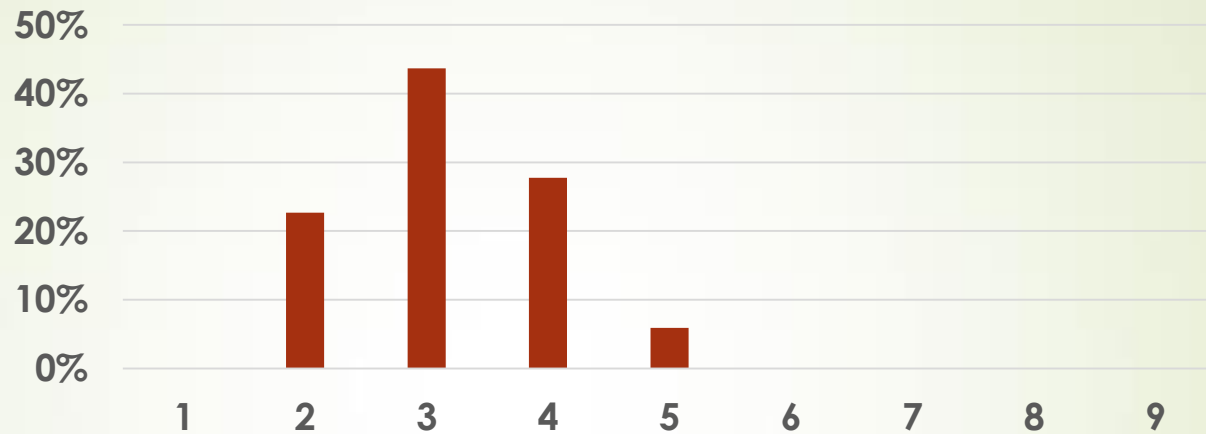
Susceptibility of Breeding Lines to Leaf Spots

Populations	Maternal parents	Paternal parents	Progeny evaluated
Pop. 1	Angel Red (MR?)	Azadi (HS)	111
Pop. 2	Angel Red	Vkusnyi (HS)	192
Pop. 12	Christina (HS?)	Girkanets (HS)	119
Pop. 15	Girkanets	Christina	98
Pop. 56	Wonderful (S)	Girkanets	119
Pop. 57	Wonderful	Parfianka (HS)	57
Pop. 59	Wonderful	Surh-Anor (HS)	118

