

Chrysanthemum cultivation in gullies

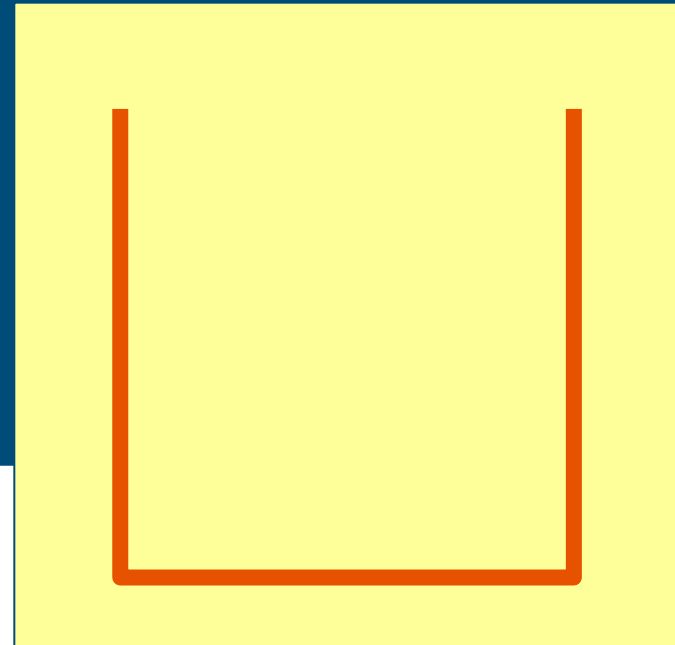
Interactions of Pythium, substrate and climate in soilless cultivation

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INTRODUCTION: The MobyFlowers system

- To increase yield, reduce labor costs & recycle drain
- Mobile gullies 5x5x800 cm, outer and inner gully
- [VIDEO_TS\VTS_02_1.VOB](#)



INTRODUCTION: System problems

- Position dependent loss >10% by Pythium



Hypothesis: Pythium is caused in the propagation phase by sudden changes in RH and T.

INTRODUCTION: Climate treatments

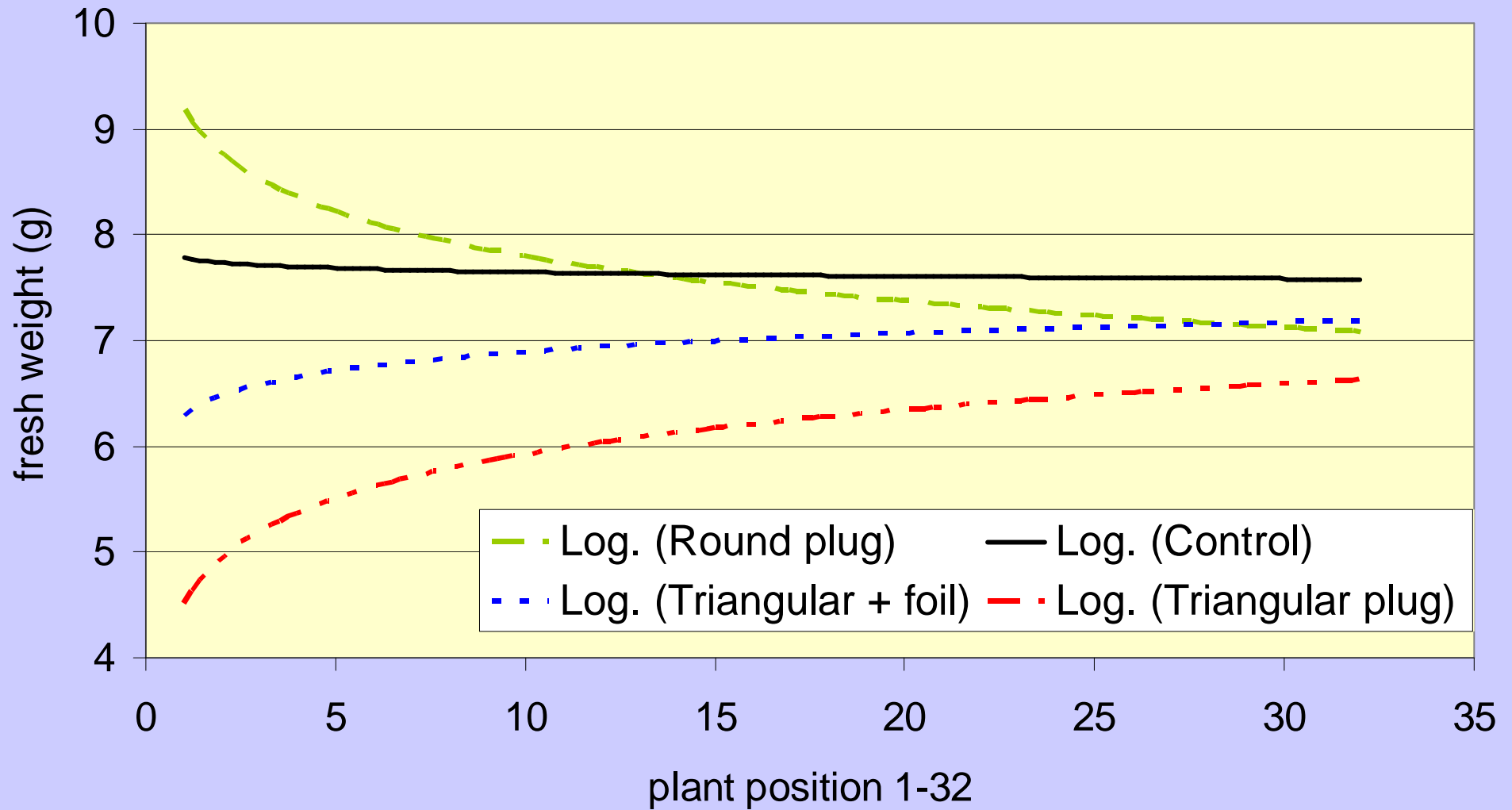
Code /Comp.	T°C (d /n)	RH % (day)	Top irrigation system
1: A	20/20	95-85-60	None
2: B	3h 28/20	60	None
3: B	3h 30/20	55	Top irrigation (hand)
4: A	20/20	95-85-65	Top irrigation (hand)
5: B	9h 30/25	80-50	Top irrigation (hand)
6: B	14h 32/25	65-50	Top irrigation (hand)
7: C	14h 32/25	65-50	Top mist irrigation

