CONSTRUCTION COSTS FOR A GRADING TABLE

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At one time or another we consider building something for the nursery, but there looms before us the specter of C 0 S T. Is it going to cost $1, 000. 00 to save $8. 95, or will the cost be reasonable and the saving in time and money worth while ? To help other nursery operators to estimate cost, we tabulated the materials and prices during the con - striation of a Forest Seedling Grading Table during the winter of 195051.

Briefly, the "table" is a continuous motor-driven belt with number and spaces for seedlings (see photograph). As the belt moves along the length of the table (17' 6"), "graders" on each side place two seedlings in the proper space indicated by numbers on the belt. Using ten graders, five on each side, and add each grader placing two trees per space, the output is 300 trees per minute, counted, graded, and ready for tying in bundles of 50.

The materials and 1951 prices for building the table are as follows:

2 pcs. 2" x 4" - 18' Douglas-fir ------	$ 3.48
6 " 13 1/2" x 3/4" plywood circles---	4.90
2 " 1" x 8" - 12' #2 white pine-------) 4 " 1" x 8" - 14' #2 white pine -------)	10.34
8 " 2" x 4" - 12' Douglas-fir---------	8.00
1 Steel shaft 1 1/4" x 52 1/2"--------) 1 Steel shaft 1 1/4" x 55" ----------)	5.37
4 1 1/4" solid journal bearings-------	9.60
4 1 1/4" steel collars---------------	3.68
3 #BB468 platform aprons----------	48.00
1 66" V-belt 1/2"-------------------	2.30
1 1/8 H.P. electric motor with speed reducer------------------------	66. 10
Assorted nuts, bolts, washers, etc.---	8.85
Switch, fustat, 25 ft. 14/2 flex. wire--	2.61
Labor, 80 hours---------------------	96.80
	$270.03

Materials on Hand
(Not included in cost)

1	15" V-belt pulley (for 1 1/4" shaft)
1	2" V-belt pulley (for 5/8" shaft)
10	seedling boxes 24" x 18"
2	4" diam. 44" long wood rollers
90	lin. ft. 1" x 3" oak
	Paint

