Study on the Calculation of Seed Rates

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Calculation of seed rate

A. $SR\ (g\ ha^{-1}) = \frac{DPP/ha \times NS/H \times ISW \times MF}{PP \times PG \times FF}$

B. For dibbling and discontinuous line sowing of vegetative planting materials:

$SR_{ddp}\ (g\ ha^{-1}) = \frac{DNH/ha \times NS/H \times ISW\ (g)}{PP}$

C. For transplanting system:

$SR_t\ (g/ha) = \frac{DNH/ha \times NS/H \times ISW\ (g)}{PP \times PG \times FF}$

D. For broadcasting or continuous line sowing:

$SR_{bc}\ (g/ha) = \frac{DPP/ha \times ISW\ (g) \times MF}{PP \times PG \times FF}$

Where,

DPP = Desired plant population
PSA = Percentage of safety allowance
PP = Purity percentage
PG = Germination percentage
WTS = Weight of thousand seeds
ISW = Individual seed weight
DNH/ha = Desired number of hill/ha
NS/hill = Number of seedling/hill
MF = Method factor
DNH = area/spacing
RVS = Real value of seed
PLS = PP×PG/100

Some Problems of Seed Rate

Problem# 1.
A crop was transplanted in one hectare of land maintaining spacing 25 cm × 15 cm using 3 seedlings in each hill. The PP, PG, FF and ISW of the supplied seed were 90%, 80%, 85% and 0.04g, respectively. How much seeds will be required for 25 m × 20 m of land?

Problem# 2.
A seed lot having 90% PP, 80% PG and weight of individual seed is 0.03 g. If the desired plant population is 2,66,666 and field factor is 85%, calculate the seed rate for line sowing system when method factor is 3.

Problem# 3.
Suppose you want to produce maize maintaining dibbling spacing of 60 cm × 30 cm where PP, NS/H and ISW are 90%, 2 and 0.2 g, respectively. How much seeds do you need for 60 m × 30 m land?

Problem# 4.

Suppose you want to produce hybrid rice seed keeping distances from row to row 25 cm and hill to hill 15 cm. You want to use 1 seedling per hill. The PP, PLS, FF and ISW are 95%, 90%, 80% and 0.03 g respectively. How many seeds do you need for 100 m × 50 m land?

Problem# 5.

When PLS is 90% of a seed lot then seed rate is 50 kg ha^{-1}. After a few days the PLS is reduced to 80% of that seed lot. At this condition what will be the seed rate?

Problem# 6.

The normal seed rate of a crop is 50 kg/ha. But if the RVS becomes 80% then what will be the seed rate?

Problem# 7.

Find out the number and weight of seed required for an area of 50 m × 10 m having row to row and plant to plant distances of 25 cm and 10 cm respectively and weight of thousand seed is 30 g.

Problem# 8.

Find out the amount of seed of 70% RVS for a plot measuring 50 m × 20 m considering seed rate 30 kg ha^{-1}, when PLS/RVS is 100%.

Problem# 9.

Problem# 10.

Sugarcane setts are planted in the center of a trench. Determine the number of setts required in an area of 500 m^2 of land when trench-to-trench distance is 120 cm, sett-to-sett distance is 15 cm and length of an individual sett is 22.5 cm. If the weight of a single sett is 100g then determine the weight of required setts in t ha^{-1}.

