



LOGIC MODEL for PROGRAM DEVELOPMENT and ASSESSMENT
Introduction of Grafting as a New IPM Tool in Arizona Melon Production

SITUATION	INPUTS	OUTPUTS		OUTCOMES – IMPACT		
		Activities	Participation	Short	Medium	Long Term
<p><i>What is the problem or need?</i></p> <p>Intensive cultivation due to the limitation of arable land, along with the rapid population increase.</p> <p>More serious soil-borne diseases/pests.</p> <p>Environmental issues and worker safety issues in use of chemical fumigants.</p> <p>Little information on grafting.</p>	<p><i>What we invest</i></p> <p>The interdisciplinary team of three faculty members.</p> <p>Technical support from Del Monte Fresh Produce.</p> <p>Small ‘seed money’ for collecting data for a larger competitive grant with budget including operation and graduate student assistantship.</p>	<p><i>What we do</i></p> <p>Field trial using grafted cantaloupe plants in the soil infected with charcoal rot, pythium and root-knot nematode, to examine performance, disease/pest symptom, yield and product quality.</p> <p>Scientific and outreach publication.</p> <p>Workshop presentations.</p>	<p><i>Who we reach</i></p> <p>Stakeholders (Producers, propagators, and seed companies)</p> <p>Horticultural scientists and plant pathologists</p>	<p><i>What the short term results are</i></p> <p>Information and an alternative IPM tool for Arizona cantaloupe producers including Del Monte Fresh Produce.</p>	<p><i>What the medium term results are</i></p> <p>Information and an alternative IPM tool for cantaloupe and other melon producers nationwide.</p> <p>Enhancing research on vegetable grafting in the U.S.</p> <p>Business development and new employment opportunities in Arizona.</p>	<p><i>What the ultimate impact(s) is</i></p> <p>Information and an alternative IPM tool for cantaloupe and other melon producers nationwide.</p> <p>Enhancing research on vegetable grafting in the U.S.</p> <p>Business development and new employment opportunities in Arizona.</p>

Assumptions: (*Beliefs, expectations, and principles that guide our work.*)

1. Non grafted plants will exhibit a symptom of soil-borne disease in the non-fumigated field plot.
2. Non grafted plants will exhibit root-knot nematode (RKN) infection in the non-fumigated field plot infected by RKN.
3. 30 grafted seedlings will be produced in a timely fashion.
4. Del Monte Fresh Produce will be continuously cooperative with PIs in this project.
5. The selected rootstock (squash, *C. moschata*) exhibits resistance/tolerance over soil borne diseases/pests such as charcoal rot, *Pythium* and RKN and has good establishment in early March, as indicated in our fall trial and in the literature.
6. Cantaloupe plants grafted on the squash rootstock yield more than non-grafted cantaloupe plants.

Environment: (*Influential factors*)

1. Weather conditions to create a distinct temperature difference between two timings of transplanting.
2. Availability of rootstock species, currently used experimentally in the U.S. [The seed company (American Takii) already agreed to provide the seeds for the experiment]
3. Increase of production capacity and supply of the grafted seedlings for open field use.
4. Continuous technology development and accumulation of locally collected data on using grafted seedlings in the U.S. open field.