



Monterey Council Sustainable Work Group The Future of Recycling: Monterey County Produce Industry

September 27, 2018

Presenters

- Teresa Bui**, Special Advisor to the Director of CalRecycle
- Tim Brownell**, Director of Operations for MRWMD
- Louis Vasquez**, Director of Corporate Development, Revolution Plastics
- Marcy Rustad**, Chief Operating Officer, Think Beyond Plastic
- Robert Donnelly**, CEO, California Almond Growers Association
- Tod Rinkenberger**, Director of Business Development, Netafim
- Joe Ross**, Founder and Co-CEO, rPlanet earth
- Lucky Westwood**, Operations Manager, California Giant Berry Farms
- Frank Toves**, IDC Irrigation and Construction

Participants



Nikki Rodoni, Founder and CEO, Measure to Improve, LLC

Welcome and Problem Framing

- Sustainability needs to start with a good business case that can be translated into environmental benefits
- This meeting was made possible with the support of our sponsors.
- Given the topic of this meeting, we have decided to make this a zero-waste event. While some trash will be created, we will be diverting at least 90% of the material from the landfill.

Monterey County Sustainability Working Group (MCSWG)

- The working group was founded in 2012 with the goal of creating an opportunity to network and share best practices and current sustainability efforts among agriculture producers and processors.
- This is MCSWG's 25th meeting and a great example of exactly what was intended for this group to become.

Recycling Crisis

- No one person or group can solve this problem.
- Our goal is for everyone to walk away with a basic understand of the current state of recycling and the inspiration to take a proactive approach to dealing with this issue, before solutions that are cost prohibitive or don't make sense in this industry are mandated.
- Monterey County Agriculture is among the most productive in the world – the industry is an economic engine for the region.
- Plastic is a valuable resource in this industry, used at every level of our operations, but it comes with environmental costs.
- China's National Sword policy sets much tougher standards for contamination levels in recyclable materials.
- Innovation is not new to the agriculture industry, and we will be able to meet these challenges too.

Teresa Bui, Special Advisor to the Director of CalRecycle

State of Recycling in California

A. CalRecycle Overview

- a. CalRecycle is a state organization comprised of over 700 employees that oversee all state recycling programs and work with industries on issues that include e-waste, rigid plastic packaging, beverage containers, and extended producer responsibility (EPR).

B. California's Recycling Laws and Programs

- a. California has several material-specific laws, as well as overarching laws to meet recycling goals.
- b. AB 341, Mandatory Commercial Recycling
 - i. Passed in 2011 and sets a goal to have 75% reduction of waste by 2020. To reduce waste, materials need to be diverted from the landfill to recycling and composting.
 - ii. To date, California has been able to reduce waste to landfill only 44%.
- c. SB 1383, Organic Waste Methane Emission Reductions
 - i. 23 million tons of organic waste were disposed of in 2014
 - ii. Passed in 2016, SB 1383 lays out the following goals:
 1. 50% reduction in landfilled organic waste by 2020
 2. 75% reduction in landfilled organic waste by 2025
 3. 20% increase in recovery of currently disposed edible by 2025

- a. The food recovery goal is unique, and it's the first in the world.
- b. This goal will reduce 4 million tons of GHG by 2030.

C. Current State of Recycling

- a. "Gone is the time when we could put our waste on a cargo ship and call it recycling."
- b. China's [National Sword Policy](#) significantly reduces the amount of recycling the US can send to foreign markets and reduces the acceptable contamination levels.
 - i. 11 million tons (including 7 million tons of paper) of recyclables from California were being sent to foreign markets, and the bulk of that was to China
- c. "Materials that were previously recycled are going to landfill, because there is no market for them."
- d. This is because domestic waste management facilities were focusing on collection, instead of processing and manufacturing.
- e. "As international markets diminish, it's increasingly important to support in-state and domestic processing and manufacturing for post-consumer recyclable materials."
 - i. Across the state, 30,000 bales of mixed paper are stockpiled while waiting for proper recycling.
- f. Recycling, once a revenue generator, is now a cost to local governments and many municipalities are encouraging waste prevention and clean material streams.
 - i. Long Beach banned single-use [Expanded Polystyrene](#) in food distribution and requires that replacement products be recyclable or compostable.
 - ii. SB 1335 mandates state agencies use only compostable or reusable foodware.
 - iii. Cities are installing water machines to encourage reusable water bottles.
 - iv. Sacramento is no longer accepting plastics 4-7 curbside and is slowing down lines to ensure clean plastics.

