Horticultural Development Company

Grower summary

FV 354

Dwarf green beans: Evaluation of Rhizobium inoculant for nitrogen fixation

Final Report 2009

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The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

Use of pesticides

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

Further information

If you would like a copy of the full report, please email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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Headline

Granular *Rhizobium* inoculant can be applied to the soil at drilling. Inoculant applied at 10kg/ha provides equivalent yield to current N recommendations and a saving of 50 or more kg of N.

Background and expected deliverables

Green beans do not produce active nitrogen fixing nodules from a naturally occurring source of *Rhizobium* spp. There is therefore a high requirement for nitrogen fertiliser for the crop which is drilled from mid-May and harvested from mid-August. Beans are not efficient in using this nitrogen and there is a risk of nitrate leaching during the short growing season. Substituting some of this nitrogen with the use of an added soil applied granular inoculant specific for green beans, can result in cost savings being made**.**

Summary of the project and main conclusions

A granular inoculant (Nodulator) containing species specific strains of *Rhizobium* spp was applied to the seedbed using a granular distributor at sowing time. The inoculant resulted in a significantly high level of nodulation where no nitrogen fertiliser had been applied either with or without inoculant. The yields indicated that 10kg /ha of Nodulator was comparable with the yields obtained from 150kg of Nitrogen.

Financial benefits

Current recommendations for nitrogen fertiliser in green beans is 100 – 150 kg/ha of N. Use of an inoculant at 10kg/ha costing around £34/ha, can result in the reduction in the amount of nitrogen by up to 100kg/ha and result in a saving of around £80/ha.

Action points for growers

- Limited data suggest that a granular inoculant (Nodulator) applied to the seed bed at a rate of 10kg/ha allows natural nitrogen fixation through increased nodulation by the green beans to produce an equivalent yield increase to that obtained from 150kg/ha of nitrogen fertiliser.
- Use a granular distributor to apply an accurate amount of granules at sowing time.