

RESEARCH INTO CANOLA SEED SIZE

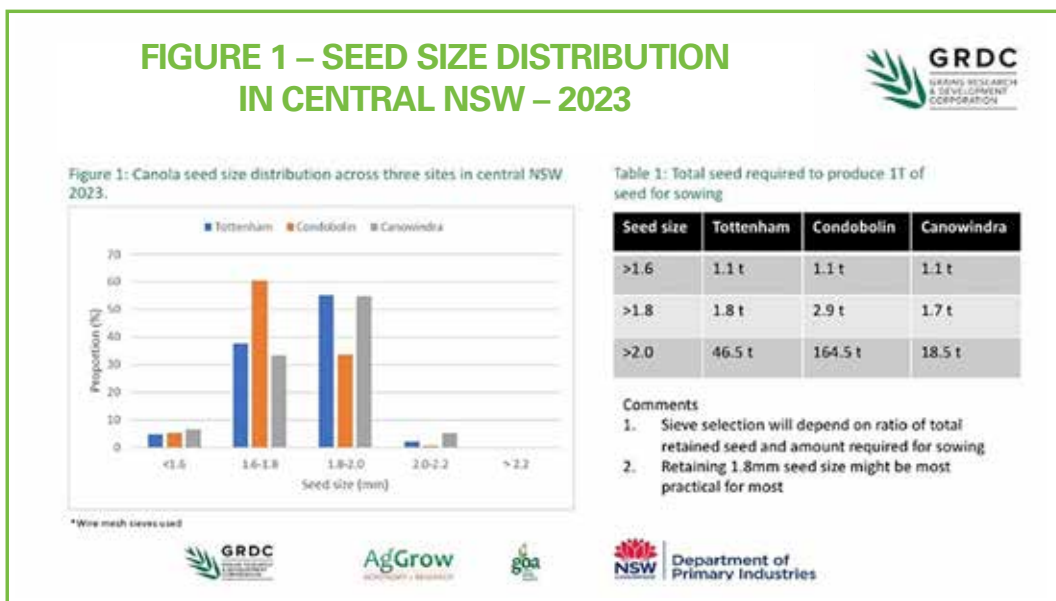
At Nuseed we often get asked about seed size in canola and why sometimes there is large variation in seed size. So, is seed size an important factor to success in canola management? If it is, would the additional costs associated in achieving this be warranted?

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.

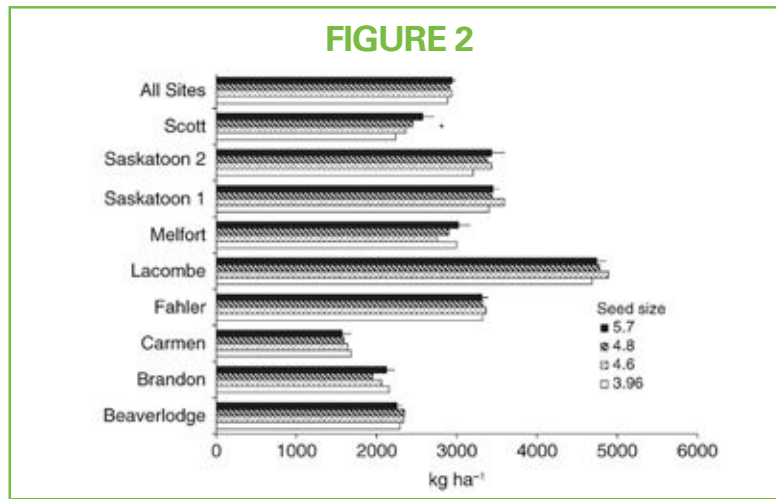


Does seed size have a significant increase in performance for the producer?

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

Brill R., Jenkins M. L., Gardner M. J., Lilley J. M., Orchard B. A. (2016) Optimising canola establishment and yield in south-eastern Australia with hybrids and large seed. *Crop and Pasture Science* 67, 409–418.

