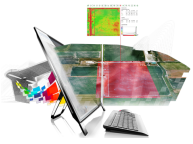


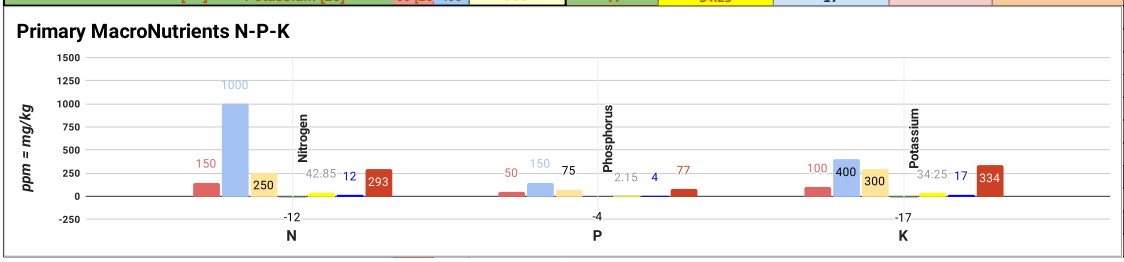
#BiOFarmingManager | Facebook

Date :	8/28/2016 [1]	layer depth : [2]	0.3 [3]	m
$ Crop :	Sweet Potato [4]	bulk density : [5]	1.2 [6]	ton/m3
Plot :	#P1-44°29'13.30"N, 25°51'20.52"E [7]	Area :	12000 [8]	mp

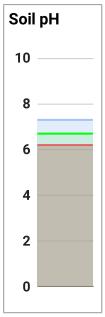
- email Edit Requests&Questions to : biofarmingmanager@gmail.com
and/or sign in with G+ and go to File (top left) to Make a copy... !

cc@BiO Farming Manager

	Elements	Description	#SoilAnalysisManager Min [10]	Max [11]	Soil Test Results-ppm [12]	Used by $Crop-ppm [13]	Sweet peas [9] Added by #CoverCrop [14]	#Liquid Fertilizer [15]	#Dry Fertilizer ☐ [16]	#Additional Fertilizer #Special Fertilizer	Results [17]
Primary MacroNutrients	N	Nitrogen [18]	50 [19]	00 [2	250	-12	42.85	12			293
	P	Phosphorus [21]	50 [22]	50 [23	75	-4	2.15	4			77
	K [24]	Potassium [25]	00 [26]	400	300	-17	34.25	17			334



Results [17]
155
77
400
1.00
4.00
2.12
0.54
0.52
0.02
0.08
0.15

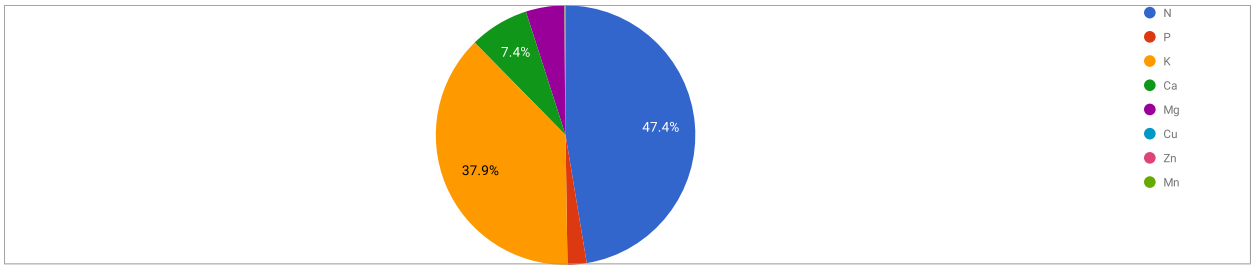


	Element	Description	Min [35]	ax [3	Soil Test R [37]	lime	wood ash	peat moss	gypsum	other	Results [38]
Primary Basic [39]	soil - pH [40]	acidity/alcalinity	.2 [41]	.3 [42	5.5	1.2					6.7

Amount of nutrients recycled by cover crops treatments *-ppm*

Cover crop treatments [4	Primary MacroNutrients			Secondary MacroNutrients		MicroNutrients				
(follow the blue link for $ quote)	N	P	K	Ca	Mg	Cu	Zn	Mn	Seed Rate	Units
Sweet peas	42.85	2.15	34.25	6.7	4.3	0.0185	0.04	0.116	56.0	kg/ha

