

Lawn Care

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ORGANIC MATTER—ITS FUNCTION AND USE

THERE is nothing new about organic matter. Supplies of it have been valued since civilization became dependent on agriculture. It is said that many peasants in the old countries still keep piles of manure (one type of organic matter) just outside their bedroom windows. They prize this compost so highly that they all but sleep with it to guard against theft.

Organic matter, which is frequently referred to as humus, is an essential part of all good soils. It is constantly decaying and must be replaced as it becomes depleted. Partially decayed organic matter acts as a sponge, retaining moisture and plant food in sandy soils. At the same time it helps loosen compact soils, making them more porous and permitting deeper root growth.

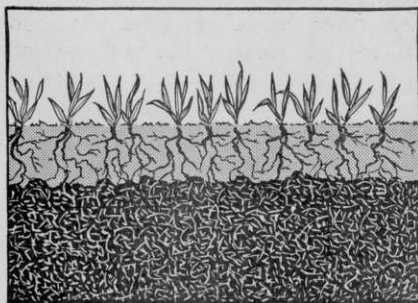
In addition to its physical effect on soils, organic matter is also the natural source of plant vitamins and hormones which have recently been so widely publicized. The few experiments demonstrating benefits of these artificial

growth substances have dealt with plants growing in sand. It has long been recognized that sand without humus is no foundation for lasting lawns. Thus far experience has proven that when soil contains sufficient organic matter for grass growth there is no need of synthetic vitamins.

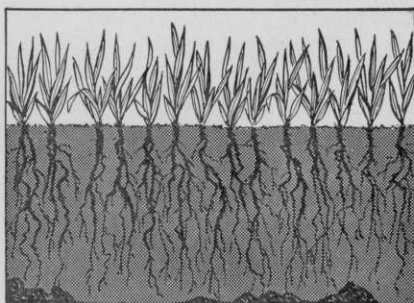
While organic matter tends to darken a soil, not all dark colored soils are adequately supplied with humus. Color alone is no criterion of actual richness of a soil. A common statement among aspiring lawn makers is, "I just bought a load of black dirt," as if to imply that all their lawn problems were about to be solved. Often the "rich" looking soil peddled from door to door is actually nothing more than muck, worthless from the standpoint of fertility. Many times it is better to improve the existing soil with plant food and organic matter than to replace it with "black dirt."

Sources of Organic Matter

There are various forms of humus, practically all of which are produced by



Cross section showing how distinct humus layer limits downward root growth.



Proper soil and humus blend encourages deep roots and healthy foliage.

decaying vegetable matter. The quantity and quality of each differs with the locality. A few of the commonly available types are described here:

Stable Manures, although becoming scarce in this day and age, are preferred by many lawn builders. It is true that manures contain weed seeds but their decaying organic content is of compensating value. In the process of rotting most seeds are destroyed so that well decomposed manure at least two years old is much freer of troublesome weeds than is fresh manure. The chief supplies of animal manures may be found at riding stables, dairy barns, race tracks and poultry houses.

Peat is a residue of sphagnum moss, sedge, reeds and similar aquatic plants which have accumulated in bogs during ages past. The vegetation is only partially decomposed and the texture of the peat indicates the type of plant from which it has originated. Since peat-forming plants may have ranged from large trees to frail mosses and ferns; the texture and quality of peat vary.

Every locality has several sources of native peats from which to choose. Although most of them have decidedly acidic properties, this factor does not necessarily render them useless. Under average conditions, the soil to which they are added modifies their reaction within a short time. Peats imported from the northern European countries are especially desirable because of their uniformity.

Cultivated Humus is usually produced by growing leafy crops on muck or peat land and plowing them under, allowing time for their decomposition. Then the surface is taken off, pulverized and screened. Such materials are sold under various trade names and are available mainly along the eastern seaboard.

Mushroom Soil is a mixture of horse manure and soil used in the commercial production of mushrooms. After it

has grown several crops it is no longer valuable for that purpose and is discarded. Being primarily well-rotted manure it is excellent material for conditioning soils and can usually be obtained at small cost from mushroom growers.

Sewage Sludge is the residue of city sewage disposal plants and is usually available for little more than the cost of hauling. Some object to using it because of the odor that comes from it in damp weather. It should be used where it can be immediately mixed into the soil. Ordinary sewage sludge is not to be confused with the activated type which is processed and sold as a commercial fertilizer.

Muck is peat which has become completely decomposed. It is always black in color but this is no indication of richness. Although sold as "rich soil," its use has frequently been detrimental to turf. Some mucks are no better than worn-out soils and contain so much clay and silt that they form a hard surface crust in dry weather. Others become powdery like talcum. Muck is apt to be harmful if used alone and as such holds water so tightly that much of it is not available to grass roots.

Organic Matter in Compost

Those who have the space for maintaining a compost pile find it makes good use of the above organic materials as well as waste vegetation from the garden, fallen leaves and lawn clippings. Home-made compost, the final product, is of immeasurable value for improving soil. Details on preparing compost are given in *Lawn Care* for February 1929.

