



High tunnel cucumber cultivar trial updates

Small Farm Conference

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The importance of producing in high tunnels

- Season extension: multiple harvest
- Protection from rainfall and wind
- High quality crops



Disadvantages of high tunnels

- Limited capacity to ventilate in summer
- Dry environment (no rainfall)



Twospotted spider mite (TSSM)

Size: 0.5 mm

Yellow color with two black spots on the abdomen

Females have round abdomen

Males have pointed abdomen



Image by Frank Peairs, Colorado State University, Bugwood.org

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Image by Elizabeth H. Beers

Twospotted spider mite life cycle



Twospotted spider mite life cycle



Twospotted spider mite damage

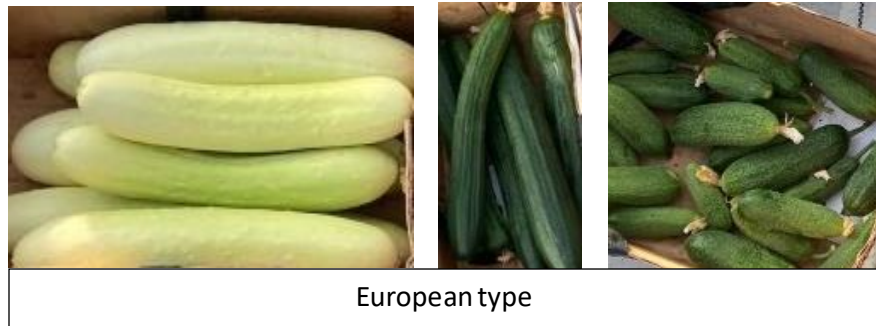
- Spider mites have piercing-sucking mouth
- They extract the content from individual cells on the leaf
- This damage is known as stippling
- High populations develop webbing





Do cultivars vary in
their susceptibility
to TSSM?

Materials and Methods



10 cultivars per row (3 plants per cultivar)

Classified by origin: European type, American type, and Asian type

Classified by form: slicer and pickle type

Materials and Methods



Locations:



PPAC (6 rep.)



MEIGS (8 rep.)



SWPAC (4 rep.)

Materials and Methods



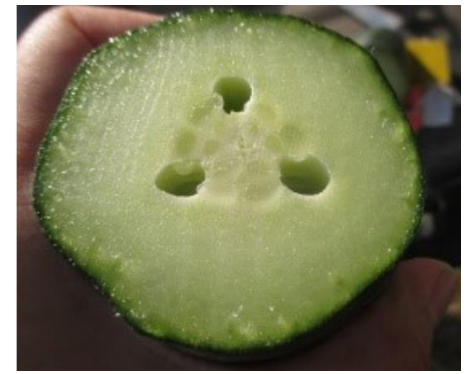
- Total yield
- Number of fruit



Marketable



Unmarketable



Oversize

Materials and Methods



H-B Score	% Affected
1	0
2	>0 to 3
3	3 to 6
4	6 to 12
5	12 to 25
6	25 to 50
7	50 to 75
8	75 to 87
9	87 to 94
10	94 to 97
11	97 to 100
12	100