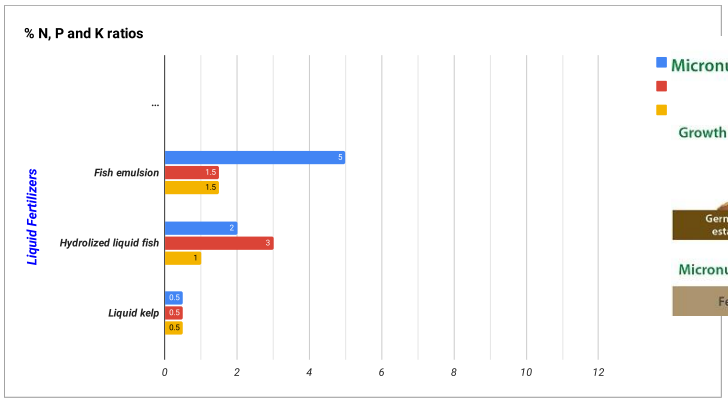
...

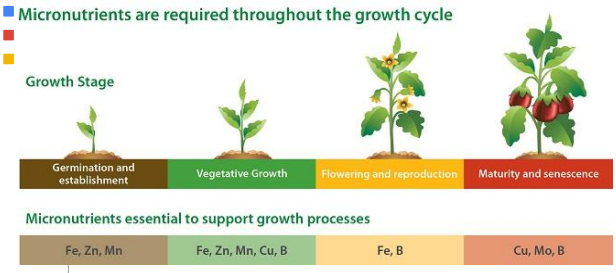


Cover Crops Uses

Beneficial Insects	Chicken Forage	Compaction Control	Deer Atractant	Erosion Control	Forage	Green Manure	Nitrogen Fixation	Nitrogen Scavenger	No Till	Organic Matter	Weed Supression
Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa
Barley	Chicory	Clover	Chicory	Barley	Chicory	Barley	Clover	Barley	Barley	Barley	Barley
Clover	Clover		Clover	Clover	Clover	Buckwheat	Cowpeas	Flax	Buckwheat	Buckwheat	Buckwheat
Buckwheat	Cowpea		Cowpea	Cowpea	Forage Pea	Cowpea	Forage Pea	Rye	Clover	Flax	Clover
Chicory	Flax		Forage Pea	Oats	Rape	Flax		Ryegrass	Flax	Forage Pea	Forage Pea
Cowpeas	Forage Pea		Rape	Rye	Turnips	Forage Pea		Vetch	Forage Pea	Oats	Oats
Flax	Rape		Turnips	Wheat	Vetch	Oats		Wheat	Oats	Rye	Rye
Vetch	Turnips		Vetch			Rye			Rye	Ryegrass	Ryegrass
	Vetch					Ryegrass			Ryegrass		Vetch
						Vetch			Vetch		Wheat
						Wheat			Wheat		

Liquid Fertilizers [44]	PrimaryNutrients [45]				
-fast release nutrients-	Ratios [46]				
(follow the blue link for $ quote)	% [47]	% [48]	% [49]	cN [5] Obtained	*Description*
...					
Fish emulsion	5	1.5	1.5	# by processing fish or fish byproducts with heat or acid treatments [51]	& is generally a pretty stinky fertilizer, but it's a good source of all three macronutrients—nitrogen, phosphorus and potassium
Hydrolized liquid fish	2	3	1	# by processing fish or fish byproducts with enzymes [52]	& is generally a pretty stinky fertilizer, but it's a good source of all three macronutrients—nitrogen, phosphorus and potassium
Liquid kelp	0.5	0.5	0.5	# through the cold processing of this ocean plant [53]	& it is mixed with water and applied to plants both as a soil drench and a foliar spray, the nutrients it contains are available immediately for plant use