Pops 1 and 2

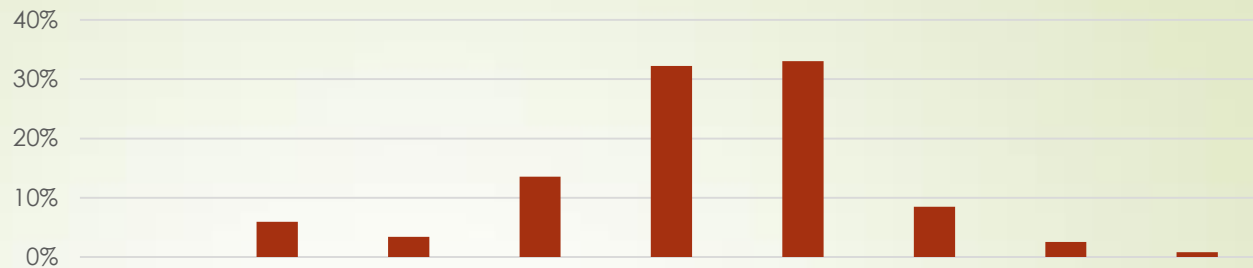


Pops 12 & 15

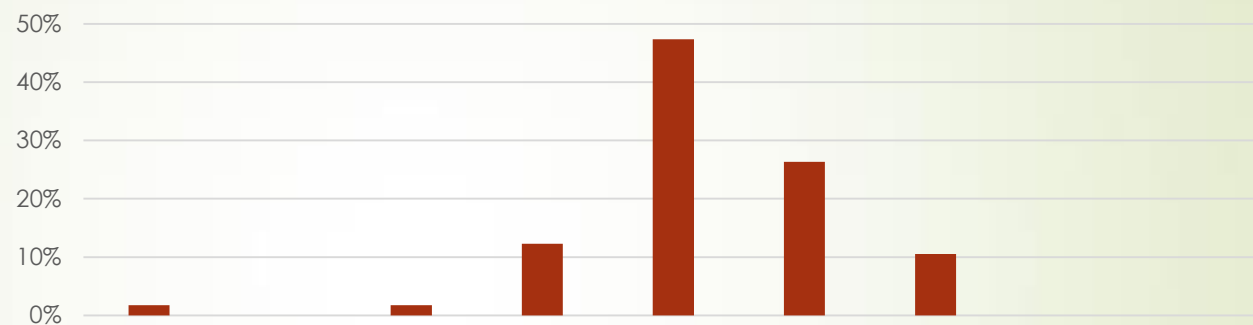




