

Mr. Wells: I would like to add that there are many important safety factors in turnout and roadside park development. For example, the selection of a site, a safe place for vehicles to stop, avoid inside of curves and places where sight distance is short. Barrier strips are needed between the traveler and standing or moving traffic.

Sites should be selected where all parts of the area are visible from the traveled way. Deceleration and acceleration lanes should be provided at park entrances. We install a 300-foot length of stabilized shoulder particularly on the approach side.

G. B. Gordon: In my brief outline I failed to bring out the point that safety factors and considerations will be covered in our preliminary subcommittee report.

Mr. Slack: We have found in Louisiana that, as Mr. Mendel says, it does not pay to develop wayside parks near a town. After a town spreads out we have no roadside left.

H. J. Spelman: The first thing needed (in all roadside development) is stability of your right-of-way. A permanent highway location is the first requirement. A fairly permanent (roadside park) location is also necessary.

REPORT OF PROJECT COMMITTEE ON ROADSIDE EQUIPMENT

W. J. Garmhausen, Chairman
Chief Landscape Architect
Ohio Department of Highways

The following compiled data and photographs will serve to explain the mechanism and use of new roadside equipment. Your questions and suggestions for the use and promotion of mechanized equipment in roadside development and maintenance will be helpful and welcome. Please contact any of the members of this committee, so that we may benefit and also pass on to others, information concerning roadside equipment and maintenance.

1. Power Sod Cutter (Picture 1-2)

It is powered by a 5.8 h.p. twin motor built by D. W. Onan, Minneapolis, Minnesota. The transmission, consisting of ballbearing and a spur gear, is completely sealed in gear oil. It has an enclosed ballbearing eccentric drive which oscillates. The cutting blade is driven by two V-belts. Special knee action enables the machine to follow the contour of the ground, cutting even sod in rough ground. The machine is guided by a man walking behind it. He operates levers which control the progress of the machine and the cutting blade. The cutting blade is adjustable to any depth while the machine is in operation. The machine weighs approximately 300 pounds. Its use is as a sod cutter and its cutting capacity is up to 1,000 yards per hour.

2. Weeder (Pictures 3-4-5)

The weeder is much like a springtooth harrow. However, it is considerably wider and is in three sections. The tines are longer and are straight.

It is attached to the power take-off of a tractor so that it can be lowered or raised as the occasion demands. When in transit the two outer sections can be folded back, making it more compact. It can be used to eliminate small weeds from a seed bed. If the texture of the soil allows, it can be used to loosen a seed bed prior to seeding. Seed can be covered by this equipment. It works well where various grades are encountered as it is flexible enough to adapt itself to these changes in grade.

3. Pulvi-mixer (Picture 6)

This machine is attached to the power take-off of a tractor. It is approximately three feet wide and will pulverize the soil, working it into a good seed bed. The rotary tines turn inside a metal hood. A lever controls the depth the tines are to cut.

The hydraulic lift on the tractor controls the lowering and raising of the machine. The lower edge of the sloping hood of the steel box smooths and levels the soil as the machine moves forward. The machine can also be used in "tying" down the straw mulch. This is accomplished by passing over the mulch which incorporate the soil with the mulch keeping it in place.

4. Western Landroller Packer (Picture 7)

This equipment can be towed behind a truck or tractor. It is attached by means of a draw bar. The width of the center section is 7.2 feet and contains 22 wheels and 21 sprocket wheels.

It has two extension packers which are attached at the back corners of the center frame section. The trailer extension overlaps the long cultipacker section approximately four or five inches, making the overall dimension approximately 13 feet from the outside wheel to outside wheel.

The extension packer is 3.6 feet and contains 11 wheels and 10 sprocket wheels. The frame is four feet long. The individual wheels are approximately three inches wide and 14 inches in diameter. This equipment can be used to culti-pack seeding work.

5. Seed and Fertilizer Drill. (Picture 8-9-10-11)

This machine is a 12 disk drill with 7-inch spacings and is used for seeding roadsides. It has four compartments: one for fertilizer, another for large type seed such as hairy vetch, a third for alfalfa seed, and a fourth one for small seeds. This grass seeder box attachment has an agitator which is chain and gear driven.