INTRODUCTION: Treatments in cultivations

- All infected with specific *Pythium ultimum* isolate
- Substrate
 - Peat coir mixture 70/30 v/v (standard)
 - Speedling round plugs
 - Triangular plugs
 - Plastic foil covering



RESULTS: Position, no top irrigation

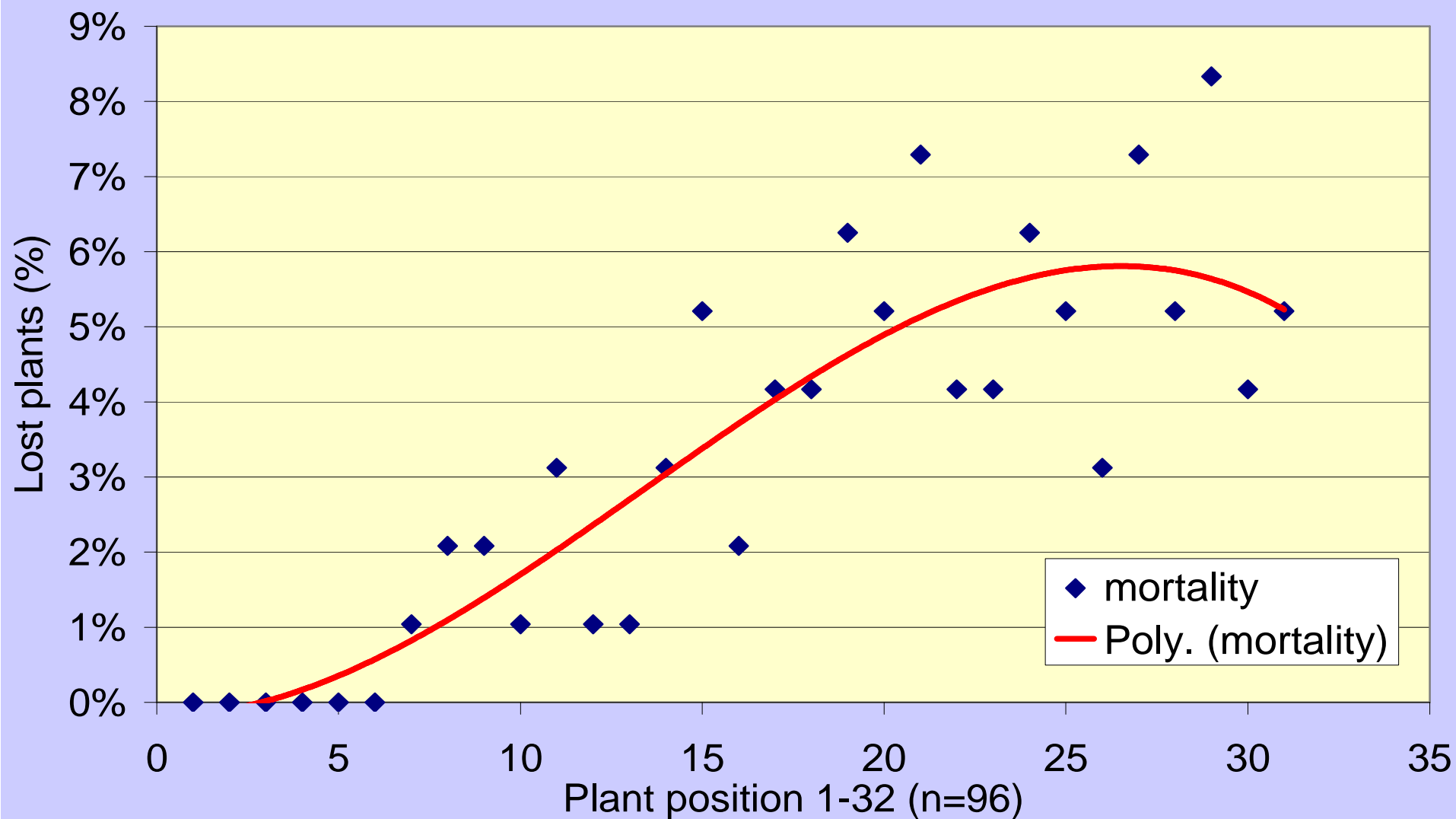


RESULTS: Rooting, temperature & top irrigation

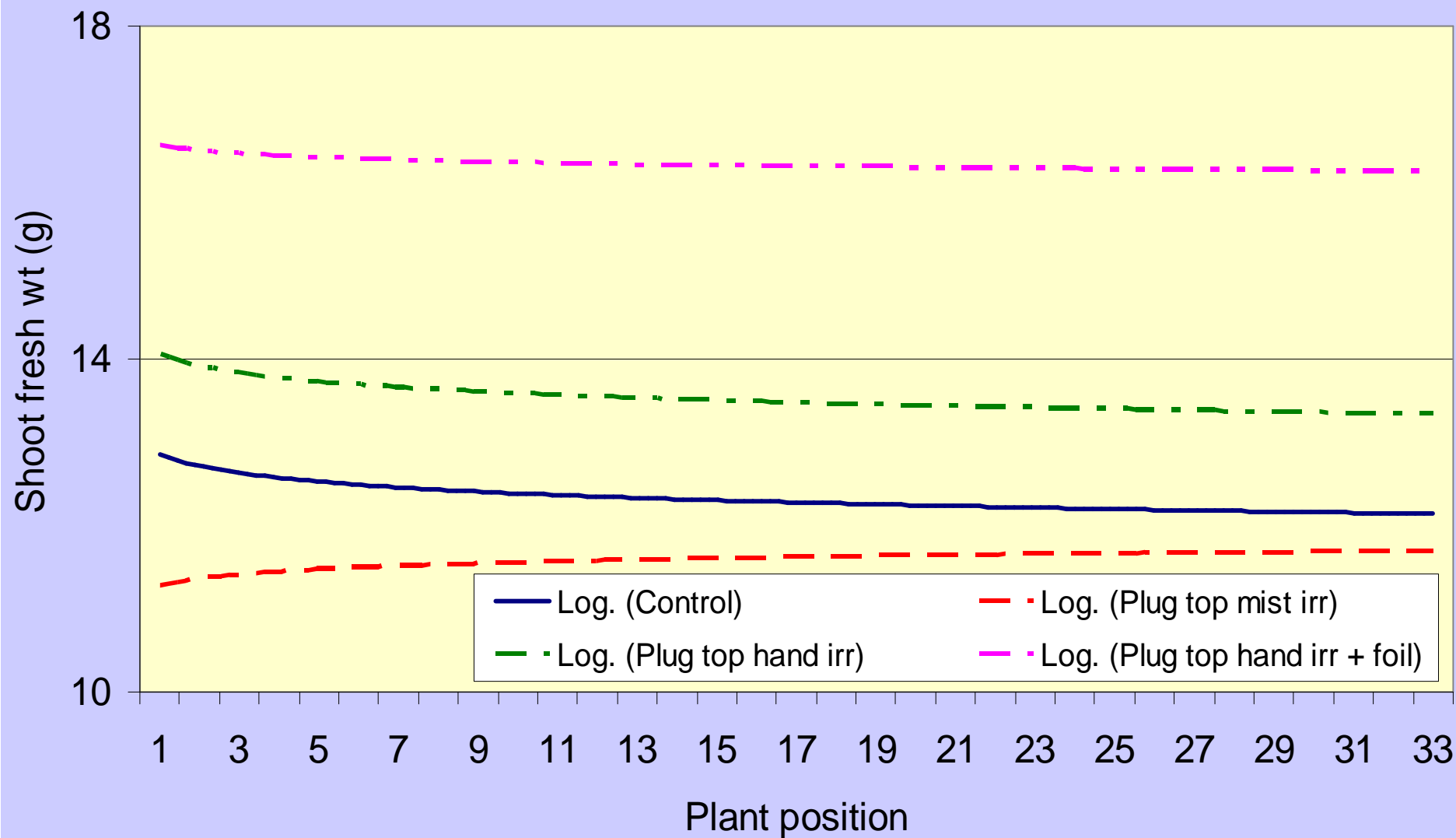


Rooting differences from left to right at
3 h 30 degrees °C no top irrigation
20 degrees °C no top irrigation
20 degrees °C top mist irrigation

