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Adjustment and Operation of Sweep Machines

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Adjustment and Operation of Sweep Machines



Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

Adjustment and Operation of Sweep Machines

Steps in Adjusting Sweep Machines

Place machine and tractor on level surface and in an operating position when preparing to make adjustments.

Examine the machine carefully for loose nuts, and sprung, worn or broken parts. Tighten, repair or replace the parts as necessary. (This step is a part of normal maintenance.)

Place the wheels of the sweep machine on blocks which have a thickness equal to the depth the machine will be working. (See Figures 1 and 3.)

Lower the sweeps to the ground, disconnect hitch at tractor drawbar and then raise or lower the drawbar of the sweep machine to see if all sweeps are resting flat on the level surface. If one or more

sweeps don't rest flat on the surface, make adjustments until they are level.

Adjustments vary with the make of the machine and should be made according to instructions in the operator's manual.

Adjust the hitch point on the end of the sweep machine's drawbar so this point will be above the tractor's drawbar, a distance equal to the depth of intended operation. (See detail "A" in Figure 1).

Set depth gauge on hydraulic lift so accurate depth will be maintained.

On multiple sweep machines, use a straight edge or level ground surface to see that all sweeps are level and in the same plane with one another. On most machines, the frame will be parallel to the ground. Figure 2 shows a rear view of a multiple sweep machine, with all sweeps and frame level.

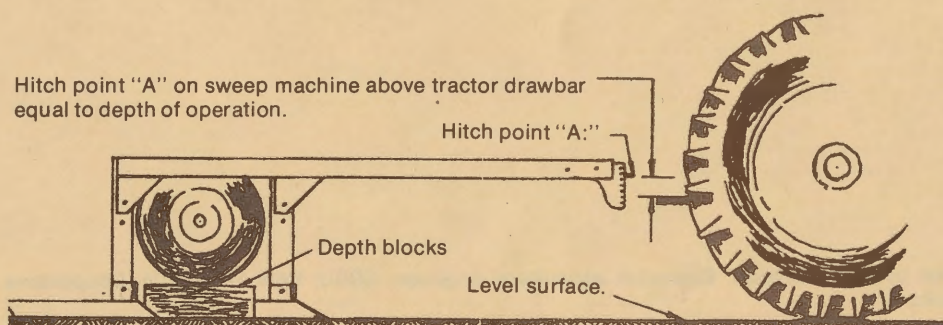


Fig. 1 Sweep machine in leveled position ready for hitching to tractor drawbar.

Points to Remember in Operation of Sweep Machines

Check the depth of operation after each adjustment of the machine. Stop machine and measure the depth of penetration with a shovel and ruler for each sweep, points and heels. Poor sweep adjustment results in heavy pulling and poor quality work. When a machine pulls sideways, the blade wings are out of adjustment or the depth adjustment is not even.

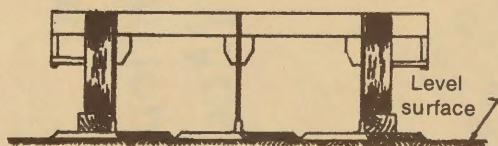


Fig. 2 Rear view of multiple sweep machine with all blades level.

Time of Cultivation

Cultivate on hot dry summer days. This is especially true when moisture conditions are favorable for weed growth. For best weed kill, the soil should be dry enough to crumble slightly.

Speed of Cultivation

Speeds of 4 to 6 miles per hour are recommended to help loosen the soil from roots of weeds.

Depth of Operation

Working in stubble requires a depth just deep enough to pass under the crown of the roots of the grain crop. A 3 to 4-inch depth is desirable from the standpoint of weed kill and draft. On rough fields not previously worked with sweep machines, several operations at greater depths may be required until the field becomes smoothed out. On fields with buried trash, it's necessary to run the sweeps deep enough to pass underneath the trash. Subsequent operations will work the trash closer to the surface.

Working in Surface Trash

When excessive amounts of weeds or trash are on the ground surface, it may be necessary to use large coulters, 18 inches or more in diameter, in front of each sweep. Coulters help to eliminate the standard marks and leave a neater job.

Use of Weights

Under extreme conditions, or when operating at shallow depths, weight on sweep machines may be necessary to obtain sufficient penetration and smooth operation. Never use more weight than is necessary to keep wheels riding firmly on the ground. Too much weight causes excessive draft and unnecessary wear on the blades and wheel bearings.

Pointers on Maintenance of Sweep Machines

Keep tires properly inflated. Equal pressure in both tires is essential for uniform depth and to prevent the machine from pulling to one side.

Keep sweeps sharp and all bolts tight. Hard surfacing of sweeps is generally recommended for the most economical service.

Keep sweep blades clean and apply a rust preventative following each use. Non-scouring blades increase draft.

Lubricate regularly as recommended in operator's manual.

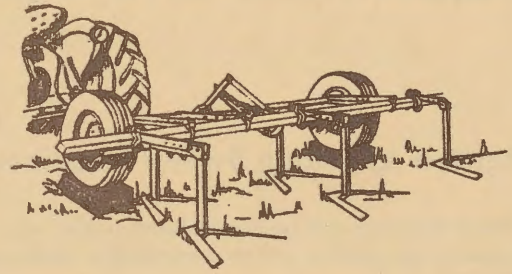
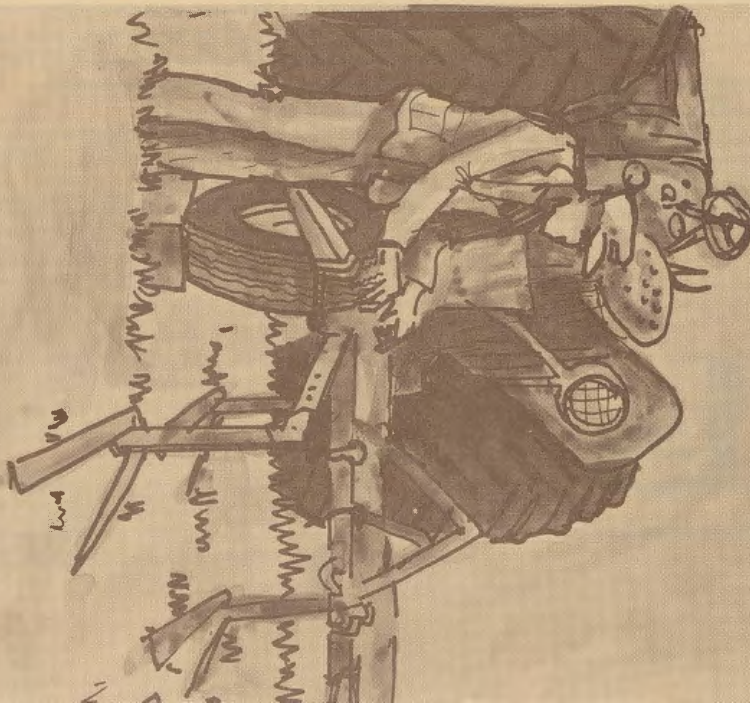


Fig. 3 Sweep machine in position for making adjustments.

Material was adapted by G. R. Durland, Extension agricultural engineer, SDSU, from EC 58-705, Cooperative Extension Service, University of Nebraska.

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