On-farm seed quality test

HART
SA's premier cropping field site

Important considerations

- **Grain weight** each year may fluctuate by up to 25-30%
  - Sowing rate should be adjusted to consider seed size (1000 grain wt)
- Testing seed **viability** is important to ensure good establishment (plants/m²)
  - Conduct germination test to determine seed viability
- **Frosted** seed should not be retained for seeding

Grain weight & germination test

1. Count 100 seeds and weigh sample (scales to 0.1 g for best accuracy)
2. Multiply sample weight by 10 to determine **1000 grain weight (g)**
3. Spread seeds evenly on damp paper towel (2-3 pieces stacked) - **Figure 1**
4. Cover seeds with additional damp paper towel
5. Roll up paper towel and seal in a labeled zip lock bag - **Figure 2**
6. Place the bag in a cool dark place
7. All viable seeds should have germinated after 5 days (7-10 days for large seed)
8. Unroll sample and count grains that have not germinated - **Figure 3**
9. ***For example, 2 grains of 100 did not germinate; 100 – 2 = 98 therefore, 98% germination***

Note: *Germination test should be conducted in year of sowing*

Figure 1

Figure 2

Figure 3

TARGET PLANT DENSITY GUIDE

Wheat = 180 plants/m²
Barley = 150 plants/m²
Lentils = 120 plants/m²
Canola = 45 plants/m²
Beans = 25 plants/m²
Peas = 55 plants/m²

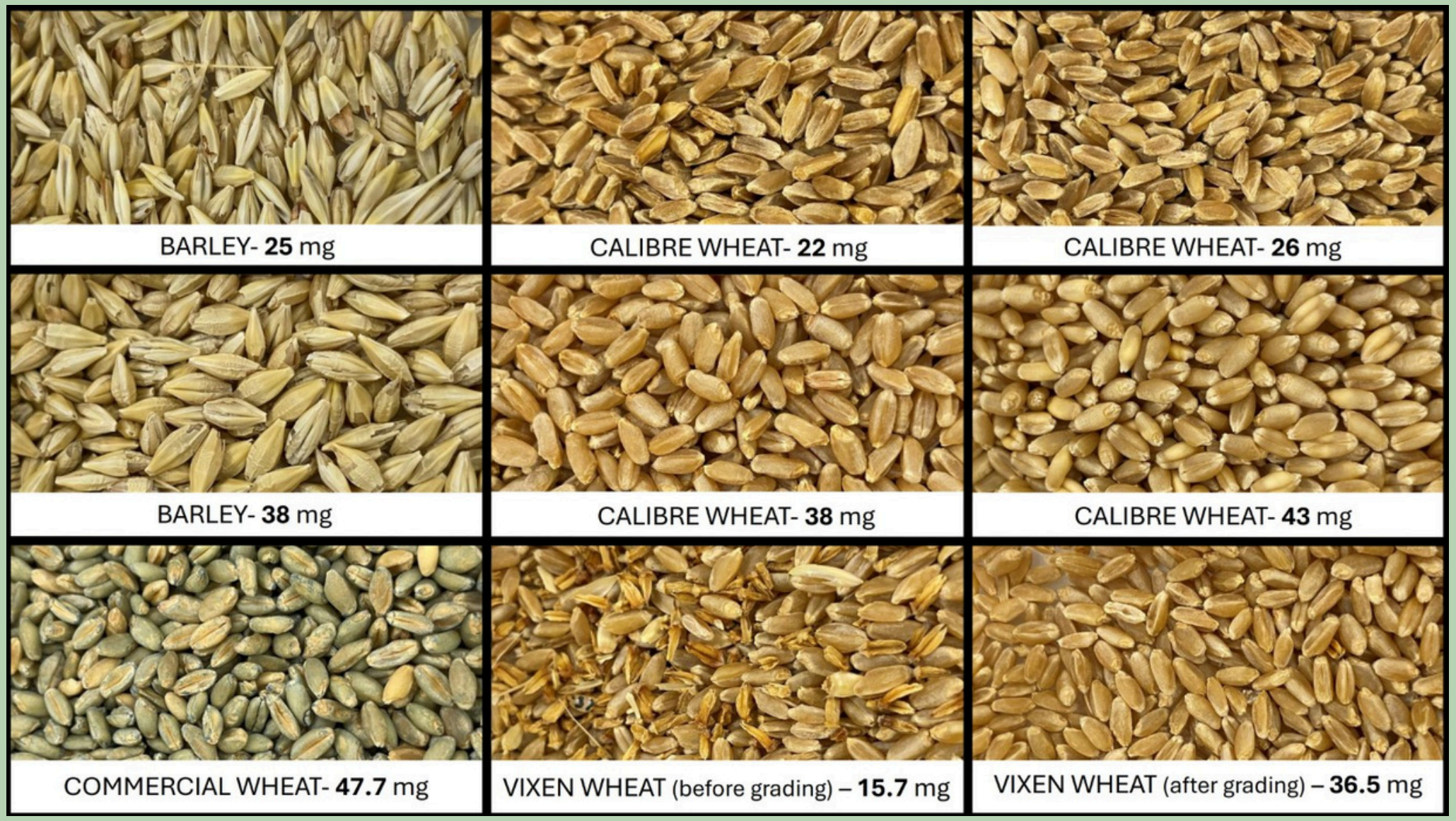
How to calculate seeding rate

$$\text{Seeding rate (kg/ha)} = \frac{(\text{1000 grain weight (g)} \times \text{target plants/m}^2) \times 100}{(\text{germination \%} \times \text{establishment \%}^*)}$$

* Establishment % accounts for field losses. In good conditions 85% establishment can be assumed for cereals and pulses, however canola may be lower (60-75%). If conditions are poor, reduce establishment %.

Know your seed weight

This guide shows a range of grain quality differences for both wheat and barley. Typical grain weight for wheat ranges from 38 - 48 mg per seed, but seed size can impact grain viability and influence factors such as sowing depth. For example, small seeds contain less starch reserves (energy) and should not be sown deep to reduce impact on emergence.



Photos taken of samples provided by Mick Faulkner; Agrilink Agricultural Consultants