



PEAT.. and its uses

IN GROWING PLANTS AROUND THE HOME
AND IN THE GREENHOUSE

Virgil L. Weiser
Soils Specialist

CIRCULAR A-459

JUNE 1964

Home owners are interested in beautifying the home grounds with healthy vigorous lawn, flower and ornamental plantings.

Soil materials left from excavation and fill operations of home construction often are in poor physical condition for plant growth.

Peat in various forms is useful to the home gardener in improving soil conditions for plant growth in outdoor plantings. It is useful also in propagating plants from seeds and cuttings and in preparing soil mixtures for plants grown in pots and planters.

Lack of offensive odors and general cleanliness of peat make it popular as an organic material.

Peat is sold commercially in packages ranging in size from small plastic bags to full size bales. Near local peat mining operations, peat is being sold in bulk quantities from a bushel to a truck load. Many uses of peat as a soil improving material around the home are beneficial and not too costly.

WHAT IS PEAT?

Peat is the partially decayed remains of plants that accumulated over centuries under waterlogged or wet conditions in bogs, marshes, swamps or seepy areas. The physical and chemical properties vary with the kind of plants from which it was formed, the degree of decay or decomposition, and the mineral content of the waters, in which it formed.

COMMON KINDS OF PEAT

- 59 **Moss Peat (Peat Moss, Sphagnum Peat, High Moor Peat, Bog Peat)** – This material is composed mainly of slightly to moderately decayed sphagnum moss with varying amounts of the remains of some associated woody plants. As marketed, it is usually

fibrous with a light gray to yellowish brown color, acid in reaction (pH 3.0 to 4.5) low in nitrogen (about 1 per cent) and low in mineral or ash content (1-1/2 to 3 per cent).

Moss peat absorbs between 6 and 15 times its weight of water and usually contains 30 to 35 per cent water as marketed. It is prepared as rather coarse, shredded material for animal litter or bedding and as a finer screened material for horticultural uses.

Sedge or Reed Peat (Marsh Peat, Low Moor Peat, Fertile Peat, Turf Peat) – This material is composed of partially decayed sedges, grasses, reeds, rushes and cattails. It is more variable than moss peat. It may be fibrous with remains of the original plants recognizable, or it may be granular or fine with more complete decay.

Color varies from brown or dark brown to almost black. It tends to be less acid than moss peat but is quite variable in acidity (pH 3.5 to 7.0), depending on the mineral content of the waters in which it formed. It is also higher than moss peat in nitrogen (2.0 to 3.5 per cent) and in mineral or ash content (5 to 30 per cent).

This material will absorb between 3 and 8 times its dry weight of water. As usually marketed it contains 50 to 70 per cent water.

Woody Peat (Forest Peat, Swamp Peat, Peat Mold) – Usually quite granular, well-disintegrated organic matter; largely from remains of woody plants, including a wide range of trees with associated small shrubs and some sedges, reeds or mosses. Its mineral (ash) content, degree of acidity (pH) and nitrogen content are variable but generally range between that of the moss peat and sedge or reed peat.

Color varies from brown to almost black, the darker colored variations usually are associated with higher lime and mineral content, less acidity and more complete decay. The term "muck" sometimes is used to refer to dark-colored peat or peat that is relatively high in mineral matter.

PROPERTIES OF PEAT AFFECTING SOIL IMPROVEMENT

Moisture holding capacity and retentiveness – Peats have a high capacity to absorb water (from 3 to 15 times their own dry weight). This property is important with sandy or gravelly soils, low in organic matter. Fifty to 100 per cent improvement in water holding capacity has been noted for mixtures of 1 part peat to 3 parts sandy soil. On the other hand, with loam or finer textured soils which have greater natural capacity to hold water, smaller changes in water holding capacity will be obtained by similar additions of peat.

Rate of water absorption – Thoroughly dry peat resists wetting, but after becoming moist it takes up water rapidly. When peat is mixed with the surface soil it rarely becomes dry enough to resist wetting. Many soils take in water slowly. Peat is effective in improving rate of water absorption on these soils.

Tilth – Many soils, when dry, form hard clods which resist breaking. Clay soils tend to become sticky and stiff when wet so that they cannot be cultivated. Additions of peat are very effective in overcoming these unfavorable conditions of soil tilth.

Bulk and Porosity – Peat is a bulky, highly porous material. When mixed with mineral soils it tends to increase porosity and reduce the probability of soil compaction.

Durability – Peat is more durable than other forms of organic matter because it resists decay for a longer period of time. The physical effects resulting from additions of all kinds of peat may be expected to last for several years. Other organic materials such as tankage, cottonseed meal and farm manures are decomposed rapidly when added to soil.

Fertility – A misunderstanding of the nature and limitations of peats has often led to exaggerated notions as to their fertility value. Although the nitrogen contents of some peats are similar to those of animal manures, the slowness with which the nitrogen and other nutrients are released for plant use, by decay, means that these materials have little value

as fertilizers. Some studies show that peat (especially sphagnum peat) may lower fertility of fertile soils by diluting their available nutrients and by interacting to form less available compounds.

Acidity – There is considerable variation in degree of acidity in the various peats. The strongly acid peats such as moss peat or some sedge and woody peats (pH 3.8 to 4.8) are especially desirable as soil additions in growing acid loving plants. In North Dakota, certain soils are high in lime with the result that some ornamental plants suffer from lack of available iron (lime-induced chlorosis). These acid peats added to such soils could reduce pH level (make the soil less alkaline) to help correct this iron deficiency.

