



Varietal tolerance to black rot: The difference variety makes

Chris Smart and Holly Lange

Plant Pathology and Plant-Microbe Biology Section,
Cornell University, Geneva



Varietal tolerance to black rot: The difference variety makes

Project Goal

**Identify levels of susceptibility to black rot in
commercially available cabbage varieties**

Thirty five cabbage cultivars commonly grown in New York



- Planted 35 cultivars from five different seed sources in the greenhouse May 5 (10 early, 14 mid, 11 late season)
- Moved to cold frame 31 May
- Set by hand into field on black plastic 6-12
- Five plant plots, four reps of each cultivar

Thirty five cabbage cultivars commonly grown in New York

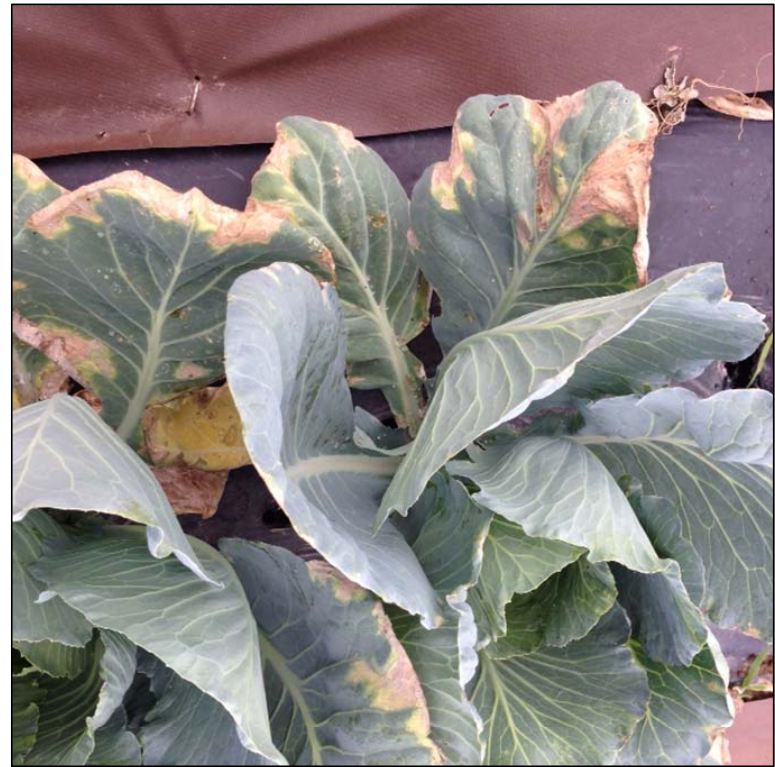
- Inoculated on June 27th (6 AM) with a New York isolate of *Xanthomonas campestris* pv. *campestris*
- Rated for black rot severity four times starting July 6
- Harvested three times (early, mid and late season) when heads were mature



Differences in susceptibility to black rot 2017 season



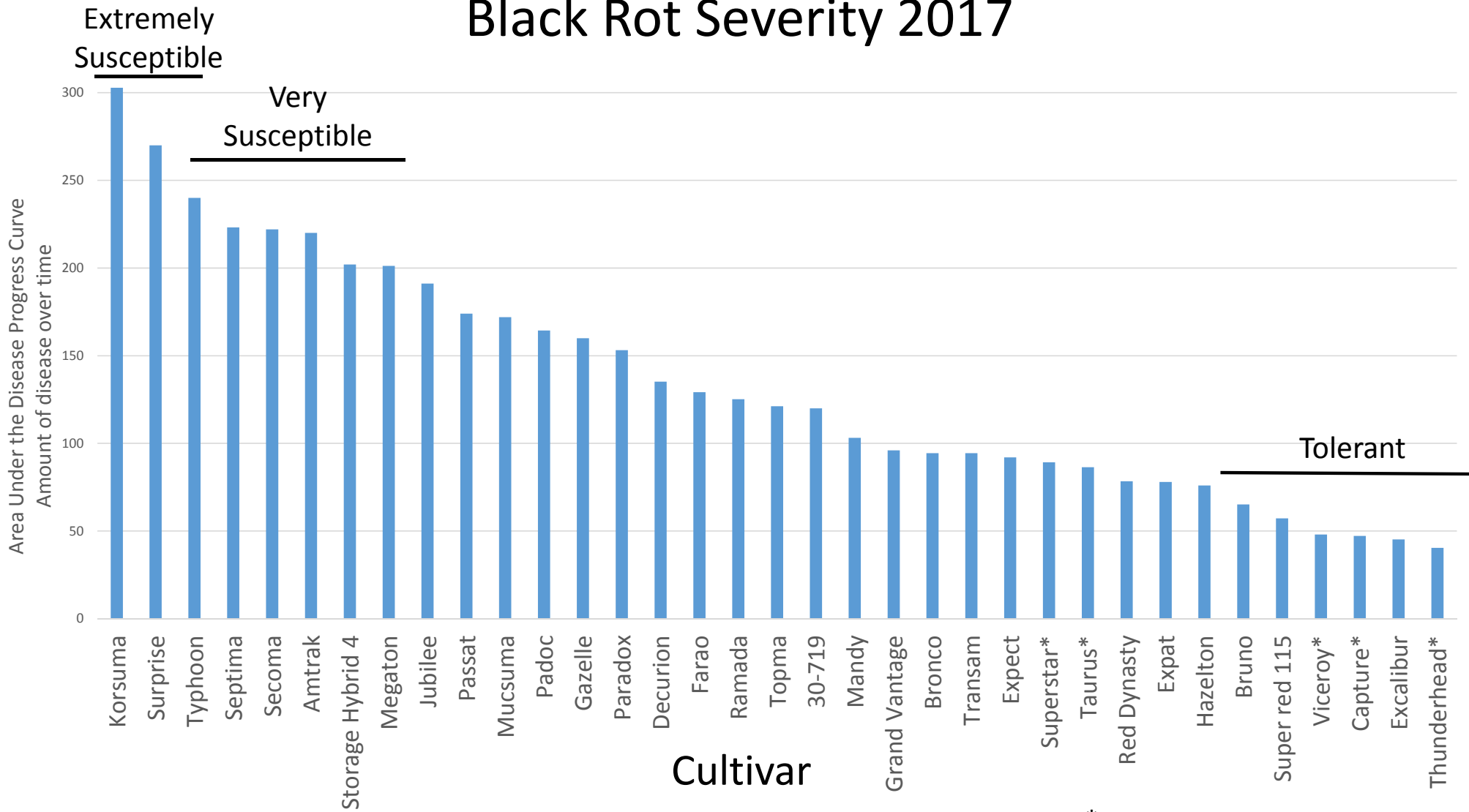
Four ratings for black rot symptoms from July 6-26



