

MaineGro Compost Fact Sheet

Introduction The Lewiston - Auburn Water Pollution Control Authority (LAWPCA) provides wastewater treatment for Lewiston and Auburn and septic tank waste treatment to 26 Central Maine towns at its facility at 535 Lincoln Street in Lewiston. LAWPCA produces residual solids from this operation that have properties that are beneficial in agriculture and horticulture. In fact, LAWPCA has cooperated with area farmers for over 30 years to provide lime stabilized or anaerobically digested biosolids for fertilization of crop land. This very successful program continues today. In order to make a product which is available for a wider variety of uses and does not require individual site permits, LAWPCA has, since 1993, transformed a portion of the solids produced into compost which meets or exceeds all Maine and U.S. standards for unrestricted use as a product of exceptional quality. Since 2015 solids from other Maine treatment plants have made up a portion of the compost feed.

The Composting Process Dewatered residual solids (about 80% water) are mixed with sawdust/shavings and wood ash to form a feed mix that is about 35% solids. The mix is then loaded into bins 10' wide by 7' high by 210' long. The composting mixture is turned and thoroughly mixed 15 times over a 15 to 22 day active composting period. The aerobic composting process generates temperatures in excess of 131°F (55 °C) for at least three days. These high temperatures kill disease causing bacteria and weed seeds. Temperature, oxygen, and moisture content are carefully controlled throughout the process. After the active composting period, the material looks and feels much like humus, peat moss or leaf litter, but the product must be cured for a minimum of an additional 30 days prior to unrestricted sale. The curing period makes for a more stable or “mature” product (one that generates minimal heat or odor) Material which has been cured longer will generally be more stable and release less heat and odor.

Quality and Testing For more than twenty years LAWPCA has been producing a **consistent compost of the highest quality** at our Penley Corner Road facility in Auburn. Stringent regulations apply to compost and composting which protect public health and the environment. Federal EPA 503 regulations and the Maine DEP chapter 419 regulations enforce standards of process performance and product testing to assure that only high quality materials are distributed to the public. **MaineGro** (the trademarked name for LAWPCA compost) **exceeds all Maine and U.S. requirements.** LAWPCA biosolids contain very low levels of heavy metals as outlined on the reverse of this fact sheet. Copies of the above regulations and all biosolids analysis records are available to the public at the LAWPCA Lincoln Street office. It is important to note that many of the metals (such as copper, zinc, magnesium, boron, etc.) are actually essential to the normal growth of people, plants, and animals - and many of these metals are contained in vitamin supplements.

Compost Benefits **1.** Improves soil structure “Tilth”, promotes root penetration **2.** Improves lightness, workability and porosity of clay soils improving water infiltration **3.** Improves water-holding ability of sandy soils **4.** Supplies slow-release nutrients and micro nutrients **5.** Helps control soil-borne plant diseases (including nematode, fusarium and pythium damage) **6.** Supplies organic matter **7.** Improves Cat ion Exchange Capacity (CEC) which is the ability of the soil to hold nutrients **8.** Supplies beneficial microorganisms **9.** Improves (raises and stabilizes) soil pH **10.** Promotes recycling **11.** Does not contain live weed seeds **12.** Minimizes soil compaction

rev 9: Mar 2017

Compost Uses and Application Rates

Uses of Compost: Compost can be used as a soil conditioner, low grade fertilizer, decorative mulch, in potting mixes, and to establish or rejuvenate lawns and play fields, etc. Nearly any type of soil can be improved with a 20 to 50% addition of compost. The ability of compost to suppress many common turf diseases as well as the natural “softening” of the grass surface has made compost a favorite material for golf course and sports field maintenance professionals. Compost can be used in the vegetable garden in much the same manner as one might use manure. MaineGro is a safe and effective product that needs no special handling or permits.

A word about Salt and Conductivity: Salts are common in soils to varying degrees, and in fact the nutrients in soils are in the form of ions that are commonly measured as salt. Too much salt can, however, be damaging to certain sensitive plants such as narrow leaf evergreens, rhododendrons, azaleas, and geraniums. Conductivity measured as deciSiemens per meter, or mmho per centimeter (these units are equivalent) are surrogate measurements for salt that may interfere with the ability of seeds to germinate or for plants to take up water and nutrients. Based upon our testing and experience, the salt content of MaineGro should not be a concern in most applications if the application rates are followed. If you have particular concerns about salt, we would be happy to discuss salt and conductivity measurements further at 207-782-0917.