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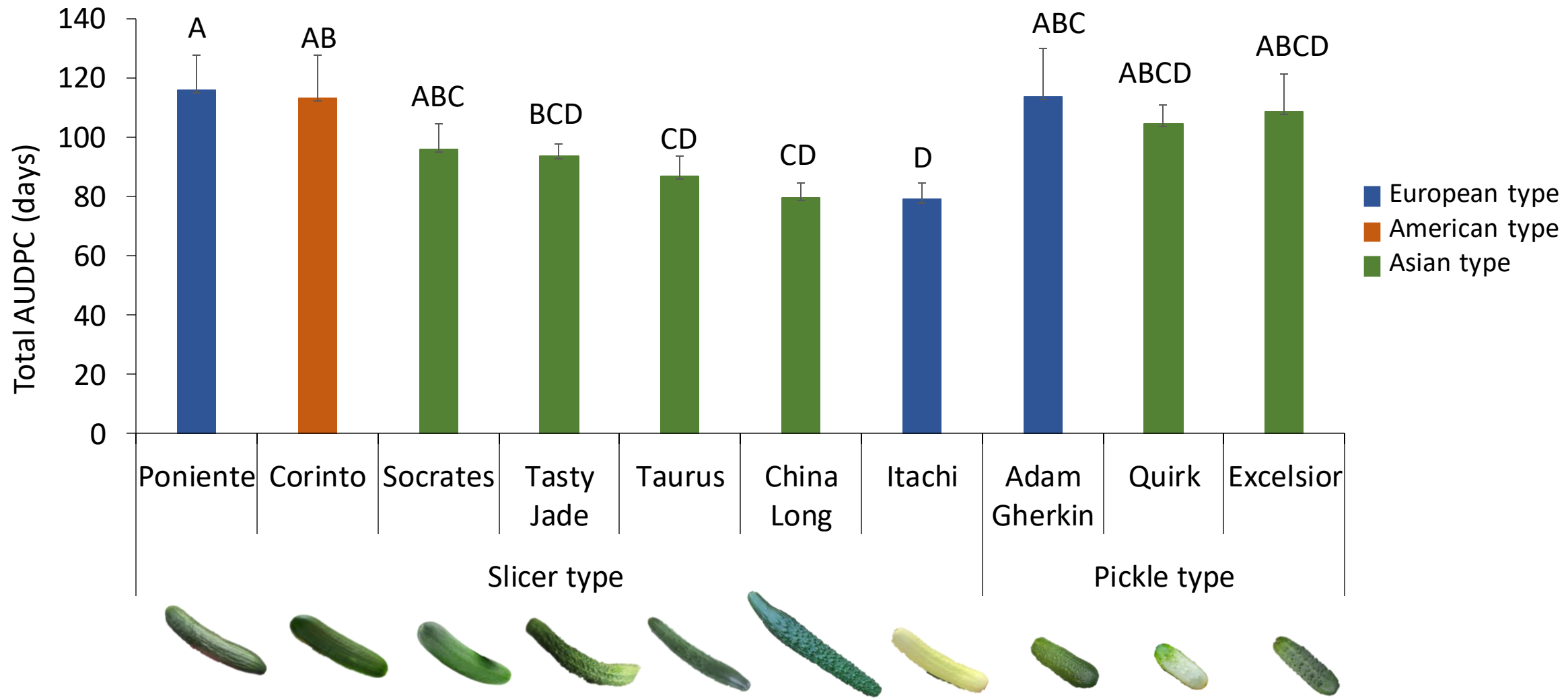
- Mite survey:

→ Area under Disease Progression Curve:

