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3-5-2019

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High Tunnel Greenhouse Produces Higher Cut Flower Yields in Utah

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I. Introduction

- Utah State University is performing research to develop management guidelines for cut flower production.
- High tunnels, simple inexpensive greenhouses, moderate temperatures. This allows cut flowers to be grown despite unfavorable conditions.
- Snapdragon (*Antirrhinum majus*) and sweet pea (*Lathyrus odoratus*) were selected as cool season annual crops to evaluate high tunnel benefits during cool spring temperatures.
- Research will be used to develop crop management guidelines for cut flower growers in Utah.



II. Methods

Snapdragon

Antirrhinum majus
'Potomac', 'Chantilly',
'Animation'

Treatments

- 9" spaced plantings through plastic row coverings
- High tunnel planting dates (9 Feb., 9 Mar., 23 Mar., 12 Apr.)
- Field comparison planting dates (23 Apr., 21 May)

Sweet Peas

Lathyrus odoratus
'Mammoth', 'Elegance',
'Spencer'

Treatments

- 8" spaced plants trained to 6' trellis
- High tunnel planting Feb. 27
- Field comparison planting April 21

Data Collection/Grading

- Harvested every M-W-F
- Graded according to USDA standards
- Marketable length, floret quality, and straight stems

Figure 1-2 – Yield comparison of field and high tunnel grown flowers

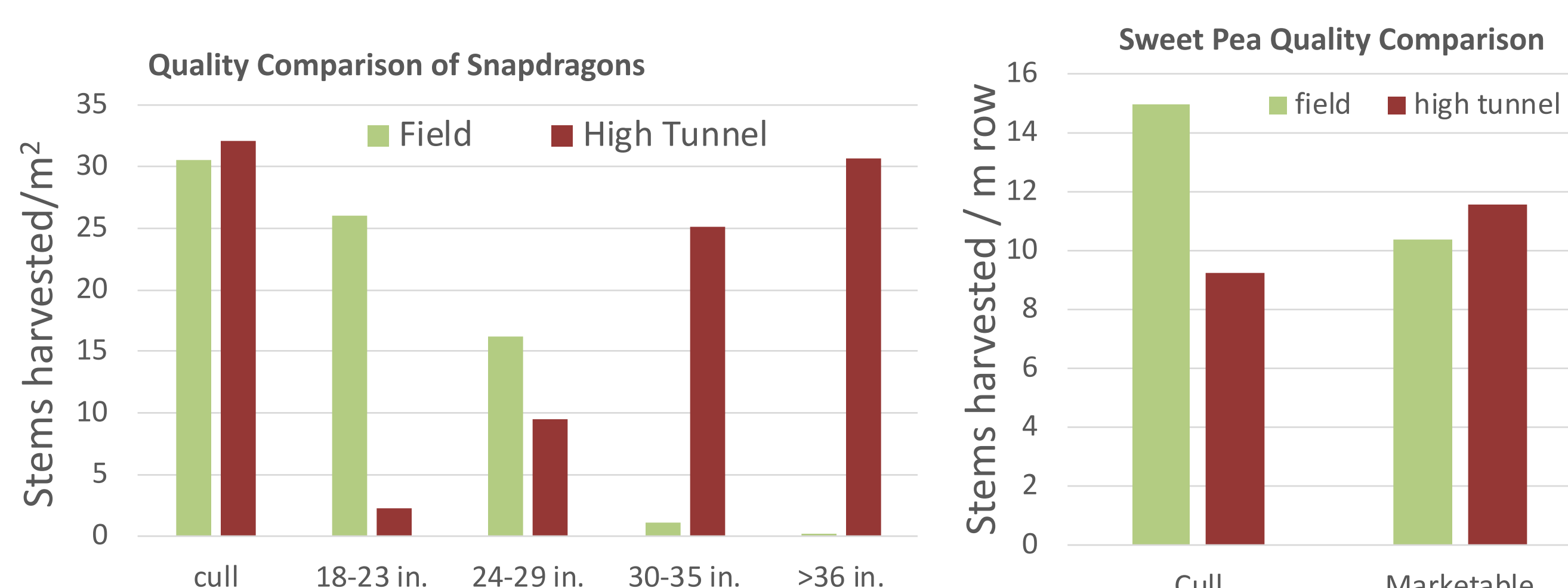


Fig. 1: Quality comparison of culls and marketable stems by length between the high tunnel and field snapdragons

Fig. 2: Quality comparison of marketable and cull stems between the high tunnel and field sweet peas

III. Results

- High tunnels produced marketable stems 4 weeks earlier than the field trial for both the snapdragons (fig. 1) and sweet peas (fig. 2).
- There was a significant increase in stem length and overall quality for snapdragons (fig. 3) and sweet peas (fig. 4) grown in high tunnels.

