

Pocket Gopher Control

with MECHANICAL BURROW BUILDER MACHINE

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**POCKET GOPHERS
IN NORTH DAKOTA**

Pocket gophers are seldom seen, since almost their entire time is spent underground. One pocket gopher to a runway is the rule, except in breeding season, or when young are being cared for.

The food of gophers consists mostly of roots of various plants, such as dandelion, alfalfa, grasses and trees. They regularly eat most tubers, and such green tops and available seeds as can be pulled down into the tunnels through root holes.

Dirt from runways is pushed to the surface to form characteristic circular mounds 8 to 18 or more inches in diameter. Mounds are at the ends of short lateral tunnels branched off the main runway. The surface opening through which dirt is pushed from the tunnel is finally plugged by pushing dirt into it, leaving a small horseshoe-like depression on one side of the mound.

Pocket gophers dig extensive tunnels or runways, up to 800 feet long and covering as much as an acre of ground. Burrows vary with the species from 2 to 4 or 5 inches in diameter. The runways serve as homes, storehouses and routes for underground hunting of food. The foraging tunnels may be from 4 to 8 inches below the surface. Food supplies and nests frequently are several feet deep.

Control

Pocket gophers can be controlled by several methods. Previous to the mechanical burrow builder, trapping and placement of poison bait into tunnels were the methods used.

Previous pocket gopher control techniques required hard manual labor. The operator had to probe for underground runways and place bait, all by hand. The burrow builder offers a mechanized method by which the operator constructs and baits an artificial gopher runway in one operation. This method allows the gopher to find the bait material.

Burrow Builder

Since the first mechanical burrow builder (a 3-point hitch machine), the principle now has been adapted to a 3-point hitch, 2-point hitch and 2-wheel plow-type machine. Available with this circular are plans for the 3-point hitch and 2-wheel plow-type machines. Most of the machines can be built from used machinery at low cost.

The machine consists of a corn-planter type feed mechanism with two rubber-tired wheelbarrow wheels as packer and power for feeding mechanism, coulter wheel and steel used to make frame, subsoiler, and torpedo. Readymade parts for a 3-point hitch may be purchased. The parts are similar to a Ford 32 inch by 4 inch by 4 inch model 108-1 tool carrier bar with one 24-inch subsoiler, subsoiler shank less chisel and boot, one corn planter can with standard bottom, one large whole center drop plate, equipped with one press wheel drive assembly less press wheel; and two wheel assemblies, including axles, spacers, cup, and two 4 inch by 8 inch tires and tubes.

The burrow builder can be used for control of gophers in any area where soil conditions and the physical condition of the land make it possible to drive over the area with a tractor and construct a good artificial burrow.

The condition of the soil has to be such that a good burrow can be made. This usually requires enough moisture in the soil to make it form into a pack when squeezed in the hand. In North Dakota, this condition usually can be found in the spring or fall of the year.

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Technical drawing of a roof detail, labeled "DETAIL 'A'". The drawing shows a cross-section of a roof assembly. A 1" steel plate is shown on the left, and a 1/2" steel plate is shown on the right. A 1/4" space is indicated between the two plates. The drawing is a perspective view, showing the plates meeting at a joint. The 1" steel plate is shown with a 1/4" space between it and the 1/2" steel plate. The 1/2" steel plate is shown with a 1/4" space between it and the 1" steel plate. The drawing is a perspective view, showing the plates meeting at a joint. The 1" steel plate is shown with a 1/4" space between it and the 1/2" steel plate. The 1/2" steel plate is shown with a 1/4" space between it and the 1" steel plate.

This technical drawing shows a detailed cross-sectional view of a mechanical assembly. The central component is a horizontal shaft supported by two bearings. To the left of the first bearing, there is a gear or pulley mounted on the shaft. A dimension line indicates a distance of 20 units from the center of the shaft to the outer edge of this component. Various other dimensions are shown throughout the drawing, such as 4, 1.1, 1.7, 2.1, 1.9, 1.6, 1.8, 1.5, 1.4, 1.3, 1.2, 1.1, 1.0, 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, 0.1, and 0.0. The drawing uses standard engineering conventions, including section lines to indicate different materials and dashed lines to show hidden internal features.

