

# Sustainability at the heart of berries: A Driscoll's perspective

(00:00:00) Nataliya Shcherbatyuk

Hello and welcome to the Mulch Matters Podcast where we will explore the intriguing world of mulch and its impact on agriculture and the environment, as well as update you on the latest research about soil-biodegradable mulch and recycling options for plastic mulch. I am your host, Dr. Nataliya Shcherbatyuk, and I am a communications specialist for the project, “Improving end-of-life management of plastic mulch in strawberry system”. In each episode, we’ll dive into the latest research, trends, news, and insights on why mulch matters and how we can improve plastic mulch end-of-life options. We’ll also branch out and discuss other plastics as well as talk to researchers, experts, and practitioners in the field who will share their insights and experiences on how to use mulch effectively in different settings.

(00:01:02) Nataliya Shcherbatyuk

Welcome back! In today’s episode we will explore Driscoll’s, a fifth-generation family-owned company with over 100 years of farming heritage, working with 900 independent growers across 22 countries. I am pleased to introduce our guest today James duBois, who is a Senior Manager of Environmental Sustainability, who has 15 years of experience in water stewardship and environmental risk management. James will share insights on reducing field plastics and improving sustainability practices in berry production. Welcome James, it’s so great to have you with us today, tell us a bit about your background.

(00:01:52) James duBois

Thanks for having me, Nataliya, it’s great to be here as well. Yeah, so just a little bit about me: my career in the berry industry actually started with a Driscoll’s grower, one of the larger growers in the America’s. I started in the RD [Research and Development] and Applied Research areas. Mainly I was working to understand the adaptations, the potential of berry varieties in new growing locations, and this is everything from, we looked at everything from variety to plant dates, pruning methods on caneberries, fertility, and then, of course, the applications of plastics. So, I was exposed early on to the critical role that field plastics play in the production of fresh berries over time. My responsibilities changed and I ended up taking on more environmental resource initiatives, and then, you know, around 2014 and really a few years before the drought really opened our eyes to the need to focus on water risk and water resources at which time I moved over to Driscoll’s, so that the work that I was doing could benefit more growers. And over time we began to see the need to address the impacts of field plastics and we added field plastics as a focus area within our environmental efforts.

(00:03:06) Nataliya Shcherbatyuk

That's quite fascinating, and James, can you tell us a little bit about Driscoll's and its mission?

(00:03:11) James duBois

Sure, yeah. So, Driscoll's is a fifth-generation family-owned company. It's based on the Central Coast in California the Pajaro Valley, Watsonville is a community there. We have over 100 years of farming heritage working with currently 900 independent growers across 22 countries and 6 continents. Driscoll's develops patented berry varieties for their growers using classical breeding methods. You know that focus is really on great-tasting berries. The network of independent growers takes full ownership of the production of the crop and once those berries are harvested that's when Driscoll's role comes into play and Driscoll's owns the marketing sales and the distribution of the berries. Consumers reached are about 350 million globally, and our mission is to continually delight berry consumers through alignment with our customers and our berry growers, and our vision is to become the world's berry company enriching the lives of everyone we touch.

(00:04:19) Nataliya Shcherbatyuk

Yeah, that's really interesting. And James, why Driscoll's is taking the environmental impact of field plastics?

(00:04:28) James duBois

Sure, yeah, so a few years ago we reviewed our total plastic footprint and we looked at field plastic as well as packaging, we did come to the conclusion that most of our plastic footprint comes from consumer packaging. Which is, you know, an area of focus as well. But I personally focus on field plastic. So, the use of plastic in berry production which I'm going to refer to field plastics throughout this conversation, it's diverse and it contributes significantly to the total plastic footprint.

So, it's not our biggest you know piece of plastic footprint, but it's a significant contributor, enough so that we realized we needed to focus on it. And just I think it's helpful to briefly go over the different applications of field plastics how, we use, how our growers use plastics in the fields. Starting with tunnels, so tunnel plastic is the placement of a clear polyethylene film over a temporary, so looks like a greenhouse structure, we call them high tunnels or some folks refer to them as Spanish tunnels, and they're primary, tunnels are primarily used in caneberries, but we, some growing areas, especially sort of

winter production areas they can be used for strawberries as well and these hoops tunnels or hoops modify the air temperature and light qualities in the growing environment. They also protect the plants from rain or wind, dust, volcanic ash even in the past. So that's a tunnel, tunnel plastics are you know, significant portion of the field plastic footprint. They are used for multiple years. It's a fairly high-quality film and it's often quite clean when it comes off the field. It doesn't have any soil contact, that'll come into play later when I talk about, you know, sort of how yeah, the recyclability of these films.

