



Soil and Plant Enhancer (SPE 120) and SBb 2.5

SPE 120 and **SBb 2.5** are *Beauveria bassiana* based soil and plant enhancer and inoculants.

The *Beauveria* in **SPE 120** and **SBb 2.5** is a PLANT isolate. Not an insect isolate (as are other *Beauveria* products) and should be considered a beneficial fungi (like *Trichoderma* and mycorrhizal) setting it apart from other *Beauveria* products.

SPE 120 and **SBb 2.5** are applied at planting with NO target disease or insect specified because it will be acquired by the plant and then grow in the plant as a symbiotic endophyte. Application is recommended as a seed treatment, under the seed or on top of seed or in seed trench to ensure the plant roots will contact the *Beauveria*.

As a Plant endophyte *Beauveria* can provide:

- Increased germination
- Inhibition of soil borne plant pathogens
- Competitive exclusion
- Enhances microbial diversity
- Higher plant immune status
- Increased brix
- Increased chlorophyll
- Enhanced plant defense (better plant protection)

Decreased plant acceptability as a host for:

- Bacteria and virus
- Lower acceptability for insect feeding, insects reduce feeding seeking alternate plants for feeding on rather than feeding on endophyte hosting plants.

Observed effects in the field:

- Decreased insect feeding on crop when endophyte is established in roots, leaves and stems
- Impact on insect feeding on endophyte plant
- Lower nutritional status with lower fertility and fecundity and a decrease in insect population growth
- Reports from field use indicate a reduction in pathogens in potato and other root crops
- Reduction in *Pythium* and *Rhizoctonia* infections

SPE120 (organic formulation) and **SBb 2.5** are formulated specifically for use in soil as a seed treatment for use on seed, under seed or on top of seed where initial roots can take up for endophyte establishment.

Groundwork on *Beauveria bassiana* was done by Drs. Les Lewis and Bill Showers at Iowa State University. James Arends, PhD in parasitology from Oklahoma State University, is the founder of JABB and a native of Ackley, Iowa.

Manufactured by **Jabb of the Carolinas, Inc.**
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Dr. Bill Showers



Dr. Les Lewis

There are many examples where the SPE 120 and Bb 2.5 has been successfully observed or used in insect pest and fungal disease control. In modern production Ag there are areas where Pyrethroid products are no longer effective, Chorpyrophos is no longer labeled, or the use of a safer or organic product is desired.



With both soft and hard bodies insects the fungus invades the insects and utilizes the insect body as a food source. The fungus moves vascularly and lasts thru the season.

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Biological Control
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The endophytic fungal entomopathogens *Beauveria bassiana* and *Purpureocillium lilacinum* enhance the growth of cultivated cotton (*Gossypium hirsutum*) and negatively affect survival of the cotton bollworm (*Helicoverpa zea*)

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Texas A & M's work proved that using Bb controls cotton bollworm, also known as corn earworm.

Bb has also been used to control insects and fungal pathogens in woody plants. Systemic movement thru the xylem and phloem allow this to occur. Seed treatment, in-furrow, or foliar applications can be utilized.

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Association of *Beauveria bassiana* with grapevine plants deters adult black vine weevils, *Othiorhynchus sulcatus*

Yvonne Rondot & Annette Reineke

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Journal of Invertebrate Pathology
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***Beauveria bassiana*: Endophytic colonization and plant disease control**

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ORIGINAL ARTICLE

Seed inoculation with endophytic fungal entomopathogens promotes plant growth and reduces crown and root rot (CRR) caused by *Fusarium culmorum* in wheat

Lara R. Jaber ¹

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