Wrapping it all up

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Bouchard Farm II — Shifting gears to produce
Straying off the beaten path
Polyethylene plastic mulch has become an essential crop input for specialty crops such as tomatoes, peppers, or berries. The plastic film provides benefits such as: limited soil erosion, soil moisture and temperature control, reduced weed pressure, increased growth rate, higher yield, and extended seasons. Plastic mulch film also works well in conjunction with modern irrigation and fumigation methods, often allowing growers to reduce their use of conventional herbicides. For these reasons, over 100 million pounds of plastic mulch film is purchased, laid, removed, and disposed of each year in the United States. With rising costs associated with its removal and shortages in farm labor, growers are facing seemingly unavoidable time and financial burdens.

Moreover, at the end of a growing cycle, plastic mulch becomes brittle and difficult to completely pull up from the soil. Once the row of film is sliced for proper removal, it’s pulled up from the shoulders, taking with it a valuable layer of topsoil beneath. Depending on applicable acreage, growers will spend anywhere from 3 days to 3 weeks or more on the removal of polyethylene film. Plastic remnants are often hidden underneath the soil and revealed during future planting seasons.

Another issue with plastic mulch is that majority of the film used in the U.S. is either sent to landfill or an incinerator. This places a large removal fee on growers because the added tonnage from dried topsoil adhesion increases the disposal cost. With existent premium charges on water and notable minimum wage increases, additional costs such as disposal fees make it difficult to predict the profitability of future growth cycles.

Soil biodegradable mulch films have been developed to replace the use of polyethylene mulch. These films are designed to provide all of the same benefits as standard plastic mulch such as weed reduction, yield increase and soil protection. However, instead of pulling up the mulch at the end of a growth cycle, it can be safely tilled into the soil for remaining degradation to occur and quicker turnaround of field availability.

In order for materials to be labeled “biodegradable,” they must be fully digested by microorganisms present in the soil, allowing for biodegradation to occur. The microorganisms digest the material as food for energy and carbon dioxide.
leave behind only water, carbon dioxide and biomass.

Truly biodegradable mulch films are regulated by North American ASTM D6400 or European EN 13432 standards for soil biodegradation or compostability. Certified films are labeled “biodegradable” and “compostable,” signifying that they meet industry standards for full biodegradation within a minimum specified timeframe. For ASTM D6400, the film must completely biodegrade within 180 days, and for the EN 13432 standards, the timeframe is 12 weeks.

Mixed messaging with terms such as “degradable” have brought confusion and deception to the marketplace for truly biodegradable films. Products without the biodegradable or compostable label do not meet industry standards for complete biodegradation. For example, the Ellen MacArthur Foundation’s New Plastics Economy has declared “oxo-degradable” plastics—including oxo-degradable mulch film—to be fragmenting into small pieces during degradation, contributing to microplastics pollution. As a result,
the foundation recommends banning oxo-degradable plastic from the market until it meets standards such as EN 13432 and ASTM D6400. Various regions have implemented laws protecting consumers from these fabricated marketing messages and misleading products. The state of California for example has instated a law prohibiting o xo-plastics from using the labels biodegradable and compostable.

The University of Tennessee and Washington State University’s agricultural departments have recognized the valuable benefits of biodegradable mulch film. The two universities are currently on year 4 of a 5-year study awarded $14 million by the FDA to test the performance of different biodegradable mulch films and determine any long-term impacts with usage. Results from the study are set to be released in 2018.

Overall, soil biodegradable mulch films may be a sustainable and cost-effective alternative to polyethylene plastic film. With minimum wage increases, costly disposal fees, and non-degradable remnants contaminating the soil, a mulch film with fewer time and budget constraints is ideal. And with biodegradable mulch film becoming increasingly popular, industry regulators should continue emphasizing the importance of product labeling and how it relates to official biodegradation standards.

For more information, please contact 763-972-1101 or info@organixsolutions.com

Utilizing a conventional triple mulch layer for biodegradable mulch film the same way it's used for laying plastic.

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