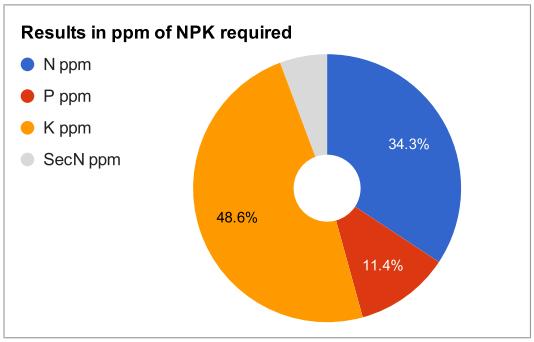


LIQUID FERTILIZER Calculator

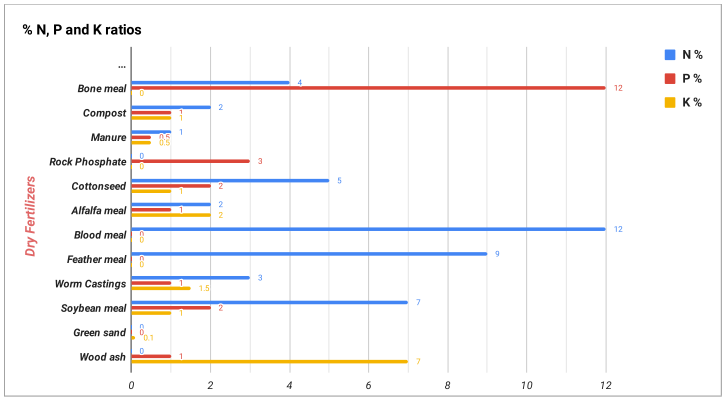
Desired **Results** req. from **#FertilizerManager**				
N ppm	**P ppm**	**K ppm**	**SecN ppm [56]**	
			Ca	**Calcium**
12	**4**	**17**	**2 [58]**	

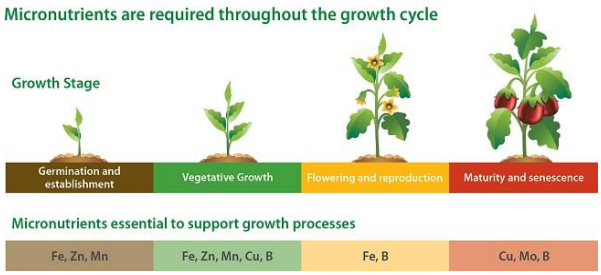
Inj. R [54]	**Conv.const.**	**Bucket of fertilizer**	500 grams(g)/bag
100 [57]	**10**	**Tank size (V)**	100 liters(l)

		Fertilizer Type Needed	**N %**	**P %**	**K %**	
1 ***Primary Fertilizer***	-	Fish emulsion	**5**	**1.5**	**1.5**	
			2.4 [59]	0.0	0.0	**gNPK/L**
2 ***Secondary Fertilizer***	-	**Fish emulsion**	**5**	**1.5**	**1.5**	
			0.1	**1.2 [60]**	0.0	gNPK/L
3 ***Additional Fertilizer***	-	Hydrolized liquid fish	**2**	**3**	**1**	
			0.3	0.2	**14.1 [61]**	gNPK/L
		Total=	**0.3 [62]**	**0.1 [63]**	1.4 [64]	**kgNPK/Tank**



Dry Fertilizers [65]	PrimaryNutrients [66]					
-slow release nutrients-	Ratios [67]					
(follow the blue link for $ quote)	N % [68]	P % [69]	K % [70]	cN [71]	Obtained	Description
...						
Bone meal	4	12	0		# through the steam processing and pulverization of animal bones [72]	& the P in bone meal takes a few months to become available to plants via microbial processes in the soil(pH 6.0-7.0) [73]
Compost	2	1	1		# by homemade procedures or commercially [74]	& adds organic matter, providing food for beneficial microbial life, increasing the soil's water-holding capacity and gradually releasing plant nutrients and many micronutrients [75]
Manure	1	0.5	0.5		# by cattle and horse manures while poultry manures NPK: 3-1-1 in average [76]	& in addition to containing macronutrients, manure is also a great source of several trace nutrients essential for plant growth [77]
Rock Phosphate	0	3	0	Ca	# from a mineral rock powder, rock phosphate is an excellent source of P	& a mineral rock powder that becomes more available the second year after application if soil pH optimum(6.0-7.0) [78]
Cottonseed meal	5	2	1		# by soil microbes processing to be broken down during several mths [79]	& the process takes several months in order to release the nutrients it contains [80]
Alfalfa meal	2	1	2		# by the soil microbes in 1-4mths for the nutrients to become available	& provides plants not only with NPK macronutrients but also many trace nutrients
Blood meal	12	0	0		# a byproduct of slaughtering facilities, blood meal is a very high-N fertilizer	& because of its high ammonia content, inappropriate use or over-fertilizing could cause burned foliage
Feather meal	9	0	0		# a byproduct of poultry processing with high N that can vary from 7 to 12	& it takes four months or longer to break down and release its nutrients
Worm Castings	3	1	1.5		# inoculates soil with beneficial fungi & microbes from the worm gut	& excellent quick-release source of N, with a long-term, slow-release component
Soybean meal	7	2	1		# carefully blended from organic nutrients in the ideal proportions [81]	& an outstanding source of slow release N for promoting vegetative growth and early plant development [82]
Green sand	0	0	0.1		# is a mined mineral rich in soil conditioning glauconite	& contains potash and other minerals from natural marine deposits and acts as an excellent soil conditioner
Wood ash	0	1	7	Ca	**# this is not a recommended fertilizer,** use only **to increase soil pH [83]**	& Nutrient amounts are highly variable. Good source of potassium(K) and calcium(Ca).



