

Meeting the Challenge of the Asian Citrus Psyllid in California Nurseries

A two-day workshop in Riverside, California

June 11-12, 2009

Organizing Committee:

- T. Delfino**-California Citrus Nursery Society
A. Eskalen-Dept. of Plant Pathology & Microbiology, University of California Riverside
R. Lee-USDA- ARS, National Clonal Germplasm Repository for Citrus and Dates
G. Vidalakis-Citrus Clonal Protection Program, Dept. of Plant Pathology & Microbiology, University of California Riverside



Florida-Foundation Block



Brazil-Citrus Nursery



M. Rogers



Invited Speakers:

- J. Ayres**-Fundecitrus, Brazil
J. Bethke-UC, CA
G. Baze-Golden Pacific Structures, CA
T. Delfino-CCNS, CA
F. Dixon-Wells Fargo, CA
D. Elder-American Ag Credit, CA
T. Gast-Southern Gardens Citrus, FL
P. Gomes-CHRP, USDA -APHIS, NC
E. Grafton-Cardwell-UCR, CA
D. Howard-AgraTech, CA
N. Jameson-Brite Leaf Nursery, FL
R. Keijzer-KUBO, The Netherlands
P. Llatser-AVASA, Spain
S. McCarthy-CDFA, CA
G. Vidalakis-UCR-CCPP, CA

Registration: <http://ccpp.ucr.edu> & <http://eskalenlab.ucr.edu>

Location:

Sunkist Center
Citrus State Historical Park
9400 Dufferin Avenue
(Corner of Van Buren Blvd)
Riverside, California

Sponsored by:



CALIFORNIA CITRUS NURSERY BOARD



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Information on line at: <http://eskalenlab.ucr.edu>

