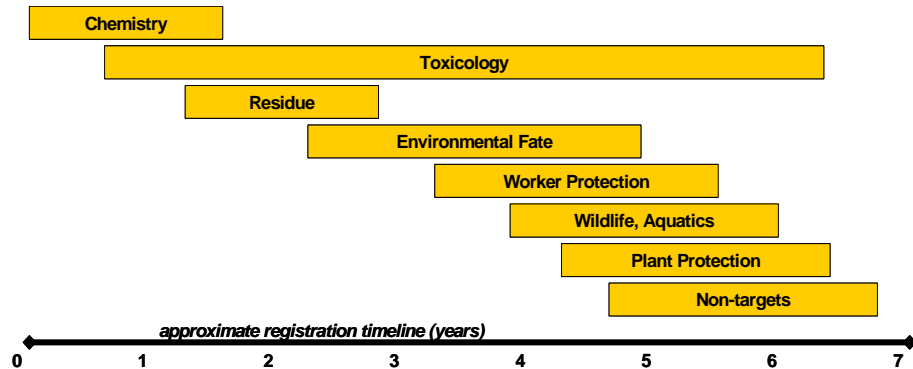


## Steps Leading to Registration of Our Abscission Compound



Prepared By: Barbara Hyman<sup>2</sup>, Jacqueline Burns<sup>1</sup>, and Fritz Roka<sup>2</sup>






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## Evaluating The Use of an Abscission Agent with Citrus Mechanical Harvesting Systems

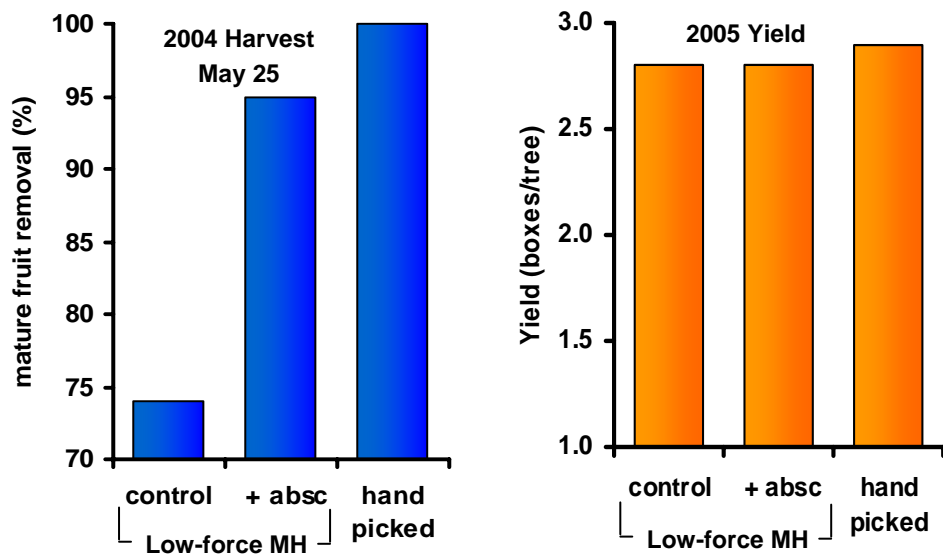


### Trees Treated With Our Abscission Agent

-  **Have the same yield as non-treated trees**
-  **Do not have unwanted leaf, flower or green fruit drop**
-  **Have fruit with the same juice quality as those from non-treated trees**
-  **Are harvested in 3 to 5 days after application**
-  **Can be harvested less aggressively with less physical damage**

# Abscission and Mechanical Harvesting for Florida

## Late Season Mechanical Harvesting a Reality



With abscission, low-force mechanical harvesting (MH) can achieve high fruit removal percentages. Next year's yield is comparable to hand-picked yields because low-force MH removes low amounts of green fruit.

## Mechanical Harvesting Capacity Increases

	Trunk Shaker % Removal		Continuous Canopy Shaker % Removal		
	2 sec	7 sec	1 mph	1.5 mph	2 mph
Control	85	96	92	87	83
Abscission	96	97	97	97	96

Abscission will allow mechanical harvesters to achieve high fruit removal percentages in less time because mature fruit are easier to remove. Increased capacity means more fruit can be harvested in a day, a month, or in a season.

## Abscission-Treated Fruit



Peel injury is only cosmetic



Stems easily removed

## Projected Benefits of Abscission to the Citrus Industry

Prepared by Fritz Roka, University of Florida - IFAS, Revised September 2005

Evaluating Potential benefits of Abscission in Mechanical Harvesting	Current situation NO Abscission	5% increase recovery % w/ abscission	10% increase speed w/ abscission	4 wk season extension w/ abscission	2 hr daily extension w/ abscission	Increase recovery (5%), speed (10%), & season (2 hr * 4 wk) w/ abscission	
						+load allocation	+load allocation
<b>Ownership and operational rates</b>							
<sup>1</sup> Seasonal Revenue Goal	\$500,000	\$500,000	\$500,000	\$518,000	\$539,000	\$539,000	\$539,000
Hrs/day	6	6	6	6	8	8	8
Days/week	6	6	6	6	6	6	6
Weeks/season	22	22	22	26	26	26	26
<sup>2</sup> Hrs "active" harvest	792	792	792	936	1,248	1,248	1,248
Avg hourly rate:	\$631	\$631	\$631	\$553	\$432	\$432	\$432
<b>Grove conditions</b>							
in-row spacing (ft)	12						
cross-row spacing (ft)	24						
Trees/ac	151						
Bx/tree	3						
Yield (bx/ac)	454						
				Assumptions: added labor costs for extended harvest			
				extra hr rate:	\$125/hr	\$125/hr	
				extra hrs	144	312	
				extra cost	\$18,000	\$39,000	
<b>Harvesting performance</b>							
harvest speed	tree/hr	300	300	330	300	300	330
runtime	%	70%	70%	70%	70%	70%	70%
(net) recovery	%	90%	95%	90%	90%	90%	95%
Harvest capacity	bx/hr	566	598	624	566	566	658
Harvest Price (NO gleaning)	\$/bx	\$1.11	\$1.06	\$1.01	\$0.98	\$0.76	\$0.66
<b>Potential benefits from abscission:</b>							
Harvested acreage	100,000						
Yield per acre	454		95%	90%	90%	90%	95%
Anticipated cost of abscission	\$50-70/Acre (including materials and application)						
Boxes harvested		43,106,250	40,837,500	40,837,500	40,837,500	43,106,250	
Total Dollars saved		\$2,529,123	\$4,188,227	\$5,616,987	\$14,380,396	\$19,774,749	
Dollars per acre saved		\$25	\$42	\$56	\$144	\$198	

1. Revenue goal suggested by commercial harvesters.  
2. Yellow highlights represent calculated values from given information/assumptions