

# Vermont Act 731: Creation of an Agricultural Plastics Collection and Recycling Program



**Annie Macmillan, Vermont Agency of Agriculture**

**20<sup>th</sup> Annual Pesticide Stewardship Alliance  
Conference**

**San Antonio, Texas**

**February 4-6<sup>th</sup>, 2020**



STATE OF VERMONT

**Agency of Agriculture, Food and  
Markets**

# H.731

**An act relating to establishing a residuals management program at the Vermont Agency of Agriculture, Food and Markets.**

Republican Harvey Smith  
Addison County



**Subject:** Agriculture; residuals management; agricultural plastics; food residuals; biosolids; waste tires; dietary supplements

***The bill would authorize the Secretary of Agriculture, Food and Markets to establish by rule requirements or criteria for the collection and recycling of agricultural plastics....***

**Subject:** Agriculture; residuals management; agricultural plastics; food residuals; biosolids; waste tires; dietary supplements.

***The bill would require the registration of dietary supplements to commercial feed that are distributed in the State. Registration fees would be used to fund the residuals management program that would be established by the bill.***

# Definition of Agricultural Plastics

All rigid plastic and film plastic used on a farm for farming

- Film plastic used for farming includes dairy silage bags; row crop covers; bunker silo covers; bale wrap; seed, feed, and fertilizer bags; and greenhouse and hoop house covers;
- Rigid plastic used for farming includes discarded irrigation tubing, nursery pots, nursery lug trays, bale net, poly-twine, maple tubing, irrigation drip tape and tubes, tarps, bird netting, dairy chemical and pesticide containers, and beehive bodies and frames.

# AGRICULTURAL PLASTICS:

- Bale Wrap/Bunk Covers



- Nursery Pots, trays, flats



- Maple Tubing



- Greenhouse Film



- Dairy sanitizer containers



- Drip tape/irrigation tubing



**Authorization:** The Secretary is authorized to adopt by rule requirements for the ***collection and recycling of agricultural plastic in the State.***

The rules may address requirements or criteria for the collection of agricultural plastics including:

(1) collection of agricultural plastic;

(2) methods or convenience of collection;

(3) the cleanliness or contamination of agricultural plastics collected;

**Authorization:** The Secretary is authorized to adopt by rule requirements for the ***collection and recycling of agricultural plastic*** in the State. The rules may address requirements or criteria for the collection of agricultural plastics including:

(4) plastics or products to be excluded from collection due to lack of recyclability, lack of markets, or other factors preventing collection;

(5) standards for sites in the State collecting agricultural plastics;

(6) standards for service provider collecting agricultural plastics.



# Public participation



In developing rules... the Secretary shall consult with interested persons, including:

- owners or operators of farms;
- persons who sell, distribute, or manufacturer agricultural plastics;
- solid waste management entities in the State;
- environmental recyclers, collectors, and retailers;
- agricultural advocacy groups; and environmental advocacy groups.

# Meanwhile..... Single Use Plastic Bill Passes - June 2019

- The bill, [S.113](#), prohibits retailers from providing customers with single-use plastic bags at checkout, and plastic stirrers starting July 2020. Stores can still provide customers with paper carryout bags for a fee of 10 cents.
- Under the bill, retailers would also be banned from providing coffee cups, takeout containers and other food containers made from “expanded polystyrene foam,” commonly (but incorrectly) known as Styrofoam. Certain foam products, like food packaged out of state and packaging for raw meat and fish, would still be allowed.
- Bans on plastic straws.
- ***Agricultural plastics did not fall under this law.***

# Meanwhile.....Sept. 2019

At the behest of the Deputy Secretary of Agriculture, the Agricultural Plastics Working Group was formed in the Fall of 2019 to propose a program design and structure for effective recycling and produce a cost estimate of said program.

The group consists of farmers, Solid Waste Management entities, University of Vermont Maple Extension specialist, Agricultural and Environmental advocacy group representatives, Dairy industry representatives, plastic recyclers, Vermont Agency of Natural Resources, and Agency of Agriculture staff, and a dairy farm lobbyist.


We held 3 one-hour conference calls, and the final meeting was a 3-hour face to face meeting.

# Workgroup Goals

A. Develop a report on the current status of agricultural plastics recycling and disposal in Vermont.



B. Propose a program design and structure for effective recycling of all ag plastics, phased in over time.



C. Estimate costs of implementing said design.



D. Legislative recommendations for 2020/2021 season.

# Goals of Group



## Review the Big Picture

- Baseline and Story;
- What Works;
- Partners;
- Strategies.