This size machine works very well for seeding and fertilizing backslope areas and uneven ground.

6. Seed Drill (Picture 12)

The seeder is attached to the tractor. The seeder consists of one compartment. It is 14 feet wide and holds approximately 100 pounds of seed. The holes are spaced 4 inches apart. Agitation is caused by a $\frac{1}{4}$ -inch rope run through the length of the bottom of the seeder. The rope is attached to the power take-off on the tractor thus causing a rapid back and forth movement.

The seeder can be used alone or in conjunction with other equipment.

7. Lime and Fertilizer Spreader (Picture 13-14-15)

It is used to apply fertilizer or lime to roadside areas. The equipment has one compartment which is divided into two sections. The rate of application is governed by the size of the openings. This is easily regulated by a lever. The spreader has an agitator.

The spreader can be towed by a tractor or truck. This machine can be used on berms and moderate slopes. One half of the spreader can be used for a narrow area or the entire width can be used where needed. A clutch on each side also permits either side of the spreader to be used independently. It does not operate too well on extremely windy days, because of drift.

8. Straw blower (Pictures 16-17)

It is used to mulch newly-seeded areas and is towed behind a truck. A gasoline motor drives the large fan and turns the cylinders. Part of a bale of straw is placed on the inclined chute. It then comes in contact with two cylinders running in opposite directions. One cylinder is near the bottom and the other near the top of the bale. Steel fingers attached to the cylinders tear loose the straw from the bale and pull it between the two cylinders, dropping it into the hopper. The large fan blows the straw into a pipe which directs the straw to the area that is to be mulched.

The man who operates the pipe works from a platform above the motor. The degree of angle of the pipe controls the distance the straw is blown. The pipe operates in a semicircular manner and as one area is sufficiently mulched the pipe is moved by the operator to the adjoining area until all of the area is covered.

The machine will mulch slopes as well as flat areas.

9. Pulverizer and Seeder (Picture 18)

The seeder has two compartments. It has 12 fluted units with special seed spreading tubes. It is equipped with seed meter gauges for selecting seeding rate.

The pulverizer is 8 ft. 3 in. wide. The wheels are two inches o.c. instead of the ordinary four inches. The front wheels crush the lumps leaving

narrow, shallow grooves. The seed drops between the front and rear rollers. The rear roller lightly covers the seeds and firms the soil around the seed.

The machine is equipped with dust-sealed roller bearings. The ball and socket joint construction permits floating action and keeps axle in straight alignment. Wheels are separate and turn individually on a pipe axle.

10. Mulching Tiller (Picture 19-20-21-22)

The tiller can be pulled with a team or tractor. It has nine discs which are 18 inches in diameter and are spaced 8 inches apart. There are 14 points on each disc spaced at 5 inch centers.

There are two weight boxes which will hold five cu. ft. of sand to provide additional weight when needed. The machine weighs approximately 1,000 pounds.

This machine can be used for firming straw. It gives better performance than an ordinary disc. There are, however, steep slope areas on which it does not work very satisfactorily.

11. Seed and Fertilizer Sprayer (Picture 23)

This equipment is a 1,000 gallon tank mounted on a Dodge three-ton truck. 750 gallons of water is pumped into the tank and 1,000 pounds of 10-6-4 fertilizer and 80 pounds of grass seed added. This is kept in constant suspension by a mechanical agitator powered by a take-off on the truck transmission. The solution may be by-passed through the pump and returned to the tank through holes in a pipe along the bottom of the tank for additional mixing.

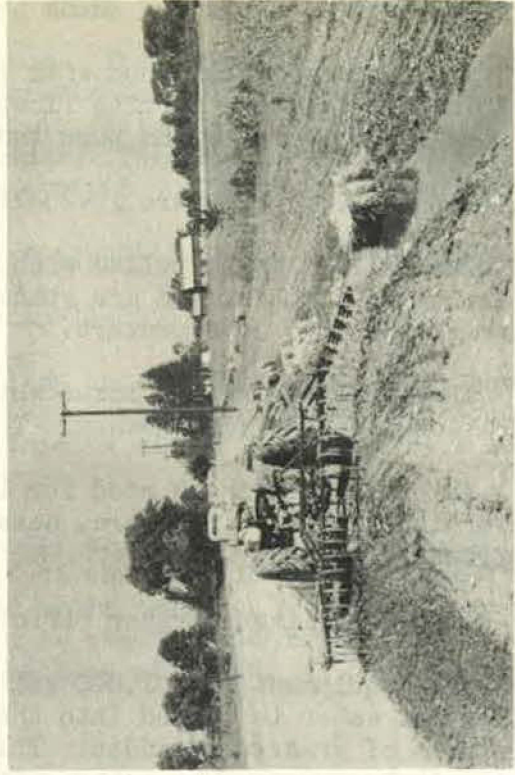
A three inch centrifugal pump is used and a pressure of 60 to 80 pounds is used. The hose is one inch and the length needed depends upon the area to be sprayed. A tank solution is used to cover slightly more than an acre.