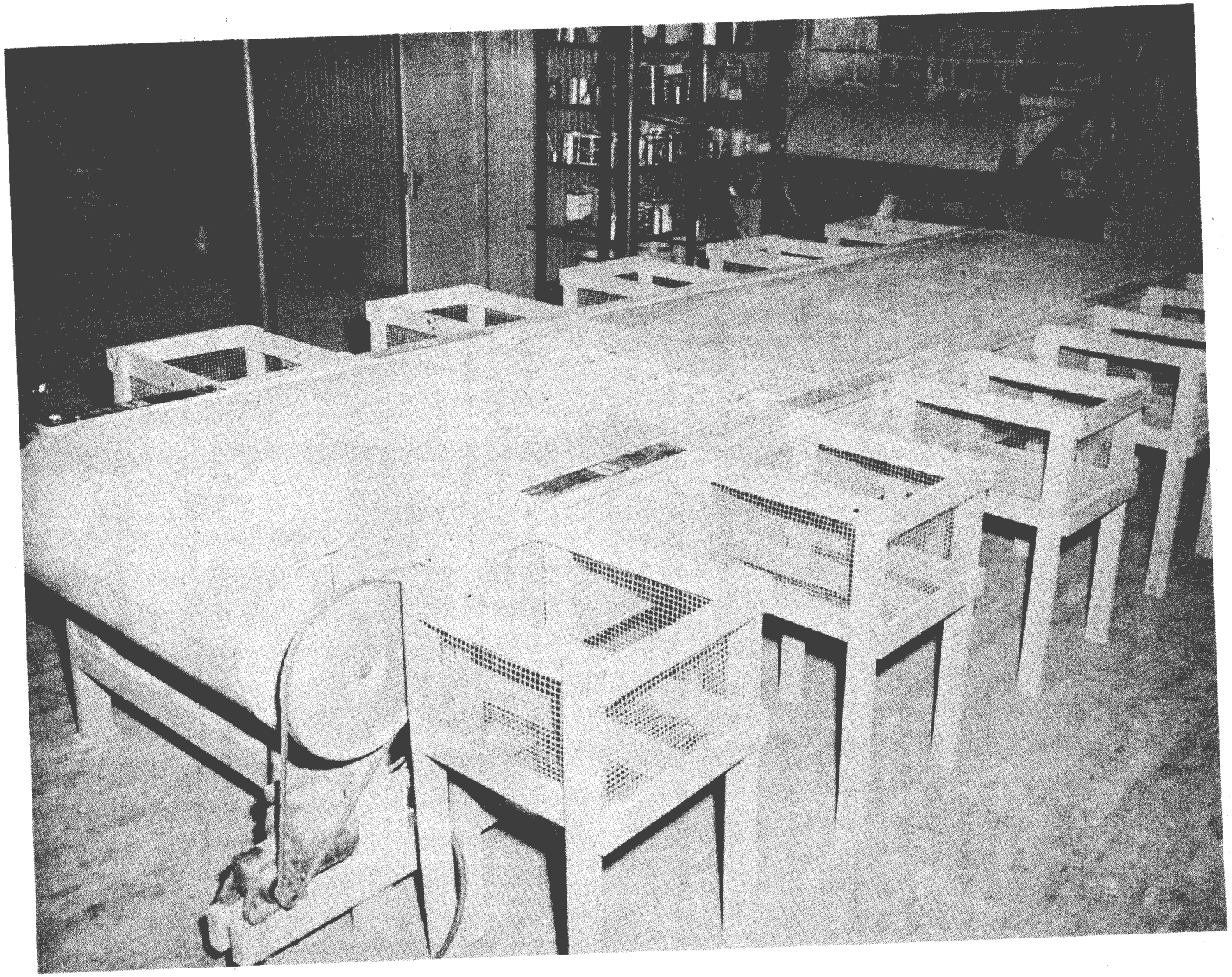
The grading table is a complete unit with the power supply mounted underneath it. It can be plugged in and operated from any 110 V. outlet. -All bracing and construction is bolted so that it can easily be taken down for moving or storage. An electric switch was installed at the opposite end of the table from the motor and connected to the power supply by 14/2 flexible wire. This enables the men removing trees from the table to stop and start the belt at any time during its operation.

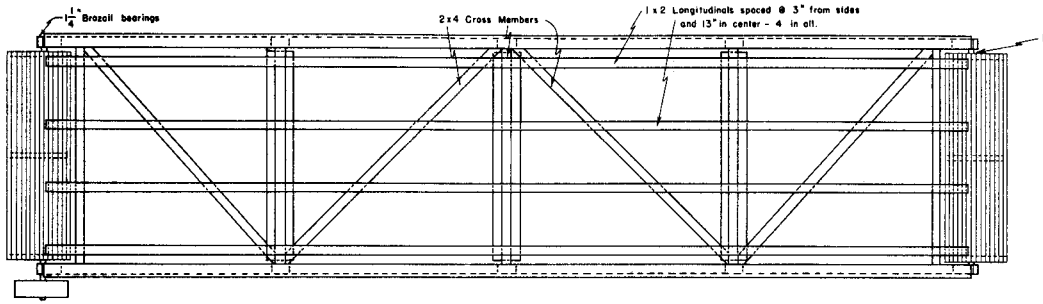
Using an A. C. 1/8 H. P. Janette Motor with gear speed reducer, the input is 1, 725 R. P. M. and the output 86 R. P. M. A 2" V-belt pulley on the motor shaft and a 15" V-belt pulley on the belt drum shaft gives
a belt speed of one revolution in 59 seconds. This speed is satisfactory for 2 trees per number, 50 trees per bundle. Speed of the belt should be reduced if more than 2 trees are placed on each number.