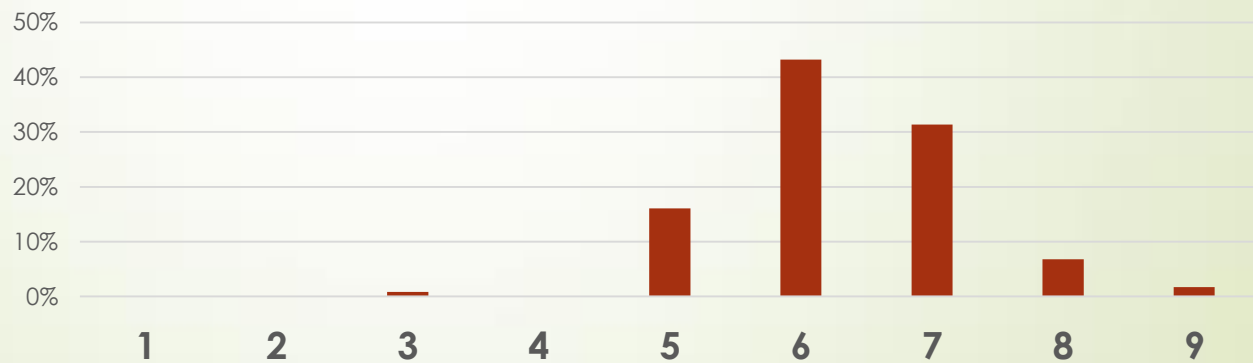
Pop. 56

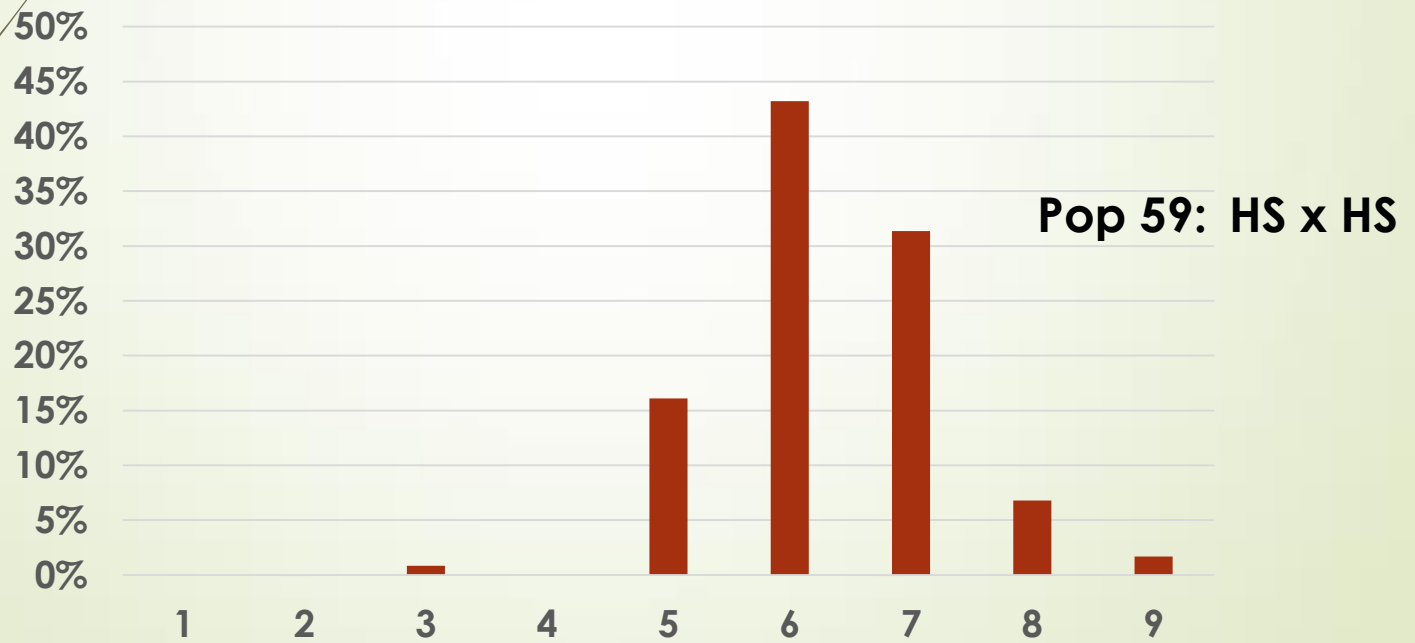
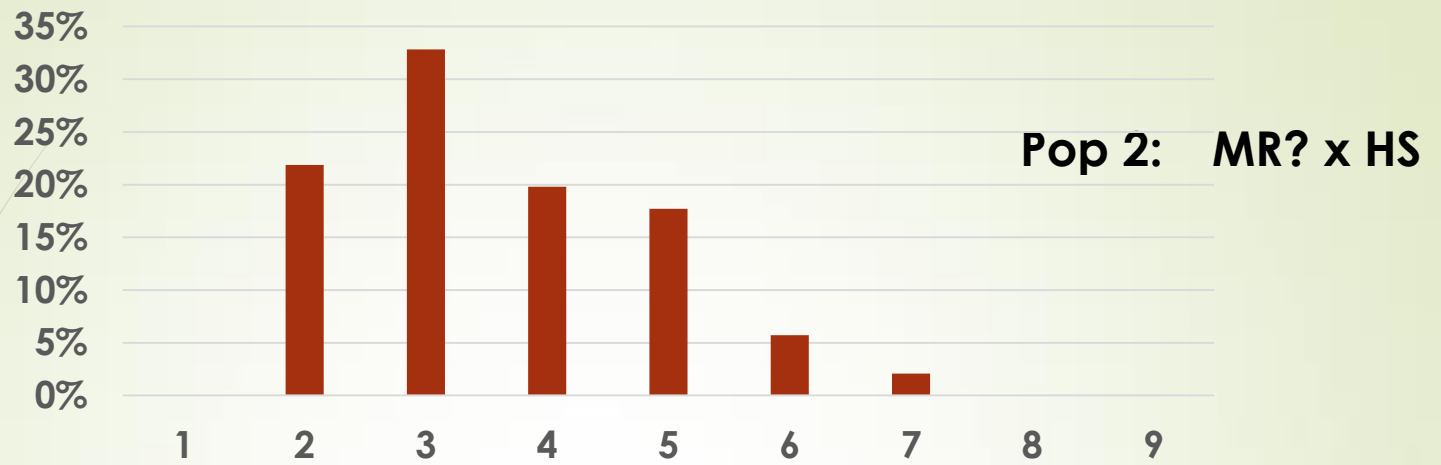


