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FACT SHEET

L-1019

WAYS TO USE BARK

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Trees provide man with a multitude of products. The average American uses 65 cubic feet of wood each year. Large quantities of bark residues are generated by producing these needed wood products. Estimated bark residue for 1966 was 14 million tons, of which 10 percent was manufactured into products, 60 percent was burned for fuel and 30 percent or 4¼ million tons were disposed of by burning or dumping. This disposed-of-portion concerns the wood products industry because of environmental pollution. Burning and dumping bark residues are costly. Hauling bark waste to dumps can add a \$1 to \$1.10 per 1,000 board feet of lumber cut. Disposal by burning requires investment in a wigwam burner, conveying equipment, equipment maintenance and operators' wages. Increased consumer acceptance of bark products could help reduce wood product costs and environmental pollution.

Bark Products

The largest use of bark has been for agriculture, horticulture and related areas, which include mulch, soil conditioner, decorative ground cover and poultry litter. Achieving acceptance is difficult because most of these markets are highly competitive and crowded.

Bark Mulch and Soil Conditioner

Bark is excellent mulching and soil conditioning material. Because bark has small amounts of nitrogen, enough of this element should be added to sustain microbe decomposition. Some manufacturers recommend no additional nitrogen when bark is used as mulch. Bollen (1) recommends 5 to 10 pounds of nitrogen fertilizer to each ton, dry weight, of mulch and an additional 2½ to 5 pounds added the second year to compensate for the more slowly decomposable constituents. Additional nitrogen is unnecessary he says, since the nitrogen previously assimilated by microbes will be released as they die and become available for succeeding generations.

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Bark mixed into the soil as an amendment requires additional nitrogen. The recommended amount is 10 to 20 pounds of nitrogen per ton dry weight of bark soil amendment. If this nitrogen is not available, the microbes will absorb it from the soil, thus competing with plant roots.

If the bark has been composted or had nitrogen added during manufacture, no more nitrogen is needed. Nitrogen added to a bark mulch or soil conditioner initially supplies food only for the microbes decomposing the bark. Nitrogen required for plant nutrition is an additional demand. Consult landscape and vegetable horticulturists, agronomists and floriculturists for recommended amounts, depending on the plants being grown and the growing medium used.

Home gardeners who have used bark mulch prefer it to peat because of particle size, moisture-holding capacity and appearance. Bollen (1) says it is better than straw because it has a pleasing color and texture, lasts longer, is less fire-hazardous, does not rapidly lose volume and reflects less heat from its surface to the undersides of plants. Unlike most crop residues used for mulching, bark is free of weeds.

Haynes (2) stresses the importance of the higher lignin content of bark which is more resistant than cellulose to micro-organism attack (composting). The cellulose fraction of bark provides a medium for immediate breakdown, creating minute porosity in the soil, and the lignin breaks down more slowly, providing a steady supply of humic acids and humus. The humic acids convert trace elements in the soil to soluble compounds, making them available for plant growth. Because bark has 10 to 15 percent more lignin than wood, it will last longer than wood or other woody plant material.

Soil mixed with bark becomes more porous, improving aeration and drainage. The decomposition products and humus formation increase aggregation or granulation, improving tilth. Bollen (1) says that cation exchange capacity (CEC) is also increased, which is especially important in sandy and low humus soils. Ground bark has two to three times as much capacity for cation exchange



as silt loam soils. Thus positively charged ions, such as calcium, potassium and ammonium, are held more effectively against leaching, becoming available for plant take up through the roots.

Decorative Bark

Decorative bark ranges from $\frac{1}{4}$ to no more than 3 inches in size. It is used as a ground cover and for nature trails, tidy playground areas, cushion material under swings and for high jumps to provide a safe landing area.

Decorative bark creates a beautiful ground atmosphere and requires little or no maintenance. Its use in recreation areas, such as camping sites, parks, golf courses and picnic grounds, is increasing rapidly. Bark also can be used to landscape homes, reducing mowing and weeding chores.

Poultry Litter

Bark is acceptable as litter. Studies (4) conducted in East Texas, Louisiana and Georgia show that properly sized pine bark compares favorably with pine shavings as a poultry litter. This is important because pine shavings now are in demand for making other wood products. The litter market probably will have to accept new materials to meet demands.

Bark is low in price, has good absorption rates, compares favorably with shavings in absorbed moisture release to the atmosphere, produces less dust than wood shavings, is light weight and has a low compaction rate. (5)

Tests (4) comparing bark to wood shavings for poultry litter have shown (a) there were no significant differences in percent breast blisters or mortality, (b) broilers reared on processed bark litter were heavier, (c) both litters remained in good physical condition, but bark was less dusty and (d) water going through stayed cleaner with bark.

Bark Availability

Bark products are manufactured and sold in East Texas. For outlets, check nurseries and garden supply centers, supermarket chain stores and bark product manufacturers. Recommended amounts of bark for mulch, soil conditioning and decoration are given in Table 1.

Bark makes an attractive mulching material, reducing weed problems and improving soil structure.





Large size bark chunks serve well as a decorative material and provide weed control and mulching values.

Table 1. Recommended amounts of bark mulch, soil conditioner and decorative uses.

Uses	Amount ¹
Flower and vegetable beds	Mix 2 in. of bark soil conditioner and required fertilizer into the top 6 to 8 in. of soil before planting. Once plants are established, spread 1½ in. of bark mulch. Three cu. ft. of bark will condition about 18 sq. ft., or mulch 24 sq. ft.
Trees and shrubs	When digging the hole for planting, count the number of shovels of soil removed. Mix in one shovel of bark soil conditioner for every two shovels of soil removed and use for planting. Apply 1½ in. of bark mulch around planting. Three cu. ft. of bark will plant two to three bushes.
Potted plants	Mix ⅓ soil with ⅔ bark soil conditioner. Three cu. ft. of bark will plant about nine to ten pots.
New lawns	Spread bark soil conditioner approximately 2 in. deep over the area to be seeded for grass. A roto-till can be used to mix this 2 in. layer of bark soil conditioner into the top 6 to 8 in. of soil before seeding. Three cu. ft. of bark will condition about 18 sq. ft.
Established lawns	Spread ½ in. bark soil conditioner and cross-rake with a leaf rake. Three cu. ft. of bark will condition about 144 sq. ft.
Decorative purposes	Spread decorative bark 1½ in. deep around trees, shrubs, in flower beds and planter boxes. Spread about 3 in. deep for play areas and around play equipment, and 2 to 3 in. for pathways, patios and decorative landscaping.

¹Bark amounts obtained from pamphlet published by Miramul, Inc., Diboll, Texas

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