12. Brush Mower (Pictures 24-25)

The machine has a hydraulically controlled lift and cutting unit powered by an International Motor. This entire unit of motor cutting bar and supporting arms and hydraulic pump is mounted on a turn table which permits great flexibility in cutting positions to as far as 17 feet from the machine in a horizontal position or some 12 ft. - 13 ft. overhead. A heavy duty sickle bar with large serrated sections permits cuts of $2\frac{1}{2}$ inches wood or the sawing of softwoods up to four inches in diameter. Normal working speed varies with density, hardness and size of wood; however, from two to six roadside miles per day may be expected in heavy alder and willow growth.



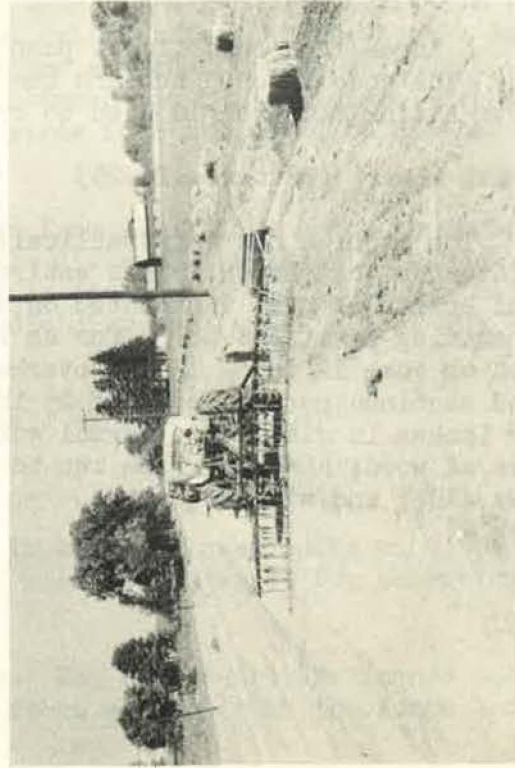
Picture No. 2 - Sod Cutter



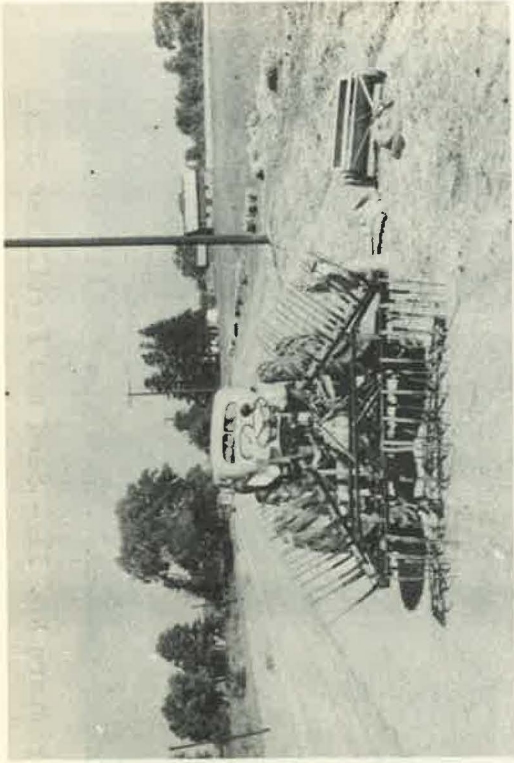