D. CalRecycle's Packaging Reform Initiative

- a. A waste characterization study found 26% of waste in California is from packaging.
- b. "[California's recycling] goals are out of reach unless we address packaging's impact on the waste stream."
- c. Packaging changes rapidly and is necessary across all industries.
 - i. "How do we decrease its environmental impact and increase its economic usefulness?"
- d. The Packaging Reform Initiative is reviewing all packaging material types in the California market, including primary, secondary, and tertiary packaging, to identify goals and strategic methods to reduce packaging waste.
- e. This statewide approach focuses on innovation and meaningful, measurable, and enforceable goals.
- f. Part of the solution will be a closed loop system, which will require developing in-state and domestic infrastructure to manage post-consumer packaging.

E. What can you do?

- a. Use reusable containers and systems.
- b. Expect more from your vendors.
- c. Apply compost.

Tim Brownell, Director of Operations for MRWMD
Future of Recycling for the Monterey County Produce Industry

A. Monterey Regional Waste Management District (MRWMD) Overview

- a. MRWMD has a landfill, a reuse facility, a composting facility, an anaerobic digester, and a new Material Recovery Facility (MRF).
 - b. MRWMD processes residential and commercial materials
 - c. The district's new, state-of-the-art MRF opened in February 2018.
 - i. The MRF's overarching goal is to separate a single stream of recycling into 17 different streams and commodities.
 - ii. The MRF sorts materials by size, density, and material.
 - iii. Materials are sized down to 1 inch.
- B. MRF Goals:
- a. Divert 75% of materials from landfill
 - b. Meet the state's 65% reduction of C&D debris goal
 - c. Removing organics from landfill
- C. Changes in China
- a. China is now only accepting only #1 and #2 plastic bottles (water, milk jugs, etc.)
 - b. U.S. built facilities with China in mind for 20 years. Most plastic separation was not done in the US, because China would do it by hand at lower cost.
 - i. Plastics that were not recyclable were burned, creating hazardous environmental conditions.
 - c. China is only accepting materials with less than 0.5% contamination.
 - i. For every 2,000 lbs., less than 10 lbs. can be contaminated
- D. Challenges and Solutions
- a. Labels and label backing clog the MRF.
 - i. 8 people for 6 hours a day clean the labels out of the machinery.
 - ii. Labels should be going directly to landfill.
 - b. Finding markets, domestic or abroad, that will take materials post-MRF.
 - i. MRWMD has had some success marketing certain materials that come to the MRF source separated. The materials are not run through the MRF, and are instead processed and baled separately.
 - 1. For example, MRWMD works with Republic Services and Taylor Farms to separate film plastic for recycling. The film plastic has been kept clean and dry and are only clear or blue, to meet customer's standards.
 - c. In the past, the culture was "if you don't know, recycle it". With new restrictions, everyone needs to change to "if you don't know, throw it in the trash"
- E. Remember: Recycling doesn't happen at the curb. Recycling happens when materials are purchased and reused. Everything we do in between is to get the material to that point.
- F. What is MWRMD doing? MRWMD created:
- a. The "What Goes Where?" app – a mobile application for consumers that explains where and how to recycle materials.
 - b. Local campaigns to educate the public.
- G. Recycling in Agriculture
- a. The materials generated in agriculture cannot be recycled curbside, but certain materials can be recycled if they are clean, dry, and source separated.
 - b. Generators of large quantities of these materials should work cooperatively with their vendors to identify solutions for recycling.
 - c. How to collect these materials and divert them from the waste stream should be part of a larger conversation going forward.

