

Chipping Woody Wastes

Municipal Yard Waste Composting Operator's Fact Sheet #8 of 10

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Of all the materials in the solid waste stream, woody yard wastes are perhaps the easiest to recycle. A variety of shredding and grinding machines will transform brush woody waste into chips, which are immediately marketable or can be easily stored. And markets of the chip products, either as a mulch or as a fuel, are more stable than the markets for many other recyclable materials.

There are three general types of chipping equipment that might be appropriate for a yard waste management facility: mobile chippers, tub grinders, and stationary hammer mills. For small quantities of woody waste, a small mobile chipper such as is used by utility companies and arborists may be the most cost-effective. Since many public works departments already own such a unit, it may be possible for a yard waste management facility to share existing equipment. The primary limitations of these smaller units are their lower throughput rates and their limited capacity for large pieces of woody waste.

Tub grinders consist of a large diameter rotating tub which feeds a hammer mill. These units are semi-portable and can usually handle woody materials up to railroad tie size or larger. Stationary hammer mills differ from tub grinders in that they are fed by conveyor belts. They are available in a variety of capacities to handle almost any amount and type of waste.

Tub grinders and stationary hammer mills can process large volumes of material, and can be connected to screens and magnetic separators to produce a high quality end product. Both require a considerable capital investment, and maintenance of the hammers can be both frequent and expensive. Stumps, plastic bags, and dirt in the incoming waste will increase these maintenance requirements. Specially hardened

steel placed on the critical wear surfaces can significantly extend the service time of the hammers.

The various market outlets for wood chips have somewhat different product requirements. Chip size, moisture and age can be managed to suit the users of the chips. Mulch users such as landscapers and parks are primarily concerned about size, shape and color. Most large chipping and grinding equipment can produce several different chip sizes, usually by changing a replaceable screen that prevents larger pieces from leaving the grinding chamber. A second stage of screening may also be used to separate the smallest chips and dirt for blending with compost or soil. If mulch users prefer a uniform brown product, aging the chips for a few weeks will turn any green foliage brown.

If the chips are going to be marketed as a fuel or as a carbon source for sludge composting, they need to be kept as dry as possible. Covered storage areas may be required if the chips must be stockpiled. When storing large quantities of wood chips, caution should be exercised to help prevent fires (see the fact sheet on Health and Safety Precautions).

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