Biodegradable Plastic: Seaweed Alternative

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The sole purpose of my project is to replace polyethylene-based netting on hay bales with a netting that is digestible by cattle and biodegradable. The netting used today is not biodegradable and it gets built up in the rumen stomach of cattle who consume it. Netting is used to wick moisture off of hay bales so that it does not grow mold before it can be put to use as feed. Creating a much safer netting that serves the same purpose as the polyethylene-based netting does today is something that I have become passionate about through this science-research project. I created and tested three different kinds of polymers in my previous project, and this year I am focusing on one of the three polymers to engineer a consumable, biodegradable netting from. The polymer I have chosen to focus on is made from agar powder, glycerol, and water. I used this formula to mold my polymer into a thin, durable netting that would wick moisture from hay while still breaking down in the stomachs of cattle. I put the netting through breakdown testing to assure that it would accomplish its purpose. These breakdown tests were used to see how the netting would break down with bacteria in the rumen of cattle as well as acid rain.

Awards Won: