

**Are rebuilds necessary?**—Once a year or sometimes more often, you can do a 'power tune-up,' Radcliff advises. This consists of simply removing the cylinder heads, cleaning out carbon, and making all the basic adjustments to make sure the engine is performing at its maximum. A lot of rebuilds can be saved by simple, basic maintenance.

**Let the pros do it**—"I don't see any reason for an untrained person to do any more



Attendance at engine seminars gives crews engine know-how.

than remove the cylinder head of an engine," says Radcliff. "Taking a sump or side cover off to look inside of the engine will usually bring more trouble than good. Engines are becoming more and more complex as time goes on. Things that even dealers have to refer to manuals about certainly shouldn't be in the hands of someone who hasn't even read the manual. You need the understanding of the physics of an engine."

**Use the specified oil**—"I cannot stress it enough," Radcliff says. "(Briggs & Stratton) changed oil recommendations to a straight 30-weight as opposed to multi-viscosity oil; typically you'll get much better oil consumption numbers than you do with multi-viscosity oils. They don't burn nearly as much. With emission controls and trying to make the engine last as long as possible, we want to make sure we use the right oil and change it at frequent intervals.

Radcliff calls wrong oil or bad oil, "Probably the number one cause of engine death."

—Terry McIver

## More 'extended storage' tips:

✓ Wash, clean and completely lubricate the mower. Touch up scratched and unpainted areas, and wipe down all metallic surfaces with a medium weight (SAE 30) motor oil to prevent rust.

✓ Drain fuel from the fuel tank. After fuel is drained, start the engine and run it until the fuel in the carburetor is exhausted.

✓ Drain and change engine oil.

✓ Clean the tires and check tire pressure. Jack up the mower so the load is off the tires. Protect mower tires from sunlight.

✓ Store in a dry and protected place.

Source: The Bunton Co.

# Calculating mowing costs

**Don't forget to add in your desired profit margin when calculating what to charge the customer!**

■ Figuring out how much it costs to mow a given area is not entirely dependent on the area's size, says Howard Mees of Environmental Care Inc., San Diego, Calif.

The service provider must also take into account site considerations, as well as equipment and labor costs.

Site considerations include things like areas that are too wet or over-fertilized; small, tight locations with a lot of detail; and so on. "Picking the right piece of equipment to get optimum performance in a given location will affect production," Mees explains. "If a 21-inch mower is used on a five-acre park, the cost per acre of cutting can be quite high."

Here is the procedure Mees uses to calculate his mowing costs per property.

**Equipment costs**—No matter what kind of mower you choose to use for par-



**Mees: average cost is \$2.61**

tical projects, you are still faced with the initial purchase cost of the machine. And once you've made the purchase, you must spend money to maintain that piece of equipment.

"There are not only the standard expenses of gas, oil and rubber goods, but also your preventive maintenance functions, as well as your shop time expense," notes Mees. "You also have parts, labor and downtime expense when your equipment is in for repairs."

There are also some hidden costs that you might not be figuring, says Mees. These might include:

- transporting the equipment to and from the job site;
- loading and unloading;
- time during the shift the equipment is not in use; and/or
- cost of back-up equipment.

"The above considerations have a dollar value that you can attach to them," Mees

says. "You can then see how many hours you actually are operating the machine and this will give you an equipment cost per hour to own and operate that machine."

Some average costs of operation—as provided by experience, conversations with other contractors Mees talked to, and input from manufacturers—are:

gas and oil .....	54 cents/hr.
repair .....	46 cents/hr.
cost of purchase .....	55 cents/hr.
vehicle operation .....	13 cents/hr.

"The average cost per hour, not allowing for the size of the equipment, is about \$2.61 without profit and overhead," notes Mees.

**Operator costs**—Next, you figure out how much you are paying the operator per hour, including downtime and benefits.

A formula for calculating this number can be found in the June, 1991 issue of this magazine, on pages 32-33. Typically, total operator costs run about 31 percent over base hourly wages. This figure includes statutory costs like FICA and worker's comp, and voluntary costs like insurance, retirement and uniforms.

