

Rootstocks to rescue the century-old tradition of Colorado peaches from replant syndrome

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Problem: Replant Syndrome (RS)

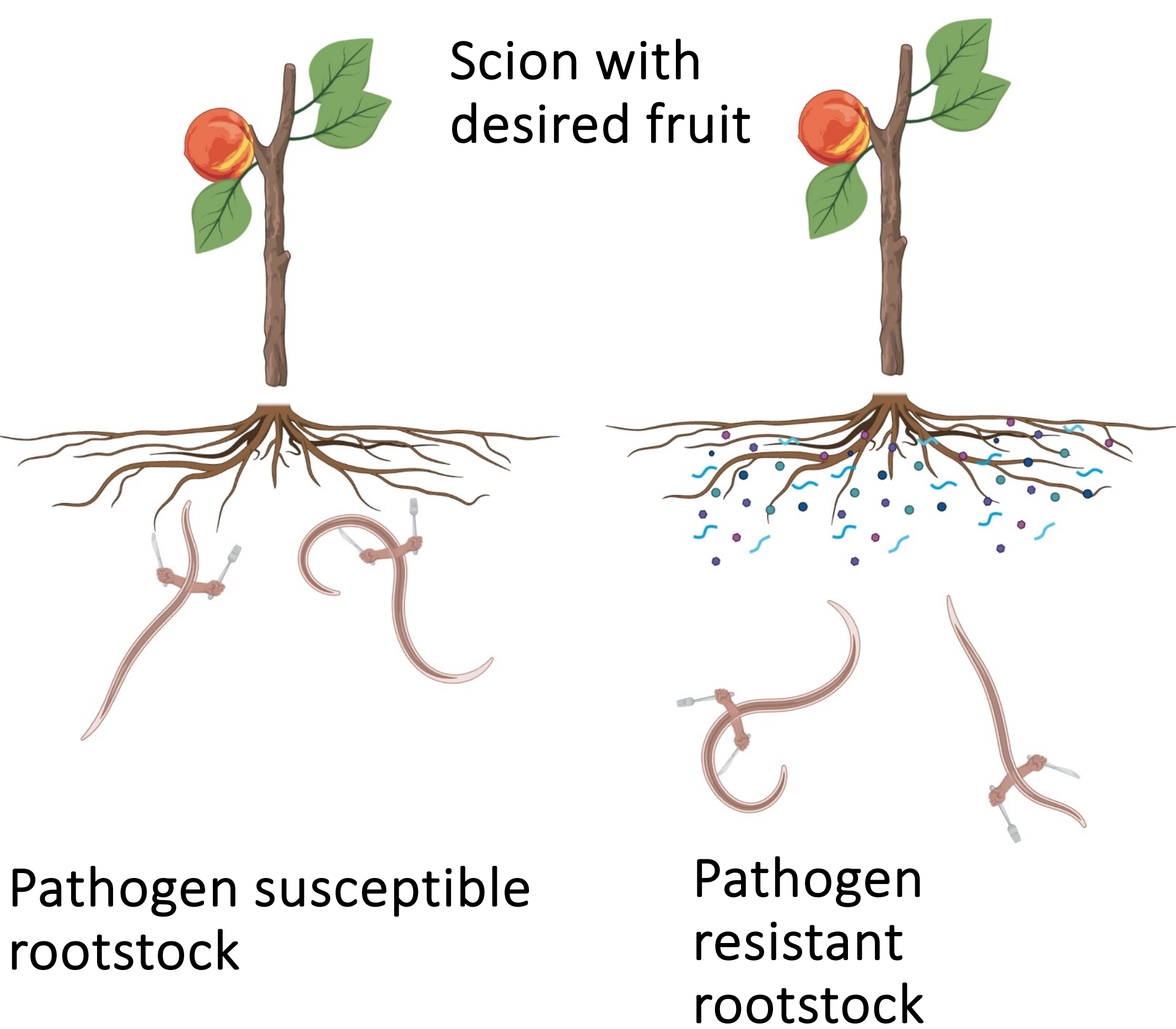
- Reduced tree fruit growth
- Resulted from repeated monoculture
- Abiotic factors contribute
- Soil borne pathogenic microorganisms

Peach replant disease



Solutions: Rootstocks

- Scion is the shoot, and selected for fruit quality
- Rootstock is the root system selected based on soil



Application: Orchards globally

Greenhouse Experiment:

