

plastic will save much time and money. Plastic spray should have considerable value for most field uses of aerial photographs, whether it be a mapping job, a timber cruise, a vegetative survey, or routine administrative work on any forest or range unit.

Plastic spray need not be limited strictly to use on aerial photographs. Various types of maps, sketches of field plots, or written documents used in the field are a few of the many articles that may be made more useable by spraying with plastic. Compasses may be rendered waterproof and windproof. Other field instruments may be treated with plastic to protect them against dust, rain or snow, and corrosion. These are but a few of the many uses to which plastic spray may be put.

Credit should be given to Donald P. Streich, summer field assistant on the Starkey Experimental Forest and Range during 1952, for the initial development of this idea.

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### USE OF SCYTHETTE IN RANGE FORAGE STUDIES

In harvesting range forage one must use sampling procedures which usually necessitate clipping a large number of sample plots. Long, narrow areas for clipping, 1.5 feet by 12 feet, have been recommended by a joint committee of the American Society of Agronomy, American Dairy Science Association, American Society of Animal Production, and American Society of Range Management (Pasture and range research techniques, a report by the joint committee

published in Jour. of Agron. 44(1): 39-50. 1952). However, extensive hand clipping becomes tedious, time consuming, and expensive. Since few agronomic harvesters are adaptable to range conditions the appearance of the "Scythette" on the market seems to offer considerable promise for obtaining yields of range forage under a variety of conditions. The Scythette has been used for two seasons in range research work at Oregon State College. It was thought that other workers would be interested in a short report on the performance and usefulness of the Scythette during this period.

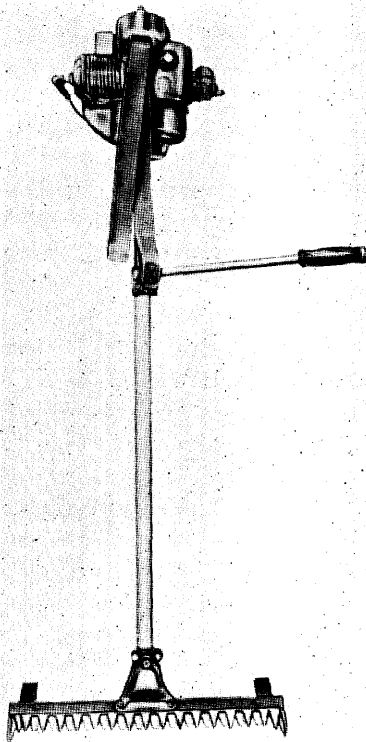


FIGURE 1. The Scythette. (Reproduced from advertisement by Garden-All Tractor, Inc., Liberty, Indiana)

Figure 1 is a diagrammatic sketch of the Scythette. It is powered by a single cylinder, 2 cycle, air-cooled gasoline

engine that develops  $1\frac{1}{4}$  h.p. at 4000 rpm. The cutting head has two 20-inch steel blades actuated by a torque tube assembly which transmits the power through a gear reduction. The machine is 54 inches long and weighs approximately 24 lbs.

Figure 2 shows the Scythette in operation. The operator merely pushes the machine along the path he wishes to cut. The small steel skids located underneath



FIGURE 2. The Scythette in operation

on either end of the cutting head support the blades and maintain a uniform stubble height. These skids may be replaced with others of various sizes in order to adjust the height of the cut.

The Scythette has been used twice the past two years to harvest sample plots of a factorial fertilizer design on which 48 treatments were replicated four times. The harvested plots were 20 inches, Scythette width, by 11.3 feet long. To lay out the plots, cut, and collect the samples required only 24-man hours. Actual operating time of the Scythette

for harvesting 192 plots 1.7 feet by 11.3 feet was three hours.

The Scythette has been used also for harvesting square plots 3.1 feet on a side scattered at random throughout a pasture. In this type of harvest it was found desirable to outline the edge of the plot by clipping a narrow strip around it by hand or by using a gasoline-powered sheep shear. In this way the clipped outline of the plot serves as a control to keep the Scythette within the boundary of the 9.6 square-foot area to be harvested. The advantage of the Scythette over the sheep shear is in its portability and width of cut.

Some mechanical disadvantages have been noted in the Scythette. Perhaps the greatest difficulty has been the tendency of the trim blades which are located on either end of the cutting head to become loose when cutting a dense stand of grass. In our machine it has been necessary to reinforce the original rivet fastenings by brazing these trim blades to the support blade. However, the manufacturer has indicated that they have attempted to correct this weakness in more recent models. Another point that has been noted by some operators is the shortness of the operating time on a single tank of gasoline. After thirty or forty hours of operation we dismantled the actuator housing, which is located at the lower end of the torque tube assembly, and found it packed full of grass cuttings. After the housing was cleaned out the machine operated at a higher speed and as much as 30 minutes of operation was obtained from a single tank, one pint, of fuel. The Scythette vibrates considerably while running but this vibration is minimized by keeping it in peak operating condition.

Performance of the Scythette when used for harvesting range experimental plots indicates that it is a useful tool for obtaining forage yields under a variety

of conditions. The principal advantages of this machine are portability and ease of handling and transporting. Certain shortcomings of the Scythette are evident but it seems to be a real labor saver where fairly large plots need to be clipped. This machine is manufactured by Hoffco, Inc., Richmond, Indiana, and the 1951 price was \$147.50 at Corvallis.

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