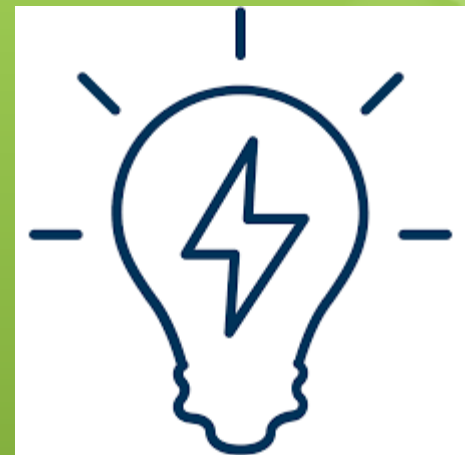
## Determine Strategies to Consider

- Discuss and clarify

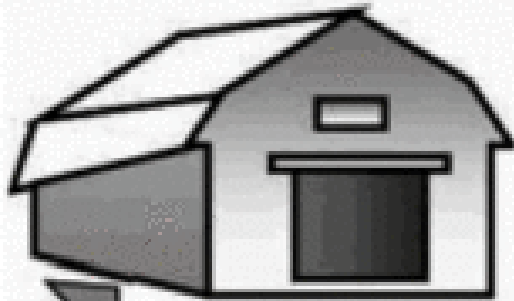
## Discuss Considerations for Prioritization

## Prioritize Strategies (small groups)

## Discuss prioritization results



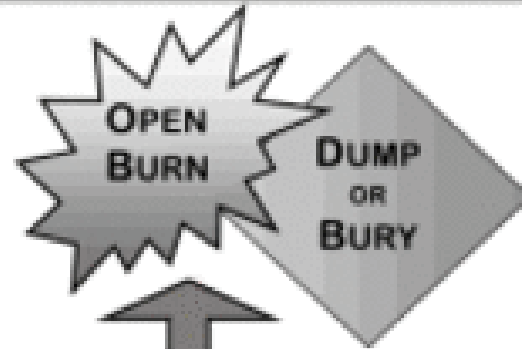
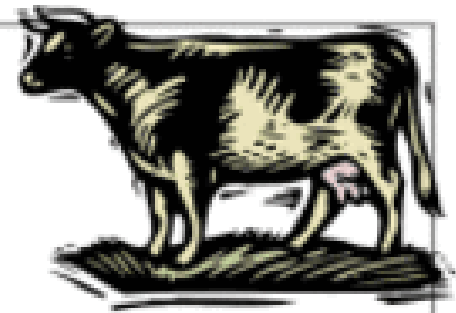
## FARMS OF ALL TYPES



Farm uses: silage & grain bags, bale wrap, bunker covers, totes, horticultural mulch, hoop houses, high tunnels, etc.

PLASTIC FILM

GLOBAL SUPPLIERS OF AN ARRAY OF TECHNICAL FILMS FOR FARM USE (MOSTLY LDPE PLASTIC RESIN + ADDITIVES)



## ON-FARM DISPOSAL

COLLECT, SORT, HAUL

PROCESS, e.g., SHRED, GRIND, CLEAN, DENSIFY, PELLETIZE (AIM TO MINIMIZE # OF STEPS & ENERGY INPUTS)

← RECYCLING →

MANUFACTURE INTO NEW PRODUCTS, e.g., HIGHWAY & PARKING BUMPERS, 'PLYWOOD' & LUMBER, SIDEWALK PAVERS, CRUDE OIL & WAXES, ROOF & DRAINAGE TILES, ASPHALT PAVING MIX, ETC.



