

# RESEARCH INTO CANOLA SEED SIZE

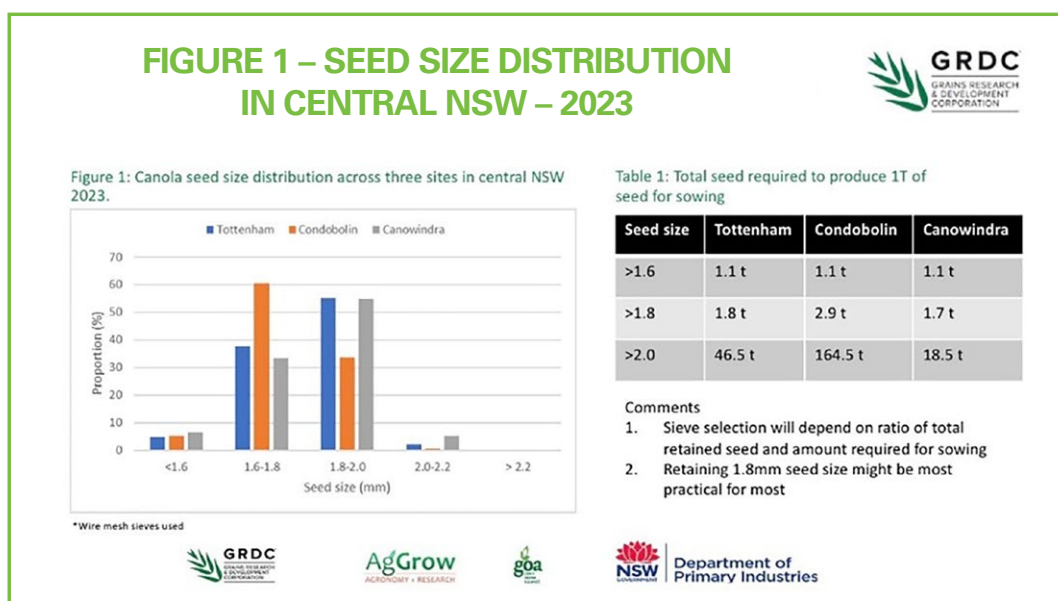
**At Nuseed we often get asked about seed size in canola and why sometimes there is large variation in seed size. So, is seed size an important factor to success in canola management? If it is, would the additional costs associated in achieving this be warranted?**

As with all plants, seed size in canola will naturally have some variation driven by Genetics X Environment X Management and made up of a number of factors:

- When in the flowering period the flower was fertilised: if it was the first flower fertilised it will have a larger seed than the last flower fertilised
- How the season went: long soft seasons tend to produce larger seed

- How high yielding the crop was: higher yielding crops tend to produce smaller seed size than lower yielding crop in the same environment
- How much fertiliser was applied
- How much rainfall or irrigation was received
- Plant density
- Temperature (frost or heat) etc.

Figure 1 below shows results from work conducted on 2022 produced seed in central NSW, indicating why it would be impractical for seed companies to grade to seed size. Grading to >1.6mm results in discarding 10% of the produced product. The removal of seeds <1.6mm normally results in an improvement in seed quality. Grading to >2mm seed size would result in discarding from 94.6–99.4% of the seed, and often doesn't improve seed quality above the >1.6mm product. These losses and the subsequent expense of the final product would be far too great for growers.

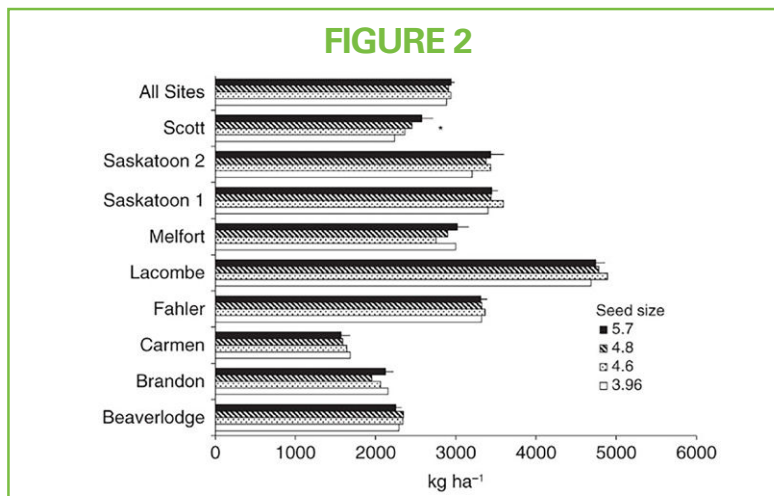


## Does seed size have a significant increase in performance for the producer?

It can, but probably not profitably. There is a potential improvement from grading to larger seed. However, in most cases the effects of Genetics and Environment will overcome any benefit gained from seed size. Additional costs in the strive for larger seed size will result in increasing costs for likely no gain.

Trials in Canada and Australia show little evidence to suggest that seed size has a direct relationship with an increase in profitability for growers. The common finding from these studies is that larger seed will generally result in higher early biomass production, but this doesn't necessarily result in increases in yield.

Figure 2 shows results published from Harker KN *et al* (2015). Seed size and seeding rate effects on canola emergence, development, yield and seed weight, suggests no consistent correlation between seed size and crop yield. At Scott the relationship was actually inverse, where large seed resulted in lower yield.



It is generally advised that growers should grade their retained seed to a larger seed size, to maximise the outcomes for the grower. This statement is made in the absence of quality testing data as seed size is an indicator for good seed. However, it is obvious from current trials that there is a lack of correlation between seed size, germination and vigour rates, and an increase in yield.

Seed size is often raised as an issue, however, at Nuseed we have rigorous seed quality standards and we believe that seed quality and performance is the key ingredient to grower success. Through our process of testing seed quality we believe that the outcome for growers in cost and supply of seed is maximised.

#### REFERENCES AND FURTHER READING

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