In addition to identifying each "grader" by number, we gave each number on the belt a different color and painted the corresponding color on the table in front of each grader. Most graders find it easier to identify their individual seedling space on the belt by color rather than number.

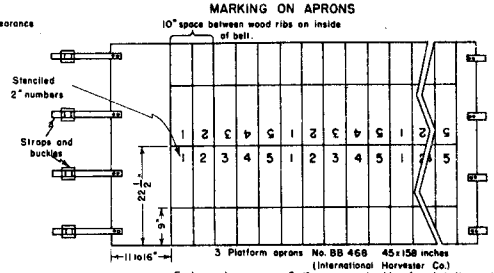
To obtain the maximum efficiency from the grading table, we recommend the use of a tying machine. A foot operated tying machine can be purchased for $90.00.

In the first year of using the grading table and tying machine, a reduction of 20% in total hours for grading, counting, and tying was found possible in comparison with previous labor methods. This reduction in hours was achieved despite an 8% increase over the previous year in production.



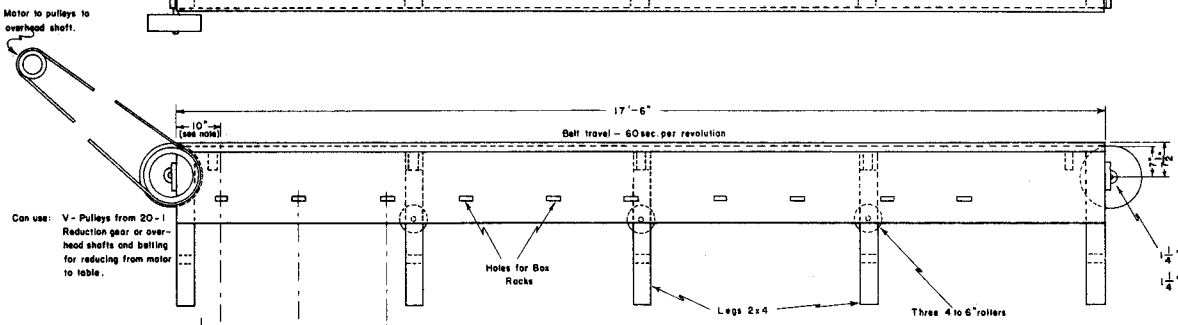


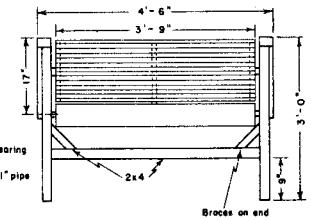
MARKING ON APRONS



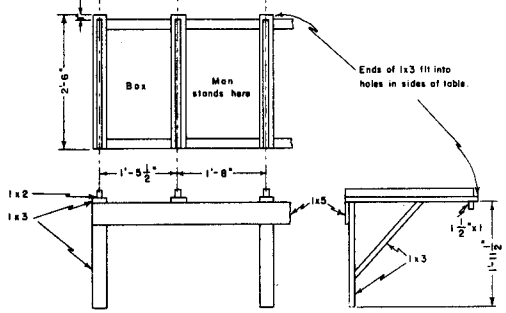
3 Platform aprons No. BB 468 45x158 inches (International Harvester Co.)

Each number occurs 5 times on each side of each belt section. Each belt has 3 sections - numbers and spaces so arranged that each section when full contains 100 trees - 50 on each side. A complete revolution of the belt produces 300 trees in 6 bunches of 50 trees each, using 2 trees per number. More trees can be used per number to increase output.





LEFT END ELEVATION



BOX RACKS

Note:
Five men to each side, alternating between boxes. Man stands opposite box on other side.

Box Size
16" x 27" x 8" high outside

SARATOGA NURSERY
CONSERVATION DEPARTMENT
DIVISION OF LANDS & FORESTS

SARATOGA CULLING TABLE

MODIFIED FROM A PRINT- "FOREST SEEDLING GRADING TABLE FORESTRY DEPARTMENT MICHIGAN STATE COLLEGE 3-31-41
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