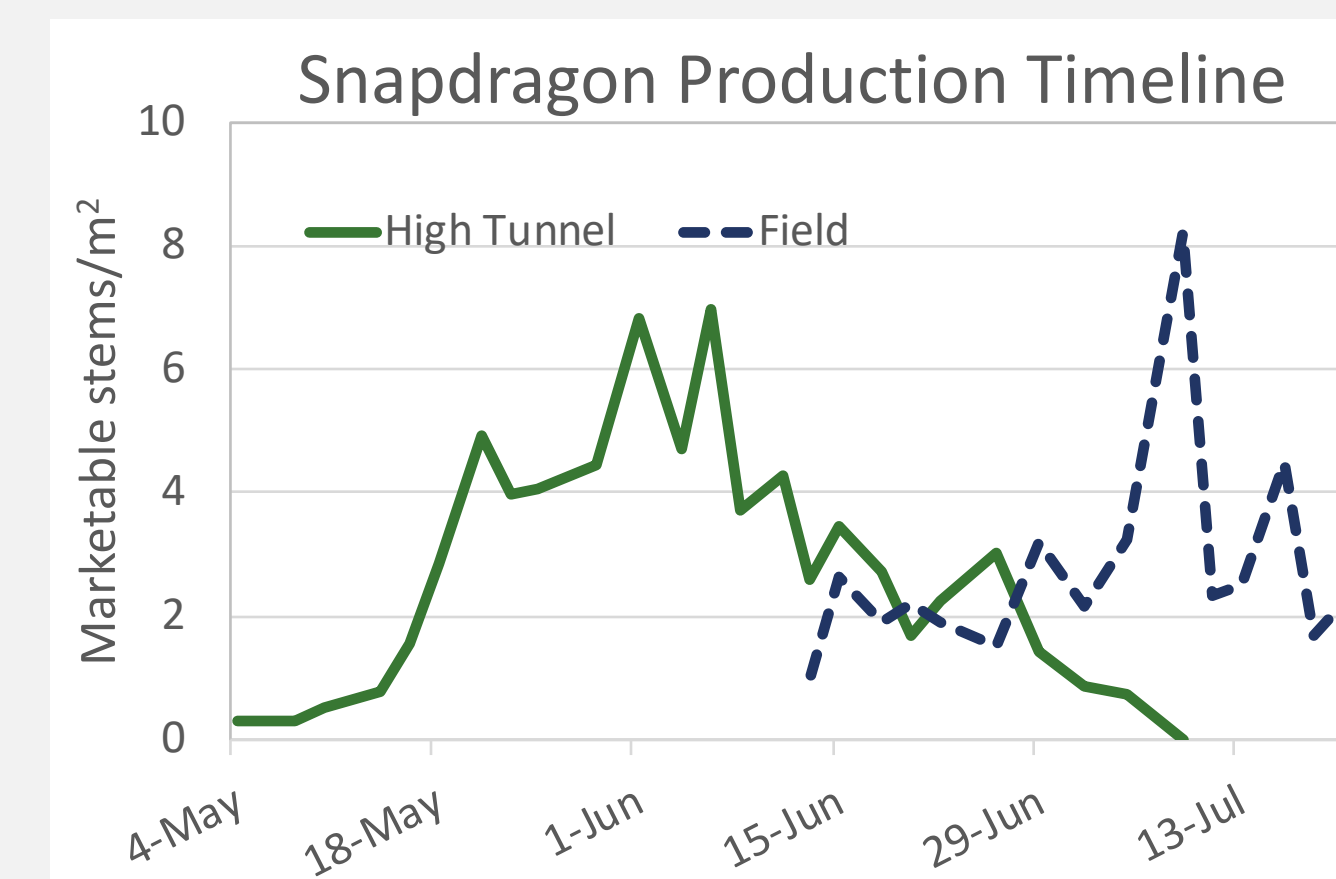


Fig. 3: Snapdragon timeline comparison of high tunnel and field marketable stems

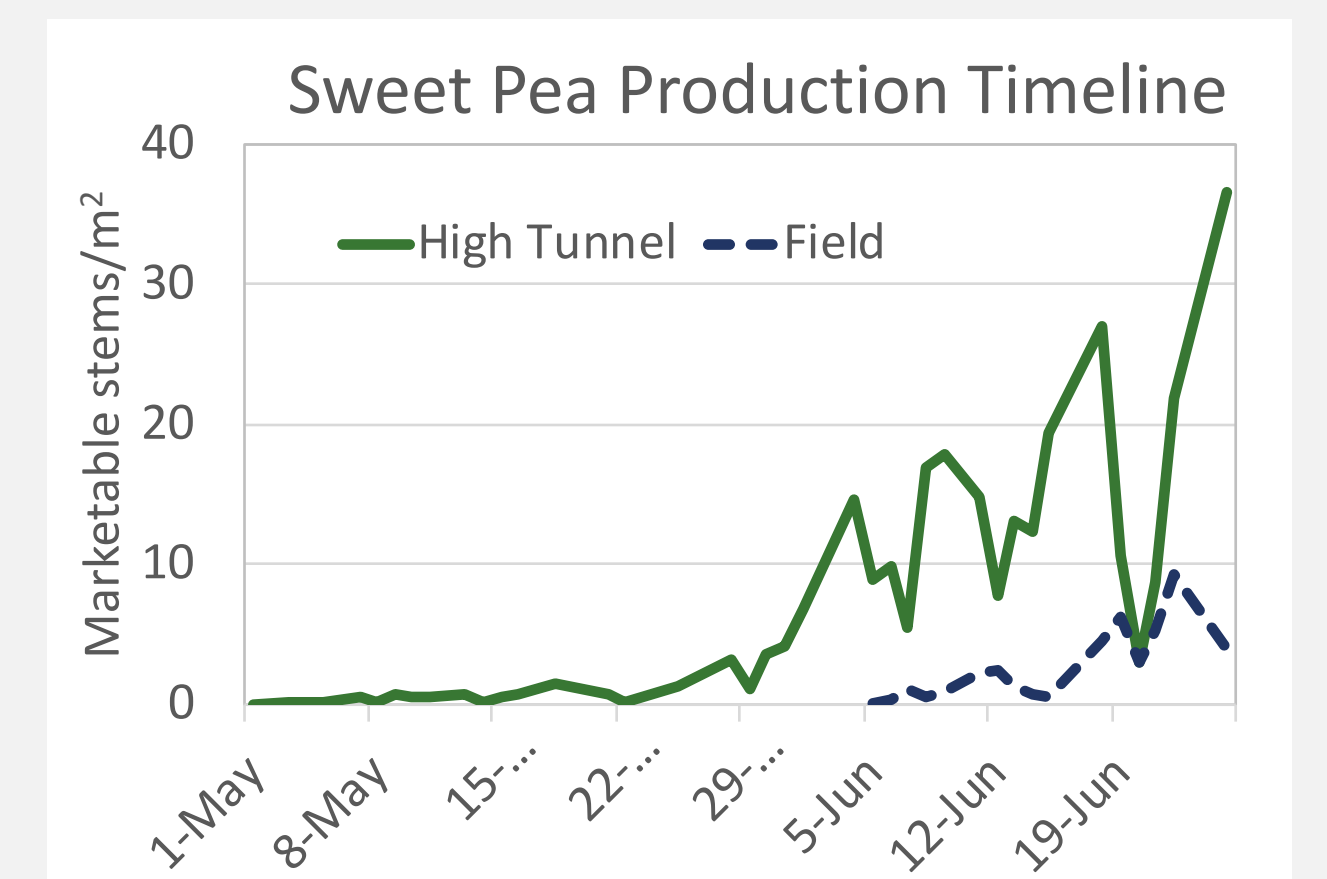


Fig. 4: Sweet pea timeline comparison of high tunnel and field marketable stems

IV. Conclusions

The harvest window can be extended through the use of high tunnel systems compared to field trials.

Staggering planting dates of snapdragons and using cultivars with differing blooming times such as early 'Chantilly' and late blooming 'Potomac' lengthens the harvest window.

We found a significant decrease in sweet pea marketability when unfavorably high temperatures and insects caused severe damage. This crop is not justifiable economically for Utah growers under tested conditions. More research is required to develop appropriate production strategies.

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