Pop. 57



Pop. 59







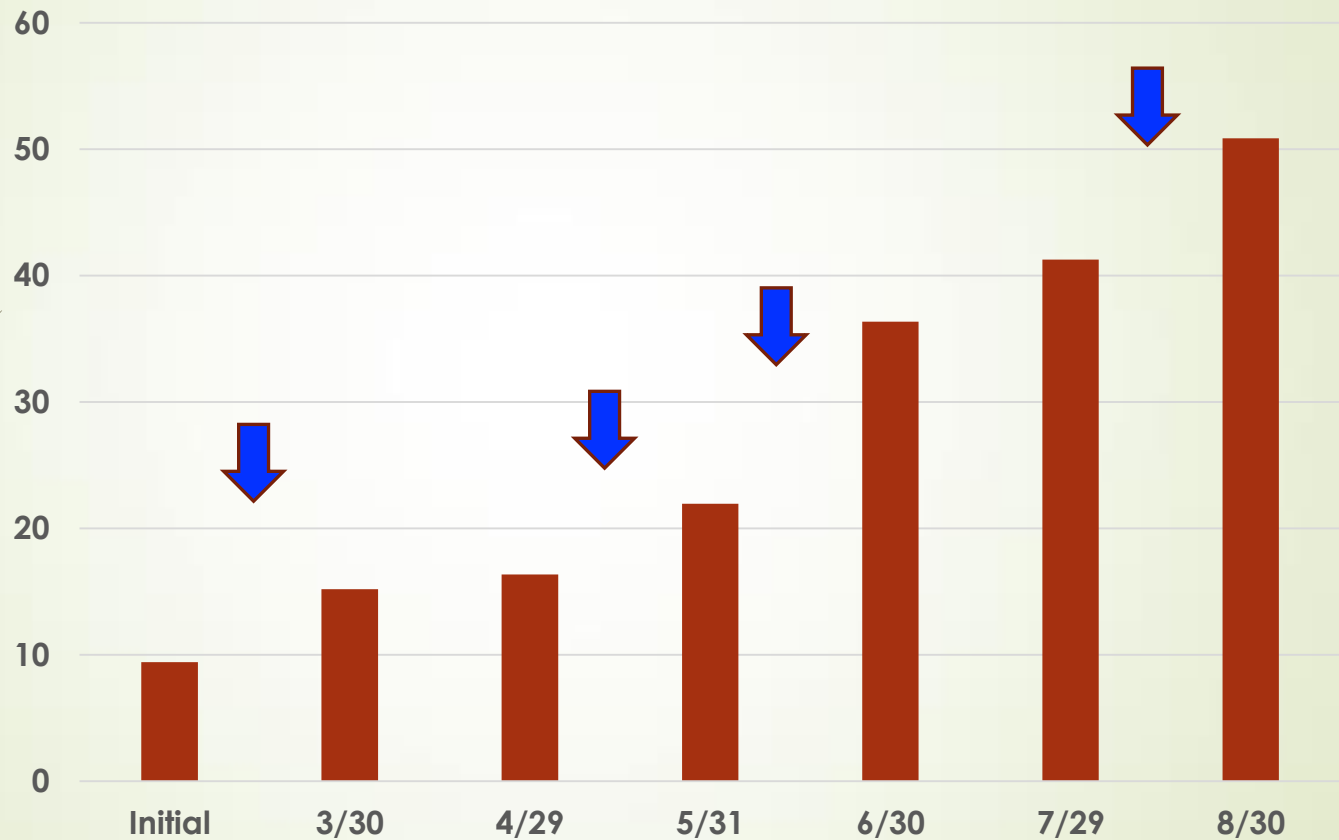
Summary about Leaf Spot Resistance in Pomegranate

- One growing season & single plants per progeny → preliminary
- Some varieties showed better resistance or tolerance than other varieties
- The observed resistance appears to be transmissible
- On average, there seem to be more progeny with higher resistance to leaf spots when one parent has resistance
- Some progeny seem to show some resistance even in highly susceptible x highly susceptible crosses
- There is potential to improve pomegranate resistance to leaf spot diseases