Varied susceptibility to black rot



Black Rot Severity 2017



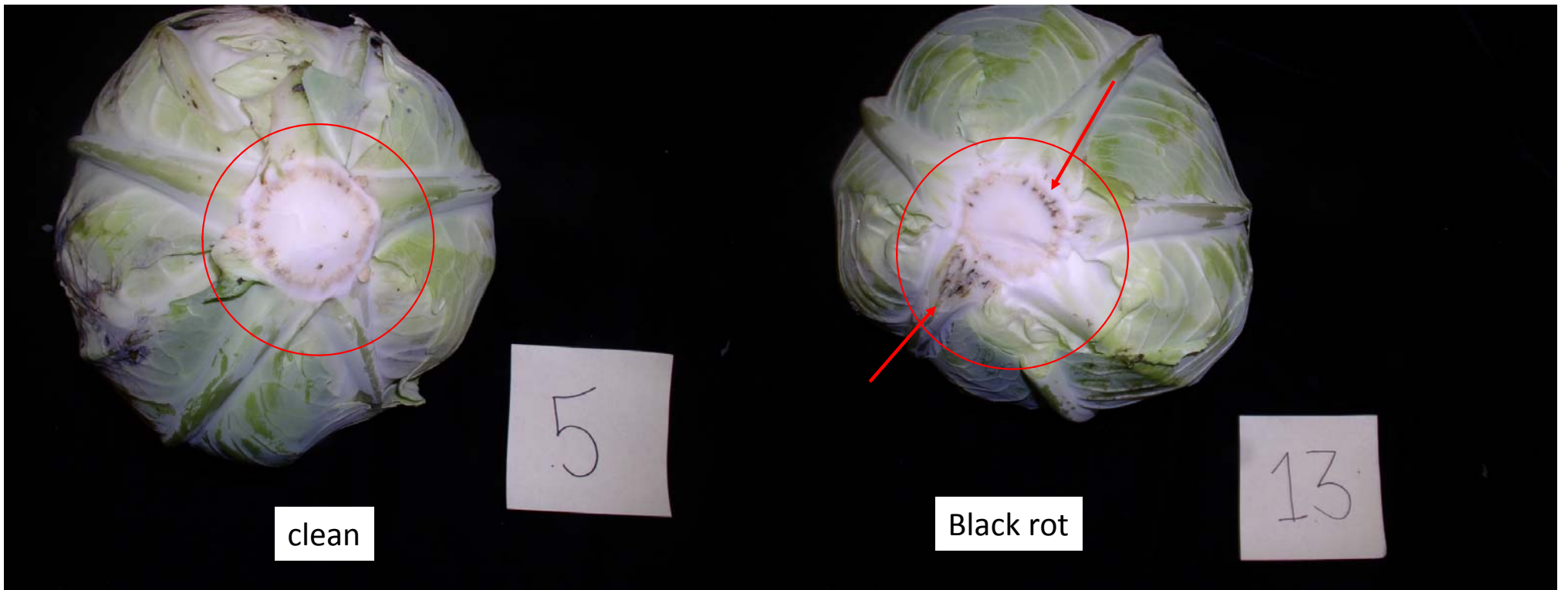
* Cultivars listed as tolerant or resistant

