Fertility Guidelines for Hops Grown in Ontario - 2018:

There are currently no Ontario fertility recommendations for hops. The following tables for lime, nitrogen (N), phosphorus (P) and potassium (K) applications are guidelines only and are provided for reference based on similar common crops and published research on hops in other jurisdictions (note: lime, phosphorus and potassium should always be applied according to a soil test).

LIME:

Studies suggest that the optimal soil pH range for hops is 6.5-7.5. However, as with most horticultural crops, a pH range of 6.0 and above is typically suitable for plant growth. Ground limestone is traditionally used to correct soil acidity and is easiest to apply prior to crop establishment. In the case of perennial crops it can be difficult to incorporate large amounts of limestone after crop establishment. Applying and incorporating split applications of total recommended lime over multiple years will help distribute the lime more uniformly over a pre-existing yard and make it easier when working around perennial crops such as hops. Soil pH and buffer pH will be provided on your soil test.

Note: Full effects of lime may not be realized for up to three years after application.

Table 1: Lime Requirements to Correct Soil Acidity (based on OMAFRA Pub 611, OMAFRA Soil Fertility Handbook)

Buffer pH	Ground Limestone Required (t/ha)*			
	Target soil pH = 7.0[1]	Target soil pH = 6.5[2]	Target soil pH = 6.0[3]	Target soil pH = 5.5[4]
7.0	2	2	1	1
6.9	3	2	1	1
6.8	3	2	1	1
6.7	4	2	2	1
6.6	5	3	2	1
6.5	6	3	2	1
6.4	7	4	3	2
6.3	8	5	3	2
6.2	10	6	4	2
6.1	11	7	5	2
6.0	13	9	6	3
5.9	14	10	7	4
5.8	16	12	8	4
5.7	18	13	9	5
5.6	20	15	11	6
5.5	20	17	12	8
5.4	20	19	14	9
5.3	20	20	15	10
5.2	20	20	17	11
5.1	20	20	19	13
5.0	20	20	20	15
4.9	20	20	20	16
4.8	20	20	20	18
4.7	20	20	20	20
4.6	20	20	20	20

*Based on Agricultural Index of 75.

[1] Liming to pH 7.0 is recommended only for club-root control on cole crops.

[2] Add lime if soil pH is below 6.1.

[3] Add lime if soil pH is below 5.6.

[4] Add lime if soil pH is below 5.1.

NITROGEN:

Table 2: Nitrogen Guidelines for Hops		
Plant Age	**kg N/ha**	**Notes**
New Yard	65-135	Apply fertilizer in split applications after plants emerge approximately every two weeks with no more than 25 kg actual N/ ha in any one application. Gradually decrease N application rate at the beginning of July through to harvest.
Established Yard	135-165	

PHOSPHORUS AND POTASSIUM:

Table 3: Phosphate Guidelines for Hops Based on OMAFRA Accredited Soil Tests for Similar Vegetative Perennials (based on OMAFRA Publication 360, Guide to Fruit Production, 2016-2017)

Soil Phosphorus (ppm)*	Rating[1]	Phosphate (P_2O_5)[2]	
		New Plantings	Established Plantings
0-3	HR	140	100
4-5		130	90
6-7		120	80
8-9		110	70
10-12	MR	100	70
13-15		90	60
16-20	LR	70	50
21-25		60	40
26-30		50	30
31-40	RR	40	20
41-50		0	0
51-60		0	0
61-80	NR	0	0
80+		0	0

*0.5M sodium bicarbonate extract test method.

[1]HR, MR, LR, RR, and NR denote, respectively, high, medium, low, rare and no probabilities of profitable crop response to applied nutrient.

[2] Where manure is applied, reduce fertilizer applications according to the amount and quality of manure.

Table 4: Potassium Guidelines for Hops Based on OMAFRA Accredited Soil Tests for Similar Vegetative Perennials (based on OMAFRA Publication 360, Guide to Fruit Production, 2016-2017)

Potassium Soil Test (ppm)*	Rating	Potassium (K_2O)[2] required (kg/ha)
0-15	HR	130
16-30		120
31-45		110
46-60		100
61-80	MR	90
81-100		80
101-120	LR	70
121-150	RR	60
151-180		40
181-210		0
211-250		0
251+	NR	0

*1 M ammonium acetate extract test method.

[1]HR, MR, LR, RR, and NR denote, respectively, high, medium, low, rare and no probabilities of profitable crop response to applied nutrient.

[2] Where manure is applied, reduce fertilizer applications according to the amount and quality of manure.

Additional Soil Fertility Resources:

OMAFRA Pub 611, Soil Fertility Handbook: www.omafra.gov.on.ca/english/crops/pub611/pub611.pdf