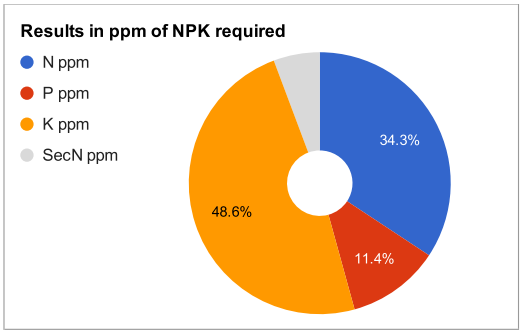


DRY FERTILIZER Calculator

Desired **Results** req. from **#FertilizerManager**					
N ppm	**P ppm**	**K ppm**	**SecN ppm [86]**		
			Ca	**Calcium**	g/1000sqm
12	**4**	**17**	**2**		

Rate [84]	**Area [85]**	**Bag of fertilizer**	**100** pounds(lbs)/bag
1	**12000**		
	sqm		

		Fertilizer Type Needed	**N %**	**P %**	**K %**	
1 ***Primary Fertilizer***	-	Manure	**1**	**0.5**	**0.5**	
			1200 [87]	2.6	5.0	**g/plot**
2 ***Secondary Fertilizer***	-	Manure	**1**	**0.5**	**0.5**	
			10.6	**1056 [88]**	4.4	**g/plot**
3 ***Additional Fertilizer***	-	Compost	**2**	**1**	**1**	
			19.9	10.0	**996.0 [89]**	**g/plot**
		Total=	**1230.5**	**1068.6**	**1005.4**	



Soil Test Result pH=	5.5		=>	3000 kg of lime/plot				
Soil test ECEC=	4							
Soil test ECEC	Lime required (t/ha) to lift the pH of the top 10 cm:							
(cmol(+)/kg)/from 2	4	6.2	4.3	6.2	4.7	6.2	5.2	6.5
1	1.6	1.6	0.8*	0.8*	0.3*	0.3*	0.2*	0.2*
2	2.4	2.4	1.2	1.2	0.5*	0.5*	0.4*	0.4*
3	3.5	3.5	1.7	1.7	0.7	0.7	0.5*	0.5*
4	3.9	3.9	2.1	2.1	0.9	0.9	0.6	0.6
5	4.7	4.7	2.5	2.5	1.1	1.1	0.7	0.7
6	5.5	5.5	3.0	3.0	1.2	1.2	0.8	0.8
7	6.3	6.3	3.3	3.3	1.4	1.4	1	1
8	7.1	7.1	3.8	3.8	1.6	1.6	1.1	1.1
9	7.9	7.9	4.2	4.2	1.8	1.8	1.2	1.2
10	8.7	8.7	4.6	4.6	1.9	1.9	1.3	1.3
15	12.5	12.5	6.7	6.7	2.8	2.8	1.9	1.9

0.5t/ha	1t/ha	1.5t/ha	2.0t/ha	2.5t/ha	3to4t/ha	Split applic.advised**

It is recognised that low rates of lime are impractical to apply, but over-liming can cause nutrient imbalances, particularly in these light soils

*** Do not apply greater than 4 t/ha in a single application, so as to minimise any problems that could arise from over liming.*

http://nmsp.cals.cornell.edu/projects/curriculum/Lime/Lime_UserManual.pdf
http://fertsmart.dairyingfortomorrow.com.au/dairy-soils-and-fertiliser-manual/chapter-7-managing-limiting-soil-factors/7-6-soil-ph/#target-7-6-9
http://extension.uga.edu/publications/detail.cfm?number=C874

Soil test ECEC (cmol (+)/kg)	Lime required (t/ha) to lift the pH of the top 10 cm:			
	From 4.0 to 5.2	From 4.3 to 5.2	From 4.7 to 5.2	From 5.2 to 5.5
1	1.6	0.8*	0.3*	0.2*
2	2.4	1.2	0.5*	0.4*
3	3.5	1.7	0.7	0.5*
4	3.9	2.1	0.9	0.6
5	4.7	2.5	1.1	0.7
6	5.5	3.0	1.2	0.8
7	6.3	3.3	1.4	1.0
8	7.1	3.8	1.6	1.1
9	7.9	4.2	1.8	1.2
10	8.7	4.6	1.9	1.3
15	12.5	6.7	2.8	1.9

0.5 t/ha	1.0 t/ha	1.5 t/ha	2.0 t/ha	2.5 t/ha	3 to 4 t/ha	Split applications advised **

