

Novel eco-friendly 'plant vaccine' hits Brazil soybean market

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A North Carolina ag tech company is landing some major success in using a new kind of eco-friendly, portable weaponry in the global war on pests.

Plant Health Care (PHC), a publicly traded company headquartered in Holly Springs, has received Brazilian approval to deploy its biological TEIKKO (pronounced TAKE-oh) soybean nematocide into that huge South American market. Further negotiations are on the way to make the product available to Brazilian farmers by 2024-25 soybean growing season. The 2023-24 soybean harvested area in Brazil is forecast to be 45 million hectares (about 111 million acres), spotlighting a significant market opportunity for PHC.

Kynetec, a major British purveyor of global ag and animal health market data, says Brazilian growers spent \$215 million on soybean nematode control in the 2022/23 season, reflecting an annualized growth rate of 55% over six years.

TEIKKO is a novel product from PHC's PREtec (Plant Response Elicitor Technology) peptide platform. PHC developed TEIKKO from a discovery by Zhongmin Wei, Ph.D., now PHC's chief science officer. Scientists have developed recombinant protein that PHC now sells as Harpin (Harpin alpha beta). Growers in more than 20 countries have been using Harpin on a wide range of crops for years, including sugar cane, soybean, corn, coffee, tobacco, wheat, citrus, potato, vegetables and various fruits. Brazilian regulators have approved TEIKKO as a seed treatment to control root-lesion nematodes (*Pratylenchus brachyurus*) in soybeans. But PHC plans to add more crops and nematode species to the product label.

TEIKKO can complement or replace conventional agrochemicals to control harmful nematodes. It can also be sprayed on plants, though some locales might require separate approvals for different application techniques.

Though it's called a nematocide, TEIKKO doesn't kill nematodes or harm anything. Instead, it boosts natural defense mechanisms in plants, in much the same way vaccines boost the immune systems of humans and other mammals. "Think of it as a vaccine for plants," said Mark Turner, PHC's vice president of business and corporate development.

When a plant is treated with PHC's peptides and produces these heightened self-defense substances, the worm turns, as the old saying goes. The nematodes simply stop feeding and go elsewhere, without laying eggs and creating cysts in the plant root. Reduced egg production also shrinks the population of nematodes without the need for traditional pesticides and scorched earth technologies such as fumigation, which can destroy beneficial microbes in the soil.