

# RESEARCH & INNOVATION CENTRE



# An Example of a Sweet Potato Slip Production Plan

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# **Objective**

This sample plan describes facilities, setup and activities required to produce approximately 400,000 sweet potato slips using 650 m<sup>2</sup> protected cultivation space. Actual yields may vary depending on a number of factors including the variety, environment and cultural practices.

## Facilities and seed potato requirements

- Two 35 x 200 foot (7,000 feet<sup>2</sup> or 650 m<sup>2</sup>) hoop houses
- Approximately 60% of this space is used to produce slips while the other 40% is required for walkways
- To produce approximately 400,000 slips, the following assumptions were considered:
  - Slip production density is 280 slips per m<sup>2</sup>
  - Slips are harvested over two cuts
- Approximated calculations:
  - 400,000 slips / 280 slips/m<sup>2</sup>= 1,428 m<sup>2</sup>
  - $\circ~$  1,428 m² / 2 cuts = 714 m² required (this is equivalent to less than two hoop houses)
  - $\circ$   $\,$  One third of 714  $m^2$  is required to bed G1 or G2 seed potato  $\,$
  - $_{\odot}$  15 kg of seed potato is required per m². Approximately 240 m² will be bedded with 3,600 kg (15 kg \* 240 m²) of G1 seed potato.
  - The other two thirds can be filled with cutbacks generated from the above bedded seed potato approximately four to six weeks after bedding the seed potato
  - $\circ~$  Approximately six 65  $m^2$  beds can be prepared in each hoop house for a total of 390  $m^2$  per greenhouse
  - $\circ$  390 m<sup>2</sup> \* 280 slips/m<sup>2</sup> = 109,200 slips per greenhouse per cut
  - Total slips produced = 109,200 \* 2 cuts \* 2 greenhouses = 436,800 slips

**Disclaimer:** These calculations are based on Vineland Research and Innovation Centre trials. Individual results may vary depending on season, location and cultural practices.



Figure 1. Bedding of 3,600 kg of seed potato in four beds of Greenhouse 1 beginning in mid-March.



Picture 1. Bedding of seed potato in greenhouse beds at Vineland in 2020.



Figure 2. The seed potato will begin to sprout and reach more than a foot long within four to six weeks from day of planting. The rate of growth will depend on fertilizer, lighting conditions and temperature (day/night) of the greenhouse. These initial sprouts can be cut back and replanted in the eight empty beds as single-node cuttings. Each sprout should have at least four nodes which can be individually cut and replanted in these empty beds.



Picture 2. Sprouting of seed potato at Vineland in 2020 and are ready to be cut back for single-node planting.



Figure 3. The cutbacks are used to produce single-node or double-node cuttings which are replanted in the remaining empty beds (3 inches of soil) by mid-April to early May depending on when cutbacks are ready for harvesting.



Picture 3. Single-node cuttings that have rooted and have begun sprouting after three to five days.



Picture 4. Planting of single-node cuttings in empty beds installed with an automated drip line irrigation system.

## **Activities and outcomes**

The following is a summary of approximate timelines to produce 400,000 slips in two hoop houses.

Month	<b>Description/activities</b>	Outcomes	
Greenhouse and bed setup			
February	<ul> <li>Set up beds as illustrated in Figure 1 or a similar setup</li> <li>Set up automated drip irrigation</li> </ul>	<ul> <li>Two greenhouses are ready for bedding of seed potato</li> </ul>	
Bedding of seed potato			
Mid-March	<ul> <li>Bed seed potato</li> <li>Cover with about one inch of soil</li> <li>Irrigate the four beds with appropriate fertilizer rates</li> </ul>	Seed potato are planted in the four beds	
Sprouting of seed potato and cutting of single nodes			
Mid-March to mid-April	<ul> <li>Scout for pests and apply appropriate biocontrol/pesticides if required (refer to guidelines for further information)</li> <li>Continue required irrigation and fertilizer rates according to guidelines</li> </ul>	<ul> <li>Seed potato have sprouted to desired length</li> </ul>	

	• Sprouts are ready to be cut back when they are more than 12 inches long		
Planting of single-node cuttings			
Mid-April	<ul> <li>Seed potato sprouts are cut back</li> <li>Cutbacks are used to prepare single- or double-node cuttings</li> </ul>	<ul> <li>Remainder of available greenhouse space is planted with single- or double-node cuttings</li> </ul>	
First cut of slips			
Late May to early June	<ul> <li>Slips 10 to 12 inches long are cut from all beds (can stay in cold storage one to three days)</li> <li>Slips are packed and shipped to customers or transplanted in the field</li> </ul>	<ul> <li>218,400 slips are harvested and planted</li> </ul>	
Second cut of slips			
First week of June to mid-June	<ul> <li>Scout for pests and apply appropriate biocontrol/pesticides if required (refer to guidelines for further information)</li> <li>Continue required irrigation according to guidelines</li> <li>Slips 10 to 12 inches long are cut from all beds (can stay in cold storage one to three days)</li> <li>Slips are transplanted in the field</li> <li>Continue to irrigate beds if the opportunity exists to produce a third cut for planting at the end of June</li> </ul>	<ul> <li>218,400 slips from all beds have reached 10 to 12 inches in length and are ready to be cut and planted in the field</li> </ul>	

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