



Differences in Fertilizers

| Category | Description | Pro's | Con's |
|---|--|--|--|
| All Natural Organic Fertilizers* | Plant and Animal Meals | Water Insoluble, High Nutrient Content, Excellent Microbial Foods, Fewer Applications, adds organic matter, OMRI – Allowed | Bulk |
| Animal Manures | Chicken, Turkey, Cow | Water Insoluble Good Microbial Food | Low Nutrient Content More product to apply OMRI - Restricted |
| Chilean Nitrate | Mined natural product from Chile | High N content – up to 16% Water Soluble Does not acidify the soil | Water Soluble OMRI - Restricted |
| Municipal and Industrial Waste | Biosolids from sewage treatment plants | Inexpensive | Treated Sewage Sludge Potential heavy metals Low Nutrient Content OMRI – Prohibited |
| Synthetic Organics | Urea | Fast Release | Natural Gas Highly Water Soluble Frequent applications Destroy Soil Biology OMRI – Prohibited |
| Synthetics | Ammoniated Nitrogen | Quick Release | Natural Gas Highly Water Soluble Frequent applications Highly Acidic Destroy Soil Biology OMRI – Prohibited |

*PJC's Renaissance® Fertilizers are in this category 

Not all “Organic” fertilizers are the same. The above chart shows some of the categories into which fertilizer may fall; each with associated Pro's and Con's. It has been our experience that certain fertilizers lend themselves better to an All Natural Turf Care (ANTC) approach than others and that some can actually work against an ANTC approach.

All Natural Organic Fertilizers

All Natural “Organic” Fertilizers get their nutrient content from plant and animal meals. These plant and animal meals are high nitrogen (N) sources. Because of their higher nutrient content the cost per nutrient tends to be less than other organic alternatives. They have also been found to be excellent fungal and bacterial foods which are critical in an all natural program. While the bulk associated with natural organic fertilizers is often seen as a disadvantage – the advantage is that in addition to nutrients, valuable organic matter is added to the soil.

Animal Manures

Animal manures are a common form of organic fertilizer. Because the base is a waste product it is often a low cost per pound of fertilizer, however, they are also lower in nutrient content so the cost per nutrient tends to be high. To reach a target nutrient value a greater amount of product needs to be applied, also increasing labor costs. Manures are also high in phosphorous; many soils do not need additional phosphorous. Additional phosphorous can also increase seed germination in undesirable plants leading to increased weed pressure.



Animal manure's continued -

Poultry litter based fertilizers contain some level of copper and arsenic. Copper and arsenic is fed to poultry to control parasites and increase weight gain. As a result 90% of the copper and arsenic ends up in the litter. Because these heavy metals can build up in the soil, cause health concerns for consumers, and lead to potential run off to water bodies OMRI restricts the use of these fertilizers in organic crop production.

Chilean Nitrate

Chilean Nitrate (NaNO_3), also known as Natural Nitrate of Soda (NNS), is mined from a desert in Northern Chile. NNS has an analysis of 16-0-0 and is considered soluble. NNS is available in cold soils and may be taken up directly by the plant. This may be a perceived advantage in New England soils especially in spring; however, extra N uptake can lead to the production of excessive above ground shoot growth at the expense of the root system and result in weakened cell walls that make the plant more attractive to insect problems later in the season. Excessive applications of water soluble N can lead to fungal diseases. OMRI restricts the use of these fertilizers in organic crop production.

Municipal and Industrial Waste

Biosolids are the output from sewage treatment plants and another form of fertilizer. The greatest concern with these products is the potential inclusion of heavy metals from industrial waste along with potential chemical contamination from household cleaners and other things poured down the drain. The use of triclosan, an antibacterial agent, commonly used in soaps and toothpaste is becoming a greater concern, especially when implementing an all natural program. Because of these concerns OMRI prohibits the use of these fertilizers in organic crop production.

Synthetic Organics

A fertilizer can claim to be “organic” without being all natural as long as it contains carbon. Urea is the most common form of a synthetic organic used on turf. Urea is often coated with sulfur or plastic polymers of varying thicknesses in an effort to delay the release of Nitrogen and reduce their burn potential. Urea like other synthetic fertilizers is a salt. The high salt index associated with urea has a negative impact on the soil biology by killing many of them off. Salts also make it more difficult for seeds or plants to extract the water they need for normal growth. Historically urea has been an inexpensive fertilizer.

Synthetic Fertilizers

Synthetic fertilizers for turf generally contain urea, described above, and/or an inorganic nitrogen source usually in the form of ammonium sulfate, ammonium nitrate or potassium nitrate. Like urea these synthetic fertilizers have a greater potential for loss through leaching and volatility. This translates into a need to apply greater pounds of nitrogen per 1,000sf per growing season than a natural water insoluble organic product. Recommendations of 5 – 5.5 pounds of nitrogen per 1,000sf are not uncommon. These application rates are usually achieved over 5 – 6 applications per season.

Ammonium sulfate, ammonium nitrate and urea will acidify the soil having a detrimental effect on desirable soil biology. Potassium nitrate does not have the same acidifying affect. In order to neutralize the acidifying effects of these fertilizers as much as 70 – 110% of the amount of fertilizer applied in pounds needs to be applied in the form of limestone.

Combination Products

It is not unusual to find fertilizer products that combine products from one or more of the above categories. This is often done to raise the amount of **N** contained in the fertilizer. Common sense would dictate that combining products other than from the Natural Organic Fertilizer or Animal Manure category would only serve to work against your All Natural Turf Care program.

¹ OMRI – Organic Material Review Institute, www.omri.org. Allowed, Prohibited and Restricted are terms defined by OMRI with respect to Organic Crop Production.