

TECHNICAL NOTES

E-Z-2-RITE—A CLIPBOARD HOLDER

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When recording field data an extra hand is frequently needed to hold or measure the material under observation. To make this possible the "E-Z-2-Rite" clipboard holder has been developed to free the hand formerly needed to hold the clipboard while writing notes.

The holder is composed of four main components. First is the central part or frame, a U-shaped piece of 18-gauge sheet metal to which are attached the other parts (Figs. 1 and 2). Two shoulder pieces of 20-gauge sheet metal are bolted or riveted to the back of the frame. The clipboard housing, made of 24-gauge sheet metal, is attached to the front of the frame by means of a modified 3-inch strap hinge. The housing is rolled in on three edges to fit snugly around the clipboard but not to prevent easy removal of the board. To the lower arm of the hinge is attached the housing support, an elliptical band of 18-gauge sheet metal (Fig. 2). By means of wing nuts the holder can be adjusted to accommodate both left- and right-handed people. The hinge allows the worker to raise the clipboard against his chest (Fig. 3) for observation immediately at his feet. For greater comfort the shoulder pieces can be wrapped with old inner tube or cased with plastic hose.

With this holder the clipboard is held quite stable at all times in a position to facilitate notetaking, whether one is kneeling, standing (Fig. 4), or walking. All mate-

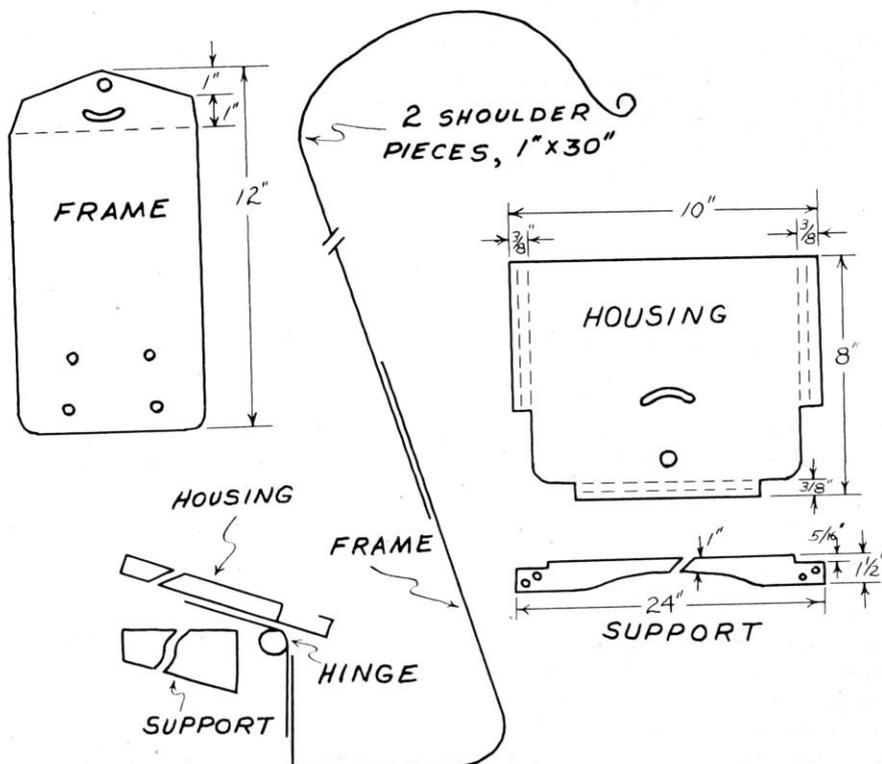


FIGURE 1. Diagrammatic side view showing relationship of parts; detailed specifications of frame, housing and support.