Measured soil pH	Sand and loamy sands		Sandy loams and silt loams		Clay loams and clays		Organic soils (10-25% organic matter)		Peaty soils above 25% organic matter	
	Arable	Grass	Arable	Grass	Arable	Grass	Arable	Grass	Arable	Grass
7.0	0	–	0	–	0	–	–	–	–	–
6.9	2	–	2	–	2	–	–	–	–	–
6.8	2	–	2	–	2	–	–	–	–	–
6.7	2	–	2	–	2	–	0	–	–	–
6.6	2	–	3	–	3	–	2	–	–	–
6.5	3	0	4	0	4	0	2	–	–	–
6.4	4	2	4	2	5	2	3	–	–	–
6.3	4	2	5	2	6	2	4	–	0	–
6.2	5	2	6	2	6	2	5	0	2	–
6.1	5	2	6	2	7	2	6	2	3	–
6.0	6	2	7	3	8	3	7	2	5	–
5.9	7	3	8	3	9	4	8	2	6	–
5.8	7	3	8	4	10	4	9	3	8	0
5.7	8	4	9	4	10	5	10	4	10	2
5.6	8	4	10	5	11	5	11	5	11	2
5.5	9	5	11	5	12	6	12	5	13	4
5.4	10	5	11	6	12	7	13	6	14	5
5.3	10	5	12	6	13	7	14	7	16	6
5.2	11	6	13	7	14	7	15	7	18	7
5.1	11	6	13	7	15	7	16	7	19	7
5.0	12	7	14	7	16	7	17	7	21	7
4.9	13	7	15	7	16	7	18	7	22	7
4.8	13	7	15	7	17	7	19	7	24	7
4.7	14	7	16	7	18	7	20	7	26	7
4.6	14	7	17	7	19	7	21	7	27	7
4.5	15	7	17	7	20	7	22	7	29	7

Table 3.—Lime requirement test (SMP) interpretation.

	Desired soil pH		
	pH 5.6	pH 6.0	pH 6.4

Soil Test Result pH=	5.5			=>	3000 kg of lime/plot			
Soil test ECEC=	4							
Soil test ECEC (cmol(+)/kg)/from 2	Lime required (t/ha) to lift the pH of the top 10 cm: 4	6.2	4.3	6.2	4.7	6.2	5.2	6.5

Lime requirement test value (SMP)	Lime to apply to attain desired soil pH[a] (t/a)		
6.7	0	0	0
6.6	0	0	1.0
6.5	0	1.0	1.7
6.4	0	1.1	2.2
6.3	0	1.5	2.7
6.2	1.0	2.0	3.2
6.1	1.4	2.4	3.7
6.0	1.7	2.9	4.2
5.9	2.1	3.3	4.7
5.8	2.5	3.7	5.3
5.7	2.8	4.2	5.8
5.6	3.2	4.6	6.3
5.5	3.6	5.1	6.8
5.4	3.9	5.5	7.3
5.3	4.3	6.0	7.8
5.2	4.7	6.4	8.3
5.1	5.0	6.9	8.9
5.0	5.4	7.3	9.4
4.9	5.8	7.7	9.9
4.8	6.2	8.3	10.4

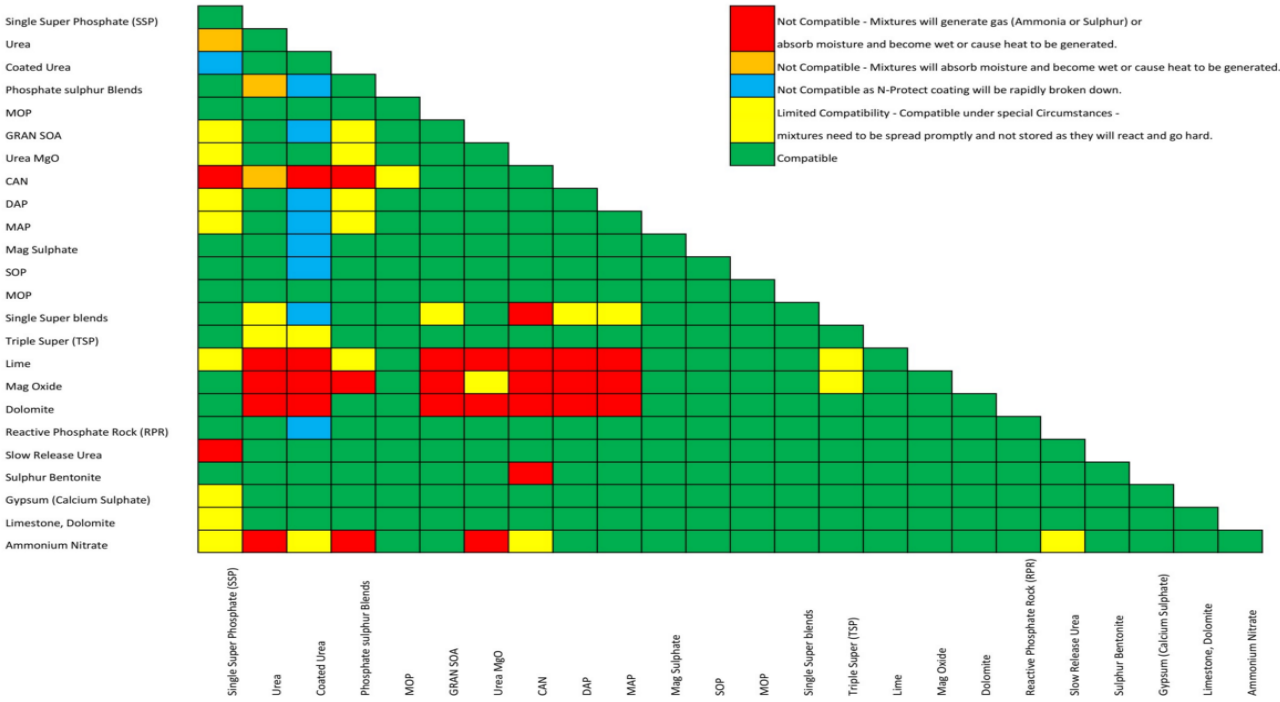
[a]"Lime to apply" values are based on application of 100-score lime and 6-inch soil sampling depth. For example, lime to apply = 1.7 t/a when desired soil pH is 5.6 and the lime requirement test (SMP) value is 6.0.