Picture No. 4 - Weeder



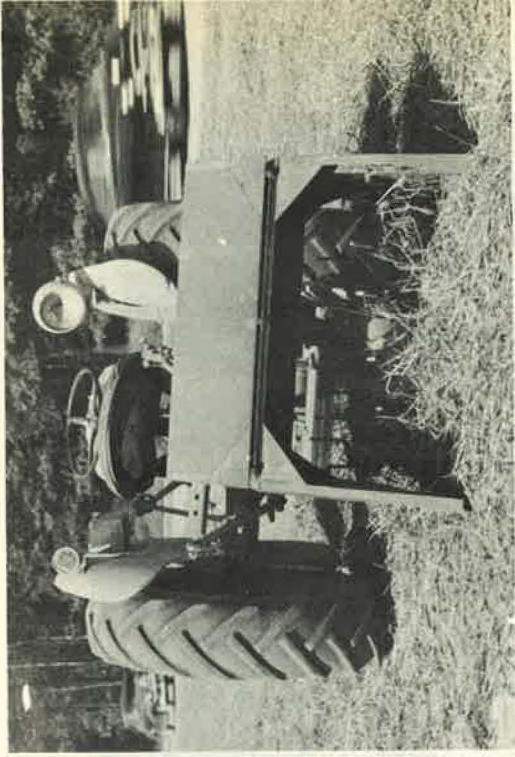
Picture No. 1 - Sod Cutter



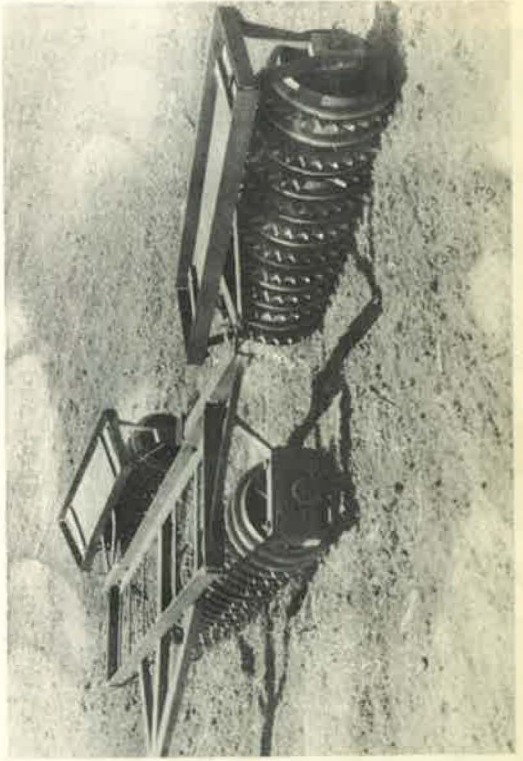
Picture No. 3 - Weeder



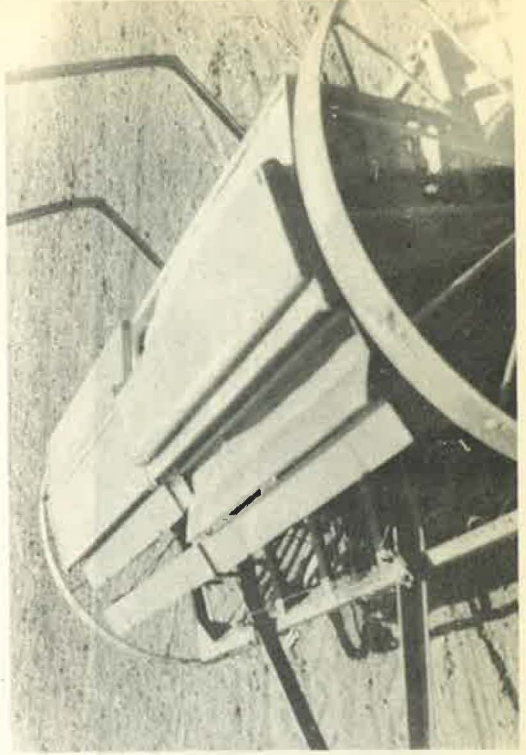
Picture No. 5 - Weeder



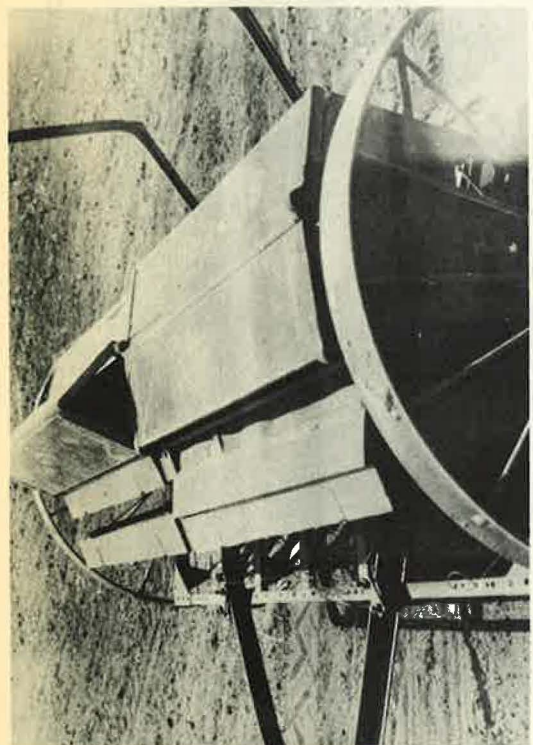
Picture No. 6 - Pulvi-mixer



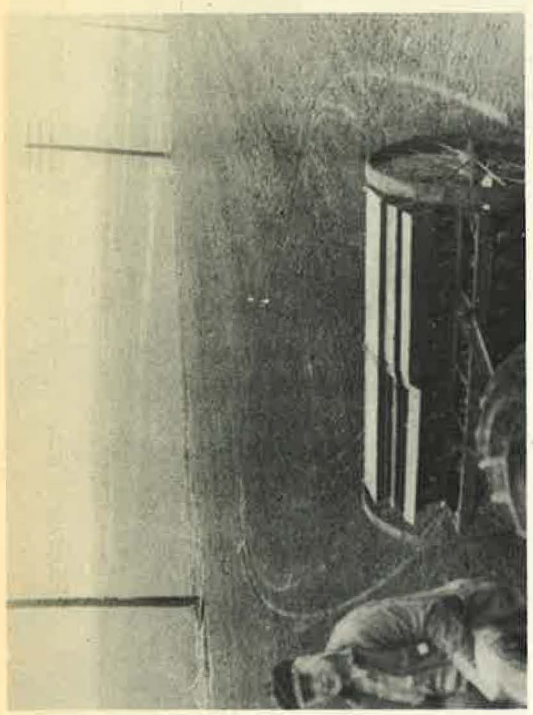
Picture No. 7 - Western Landroller Packer