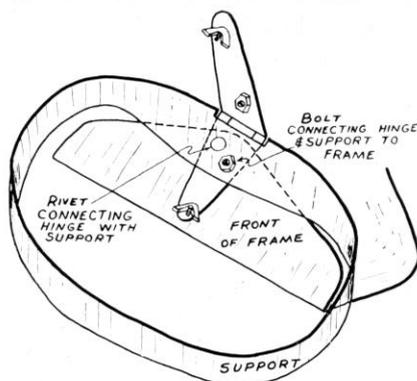


FIGURE 2. Perspective view showing method of construction.

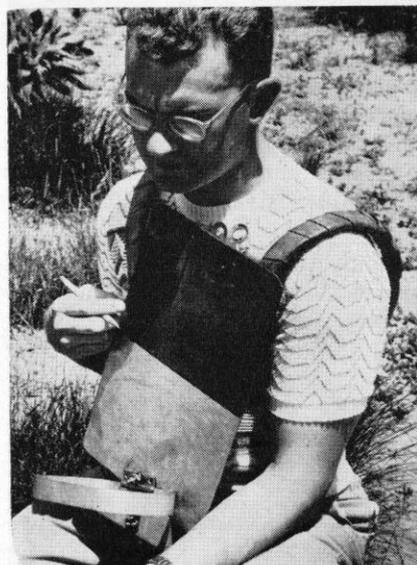


FIGURE 3. Clipboard in raised position for unobstructed view of ground. (W. Robert Powell)

rials were salvaged from shop scraps, except for the bolts and the hinge which were purchased for a nominal amount.



FIGURE 4. Using the holder while standing. (*Amram Kadish*)

EXTRACTING PLANT ROOT SAMPLES WITH THE KELLY CORE SAMPLER

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Over the years, plant researchers have sought a simple, easy means of extracting roots from the soil. Numerous mechanical innovations have been tested with various degrees of success. One of the machines which appears to have possibilities is the Kelly Core Sampler. This trailer-mounted, motor-driven core cutter was designed by Dr. Omar J. Kelly, for use in soil sampling where an undisturbed soil core was required.

The Kelly Core Sampler consists of a 4-inch tube which cuts into the soil when turned by an auxiliary motor, operating through a chain driven gear box (see photo).

Under ideal conditions it will penetrate to a maximum depth of 6 feet, and lift a core of essentially undisturbed soil from that

depth to the surface. However, there are certain limitations inherent in the machine. The soil must not be rocky or gravelly and must not contain large roots. The presence of hardpan inhibits penetration and withdrawal of the sampling tube. Soil moisture should vary only slightly from the optimum at which the machine operates smoothly. Soil which is too wet will compress due to pressure exerted on the metal core. Dry soil resists penetration and crumbles. Soil moisture content for best operation of the machine will depend upon soil type, texture and structure. Operation of the sampler in sandy soils is hazardous. Without care, sand may get into gears and other working parts causing expensive breakdowns and repairs. Despite these restrictions, the core sampler is effective under many conditions found in the field.

The author tested the efficiency of the core cutter for taking root samples in a grass-clipping experiment. In this study roots were sampled at various depths to determine root sugar content as influenced by several intensities and seasons of clipping. It was found that if roots are to be analyzed chemically, the 4-inch core does not provide an adequate sample, except possibly in the first few inches below the crown where the roots are concentrated. This objection can be overcome if enough sample plants are present. Several sub-samples can then be composited to obtain enough root material. However, in a clipping experiment, it may be impractical to include enough plants to provide the necessary sample size. If root samples are desired at greater



FIGURE 1. The Kelly Core Sampler in operation. The core is approximately two feet down in the soil. One man can operate it efficiently although two may be needed to handle the core after extraction.

depths where roots are less abundant, the number of samples necessary will be even larger.

A further investigation was made to determine the difference in depth of root penetration under different clipping treatments. The core cutter proved unsatisfactory for this use also. The soil under the experimental area contained gravel layers at various depths which prevented the cutting of satisfactory samples.

It was concluded that the Kelly Core Sampling machine at 4-inch core size is not of practical use for collecting root samples from grass clipping studies.