The less acid peats (pH 5.0 to 7.0) are not acid enough to materially increase the acidity of the soil when applied at usual rates. However, for soils not high in lime or for plants that do not require acidity, peats in this range of pH values are most desirable.

HORTICULTURAL AND HOME USE OF PEAT

In Starting Seeds – Seedling plants germinated and started in pots or seed trays in the house or greenhouse often suffer from damping off and other disease organisms.

Moss peat (sphagnum peat) is recommended as a medium for starting seeds or as a surface layer over seeds planted in other planting mixtures. The pH of the peat should not be below 4.0. With this material used for starting seeds damping off and other seedling disease organisms are less of a problem.

Some very small or fine seeds have difficulty in germinating or emerging in soils that tend to dry or crust at the surface. Such fine seeds planted in peat have a better chance of germinating and emerging. Plants in pots, however, need occasional watering with a dilute fertilizer solution. Such a solution can be made by dissolving a level tablespoon of complete fertilizer such as 10-20-10 in a gallon of water.

In rooting cuttings – Peat or mixtures of peat with sand or perlite can be used to root hardwood or softwood cuttings especially of acid loving plants.

In cold frames – Peat is suitable for mixing with soils used in starting plants in cold frames, and as a surface layer to reduce seedling diseases and to help emergence. It has no heating effect as is obtained from fresh manure used in hotbeds.

In potting plants – Peat is used in many potting mixtures. Some common mixtures are: (by volume) 2 parts loam soil, 1 part peat, 1 part sand or 3 parts loam, 1 part peat.

The University of California suggests 5 mixtures of fine sand and peat for different purposes. Such mixtures have many of the advantages of good soils without their disadvantages for use in pots and other small scale plantings.

MIXTURE	VOLUME VOLUME PARTS PARTS		
	SAND	PEAT	
A	4	0	for cactus and succulents
B	3	1	most commonly used for bedding plants and general nursery planting
C	2	2	for plants grown in pots or benches
D	1	3	for pot plants that are large in relation to their containers and for orchids
E	0	4	for growing azaleas, orchids and similar acid plants, sometimes mixed with wood shavings and for starting tuberous begonias

Plants grown in such mixtures need fertility added as nutrient solutions in watering or as slow release materials added to the original sand-peat mixtures.

In storing bulbs or dormant plants – Slightly moist peat is a good material for packing bulbs or dormant plants for cold storage over winter or for shorter periods in transportation or for holding for replanting.

In outdoor planting beds or gardens – Coarse-textured soils (sands and gravel) or fine soils of poor physical condition can be improved by additions of peat. The peat should be mixed with the upper 3 to 4 inches of the soil and may make up from 1/4 to 1/2 of the total volume. The peat should be supplemented with added fertilizer or well rotted manure.

In planting holes – In planting shrubs, trees or other large plants in planting holes, peat thoroughly mixed with the soil in the bottom of the hole and with the soil packed around the roots or earth ball can improve conditions for root growth and establishment in many soils.

As Mulches – Peats often are used as mulches around evergreens, roses and other ornamentals. Beds used for perennial flowers can be mulched with

peat. The mulch affords winter protection by maintaining higher soil temperatures and insulating against changes in soil temperature. Mulched soils will be cooler in summer and will take in water more readily.

Mulches several inches deep applied in the late fall or early winter after the soil has started to freeze and left on in the spring can delay emergence of bulb plants or perennials. This is helpful when early emergence may result in new growths being injured by spring frosts.

For acid loving plants and on soils high in lime, the more acid peats should be used, otherwise the less acid peats are desirable.

Dry peat mulches are blown away easily in sites exposed to wind. Protect by covering with coarse material such as woody prunings or netting and by wetting.

Preparing soil for turf seeding – The best time to improve soils for turf grasses is during the preparation of the site and before seeding. Peat would be of most advantage used on coarse-textured soils (sands and gravels) of low water holding capacity or fine texture soils (clays) of poor physical condition. In either case, a liberal amount should be mixed into the soil at this time. Where moist peat is available by truck loads, use up to 2 or 3 cubic yards per 1,000 square feet; if dry baled peat is used, up to 500 to 700 pounds (3 to 4 bales) per 1,000 square feet. Mix the peat thoroughly with the soil to a depth of 3 to 4 inches before seeding.

Making Composts – Peat may be used in the compost pile as an additional source of organic matter. One part rotted manure, 2 parts peat, and 5 or 6 parts loam soil as a base with or without added leaves, grass clippings, and other suitable residues can be used in the compost pile. Several pounds of lime and several pounds of a complete fertilizer per cubic yard of compost should be used if leaves and other plant residues are an important part of the compost.

Other Uses – Peat materials also are used as bedding or as litter for pets, livestock and poultry.

Peat is used commercially as packing and insulating material, pressed into pots for greenhouse transplants, distilled to obtain chemicals, gasified or made into briquettes for fuel and power, added to fertilizer as a filler and clean moss peat has been used in surgical pads and dressings.

DATE DUE

MAY 05 1995		
GAYLORD 234		PRINTED IN U. S. A.



CIVIL DEFENSE FACT: Firefighting tools and equipment such as shovel, rake, water bucket and ax kept at handy locations and in good condition are essential in preparing for defense against atomic attack as well as for other emergencies.