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# FERTILIZER APPLICATION



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# TYPES AND APPLICATION METHOD

**BROADCAST BEFORE PLOUGHING**

**OR AT PLOUGHING DEPTH BY A  
DISTRIBUTOR ON THE PLOUGH**

**DEEP PLACEMENT WITH CHISEL TYPE  
CULTIVATOR**

**BROADCAST AFTER PLOUGHING**

**APPLIED DURING PLANTING BY SEED CUM  
FERTILIZER DRILL**

**SIDE DRESSING DURING INTERCULTURE**

**TOP DRESSING BY BROADCASTING ON  
SOLID PLANTED CROPS**

**DRILLED INTO SOIL AFTER PLANT  
ESTABLISHMENT**

# PLACEMENT OF COMMERCIAL FERTILIZER

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Placed at time of sowing/planting by seed cum fertilizer drill/planter

Fertilizer and seed can be placed at single band or at different band

Separate disc opener are used to place fertilizer to a side of seeds.

Fertilizer placed as side dressing is more beneficial when applied in moist soil near the root zone (fertilizer in furrows)



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# EQUIPMENT FOR DRY FERTILIZER

**SEED CUM FERTILIZER DRILL**

**SPECIAL OPEN FIELD FERTILIZER DRILL**

**FERTILIZER SPREADER WITH METERING  
MECHANISM**

**CENTRIFUGAL BROADCASTER**



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# FERTILIZER SPREADER





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# METERING DEVICES

Metering device should have positive dispensing action

Discharge rate should be proportional to the forward speed of the machine

No cyclic variation in discharge rate

Rate should be adjustable in small increment



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# Star wheel type

**Wheel discharge  
fertilizer in to  
an opening  
through the  
teeth**

**Material on the  
top is scrapped  
off**

**Discharge  
controlled by a  
gate above the  
wheel**

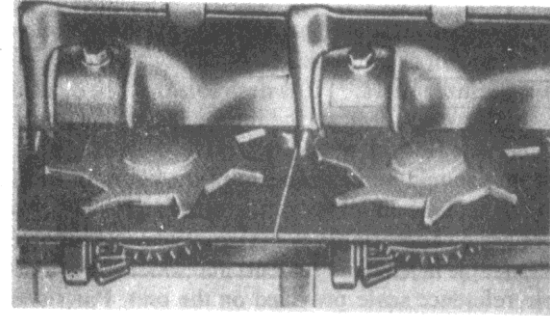


Fig. 12.1. Star-wheel feed on a grain drill. Note the adjustable-height gate above each wheel.



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# Rotating drum and augur type

**Horizontal rotating bottom plates above a stationary plate**

**Discharge rate is controlled by an adjustable gate over a side outlet**

- Close fit augur tube and augur
- Large displacement per revolution
- Fertilizer move to one end and drops through an opening

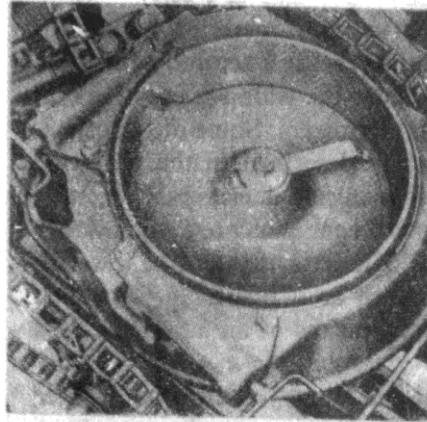


Fig. 12.2. A rotating-bottom metering device. (Courtesy of International Harvester Co.)

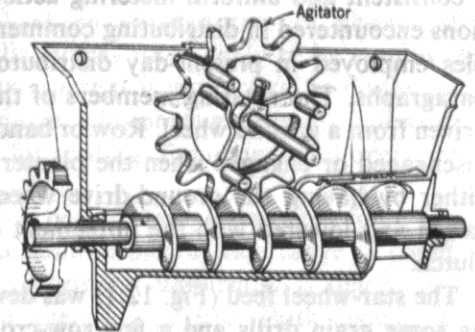


Fig. 12.3. A metering device with close-fitting auger. (Courtesy of John Blue Co.)





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# Loose fitting Augur Type Metering Device

Material enters from the top

A series of opening on the augur tube

Transported a short distance then drops down

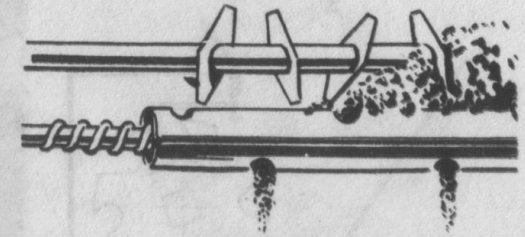
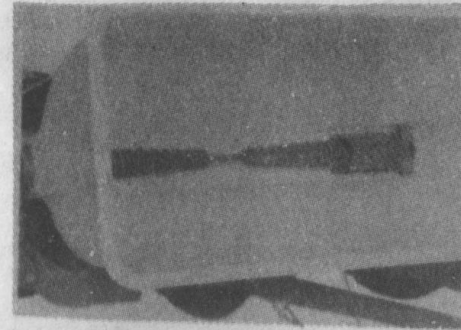


Fig. 12.4. Two arrangements of metering devices with loose-fitting augers. *Left:* For row-crop attachments. Hopper shown tipped forward for emptying. (Courtesy of White Farm Equipment Co.) *Right:* For row-crop attachments or drop-type broadcasters. (Courtesy of Barber Engineering.)



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Edge cell type

Positive feed

No. of edge cells  
along the hopper

Driven by a common  
shaft

- Belt type metering device used for high discharge
- Discharge is controlled by an adjustable grate

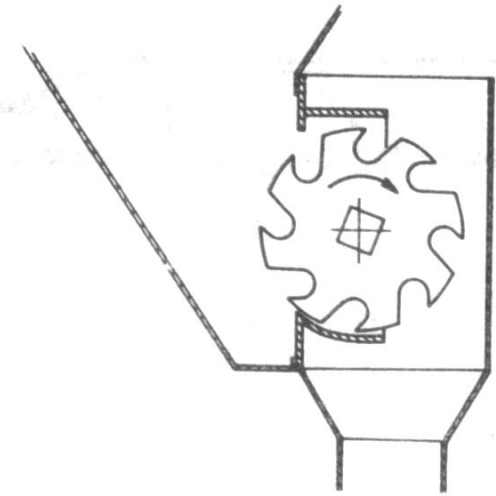


Fig. 12.5. An edge-cell, vertical-rotor metering device.

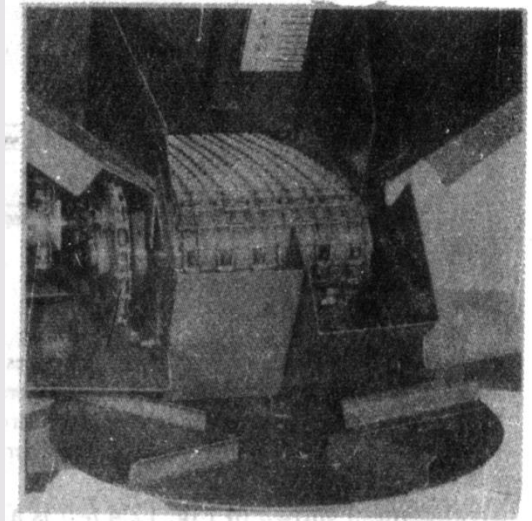


Fig. 12.6. A wire-belt metering device on a centrifugal broadcaster. (Courtesy of Deere & Co.)