Standard linkage for 3-point tractor hookup, lengthened to 30" at midpoint adjustment

Planter Box assembly

5 tooth sprocket

Flexible seed tube

9 tooth sprocket

1/16" drill for lock pin

1" steel plate

5/8" anchor bolt hole

1/2" steel plate

20"

4"

2"

1/4"

1/2"

1/4"

1/8"

1/16"

1/8"

1/4"

1/2"

1"

2"

4"

6"

8"

10"

12"

14"

16"

18"

20"

22"

24"

26"

28"

30"

32"

34"

36"

38"

40"

42"

44"

46"

48"

50"

52"

54"

56"

58"

60"

62"

64"

66"

68"

70"

72"

74"

76"

78"

80"

82"

84"

86"

88"

90"

92"

94"

96"

98"

100"

see detail "A"

see detail A¹⁰

SIDE VIEW

COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH DAKOTA
NORTH DAKOTA STATE UNIVERSITY
OF AGRICULTURE AND APPLIED SCIENCE AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

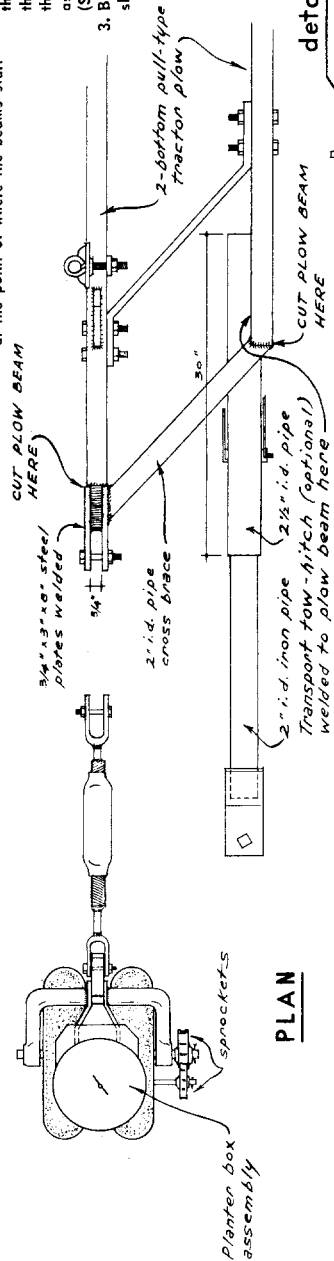
Gopher Burrow Builder

SHEET 1

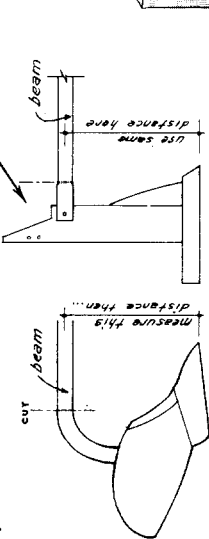
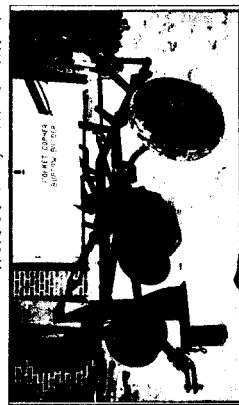
CREDIT... U.S. Fish & Wildlife Service
and Texas A & M College System

CONSTRUCTION

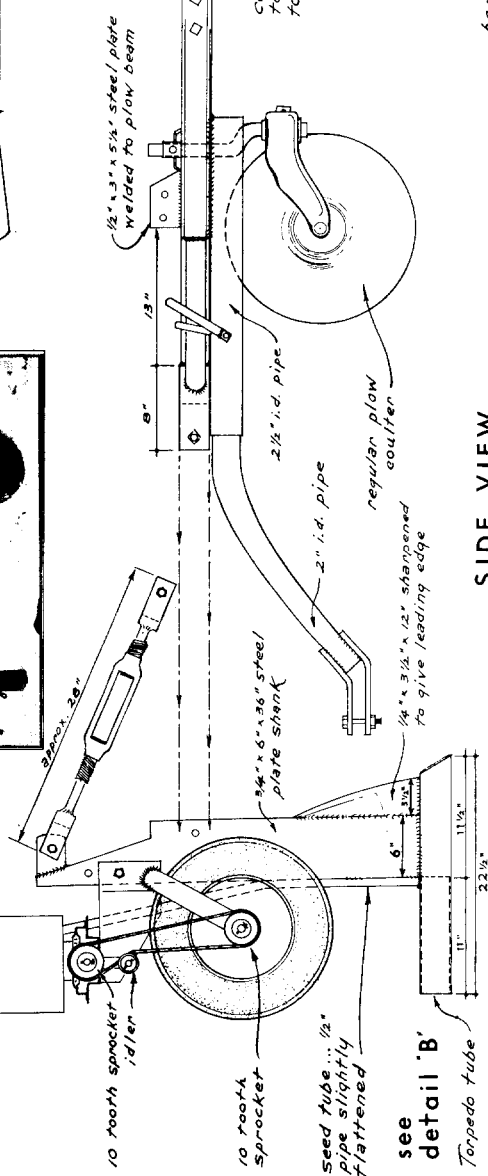
1. Any two bottom, either 14" or 16", pull type plow can be used to build this pull type pocket gopher burrow builder. Note both beams are cut off at the point of where the beams start



