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# Durable bio resin development for commercialization of complex products

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## Partners:

Minnesota Corn Growers Association

Minnesota Soybean Growers Association

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Bio-Plastic Solutions, LLC (BPS) in collaboration with AURI, Minnesota Corn and Soybean Growers Associations undertook the project of: Durable Bio Resin Development for Commercialization of Complex Products. The project is driven by the building and trade industry's desire for an alternative to many petroleum base resins. The industry is looking for cost stability, sustainable and comparable bio resin options. The healthcare industry is one of the key drivers but most building and trade product OEM's are looking at options.

The collaborative project had several objectives; mechanically strong yet not brittle, fire retardant and weather-able while processed with standard equipment cost effectively. The objectives independently are attainable but the complexity of combining all creates the difficulty. Those difficulties took added time and costs to achieve the objects completed from the total. We accomplished the key objectives with the added support from BPS's strategic partners looking to commercialize the end result which equaled an additional 400% of the projects value.

The total collaboration reviewed many fiber options combined with petroleum suppliers' additives to achieve the set objectives. The project successfully met several expectations; mechanically strong and not brittle (2 times the strength of the competitive petroleum resin), several levels of weather-ability (more testing is needed to fully complete), and processed with standard equipment. The goals achieved are competitive with current petroleum resins options which are critical for commercial long term growth.

The goals achieved included sustainable supply chains, supply alternatives and options compared with costs to reach a board range of industry requirement. This provides BPS the ability to meet higher expectation that can tolerant higher costs versus lower ones.

Several obstacles remained at the project completion and will need to be resolved for broader commercial usage within those categories. The "continuous" "monthly" availability of fibers is one of the most critical concerns. This will be/can be resolved with volume usage expectations to justify the investment required to accomplish the task. Additionally, the cost efficient bio polymers available are ones with low heat resistance. That issue is critical to long term weather-ability and logistics during summer months. Suppliers are working to resolve this situation but it will take more time.

In conclusion the project accomplished 85% of the original goals. BPS is now in a position to begin commercialization of several new products and expand current products due to the collaborative development efforts. BPS thanks AURI and their partners, Corn and Soybean Growers Associations for their support in the project.