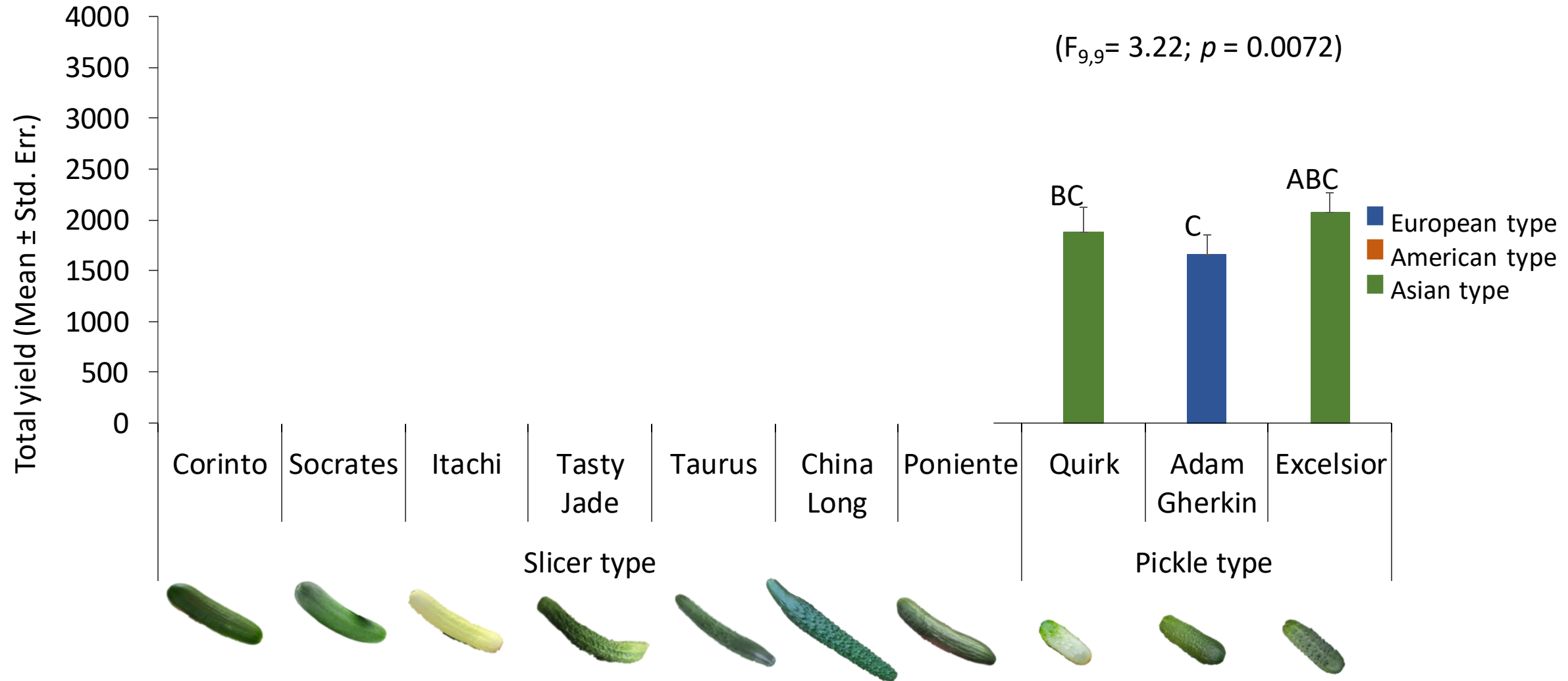
$$\text{AUDPC} = \sum_{T_X}^{T_0} H - F \text{ rating } [T_1 - T_0] \text{ days}$$

The higher the value (AUDPC) the more mites!

