

GREENLEAF NURSERY'S SHEAR MACHINE

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In November, 1973, Greenleaf Nursery started working on a faster way to shear containerized nursery stock, other than the conventional hand shearing method. Through the ideas and determination of our division supervisor, Marvin Fuson, and the technical assistance of our maintenance shop supervisor, Luther Taylor, Greenleaf Nursery now has a shear machine that does a quality job and saves many hours of hand labor.

The first shear machine we made used a 1½ horse power electric motor which turned 3450 RPM's. The motor had a double shaft which allowed us to mount a 16" cutting blade on the bottom and a 12" fan blade on the top. This machine worked as well as our present machine, however, it required an extra person to control the electrical extension cord and a 12 horse power portable power plant to run the electric motor.

Another version of the shear machine is the lawn mower type. This type did not work well for us on junipers. It left a lot of clippings on top of the plants, the cuts were not smooth and it didn't have enough suction to pull the side branches up to the cutting blade. We had to go over some cultivars two or three times to get an even cut, but on certain shrub and broad-leaf cultivars it did work well and it is considerably more economical to construct than the other type of shear machine.

The shear machine that we are using now is powered by a Clinton 503, high performance, 2 cycle gasoline engine. A 26" × 1" shaft goes from the motor shaft through the housing to the cutting area. It is connected to the motor shaft by a Falk Brand 20-T-20 coupler and a 20-T blank bore hub drilled to 1". Mounted in the middle of the 1" shaft is an Allis Chambers 840 cooling fan blade No. 1005294-2 which creates the suction to draw the lower branches up to the cutting surface and suck the cuttings off the plants. The cutting blade is an 18" lawn mower blade. There are two Fafnir pillow block 1" bearings mounted above and below the fan blade. (See Figure 1)

The frame which straddles our 8' beds is made of 1½" square tubing. The four tires are 16 × 6.50 - 8 high floatation tires. We roll the shear machine the length of the bed on the outer edge, then we slide the cutting head over about 14", shear the opposite direction the length of the bed again and continue this process until the bed is completely sheared.

Using the new shear machine, two men can shear about

70,000 one gallon plants, that are can-to-can, in an 8 hour day and about 40,000 one gallon plants after they have been spread, in an 8 hour day.

Some cultivars do require some hand shearing behind the shear machine; however, it is usually less than $\frac{1}{2}$ man hour per 1000 plants.

This type of shear machine will not work on the prostrate juniper cultivars such as Wiltonii (Blue Rug), Bar Harbor and Webberi.

As time goes by and labor continues to be a greater and greater problem, labor saving devices such as this will play an ever increasing role in our related industry. Each of us needs to strive to develop usable labor saving methods and equipment to meet the demands of our growing agricultural businesses.

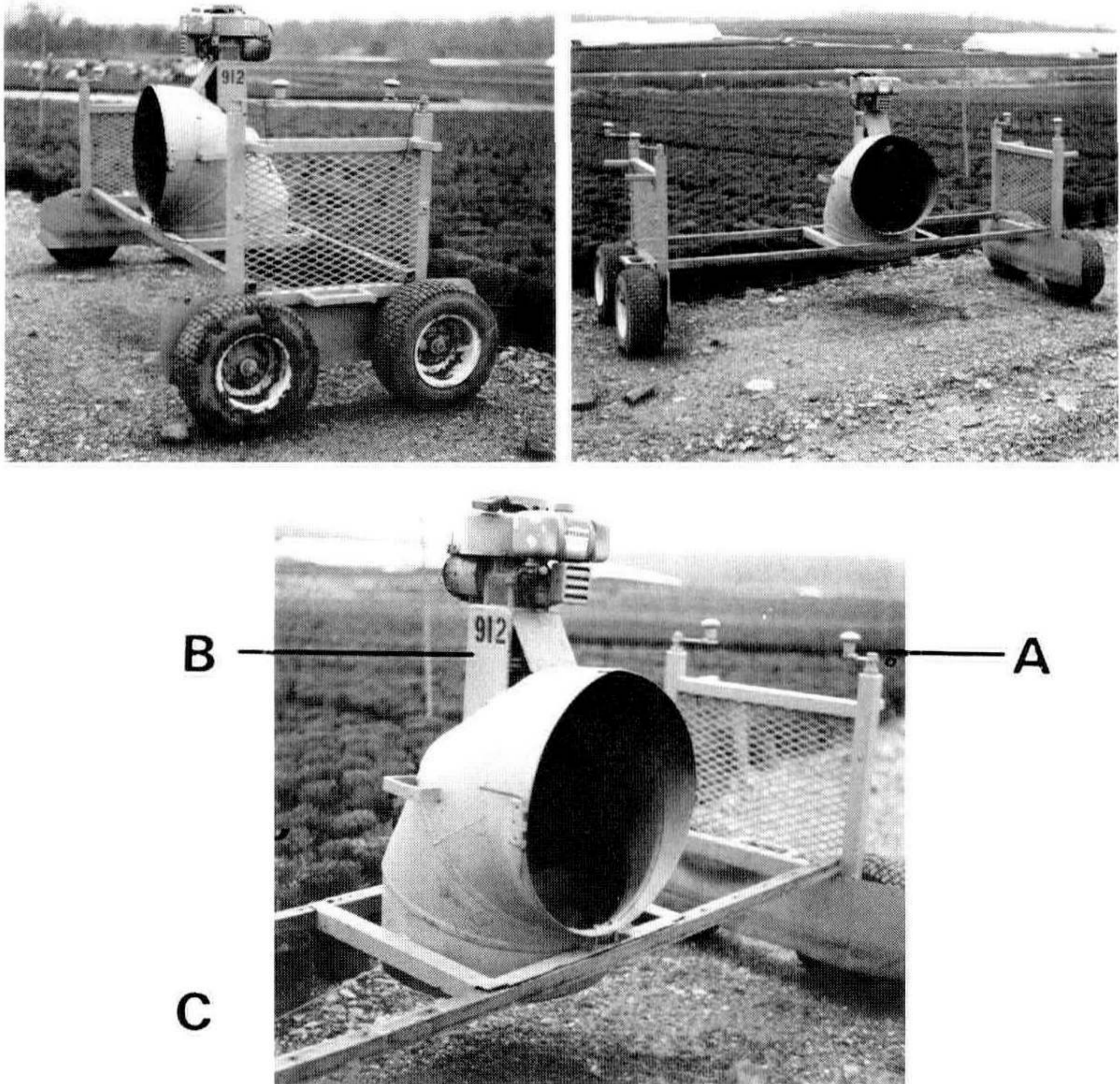


Figure 1. Shear machine. **A.** Height adjuster. **B.** Coupler under motor mount. **C.** Shear machine slides on cross rails.