SLTEC® Walnut Program

Crop nutrient budgeting is critical to improving production efficiencies and to reduce any environmental impacts from the overuse of fertilizers. As part of SLTEC®'s walnut program, we aim to assist growers to better understand the nutrient requirements of their crop and at which stages of growth, the peak demand for nutrients occurs.

The program for non bearing (N/B) trees is indicated below with N/B and is based on a new planting (under 4 years old) with additional applications to allow for complete canopy development of the walnut grove and hence provide for strong fruit set when the trees become mature.

The program below is a complete program for mature trees that are commercially yielding fruit.

Walnut Nutrient Removal Charts

Nutrient Removal (4 t/ha Yield)												
	N	P	K	S	Ca	Mg	Mn	Zn	Cu	Mo	B	Fe
Nutrient Removal (kg nutrient / t crop)	26	3.5	4.4	1.3	1.1	1.6	0.1	0.1	0.1	0.005	0.1	0.1
Nutrient Removal (kg nutrient / ha)	104.00	14.00	17.60	5.20	4.40	6.40	0.40	0.40	0.40	0.02	0.40	0.40
Efficiency Factor	**70%** - to account for environmental losses and consumption (leaf matter, roots, biomass) not exported in crop											
Estimated Crop Nutrient Requirement (kg nutrient / ha - removal & losses)	148.57	20.00	25.14	7.43	6.29	9.14	0.57	0.57	0.57	0.03	0.57	0.57

Source: https://www.potash-info.com/research/nutrientconc/nutrientcont.htm

Walnut Program
(Non-Bearing Tree program indicated with "N/B")

Product Code	Product Name	Product Description	Application Method	Total No. of Applications	Total L/kg Applied for Season	Period 1 – Dormancy (Winter)		Period 2 – Bloom (Spring)		Period 3 – Fruit Development (Summer)		Period 4 – Harvest	
						Suggested application timings, methods and rates (L/ha) Please consult your agronomist for specific information regarding your situation							
-	**Soil Amendments**	Soil amendments to be applied as per recommendation from a soil test	Incorporated pre-plant / broadcast if established	1	Rates are dependent on soil test results	**N/B**							**Soil Test**
SS9003	**SS 10:14:0 + Zn**	An ideal ratio of ammonium nitrogen and phosphorus with chelated zinc	Fertigation	2	80				**N/B** 30	**N/B** 50			
GG0024	**Cal Mag & Boron™**	Plant available nitrogen, calcium, magnesium and boron	Fertigation	10	500					**N/B** 250 L over 5 applications		250 L over 5 applications post-harvest	
GG0064	**Nitro QUAD 3™**	UAN with 3% QuadSHOT® to improve availability and crop safety	Fertigation	2	200						100 L over 2 applications		
SNPK0046	**TE 8 PLUS™**	A foliar multi-trace element blend activated with fulvic acid (0.5%)	Foliar	1	5			**N/B** 5					20
SNPK0053	**MoBo Complex™**	Boron Complex™ enhanced with 0.3% molybdenum to aid in nitrate and sugar metabolism	Foliar	2	4				2	2			
GG0175	**Baseline Phosphonic™**	A complete (12-5-15) liquid combination of 16 nutrients and biostimulants with the added benefits of phosphonic acid	Foliar	Apply as needed - Foliar stimulant with phosphonic acid to stimulate roots and growth in wet / cold periods									

