Horticultural Development Company

New Project

FV 354

Dwarf green beans: evaluation of Rhizobium inoculant for nitrogen fixation

Project Number:	FV 354
Title:	Dwarf green beans: evaluation of Rhizobium inoculant for nitrogen fixation
Start and end dates:	1 April 2009 to 31st March 2010
Project Leader:	Dr Anthony Biddle, Processors and Growers Research Organisation
Project Co-ordinator:	Tim Mudge, PVGA
Location:	1. PGRO, The Research Station, Great North Road, Thornhaugh, PE8 6HJ 2. A L Lee Littelport, Cambs. 3. Aylsham Growers, Aylsham, Norfolk

Background and project objectives

Around 2000ha of green beans (Phaseolus vulgaris) are grown in the UK for the fresh market or for freezing. Production is highly mechanized and seed is imported from either Europe or the USA. Although a member of the Leguminosae, because green beans are not native to the UK, there is no effective population of Rhizobium phaseoli present in soils to allow natural nodulation and nitrogen fixation to occur, hence the requirement of nitrogen fertiliser. The potential benefits of using an inoculum to promote nitrogen fixation in Phaseolus have been demonstrated and there have been attempts to provide an effective inoculant of Rhizobium for green beans in the UK, the formulations were based on a milled peat which is mixed with the seed at drilling time.

The recent increase in the cost of nitrogen however has highlighted areas where savings could be made and the recent development of a clay granular formulation of Rhizobium inoculant (Nodulator®) for Phaseolus vulgaris has meant a re-evaluation of inoculation in green beans for UK production. This product is stable and can be stored for some time before use. In a small plot trial carried out in Norfolk by PGRO in 2008, the inoculant produced active nodules on Laguna and Scuba green beans. There was a background population of natural Rhizobium but this appeared to be generally inactive and suppressed by the 100 kg/ha standard treatment of nitrogen. The higher rate of inoculant plus 50 kg/ha of nitrogen both improved the nodulation score and the harvested pods yielded similar to the standard treatments. This proposal is to further evaluate the value of a Rhizobium inoculant that can be applied by standard granule applicator to the seed bed during drilling.

Further information

Email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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