

## Basic Quantitative Roman Lettuce - Polyfeed



Lettuce Open field , Roman Quantitative

**Crop cycle:** 42 Days

**Yield goal:** 60.00 ton/ha

**Plot:** Mex san loam

**Plot size:** 1 ha

### Transplanting

#### Nutrient supply for crop

Stage	Days	Macronutrients(kg/ha)			Secondary Nutrients (kg/ha)			Micronutrients (gram/ha)					
		N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Transplanting	7	8.47	11.55	3.85	6.16	0.22	1.25	159.89	79.94	27.56	19.73	13.10	3.40

#### Fertilizers per stage

##### Fertilizers application (ha/day)

	Poly Feed GG 19-19-19+Zn+ME 2.43 kg		Haifa SOP Potassium Sulphate 174 gram		Haifa MAP - Mono Ammonium Phosphate 1.95 kg
	Haifa BitterMag Magnesium Sulphate 196 gram		Haifa Cal GG Calcium Nitrate 3.32 kg		Haifa Micro Combi 284 gram

##### Nutrigation system



Volume: **1000 liter**  
Content: **Phosphorus**  
Injection volume per day: **23.79 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**



Volume: **1000 liter**  
Content: **Calcium**  
Injection volume per day: **18.02 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**

Poly Feed GG 19-19-19+Zn+ME	<b>102.33 kg</b>
Haifa SOP Potassium Sulphate	<b>7.31 kg</b>
Haifa MAP - Mono Ammonium Phosphate	<b>82.09 kg</b>
Haifa BitterMag Magnesium Sulphate	<b>8.28 kg</b>

Haifa Cal GG Calcium Nitrate	<b>184.27 kg</b>
Haifa Micro Combi	<b>15.73 kg</b>

##### Stock solution nutrients content:

Tanks	Macronutrients (gram/liter)			Secondary Nutrients (gram/liter)			Micronutrients (mg/liter)					
	N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Phosphorus   Tank 1	29.29	69.51	23.17	-	1.32	7.51	100	50	20	10	10	20
Calcium   Tank 2	28.56	-	-	48.83	-	-	1130	570	190	140	90	-

#### Fertilizers amounts for growth stage (per plot)

	Poly Feed GG 19-19-19+Zn+ME	Haifa SOP Potassium Sulphate	Haifa MAP - Mono Ammonium Phosphate	Haifa BitterMag Magnesium Sulphate	Haifa Cal GG Calcium Nitrate	Haifa Micro Combi
<b>Amount</b>	<b>17.00 kg</b>	<b>1.22 kg</b>	<b>13.64 kg</b>	<b>1.37 kg</b>	<b>23.25 kg</b>	<b>1.99 kg</b>

## Vegetative

### Nutrient supply for crop

Stage	Days	Macronutrients(kg/ha)			Secondary Nutrients (kg/ha)			Micronutrients (gram/ha)					
		N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Vegetative	14	69.30	30.80	30.80	15.40	0.00	101.82	440.00	194.50	73.48	46.19	30.26	32.42

### Fertilizers per stage

#### Fertilizers application (ha/day)



Poly Feed GG 19-19-19+Zn+ME  
11.58 kg



Haifa SOA Ammonium Sulphate  
10.03 kg



Haifa Cal GG Calcium Nitrate  
4.15 kg



Micro Fe 13% EDTA  
28 gram



Haifa Micro Combi  
225 gram

#### Nutrigation system



Volume: **1000 liter**  
Content: **Phosphorus**  
Injection volume per day: **109.27 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**



Volume: **1000 liter**  
Content: **Calcium**  
Injection volume per day: **22.01 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**

Poly Feed GG 19-19-19+Zn+ME **105.96 kg**

Haifa SOA Ammonium Sulphate **91.80 kg**

Haifa Cal GG Calcium Nitrate **188.50 kg**

Micro Fe 13% EDTA **1.27 kg**

Haifa Micro Combi **10.22 kg**

#### Stock solution nutrients content:

Tanks	Macronutrients (gram/liter)			Secondary Nutrients (gram/liter)			Micronutrients (mg/liter)					
	N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Phosphorus   Tank 1	39.41	20.13	20.13	-	-	66.55	110	50	20	10	10	20
Calcium   Tank 2	29.22	-	-	49.95	-	-	900	370	120	90	60	-

