

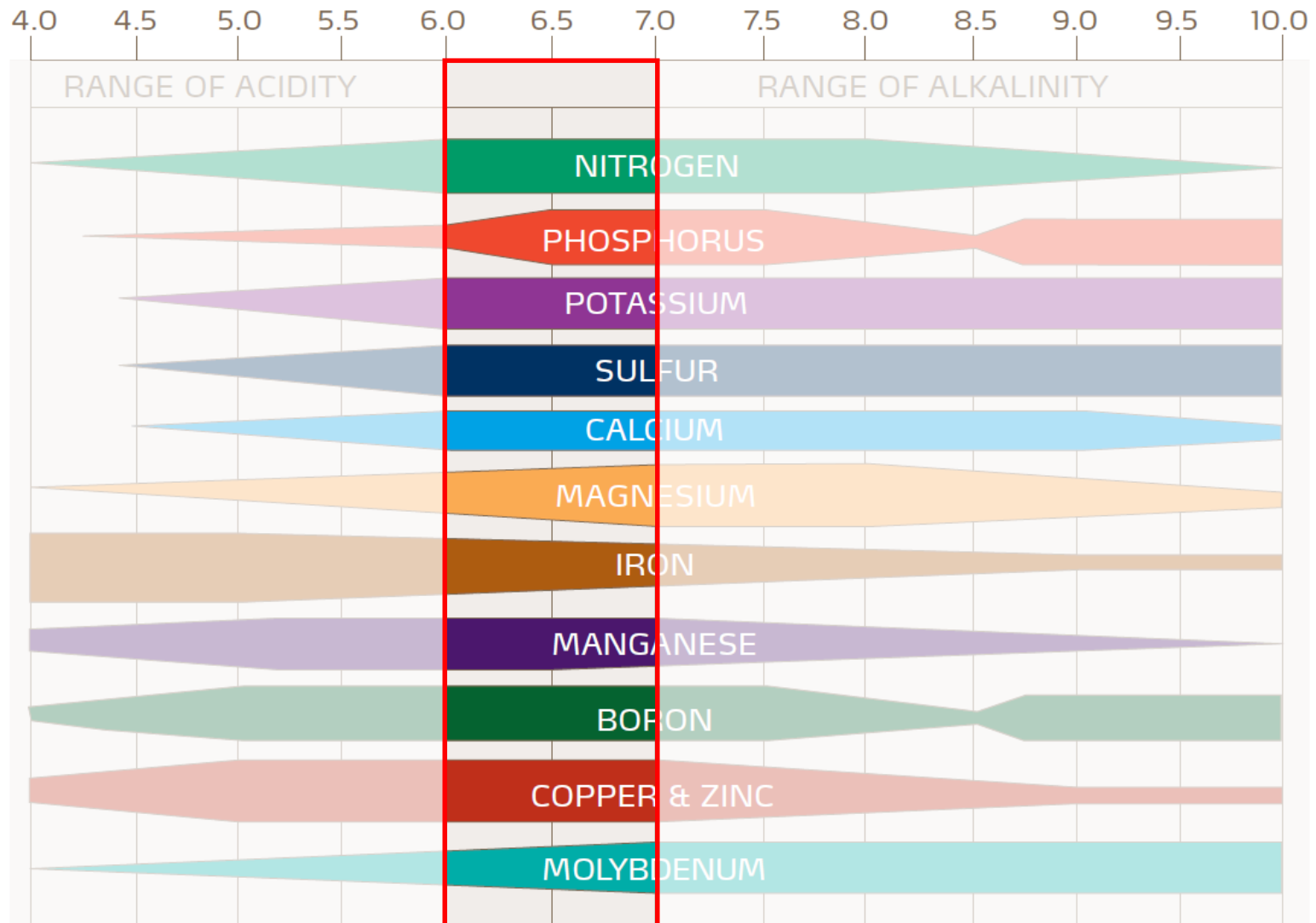
Update on Pomegranate Nutrient Management Study



