

# Electric Shears for Plot Harvesting<sup>1</sup>

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## Highlight

**Battery powered electric shears can reduce hand labor required to harvest small forage plots. Extra rechargeable batteries extend capacity to operate shears for several hours. Such shears will clip alfalfa and native range grasses more uniformly than when harvested with conventional hand sickle.**

The hand labor required to harvest forage on small plots can be reduced by using battery powered, electric shears. Such shears have been used successfully to harvest alfalfa and native range grass plots. Alfalfa and native range grasses were clipped more uniformly and more easily, than when harvested with a conventional hand sickle. Weeds larger than alfalfa stems were difficult to cut with the shears.

Small rechargeable batteries are contained in the body of the shears; a battery charger is included with each shears. The capacity of the small batteries was not sufficient for lone operation. Operating time between battery charges was increased by adding an external battery pack, with no modification of the shears. The battery charger included with the shears can be used to charge the battery pack.

Four rechargeable nickel cadmium 1.25 volt, 0.4 ampere hour battery cells, series connected, will provide sufficient

capacity to operate the shears for several hours. A laboratory test of the shears' performance, with the shears running, but not cutting, gave a running time of about 30 minutes with the internal batteries, and about 3 hours with the battery pack.

The male charging connection of the shears will fit the female connection on polarized television power cords. The battery pack is connected to the shears by plugging the battery pack cord into the charging connection on the shears. The battery pack can be housed in a

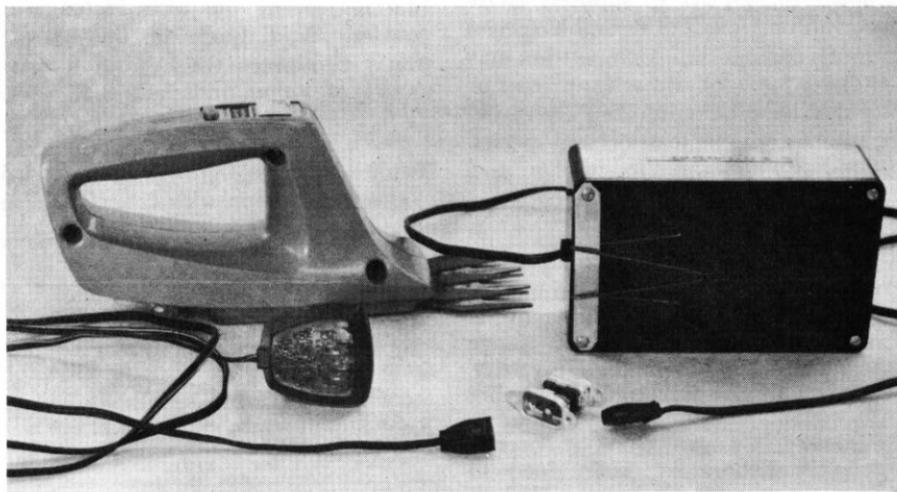


FIG. 1. Shears, charger, charging adapter, and battery pack.

<sup>1</sup> Published as paper number 3341, Journal Series, Nebr. Agric. Experiment Station.

container, with a wire clip to hold the container on a belt or pocket. A plastic box  $9 \times 15 \times 6$  cm was used in the assembly pictured in figure 1. The added battery pack is easily assembled and inexpensive.

The battery pack can be connected to the battery charger cord with an adapter made by soldering two male, polarized television power cord receptacles back-to-back, and plugging the charger cord into one side of the adapter and the battery pack into the other side. Battery polarity must be correct, the external batteries must be in par-

allel with the internal batteries. The recharging time for the battery pack will be longer than for the internal batteries.

#### Materials Needed

- 1—Diston, No. ECS 2 shears with battery charger (H. K. Porter Co., Inc., Danville, Va.)<sup>2</sup>
- 4—Nickel cadmium, 1.25 volt, 0.4 ampere hour battery cells.

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<sup>2</sup> Mention of firm names is for the convenience of the reader and does not imply an endorsement of the product.

1—Polarized TV power cord ("cheater cord").

2—Male polarized TV power cord receptacles.

1—Plastic box  $9 \times 15 \times 6$  cm, or other suitable container for holding battery cells.

When the shears are in operation the cord from the battery pack to the shears must be kept clear of the cutting blades. Threading the cord through the shirt neck opening down through the sleeve and out the cuff will hold the cord above the forage and away from the blades.