Making the Decision

Tom Delfino

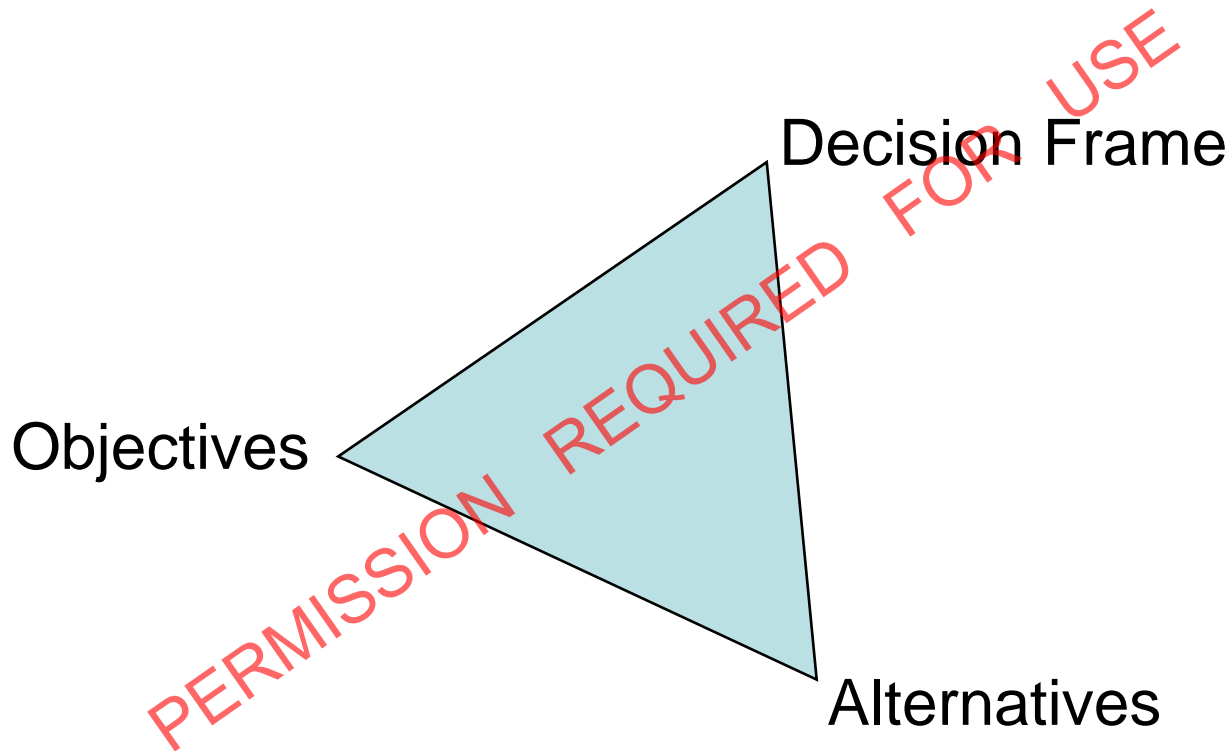
California Citrus Nursery Society

Why Is It So Difficult?

- High costs
- High consequences
- Uncertainties everywhere

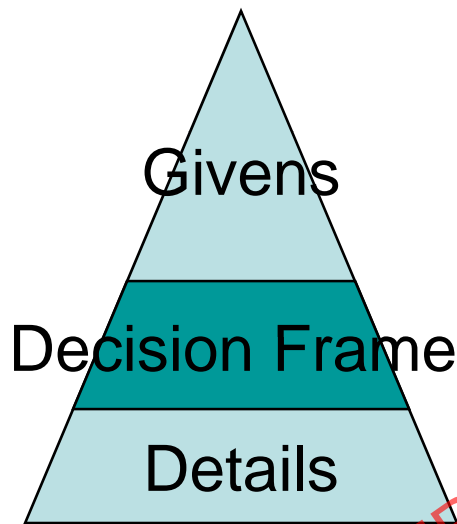
This presentation will provide a framework for sorting through the costs, consequences, and uncertainties to reach a decision.

Three Parts To A Decision



Considering each part separately is easier.

Decision Frame



Issues beyond the scope of this decision and are, therefore, fixed with respect to this decision.

Decision Frame What you need to decide in this decision.

Minor (compared to the decision frame) issues to be decided later. For example, locations of entrance doors, number of equipment access points, where to put the nursery logo.

Write out your decision frame.

What Are The Givens?

- Are you taking as a given your:
 - Current location?
 - Current business or operating model?
 - Current capacity?

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Objectives

- Your objectives should must represent what is of value to you.
- Include all of your objectives.
- Seek fundamental objectives.
 - When you identify an objective, ask yourself: “Why is that an objective?”
 - If you have an answer, the answer represents a more fundamental objective.
 - If the answer is: “Because that is what I value,” you have reached a fundamental objective.

Write out your objectives.

Some Advice On Objectives

- Consider short-term, medium-term, and long-term objectives.
- Consider non-financial objectives.
- Consider what you plan to do with your nursery when you retire.

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Alternatives

- Be creative.
- Strive for more, not less.
- Don't dismiss anything because it is too strange or couldn't possibly work.
- Build alternatives by mixing and matching from other alternatives.

Write out your alternatives.

Some Ideas For Alternatives

- Consider alternatives that incorporate:
 - Different business or operating models
 - Different capacities
 - Different locations
 - Different timing

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Sort Out Viable Alternatives

- Only after finishing the creation of as many alternatives as you can.
- Discard alternatives that are inconsistent with the decision frame.
- Strive for no more than about five viable alternatives.

