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# Types of furrow opener

**The basic requirements of a furrow opener in a seed drill are:**

**Uniformly open a furrow of stipulated depth.**

**Minimize mixing of soil layers to prevent loss of moisture.**

**Compact the furrow bottom.**

**Minimize disturbance to seed flow.**

**Leave an adequate soil layer between seeds & fertilizer.**



# DIFFERENT TYPES OF FURROW OPENERS

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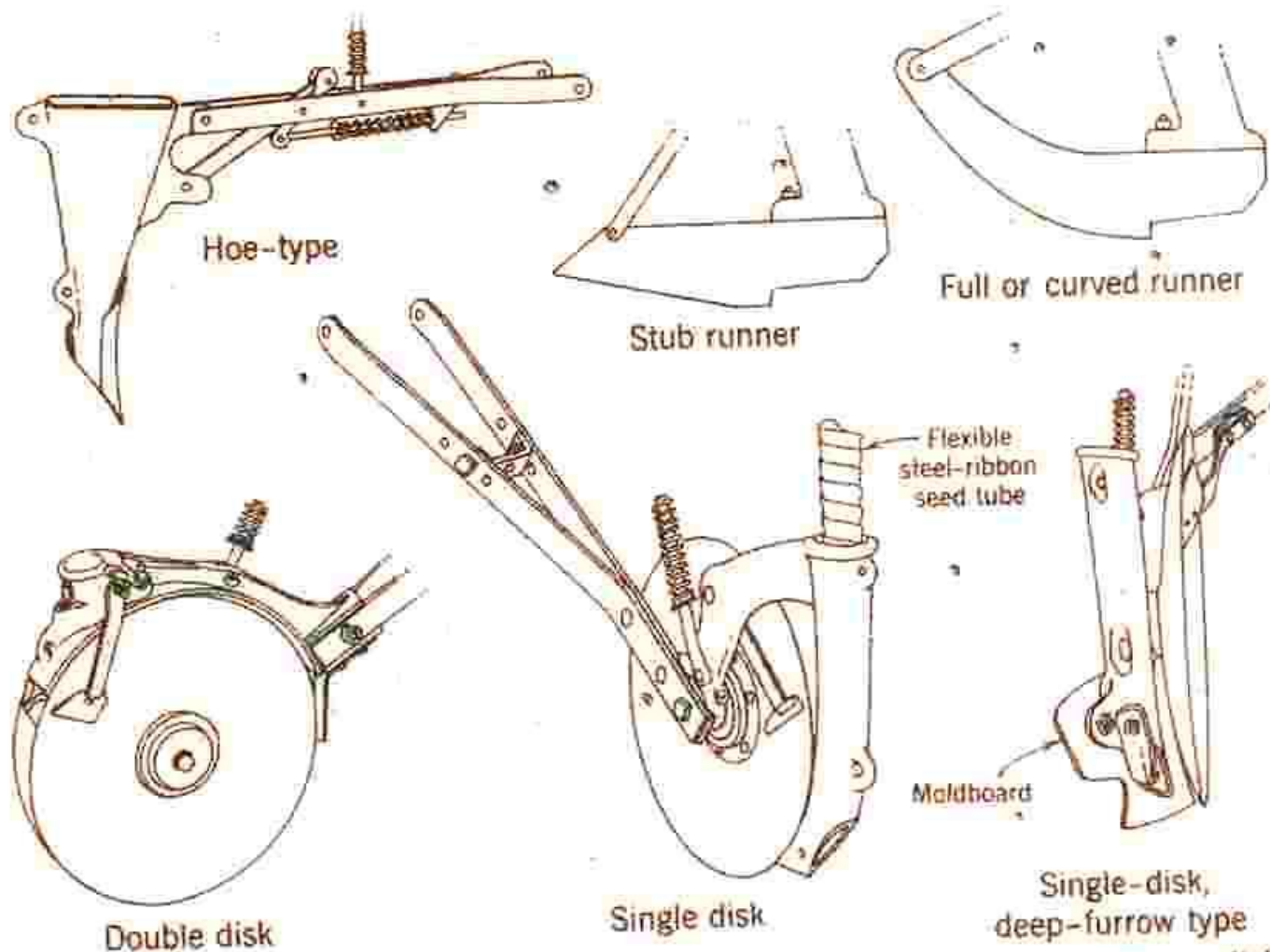


Fig. 10.13. Some of the common types of furrow openers. The single-disk openers are slightly curved, while the double disks are flat and contact each other at the lower front.



