CALIBRATION OF SEED DRILL

- Determine the nominal width of coverage of the drill.
 It is equal to the multiplication of row spacing (S) and number of rows (n) e.g. 4 furrow openers x 30 cm row spacing = 120 cm = 1.2 m is the width of coverage of the seed drill.
- Calculate the circumference (C) of the drive wheel of the seed drill.
- Calculate the number of revolution required (N) to cover 1/100th of a hectare
 - N= 10000/CxSxnx100
- Calculate the wheel revolution N₁ after allowing 10 % wheel skid e.g, N₁= N-0.1N
- Put a mark on the drive wheel to count the wheel revolutions.

<u>Cent</u> be free to rotate.

- Shaping Live Set the seed index lever to desired seed rate position
 - Fill the seed box to the full and turn the drive wheel by 2-3 revolutions so that the seeds will fill into the feed cup of the seed-metering device.
 - Place gunny bags or containers to collect seeds.

Rotate the drive wheel to N₁ revolutions at an appropriate speed. The speed of operation of an animal drawn seed drill will be 2-2.5 kmph whereas that of the tractor drawn seed drill is 3, 5 and 8 kmph. Exmp: A 60 cm dia. wheel will make 21 revolution per minute when traveling at 2.4 kmph speed.

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Weigh the total seeds (W) collected in different bags. Calculate the observed seed rate (R= 100W) and compare that with the recommended seed rate. If the difference is over 5 % take necessary adjustment to reduce the seed rate. All the seed tubes of different furrow openers should drop equal amount of seeds. Take two replications of each observation.

- Repeat the process with the hopper 3/4th and ½ full.
- The fertilizer calibration can be done in the same way along with that of the seed.

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SEEDING UNIFORMITY

The seed uniformity can be determined by the following methods:

Sticky belt method: Mount the drill on a stand and allow a 10 m long belt to travel under the furrow openers or seed tubes in such a way that the speed of the belts equals to the forward speed of the seed drill in field condition.

In case the drive is taken directly to the feed shaft of seed, keep the relationship between the speed of the feed shaft and belt the same as that of the feed shaft and the ground wheel.

Apply a sticky layer of grease to the belt to facilitate the proper embedding of seeds without any displacement.

The belt used may be painted and marked in centimeters for quick reading. Operate the drill and observe the number of seeds dropped and the average distance between two seeds for each meter of belt length. Repeat the test at least twice.



Sand bed method:

The seed uniformity can be observed with sand bed if the sticky belt is not available in the laboratory.

Prepare an artificial level bed of 5 m long and 25 cm depth from fine sand.

The width of the bed should be equal to the nominal width of the drill or planter. Allow the seed drill/planter to run over the sand bed with the furrow openers or the seed tube lowered to 3 to 5 cm from the top surface of the bed following the same drive mechanism as described in the sticky belt method. Observe the number of seeds dropped and the average distance between two seeds for each meter length of bed. Repeat the test at least twice. For repeating the test get the sand sieved to separate the grain and prepare the bed again. Record the data in the following table.





ength of exposure of fluted roller

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- $= 8/10 (S * Wd* Dg / n * \rho * d_f^2 * Nf * i)$
 - Where. L_f = exposed length of fluted roller, mm
 - Wd = distance between furrow opener, mm
 - Dg = Dia. Of ground wheel, mm
 - $P = density of material, kg/m^3$
 - $D_f = dia of flute, mm$
 - Nf = no. of flutes
 - N = no of fluted rollers
 - i = transmission ratio (Nr/Ng)
 - S = Seed rate. Kg/ha



TYPES OF METERING MECHANISM IN PLANTER

Horizontal plate type Vertical plate type Inclined plate type Cup feed type





A: Edge drop plateB: Flat dropC: Hill drop plate

Fig. 9,4a



Fig. 9,4b



Seedplate 3 Seedplate cover



CUP FEED TYPE