Brill RD, Jenkins L, Gardner M (2014) Canola establishment; does size matter? In 'Grains Research and Development Corporation Advisor Update.

Catellier C, (2019) M.Sc. P.Ag., Research Associate Optimal Seeding rate based on seed size in canola. Project #Carp SCDC 20 18-084, The Saskatchewan Canola Development Commission.

French RJ, Seymour M, Malik RS (2016) Plant density response and optimum crop densities for canola (*Brassica napus* L.) in Western Australia. *Crop & Pasture Science* 67, 397–408.

Gan Yantai, a K. Neil Harker, b H. Randy Kutcher, c Robert H. Gulden, d Byron Irvine, e William E. May, f John T. O'Donovanb, (2016) Canola seed yield and phenological responses to plant density, *Canadian Journal of Plant Science* 96(1): 151–159

Hanson BK, Johnson BL, Henson RA, Riverland NR (2008) Seeding rate, seeding depth, and cultivar influence on spring canola performance in the Northern Great Plains. *Agronomy Journal* 100, 1339–1346.

Harker KN, O'Donovan JT, Smith EG, Johnson EN, Peng G, Willenborg CJ, Gulden RH, Mohr R, Gill KS, Grenkow LA (2015) Seed size and seeding rate effects on canola emergence, development, yield and seed weight. *Canadian Journal of Plant Science* 95, 1–8.

Kutcher HR, 1 T. K. Turkington, 2 G. W. Clayton, 3 K. N. Harker 2 (2013) Response of herbicide-tolerant canola (*Brassica napus* L.) cultivars to four row spacings and three seeding rates in a no-till production system. *Canadian Journal of Plant Science*, 2013, 93(6): 1229–1236

Zhang H, Berger JD, Seymour M, Brill R, Herrmann C, Quinlan R, Kneill G (2016) Relative yield and profit of Australian hybrid compared with open-pollinated canola is largely determined by growing-season rainfall. *Crop & Pasture Science* 67, 323–331.

FOR MORE INFORMATION, PLEASE CONTACT:

MARKET DEVELOPMENT TEAM



Chris Roberts
National Market Development Manager
M 0437 178 296



Michael Hickey
Regional Market Development Manager West
M 0438 913 106



Eleanor Lee
Specialty Oils Operations Manager
M 0439 354 440

SALES TEAM



Andrew Suverijn
National Sales Manager
M 0409 484 702

WEST



Hugh Trenorden
Regional Sales Manager – West
M 0437 206 313



Andrew Royce
Area Sales Manager Southern WA
M 0427 466 916



Callum Pestell
Area Sales Manager Northern WA
M 0427 168 356



Pippa Reilly
Customer Sales Representative
M 0436 856 840

EAST



Sally Broadhead
Regional Sales Manager – East
M 0436 849 292



Brett Mawbey
Area Sales Manager Central & Southern NSW
M 0428 638 918



James Cook
Area Sales Manager SA & Southern Vic
M 0430 353 006

General Enquiries and Customer Service:

1800 NUSEED (1800 687 333)

Email: seedorders@nuseed.com

Fax: 1800 302 884

Nuseed Pty Ltd. 5 Ballinger Street.

PO Box 377 Horsham Vic 3402

@NuseedAustralia Follow our Twitter and Facebook page to keep up to date with Nuseed

© 2024 Nuseed Proprietary Ltd. All trade marks are owned by Nuseed Proprietary Ltd, used under license or are owned by third parties and used only to describe compatibility with those related products. **DISCLAIMER:** This document is for information purposes only. Nuseed and its agents or employees will not be liable for any loss or damage suffered by any person as a result of any reliance of this document. Always read the terms and conditions on, and ensure compliance with stewardship obligations, before opening a seed bag. Always follow the label directions on seed bags and plant protection products.



View this tech note online