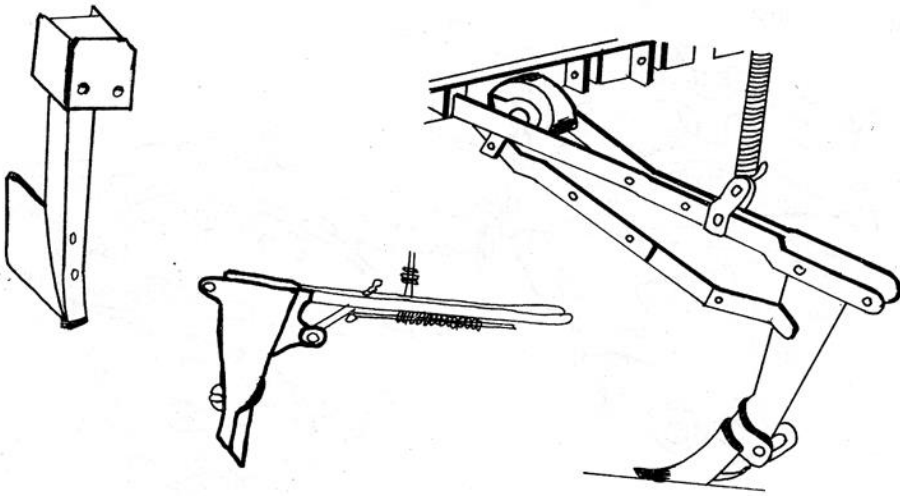
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# HOE TYPE FURROW OPENER

**A narrow reversible pointed shovel mounted on the front of delivery boot.**

**The soil falling in from the sides behind the delivery boot covers the seeds.**

**Used for deep placement of seeds in a well-prepared seedbed where soil is relatively free from trash.**



**Hoe type furrow openers with spring tip shanks are used in stone or root infested soils**



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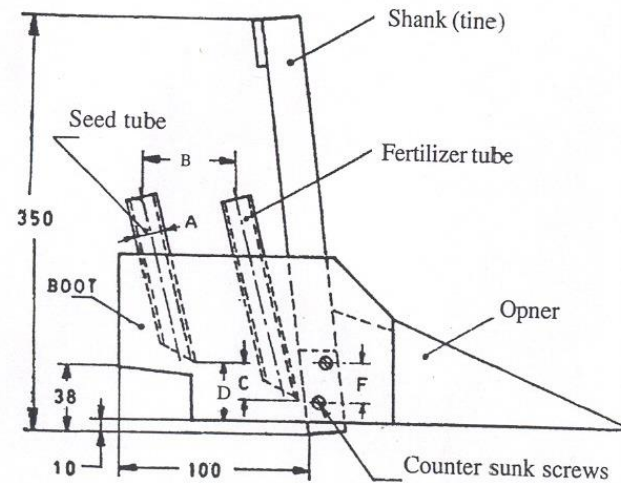


Fig. 6.20. Shoe type furrow opener

All dimensions in mm

236

**Shoe type openers work well in poorly prepared seedbed or in trashy condition. They are made of two curved runners with their cutting edges on the ground and meeting at the front. At the rear, they are connected to a common boot through which the seeds drop in the furrow.**



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**Single disc furrow opener:** Used in soils having plant debris and trash mulch. The disc is set at a tilt angle of  $5^{\circ}$  to form a small ridge. The seeds are dropped in the delivery boot placed on the concave side of the center of the disc. A scrapper is provided on concave side to reduce soil throw at higher speed and prevent soil build up.

**Double disc Furrow opener:** It has two flat discs positioned together at the front and opened at the rear. The included angle between discs are kept at about  $10^{\circ}$ . Seeds are placed through the delivery tube placed between two discs.



# Covering Devices

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## FUNCTION

- Place moist soil around the seed
- Cover the seeds to proper depth
- Leave the soil directly above the row loose enough to minimize crusting
- Promote easy emergence

**Drag chain: suitable in loose moist soil for grain drill**

**Drag bars**

**Steel press wheels: Loose sandy soil or furrow drilling in heavy trashy condition**

**Zero pressure pneumatic press wheels: Vegetables**

**Wooden planker**



# COVERING DEVICES



Fig. 10.14. Various types of presswheels used on row-crop planters. (Courtesy of Allis-Chalmers.)