Organic matter

Soil Amendment	N-P-K	Description	Lasts	Application Rate
Chicken Manure	1.1-0.8-0.5	Excellent quick-release source of N. Poultry manure releases up to 75% of its N the first year in the soil, compared with 33% for most other manures.	3-12 Months	1/2-1″ layer (5-10 5-gal buckets/100 sq ft)
Steer Manure	0.7-0.3-0.4	Cheap and readily available organic N source. May contain excess salts.	3-12 Months	1-1.5″ layer (10-15 5-gal buckets/100 sq ft)
Dairy Cow Manure	0.25-0.15-0.25	Less N-P-K than steer manure, but also less salt. More can be applied, so dairy cow manure is better for increasing SOM.	3-12 Months	1-2″ layer (10-20 5-gal buckets/100 sq ft)
Horse Manure	0.7-0.3-0.6	High N, but bedding mixed in (especially saw-dust) may limit availability. May contain weed seeds or pharmaceutical vermin-cides. Composting first eliminates all of these problems.	3-12 Months	1″ layer (10 5-gal buckets/100 sq ft)
Pig Manure	0.8-0.7-0.5	Good, balanced manure source of N, P, and K. Because some pig parasites and pathogens can infect humans, pig manure is not allowed in many organic protocols. If it is used, it must be hot-composted prior to us	3-12 Months	1″ layer (10 5-gal buckets/100 sq ft)
Sheep Manure	0.7-0.3-0.9	Good manure source for N and K, with some P. Superior to cow manure, if you have a good local source for it.	3-12 Months	1-2″ layer (10-20 5-gal buckets/100 sq ft)
Rabbit Manure	2.4-1.4-0.6	Richest manure N source, more than double the N of chicken manure. Will burn plants if not composted first. GREAT addition to the compost pile, if you know someone with bunnies.	3-12 Months	1/2″ layer (5 5-gal buckets/100 sq ft)

http://precisionagricultu.re/mobile-apps-for-agriculture/

FERTILISER PRODUCT COMPATIBILITY CHART



[1] Input cell!

[2] ~ plant root depth !

[3] Input cell!

[4] Input Cell!

[5] - the dry weight of soil per unit
volume of soil. Most soils have a bulk density of 1.1-1.6 ton/m3.
sand - 1.5 t/m3
clay - 1.4 t/m3

[6] Input cell!

[7] Input cell!

[8] Input cell!

[9] From #CoverCrops(second sheet - bottom left corner) !

[10] Minimum required for the soil to be considered a fertile soil and permit nutrients to be absorbed by the plants, for fast results apply N-P-K liquid fertilizers !

[11] Maximum recommended levels that will enable the plants to the proper use of nutrients !

[12] See #SoilAnalysisManager for reference ! for red cells check notes for N-P-K fertilizers and/or cover crops to manage values in the right margins !

[13] by your chosen $ crop that you intend to sell in cell E4 !

[14] You can use only the featured cover crops from the #CoverCrops -organic crops that are planted just to increase the soil nutrients level(second sheet bottom left corner) as fertilizers if your soil tests nutrient results are slightly near to average!

