
BAYER
TagTeam®
MultiAction Legume Nutrition
2021
Product guide

TagTeam® delivers the synergy of more fixed nitrogen and better use of soil and fertiliser phosphate – providing higher yield potential in pulse crops.

For use on

- Chickpeas
- Faba beans
- Lentils
- Lupins
- Peas
- Vetch

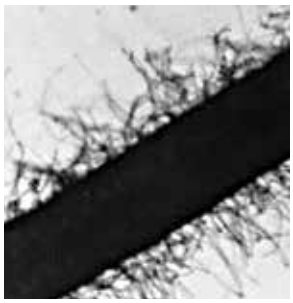
Balanced nutrition

Balanced nutrition of phosphate and nitrogen is necessary to maximise pulse crop yields. TagTeam is a dual-action biological inoculant combining the phosphate-solubilising microorganism *Penicillium bilaii (P. bilaii)* with nitrogen-fixing rhizobia bacteria. Together, they can create more fixed nitrogen, and better access to soil and fertiliser phosphate, providing higher yield potential in pulse crops.

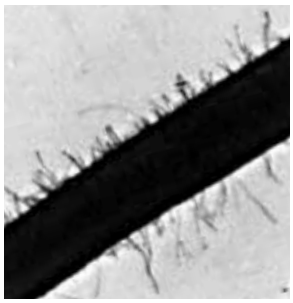
The soil fungus *Penicillium bilaii* is the key to the equation. It grows on the plant roots and increases the availability of soil phosphates accessible to the plant. Phosphate helps create, and move, much needed energy for the nitrogen fixation process.

The other benefit of the soil fungi's action is that more root hairs develop (see images below). Each root hair is a potential infection point for the rhizobia bacteria. More infection points mean more nodules, and more nodules means a greater potential for nitrogen fixation. More fixed nitrogen equals higher yields.

Higher yield potential using TagTeam biological inoculants



With *P. bilaii*



Without *P. bilaii*

P. bilaii inoculation increases root hair production in field peas.

Source: Gulden RH, Vessey JK (2000) *Penicillium bilaii* inoculation increases root hair production in field peas. Can. J. Plant Sci. 80:801–804

Phosphate crucial to nitrogen fixation

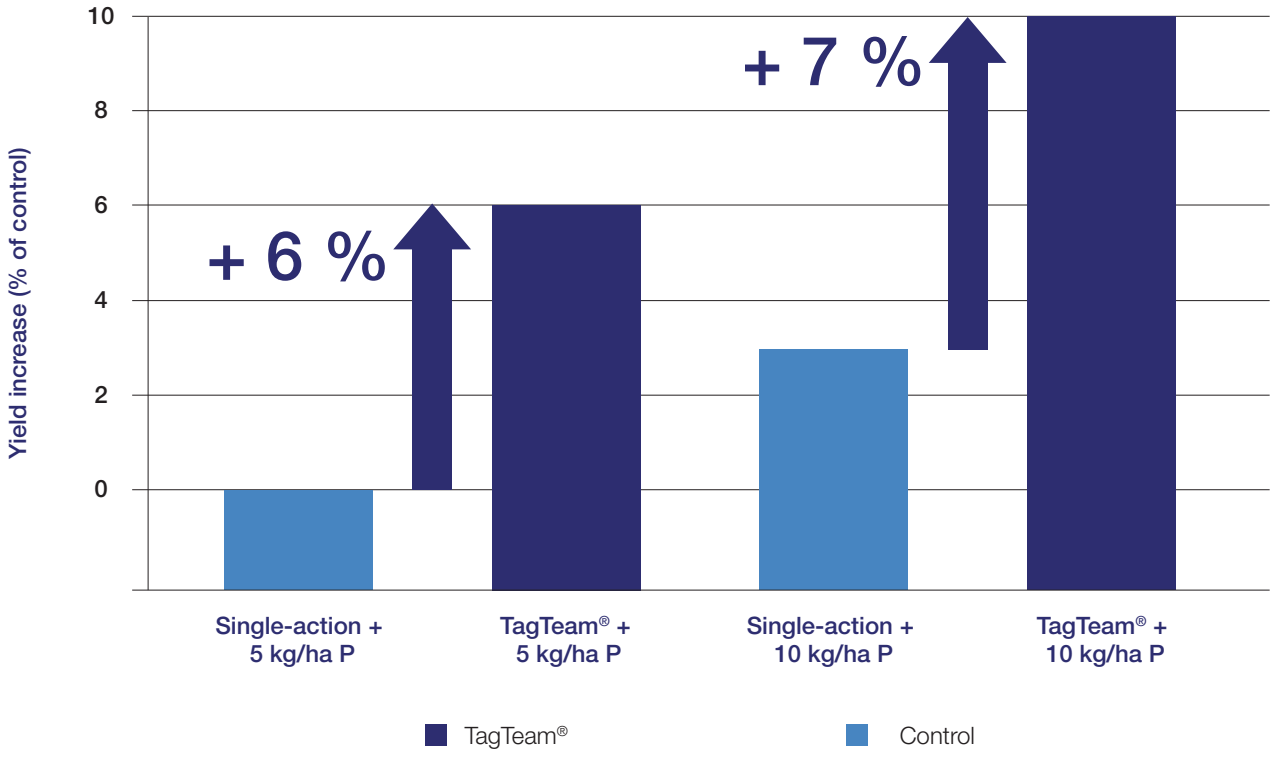
Research shows that phosphate nutrition has a significant positive impact on nitrogen fixation. Good phosphate nutrition results in more nodules being formed and more active nitrogen fixation. Active nitrogen fixation provides more nitrogen to the plant, resulting in higher yields.