### Fertilizers amounts for growth stage (per plot)



Poly Feed GG 19-19-19+Zn+ME

**162.11 kg**



Haifa SOA Ammonium Sulphate

**140.43 kg**



Haifa Cal GG Calcium Nitrate

**58.11 kg**



Micro Fe 13% EDTA

**392 gram**



Haifa Micro Combi

**3.15 kg**

Amount

### Initiation head formation

#### Nutrient supply for crop

Stage	Days	Macronutrients(kg/ha)			Secondary Nutrients (kg/ha)			Micronutrients (gram/ha)					
		N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Initiation head formation	14	77.00	30.80	30.80	15.40	0.00	128.40	330.00	139.39	55.11	41.25	21.07	32.42

#### Fertilizers per stage

##### Fertilizers application (ha/day)



Poly Feed GG 19-19-19+Zn+ME  
11.58 kg



Haifa SOA Ammonium Sulphate  
12.65 kg



Haifa Cal GG Calcium Nitrate  
4.15 kg



Micro Cu 15% EDTA  
4 gram



Micro Fe 13% EDTA  
28 gram



Haifa Micro Combi  
116 gram

#### Nutrigation system



Volume: **1000 liter**  
Content: **Phosphorus**  
Injection volume per day: **122.37 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**



Volume: **1000 liter**  
Content: **Calcium**  
Injection volume per day: **20.44 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**

Poly Feed GG 19-19-19+Zn+ME **94.62 kg**

Haifa SOA Ammonium Sulphate **103.38 kg**

Haifa Cal GG Calcium Nitrate **193.11 kg**

Micro Cu 15% EDTA **196 gram**

Micro Fe 13% EDTA **1.31 kg**

Haifa Micro Combi **5.39 kg**

#### Stock solution nutrients content:

Tanks	Macronutrients (gram/liter)			Secondary Nutrients (gram/liter)			Micronutrients (mg/liter)					
	N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Phosphorus   Tank 1	39.69	17.98	17.98	-	-	74.95	90	50	20	10	10	20
Calcium   Tank 2	29.93	-	-	51.17	-	-	560	190	60	80	30	-

#### Fertilizers amounts for growth stage (per plot)



Poly Feed GG 19-19-19+Zn+ME

**162.11 kg**



Haifa SOA Ammonium Sulphate

**177.10 kg**



Haifa Cal GG Calcium Nitrate

**58.11 kg**



Micro Cu 15% EDTA

**56 gram**



Micro Fe 13% EDTA

**392 gram**



Haifa Micro Combi

**1.62 kg**

Amount

## Head closing

### Nutrient supply for crop

Stage	Days	Macronutrients(kg/ha)			Secondary Nutrients (kg/ha)			Micronutrients (gram/ha)					
		N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Head closing	7	4.40	22.37	11.00	0.00	0.00	11.75	109.56	54.78	18.26	13.70	9.13	0.00

### Fertilizers per stage

#### Fertilizers application (ha/day)



Haifa SOP Potassium Sulphate  
3.08 kg



Haifa MAP - Mono Ammonium Phosphate  
5.24 kg



Haifa Micro Combi  
217 gram

#### Nutrigation system



Volume: **1000 liter**  
Content: **Phosphorus**  
Injection volume per day: **41.59 l/day**  
Fertilizer concentration: **20 %**  
Tanks per stage: **tanks**



Volume: **1000 liter**  
Content: **Calcium**  
Injection volume per day: **43.40 l/day**  
Fertilizer concentration: **0.5 %**  
Tanks per stage: **tanks**

Haifa SOP Potassium Sulphate **74.07 kg**

Haifa Micro Combi **5.00 kg**

Haifa MAP - Mono Ammonium Phosphate **125.93 kg**

#### Stock solution nutrients content:

Tanks	Macronutrients (gram/liter)			Secondary Nutrients (gram/liter)			Micronutrients (mg/liter)					
	N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B
Phosphorus   Tank 1	15.11	76.81	37.78	-	-	40.37	-	-	-	-	-	-
Calcium   Tank 2	-	-	-	-	-	-	360	180	60	50	30	-