Drip tape, you know, delivers water and nutrients to the plant, you know, in place of furrow irrigation or sprinklers. So virtually every acre of field of grower field production is employees drip tape or some kind of a drip emission system. And then bed mulch is, you know, what you see in a strawberry field. So, it's the polyethylene plastic covering of a strawberry bed, with many different characteristics. So, thickness, colors, and that bed mulch modifies the soil temperature. It can either reduce it or increase it, it protects against weeds, reduces evaporation from the soil surface. It just really increases fruit quality as well. So fruit can actually rest on plastic versus bare soil and then, you know, another type of soil contact plastic that's out there as a weed mat or a ground cover, and similar to the function of plastic bed mulch, but these are generally woven and they're in the field for a longer period of time, typically used those more in caneberry applications, you know, we also have container grown caneberries. So, there's pots and gutters to collect drain.

So, there are some other more minor uses of plastics out there as well. But I think that those are the big ones and so you know overall these materials, they improve the yield of these crops the predictability of the crops, they allow, you know, greater resource use efficiency and I mentioned food safety, I mean it's food safety and fruit quality really, right? So, the more we can kind of keep the elements away from the surface of the fruit you know, the better our quality is. So, I just, you know, I spoke to all these benefits but we, you know, we've long seen the issues associated with the end-of-life disposal and solutions of these plastics and some have been recyclable for quite some time and some are not and it until we really started this initiative it wasn't clear to us or to our growers as to why and really whether there was anything that we could do to increase the recycling rates, you know, of some of these, you know, harder to recycle plastics. So there had been regional focus earlier, you know, you may have a certain growing district that had projects associated with field plastic recycling, but the sort of Americas-wide, you know, the Driscoll's of the America's approach and focus and really commitment started in 2020. And the impacts of focus are end-of-life solutions, and I'm sure you know many of the listeners of this podcast know field plastic recycling, you know, even of the cleanest materials is never a guarantee, but too much of this material has gone to landfills and had its impacts on local communities. So, we think that, you know, recycling, increasing the recycling rates is possible through focus, and coordination, and investment.

That's interesting and at the same time you led me to the next question, and you sort of covered already part of it, and I wanted to ask you about Driscoll's approaches and commitments to minimize their impact and do you have anything else to add to it?

(00:09:59) James duBois

We work to balance and really sort of in from a general perspective. We work to balance the functional aspects of field plastics in berry production with the desire to mitigate its impact on the environment and on the local community resources. Whether that's retrieval or landfill, what does that look like, and we generally divide this work into three work streams, I mean in some cases we can actually reduce the amount of plastic that we apply to fields and through usually that's through, you know, different types of polyethylene products, sometimes are thinner materials that retain some of the sort of elastic or durability characteristics that we require, and there are some. We're also working on substitution or replacement of plastic opportunities there as well.

So, you know, bio-degradable mulches are out there. We still think the cost and durability is still a long way off, but, you know, regardless of what we have, and we continue to test new materials from space. We've got a few materials out there this season. In fact, that we're looking at and a few materials that we're looking at a second time, there's been some initial promise, so we'll then put those materials into a more kind of standard, you know, grower environment where it's getting hit by a tractor, harvested, stepped on, all those things and, you know, we'll look at the durability, but, you know, the bulk of our time and focus on this initiative is really increasing the recycling rates of plastics that are currently in use. There's, you know, talk of advanced or chemical recycling which we are testing and we are piloting in a very small scale with various vendors, but the real solution that we're working on is mechanical recycling and so for tunnel and drip tape mechanical recycling has been an option for quite some time, they're, you know, fairly high quality materials, they're either very clean or easy to clean and it's really a question of coordination with existing vendors or service providers. There are processes of which, you know, which will process to clean and recycle these products, so the outlets for tunnel or drip tape, the outlets exist, they just need to be coordinated and communicated to the grower at the right time, you know, right at the end of the season, or, you know, and in many cases the growers are, they have their own sort of relationships with collectors and recyclers and they recycle those materials.

