Construction

The cutter may be constructed from material usually found in most home workshops. Any wooden materials with sufficient weight to hold the device steady during operation may be substituted for the board and plywood. Most sizes of steel strap iron may be bent in a 90° angle to replace the corner braces. Any thin flat steel bar that will hold an edge or can be tempered may be used to make a cutting bar or knife. A machete, however, functions well and may be obtained in most places rather cheaply.

The size of the device may be changed to handle the item to be cut (branches, twigs, or grasses). Materials used in construction will vary accordingly.

The parts are assembled as shown in the expanded diagram (Fig. 1). Not more than ½ inch of the plastic box should rest on the edge of the oak chopping block. The steel corner braces with machete attached should be so positioned that the cutting edge slides down along the face of the box. The finished product should resemble the assembled view (Fig. 1). A line is then etched and inked on the plastic box one inch from the cutting edge of the knife. When cutting old or extremely dry vegetation that may shatter, it is usually advisable to bevel the leading ⅛ inch of the oak chopping block within the plastic chute. Do not bevel back to the point of impact of the knife.

When placed on a desk-high table, the device is at an optimum working level for most people. A chair placed under the plastic chute will hold most paper bags over the mouth of the chute. The plant to be cut is slid along the guide to insure perpendicular cuts. When the ends of the sample coincide with the black line on the chute, the knife is brought down sharply. This severs the whole segment and at the same time seals the orifice so that all vegetation must go down the chute and into the sack.

Discussion

When two operators are available, one chopping and one bagging, as many as 150 plants may sectioned in one day. A single operator is limited by the rapidity with which he can change paper bags. There is little or no variance in size or shape of samples. There is no loss of vegetative matter. Stems up to one inch in diameter and grass plants with a field diameter of 13 inches have been handled easily with this device.

Approximately 15,000 samples were cut with this device without a single breakdown. Maintenance consists of occasionally sharpening the knife blade. The frequency of this will depend upon the density and quantity of material being severed.

Literature Cited


FUMIDOR FOR HERBARIUM CASES

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A convenient fumidor for herbarium cases has been devised at the U.S. Forest Service's Range Management Research Project at Alexandria by the rapidity with which he can change paper bags. There is little or no variance in size or shape of samples. There is no loss of vegetative matter. Stems up to one inch in diameter and grass plants with a field diameter of 13 inches have been handled easily with this device.

Approximately 15,000 samples were cut with this device without a single breakdown. Maintenance consists of occasionally sharpening the knife blade. The frequency of this will depend upon the density and quantity of material being severed.

Figures:

Figure 1. Assembled view and expanded diagram of device.

Figure 1. Fumidor under herbarium shelf.
TECHNICAL NOTES

Fumigating to protect against insects is a vital step in preserving plant specimens. PDB crystals strewn loosely over folders evaporate quickly and are usually spilled when specimens are removed for study. These problems are prevented by placing crystals in cloth bags, but bags are inconvenient to fill and their contents cannot be easily checked.

To make the fumidor, mark a 4½- by 5-inch piece of screen with wax pencil or felt marker, following the pattern (figure 2). Then bend the sides and ends. (A straight-edge helps to make neat bends.) Next fasten the corners by forcing the ends of the side wall wires through the end walls and bending them toward the corners. Bend the tabs on the end walls around the corners to prevent leaks. Bend down the tabs on the side walls 90° and attach bar magnets with plastic cement. The type used for mounting plant specimens is ideal.

This fumidor can be used in a wooden case if small pieces of sheet metal to hold the magnets are tacked where desired.

FIGURE 2. Pattern for aluminum screen. Cut on solid lines, fold on dash lines.

MANAGEMENT NOTES

BENEFITS FROM GOOD MANAGEMENT ON SOUTHERN FOREST RANGES

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The cover photo on this issue depicts a new look in beef production on southern forest ranges. The author's entry, adjudged grand champion of the contest at the Seventeenth Annual Meeting of the Range Society, shows native Brahman-type cows and their Shorthorn-cross offspring on the Palustris Experimental Forest in central Louisiana. In appearance the cows are about par for the area. In earnings, however, they rank almost 300 percent above the average.

The story behind the picture began when range researchers at the Southern Forest Experiment Station started testing management programs aimed at boosting beef yields. Calf crops on forest range were pitifully low, averaging less than 50 percent. Moreover, 7-month weaning weights were below 300 pounds, and mortality was high among both cows and calves.

Several deterrents to efficient production were evident. Foremost among these were nutritional deficiencies. Grass, though usually plentiful, was always low in phosphorus, and protein content was generally insufficient from July to mid-April. Grazing intensity was seldom controlled and unregulated yearlong breeding was common. Also, the toll of diseases and parasites was heavy.

Supplemental feeding during winter was a prominent feature of experimental management programs devised to resolve these problems. Grazing was controlled at moderate intensity, and range units were rotationally burned to improve forage quality. Breeding was regulated so that calves would be born during fall and winter. Cattle were immunized against common diseases, and regular spraying controlled external parasites. Salt and steamed bonemeal, provided free-choice, corrected mineral imbalances.

At first the test programs failed, because supplementation was inadequate. Rations that were theoretically ample did not improve calving percentages or weaning weights. For example, cows receiving 3.3 pounds of cottonseed cake (11 percent crude protein) per head daily from December 15 to March 15 produced 53-percent calf crops, and 6-month weaning weights were 253 pounds.

Although expenditures for feed had returned nothing so far, researchers decided to increase the ration. Of several programs tested, the most profitable fed 375 pounds of cottonseed cake during the period from November 1 to May 5. Because cows in previous studies apparently consumed insufficient forage in late winter when quality was lowest, 4 bales of hay per cow were added.

These changes brought spectacular results. During the first year, the calf crop soared to 73 percent and