Shinsuke Agehara
Assistant Professor
Plant Physiology

Adjust Soil pH – First Step of Fertilization

The Influence of Soil pH on Nutrient Availability



Fertilizer Recommendation

	Citrus	Pomegranate
Expected Yield (t/acre)	7-20	12
N (lb/acre)	70-171	137-143
P ₂ O ₅ (lb/acre)	66-89	54-69
K ₂ O (lb/acre)	74-197	185-206

*Recommendations by the Haifa Group

NPK Recommendations

Age (year)	Recommendation rate (lb/tree)		
	N	P ₂ O ₅	K ₂ O
1-2	0.33-0.50	0.33-0.50	0.33-0.50
3	0.50-0.67	0.50	0.50-0.67
4	0.67-1.0	0.50	0.67-1.0
+5	1.0	0.50	1.0

*Recommendations by Dr. Zekri at UF/IFAS

Fertigation Recommendations

Month	Dry fertilizers	Drip injection	
		Program 1	Program 2
March	50%	5%	20%
April		25%	20%
May		25%	20%
June	50%	20%	20%
July		15%	20%
August		10%	

*Recommendations by Dr. Zekri at UF/IFAS

Optimum Leaf Macronutrient Levels

	Citrus	Pomegranate
N (%)	2.5-2.7	1.8-2.5
P (%)	0.12-0.16	0.1-0.2
K (%)	1.2-1.7	0.8-1.2
Ca (%)	3.0-4.9	0.7-1.5
Mg (%)	0.3-0.5	0.3-0.4

Optimum Leaf Micronutrient Levels

	Citrus	Pomegranate
Mn (ppm)	25-100	20-70
Zn (ppm)	25-100	40-70
Fe (ppm)	60-120	60-120
B (ppm)	36-100	10-20
Cu (ppm)	5-16	10-20

Other Fertilization Practices

- Foliar K spray – increase fruit size and yield and reduce fruit splitting
- Foliar sprays of Zn, Mn, B, and Cu when tissue analysis shows deficiency
- Soil application of Fe chelates – safer and more reliable than foliar spray
- Compost
- Mycorrhiza

Nutrient Management Study (2017-2018)

- Install soil moisture and EC sensors (wireless data transmission)
- Sample leaf tissue samples 4-5 times in a season
- Sample soil samples twice in a season
- Measure plant size (using image analysis)
- Collect irrigation and fertilization data
- Collect yield data

Soil Test Data

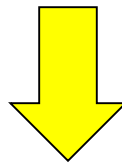
	Sufficient level	Farm 1		Farm 2	Farm 3
		Under canopy	Outside canopy		
Soil pH	6.0 – 6.5	6.1	5.6	6.6	5.6
P (lb/A)	80	113	14	315	138
K (lb/A)	160	242	18	856	79
Ca (lb/A)	800	2740	1285	6456	1544
Mg (lb/A)	120	201	147	1065	216
Zn (lb/A)	10	4	5	72	22
Mn (lb/A)	30	4	3	55	14
Fe (lb/A)	15	3	4	--	--
Cu (lb/A)	10	1	1	--	--

Leaf Tissue Analysis Data

	Sufficient level	Farm 1		Farm 2	Farm 3
		Normal	Tip-burn		
N (%)	1.8-2.5	1.97	1.96	2.00	2.10
P (%)	0.1-0.2	0.19	0.18	0.17	0.39
K (%)	0.8-1.2	1.11	1.14	0.67	1.40
Ca (%)	0.7-1.5	1.08	0.99	1.45	1.60
Mg (%)	0.3-0.4	0.27	0.25	0.42	0.41
Mn (ppm)	20-70	36	34	28	106
Zn (ppm)	40-70	27	23	11	17
Fe (ppm)	60-120	64	11	31	66
B (ppm)	10-20	14	15	19	17
Cu (ppm)	10-20	4	5	4	7

Goals of Nutrient Management Study

- Determine the relationship between leaf tissue/soil nutrient data and yield
- Monitor soil moisture and EC in research and growers' orchards
- Develop a canopy image analysis as a quick growth diagnosis tool

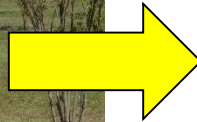


“Nutrient Recommendations”

Canopy Analysis



Height = 6.67 ft
Width = 3.2 ft



Canopy area = 379 inch²

Acknowledgments

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