### Fertilizers amounts for growth stage (per plot)



Haifa SOP Potassium Sulphate

**21.57 kg**



Haifa MAP - Mono Ammonium Phosphate

**36.67 kg**



Haifa Micro Combi

**1.52 kg**

Amount

**Total nutrient supply for season**

Stage	Days	Macronutrients(kg/ha)			Secondary Nutrients (kg/ha)			Micronutrients (gram/ha)						Irrigation	
		N_Total	P2O5	K2O	CaO	MgO	SO4	Fe	Mn	Zn	Cu	Mo	B	Interval (Days)	Volume (m3/ha/day)
Transplanting	7	8.47	11.55	3.85	6.16	0.22	1.25	159.89	79.94	27.56	19.73	13.10	3.40	1	1
Vegetative	14	69.30	30.80	30.80	15.40	0.00	101.82	440.00	194.50	73.48	46.19	30.26	32.42	1	1
Initiation head formation	14	77.00	30.80	30.80	15.40	0.00	128.40	330.00	139.39	55.11	41.25	21.07	32.42	1	1
Head closing	7	4.40	22.37	11.00	0.00	0.00	11.75	109.56	54.78	18.26	13.70	9.13	0.00	1	1
<b>Total</b>	<b>42</b>	<b>159.17</b>	<b>95.52</b>	<b>76.45</b>	<b>36.96</b>	<b>0.22</b>	<b>243.22</b>	<b>1039.45</b>	<b>468.61</b>	<b>174.41</b>	<b>120.87</b>	<b>73.56</b>	<b>68.24</b>		

**Total for season per plot**

Stage	Transplanting	Vegetative	Initiation head formation	Head closing	Total
 Poly Feed GG 19-19-19+Zn+ME	17.00 kg	162.11 kg	162.11 kg	-	<b>341.21 kg</b>
 Haifa SOP Potassium Sulphate	1.22 kg	-	-	21.57 kg	<b>22.79 kg</b>
 Haifa SOA Ammonium Sulphate	-	140.43 kg	177.10 kg	-	<b>317.53 kg</b>
 Haifa MAP - Mono Ammonium Phosphate	13.64 kg	-	-	36.67 kg	<b>50.30 kg</b>
 Haifa BitterMag Magnesium Sulphate	1.37 kg	-	-	-	<b>1.37 kg</b>
 Haifa Cal GG Calcium Nitrate	23.25 kg	58.11 kg	58.11 kg	-	<b>139.47 kg</b>
 Haifa Micro Combi	1.99 kg	3.15 kg	1.62 kg	1.52 kg	<b>8.28 kg</b>
 Micro Cu 15% EDTA	-	-	56 gram	-	<b>56 gram</b>
 Micro Fe 13% EDTA	-	392 gram	392 gram	-	<b>784 gram</b>

# Environmental Footprint

Environmental parameters	Haifa-fertigation	Topsoil application	Fertigation rating performance
<b>Env. Footprint single score</b> $\mu\text{Pt/Kg produce}$	8.20e+3	8.55e+3	<b>EQUAL</b>
<b>Carbon footprint</b> kg CO2 eq./Kg produce	2.62e-2	4.95e-2	<b>EXCELLENT</b>
<b>N leaching</b> kg NO3/Kg produce	4.64e-5	3.36e-4	<b>EXCELLENT</b>
<b>N runoff</b> kg NO3/Kg produce	4.49e-6	4.04e-5	<b>EXCELLENT</b>
<b>N volatilization</b> kg NH3/Kg produce	3.22e-5	6.38e-4	<b>EXCELLENT</b>
<b>Eutrophication, freshwater</b> kg P eq./Kg produce	2.11e-5	5.52e-5	<b>EXCELLENT</b>

\*INDEX (Fertigation vs Topsoil)

EXCELLENT	BETTER	EQUAL	BAD	WORSE
>30%	10 to 30%	10 to -10%	-10 to -30%	<-30%

\* % Difference between fertigation and topsoil application

NutriNet calculates the difference between the environmental footprint of fertigation programs compared to top-soil fertilizer application. In both cases NutriNet uses the same field characteristics, however, fertilizer composition is different and thus the overall values of the environmental footprint are different.