Now, the other side of this is the soil contact plastic, so mainly, you know, strawberry bed mulch that's the primary focus for us. It's trickier, recycling rates are low or zero, requires a lot of focus to uncover solutions. But it's really what we found is really the holistic approach to retrieval methods, collection processes, logistics, you know, processing, and then the end user recycling. So that's been the bulk of our focus within this effort is on strawberry bed mulch and that's the most challenging, there's a high volume generated on an annual basis, it's fairly concentrated, so that helps us, but some of the

logistics and while it has significant amounts of soil and plant matter which are problematic, it is somewhat uniform even when you compare it to sort of municipal waste streams. It's all the same type of polyethylene, generally the same types of contaminants.

(00:13:50) Nataliya Shcherbatyuk

And could you share with us some recent breakthroughs and collaborations?

(00:13:58) James duBois

Sure, most recently we've partnered with Flipping Iron and Andros, and so Andros is a manufacturer of retrieval and processing systems for plastics as well as other materials, and Flipping Iron is a collector and recycler. An additional partner that I'm to speak to is Reiter Affiliated Companies which is a major grower for Driscoll's. So, those four parties have really come together. We initially piloted 300 acres of strawberry mulch out of the Watsonville growing district, and we used Andros equipment to retrieve and roll that plastic, and then once retrieved the mulch rolls are cut, sized and cleaned of foreign material, so, you know, dirt and organics plant matter, and then the final step of this pilot is compressing and bailing for transport. So, Flipping Iron manages sales and transportation of the material and, you know, end products or anything from generally films, single use films, construction sheeting, bag liners, grocery bags, some other uses as well. We had some initial success at that scale. So, the next season we increased the scale to 800 acres and this was out of the Oxnard off cycle program in which the material comes out of the field in January and February and, but, you know, very successful. You could argue this was the most difficult environment to test, this new process, because anybody that lives around California knows that we had an abnormal amount of rain here, so, the fields were in January and February were difficult to access. There was a lot of mud retention on the plant, on the plastic, the plants kept growing, so there was quite a bit more plant matter than usual, and even though there was those challenging conditions, you know, it was successful and the customers came back for more, asked for more of this material, so we're now in the middle of sort of the next, the third phase of this pilot which is we're really at commercial scale now and, you know, we're over 2,000 acres, we'll probably do another 1,200 acres in the next few months, so again, just to kind of put that all into perspective, we were at three years ago we in California there was zero acres of strawberry mulch recycled and just a couple years we've gone from zero to a few thousand acres. So, yeah, I mean and while this is successful it still costs more for the grower to recycle this material than to dispose of it in the landfill, that gap is shrinking. And this is really, you know, we call what we call we're working towards cost neutrality, and we really think that this is where kind of the other collaborations come into play that are currently outside of the pilot. But, yeah, we, public agencies and foundations are becoming involved, everything from, you know, county agencies, landfills, to the national marine sanctuaries, there's the development of funds to solve the

challenges in space. We worked with UCSB Bren School to better understand the impacts of plastics opportunities tradeoffs associated with, you know, the alternatives and then we're participating in the Washington State Specialty Crop Research Initiative which is really a great collaboration platform that essentially addresses all of the everything I've spoken to all of the alternatives that I mentioned yeah, and yeah, at scale it's really important that the industry peers and, you know, you call them our competitors, engage as, you know, we think that scaling this effort is really the clearest path towards cost neutrality, I mean, I mentioned and 2000 total acres, but the industry in just California is 40,000 acres, so we have a long ways to go.

(00:18:17) Nataliya Shcherbatyuk

So yeah, but it's quite impressive I got to tell you, and can we, let's talk more, let's talk more about challenges. I think it's quite important for our listeners to hear and understand actual challenges you are facing.

(00:18:31) James duBois

Yeah, I'll reemphasize cost neutrality. It's, you know, up to this point the pilot has been, you know, we're funding this pilot, Driscoll's is participating, you know, in some funding, our major grower partner is contributing funds above and beyond what the cost would be for landfill disposal, and, you know, the amount needed per acre is going down, you know, each time we do this we're finding efficiencies, but just cost neutrality, without cost neutrality it's going to be difficult to, you know, bring in, even other Driscoll's growers, but much less the industry participants. So, we really think that's critical step is getting as close as we can to cost neutrality.

