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Organic & Natural Fertilizers for the Home Ground & Garden

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This Factsheet is to help home gardeners identify organic nutrient sources for use in their gardens. Use the chart to locate specific plant-based nutrients and apply only if needed – at rates recommended by your soil test report.

Material	Content	Relative release rate[1]	Use for and when
Nitrogen (N) Sources – *For all N sources; if organic matter levels are very high (>10%), additional N may not be necessary for crops, and may present a risk of leaching to the environment. Nitrogen will become available over time as organic matter breaks down.*			
Alfalfa meal	2.5% N, 2%K	medium	full season supply, when K is also needed
Bloodmeal	13% N, 1%P	rapid	mid-season sidedress, or full season
Bone meal	3% N, 15%P	medium/rapid	
Corn gluten[2]	9% N	slow	full season supply, only use on established plants
Cottonseed meal[2]	6-7% N, also 2% P, 2% K	slow/medium	full season supply
Crab meal	6% N, 3% P, 25% lime	medium	full season supply, when lime is also needed
Feather meal	12-15% N	slow/medium	apply early for full season supply
Fish emulsion	4-5% N, also 2-3% P	rapid	mid-season sidedress or supplement
Fish meal	9% N, also 6-7% P	medium/rapid	mid-season or full season, when P is also needed
Peanut meal	8% N, 1% P, 0.5% K	medium	
Poultry manure[3]	Variable (up to 3% N), 3% P, 2% K also provides phosphate and lime	rapid	full season supply, when both lime and P are needed
Poultry manure, dried	4% N, 3% P, 3% K	medium	mid-season sidedress or supplement
Soybean meal[2]	7% N, also 2% P	medium	full season supply

Material	Content	Relative release rate[1]	Use for and when
Phosphorus (P) Sources – *For all P sources; for best availability, till in thoroughly.*			
Bonemeal	15% P, 3% N	medium/rapid	quick correction of soil P level
Fish meal	6% P, also 9% N	rapid	quick correction of soil P, if N is also needed
Poultry manure[3]	variable (up to 3%) also provides lime	rapid	quick correction of soil P, if N and lime is also needed
Rock phosphate	20-30% P, (3% available)	slow, especially at high pH	long-term P supply (several years)
Potassium (K) sources			
Alfalfa meal	2% K, also 2.5% N	medium-rapid	full season supply, when nitrogen is also needed
Potassium sulfate[2]	50% K, also 18% sulfur	rapid	quick correction of soil K level
Sul-Po-Mag	22% K, also 23% sulfur, 11 % Mg	medium/rapid	full season supply, when magnesium is also needed
Wood ash (dry, fine)	5% K, 2% P, also provides lime	rapid	when lime is also needed, typically about 50% calcium carbonate equivalents
Magnesium (Mg) Sources			
Epsom Salts	10%	rapid	can be applied with irritation
Sul-Po-Mag	11% Mg, also 22% K, 23% sulfur	medium/rapid	full season supply
Wood ash	3-7%	medium/rapid	when lime is also needed, typically about 50% calcium carbonate equivalents
Manure-Based Fertilizers			
Compost (mature)	1% N, 1% P, 1% K	very slow	when low in organic matter
Manure (fresh)[4]	actual content is highly variable		full season supply when K and N are needed
Dairy	<1% N, 0.2% P, 0.5% K	medium/rapid	
Horse	<1% N, 0.2% P, 0.5% K	medium	
Sheep	1% N, 0.5% P, 1% K	medium	

[1] Even materials with rapid release require at least a few days or weeks under ideal conditions to become available for plant uptake. Under warm conditions, release rates are faster. Medium release rates should become available over a few months. Slow releasing materials will provide nutrients over several years from one application, but will not be useful for short term corrections.

[2] Not all sources are certified for organic production, check with your certifying agency if you are a certified organic grower

[3] Poultry manure does provide some limestone, but its effects on soil pH is highly variable

[4] Fresh manures and vegetable gardens do not mix. There is high risk of microbial contamination if you apply uncomposted manures into your garden. If you plan to use animal manure, we recommend composting the manure first and aging the compost for at least six months before incorporating it into soil, or tilling in fresh manure and planting a cover crop, such as oats or winter rye. The cover crop will hold nutrients and prevent soil erosion.

Composts and manures are highly variable in nutrient content, and rarely have the appropriate nutrient balance to supply all your garden needs. Refer to our fact sheet, "Using Manures & Compost in the Home Garden" - http://extension.unh.edu/resources/representation/Resource002114_Rep3119.pdf

Source: 2012-13 New England Vegetable Management Guide - http://www.nevegetable.org
Maine Soil Testing Service, University of Maine -
http://anlab.umesci.maine.edu/soillab_files/under/orgnutgd.pdf

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