

Coronavirus and Agricultural Plastics

Michael Stephen, an international expert on bioplastics, shares his thoughts and opinion on important issues impacting the bioplastics industry. Today, Michael writes about the Coronavirus and agricultural plastics.



Michael Stephen

Coronavirus

“Deadlines have to be respected” is the Commission’s rather pompous response to the European Plastics Converters (EuPC) letter requesting them to think again about the “Single-use” Plastics Directive, but Coronavirus is no respecter of deadlines and has completely changed our priorities.

Many decisions made before the epidemic have had to be reviewed all around the world to save lives, and last week I commented on the large number of authorities who have decided to repeal or suspend plastic bag bans made before the epidemic.

I agree with EuPC that “the coronavirus pandemic has thrown Europe into “a completely different world where hygiene and consumer health will be the number one priority. The freedom of circulation of these goods is necessary to keep hygiene, health and safety in the supply of many products, such as food contact materials, protective equipment, and medicines.”

EuPC said “The term single-use plastics is completely wrong and not justified,” – calling on the Commission “to lift all bans on some of the single-use plastics items” and postpone the deadlines in the Directive “for at least an additional year.”

The Commission summarily dismissed the health and safety concerns put forward by the European plastics industry, saying “good hygiene practices should be applied to all products, including substitutes of banned SUPs.” This is obvious, but protecting ourselves and our food from contamination is much more difficult without single-use plastics.

Completely missing the point, the Commission spokesperson said “the SUP Directive foresees exceptions for medical devices.” We are not here concerned with medical devices, but with the plastic items we use every day. Protecting our health and preventing food waste are now (and always have been) much more important than the Commission’s political obsession with “Single-use” plastics.

You do not need to be a genius to realise that a new checkout bag is much less likely to spread disease than a bag which has been re-used several times. We are very fortunate today to have plastic products which we can dispose of if they have been contaminated, but we must dispose of them responsibly, and they must be made with oxo-biodegradable technology in case they find their way into the open environment see www.d2w.net Even better, they should also be made with anti-microbial properties – see www.d2p.net

Agricultural Plastics

I read an article on 8th April in the US magazine “Growing Produce,” saying “Plastics are abundant in our everyday life because of their convenience, utility, and low costs. Plastic use in specialty crop production is no exception.”

“The utility and widespread use of plastics in agriculture also poses a problem — plastics don’t go away. In fact, it may take more than 300 years for polyethylene plastic film to decompose in soil”

“While much of the focus in the media has been on plastic waste in the marine environment, few recognize that most of the microplastics found in the ocean come from ordinary plastics that have been disposed of on land and transported into waterways and marine systems. There is also mounting concern about plastics in terrestrial systems and impacts on soil health.”

“Approximately one billion pounds of plastics are used in agriculture annually, and most of this is for single-use applications. Mulches rank third in terms of amount of plastics used in agriculture, and this material is typically disposed of by being burned, buried, stockpiled, or tossed in a landfill. None of these options are sustainable and they don’t alleviate the problem of plastics in the environment. However, biodegradable plastic mulches (BDMs) may be a tool that growers could use to reduce plastic waste generation while still capitalizing on the benefits provided by plastic mulch.”

“BDMs have been around since the 1990s and are engineered to function like standard plastic mulch except for end-of-life management. Rather than pull BDMs from the field and dispose of them off-site,

BDMs are designed to be tilled, or disked, into the soil. Soil microorganisms then biodegrade the mulch by using carbon present in the mulch for their metabolism, leaving no plastic fragments in the soil.”

So far so good, but the author then falls into error when discussing oxo-degradable, oxo-biodegradable, and photodegradable mulches, without distinguishing between these three completely different types of plastic.

She says “these mulches are sometimes erroneously sold as biodegradable but are actually standard, plastic polymers with additives incorporated that cause fragmentation after exposure to oxygen, light, and/or heat. Fragmentation is a physiochemical process, not biological, and there is no breakdown from the action of microorganisms in the soil. Thus, oxo-films leave plastic fragments in soil and contribute to plastic waste generation.”

This is correct in relation to oxo-degradable and photo-degradable plastic but not in relation to oxo-biodegradable plastic. The whole point of oxo-biodegradable technology is that it reduces the molecular weight of the plastic at the right time in the crop-growing cycle so that the plastic converts into biodegradable materials, which are then recycled back into nature by the microorganisms in the soil.

Symphony Environmental has carried out field trials of oxo-biodegradable mulch films in Wales which were very successful, and they would be happy to arrange trials elsewhere. Oxo-biodegradable plastics for agriculture are bespoke products, because each one has to be correctly formulated for the particular conditions on the farm and for the growing-cycle of the particular crop, so that it does not degrade too soon or too late.

The great advantage of oxo-biodegradable mulch films over bio-based mulch films is the ability to programme the performance to fit the particular timescales required by the farmer.

The author points out a further disadvantage of bio-based films. She says that “Currently available commercial films are only about 20% bio-based. Furthermore, genetically modified organisms are used to economically produce the biopolymers, and this is an excluded method for organic agriculture.”

Michael Stephen

Michael Stephen is a lawyer and was a member of the United Kingdom Parliament, where he served on the Environment Select Committee.

When he left Parliament Symphony Environmental Technologies Plc. attracted his attention because of his interest in the environment.

He is now Deputy Chairman of Symphony, which is listed on the AIM market of the London Stock Exchange, and is the founder and Chairman of the Oxo-biodegradable Plastics Association.

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