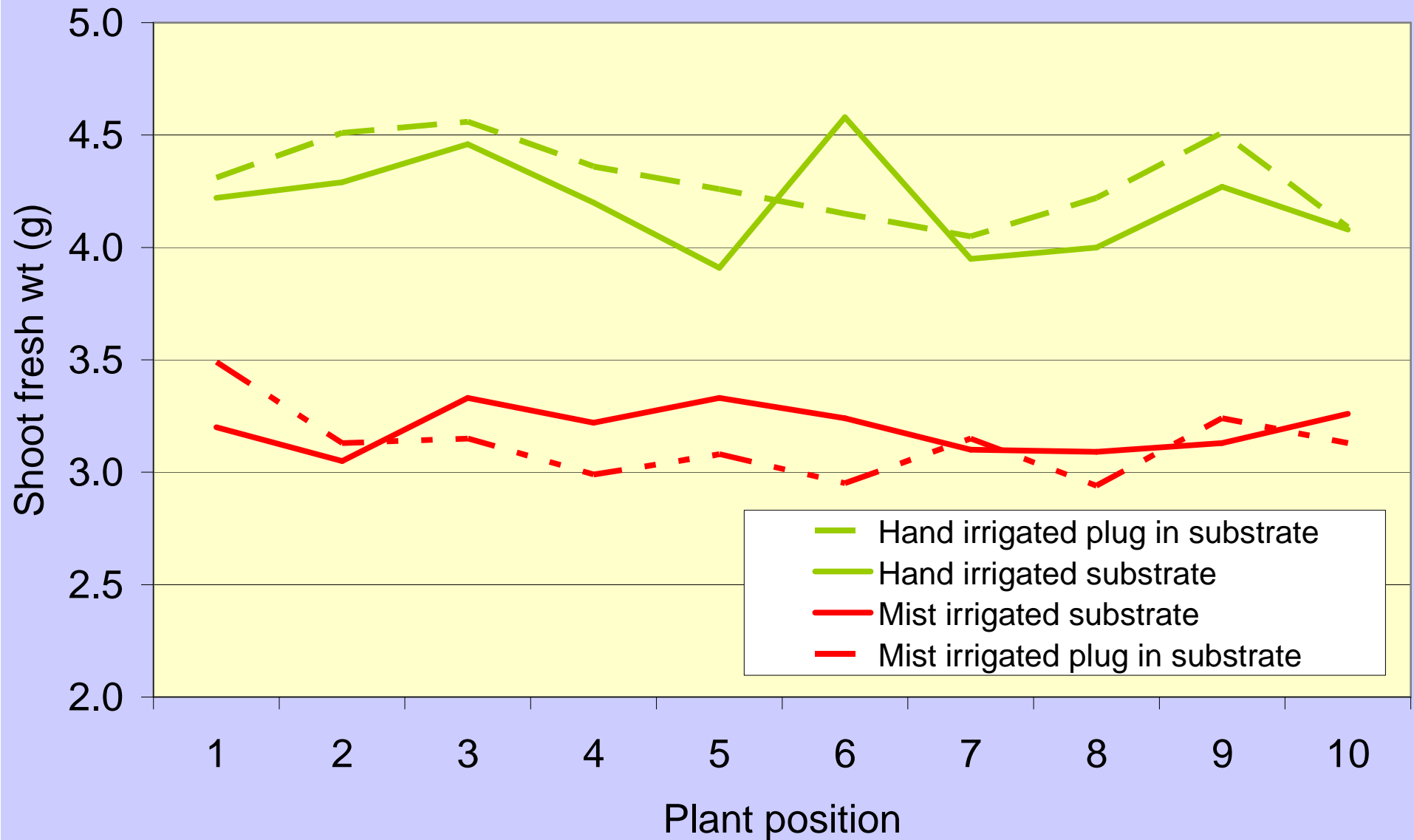
RESULTS: Position, top irrigation, Pythium