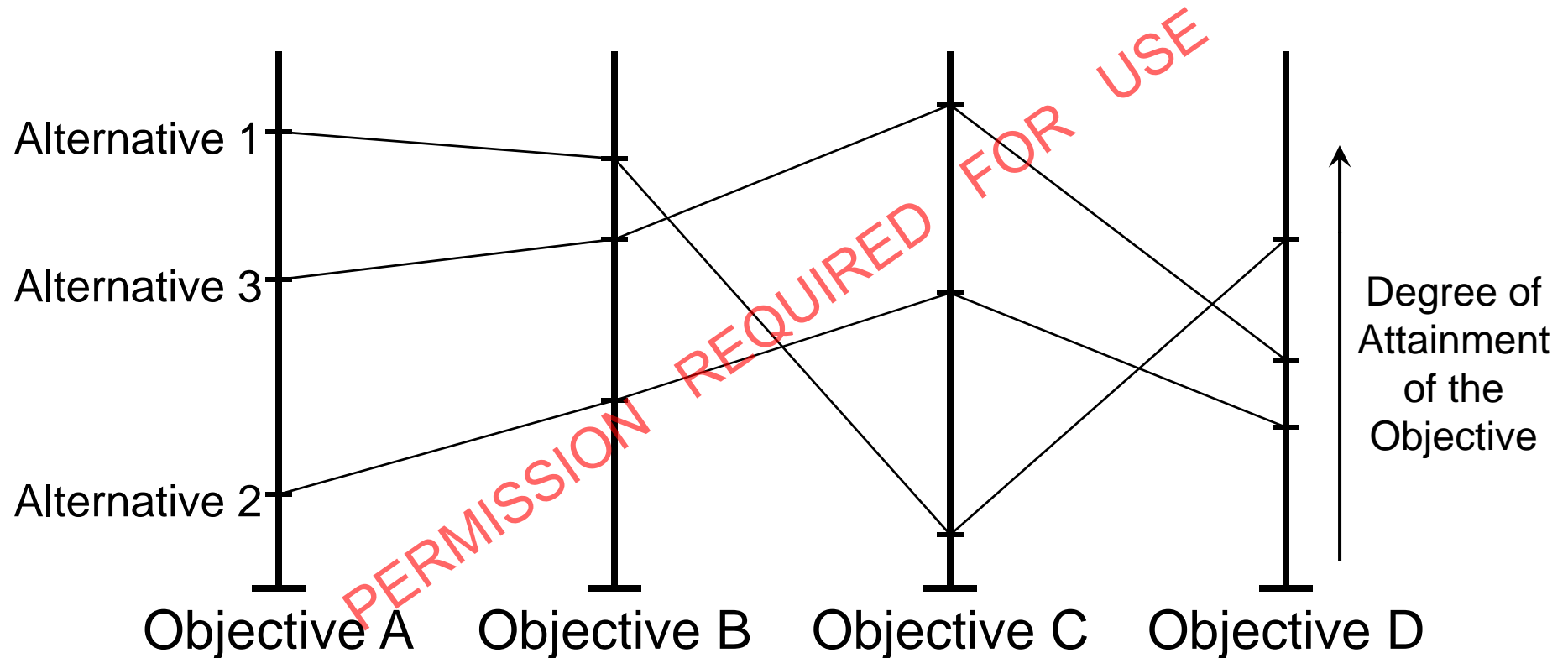
Evaluate Alternatives Against Objectives

- For a financial/earnings objective, calculate the net present value of each alternative.
- For non-financial objectives, use the most appropriate measure of attainment calculated as the net present value.

$$\text{Net Present Value} = E_0 + E_1/(1+r) + E_2/(1+r)^2 + E_3/(1+r)^3 + \dots + E_n/(1+r)^n$$

Where E_i is the earnings or other benefit predicted in year i and r is the discount rate (commonly 5%). EXCEL will perform this calculation.

