INDEX FRESH®

SEMINAR
— SERIES —

Utilizing the Decision Support Tools Program

Tim Spann, PhD| CALIFORNIA AVOCADO COMMISSION

Research Program Director

Decision Support Tools For Avocado Production and Fruit Quality

- Dr. David Crowley submitted his proposal to CAC and the project was funded in 2012
- A project that met ALL of the Production Research program's goals:
  - ➤ Improve grower productivity
  - ➤ Manage pests and diseases
  - ➤ Improve cultural management practices
  - ➤ Maintain a premium quality product

INDEX FRESH

Development of Web-Based Decision Support Tools for Avocado Growers

- CAC has contracted with SureHarvest, under license from UCR, to develop a web-based interface for growers to use the Decision Support Tools
- CAC will fund the development of the website with CDFA SCBG funds and grower assessments
- Decision Support Tool will be accessed through www.CaliforniaAvocadoGrowers.com
- Tool will be available to all California avocado growers at no cost for 3 years

Plant Tissue Analyses

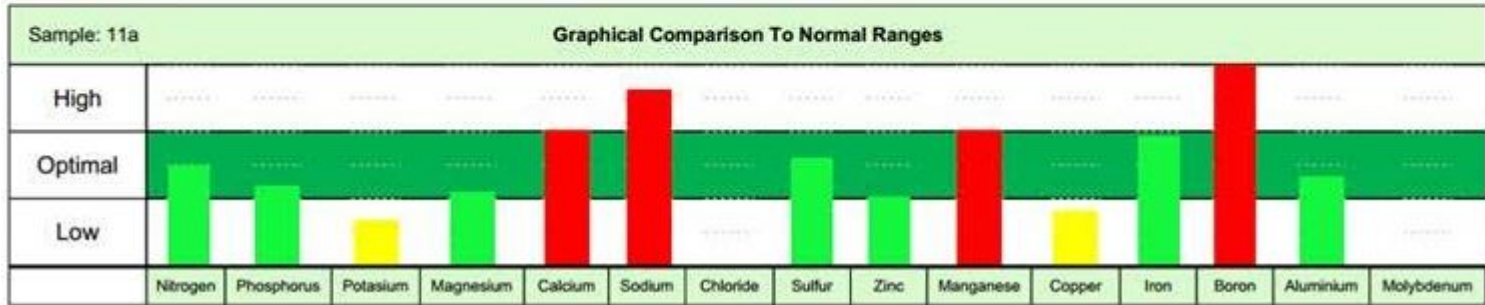**INTERPRETING RESULTS**

Sample: 11a	Laboratory Analysis Results														
Ranges	1.7-3.0	0.15-0.5	.80-1.2	0.3-1.5	1.0-3.0	0.01-0.02	0.25-0.5	0.3-.37	25-100	30-150	5-50	40-300	30-100	100-200	0.01-0.5
Laboratory Analysis	2.35	0.22	1.03	0.43	3.26	0.07		0.3	26.48	163.22	4.06	282.4	231.5	132.9	BDL
	% N	% P	% K	% Mg	% Ca	% Na	% Cl	% S	ppm Zn	ppm Mn	ppm Cu	ppm Fe	ppm B	ppm Al	ppm Mo

Sample: 11a — Graphical Comparison To Normal Ranges

(High / Optimal / Low) — Nitrogen, Phosphorus, Potassium, Magnesium, Calcium, Sodium, Chloride, Sulfur, Zinc, Manganese, Copper, Iron, Boron, Aluminium, Molybdenum

INDEX FRESH

Plant Tissue Analyses
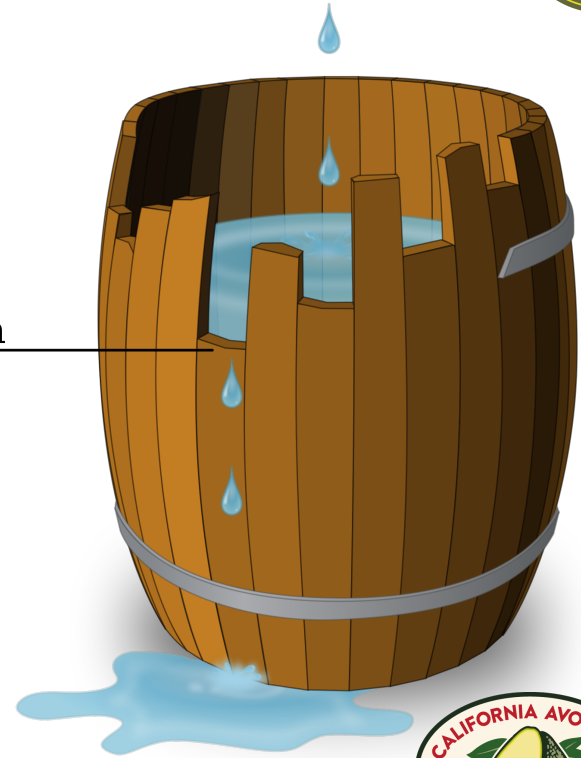
INTERPRETING RESULTS

Liebig's Law of the Minimum

- In order to best interpret plant tissue analyses – and take corrective action – you need to know which of the deficiencies or excesses is most limiting to production

...but how?

Minimum

Plant Tissue Analyses

INTERPRETING RESULTS
Decision Support Tools

	N	P	K	Ca	Mg	Fe	Zn	Mn	Cu	B
	(%)					(ppm)				
Optimum range	2.2-2.5	0.15-0.18	0.8-1.2	1.5-2.0	0.6-0.8	60-90	30-60	<100	8-10	20-30
Sample 1	**2.38**	**0.16**	**0.63**	**2.13**	**0.83**	**61**	**39**	**64**	**4**	**37**

	Yield Loss
K deficient	60%
Ca slightly above optimum	90%
Mg slightly above optimum	90%
Cu deficient	100%
B high	95%

Plant Tissue Analyses

INTERPRETING RESULTS

Decision Support Tools

	N	P	K	Ca	Mg	Fe	Zn	Mn	Cu	B
	(%)					(ppm)				
Optimum range	2.2-2.5	0.15-0.18	0.8-1.2	1.5-2.0	0.6-0.8	60-90	30-60	<100	8-10	20-30
Sample 2	**2.65**	**0.14**	**0.87**	**1.63**	**0.62**	**89**	**36**	**71**	**8**	**36**

	Yield Loss
N excessive	80%
P slightly deficient	90%
K deficient	70%
B high	95%

Decision Support Tools

IMPROVING GROVE MANAGEMENT
By Helping Growers...

- Better understand the dynamic factors at play in their grove,
- Understand the yield effects of those various factors,
- Improve nutrient management decisions,
- Increase environmental and economic sustainability, and
- Produce more, high quality, premium California avocados.

INDEX FRESH