tional savings, about 300 to 400 cubic yards of
topsoil are generated a year. The composting opera-
tion takes about three hours per week, while the
topsoil recycling program takes about 120 hours
per year.

Filling A Niche
In Decatur, IL, Romer Brothers Tree Service
began its recycling operations about three years
ago. "Our first incentive was raising landfill
costs," says Mike Romer. After researching
ways to decrease costs, Romer discovered that
there were no local companies that offered
recycling services. They decided to take the
plunge and purchase a tub grinder and front-end
loader.

"We ran all of our tree waste through the tub
grinder, and it produces a nice, fine chip," says
Romer. "It makes a great mulch." The materi-
al is sold to homeowners. The company deliv-
ers truckloads of mulch county-wide, and never
has trouble making a sale. Romer estimates
that they have sold between 12,000 and 15,000
cubic yards of mulch.

In addition to processing its own tree waste,
the company also processes material for the
local university, nurseries, schools, park districts
and townships. Their portable tub grinder can be
easily moved to any site. Townships often will
accumulate green waste, call the company out
to process it, and then allow residents to pick up
truckloads for their gardens free of charge.

Romer estimates that if the company had to
use the county dump, its tipping fees would now
run about $20,000. Although the initial invest-
ment was sizable, he says the move was a good
one. "We get more and more requests for the ser-
vice all the time," he notes. "In fact, we're
planning to purchase another, larger tub grinder."

Recycling City Trees
"If we had to take our greenwaste to a land-
fill today, we'd probably be spending about
$300,000 a year," says Mike Ganues, forestry
supervisor with the city of Toledo, OH. The city
has more than 100,000 street trees and half a mil-
lion trees in city parks. Ganues says the forestry
staff of more than 30 people trims about 6,000
trees and removes about 2,000 each year.

"We double-grind our wood. We have both
a whole-tree chipper and what's called a waste
recycler. It can chip logs up to 7 feet in diame-
ter," Ganues notes. The chips are then pro-
cessed once more through a standard tub grinder
to produce a fine finished product. The chips are
sold to landscape companies, nurseries and
homeowners.

"We sell both retail and wholesale," Ganues
says. "If you purchase five yards or more, we'll
deliver it for $10."

Toledo also has a firewood program. "We mar-
tked the wood for about $90 a cord for mixed hard-
wood and $120 for oak," Ganues says.
"Homeowners also can buy a permit for $10 a
year and come into the yard and cut their own
wood." Proceeds from both the mulching and fire-
wood operations are turned over to the Toledo
Urban Forestry Council.

"The money is used for helping reforest the
city," Ganues says. "It's used for street trees and
nursery trees, as well as education programs. It's
also used to fund special planting projects, such
as highway beautification. The extra funds are
like icing on the cake."

Closing the Loop
The city of Laguna Beach, CA, has reached
an enviable goal. With the help of Integrated
Urban Forestry, a consulting firm, the city has
reduced its green waste to zero.

"We've developed what we call the Green
waste Reduction Implementation Plan, or GRIMP™," says Tom Larson, president of the
program was developed to follow several
al steps to implement a "closed loop," where
the need to dispose of any green waste in a land-
fill is completely eliminated.

First of all, greenwaste is reduced up to 30
percent through source reduction. "This is
accomplished through landscape management
and design techniques," Larson explains.

A sophisticated composting program produces
soil amendments, potting soil and mulch. "We
process the materials through a tub grinder,
and then compost it," Larson says. "We never
use the chips until they're composted and we have
a horticultural-grade finished product."

The city has its own nursery, where it uses
the composted material to grow plants and
"soil-less" sod for municipal landscape pro-
jects. Larger wood is either split for firewood or
milled into quality lumber. Many urban trees are
considered "exotic" species, and woodworkers
gladly pay the price for the unusual hardwoods.

Like the city of Toledo, cost savings in
dump fees are estimated at about $300,000.
Additional city savings include the "free" com-
post and topsoil, as well as water conservation
and healthier plants due to the top-quality
amendments and mulches.

If you're ready to start recycling, the first step
is to check for any local ordinances. Some
communities require permits for even the small-
est composting operation. Investigate whether
or not your community has taken any steps to ini-
tiate a composting and/or recycling program,
and get involved. Even if there are no existing
programs, start your own. You will be ahead of
the game when the inevitable regulations are initi-
at- ed.

"If you come up with a new idea, see how you
can phase it in," Ganues suggests. "If you never
try, you'll never know how it will work."

TOOLING UP FOR RECYCLING:
AN EQUIPMENT PRIMER

By Daniel Ingham

The tools available to turn yard trimmings
into profits range in size and price from
walk-behind mulching mowers costing a
few hundred dollars to massive diesel powered
tub-grinders costing $250,000 or more.

Mulching Mowers
The benefits of grasscycling, to the envi-
ronment and the pocket books of both contractor
and client are numerous. To do it right, though,
requires more than just taping a piece of card-
board over the discharge opening of your
mower.

For starters, you may just want to get a
mulching kit for your current mower. Most man-
facturers make kits specially designed for their
line of mowers, which consist of gates to
block off discharge chutes and mulching
blades designed to operate with a standard deck
configuration.

True mulching mowers, though, are designed
to cut and recut the grass many times. Different
deck and blade designs are necessary to mulch
efficiently and provide quality results. There
are also some mowing and maintenance tech-
niques to be followed as well. It takes more than
just a good machine, it takes practice.

