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Growing Better



NoduleN™

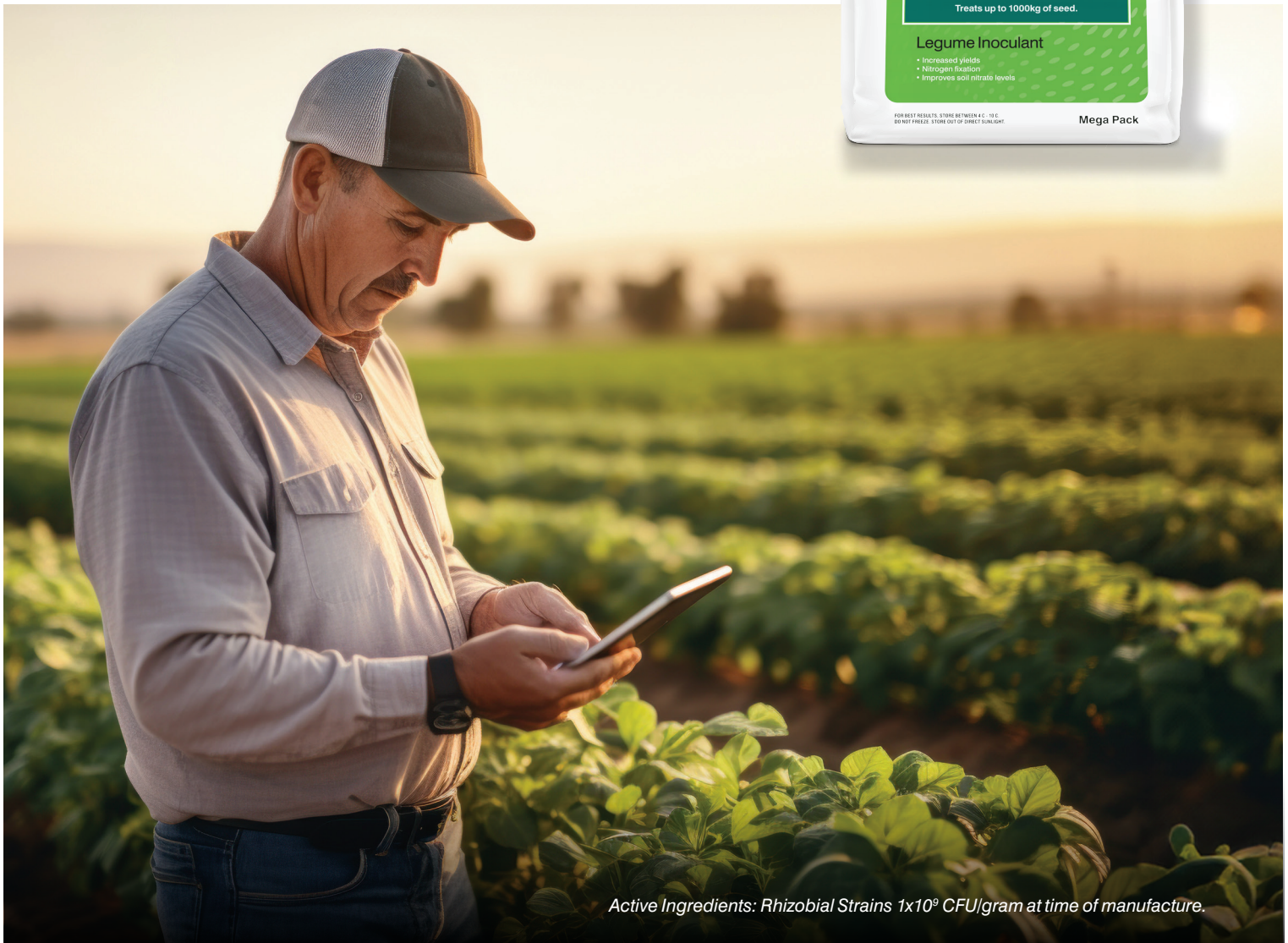


**Legume
Inoculant**

**Pasture & Pulse
Legume Crops**

**Rhizobium –
Biological
Nitrogen Fixation**

Improves plant performance, yield gains and increases biomass. Higher levels of post-crop nitrate provides nutrients for the following crops.



Active Ingredients: Rhizobial Strains 1x10⁹ CFU/gram at time of manufacture.