[15] Recommended from sheets N-P-K#LiquidF + #LiquidFcalc !

[16] Recommended from sheets N-P-K#DryF + #DryFcalc !

[17] Red cells means the values are not between recommended margins !

[18] critical to :
-photosynthesis
-green leaf

[19] to increase the N levels apply cover crops and/or N-P-K liquid/dry fertilizers !

[20] for values >850 grow crops that use N intensively like corn without crop rotation and be carefull that to much N can/will contaminate the groundwater !

[21] critical to:
-photosynthesis
-root growth
-flowering

[22] to increase the P level apply cover crops and/or use N-P-K liquid/dry fertilizers!

[23] to decrease the P levels grow crops intensively that use this kind of nutrient without crop rotation!

[24] Optimum base saturation of 4-8%!

[25] critical for:
-disease fighting
-transport and absorption of nutrients

[26] to increase the K levels apply cover crops and/or N-P-K liquid/dry fertilizers !

[27] Optimum base saturation for Ca of ~65-80%!

[28] if using typical irrigation water please note that you are adding ~15ppm Ca/month !

[29] if Ca<100 and 5.5<pH<7.5 add gypsum else add lime !

[30] Mg has small molecules and when the values are high your soil isn't properly aired and drained => tight and sticky soil with small pore spaces that won't enable other important nutrients such as K to travel to the plant !

[31] bellow 50 add special fertilizer with Mg to the soil !

[32] for values>100 you need to apply gypsum to the soil and intensive tillage !

[33] optimum base saturation <1%!

[34] for values>0.01ppm apply intensive tillage and use less manure !

[35] Minimum required for the plants to proper absorb nutrients from the soil !

[36] Maximum recommended for the plants to proper absorb nutrients!

[37] See #SoilAnalysisManager for reference !

[38] Red cells means that the value is not between recommended margins!

[39] The MOST important parameter is the pH of soil to be in the right margins in order to enable the plants to absorb the nutrients needed !

[40] pH is a measure of soils acidity and alcalinity acceptable margins!

[41] for
- pH <6.2 apply lime to the soil and/or wood ash !
check Lime Sheet for details !

[42] for :
-pH > 7 apply in-depth tillage!
-pH >7.3 apply peat moss(pH-4.5)

-pH >8.5 apply gypsum(Sulphar) to the soil !

[43] Organic Crops that are planted just to increase the soil nutrients level !

[44] MOST FERTILIZERS ARE HIGHLY SOLUBLE SALTS. COMBINATION OF POSITIVE AND NEGATIVE IONS THAT DISSOCIATED IN WATER

[45] Plants don't use nutrients at the same rate, so why supply them at the same rate, which ASSURES excesses and/or deficiencies? Plants use roughly 6X as much N as P, and about 3/5 as much K as N. When all the calculations are done for the fact that P is actually reported (on fertilizer packaging) as P2O5 and K as K2O, we discover that the 3:1:2 ratio fertilizers supply nutrients in almost the exact ratio at which plants use them, which is no accident, and is a distinct advantage. The amount of nutrients plants use varies widely, but the ratio varies little from plant to plant. Sequoias, sunflowers, snapdragons, and sedum, all use nutrients in very close to a 10:1.5:6 ratio, which is very close to what all 3:1:2 ratio fertilizers provide (after factoring for how P and K are reported on the label).

[46] A fertilizer's Ratio tells us much more about how appropriate a fertilizer is than its NPK %. 20-20-20 and 10-10-10 are both 1:1:1 ratio fertilizers, but the 20-20-20 has twice the amt of nutrients per given weight as 10-10-10. Similarly, 24-8-16 is twice as concentrated as 12-4-8, so you would use half as much 24-8-16 as 12-4-8 to make a solution of the same strength.

[47] Nitrogen(N)-MacroNutrient

[48] Phosphorus(P)-MacroNutrient

[49] Potassium(K)-MacroNutrient

[50] Secondary Nutrients:
-Macronutrients(Ca,Mg,Si)
-Micronutrients(Fe,Mn,Zn..)

see sheet#SoilAnalysis and apply as needed ...

[51] is generally a pretty stinky fertilizer, but it’s a good source of all three macronutrients—nitrogen, phosphorus and potassium

[52] it is not smelly and retains more trace nutrients and vitamins

[53] Small NPK but it is high in essential trace nutrients as well as plant growth hormones that accelerate plant growth and improve flowering

[54] Injector Ratio

[55] Constant of conversion

[56] Secondary Nutrient

[57] Fertilizer injector ratios may change over time, so growers should periodically determine the fertilizer injector ratio to avoid nutritional problems. There are two methods for determining the injector ratio. The

most common method is to simultaneously measure the volume of stock solution taken up (= Vstk) and the volume of dilute solution that is delivered (= Vdil) and then dividing Vdil by Vstk. For example, if five gallons of dilute solution were produced and 6 fluid ounces of stock were taken up, then the injector ratio would be: (5 gallons x 128 fluid ounces) ÷ 6 ounces = 640 ÷ 6 = (about)107 = 1:107 injector ratio

[58] This is only needed for special crops or special local development conditions!

