

LABOR SAVING DEVICES AND EQUIPMENT

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One of the most tedious and labor intensive tasks facing the grower is filling pots and flats. In larger ranges, most have automatic flat and pot fillers. Most small greenhouse ranges can't afford an automatic flat and pot filler because the cost to fill each flat or pot is too costly. Most flat and pot fillers work best when two or three workers attend the machine. One worker assembles flats with inserts and puts them on the feeder conveyor. A second person operates the machine and keeps the soil bin full. The third person removes the flat or pot from the filler and puts it on a wagon or in a storage area. The number of flats that can be filled is determined by the speed of the slowest worker.

Lets assume these three workers can fill ten flats per minute, or at the rate of 6 seconds per flat. It will take ten minutes to fill 100 flats. At the end of that ten-minute period, at least one of the three workers must stop the line to catch up. The down time will be about one-half as long as the running time. Now your average is down from ten flats per minute to 6.66 flats per minute, nine seconds per flat, and it will take fifteen minutes to fill 100 flats.

If the payroll expense for each of the three workers is \$8.00/hour, the labor costs per flat is six cents ($3 \times \$8.00 / 0.25 \text{ hrs} = \$6.00 / 100$) or \$0.06. If a flat filler cost \$6000 and you decide to amortize this cost over five years, the cost per year is \$1200, the cost per flat is dependent on machine usage as shown in the table below.

Using the tables shown, if each worker earning \$8.00 per hour fills 125 flats per hour and your annual number of flats filled by machine is 6000, your cost per flat filled would be \$0.264.

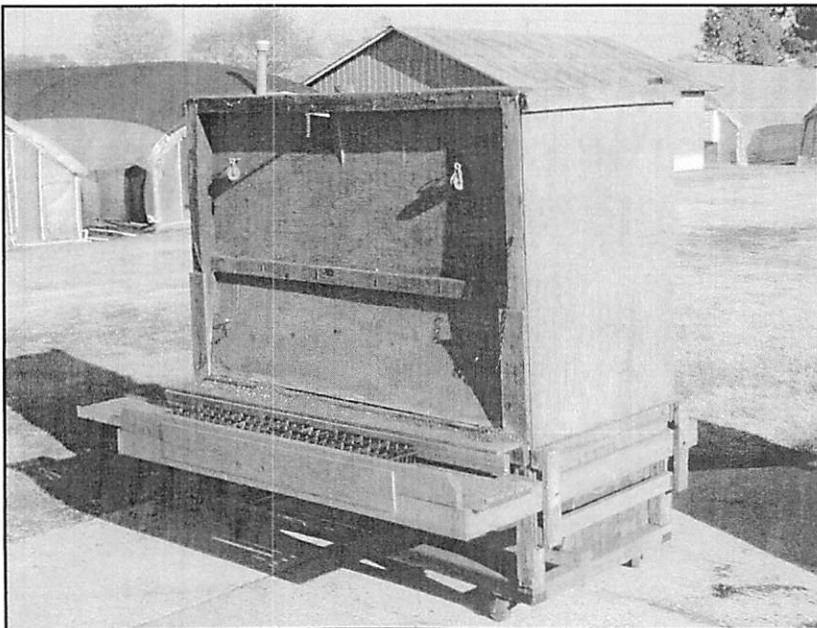
The accompanying photo shows a flat filler that can be built for about \$400. Using this filler, three workers can fill approximately 300 flats at a rate of 100 flats per worker per hour. Based on a five year life expectancy (actually in use for over thirteen years), and using the same criteria as above, the equipment cost would be \$.013

Labor Costs Associated with filling Bedding Plant Trays

Flats filled /worker/hour	Hourly Labor cost/worker	Labor costs /flat/filled
100	\$8.00	\$0.08
	\$9.00	\$0.09
	\$10.00	\$0.10
125	\$8.00	\$0.064
	\$9.00	\$0.072
	\$10.00	\$0.08
150	\$8.00	\$0.053
	\$9.00	\$0.06
	\$10.00	\$0.067

Machine Costs per flat based on Machine Cost of \$1200 per year

Number of flats filled per year	Machine Costs per flat filled
3000	\$0.40
6000	\$0.20
9000	\$0.133
12000	\$0.10
15000	\$0.08



per flat. Including labor costs, the total cost per flat would be \$0.093. If you fill 6000 flats annually, you will save over \$1000.00 each year. In addition, this filler can be used when only a single worker is available. When using either a commercial flat filler or "home-made" flat filler, it is necessary to transport the potting soil into the hopper and a tractor with a bucket loader is indispensable.

It appears that unless a grower can reduce the cost of machine filled flats to less than \$0.10 per flat, a flat filler would not be economically beneficial and other methods of filling flats should be investigated. ýý