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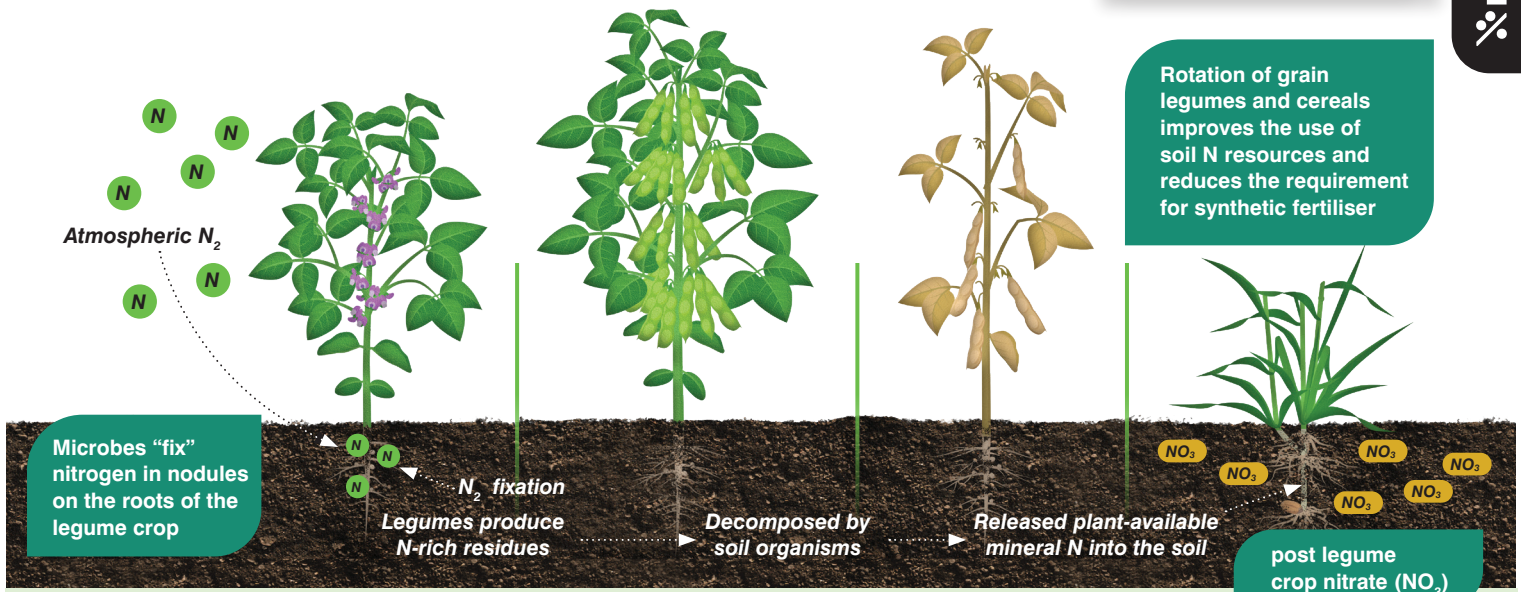
Benefits: of Rhizobia Technology

Soil bacteria called Rhizobia works together with legume plants to take atmospheric nitrogen (N_2) found in soil air spaces and 'fixes' it to the plant root system to form root nodules.

NoduleN™ is manufactured with highly productive Rhizobia strains, that significantly improve crop yields, even when background Rhizobia is present in the soil.



LEGUME INOCULANT
NoduleN™ Peat TDS / PASTURE & PULSE



Cost effective and reliable.



Number of application methods: the two most common are slurry seed treatment and water injection.



Free nitrogen.



No withholding periods.



Peat carrier contains moisture and nutrients to help the *Rhizobium* bacteria thrive and improves survival.



Legumes treated with the correct *Rhizobium*, convert atmospheric N_2 into plant available N. Estimates 30-200 kg/ha of N annually. Equivalent to 64-432 kg of urea.



Improves cereals plant performance when grown after legume crops, with improved yields and protein.

NoduleNTM Peat

Pulse & Pasture



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Directions for Use

APPLICATION	NoduleN TM Peat must come into contact with the seed to be effective.
ON-SEED APPLICATION	For optimal performance, sow treated seed within 6 hrs of inoculation and no later than 24 hrs after seed treatment into a moist soil profile.
DOUBLE RATE INOCULATION	Increased application rates improves results. A double rate of inoculant increases the introduced Rhizobia population and ensures optimal nodulation and plant performance..
	<p>Most beneficial in the following conditions:</p> <ol style="list-style-type: none"> 1. Paddocks with no recent history of the legume to be planted. 2. Paddocks experiencing long sustained dry periods. 3. Soil pH is below 5.2, as these soils will reduce nodulation and plant vigour. 4. Soil with low organic matter, clay content and soil nitrate.