Add together equipment costs and labor costs per hour and you get the cost per hour of mowing a particular area.

This, of course, is not *what you charge!*

**Other costs**—The average overhead, which comes from a study done by the Associated Landscape Contractors of



## CALCULATING MOWING COSTS

Line	Description	Example	Your worksheet
1.	Sq. ft. to be mowed this property	120,000	
2.	Production rate (sq. ft. per hr.) <sup>a</sup>	60,000	
3.	Hrs. of production this property (Line 1 divided by Line 2)	2	
4.	Cost of equipment purchase	\$12,000	
5.	Expected equipment life (yrs.)	3	
6.	Hrs. mowed per yr. <sup>b</sup>	1,560	
7.	Equipment life in hrs. (Line 5 times Line 6)	4,680	
8.	Equipment cost per hr. (Line 4 divided by Line 7)	\$2.57	
9.	Gas and oil cost per hr. <sup>c</sup>	\$0.48	
10.	Repair costs per hr. <sup>c</sup>	\$0.44	
11.	Total equipment cost per hr. (Add Lines 8,9,10)	\$3.49	
12.	Labor cost per hr. <sup>d</sup>	\$11.00	
13.	Operating costs per hr. (Add Lines 11,12)	\$14.49	
14.	Overhead per hr. (Line 13 times 0.31 <sup>e</sup> )	\$4.49	
15.	Total operating costs per hr. (Add Lines 13,14)	\$18.98	
16.	Profit % desired <sup>f</sup>	0.20	
17.	Profit per hr. (Line 15 times Line 16)	\$3.80	
18.	Selling price per hr. (Add Lines 15,17)	\$22.78	
19.	Total selling price this property (Line 3 times Line 18)	\$41.56	
20.	SELLING PRICE THIS PROPERTY PER SQ. FT. (Line 19 divided by Line 2)	\$ .00069	

or  
.07 cents/sq. ft.

### Footnotes

- <sup>a</sup> - from accompanying chart
- <sup>b</sup> - based on 30 hrs. actual production per week
- <sup>c</sup> - Howard Mees/Environmental Care research
- <sup>d</sup> - approximation: see LM June, 1991 issue (approximate hourly wage + 31%)
- <sup>e</sup> - 0.31 is average based on Associated Landscape Contractors of America survey
- <sup>f</sup> - arbitrary: put your profit margin here

America a few years back, is 31 percent over and above this figure. Then, add to this the profit margin you would like to see and you come up with a selling price.

"Taking these numbers further and using an \$8 per hour labor rate (including downtime and benefits), the cost to mow an average area per square foot is \$.00069 (or 7/10ths of a cent)," notes Mees.

"To come up with some more meaningful numbers," he continues, "I looked at various data to arrive at a more complete number. This included mowing, detail work, clean-up, irrigation checks and fertilization.

"The range was .013 cents per square foot for larger, easy areas to a high of .049 cents per square foot for tougher, detail-oriented sites. The average for the numbers I ran was .031 cents per square foot for turf areas needing the complete service."

Mees makes one final point: in-field conditions are infinitely more valuable than these overall averages when making true calculations of what it costs to mow.

## How much lawn can you mow in an hour?

Deck size	*Square feet per hour*			
	2.5 mph	3.0 mph	3.5 mph	4.0 mph
21"	18,480	22,176	25,872	n/a
26"	22,880	26,456	32,032	36,608
28"	24,640	29,568	34,496	39,424
30"	26,400	31,680	36,960	42,240
32"	28,160	33,792	39,424	45,056
38"	33,440	40,128	46,816	53,504
42"	36,960	44,352	51,744	59,126
48"	42,240	50,688	59,136	67,584
60"	52,800	63,360	73,920	84,480

less than 1/2 acre (21,780 sq. ft.)

1/2 to 3/4 acre (32,670 sq. ft.)

3/4 to 1 acre (43,560 sq. ft.)

1 to 1 1/2 acre

1 1/2 to 2 acres

*Source: The Ariens Co.*