[59] The amount of primary fertilizer needed to provide required N ppm !

[60] the amount of secondary fertilizer needed to provide required P ppm !

[61] the amount of additional fertilizer needed to provide required K ppm!

[62] Total amount of primary fertilizer/tank that will be applied to supply the required N ppm !

[63] Total amount of secondary fertilizer that will be applied to supply the needed P ppm !

[64] Total amount of additional fertilizer that will be applied in order to supply the needed K ppm !

[65] MOST FERTILIZERS ARE HIGHLY SOLUBLE SALTS. COMBINATION OF POSITIVE AND NEGATIVE IONS THAT DISSOCIATED IN WATER

[66] Plants don't use nutrients at the same rate, so why supply them at the same rate, which ASSURES excesses and/or deficiencies? Plants use roughly 6X as much N as P, and about 3/5 as much K as N. When all the calculations are done for the fact that P is actually reported (on fertilizer packaging) as P_2O_5 and K as K_2O, we discover that the 3:1:2 ratio fertilizers supply nutrients in almost the exact ratio at which plants use them, which is no accident, and is a distinct advantage. The amount of nutrients plants use varies widely, but the ratio varies little from plant to plant. Sequoias, sunflowers, snapdragons, and sedum, all use nutrients in very close to a 10:1.5:6 ratio, which is very close to what all 3:1:2 ratio fertilizers provide (after factoring for how P and K are reported on the label).

[67] A fertilizer's Ratio tells us much more about how appropriate a fertilizer is than its NPK %. 20-20-20 and 10-10-10 are both 1:1:1 ratio fertilizers, but the 20-20-20 has twice the amt of nutrients per given weight as 10-10-10. Similarly, 24-8-16 is twice as concentrated as 12-4-8, so you would use half as much 24-8-16 as 12-4-8 to make a solution of the same strength.

[68] Nitrogen(N)-MacroNutrient

[69] Phosphorus(P)-MacroNutrient

[70] Potassium(K)-MacroNutrient

[71] Secondary Nutrients:
-Macronutrients(Ca,Mg,Si)
-Micronutrients(Fe,Mn,Zn..)

see sheet#SoilAnalysis and apply as needed ...

[72] -the P in bone meal takes a few months to become available to plants via microbial processes in the soil(pH 6.0-7.0)

[73] It also contains Ca(calcium), another essential plant nutrient.

[74] Compost that smells like ammonia or is not yet fully decomposed should be allowed to finish breaking down to avoid damaging plants.

[75] Composts made with high amounts of manure or biosolids (sewage sludge) may be high in salts and can burn plants, but composts made with primarily plant residues do not generally contain troublesome amounts of salt.

[76] The nutrients in manure are not immediately available to plants and can take up to several years to be released by soil microbes. In general, about half of the total nitrogen is available the first year, with the rest being released slowly over several subsequent seasons. Manure is also an excellent source of organic matter but can contain weed seeds.

[77] The nutrient content of manure is dependent on many factors, including its age, source and the presence of bedding materials. Because of potential pathogen exposure, raw manure should be avoided. Manure should be a minimum of 180 days old or fully composted before it’s added to growing areas.

[78] Be sure to test soil pH before adding rock phosphate. It is also a good source of calcium.

[79] Organic farmers should seek out organic cottonseed meal because cotton is often a genetically modified crop and many pesticides are used during its growth.

[80] Slightly acidic, a good choice for acid-loving plants like berries.

[81] Derived from organically grown, GMO-free soybeans that are mechanically processed to preserve the highest plant nutrient value.

[82] Be sure to mix into soil. If left in clumps you will have maggots.

[83] Can injure soil microorganisms. Never use without doing a soil test first to check your soil pH. Use sparingly in the spring and dig under. Don't use near young stems or roots&also be aware of the source of the ash!

[84] Recommended rate of fertilizer is written on the bag of fertilizer and it's depended on crop type and soil conditions!

[85] Plot area that needs to be fertilized !

[86] Secondary Nutrient

[87] The amount of primary fertilizer needed to provide required N ppm !

[88] The amount of primary fertilizer needed to provide required P ppm !

[89] The amount of primary fertilizer needed to provide required K ppm !