

# SHIFTING THE DELMARVA PLASTICULTURE



It is a long-established farming practice to use plastic to enhance the growth of fruits and vegetables. Organic farmers rely on plastic sheets to control weeds and pests. Most of the material ends up in landfills, is burnt in the field, or buried in the soil. All of these also contribute to the proliferation of microplastic particles. Unfortunately, there is no agricultural waste recycling program in the DelMarVa region.



Given the scale at which farming produces plastic waste, the safe disposal of agricultural plastics is a critical initiative in the Chesapeake region.

We plan to set up an agricultural plastic waste recycling facility in the region. Our idea recently won the grand prize at the College of Agriculture and Natural Resources Enterprise Challenge, a competition meant to challenge students to create better farming practices in Maryland.



Our project simultaneously addresses the issue of out of service poultry houses by using them as recycling facilities.

The necessity of this project was reinforced by interviews we conducted with farmers as part

of the Regional I-Corp program in January 2021. Many of the farmers we talked to claimed that they would be happy to pay equivalent or more than the current cost of Agricultural trash removal if there was an option to recycle in the DelMarVa region. Agricultural plastic use, or plasticulture, as it has been called, has an advantage over residential plastic use when considering recycling: a narrow and predictable range of types and forms of plastic waste. This makes the process of sorting possible at the scale required. What makes our project special is that we address more delicate issues unique to plasticulture recycling, specifically, the contamination of plastic with pesticides and fertilizers.

**In our enterprise we plan to procure machines necessary to sort and decontaminate agricultural plastics, and to convert them into forms which can then be sold. Our hope is to create standing facilities which will form a resource to local farmers. A company, who they can rely on for waste removal that removes plastic waste from the environment while adding control of the supply chain back to local communities.**

## WE RECYCLE THE UN-RECYCLEABLE



## OUR TEAM



### ENTREPRENEURIAL LEAD

KRISZTINA CHRISTMON  
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Krisztina is a PhD Student at the University of Maryland, Department of Entomology.

She is passionate about all aspects of research from the planning phase to publishing. Her previous educations are in Agricultural Engineering (BSc, MSc) at the University of West Hungary (Hungary) and in Evolutionary and Behavioral Ecology (MSc) at the University of Exeter (United Kingdom).

Her research focuses on the honey bee parasite *Varroa destructor* size, physiology and its correlation with miticide resistance. As it is a global phenomenon, she collaborates with scientists and labs from all over the world.



### TECHNICAL LEAD

BENJAMIN RICKLES  
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Ben moved to Maryland in 2016, to pursue a PhD in Neuroscience and Cognitive Science at the University of Maryland, College Park, where he currently studies neural processes involved in reading comprehension. Besides his interests in cognitive science, he is an amateur naturalist and DIY enthusiast who became inspired to work with plastic recycling by people such as Dave Hakkens, and by his experiences working with a community recycling organization, Keep Atlanta Beautiful. He has tried and failed to create his own machines to process plastic, but he has not given up.



### PRINCIPAL INVESTIGATOR

DR. ALBA TORRENTS  
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Dr. Torrents' research focuses on the fate and transport of organic pollutants in the environment. For the past 15 years much of her work has concentrated on developing a mechanistic understanding on the movement and transformation of agrochemicals in the environment. Recently her work has expanded to investigate the fate of emerging organic pollutants upon the sustainable use of wastewater treatment products, i.e. biosolids and wastewater and to assess the environmental impacts of animal farms.



### INDUSTRY MENTOR

DR. SUE JARBOE  
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Sue was appointed by the Governor to serve on the Iowa Department of Economic Development Board and Iowa Technology Commercialization Committee.

Sue led the business development and operations of Pioneer Hi-Bred International, Inc.'s China market entry. After Pioneer, she established a consulting company that she has operated successfully for nearly 20 years. Sue received a Ph.D. in plant breeding and genetics from Iowa State University and has an executive MBA from Purdue University.



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