- Grew eight different peach rootstocks in autoclaved (to reduce pathogens) and untreated (control) replant syndrome soil from Grand Junction, CO
- No difference in tree biomass in untreated soils would indicate pathogen resistance
- Measured diameter and height every two weeks

Main Findings:

Trio 2507 Rootstock



Autoclaved Control

Hansen Rootstock



Autoclaved Control

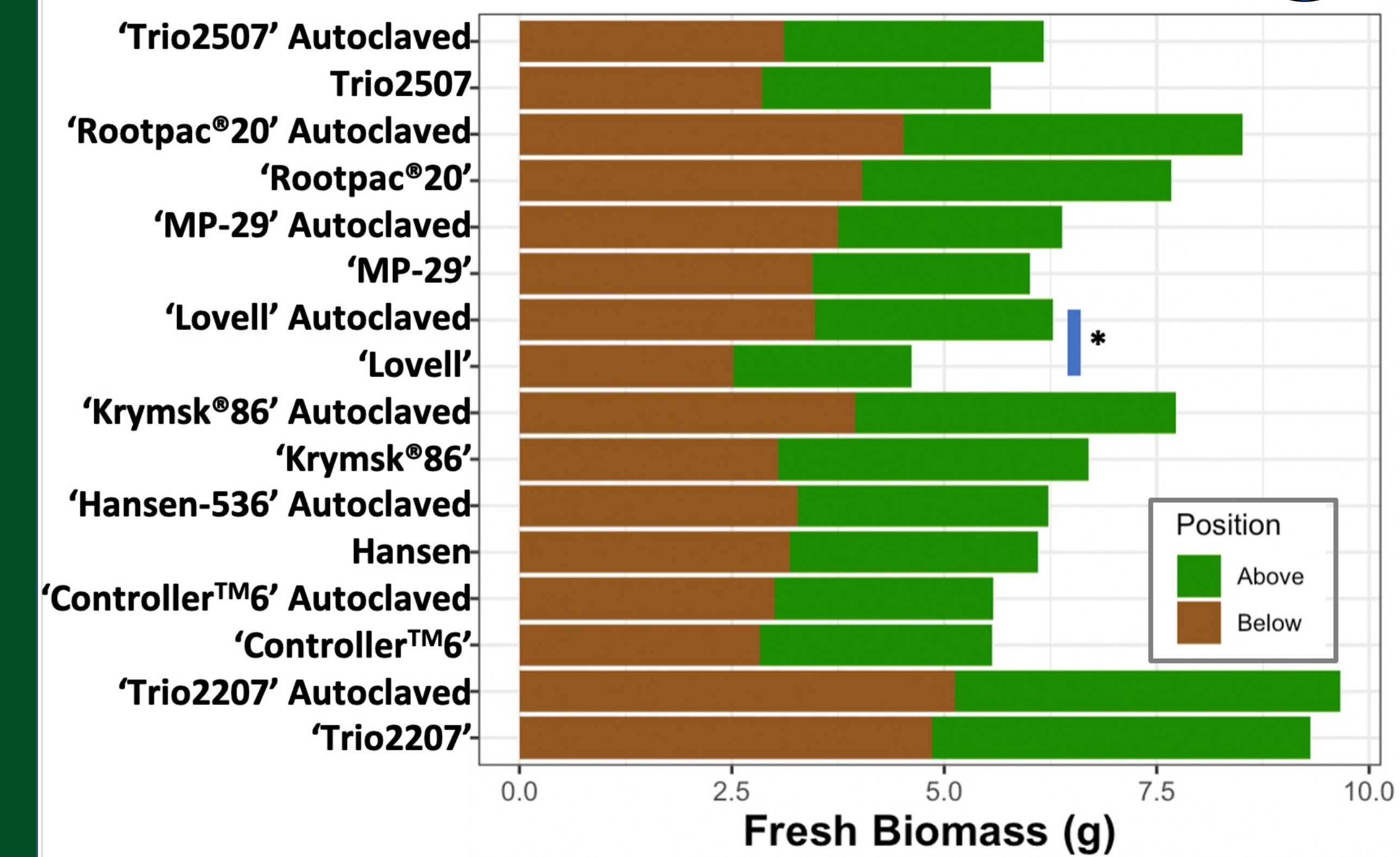
- No difference in tree biomass between autoclaved and untreated soils did not indicate pathogen resistance
- Rootstock grown autoclaved soils had a higher biomass except for Controller 6 with Lovell showing RS susceptibility
- In autoclaved soils, Krymsk86 and Trio2507 had two growth spurts as compared to their respective controls
- RS susceptible Lovell increased in diameter in RS soils