Recommendations



SEED ENHANCEMENT	OPTIMUM EFFICACY	SOIL CONDITIONS	APPLICATION COMPATIBILITY	STORAGE AND SHELF LIFE
Optional product for pasture seed coating— SeedBond Genesis.	Sow treated seed within 6 hrs of inoculation and no later than 24 hrs after seed treatment into moist soil conditions.	To optimise performance, apply to moist soil.	Do NOT tank mix with or apply directly after agricultural pesticides, fertilisers or trace elements such as zinc and copper. Most seed treatments and pesticides are toxic to <i>Rhizobia</i> . Excessive use of starter Nitrogen or high levels of nitrate in the soil can delay or reduce nodulation. Contact your representative for compatibility advice.	For best results, store between 4°C-10°C. Store out of direct sunlight. Do NOT freeze. Do NOT store opened packs of inoculant. This is a stabilised live biological product and should be handled and stored accordingly. Store in original containers only. Observe product label for expiry date.

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Product Range



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Legume Inoculant Chart

Biological Nitrogen Fixation.

Group Type	Legume	Strain	Host Plant Common Name	Weight of Seed Treated per Pack (kg)				Seasonality
				Peat			Concentrate Vial	
				Standard	Jumbo	Mega		
AL	Lucerne	RRI128	Lucerne, Alfalfa, Strand and Disc Medics	-	125	250	100	●
AT	Lucerne	SRDI736	Acid Tolerant Lucerne	-	65	125	-	●
AM	Medic	WSM1115	Barrel, Burr, Snail, Sphere, Gama and Murex Medics	-	* 250	* 500	-	●
B	White Clover	TA1	White, Red, Strawberry, Alsike, Berseem Cluster and Suckling Clovers	-	125	-	-	●
C	Sub Clover	WSM1325	Crimson, Cupped, Helmet, Rose and Subterranean Clovers	-	250	500	200	●
C	Sub Clover	WSM1325	Arrowleaf, Balansa, Bladder, Gland, Purple and Persian Clovers	-	125	250	100	●
H	Soy	CB1809	Soybean	-	500	-	500	●
I	Mung Bean	CB1015	Mung bean, Cowpea, Shaw creeping vigna, Moth, Dune and Rice and Snake bean	-	500	-	500	●
I	Mung Bean	CB1015	Sunn Hemp	-	250	-	250	●
J	Lab Lab	CB1024	Pigeon Pea, Dolichos Lablab, Hyacinth Bean	100	-	-	500	●
J	Lab Lab	CB1024	Perennial Horse Gram	50	-	-	250	●
M	Siratro	CB756	Butterfly Pea, Atro, Pueru, Tropical Kudzu	* 50	-	-	* 200	●
M	Siratro	CB756	Siratro, Velvet, Banana and Phasey Bean, Calopo, Glycine	* 25	-	-	* 100	●
P	Peanut	NC92	Peanut and Groundnut	-	-	-	500	●
F	Faba Bean	SRDI969	NEW Acid Tolerant Faba, Tick and Broad Beans	-	-	1000	500	●
E	Field Pea	WSM4643	Acid Tolerant Field Pea, Common, Bitter, Purple and Woolly Pod Vetch	-	-	1000	500	●
E	Lentil	WSM4643	Acid Tolerant Lentil	-	-	500	250	●
G	Lupin	WU425	Narrow Leaf and Albus Lupin	-	-	1000	500	●
G	Lupin	WU425	Yellow, Slender, Pink, and Hybrid Serradella	-	-	500	200	●
N	Chickpea	CC1192	Desi, Garbanzo and Kabuli Chickpeas	-	-	1000	500	●
-	Adzuki bean	5G1B	Adzuki bean	100	-	-	* 200	●
-	Birdsfoot trefoil	SU343	Birdsfoot trefoil	-	-	-	* 25	●
-	Biserrula	WSM1497	Biserrula	-	-	100	* 50	●
-	Burgundy bean	CB1717	Burgundy bean	-	-	-	* 100	●
-	Centro	CB1923	Centro and Centurion	-	-	-	* 200	●
-	Caucasian Clover	CC283b	Caucasian Clover, Kura Clover	-	-	-	* 50	●
-	Common Bean	CC511	French or Common bean, Navy, Kidney, Dry, Lima beans and Black Turtle	-	-	-	* 250	●
-	Desmanthus	CB3126	Desmanthus	* 25	-	-	* 100	●
-	Desmodium	CB627	Desmodium	-	-	-	* 50	●
-	Fenugreek	SU277	Fenugreek	-	-	-	* 200	●
-	Leucaena	CB3060	Leucaena	* 50	-	-	* 250	●
D	Greater Lotus	CC829	Lotus pedunculatus, Lotus and Lotus Hirsutus	-	-	-	* 25	●
-	Messina	SRDI554	Messina	-	* 125	-	-	●
-	Stylo	CB1650	Caribbean stylo	-	-	-	* 50	●
-	Stylo	CB3481	Caatinga stylo	-	-	-	* 50	●
-	Sulla	WSM1592	Sulla	* 10	-	-	* 100	●
-	Tagasaste	CC1502	Tree lucerne or Tagasaste	-	-	-	* 25	●
EasyBond Genesis Rhizobium Protectant		Mix one EasyBond Genesis 100g packet per EasyRhiz™ vial. Sold separately.						