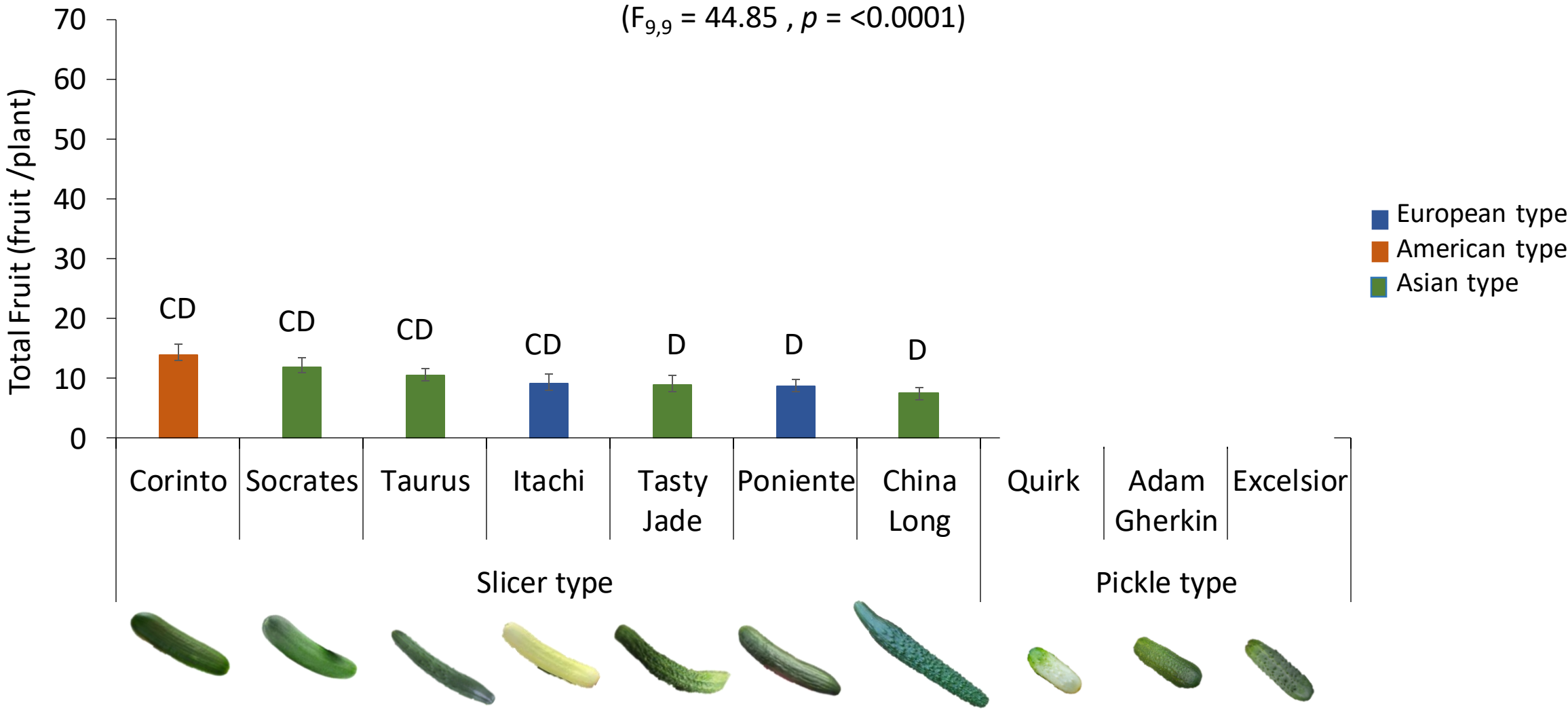
($F_{9,9} = 5.16, p < 0.001$)



Result: Total yield



Result: Number of fruits



Conclusions

- We conclude that Itachi, Taurus and China long cultivars are less susceptible to TSSM compared to Poniente and Corinto.
- We detected no statistical difference in marketable yield among cucumber types (slicer and pickles) to TSSM injury.



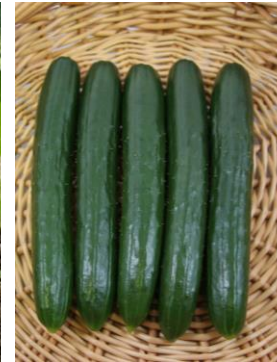
Poniente



Corinto



Itachi

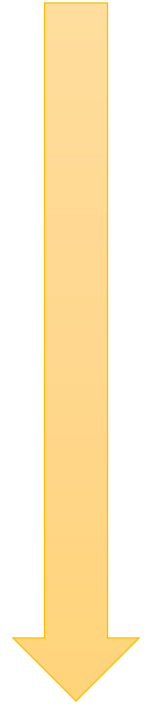


Taurus



China long

More susceptible



Less susceptible

Thank you



- To North Central SARE #LNC20-438 (Sustainable Agriculture research and education)
- To my advisor: Laura Ingwell
- To my lab mates: Allison Zablah, Eze Pojmann, Milena Agila, Dr. Sam Willden, Savanna Ploessl, Vanessa Cooper