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Examinations of oxo-degradable polyolefin-based agricultural mulch film

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Polyolefin-based agricultural mulch films are widely used to extend the growing season for fruits and vegetables, improve yields and reduce the need for both irrigation and the application of pesticides. The careful addition of prodegradants and stabilizers to otherwise conventional polyolefin materials allows mulch films to degrade in a predictable way in the presence of oxygen and sunlight, thus eliminating the costs associated with removal and disposal of films at the end of the season.

In this presentation we describe the results of several ongoing research projects aimed at examining the behavior of polyolefin-based agricultural mulch films in both the field and laboratory environments. Three aspects of film performance are investigated. We have characterized the effect of films'colour on their ability to modify the temperature and moisture in the soil surrounding desirable plants. We have also examined the extent to which film degradation (as measured in both field and accelerated ageing environments using FTIR spectroscopy) can be modified by adjusting the film composition. Finally, we describe how exposure to pesticides may affect the degradation behavior of films.

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