See reverse side for product technical information

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SLTEC FERTILIZERS

SLTEC® Walnut Fertilizer Options

Product Technical Information

Product Code	Name	N% (w/v)	P% (w/v)	K% (w/v)	S% (w/v)	Ca% (w/v)	Specific Gravity (kg/L)	pH Range	Typical Application Rates	
									Fertigation	Foliar Use at least 100 L/ha water
SS9003	**SS 10:14:0 + Zn™** N as NH_4 10.1%, P as PO_4 14.0%, Zn 0.8%	10.1	14.0	-	-	-	1.276	6.5 - 7.0	10 - 50 L/ha	2 - 10 L/ha
GG0024	**Cal Mag & Boron™** N as NH_4 0.8%, N as NO_3 13.8%, Mg 3.4%, B 0.2%	14.5	-	-	-	12.5	1.511	2.0 - 4.0		1% total water rate
GG0064	**Nitro QUAD 3™** N as NH_4 10.3%, N as NO_3 10.3%, N as urea 20.7%, C 0.2%, Fulvic Acid 0.008%, Fish Emulsion 0.2%, Humic Acid 0.2%, Kelp 0.2%, Molasses 0.2%	41.4	-	0.1	-	-	1.321	4.0 - 7.0	10 - 50 L/ha	2 - 20 L/ha
SNPK0046	**TE 8 PLUS™** N as NO_3 2.6%, Mg 2.4%, Mn 3.2%, Zn 3.2%, Cu 0.5%, Mo 0.02%, B 0.2%, Fe 0.7%, Fulvic Acid 0.5%	2.6	-	0.1	4.2	-	1.295	1.0 - 2.0	2 - 20 L/ha	2 - 5 L/ha
SNPK0053	**MoBo Complex™** Mo 0.3%, B 14.7%	6.0	-	-	-	-	1.387	7.0 - 8.0	2 - 10 L/ha	1 - 5 L/ha
GG0175	**Baseline Phosphonic™** N as urea 11.7%, Mg 0.2%, Mn 0.006%, Zn 0.01%, Cu 0.005%, Mo 0.005%, B 0.02%, Fe 0.01%, Kelp 1.0%	11.7	4.7	13.6	2.0	-	1.305	7.0 - 8.0	10 - 50 L/ha	2 - 10 L/ha

Walnut Nutrition Considerations

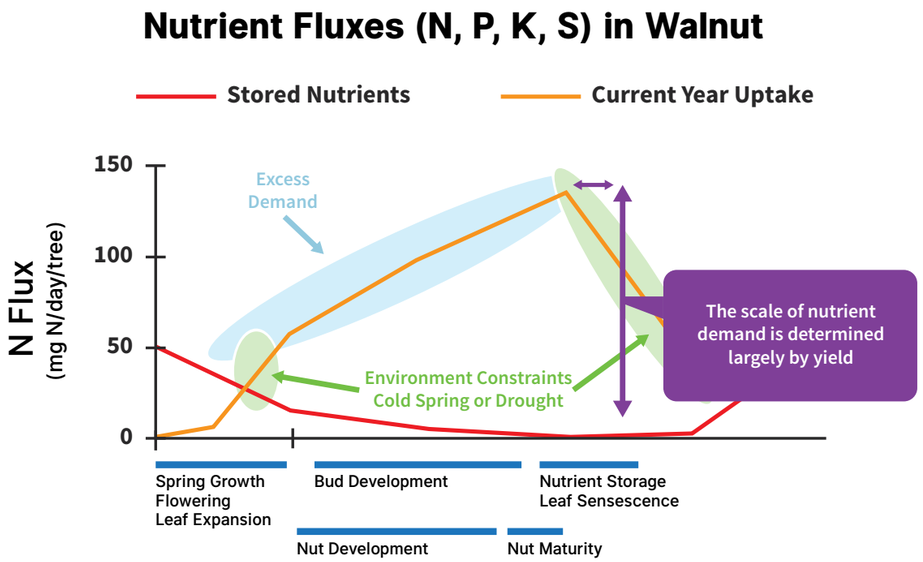
Period 1
During winter, the crop is dormant, and this is when you should apply any required soil conditioners (such as gypsum). You may also consider chicken litter for background nutrition. Using product at non-bearing stages allows them to break down over the year to be ready for plant uptake once it begins to set fruit. Maintenance levels are also recommended when the trees start to bear fruit.

Period 2
At flowering time (October - November for non-bearing crops) apply phosphorus to push strong root and shoot development. A trace element spray may be needed to ensure no nutrient deficiencies hold back the growth.

Period 3
Apply **Cal Mag & Boron™**. This gives the tree correct N : Ca ratios for uniform growth, setting the crop up for a canopy that can carry high yield. Early canopy development is paramount to early yields and long term productivity. Tissue tests can be conducted about 6 - 8 weeks after bloom. This allows for time to change the program to fix any deficiencies for the current crop. Tissue testing should be conducted earlier if the grower can identify a potential problem.

Period 4
After harvest (February), make another application of **Cal Mag & Boron™**. This will set the trees up with adequate carbohydrates before the crop becomes dormant, allowing strong and uniform bud development in the coming season. Non-bearing trees may not need this. Refer to tissues and soil tests results to ensure adequate nutrition is available.

Cold + Wet
If at any time during the growing season the crop becomes affected by a cold or wet period, a foliar application of **Baseline Phosphonic™** can stimulate the crop growth. **Baseline Phosphonic™** is a blend of N, P, K, S and trace elements with the added benefits of phosphonic acid.



Source: WALNUT NUTRITION How to Develop a Balanced Program , Bob Beede, UC Farm Advisor, Kings County - http://cekings.ucdavis.edu/