* Discontinued: Product available until current stock clears.

Seasonality Type ● Pasture Inoculant ● Summer Inoculant ● Winter Inoculant ● Specialised Inoculant ⓘ For application rates refer to technical data sheet



SEED

NoduleN™

Application Rates & Methods

Choose either method:

• Slurry Inoculation. **OR** • Liquid Injection.

Slurry Inoculation Method

Procedure

1. Select correct group type for the legume seed being sown.
2. Prepare a slurry by mixing the entire contents of this pack with cool, clean, non-chlorinated water.

Mixing Ratios for Slurry Method	
Standard Pack	1 L water
Jumbo Pack	4–5 L water
Mega Pack	8–10 L water

NOTE: The water rates in the above table are a general guide as to what water rates can be used. Variation in seeds including size, shape, surface profile and permeability alters the efficiency of coverage, absorbance and drying time. Sufficient slurry volume needs to be applied to allow the slurry to mix and spread throughout the seed, without over wetting.

3. Stir to ensure that inoculant is thoroughly dispersed.
4. Apply this slurry over the correct weight of seed and mix until all seeds are coated.
5. For mixing, run seed and inoculant slurry up an auger.

NIL withholding period. Do not open the pack until ready to use. Refer to the Safety Data Sheet (SDS) before using. Gloves and face masks should be used while preparing and applying the product.



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NoduleN™ Peat TDS / PASTURE & PULSE





SEED

NoduleN™

Application Rates & Methods

Choose either method:

• Slurry Inoculation. **OR** • Liquid Injection.

Liquid Injection Method

Procedure

1. Select correct group type for the legume seed being sown.
2. The application rate of rhizobia required per liquid injection tank is depending on seed sowing rate (kg/ha), kg of seed treated per vial (kg), injection water rate applied (L/ha) and injection tank volume (L).

Row spacing can vary from 20 to 50 cm but inoculation rates are calculated on seeding rate as kg/ha.

Using the following formula will determine the number of jumbo or Mega NoduleN™ packs required to be added to the injection tank to achieve the minimum necessary amount of rhizobia in the seed furrow. The suggestion is that the number of Jumbo or Mega packs are rounded up to the next whole pack as part once a NoduleN™ pack is open it is not recommended it is stored for future use.

Example formula for number of NoduleN™ packs per 1000 L

$$\left[\frac{\text{Sowing rate (kg per ha)}}{\text{* Kg of seed treated per pack}} \right] \div \left[\frac{\text{Water rate (L per ha)}}{1000 \text{ L (Tank size)}} \right]$$

* Seed size and number of seeds per kg varies. Please refer to the inoculant group chart and Technical Data Sheets for kg of seed type treated per NoduleN™ pack size (Standard, Jumbo, Mega).

The following 2 tables show how the variables of seeding rate (kgs/ha), seed per vial (kgs), liquid injection rate (L/ha) and injection tank volume (L) influence the amount of NoduleN™ required in each injection tank.

Crop	Faba Bean
Sowing rate (kg/ha)	120
Seed treated per pack size (kg)	1000
NoduleN™ packs / 1000 L	1.2
Rounded up to full pack size	2

Crop	Lentil
Sowing rate (kg/ha)	80
Seed treated per pack size (kg)	500
NoduleN™ packs / 1000 L	1.6
Rounded up to full pack size	2

Injection Water rate (L/ha)	100
Tank volume (L)	1000

Tables show examples for number of mega NoduleN™ packs required to treat 1000 kg of Faba beans seeds or 500 kg of Lentil seeds.

NOTE: There is NIL withholding period for NoduleN™ packs, and therefore recommend to round up to nearest whole bag.

3. Place NoduleN™ into a porous bag (ie calico bag, stocking) to help reduce blockages.
4. Suspend bag within the tank while filling with cool, clean, non-chlorinated water.
5. To help prevent blockages, ensure filters are 80 mesh or coarser and nozzles > 0.2 mm are used.
6. Apply the mixed solution directly in the planting furrow.
NOTE: Ideally, the solution should be in contact with the seed at sowing.
7. Apply solution at 50–100 L per hectare.

NIL withholding period. Do not open the pack until ready to use. Refer to the Safety Data Sheet (SDS) before using. Gloves and face masks should be used while preparing and applying the product.

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Increasing microbial diversity boosts ecosystem productivity where each beneficial species, no matter how small, has an important role to play. NEM's biological agriculture system has been developed to enhance soil health, create resilient landscapes, improve crop and pasture performance and sustainable farming futures. Learn why we are so passionate about microbes and how they can benefit you – visit www.nem.com.au

NoduleN™ 

Customer Technical Support: Speak with our friendly support team if you need to seek specialist or product compatibility advice.



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