



**Inventors:**



*Dr. Mark Liles*  
Professor, Biological Sciences



*Dr. Joseph Klopper*  
Professor Emeritus,  
Entomology & Plant Pathology

**References:**

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**Contact:**

Troy Brady  
Auburn University  
Innovation Advancement  
& Commercialization  
334-844-4977  
[lifesci@auburn.edu](mailto:lifesci@auburn.edu)  
[iac.auburn.edu](http://iac.auburn.edu)  
Reference: Pectin



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## Inexpensive additive and method for increasing plant growth

*Auburn University is seeking a licensee or development partner for an additive that enhances the effects of certain plant growth promoting bacteria (PGPR).*

**Overview:** This method uses pectin, a natural, inexpensive, commercially available compound, that encourages growth of beneficial bacteria, which in turn aids in root, nodule, and plant development. Pectin's prevalence and acceptance in the food industry likely limits or eliminates the need for regulatory approval. This technology has been tested in soybeans and is expected to benefit other cash crops. Potential applications as an animal feed additive also exist.

**Advantages:**

- **EFFECTIVE** - Enhances the effectiveness of plant growth promoting bacteria.
- **INEXPENSIVE** - Pectin is inexpensive and commercially available in bulk
- **NATURAL** - Derived from agricultural waste, pectin is naturally derived and likely GRAS

**Description:** Plant growth-promoting rhizobacteria (PGPR) are widely used to enhance agriculture productivity and yield. With this technology, pectin, a naturally-occurring complex carbohydrate composed of simple sugars, has been shown to enhance PGPR effectiveness. Certain PGPR express and secrete enzymes that break down pectin and allow uptake of the resulting sugars. When used in combination with a known PGPR in soybeans, measurements of plant growth were amplified up to five fold over use of the PGPR alone. Increases were observed after four-weeks in root and shoot weight as well as root nodulation (see figures below). Increased nodulation may result in higher nitrogen fixation rates. Studies in other crops such as peanuts and other row crops are planned. Pectin-rich soil amendments combined with PGPR bacterial strains are expected to be a cost-effective and sustainable method for promoting plant growth and strengthening benefits of PGPRs currently on the market and in development.

**Status:**

- US Patent [10,888,593](#); pending continuation ([20220095628](#))
- Issued patents in Europe (validated in 6 countries), China and Brazil; pending in Canada
- Technology is available for exclusive, co-exclusive, non-exclusive or field of use licensing
- Demonstrated in greenhouse and in field on soybean using *Bacillus velezensis*; yield increases of up to 20% shown in field trials with certain cultivars of soybean
- Partnering opportunities include licensing, collaborative research and sponsored research