- A Drag chain
- B Press wheel
- C Drag Bar
- D Disc hiller



Fig. 8.12 a



Fig. 8.12 b



Fig. 8.12 c

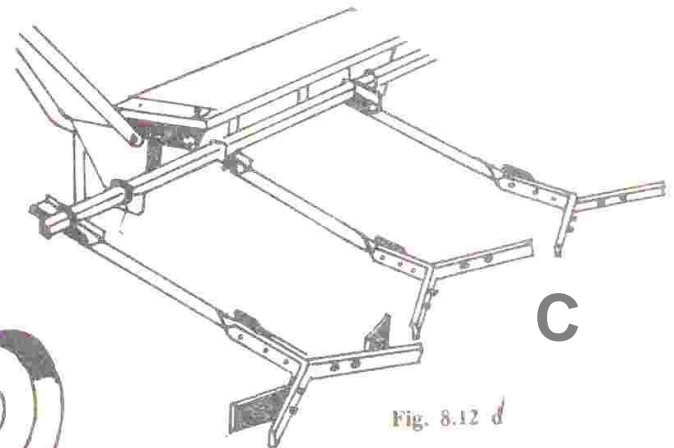
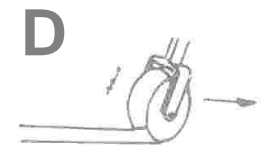
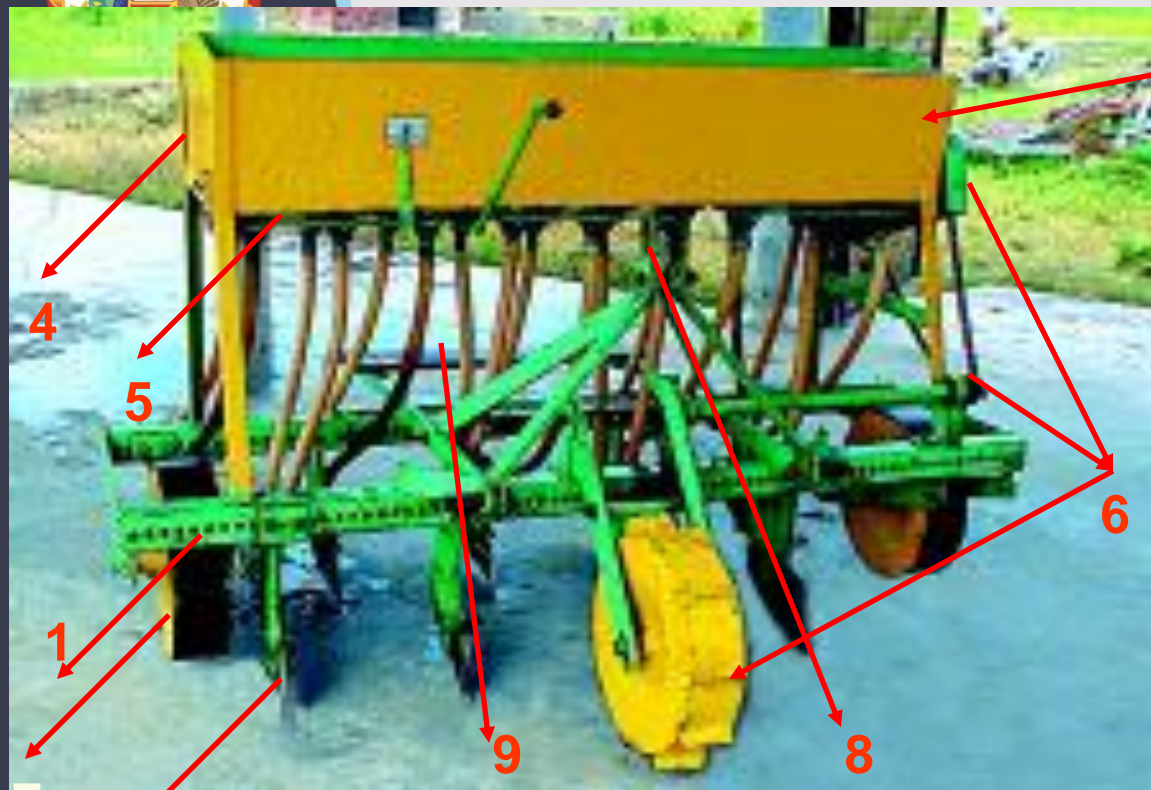


Fig. 8.12 d





# ZERO TILL DRILL



1. Frame
2. Slit/furrow openers
3. Seed and fertilizer boxes
4. Seed metering device
5. Fertilizer metering device
6. Power transmission unit
7. Depth-control side wheels
8. Hitch points
9. Iron/wooden platform or stand





High carbon steel bit  
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# FURROW OPENER IN ZERO TILL DRILL



Rake angle

Relief angle

INVERTED 'T' TYPE  
FURROW OPENER

The T-type slit/furrow openers open a narrow slit 3-5 cm wide.



Seed Boot

Slit/furrow opener



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**Seed adjustment  
lever**

**Fluted rollers**



**Inner view of (a) Seed, and (b) Fertilizer boxes**