More horsepower is required to create the
additional lift needed to mulch clippings.
Crews may experience some initial problems
with grasscycling because they are failing to
run the engine fast enough for complete
mulching. Or, they may be trying to cover the
area too quickly, not allowing time for com-
plete mulching. Operators must slow down.
However, because there are no clippings to col-
llect, overall time and effort is reduced.

continued on next page
Chippers and Shredders

Chippers used to be the type of equipment reserved for the arbor industry, but no longer. Recognizing the need of the landscape industry to reduce and mulch yard trimmings less formidable than the average tree limb, manufacturers have designed multi-use machines capable of turning small tree limbs, shrub clippings and leaves into a manageable mulch that can be used as-is or composted for later use.

Chippers come in two basic types, drum and disc. Drum chippers have been around the longest and are capable of higher chipping rates than the newer disc-style chippers. For recycling purposes, the disadvantage of the drum chipper is the size of the chip produced. They are generally not as suitable for mulching or composting because their larger size requires further reduction or longer composting times. Often, the chips from larger drum chippers are stockpiled for processing in tub grinders, which can turn it into a suitable mulch.

On the other hand, disc chippers produce much more suitable chips for mulches and composts. If you are selling your chips, this will be a factor. The smaller units, which have the word “shredder” somewhere in the name, are designed not only to chip wood, but to cut and shred leaves and brush clippings that might pass uncut through larger units. At least one company has designed a combination chipper-shredder unit. This medium-sized unit is specifically designed to produce a fine mulch from whatever you put into it, while maintaining a high processing rate.

Some of the features to look for in a chipper are:
- Discharge chutes that rotate so chips can be blown in any direction and/or chippers mounted on turntables that allow brush to be fed in from any direction without moving the machine.
- Chippers and chip boxes that mount on the same trailer to ease storage problems and reduce the number of towing vehicles. Once at the site, the truck can be unhitched for other uses.
- Look for chipper knives that cover the entire width of the feed opening.
- On disc chippers, look for multiple knives that make more than one cut per revolution of the flywheel. The more productive the chipper, the more productive you are.
- Ease of maintenance and easy access to the chipper blades for sharpening. Maintenance will be reduced and engine life increased on the larger units if you opt for a diesel engine, making diesel worth the additional cost. Fuel efficiency is also greater with diesel.

One last option: some chipper/shredder units are built with vacuums that allow vacuumed material to be mulched on its way to a collection bin or bag. Depending on the landscaping job at hand, these units could result in a considerable manpower savings.

Tub-Grinders

The “Big Brother” of the chipper is the tub-grinder. These units come in a variety of sizes starting at big and progressing rapidly to really big. The large ones can handle stumps up to four feet in diameter and come with their own crane to load the material into the hopper. In addition to stumps, they can process wood pallets and other “soft” material at rates of up to one-ton per minute.

Variable screen sizes control the size of the processed chips and allow you to custom grind mulch to fit your needs. Soil can even be added during grinding to mix with green waste.

When, and if, you decide to get serious about green waste recycling, you should look into the purchase of a tub grinder. If you have enough space, you may even wish to start your own composting operation and begin processing waste from other landscape operations. A tub-grinder will be necessary to do it cost-effectively.

Log Splitters

For those that have to handle log disposals on a regular basis, a log splitter could be the way to go. Rather than making chips for compost, you could produce firewood, which will increase your market for wood waste.

There are two basic configurations for log splitter: vertical and horizontal. Horizontal log splitters require the log to be lifted and centered on the log rack — all cuts must be made down the centerline. A vertical splitter requires much less lifting, since the log is set on a base plate resting on the ground.

Log splitters use one of three methods to split logs: screw, hydraulic and mechanical. The screw type, which is not be produced much anymore, uses a long worm screw driven by an engine to force a cone or wedge into the log to split it.

Hydraulic splitters are the current standard in the industry, but have certain disadvantages of their own. The main one is they’re slow, relatively speaking. Cycle times range from 10 to 30 seconds and some models require the ram to be manually returned to the start position.

Perhaps the fastest and most efficient splitters on the market today are the mechanical splitters. These use the stored energy of a flywheel to engage a rack and pinion gear assembly attached to a splitting ram. When the pinion gear is engaged, the flywheel (powered by a small gas or electric motor) drives the ram forward at about two feet per second. Total cycle times are as fast as 2 to 3 seconds.

Skid-Steers and Front-Loaders

If you are going to get into recycling on a large scale (or even a medium scale), a good front loader will be very useful. For composting purposes, they will be necessary for moving, mixing and aerating larger compost piles. When using tub-grinders without a built-on crane, a front loader of some sort will be needed to load material into the grinder’s tub.

For sheer versatility, skid-steer loaders are probably the best bet, and offer the widest array of options due to the number of manufacturers. Attachments make them cost-effective, because they can perform many different tasks for contractors, reducing the need for different, specialized machines.

Another option for larger jobs is an articulated-steer loader. They are generally capable of lifting heavier loads than skid-steers and are more stable in most situations. Articulated steer loaders are hinged in the middle of the chassis and steering is accomplished when the chassis flexes at this hinge.

Safety

Only properly trained and instructed personnel should be allowed to operate these machines. Eye protection should be considered a must for anyone working with these machines, since flying chips and debris are major hazards. Bystanders should not be allowed, or should be kept at a safe distance, even with mowers. Ear protection should also be used, since these machines generate a lot of noise. Gloves and work boots should be standard to protect against cuts caused by machinery or wood splinters.