Picture No. 8 - Seed and Fertilizer Drill



Picture No. 9 - Seed and Fertilizer Drill



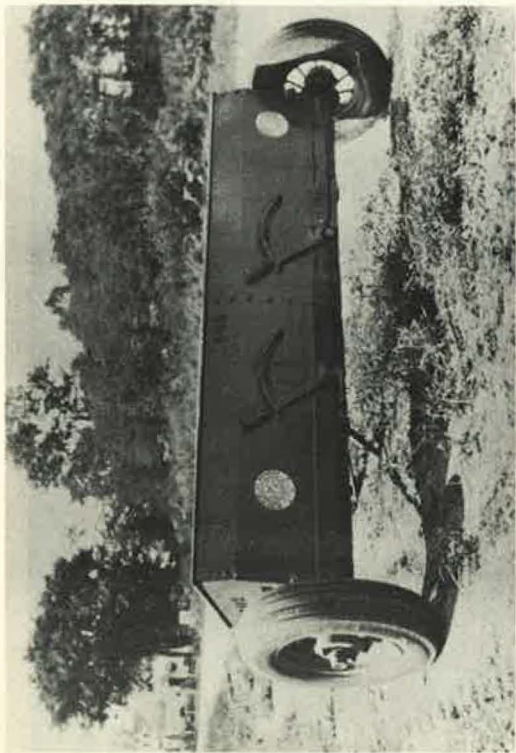
Picture 10 - Seed and Fertilizer Drill



Picture No. 11 - Seed and Fertilizer Drill



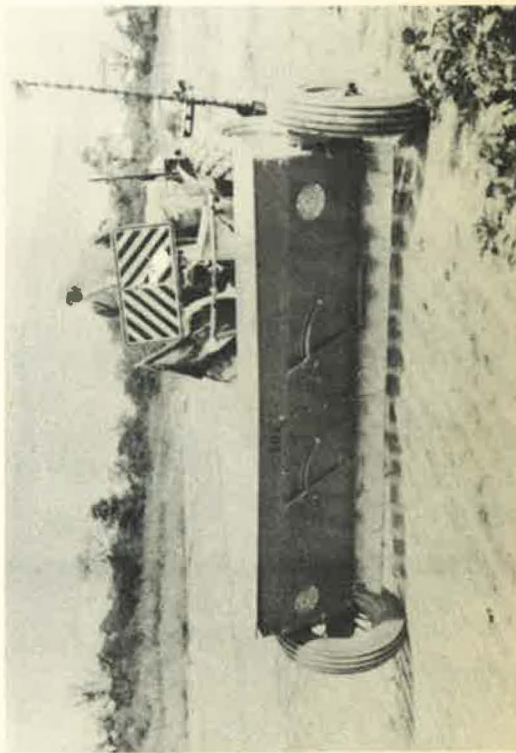
Picture No. 12 - Seed Drill



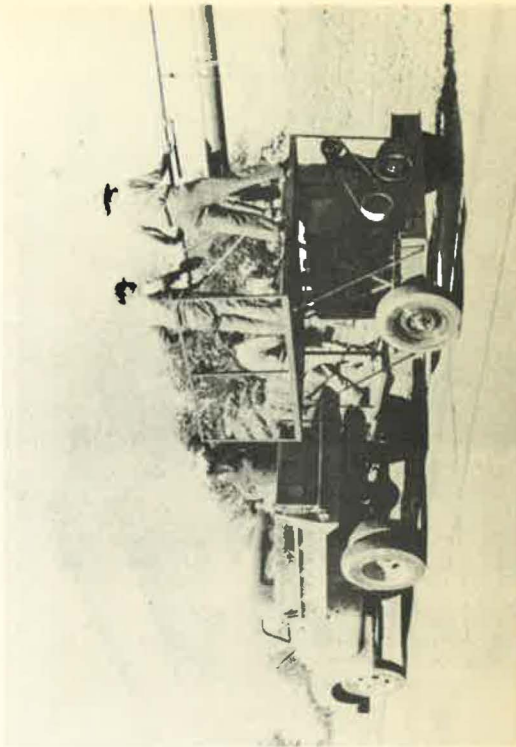
Picture No. 13 - Lime and Fertilizer Spreader



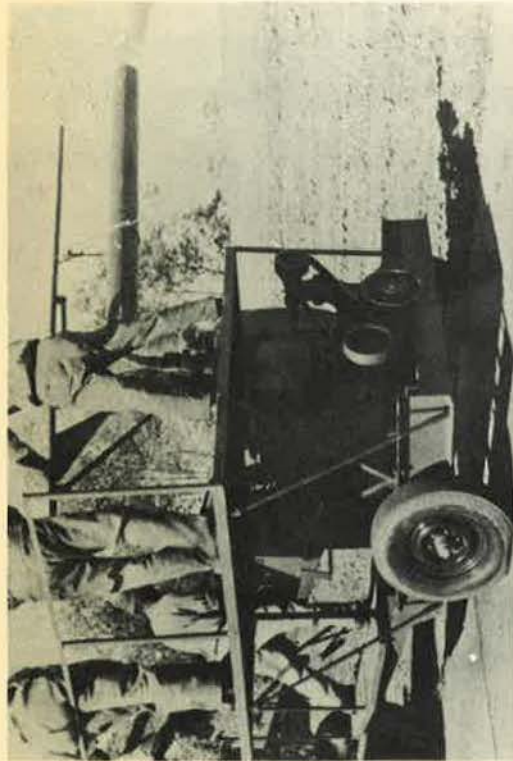
Picture No. 14 - Lime and Fertilizer Spreader



