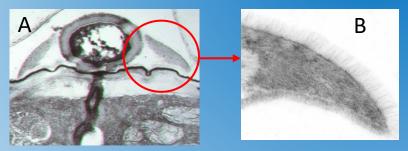
## rne importance of being adnesive

## Keith G Davies and Arohi Srivastava

Department of Biological and Environmental Sciences
University of Hertfordshire, College Lane, Hatfield, United Kingdom, AL10 9AB

- Plant-parasitic nematodes cause around \$100 billion losses to crops per year.
- Nematicides that have been used to control them are highly toxic to humans, animals and the environment and alternatives are being sought.
- Pasteuria penetrans is a Gram-positive endospore producing bacterium (Fig 1); it infects nematodes and has potential to be developed into a biocontrol agent.
- One isolate of *Pasteuria* will attach to and infect one population of nematode but not another.
- Understanding adhesion is essential for their successful deployment in the field.

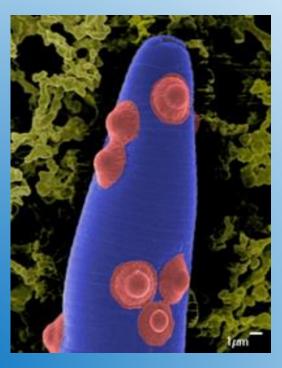


**Fig 2.** TEM of an endospore attached to the cuticle of a nematode (A); magnified *skirt* of the spore showing fibrous nap (B)

**Fig 3.** The number of endospores that adhere to infective nematodes is around 15 per individual. Pre-incubation of endospores with anti-collagen Pab 1981, collagenase, wheat germ agglutinin (WGA) and N-acetyl-glycosaminidase (NAG) all reduced adhesion of *Pasteuria* endsopores.







**Fig 1.** Head of an infective J2 nematode with attached *Pasteuria* endospores

- The fibrous nap (Fig 2) of the endospore in other closely related bacterial species are made up of collagen-like glycoproteins.
- Sequence analysis of the
   Pasteuria genome has identified
   17 putative collagen-like genome
   sequences.

