

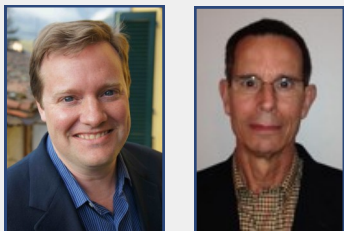
# AUBURN UNIVERSITY

## INNOVATION ADVANCEMENT & COMMERCIALIZATION

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Reference: Pectin

### Inventors



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### Reference

Hossain, M.J., et al, *Front Plant Sci.* 2015; 6: 631 ([Link](#))

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## Inexpensive additive and method for increasing plant growth

### Overview

Auburn University is seeking a licensee or development partner for a growth-promoting method for plants. The method works by encouraging growth of beneficial bacteria, which in turn aids in root, nodule, and plant development. This method employs pectin, a naturally-derived, inexpensive, commercially available compound, likely limiting or eliminating the need for regulatory approval. This technology has been tested in soybeans and is expected to benefit other cash crops as well. Potential applications as a feed additive in animal also exist.

### Advantages

- Uses an ingredient that is inexpensive and commercially available in bulk
- Enhances the effectiveness of plant growth promoting bacteria
- Naturally-derived and likely to be considered GRAS

### Description

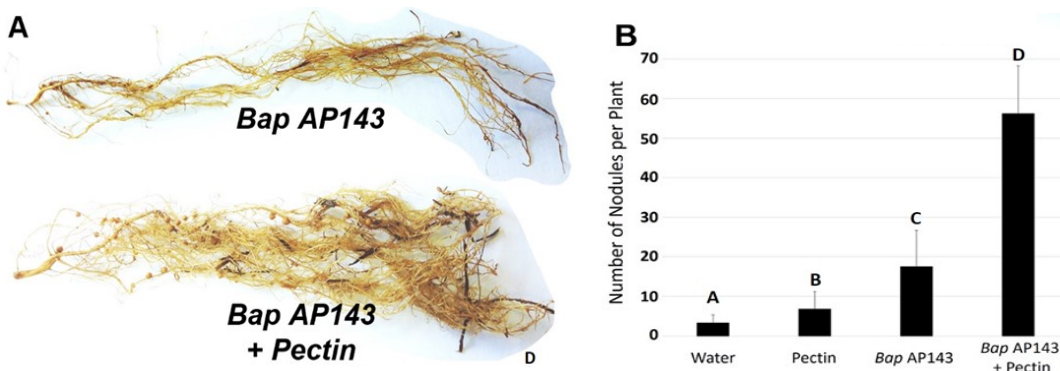
The growth-promoting compound is pectin, a complex carbohydrate composed of simple sugars such as D-glucuronate, D-galacturonate and D-mannose. Plant growth-promoting rhizobacteria (PGPR) express and secrete enzymes that break down pectin and allow uptake of the resulting sugars. When used in combination 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 corn and wheat are planned. We expect pectin-rich soil amendments combined with PGPR bacterial strains 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

- Patent applications filed in US ([20170202888](#)), Europe, China and Brazil
- Demonstrated in soybeans; studies in other cash crops planned
- Applications in animal health are being explored

### Licensing Opportunities

- This technology is available for limited co-exclusive licensing, including field of use
- Partnering opportunities include licensing and funded development



**Root Growth and Nodulation in Soybean when treated with a PGPR strain and Pectin.** (A) Root growth after soil treatment with a known PGPR strain *Bacillus amyloliquefaciens* subspecies *plantarum* (Bap) AP143 and with or without addition of Pectin. (B) Number of root nodules after soil treatment with a known PGPR strain (Bap AP143) and with or without addition of Pectin.