Picture No. 15 - Lime and Fertilizer Spreader



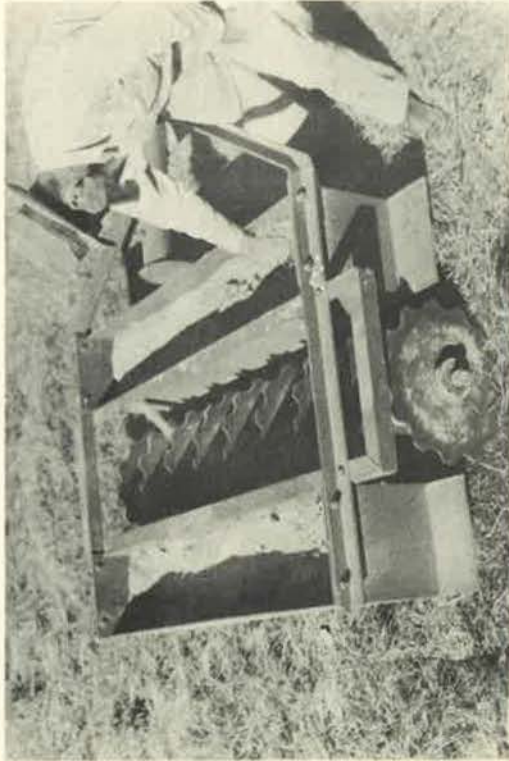
Picture No. 16 - Straw Blower



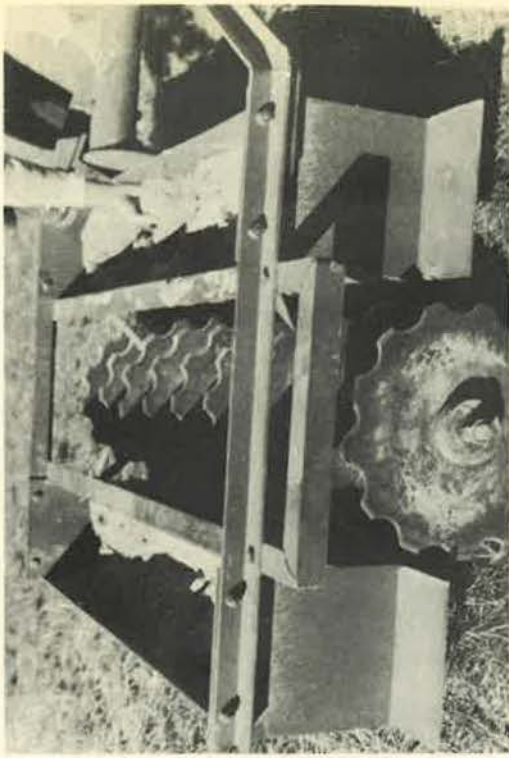
Picture No. 17 - Straw Blower



Picture No. 18 - Pulverizer and Seeder



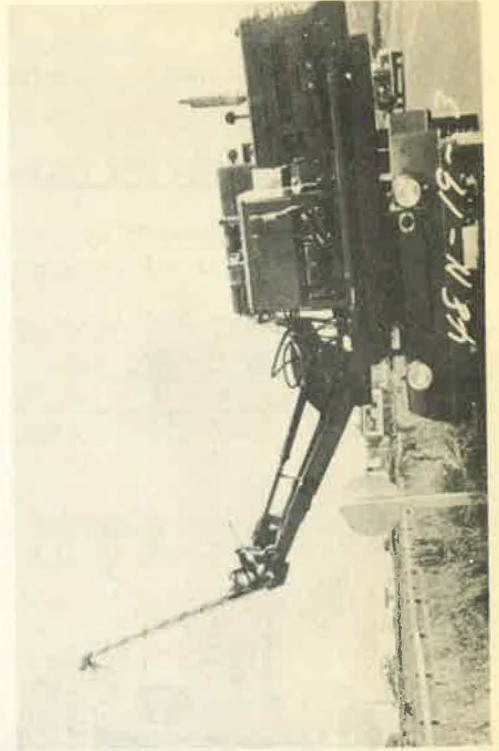
Picture No. 19 - Mulching Tiller



Picture No. 20 - Mulching Tiller



Picture No. 22 - Mulching Tiller



Picture No. 24 - Brush Mower



Picture No. 21 - Mulching Tiller



Picture No. 23 - Seed and Fertilizer Sprayer



Picture No. 25 - Brush Mower