



**Protected
Culture
Variety
Selection**

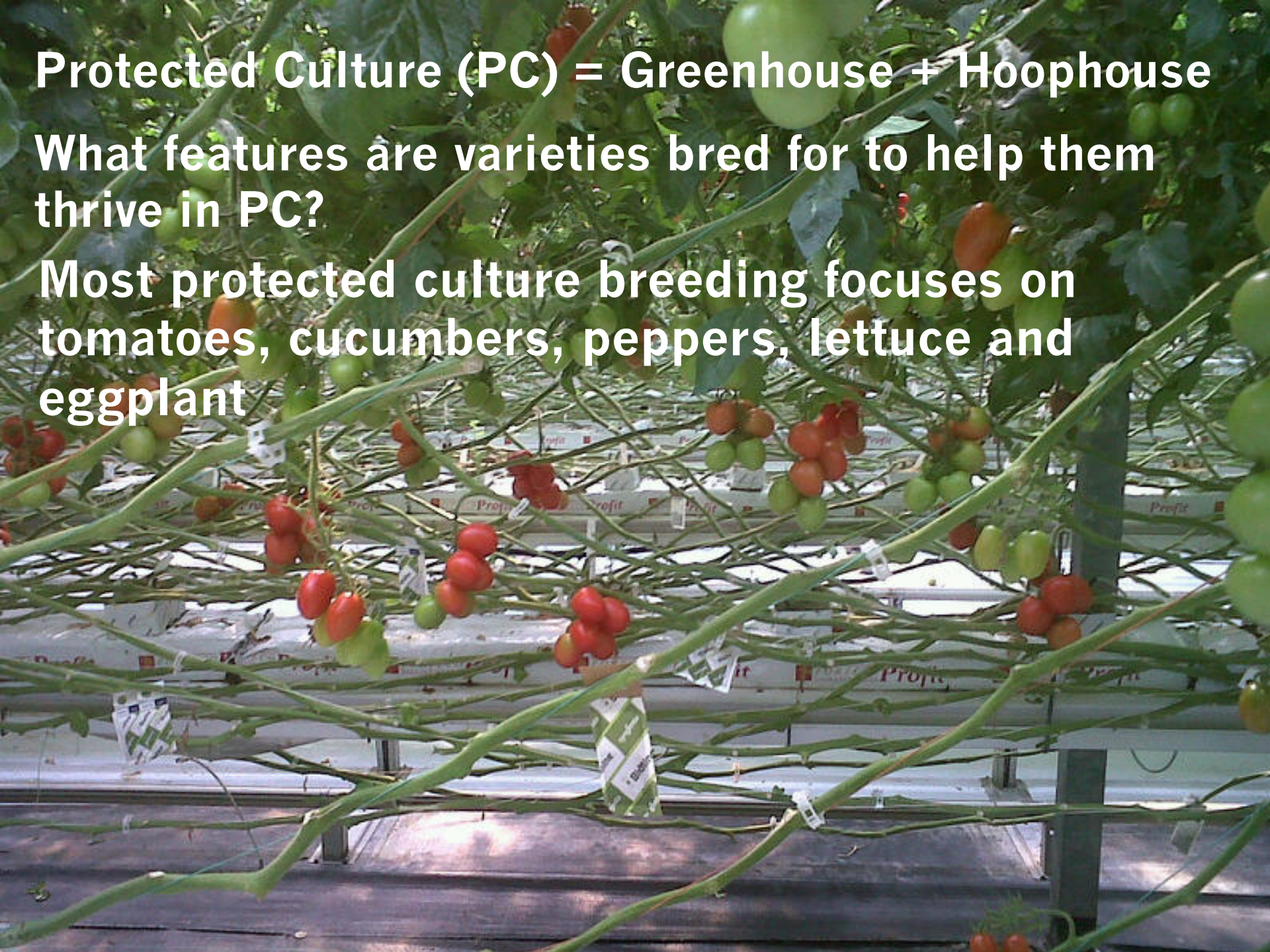
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Protected Culture (PC) = Greenhouse + Hoophouse

What features are varieties bred for to help them thrive in PC?

Most protected culture breeding focuses on tomatoes, cucumbers, peppers, lettuce and eggplant



Protected Culture Tomato Breeding Goals



- Foliar disease resistance-tomato mosaic virus, leaf mold, powdery mildew
- Yield
- Blossom end rot resistance
- Vigor
- Open plant habit, easy to maintain “low labor”
- Shelf life
- Flavor

Tomato rootstock breeding goals- high vigor, resistance to soilborne pathogens: fusarium, f. crown and root rot, corky root, nematodes, verticillium



Protected Culture Cucumber Breeding Goals



- Disease resistance- powdery mildew, downy mildew, cucumber mosaic virus
- Parthenocarpic
- Gynoecious
- Yield
- High vigor
- Early maturity
- Open plant habit
- Flavor- not as varied as tomatoes

Protected Culture Pepper Breeding Goals-



- Disease resistance- tomato mosaic virus
- Yield
- Good leaf cover
- Blossom end rot tolerance
- Level of vigor for greenhouse vs. hoop house
- Plant habit- vining
- Shelf life
- Flavor- not as varied as tomatoes

Protected Culture Lettuce Breeding Goals



- Disease resistance- downy mildew
- Plant habit for use as head vs. salad mix
- Tip burn resistance
- Bolting resistance
- Early maturity
- Dense/compact (i.e. yield)
- Flavor
- Good color under low light conditions

Protected Culture Eggplant Breeding Goals

- Spinelessness
- Yield
- BER resistance
- Plant habit that is vining, not bushy
- Flavor- not a lot of variation
- High vigor



Protected Culture Greens Breeding Goals

- Very little currently being done on greens besides lettuce/spinach
- PC growers select field varieties
- Not sure if more effort will come into greens breeding



Breeding/Selection Criteria- Other Crops



- A little bit of breeding being done in root/ other crops
- Smaller/ more compact tops
- Disease resistance- mildews, fungal diseases
- Tolerance to heat
- Resistance to bolting



Questions?