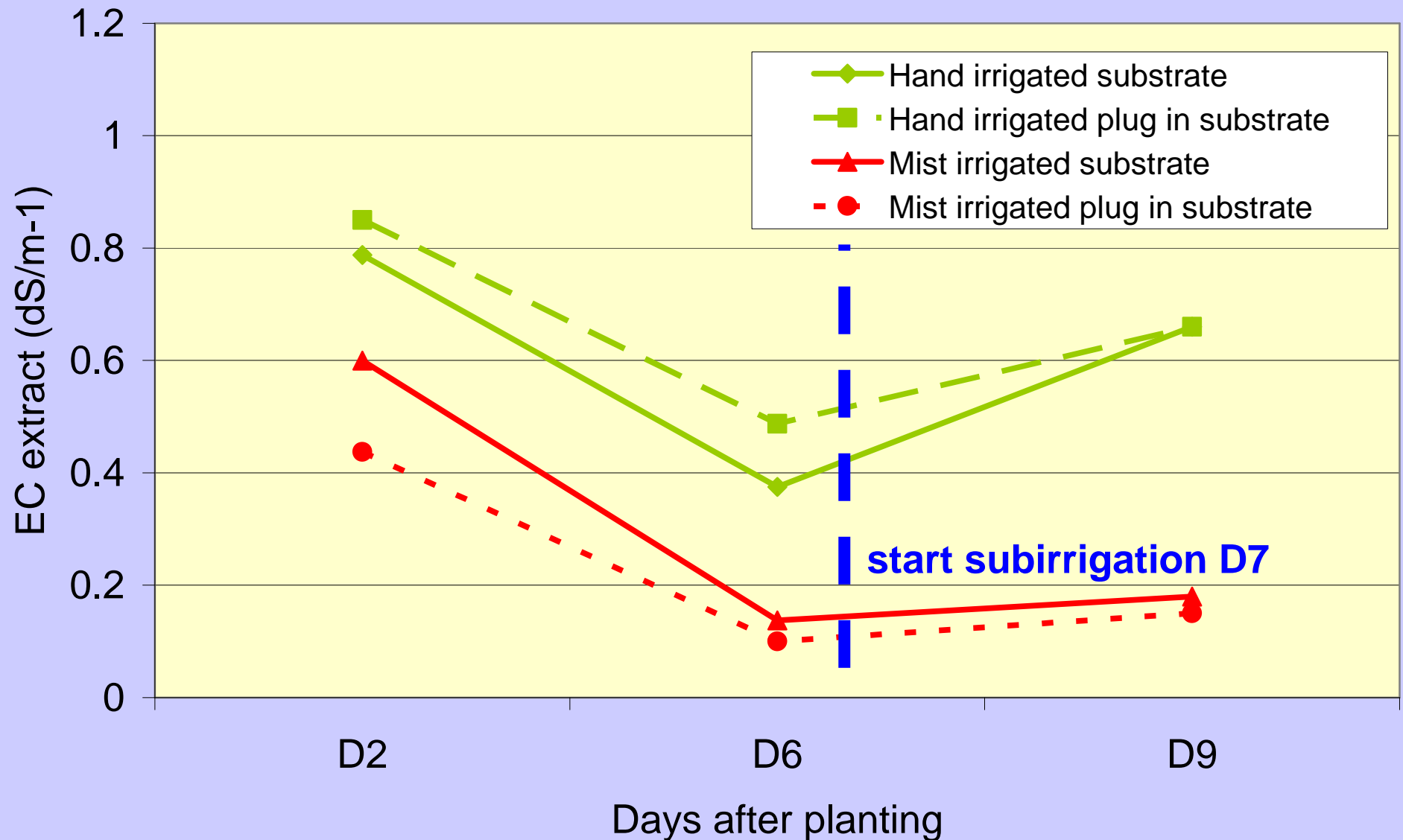
RESULTS: Position, top irrigation



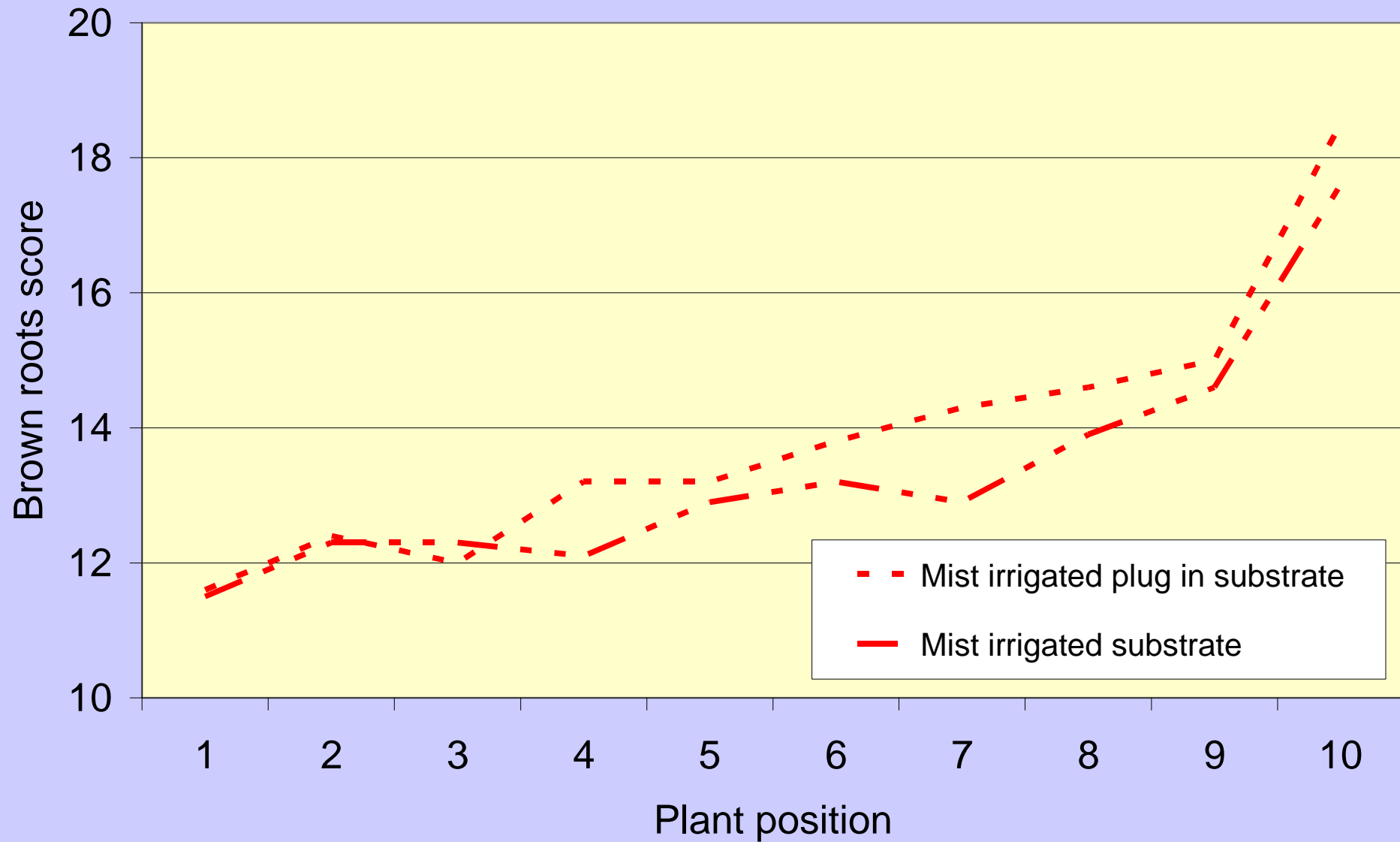
RESULTS: Top irrigation systems



RESULTS: Top irrigation systems



RESULTS: Top irrigation systems



CONCLUSIONS 1

- The mist system causes excessive water contents
- The mist system causes lack of nutrients
- Excess water causes stem rot causes Pythium
- On climate