Application Rates for Different Uses:

Use or Purpose	Application Rate	Notes, Remarks, etc.
New Lawn	1.5 to 5 (15 to 30%)	Till into the top 4 to 6 inches of soil, smooth surface, remove large objects, seed, hydro-seed, sprig or sod.
Lawn Rehab or Maintenance	0.5 to 2.0 (n/a)	Spring or fall, cut grass short, broadcast over surface and rake in. Keep lawn moist for 2 cuttings after application
Renovation of Sports Fields	1.5 to 5.0 (15 to 30%)	Remove existing growth 2 to 4 weeks before tilling, follow new lawn instructions, hydro seed.
Vegetables	.5 to 4 (10 to 30%)	Till into the topsoil (3 to 6 inches). Lower rates if fertilizer is to be used. Use precautions similar to manure.
Potting Mixes and House Plants	n/a (10 to 20%)	Mix Thoroughly using sand, vermiculite, perlite, etc. On salt sensitive species or immature seedlings, test mix first, use lower compost component, or contact LAWPCA
Flower Gardens	.5 to 4 (10 to 30%)	Till into soil to a depth of 3 to 6 inches, or use as backfill when planting annuals and bushes mix well
Decorative Mulch	3 to 7 (1” to 2” layer)	Reduce fertilizer application, use care in erosion prone locations, weed seeds that land on compost will grow
Topsoil Blending	n/a (20 to 50%)	Use the higher rate for very sandy or clayey soils.

Note: Application rates are given in cubic yards per 1000 square feet and percentage of compost in the final soil/growth medium mix. One Cubic yard of compost typically weighs 900 to 1100 lbs. Weight is highly variable with moisture content, as influenced by storage conditions and weather.

Compost Use Estimator :

1 inch layer covering 1,000 square feet will require about 3 cubic yards of compost

1 inch layer covering 1 acre will require about 134 cubic yards of compost

rev 9: Mar 2017

MAINEGRO QUALITY DATA

(Biosolids Compost Analysis Data)

Nutrient Value:	MaineGro Compost	Typical Cow Manure	Typical Chicken Manure
Nitrogen (% as N)	1.9 (1.3-2.7)	1.5 to 2.5	4.0 to 7.5
Phosphorus (% as P ₂ O ₅)	2.4 (2.1-2.7)	0.7 to 1.5	7.0 to 13
Potassium (% as K ₂ O)	0.92 (0.65-1.31)	1.3 to 2.0	2.8 to 5.5

All values on a dry wt basis, assumes manures at 30% solids. Compost values are averages of multiple analyses – this product is not a commercial fertilizer, and any nutrient claims are not a guaranteed analysis.

Because it is an organic product, MaineGro also contains significant quantities of beneficial micro nutrients such as Boron, Manganese, Copper, Iron, Sulfur and Zinc that chemical fertilizers may not. Also, the nitrogen release rate of MaineGro is dependent primarily upon the needs of the plants being grown, and the humus in the compost builds the cation exchange capacity (CEC) of the soil thus “nutrient wash off” or leaching of nutrients is less of a concern than with commercial chemical fertilizers.

pH, Calcium, and Magnesium Averages:

pH range 6.8 to 8.5

Total Calcium.....52,975 mg/kg equals 13.2% as CaCO₃ (dry wt)

Total Magnesium.....2,125 mg/kg equals 1.90% as CaCO₃ (dry wt)

pH, Ca, Mg, and CaCO₃ level averages listed above are variable, any claims of neutralizing value and fineness are not guarantees.

Salt Concentration:

Sodium.....1971mg/kg Chloride.....1113 mg/kg

Specific Conductance: 5.93 mmhos average (See discussion of compost uses on previous page for discussion of salt content and compost suitability).

Metals Concentrations (EPA and DEP regulated metals):

Metal	Regulatory Limit EPA/DEP	MaineGro Compost	LAWPCA Biosolids	Average Soil	Cow Manure	Poultry Manure
Arsenic	41/34	7.1	11.0	7.0	no data	29
Cadmium	39/10	2.1	1.9	0.4-1.2	1.0	1.9
Chromium	None/1000	25.0	58.7	30	53	135
Copper	1500/1000	1736	480.8	23	42	85
Lead	300/300	16.5	50.3	17-27	14	26
Mercury	17/6	0.18	0.7	0.007	no data	no data
Molybdenum	75/75	4.3	15.6	0.32	no data	no data
Nickel	420/200	16.5	22.5	18-23	200	20
Selenium	100/100	0.8 ⁽¹⁾	2.9 ⁽¹⁾	0.3	no data	no data
Zinc	2800/2000	321	681.3	40-67	180	425

Notes: All values shown are mg/kg dry weight (equivalent to parts per million). EPA limit is for “exceptional quality biosolids” suitable for unrestricted use and/or Table 3 of 503.13 Pollutant concentrations. DEP limit is the screening standard which is more stringent than the actual limit. All LAWPCA values are averages of four or six compost samples 2016 and 12 biosolids samples 2016, the Jan. 2017 Conductivity value is also included in the average. ⁽¹⁾Number shown likely overestimates metal concentration as some values shown as less than were averaged at the numerical value.

Rev 9: Mar 2017