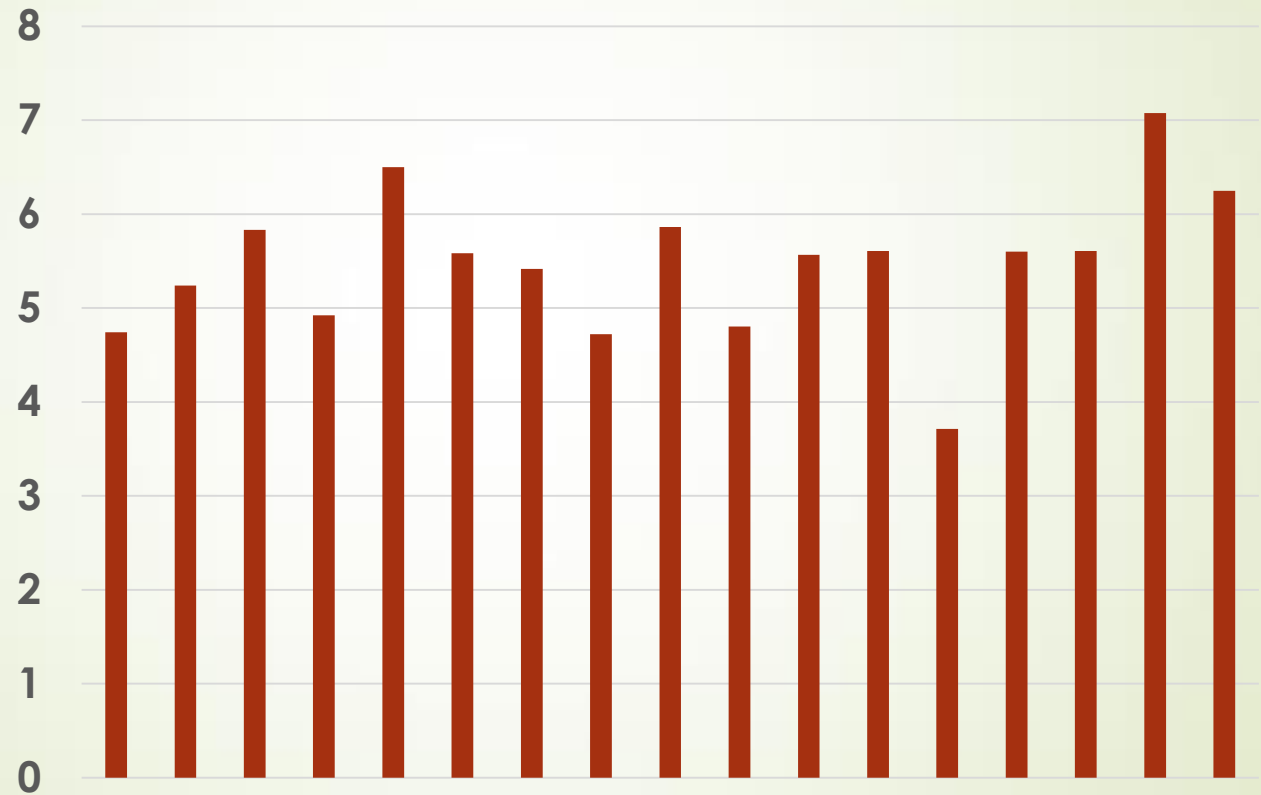
Monitoring Plant Height Increases

- 17 populations
- 2 progeny per population
- Plant heights: 3/30, 4/29, 5/31, 6/30, 7/29, 8/30, plus initial heights
- Fertilization (112.3 g of N = ~1/4 lb):
 - 10/15/15: 50 g (8-4-8);
 - 1/15/16: 50 g (8-4-8)
 - 3/3/16: 75 g? (8-4-8)
 - 4/13/16: 375 g (10-0-20)
 - 5/12/16: 375 g (9-1-14)
 - 6/9/16: 300 g (9-1-14)

Average Plant Heights (in)



Plant Height Increases (Fold) in Different Populations



Differences among Progeny in Growth and Branching Habits







**Young fruit on
some plants
(<2 years old)**



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