NITROGEN-PHOSPHORUS-POTASSIUM VALUES OF ORGANIC FERTILIZERS

Organic fertilizers are used to improve soil quality and tilth, and to provide nutrients for plant growth. They provide nitrogen, phosphorus, and potassium, as well as other elements essential for plant development and overall good health.

Nutrient values vary greatly among organic fertilizers. They also vary greatly for a **given** organic fertilizer. For example, as the table on the following three pages shows, the nitrogen in raw bone meal ranges from 2 to 6%, and the phosphorus from 15 to 27%. Differences reflect variations in the age of organic material, its decomposition rate, application method and timing, incorporation time, time exposed to the elements (rain, sun), the percentages of organic matter and water the material contains, carbon-to-nitrogen ratio, microbe population, and soil type. Values for manures vary according to time of year, time in the open air, percentage of added straw, and rate of incorporation. The speed of release shown in the table indicates how quickly nutrients are made available to plants.

Some materials are regulated by Oregon Tilth. To be considered organic, they must result from organic farming methods. For example, cocoa shell meal and cottonseed meal must not be contaminated with pesticide residues. Raw manure is also regulated; composted manure is not. Wood ashes must not be from treated wood.

Nitrogen, phosphorus, and potassium are represented by N, P, and K in the table headings, to conform to standard commercial practice in labeling fertilizers. Phosphorus is actually present in the form of P_2O_5 , potassium as K_2O .

Top Sources of Nitrogen, Phosphorus, and Potassium

<u>Nitrogen (N)</u>	Phosphorus (P)	<u>Potassium (K)</u>
bat guano	bat guano	crab waste
blood/blood meal	bone meal	cucumber skins (burned)
crab waste	crab waste	granite (dust)
feather meal	cucumber skins (burned)	greensand
fish meal (dry)	hair	kaolinite (clay)
hair	mushroom compost	kelp
hoof/horn meal	phosphate	sulfate of potash magnesia
shrimp waste	shrimp waste	wood ashes

Material	%N	%P	%K	Release Speed	Effectiveness	Comments
Alfalfa	2.5	0.5	2	Slow	2 to 6 months	Cover crop
Animal Tankage (dry)	7	10	0.5	Medium		
Bat Guano	5.5 to 8	4 to 8.6	1.5	Medium to fast		
Bat Guano (Peruvian)	12.3	8 to 11	2.5	Medium		
Blood (dried)	12	1.5	0.6	Medium to fast		
Blood Meal	12.5	1.5	0.6	Medium	6 to 8 weeks	
Bone Meal (raw)	2 to 6	15 to 27	0	Slow to medium	6 weeks	Can burn plants.
Bone Meal (steamed)	0.7 to 7	18 to 24	0	Slow to medium	2 to 4 months	
Castor Pomace	5	1.8	1	Slow		
Clover, Crimson	2	0.5	2	Slow	2 to 6 months	Cover crop
Cocoa Shell Meal	2.5	1	2.5	Slow		
Compost	1.5 to 3.5	0.5 to 1	1 to 2	Slow		
Cottonseed Meal (dry)	4 to 6	2.5 to 3	1.6	Slow to medium	4 to 6 months	Acidic
Crab Meal	10	0.25	0.05	Slow	4 to 6 months	
Crab Waste	30	21	5.5			
Cucumber Skins (burned)	0	11	27	Fast		
Eggshells (burned)	0	0.5	0.3	Fast		
Feather Meal	15	0	0	Slow	4 to 6 months	Best if ground up.
Fish Emulsion	5	1	1	Fast	2 weeks	Spray foliage or apply dilute solution to soil.
Fish Meal (dry)	10	4 to 6	0	Medium	4 to 6 months	

Material	%N	%P	%K	Release Speed	Effecti	veness	Comments
Fish Scrap (dry)	3.5 to 12	1 to 12	1 to 1.5	Slow		Bury deep; pests.	attracts 4-legged
Granite (dust)	0	0	3 to 6	Very slow	3 to 5+ years	μεδίδ.	
Greensand	0	1.5	5	Very slow	5+ years	Improves w	rater retention.
Hair	12	26	0	Very slow	4 to 12 months		
Hoof/Horn Meal	9 to 14	1.5 to 2	0				
Kaolinite (clay)	0	0	12	Medium			
Kelp	1	0.5	4 to 13	Slow	4 to 6 months	sodium car	otassium chloride, bonates, sodium otassium sulfates.
Manure (fresh)						, p	
Cattle Cattle (dairy) Duck	0.5 to 1.5 0.5 to 2 2.6	0.2 to 0.7 0.3 to 0.5 0.8 to 1.4	0.5 to 2 0.4 to 1.5 0	Medium Medium	2 years 2 years		
Goat Goose	4 3.3	0.6 0.4	1 to 2.8 0.6	Medium Medium			ed; compost first. ed; compost first.
Horse Pig Pigeon	0.7 to 1.5 0.4 to 2 6.3 to 6.5	0.2 to 0.7 0.5 to 1 2.5	0.6 to 0.8 0.4 to 1.2 2.5	Medium	2 years		
Poultry (75% water) Poultry (50% water)	1.5 1.5 to 2	1 1.8 to 2 1	0.5	Medium to fast			
Poultry (30% water) Poultry (15% water) Rabbit Sheep Turkey	3 to 4 6 3 to 4.8 2.2 to 3.6 5	2.5 4 1.5 to 2.8 0.3 to 0.6 0.5	1.5 3 1 to 1.3 0.7 to 1.7 0.6 to 0.9	Medium to fast Medium to fast Medium Medium Medium to fast	2 years 2 years	Best when	composted.
Marl	0	2	4.5	Very slow			
Mushroom Compost	0.5 to 0.8	40 to 55	0.5 to 0.8	Slow		Often has h	nigh salt content.
Peas, Austrian Winter	2 to 3	0	1	Slow	2 to 6 months	Cover crop	
Peat and Muck	1.5 to 3	0.25 to 0.5	0.5 to 1	Very slow			

Material	%N	%P	%K	Release Speed	Effectiveness	Comments
Phosphate, Colloidal	0	17 to 25	0	Slow	3 years	
Phosphate, Rock	0	17 to 30	0	Very slow	5+ years	
Rye, Annual	1	0	1	Slow	2 to 6 months	Cover crop
Sawdust	0.1	0.05 to 0.1	2 to 4	Very slow 2 to 4 years Causes nitrogen d		Causes nitrogen deficiency.
Seaweed	0 to 2	0	0.5 to 1	Fast		Foliar spray
Shrimp Shells	1.3	1.0	0			
Shrimp Waste	25	20	1			
Sodium Nitrate	16	0	0	Fast		Restricted to no more than 20% of crops total N requirement.
Soybean Meal (dry)	6.5	1.5	2.4	Slow to medium		
Sulfate of potash magnesia	0	0	22			22% sulfur, 11% magnesium
Urine soaked bedding	36 to 42	0	0	Fast		
Wine Grape Compost	1.5	2.0	0.5			
Wood Ashes	0	5	3 to 7	Fast	1 to 4 months	Alkaline; contains 32% CaCO ³ . Fireplace ashes may contain toxic metals.
Wool Wastes	5 to 6	2 to 4	1 to 3	Very slow	4 to 9 months	May mat into layers.
Worm Castings	1.5	2.5	1.3			

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