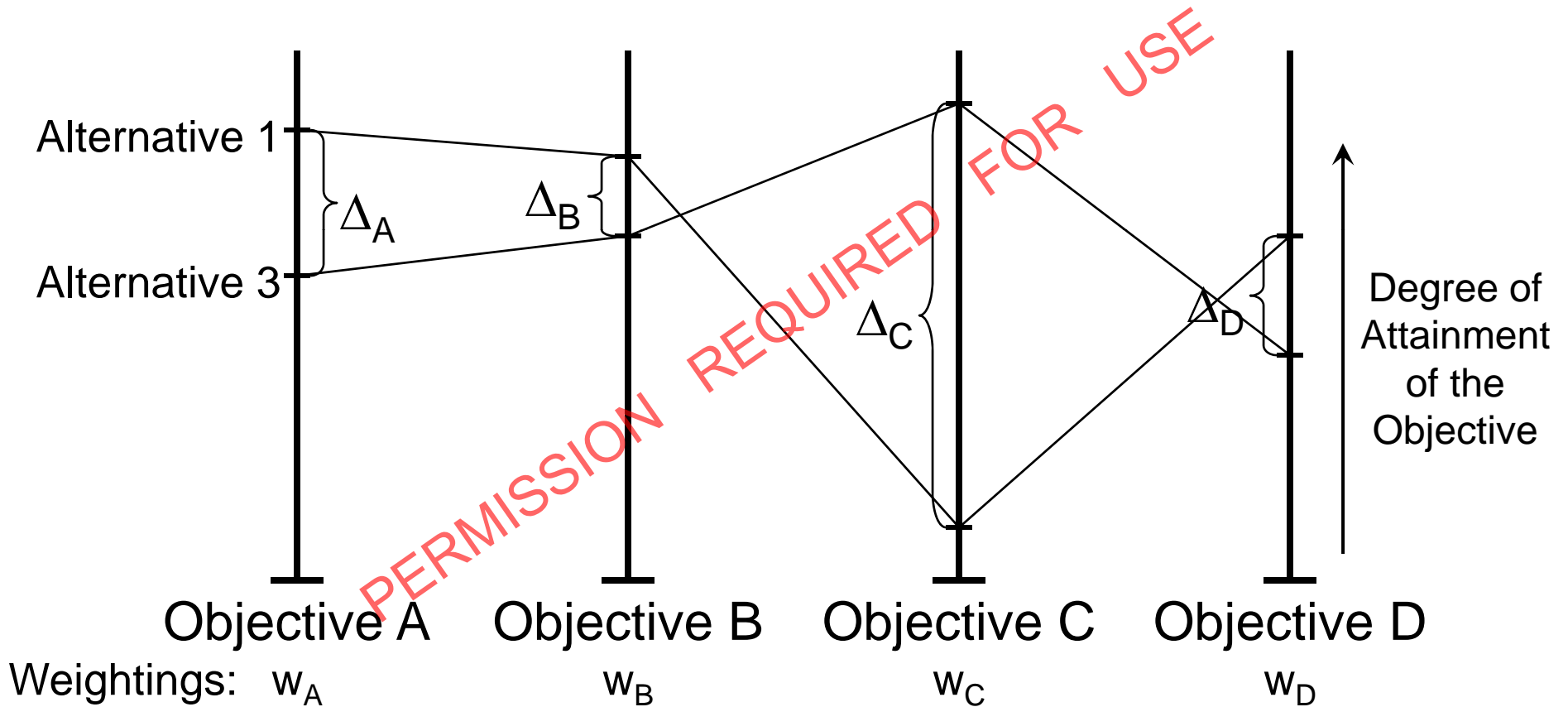
Facing Tradeoffs I



Alternative 3 is better than Alternative 2 on all objectives. Eliminate Alternative 2.

Alternative 1 is better than Alternative 3 on three objectives, but considerably worse on one objective. Thus, the consideration of tradeoffs.

Facing Tradeoffs II



If $w_A \times \Delta_A + w_B \times \Delta_B + w_D \times \Delta_D > w_C \times \Delta_C$, choose Alternative 1, otherwise choose Alternative 3.

Facing Tradeoffs III

- Weightings represent your preferences.
- An alternative approach is to convert the degree of attainment of each objective into equivalent dollars (net present value).

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Uncertainties

- Example uncertainties:
 - When protective structures will be required (and existing outdoor stock will become worthless).
 - Future selling price of citrus nursery stock.
 - How much citrus nursery stock your nursery will be able to sell (driven by general demand and restrictions due to quarantine).
 - Whether existing protective structures and the trees/nursery stock inside them will be approved or grandfathered in when standards for protective structures are adopted.

Future Selling Price

- What will happen to the selling price before protective structures are required?
 - How much might it increase, if at all?
- What will happen to the selling price after protective structures are required?
 - What is the worst case?
 - What is the best case?
 - What is the most likely case?