Phosphate is key to the nitrogen fixation process because it:[1]

- Increases the population of rhizobia within the root zone
- Promotes root and shoot growth, improving the ability of the plant to fix nitrogen. Higher root density results in more sites available for nodule fixation
- Reduces the time it takes for nodules to begin the fixation process
- Increases the number and size of nodules
- Increases the efficiency of nitrogen fixation
- Increases the total amount of nitrogen in plant tissue

[1]Source: *Phosphorus for Agriculture*, International Plant Nutrition Institute (formerly: Potash & Phosphate Institute).

Figure 1. TagTeam increased yield vs. single-action inoculants



Source: Combined data from six small-plot replicated trials in Australia, three pea, two lupin and one chickpea.

TagTeam® application

Types and formulations of TagTeam available

TagTeam is available in a peat formulation and in a 'down the tube' granular formulation. Each pulse/legume crop associates with a specific rhizobia species, as shown in the table below, so make sure to use the appropriate species for your crop.

Crop	Inoculant species	TagTeam formulations available
Chickpeas	*Mesorhizobium ciceri*	Pre-sterilised, self-sticking peat and granular
Lupins	*Bradyrhizobium lupinsi*	Pre-sterilised, self-sticking peat only
Peas, lentils, faba beans, vetch	*Rhizobium leguminosarum*	Pre-sterilised, self-sticking peat and granular

Application of TagTeam granular

TagTeam granular should be applied directly with the seed in the seed row using a granule tank for application. Application rates vary according to row spacing (refer to Table 1 for details).

Fill the tank to match, or slightly exceed, seed requirements. Do not overfill the tank, as granular inoculants are dense and have a relatively high moisture content, which helps to keep rhizobia alive. Too much inoculant in the tank can cause compaction and lead to plugged lines.

- Before opening, drop the TagTeam bags once on each side to loosen any compaction and pour into the seeder through a screen.
- Carry and dump – do not auger TagTeam granular. Augering can reduce the particle size, resulting in inaccurate metering.
- Do not mix TagTeam inoculant in the same tank with seed or fertiliser. The difference in particle size will prevent proper application. The difference in moisture content between fertiliser and TagTeam can cause TagTeam to dry out, killing the rhizobia. The fertiliser may also moisten and form clumps.
- Follow calibration instructions supplied by the seeder manufacturer. Check flow regularly.
- Do not leave TagTeam inoculant in the tank overnight as condensation can occur, which may cause lumps to form. Empty the tank of all granules at the end of the day, seal in its original bag, store in a cool location, and return to the tank when seeding is ready to resume.
- TagTeam granular can be used with pesticide-treated seed. Application rates are the same for both TagTeam peas/lentils/vetch/faba beans and TagTeam Chickpeas granular inoculants.

