

Commercial organic pelleting and priming treatments for sugar beet seed

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Advantage® priming and ProBio® pelleting

Germain's Advantage priming treatment is widely used by non-organic sugar beet growers, mainly in the UK and USA (on ~300kha). Major agronomic benefits include:

- increased germination stress tolerance, to help ensure safe earlier drilling, especially in the poorer environmental conditions encountered at early spring sowings;
- faster and more synchronous crop emergence;
- improved yields and more uniform plant roots at harvest.

The UK Soil Association have approved organic versions of Advantage and the ProBio pellet, which are used in combination for growing the organic sugar beet crop.



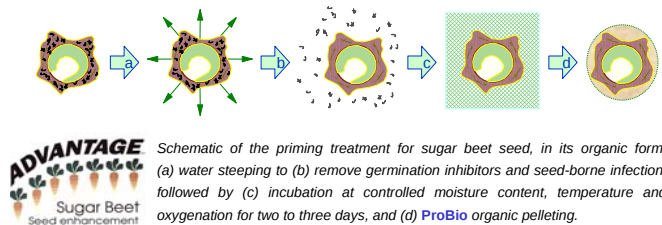
Beneficial Responses

In trials in the UK (2 varieties, at 3 sites/year in 2000-2002) and the Netherlands (2 varieties at one site in 2002) using organic seed and these two seed treatments, we found:

- earlier germination and crop establishment - T_{50} (time to reach half the final value, G_{max} or E_{max}) was reduced by ~2-3 days at 20°C, and by ~2 days in a field trial (1);
 - leading to earlier leaf cover (2);
 - and higher sugar yields (mean 2.9%; significant at only one site, with a 12% increase) (3).
- In the Netherlands trial, the yield improvement was worth about ~€110/ha to the grower.
- In a variety that was heavily contaminated with seedborne *Phoma betae* (7%), symptoms of this pathogen were completely eradicated after priming and pelleting (4).

The earlier growth of primed seedlings offers particular benefits in organic farming conditions:

- increased ability to compete against weed seedlings;
- earlier start to mechanical weed control operations;
- earlier retrieval nutrients from slow-mineralising organic fertilisers, at low soil temperatures.



1	Emergence			
	Advantage priming			
	-	+	-	+
	cv. Cynthia		cv. Trinidad	
Laboratory germination				
T ₁ (days)	3.7 ± 0.1	1.9 ± 0.3	4.4 ± 0.1	1.3 ± 0.1
T ₅₀ (days)	5.1 ± 0.1	3.3 ± 0.1	6.3 ± 0.1	5.1 ± 0.1
G _{max} (%)	98.3 ± 0.6	98.8 ± 0.6	99.0 ± 0.4	99.8 ± 0.3
Field emergence				
T ₅₀ (days)	14.3 ± 1.1	12.6 ± 1.5	13.3 ± 1.8	11.2 ± 2.6
E _{max} (%)	70.8 ± 1.7	82.9 ± 5.5	80.0 ± 7.4	76.3 ± 6.0

