



Agriculture & Horticulture  
DEVELOPMENT BOARD



# New Project

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## FV 341b

Asparagus purple spot: field evaluation of urea application rates and timing, and calcium cyanamide application to enhance crop debris degradation and reduce disease on the emerging new crop.

<b>Project Number:</b>	FV 341b
<b>Project Title:</b>	Asparagus purple spot: field evaluation of urea application rates and timing, and calcium cyanamide application to enhance crop debris degradation and reduce disease on the emerging new crop.
<b>Project Leader:</b>	Angela Huckle
<b>Contractor:</b>	ADAS UK Ltd
<b>Industry Representative:</b>	To be confirmed
<b>Start Date:</b>	01 December 2012
<b>End Date:</b>	31 December 2013
<b>Project Cost</b>	£32,953

### **Project Summary:**

Stemphylium purple spot of asparagus caused by the fungus *Stemphylium vesicarium* occurs on spears during the harvest season leading to loss in productivity and spear quality. The disease mainly develops on the asparagus ferns after harvest, affecting main stems, secondary branches and needles where survival structures (pseudothecia) of the fungus are produced. These overwinter on fern debris and this is often the initial source of the disease. Once purple spot is present in a crop, asexual spores (conidia) are produced on lesions in wet weather and are readily spread by wind and watersplash leading to rapid disease increase, and the disease can be very difficult to control once established.

Fern debris from the previous season is commonly found on the soil surface as spears emerge. Burial of the debris by ridging up after the crop has senesced reduces the risk of *Stemphylium* spore release in the following spring, but in older crops where crowns and roots develop closer to the soil surface this can be difficult due to the risk of damage to the extensive root system and debris may remain on the surface. Heavy rainfall can also cause the debris to become exposed again. Work done in FV 341 highlighted the potential of urea as a treatment for reducing *S. vesicarium* inoculum overwintering on asparagus fern debris. Calcium cyanamide

marketed as Perlka is used in Europe for weed suppression in asparagus, and in the UK for control of clubroot in brassicas. This product could have potential for activity on *S. vesicarium* and has been included for investigation on this pathogen. The aim of this project is to determine the effectiveness of debris treatments in field crops by examining their effect on (i) level and persistence of spore production from debris and (ii) occurrence of purple spot on spears.

### **Aims & Objectives:**

*Project aim(s):* To improve control of *Stemphylium* purple spot on asparagus by reduction of overwintering inoculum on crop debris

*Project objective(s):*

1. To determine the efficacy of a range of urea rates and timings, and two calcium cyanamide (Perlka) application timings for reduction of ascospore release from crop debris by *S. vesicarium*.
2. To determine the effect of these treatments on occurrence of purple spot in the emerging crop.

### **Benefits to industry**

- Reduced risk of *Stemphylium* infection on asparagus spears and ferns.
- Potential for improved non-pesticide control of *Stemphylium* consistent with the Sustainable Use Directive (SUD) objectives.
- Reduced need for intensive fungicide program on ferns if the epidemic is delayed through inoculum reduction.

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