Q&A with Theresa Bui and Tim Brownell

- **Nikki Rodoni, Measure to Improve: One of our company's initiatives is to help our customers achieve zero waste in their facilities. Before, we could recycle film plastic. With regulations in China changing, how do we guide our customers in this area?**
 - Tim: That depends on the volume of generation. For large packing houses, haulers are indicating there are opportunities for collection locations for film plastic. For residential and smaller film plastic producers, we are exploring the possibilities of public source separated collection services and drop off areas. Unmonitored sites may lead to contamination, however, due to dumping or a lack of recycling education.
- **Question: What impact do pressure-sensitive labels have on a PET container recyclability?**
 - Tim: Labels do not affect the recyclability of a PET container. MRWMD's facility prepares materials for market; plastics typically go to an intermediate processor that washes and grinds up the material, which removes the labels.
- **Question: My office collects bottles and cans; can those be kept together or should we be separating them by material?**
 - Tim: They need to be separated for buy-back.
- **Question: Will CRV expand in the future?**
 - Teresa: There is interest in expanding the buy-back program, but the legislature would need to pass new regulation to make that happen.
- **Question: What should ag industry be focusing on to help resolve this problem? What are the next steps?**
 - Tim: The crisis has a few major components. One issue of being able to extract the valuable material from a single stream and move it to a market for further processing. Another is the economics of recycling. MRWMD received \$80/ton for bailed paper in 2017, but in 2018 they are paying \$23/ton. Producers should focus on separating at the point of generation, but food safety make storing material on-site impossible. We need to be having these conversations with haulers, producers, and the district.
 - Mandy: Also need to shift from talking about the back end to talking about changing what the materials are made of. This takes time and needs to be part of a larger conversation. Producers should start considering their business from beginning to end, redesigning it to produce less waste.
 - Stephanie, A&S Metals: Mandy contacted us about 1.5 million #5 pp cups a client wanted to recycle. If you can isolate a single material, we can recycle it. It might cost money, but we can find an outlet.
- **Question: If the goal is to drive up the value of recyclable materials by improved sorting and other practices, could financial incentives be put in place to encourage this? For example, could producers pay less to dispose of the materials if they are clean and sorted?**
 - Tim: Potentially, yes, but it would need to be done through the haulers, who would then determine how to incentivize generators. MRWMD is still working on pricing and hopes to have more info on this at the end of the year.

Luis Vasquez, Director of Corporate Development for Revolution Plastics

Extended Producer Responsibility in the Agricultural Film Market

- A. Commercial agricultural films are a wide range of materials, leading to challenges for recyclers and processors.
- B. These materials will continue to be used because they increase yields, are cost effective, and are easy to use.

C. Extended Producer Responsibility

- a. "Extended producer responsibility is the producer's obligation to design products with all stages of the lifecycle in mind"
- b. This is challenging for manufacturers because during the design stage you need to have the recycling and disposal in mind, not just the use phase.
- c. For example, polyethylene drip tape is made with a nylon string coated into it to increase durability and effectiveness, however, that composition would be extremely difficult to recycle.

D. What is the solution for Manufacturers?

- a. Manufacturers need to work collaboratively with recyclers to create beneficial recycling solutions and products for consumers

E. Revolution Plastics, "The Good Plastics Company"

- a. Privately owned and founded in the Mississippi Delta with environmental values
- b. Founder learned his products were being burned, buried, or landfilled after use. He invested in a system that could take back and reuse the products to close the loop.

F. A New Producer Standard

- a. The five steps for achieving Revolution Plastic's New Producer Standard:
 1. Closed-loop Manufacturing
 2. Strategic Distribution Partnerships
 - a. Work with partners to bring products to market, and work with farmers to collect products on farm.
 3. High-Quality Products for Various Agriculture Applications
 - a. The only way this works is to provide a product that performs and is cost effective.
 - b. Manufacturers may need to work on the back end to create a collection scheme that is cheaper than landfilling product.
 4. Efficient PCR (Post-Consumer Recycled) Production at Recycling Facilities
 5. Disrupt Consumer Film Product by Introducing PCR-rich Products
 - a. Incorporating high values of PCR into products and providing them to the market closes the loop on the supply chain.

G. Recycling in Monterey County

- a. Revolution Plastics is currently focusing on collecting products made with thicker plastics
 - i. They are looking to expand, but currently have a limited capacity and must focus on items that are economically viable.
- b. They would like to work collaboratively and open the conversation with local businesses to understand their recycling needs and to create solutions with them.

H. Case Studies

- a. Working with ag processor (Central California Almond Growers Association) and 3rd party producer (Toro Ag Irrigation) Revolution Plastics has closed the loop with their film plastics and drip tape, respectively. They have reduced the amount of plastic going to landfill, and increased products made with PCR.

