Our objective: Create a biodegradable plastic for non-dairy frozen dessert bars, from local, GMO-free materials.

Advantages over wood sticks:
- No aftertaste
- No splinters
- Alternate materials grow faster and require less land than trees
- Scrap material from production is easily reused

So... how do plants become plastics?

The two most-used plant-based polymers are Poly-Lactic Acid (PLA) and Thermoplastic Starch (TPS), shown above. PLA is stronger, and TPS is less expensive.

Plasticizers are added to the raw polymer to increase flexibility. Fillers are added to reduce cost, and change rigidity and color. We are making our own polymer recipe that is less expensive than commercially available material, also allowing us to select sustainable local feedstocks.

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Mechanical Tensile Testing
Mechanical testing is performed on parts from development and scale-up production. An Instron 5582 testing platform is used to evaluate the mechanical properties of the tensile bars produced from various recipes. The test applies a force on the bar until failure, and yields:
- Maximum force applied at the breaking point
- Young's modulus: Stress versus strain ratio in the elastic region
- Percent elongation: Stretched length to initial length ratio