I think another challenge that we're experiencing, and this is quite recent, is the drop in prices of recycled materials. So, I, you know, there's there are others, that are far more informed on this than I am, but and we are hearing that the market has changed really everywhere globally and, you know, the folks that are in this space, the plastic, in recycle plastic space are used to this. There's changes in pricing all the time, but in general these drops don't last for too long, but, you know, it is a concern of, you know, could there be a long-term drop in pricing and what would that do, this pilot has been in an environment of kind of stable pricing up until the last few months, and I'd say, you know, one of our concerns, specifically about these field plastics, is while the material isn't variable and the types of contaminants, you know, the soil, you know, it's always soil, it's always plant matter that's the concern, the amounts are variable. I think we did a great job with our, you know, with our pilots up until now we work through, you know, very rainy periods, which you could argue, you know, as I said earlier, these are perhaps the most challenging, you know, retrieval and processing events, you could have had but yeah, those rates are variable and we,

I can't say that our pilots up until now have sort of covered all the different soil types and all the scenarios. So, we're going to learn more about that variability, you know, over the next year or so.

(00:20:54) Nataliya Shcherbatyuk

Yeah, interesting. So, James, tell us what's next? And I'm talking about let's say 3-5 years outlook.

(00:21:04) James duBois

Yeah, there's a couple things here, I mean one is there's really a need for an industry wide effort and, you know, this is a precompetitive effort for us know we believe that there a solution isn't necessary for the whole, you know, berry industry, so we have had growers that grow fruit for other marketers. We've had them bring their plastics in for it to be processed. It's been a small acreage, but we're really trying to kind of open doors to these pilots. So that, you know, folks outside of the Driscoll's umbrella and can have some exposure to it participate in it provide feedback. We think that, you know, that there's, there will be value in hearing more perspectives, so, like I said, I mean the acreage just been minimal so far outside of Driscoll's, but we feel like it's going to increase, and we feel like it's key to the long-term success of this work, and then, you know, additionally, we're developing a vision of sort of what a more formal or robust collaboration within the industry could look like, and, you know, that's something that we're working on, you know, as we speak, and over the next few months here, you know, bringing the different marketers and growers together to figure out what the future of this is and needs to be to increase participation, so, I mentioned the berry industry, but we also need to include the manufacturers of these materials, the producers, I mean essentially anybody that touched the production or the distribution and the use of these materials, but, you know, specifically we're referring to and the extended producers, you know, or EPRs is not coming here out there, so we think the producers of these materials need to be far more involved in the in the reduction of the impacts and in the participation, you know, towards solutions for these materials. So we're actively, we're actively engaging with these folks now and we're optimistic about their increased involvement, and like maybe a final area this may be it, could be three to five years, maybe it's a little bit further out, but it's some area that we're definitely signaling to everybody involved in the space, we see the need for the development of closed loop products, you know, within kind of looping back into the agricultural supply chain specifically the berry production supply chain. That could be distribution or logistics as well, but, you know, in order to do that, we need to more closely collaborate with the folks that manufacture these materials, you know, to take into account, you know, the recyclability of the product, but also to consider ways in which we could maybe increase the recycle content of these materials, you know, these field plastic products.

(00:24:08) Nataliya Shcherbatyuk

WOW, this is great, really exciting I've talked to you today. Well thank you so much, James, for the great discussion!

(00:24:15) James duBois

Yeah, happy to be here, thanks again for having me, and it was a pleasure.

(00:24:17) Nataliya Shcherbatyuk

Since the recording of this podcast in Fall 2023, Driscoll's has made significant progress towards their goals of recycling 100% of field plastics. Starting at zero acres in 2022, Driscoll's nurseries and growers have recycled nearly 8,000 acres of fumigation and bed mulch plastic to date, with 3,000 acres of bed mulch in 2024 so far. The progress to date is a milestone for the industry and brings Driscoll's one step closer to meeting their 2025 recycling goals.

(00:25:04) Nataliya Shcherbatyuk

That's it for today and until the next episode. You can find more information by following us on Instagram and LinkedIn by @mulch\_matters and going to our websites [www.smallfruits.wsu.edu](http://www.smallfruits.wsu.edu) and choose mulch technologies. This work is supported by Specialty Crops Research Initiative Award 2022-51181-38325 from the USDA National Institute of Food and Agriculture. Any opinions, findings, conclusions, or recommendations expressed on this podcast are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

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