How to Purchase Humus

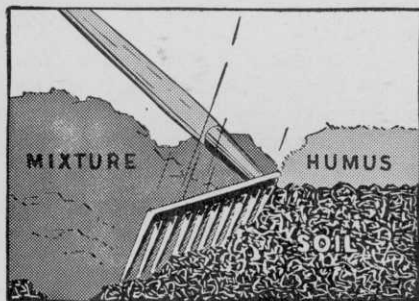
Organic materials are sold either by weight or by volume. Because of their sponge-like qualities much of their weight is frequently due to the water they contain. When purchased by the

pound or ton, care must be taken not to pay a high price for moisture. It is usually more economical to buy humus by the cubic yard. When the available form is sold only by weight avoid paying too much for water by making certain that each ton contains a minimum of two cubic yards.

The availability of the different types of organic matter varies with the locality. Cost of handling and hauling demand the greater share of their price. An exorbitant figure is sometimes asked for material brought in from a distance when actually a different type from a local source may be just as beneficial if properly employed.

How to Use Organic Matter

Humus may be used as an ingredient in the topdressing for established lawns or it may be worked into the seedbed of a new lawn. The greatest value is



Mix humus in with garden rake, garden cultivator, hoe or mattock.

derived when it is worked into the top four inches before starting new lawns. The results of an experiment conducted for three years at the Ohio Experiment Station indicate the effect of peat on the growth of grass to be almost 60% greater when incorporated with the soil than when applied as topdressing.

Mixing organic matter into the soil before starting a new lawn helps tender roots grow deeply. To avoid layering the blending must be complete. Humus

layers below the surface discourage roots from penetrating any further. On top of the ground humus coaxes roots to the surface where fertility is quickly exhausted and grass roots may be easily injured by such natural enemies as heat, drouth and disease.

For helping porous soils retain moisture or for loosening compact soils, a quantity of organic matter equivalent to a one inch layer should be worked into the top 4 or 5 inches of the soil. More should be used if the soil being improved is either extremely clay-like or extremely sandy. Less humus is needed if the soil is of loamy nature.

It is better to have the ground spaded or plowed before applying organic matter when preparing new seedbeds. Then cultivation should continue, using a hoe, rake or similar tool to chop the material deeply into the soil. The repeated use of a disc and harrow accomplishes the same thing on larger areas.

As topdressing, humus should never be applied alone. It should be mixed first with topsoil of a good loam quality. One part of humus ought to be thoroughly incorporated with two or three parts of garden soil and the resulting blend screened through a quarter-inch mesh. One-half to one cubic yard of topdressing should be used on 1000 square feet of lawn area. This is equivalent to one or two bushels of the mixture on each 100 square feet.

Like many other lawn practices, the proper use of humus can work wonders with a lawn, but its misuse can have discouraging effects. One of the more common misuses is to apply humus as a winter mulch for lawns. This is both wasteful and injurious. It is apt to encourage active growth under abnormal conditions, exposing tender grass to cold weather rather than protecting it. Desirable grass varieties are perennial and are therefore protected by nature. They need no artificial covering.

Humus Is Not Fertilizer

In spite of common belief and many claims, humus is not a significant fertilizer. It is the bulky condition of humus which makes it valuable for improving soils. When plant food is required it is more economical to purchase a complete commercial fertilizer.

Organic matter and fertilizer perform different functions. One cannot replace the other. A regular application of a good grass food is as essential to vigorous turf as a supply of humus.

Roots Supply Organic Matter

According to soil authorities, grass roots in themselves are very effective in maintaining a supply of soil humus. As the roots spread, part of them die, break off and add their substance to the soil, making it easier for new roots to form and develop. Supplying organic matter through grass roots is sometimes the most practical method on large lawn areas where the turf does not warrant complete rebuilding. Regular feeding and high mowing encourage healthy roots for this purpose.

Tests Show Soil Needs

The trouble with many soil samples we test from poor lawns is their striking deficiency in organic matter. Either they are typical subsoil as hard as rock, or else they are extremely sandy and as dry as powder. In scores of instances the owners of struggling lawns have been able to effect astonishing improvement by working in humus. Soil analysis is also helpful in determining a soil's need for plant food and lime. In addition to our soil testing service we are always glad to check samples of organic materials which any of our readers contemplate using in lawn work.

Poison Ivy Immunity Declared No Myth

Referring to the article on Poison Ivy in *Lawn Care* of last September and to a further comment in our latest bulletin, C. C. Carlton, Vice President of Motor Wheel Corporation, Lansing, Michigan, sends this interesting comment:

"Don't let anyone kid you that the Indians didn't eat small quantities of poison ivy leaves, and thereby obtain immunity against ivy poisoning. My great-grandfather learned the trick from the Indians and passed it down from generation to generation until it reached me as a boy. We started with a piece about the size of your small finger nail, and kept increasing the quantity from time to time until finally we could eat a whole plant with immunity.

"When my oldest son was thirteen years old, we built a log lodge in northern Michigan. An adjoining piece of ground, covered with virgin timber, was infested with a luxurious growth of poison ivy. The smart thing to do was to hire the Indians to pull it up, cover it with gasoline and burn it. One day I went out and helped them. I pulled up ten bushels myself.

"I told my family at dinner that night about my ancestors having become immune to ivy poisoning by eating the ivy leaves and the next day my son went out and proceeded to eat a whole bush. He was in the hospital about four days with a horribly swollen face and mouth.

"Nevertheless an expert skin specialist agreed that if you started at an early age and ate a small amount at a time, such a thing as immunity is possible."

O. M. SCOTT & SONS CO.



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