 - $T < 30\text{ C}$ and $RH > 50\%$ are not easily critical
 - Cuttings need transpiration, much light and CO_2

CONCLUSIONS 2

- (Automatic) WC/EC measurements are essential
- Speedling round plugs; not necessary
- Plastic foils; not necessary



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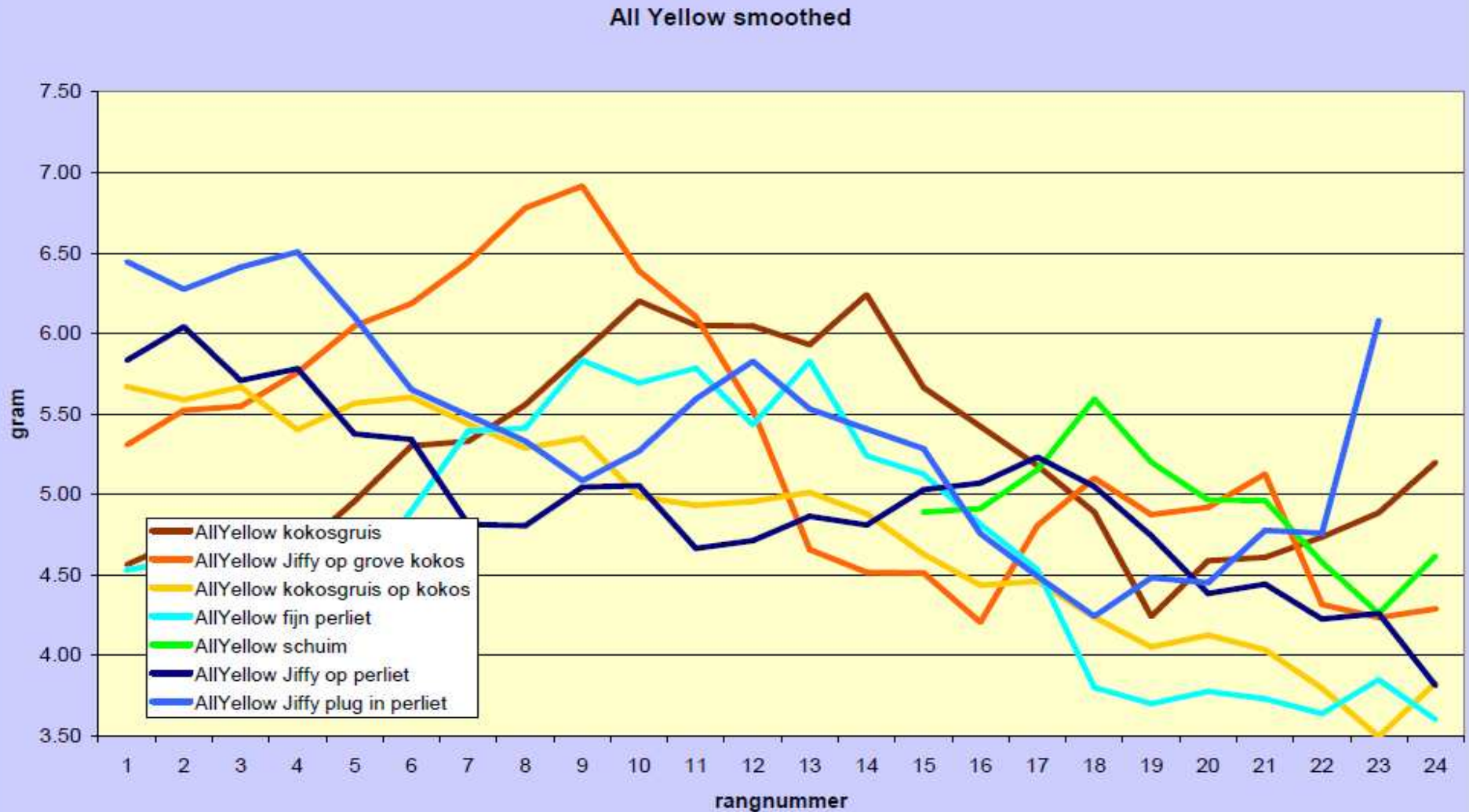
Innovations for and with greenhouse horticulture