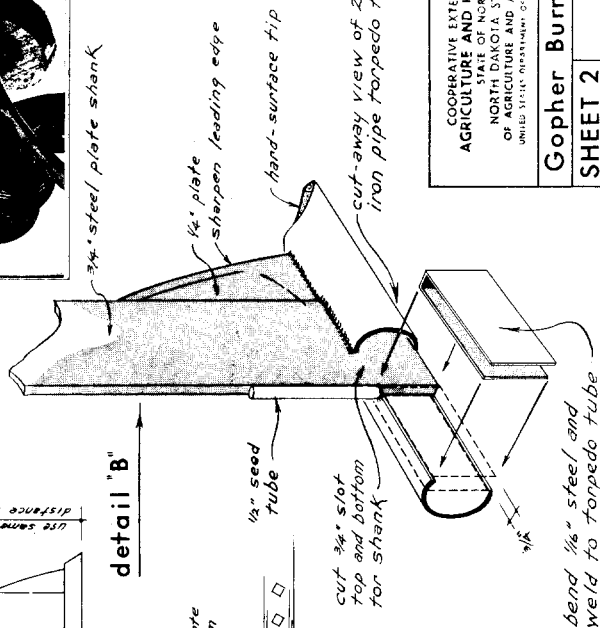
PLAN



detail "B"



SIDE VIEW



2. The plow needs very little further alteration except mounting the burrow building unit.
3. Before cutting off the plow beam measure from the plow share point to the center of the beam. Drill the shank on the burrow builder so that the point of the torpedo on the burrow builder is the same distance from the plow beam as the share point was originally. (See detail C).
4. Before welding the torpedo to the shank run several beads of hard surface.

detail "C"

5. Depth adjustment is made by moving up or down on the shank where a series of holes are provided on the back side of the shank. Use a telescoping connection on the seeder tube connection.

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Gopher Burrow Builder

SHEET 2

CREDIT... U.S. Fish & Wildlife Service

The effectiveness of the burrow builder depends upon the gophers finding the artificially-constructed runway and using it long enough to find the poisoned bait. To make this possible, the artificial burrows should be constructed at a depth and spaced so as to cut through the greatest number of natural gopher tunnels. This will vary with soil conditions

Pocket Gopher Bait

The bait used with good success is strychnine-treated barley. This bait is available through the county or township for an organized control program. County agents have information on cost, etc.

Applying Bait

Bait is applied to the infested area. Artificial burrows usually are made at 20-foot intervals. For example, in case of an infested field, apply bait on a grid system, running the machine at approximate 20-foot intervals up and down the field. Application rate of bait should vary from 1/2 pound to 1,000 feet of artificial burrow (or 1 pound per acre) to approximately 1 pound per 1,000 feet of burrow (or 2 pounds per acre). The rate of bait application should depend on the population of pocket gophers.

Manufacturers of Burrow Builders

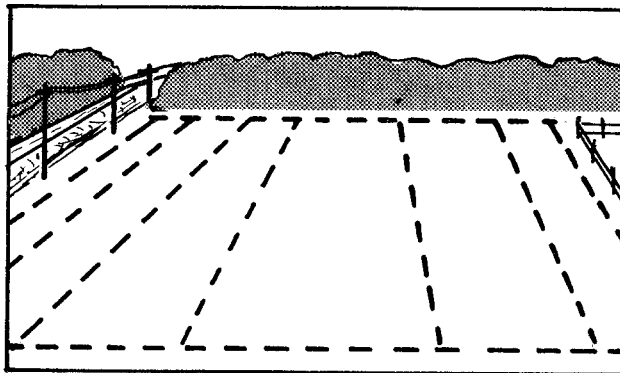
| | |
|------------------------------|-------------------------|
| Rue R. Elston Company, Inc. | Everett B. Johnson |
| 815 East 79th Street | Hancock Road |
| Minneapolis, Minnesota 55420 | Santa Maria, California |

| | |
|-------------------------------|-------------------------|
| Blackwelder Manufacturing Co. | Star Prairie Welding |
| Rio Vista, California | Star Prairie, Wisconsin |

Schneidmiller Industries
334 East Mountain
Fort Collins, Colorado

The manufactured machines and the machines built from these plans have been tested and will work, providing soil and moisture conditions are right. Adjustments for draft are made on the burrow builder through the use of levers and turnbuckles much the same as for plows, cultivators and other implements.

Additional information on pocket gopher control with the mechanical burrow builder machine may be secured from your County Extension Agent or the Extension Service, NDSU, Fargo, North Dakota.



Alfalfa field poisoned with the "Burrow-Builder." Broken lines indicate where the artificial burrows were made.

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