

MECHANICAL SEEDBED MULCH PICKUP WORKS WELL WITH JUNIPER

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Germination and emergence of juniper is unpredictable, because of dormancy variation in seedlots and erratic climatic conditions when stratified seed is ready for sowing. For this reason, some years ago Bessey Nursery departed from standard spring sowing of stratified juniper seed, and adopted the practice of late summer or early fall sowing.

Dry-stored seed can be used for summer sowing, but for fall sowing, seed collected and depulped soon after ripening and dried just enough to permit drill sowing is best. The beds are mulched with hay, straw, or pine needles to help maintain uniform moisture and temperatures at seed level. This method provides natural stratification and results in complete germination the following spring.

Germination of summer and fall sowing occurs simultaneously in early spring. Mulch removal cannot be delayed and presents a considerable labor problem when 6 or 7 miles of beds must be uncovered in a short period. Thus, the feasibility of a mechanical mulch pickup was explored.

Some grain combines have the windrow pickup attachment. But combines are bulky and not easily adapted to maneuvering over closely-spaced nursery beds. Since the pickup attachment—a wire-tined reel—was the only part of the combine we needed, it appeared easier to build our own machine than to try to modify one to fit our needs.

Considering the narrow turn rows in our nursery blocks and the close spacing and width of beds and paths, we decided that the machine should not be much over ten feet long. Actual length 11 ft., 10 in. (fig. 1). A used chain-driven picky: reel was obtained from a junked Case combine. With the reel as a sort of nucleus, I sketched a machine which our small tractors could handle,

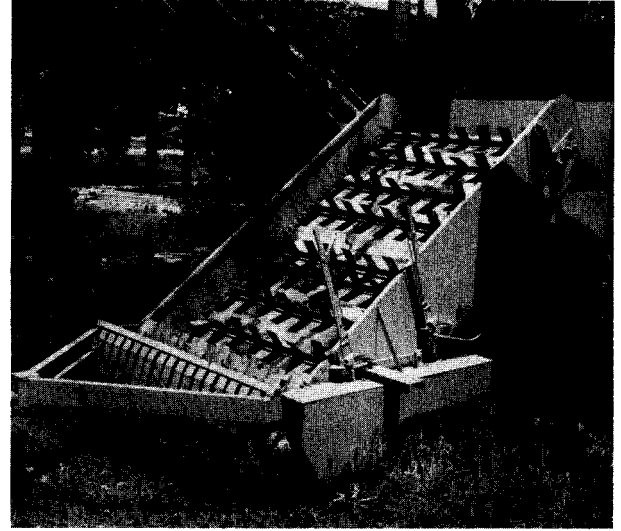


Figure 1.—Mechanical seedbed mulch pickup device, locally built for Bessey Nursery. It includes pickup reel, front elevator, and side elevator used to load hayrack being towed alongside by a second tractor. Reel and elevators are powered by 7 hp gas engine.

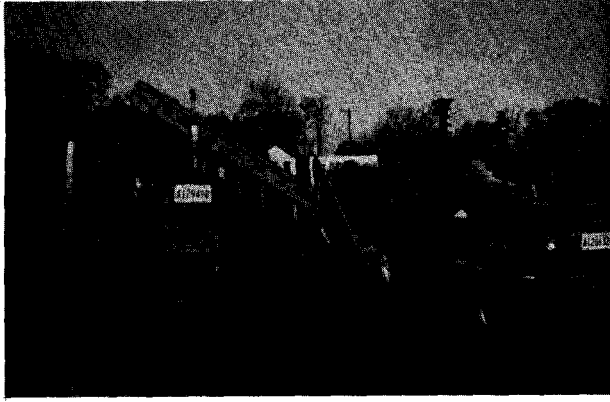


Figure 2.—Mulch pickup in action, pulled by tractor at right. Tractor at left is pulling hayrack, which is loaded from side elevator from pickup. Mulch from paths is first rolled onto beds. Instant depth control by hydraulic enables operator to pick up all but the fine mulch, which is left on the beds.

and which would operate in confined areas.

Drawings and specifications were taken to a machine shop in Fremont, Neb. Some of the specifications were:

1. Two wheels, rubber tires.
2. Drawbar hitch, with hydraulic depth control of the pickup reel managed by tractor operator.

3. A pickup reel operating in *reverse direction* gathering the material from *undemeath*, in stead of the *overhand* fashion normal for combine operation.
4. Elevator taking the mulch from the pickup to be of same width as the pickup (4 ft., 4 in. was agreed on).
5. Side elevator of the right length to convey the mulch into a hayrack being pulled along side by separate tractor. A Kewanee 500 conveyor, 16 ft. long and 20 in. wide was used. (Since two vehicles cannot operate in adjacent beds, the hayrack travels over a third bed. See Fig. 2.)

In addition, the shop was furnished with the pickup reel and a 7 hp air-cooled, Wisconsin gas engine to supply power for the chain-driven reel and elevators.

The machine was delivered a week before mulch removal was scheduled. With a few minor adjustments it worked as we had expected. A light-mulch is left on the bed by raising the pickup reel just enough to avoid striking emerging seedlings. The light mulch covering on the paths (applied in fall to prevent wind from uncovering outside drill rows) is rolled onto the beds before pickup. The machine operates best when the wind is not blowing.

Industrial Firms Plant Most

Forest industry firms planted more than 40 percent of all the lands that were reforested (during fiscal year 1967, according to the annual report of forest and windbarrier planting

and seeding in the United States, issued by the Forest Service. They planted a total of 526,902 acres.