Gaps in Literature:

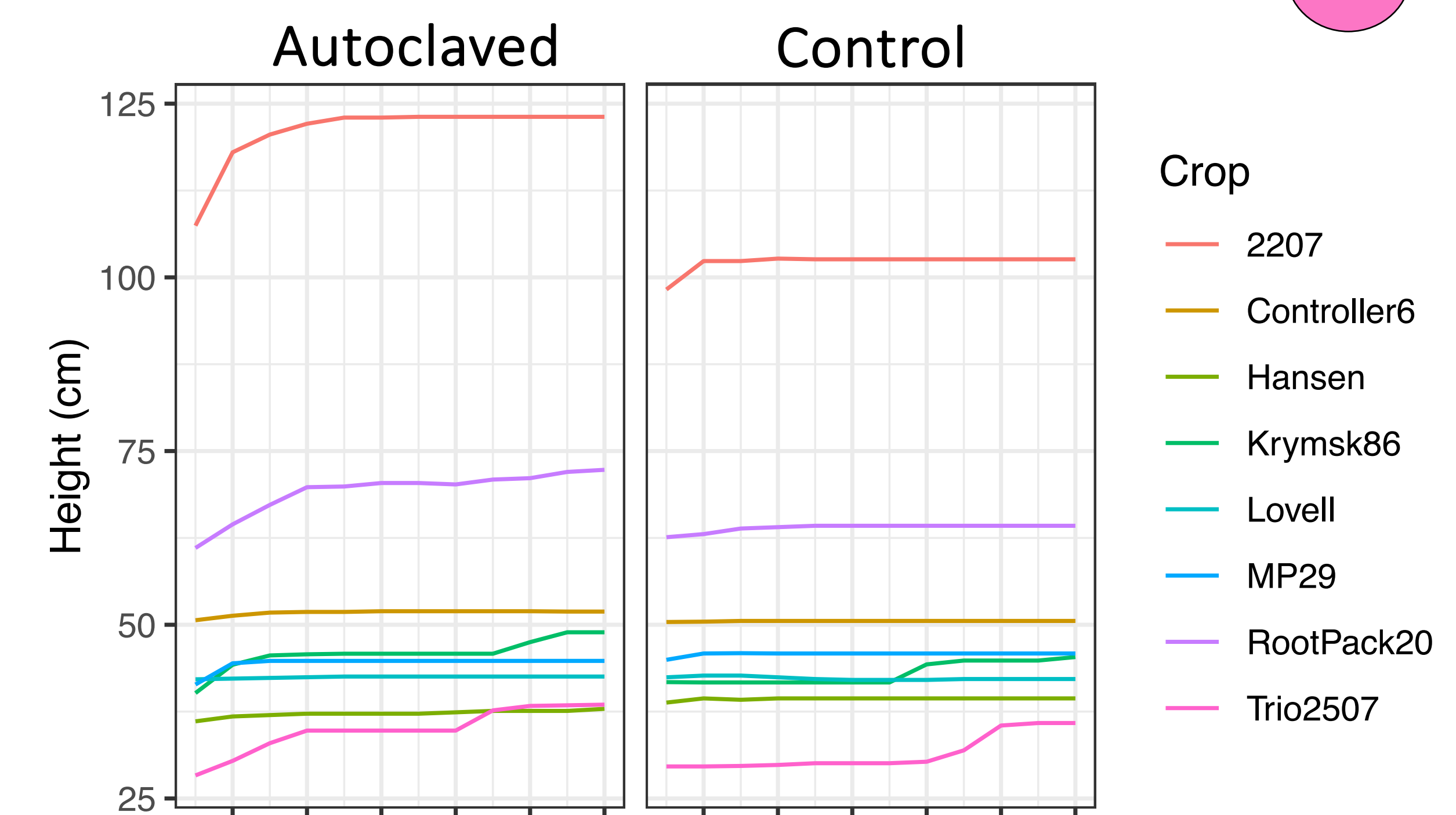
Rootstock	Calcareous Soil	Waterlogging	Peach Tree Short Life (Different than RS)
Lovell	MS	S	S
Hansen	R	VS	S
MP-29	--	R	R
Krymsk 86	R	R	R
RootPac20	R	R	--
Controller 6	--	--	--
Trio-2207	--	--	--
Trio-2507	--	--	--

Results:

Peach Rootstock Biomass



Rootstock Tree Height (cm)



Rootstock Tree Diameter (mm)