Table 1. TagTeam granular application rates

Row spacing		Application rates	Area treated per bag
7 in	17.8 cm	5.6 kg/ha	3.2 ha
8 in	20.3 cm	4.9 kg/ha	3.6 ha
9 in	23.0 cm	4.4 kg/ha	4.0 ha
10 in	25.4 cm	3.9 kg/ha	4.6 ha
11 in	27.9 cm	3.6 kg/ha	5.0 ha
12 in	30.5 cm	3.3 kg/ha	5.4 ha
13 in	33.0 cm	3.0 kg/ha	6.0 ha
14 in	35.6 cm	2.8 kg/ha	6.4 ha
15 in	38.0 cm	2.6 kg/ha	6.9 ha

Note: The bulk density for TagTeam granular averages 0.7 g/cm^3.

Application of TagTeam peat

TagTeam peat inoculant has its own sticker in the formulation. A separate sticker is not needed. Add water while applying TagTeam or mix TagTeam with cool, clean water and apply to seed as a slurry. Please refer to Table 2 below for approximate water rates. Once TagTeam is mixed into water, apply to the seed within six hours.

Apply TagTeam when transferring seed from the silo to the truck, or from the truck to the seeder. TagTeam may also be applied directly to seed in the seeder. Make sure TagTeam is mixed thoroughly with the seed and that the seed is evenly coated.

TagTeam peat can be applied from 6 to 48 hours before seeding, depending on crop type, and can be used with many different seed treatments.

Table 2. TagTeam peat application rates

Crop	Amount of seed treated per 2.45 kg bag	Approximate water volume[1]
Chickpea	1,000 kg	3-6 L
Lentil	500 kg	3-6 L
Lupin	1,000 kg	3-6 L
Pea, faba bean, vetch	1,000 kg	3-6 L

[1]Approximate water volume for peat slurry application.

Seed treatment compatibility

Compatibility tests have been conducted with registered seed treatments to ensure the viability of our biological inoculants is not compromised by pesticides and other seed treatments. Each inoculant formulation was tested with various seed treatments, using different application methods on specific crops. The planting windows presented are specific to TagTeam only and should not be used for other inoculants.

TagTeam peat

Table 3. Planting window for TagTeam peat on bare seed

Crop	Planting window
Chickpeas	24 hours
Faba beans	48 hours
Lentils	24 hours
Lupins	48 hours
Peas	24 hours
Vetch	24 hours

Table 4. TagTeam planting window

Seed treatment	Sequential application	Simultaneous application
Chickpeas		
Apron® XL 350	6 hours	6 hours
Gaucho® 600 FS	6 hours	6 hours
P-Pickel T®	6 hours	6 hours
Thiragranz	6 hours	6 hours
Faba beans		
Gaucho 600 FS	6 hours	6 hours
P-Pickel T	6 hours	6 hours
Lentils		
Gaucho 600 FS	24 hours	24 hours
P-Pickel T	24 hours	24 hours
Lupins		
Gaucho 600 FS	Not recommended	Not recommended
Rovral®	6 hours	6 hours
Thiragranz	24 hours	24 hours
Peas		
Apron XL 350	Not recommended	Not recommended
Gaucho 600 FS	Not recommended	Not recommended
P-Pickel T	4 hours	4 hours
Vetch		
Gaucho 600 FS	4 hours	4 hours
P-Pickel T	24 hours	6 hours

Tank mix applications for TagTeam combinations with the seed treatments listed have not been tested.

★ Indicates not tested

Bayer CropScience Pty Ltd. ABN 87 000 226 022.
Level 1, 8 Redfern Rd, Hawthorn East VIC 3123.
Technical enquiries: 1800 804 479
enquiries.australia@bayer.com

TagTeam®

MultiAction **Legume Nutrition**

www.crop.bayer.com.au

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