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INTRODUCTION: System problems

1. Gully position effects

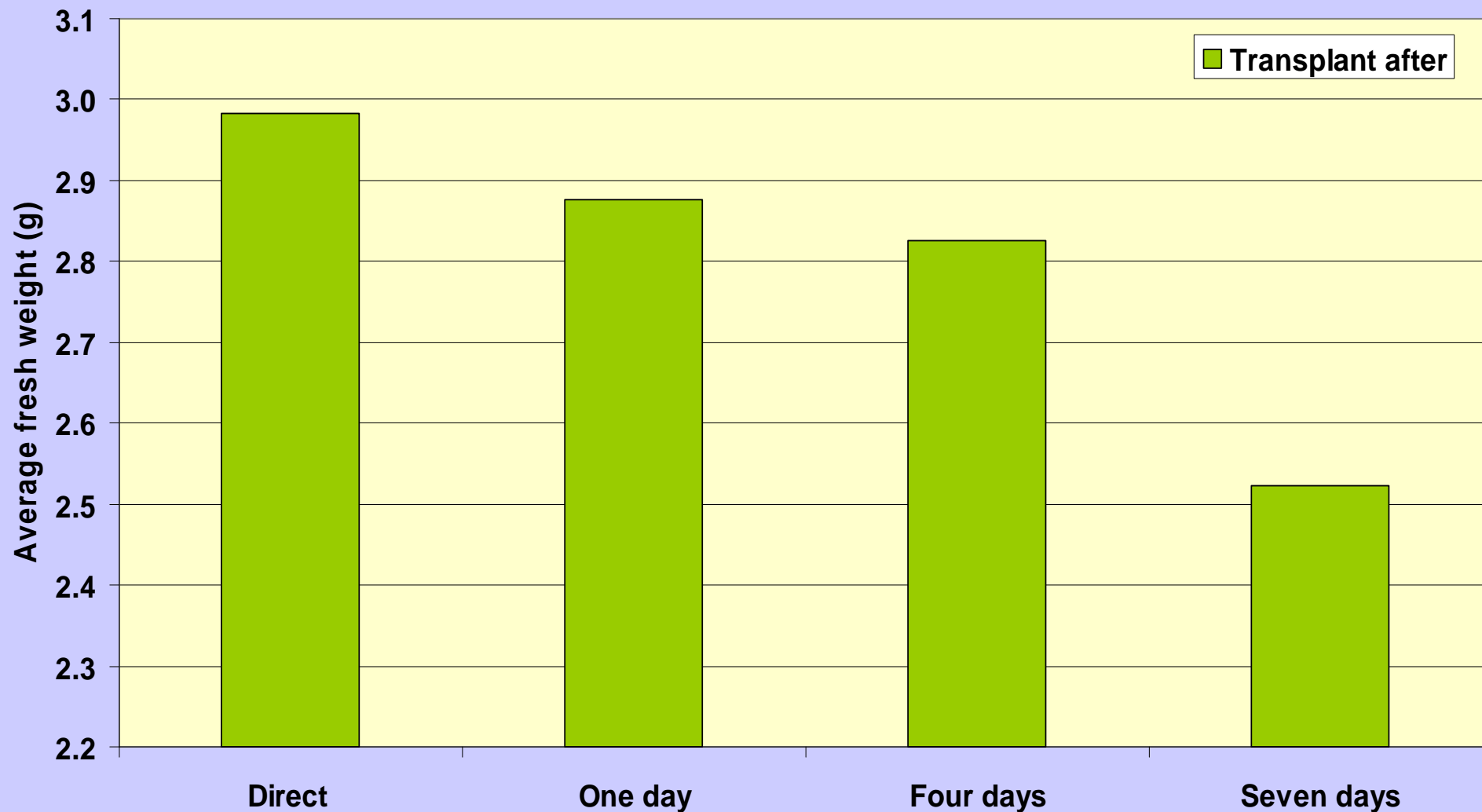


INTRODUCTION: Goal

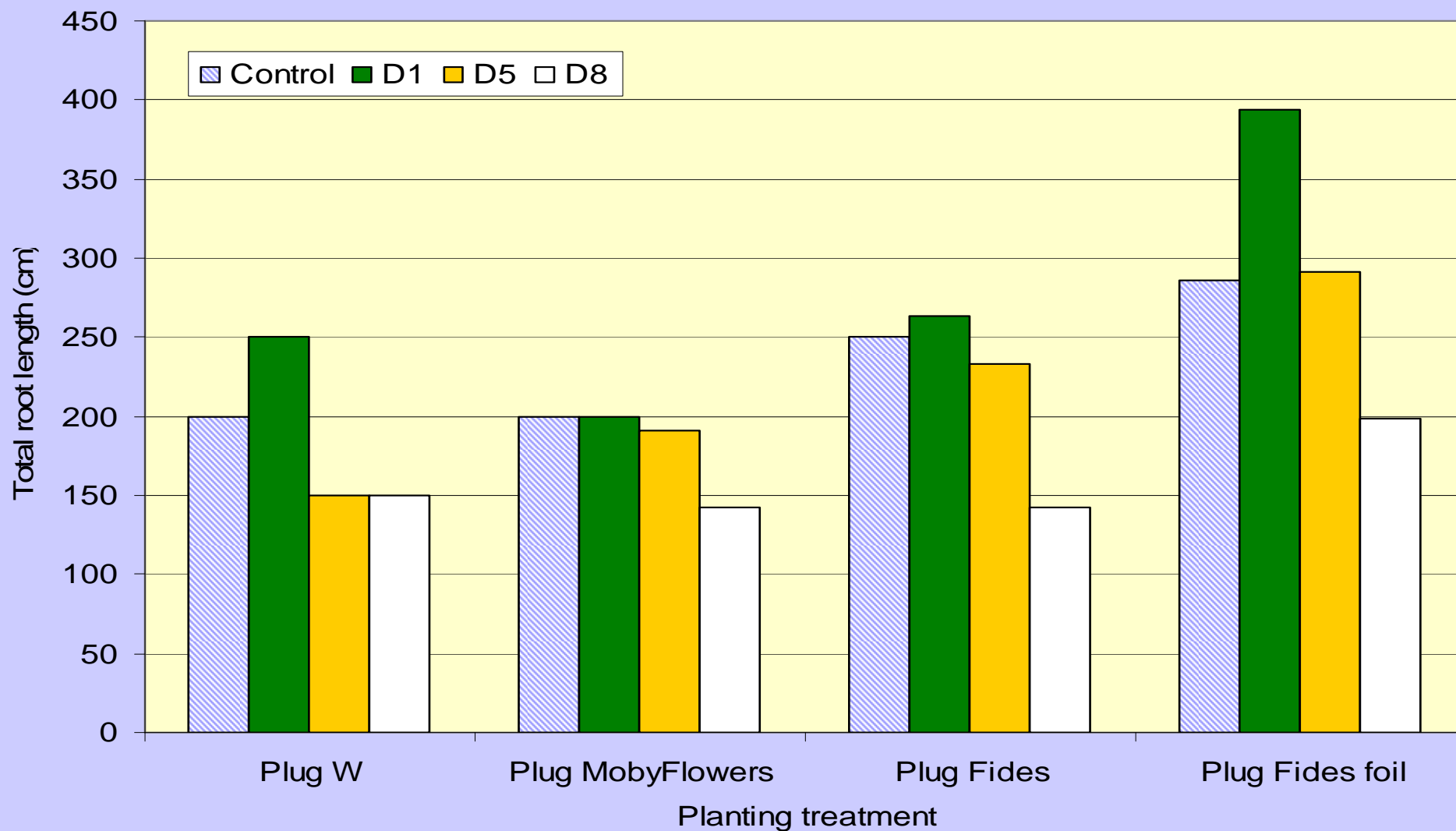
1. Overcome Pythium root rot problem.
2. Enhance growth uniformity along the gully.

Hypothesis; Pythium is caused in the propagation phase by sudden changes in RH and T.

RESULTS 2B, 3B Time to transplant analysis



RESULTS 5B Root length analysis





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For quality of life

RESULTS 6B, 7C Two irrigation systems

