

Could spider venom replace some synthetic pesticides on the farm?

A major new project will see the use of spiders' natural toxins to offer a more sustainable approach to crop protection by reducing chemical inputs.

The [EcoStack project](#) aims to develop sustainable crop production by developing new resources to support agricultural biodiversity and existing ecosystem services. Many current chemical pesticides, such as neonicotinoids, are under increasing regulatory scrutiny due to the damaging environmental effects they can cause.

[Editor's note: For more information on neonics, see [With the 'bee crisis' fading and European farmers fearing an insect invasion, EU's neonicotinoid ban fiasco stumbles into the New Year.](#)]

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Certain species of spiders and parasitic wasps....produce venoms that are toxic to a range of insect pests while being non-harmful to humans and other mammals. The project will produce proteins at pilot scale via a yeast expression system, which will be isolated and formulated to provide a substantial resource for agricultural field trials of the new biopesticide.

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These compounds are potent toxins when injected into pest insects by the spider, or wasp....[R]esearchers at Newcastle University have combined these toxins with naturally occurring proteins, such as a lectin from the common snowdrop plant, which acts as a 'carrier', allowing them to pass through an insect's gut and kill the pest.

Read full, original article: [Spiders' natural toxins to help protect crops in new project](#)