Marcy Rustad, Chief Operating Officer, Think Beyond Plastic

Advancing Commercialization of Innovation and Technology for a New Plastics Economy

A. Plastic Use

- a. Plastic will not go away. It has unique characteristics – it's durable, light weight, etc. but we need a new relationship with plastic.

- b. We should treat plastic like gold or silver; it is extremely valuable and will stay around forever.
- c. How long does it take a disposable diaper to break down? 450 years
- d. How many plastic bottles are produced in the US per year? 500 billion plastic bottles

B. Changing Trends

- a. The industries with the most money and greatest political will are working against creating plastic alternatives.
 - i. The chemical industry
 - ii. The petroleum industry
- b. Petroleum prices are down, to make up for losses, the industry turns to plastic
- c. We expect a 20-fold increase in plastic usage by 2050.
- d. Only 14% of recyclable plastics makes it into the recycling stream. Only 2% gets turned into a product of value, the way Revolution Plastics does.
- e. The Ellen McArthur Foundation is spearheading the international work on plastic
- f. "Europe is far ahead of the US in terms of how we're thinking about plastic and what we're going to do about plastic. "
- g. "Here in the US we want to sit on our hands right now. Those of you that want to do business internationally need to be prepared to deal with all of the international legislation, all of the standards being set. Just like China not taking our trash. If we're going to be players, we need to play. Otherwise others around the world are going to be making this decision for us."

C. Think Beyond Plastic

- a. A nonprofit innovation accelerator that works with researchers, innovators, and industries to work upstream and find alternatives to plastics.
- b. For example, there are new feedstocks, such as algae and seaweed, that behave like plastics but are not petroleum-based.

D. New Plastic Alternative Trends

- a. Edible materials; ex. edible straws
- b. Plastics from food waste; ex. Google takes all food waste and puts it into a biodigester. The resulting material is used to make cutlery, which can then be put back into the biodigester.

E. What's the future?

- a. Local and International Partnerships
- b. Some industries are holding Innovation Challenges on an international basis to find the brightest minds and ideas around the world.
- c. Collaboration, Creative Thinking, Investment, Public Policy

Q&A with Luis Vasquez and Marcy Rustad

- **Question: How do we work to ensure that the new materials we come up with aren't just as bad or worse?**
 - Marcy – need to work together to ensure that we watch these issues. Human health is a whole other issue.
- **Question: How can we help communicate our changes from one packaging type to another? We are being asked to show the reduction in plastic caused by switching from clamshells to plastic bags. Consumers believe bags provide fresher produce.**

- Marcy: This is part of a serious trend toward bags and pouches. This is in part because we can heat process that kind of packaging, but as of now they can only be landfilled. Instead of figuring out how much plastic you are saving, work with your buyer to avoid switching from a recyclable material (clamshells) to a non-recyclable one (plastic bags.)
- **Question: What kind of policy changes do you think we should try**
 - Marcy: There are lots of options. Europe is taxing plastics, which makes it more competitive to use alternative materials, which can be more expensive.
 - Louis: It also comes down to demand for recycled content. If users are demanding it and the manufacturer is willing to work through the headaches of switching to PCR material, there is a limited supply of recycled feedstock, so if demand goes up.

Success Stories

Robert Donnelly, CEO for Central California Almond Growers Association

- The Central California Almond Growers Association is a co-op that uses fumigation plastic to cover almonds brought in from the field. The almond association is a large generator of plastic and was looking for a way to lead the industry with plastic recycling.
- After seeing the overwhelming amount of plastic generated, the Association worked together with Luis Vasquez, of Revolution Plastics, to get a closed loop system going.
- Their closed system is cheaper than the other suppliers, so they came to them at a good price. Space is required to hold the plastic, but Revolution Plastics picks up in a timely manner, and this is only a minor inconvenience.
- “I’m glad we got together. One of the main things is it’s not that you have to take a risk, you just have to think outside the box with someone like Luis with Revolution Plastics that can help everyone out.”