Harvested early, mid, and late season



- Harvested 2 heads per plot
- Total of 8 heads/cultivar
- Visually rated
 - Bottom of head
 - Internal symptoms

Rated the Cores



Rated heads for interior symptoms

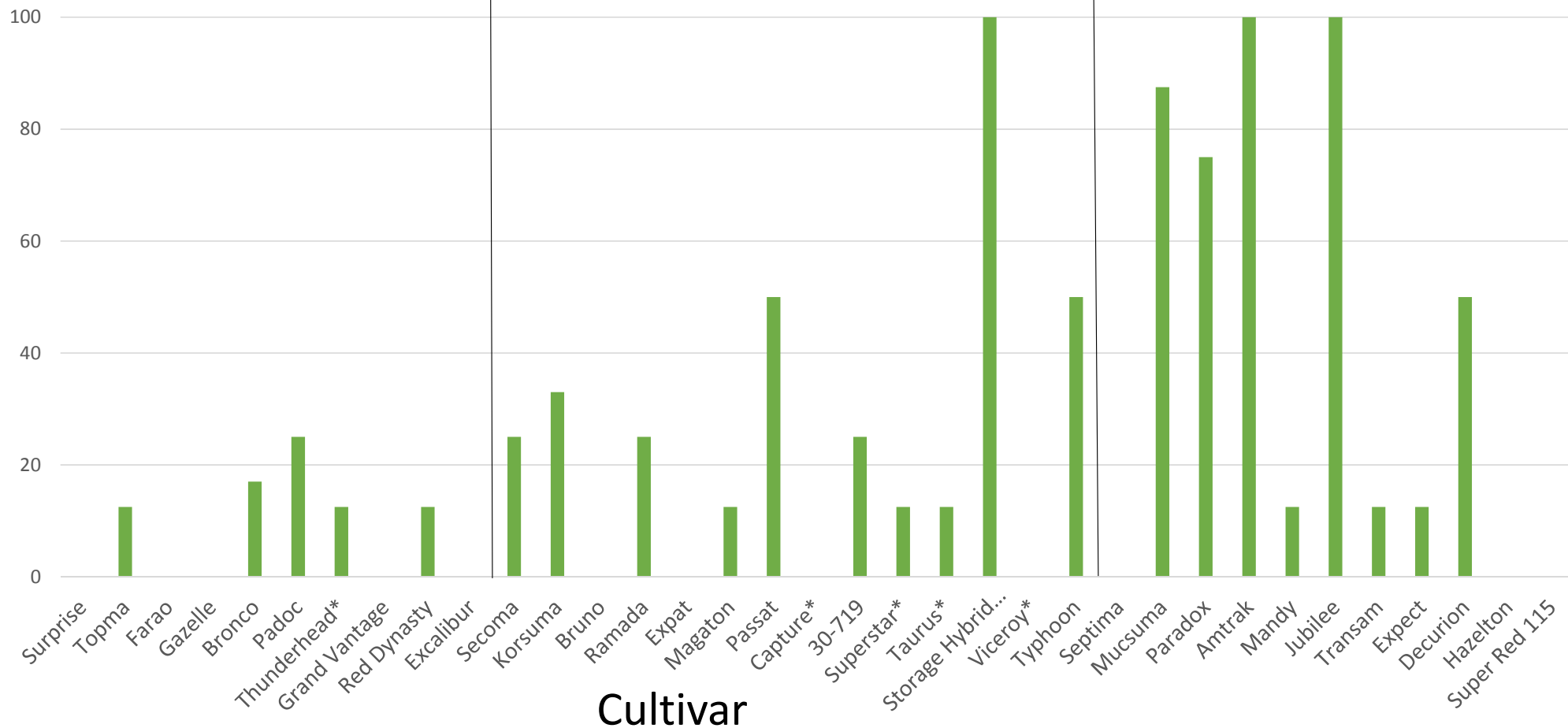


Percent Infected Heads 2017

early season

mid season

late season



* Cultivars listed as tolerant or resistant

Infection inside the heads

- Three cultivars showed black rot inside every head (all mid or late season varieties)
- Five cultivars had 50%-87.5% infected heads (all mid or late season)
- 15 cultivars had 12.5%-33% infected heads
- 12 cultivars had no black rot inside the head even though they all had black rot symptoms on the leaves, some severely
- There was a higher percentage of mid and late season cabbage with evidence of black rot inside the head

No black rot inside heads at harvest

Early	Mid	Late
Surprise	Bruno	Septima
Farao	Expat	Hazelton
Gazelle	Capture	Super Red 115
Grand Vantage	Viceroy	
Excalibur		

Conclusions

- Our inoculation technique worked very well and we had black rot progress through a cool, wet season
- There were significant differences between cultivars
- Sometimes the first plants to show symptoms did not end up having the highest % disease
- Cultivars with the most foliar black rot also had internal symptoms
- Cultivars listed as tolerant or resistant to black rot did have the least amount of disease for the second year in a row

Thanks CRDP, Growers and
Extension Educators!!



2017 Smart Lab