Case	Best	Worst	Most Likely
Selling Price	\$__ /tree	\$__ /tree	\$__ /tree
Probability (P_s)	25%	25%	50%

Demand for Your Nursery's Stock

- What will happen to demand (for your nursery's stock) after protective structures are required?
 - What is the worst case?
 - What is the best case?
 - What is the most likely case? (limited by the capacity of the structure you install)

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Case	Best	Worst	Most Likely
Demand	__ tree/yr	__ tree/yr	__ tree/yr
Probability (P_d)	25%	25%	50%

Timing of Protective Structures

- When will protective structures be required (and existing outdoor stock becomes worthless)?

Year	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5- Year 9	Year 10+	Never
Probability (P_y)	___%	___%	___%	___%	___%	___%	___%	___%

The probabilities must add up to 100%.

Calculations

Alternative: _____

Selling Price: _____ Demand: _____ Year of Protective Structures: _____

Probabilities - P_s : _____ P_d : _____ P_y : _____ $P_s \times P_d \times P_y =$ _____

Year	0	1	2	3	n
Revenue						
Expenses						
Capital Expend						
Annual Total						
NPV						
Total NPV						

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An Example

Alternative 2 is to wait until protective structures are required. You estimate the probability of protective structures required in Year 2 as 15%. You estimate selling price before is \$10 and \$20 after (best case). You estimate demand before is 100K/yr before and after (most likely case). Discount rate is 5%.

Alternative: 2

This is only an example; do not use for your individual circumstances.

Selling Price: \$20 Demand: 100K Year of Protective Structures: 2

Probabilities - P_s : 25% P_d : 50% P_y : 15% $P_s \times P_d \times P_y =$ 1.875%

Year	0	1	2	3	4	....
Revenue	\$1,000	\$1,000			\$2,000	....
Expenses	\$900	\$900	\$500	\$900	\$900	....
Capital Expend	0	0	\$100	\$100	\$100	....
Net Cash Posit	\$100	\$100	(\$600)	(\$1,000)	\$1,000	....
NPV	\$100	\$95	(\$540)	(\$860)	\$820	....
Total NPV		Amounts in thousands				

Calculations II

Alternative: _____

Prot. Structure	Year 0	Year 0	Year 0	Year 0	.....	Never
Selling Price	Best	Best	Best	Worst	.....	Most
Demand	Best	Worst	Most	Best	Most
Total NPV						
$P_s \times P_d \times P_y$						
Prob. Wt. NPV						
Expected Value						

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Add up all of the probability-weighted NPVs and insert here.

These amounts come from the previous table.

Multiply Total NPV by $P_s \times P_d \times P_y$ and insert here.

Table of Combinations

Year 0	Year 0	Year 0	Year 0	Year 0	Year 0	Year 0	Year 0	Year 0	Year 0	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 1	Year 2	Year 2
Best	Best	Best	Worst	Worst	Worst	Most	Most	Most	Best	Best	Best	Worst	Worst	Worst	Most	Most	Most	Best	Best	
Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	

Year 2	Year 2	Year 2	Year 2	Year 2	Year 2	Year 2	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 3	Year 4	Year 4	Year 4	Year 4
Best	Worst	Worst	Worst	Most	Most	Most	Best	Best	Best	Worst	Worst	Worst	Most	Most	Most	Best	Best	Best	Worst	
Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	

Year 4	Year 4	Year 4	Year 4	Year 4	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 5 to Year 9	Year 10+	Year 10+	Year 10+	Year 10+	Year 10+	Year 10+
Worst	Worst	Most	Most	Most	Best	Best	Best	Worst	Worst	Worst	Most	Most	Most	Best	Best	Best	Worst	Worst	Worst	
Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	Best	Worst	Most	

Year 10+	Year 10+	Year 10+	Never
Worst	Worst	Most	N/A
Worst	Most	Best	N/A

Evaluation

- Use the Expected Values to evaluate each Alternative's against
- Consider fatal consequences
 - Do any of the consequences identified represent a circumstance from which your nursery would not be able to recover?
 - For example:
 - More losses than could be earned back in subsequent years.
 - Bankruptcy

Suggested Approach