Tod Rinkenberger, Director of Business Development for Netafim

- Netafim is a global leader in drip irrigation that is always looking for unique, market-based solutions to problems.
- For years Netafim has incorporated recycled content in products for the landscape industry because a sustainability certification, LEED, gave building owners points for using products with recycled content.
- Netafim responded to a market signal driven by a certification organization that gave recognition to people making environmentally responsible decisions.
- They are consistently looking at the materials entering the waste stream for ways to extract value and increase recyclability.
- Netafim is interested in closed-loop systems; it is a matter of finding demand signals to drive them.

Phil Barhouse, Founder and Co-CEO of rPlanet Earth

- For over 30 years, Phil has been a packaging engineer for the agriculture industry
- His new company was established with the goal of taking clamshells, plastic bottles, and other PET plastics and recycling them back into their original form
 - They are not downcycling plastics, turning them back into their initial use.
- Getting enough material and getting a consistent volume of material has been challenging

- As an industry, agriculture needs to share information. A solid technology base will make the difference.

Lucky Westwood, Operations Manager for CalGiant

- Remember the formula: reduce, reuse, recycle. Reduce is first for a reason.
 - We started taking the paper and wax out of our tray about 10 years ago.
 - If we take one ounce out of our packaging, that's over 60 tons of material a year!
- The berry industry in particular has taken a lot of recycled content.
 - Berry packaging uses 70-80% more recycled content, but that's only one more use.
 - MRWMD can recycle clamshells, but that's not the case around the country.
- I've found the recycling industry is very fragmented. You go around and get a lot of different answers about what can be done and what is done. These people are not in this business because they're environmentalists, they're here to make money. We need to find ways to make this process more efficient. This is about looking at the whole supply chain and making decisions.
- We've been talking to our manufacturers, recycling, industry trade groups, trying to find a clear path for PET packaging to go back into food grade. It's very complicated and we're going to continue to work on it.
- Recommended resources:
 - [APR website](#) they have published design guides for those materials.
 - [How2Recycle website](#) they are creating a labeling system for informing consumers on what to do with products.

Frank Toves, IDC Irrigation and Construction

- IDC focuses on construction and irrigation systems. They also sell drip tape.
- They've been working with growers and Revolution Plastics to find an outlet for that tape.
- As drip tape use increases, there's going to be an abundance of drip tape with no outlet.
- Growers need to start challenging manufacturers to do better, find more innovative solutions, find products that don't need to be recycled, or add more recycled content to the products they already have.

Live Polling Questions and Answers

What is your most challenging material to recycle?		
Film plastic	Polystyrene foam	Film Plastic
plastic film	Laminated materials	Drip Hose
Film	Films	Plastic rope ties
Wax Boxes	Mulch film	Clamshells
Plastic film	Drip hose	Dirty plastic/mulch film
Expanded Polystyrene	Plastic film	Plastic mulch
Strapping tape	Plastic	Clams with labels

Film plastic	ESL film	Mulch film
Film plastic	clamshells	Plastics
Mixed materials	Clamshells	Film plastic
Plastic Film	Waxed cardboard	PP
Thermoform containers	Plastic	Plastic film
Mulch	Fumigation film	Drip tape

Growers, Processors, and Shippers - What are your biggest barriers to recycling?

Control what is being dumped	Education & Training. Thanks for today's program! 😊	Getting management to buy into it
Storage space for large volume recyclables	Some materials not recyclable	Demand for recycled materials
Staff time	Materials	Monetary incentive
Cost	Mixed waste	Space
Employee hours, cost, space	Too much material	Time
Labor	Cost	

How do you recommend we continue/expand this effort to find solutions supply chain wide?

Establish a coop / working committee with representatives from all parts of the supply chain from grower to consumer to take the technology and find solutions	If we don't participate in addressing this issue, it will be addressed without our best interests considered. Stay engaged!	Use packaging supplies that are natural and compostable in the environment.
Consider CorkOak as a solution to plastic use.	Collaboration and education	On site visits and tours to key stakeholder operations
More boots on the ground.	Start non-profit	Circular Economy!!!
Share contacts for all who attended.	Promote local success stories/ case studies	Creating connections for trial/innovation
Learn more about all of it.	Education	Policy initiatives
Education forums	Transparency	Task force
Incentives	Task force	Thank you Nikki!
Challenge your supply chain	Provide more links to partnerships	Keep the communication channels open