



Seed treatment guidelines



EndoFuse™ from Sumitomo Chemical is a plant and soil enhancement product that contains 4 high performing species of arbuscular mycorrhizae fungi (AMF) that have been proven to increase crop resilience, productivity and overall plant and soil health. EndoFuse is a high quality, highly concentrated and versatile inoculant designed to be applied to broadacre crops as a seed treatment or in-furrow spray.

Seed treatment application

Seed treatment is a convenient and highly effective way to apply live inoculants like mycorrhizae (AMF). When applying EndoFuse as a seed treatment the primary aim is to achieve good even coverage where treated seed receives at least 1 propagule (infective unit) of AMF per seed. In most situations seeds will receive many propagules per seed and this ensures that the infective units make contact with the emerging roots when the seed germinates, maximizing the chances of effective AMF colonisation.

Treat clean seed free of dust and inerts

Seed quality is a key factor in achieving good seed treatment coverage. Only good quality cleaned and graded seed is recommended to be treated. Seed should be as free of dust and other inerts as possible; dust will cause large amounts of EndoFuse inoculant and any other seed treatments mixed with it to be absorbed by the dust, with less available to cover the seed. This will result in uneven coverage of the seed, potential underdosing and poor colonisation by the AMF.

Slurry volume (product + water)

Total slurry volume is important in determining how thoroughly and evenly seed is covered. Total mixture should be enough to thoroughly coat the seed but not over wet it. Seed shape, texture and size also impact coverage. Chickpeas, for example, have deep crevices on the seed's surface, which can make good coverage a challenge. They require more slurry volume per kg of seed to get good coverage compared with other seed types.

If seed is too moist it may not flow smoothly through handling and planting equipment. By allowing a longer drying time, these issues can be avoided.



Treating seeds like chickpeas with a very uneven seed surface can require higher slurry volumes.

Sumitomo recommend between **100 mL and 1 L of total slurry solution (water plus product) per ha of seed** when treating most seed types. Alternatively it is recommended to aim for, a total slurry rate of 5 L to 10 L per tonne of seed in most situations. Total slurry rate should not exceed 1.5% (15 L per tonne of seed).

Large seeded crops: For crops like chickpeas, faba beans, mungbeans, cotton, corn, wheat and barley it is recommended to apply EndoFuse in a total slurry mixture of 5 L per tonne of seed. Chickpeas with their uneven seed surface can be applied in a volume up to 10L per tonne.

Small seeded crops: For small seeded crops like sorghum, lucerne, grass pastures and those with low seeding rates like sunflowers it may be necessary to use a more concentrated slurry mix, use at least 1 part EndoFuse with 2 parts water. Example: For sorghum with a 2.5 kg per ha seeding rate, 10 mL of EndoFuse plus 20mL of water (30 mL total slurry) added to 2.5 kg of seed per ha (this equals 1.2% of added moisture).

Tip: It is always good practice to add a colouring agent when treating seed (with chemical treatments it is mandatory and they are often built in). This way treated seed can easily be identified but it is also useful for assessing if even coverage has been achieved.



ENDOFUSE – SEED TREATMENT GUIDELINES

Treating equipment and application

Application: Ensure all application equipment is in good working order and accurately calibrated.

Be careful not to overmix seed as this may cause EndoFuse to be rubbed off the seed surface. Treated seed is often handled several times; in treating equipment, augers, the truck and the planter. The number of handling steps should be minimised as much as possible once seed has been treated.

Augers: Augers with seed treatment applicators can be an excellent way of applying EndoFuse and other seed treatments. Before starting, measure the grain flow rate through the auger, and the flow rate of the nozzles applying the seed treatment. Adjust auger flow rate or seed treatment flow to match the desired application rate. Two spray nozzles spaced about one metre apart near the base of the auger barrel will typically deliver the best and most uniform coverage.



EndoFuse can easily be applied to seed using equipment such as a well calibrated auger injection system.

Dedicated seed treaters: Equipment such as centrifugal and continuous flow treaters are ideal for applying EndoFuse as long as they are accurately calibrated.

Agitation: Constant agitation is required during application to keep the mixture even and to prevent settling out.

Filter Size: EndoFuse spore and propagule sizes can be up to 250µm. If a filter is fitted to the treating equipment, ensure the size is no finer than 50-mesh.

Rate: The use rate for EndoFuse is **10-15 mL per ha**. Use the higher rate for irrigated crops, crops with a higher planting density or in situations with poor soil or sub-optimal planting conditions (refer to label for detailed recommendations).

Formulation: EndoFuse is formulated with Poly Ethylene Glycol (PEG), offering ideal properties as a seed treatment and adaptability with various types of treating equipment.

Patrick Press (QLD)	0417 085 160
Andrew Franklin (FNQ)	0408 063 371
Phil Glover (N NSW)	0418 668 586
Charles McClintock (S NSW)	0429 004 290
Jack Bartels (E VIC & TAS)	0488 036 313
Imre Toth (WA)	0429 105 381
Frank Galluccio (W VIC & Riverina)	0418 502 466
Matthew Hincks (SA)	0409 807 301
Ardina Jackson (N NSW & S QLD)	0477 967 509
OR our Sydney office:	(02) 8752 9000



EndoFuse is a highly concentrated liquid formulation supplied in convenient 500 mL packs.

Storage of treated seed

Sumitomo recommend EndoFuse treated seed be stored in a cool dry area prior to sowing and ideally stored no longer than 30 days post treatment. Where treated seed has to be stored for longer periods use the higher rate of EndoFuse.

Compatibility and application to pre-treated seed

EndoFuse has excellent compatibility with many seed treatments including fungicides, insecticides, micro nutrients and other biologicals such as **rhizobium** inoculants. When treating pulse grain crops and pasture legume seeds with a **rhizobium** inoculant it is ideal to mix EndoFuse and the **rhizobium** together in a single slurry. In most cases EndoFuse can be treated over the top of any pre-treated seed without any issues (check compatibility).

For further information on what products are compatible with **EndoFuse** consult your Sumitomo Chemical Australia representative.

RULES OF THUMB FOR TREATING SEED WITH ENDOFUSE

- Ensure uniform and thorough coverage of the seed.
- Only treat good quality seed free of dust and other contaminants.
- Don't overmix or over-handle treated seed.
- Avoid storing treated seed longer than 30 days.
- Store treated seed in a cool dry location prior to sowing.
- Use only 50 mesh or coarser filters in application equipment
- Always agitate the slurry solution.
- Consider adding a colouring agent to the slurry if any mix partners don't already have one.

www.sumitomo-chem.com.au

ABN 21 081 096 255

Level 5, 51 Rawson Street, EPPING NSW 2121

TEL: (02) 8752 9000 FAX: (02) 8752 9099

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