## OFF-FARM DISPOSAL

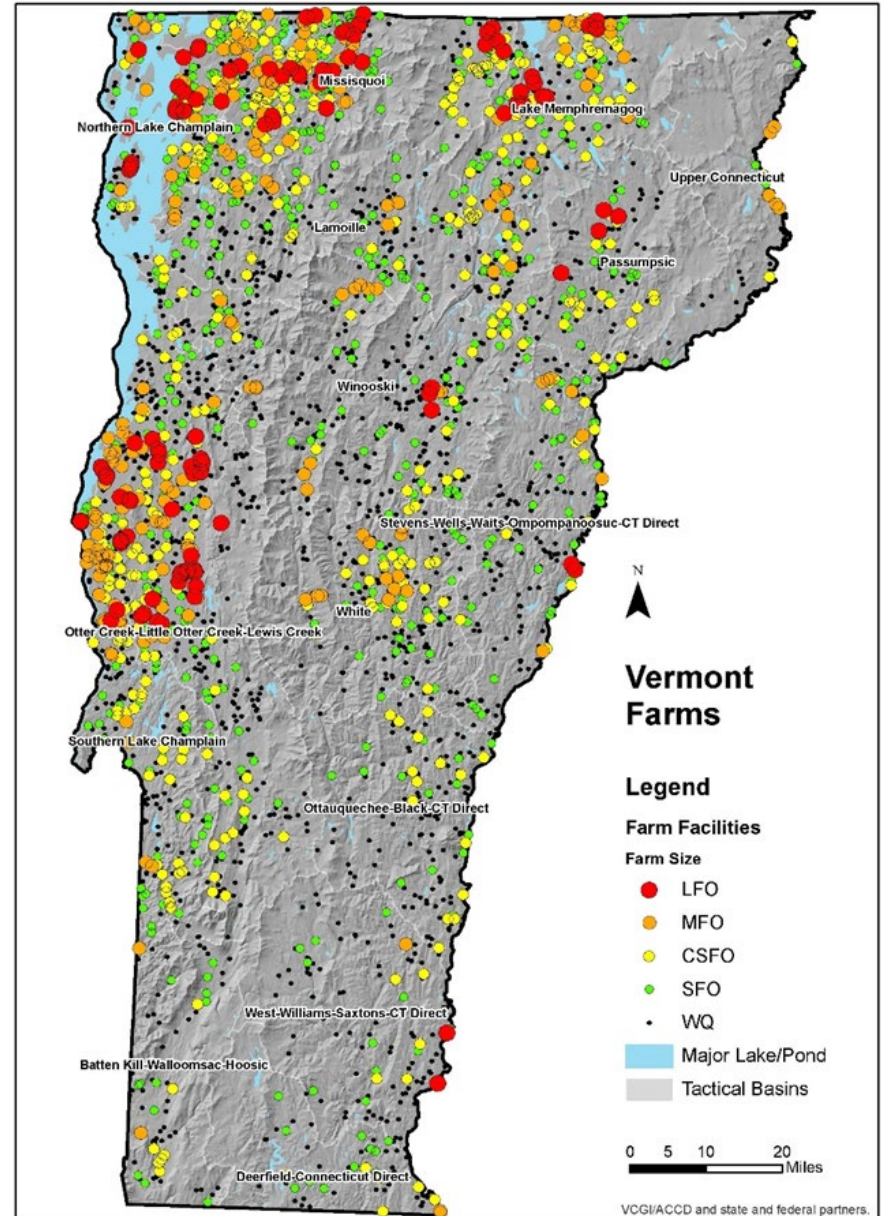
## LIFE CYCLE OF AGRICULTURAL PLASTIC FILM

Lois Levitan, PhD  
Recycling Agricultural Plastics Project (RAPP)  
Cornell University  
Oct. 2012 (rev)

# Baseline and Story

- **Current Collection Estimated at 70 tons/year**
- **99% of all agricultural plastics are either landfilled, buried, stored, or burned**

Plastic type	Estimated Tons per Year Used
Bale Wrap	2,775
Feed Bunk Film	500
Maple Tubing	270
Mainline Tubing	120
<b>TOTAL</b>	<b>3,665</b>



# What Works

Casella 2014 Pilot  
Study;

Northeast SWD;

Northwest SWD.





# Agricultural Plastics Recycling Pilot

February 1 - April 30, 2014

## RECYCLABLE ITEMS:

- Silage Wrap/Bunk Covers
- Nursery Pots, trays, flats
- Maple Tubing
- Greenhouse Film
- Bale Wrap
- Drip tape/irrigation tubing



Casella Resource Solutions is offering free Agricultural Plastic Product Recycling to all Vermont producers, at the five locations listed below.

**Producers must follow these steps for items to be accepted.**

### ***Best Management Practices for preparing plastic films/nursery containers for recycling:***

- Keep plastic/containers as clean and dry as possible,
- Shake out/knock out pebbles and clumps of soil,
- Roll or fold used film plastic into pillow-sized bundles,
- Store used plastic off the ground, out of mud, gravel and grit,
- Separate different types of used plastic by color and type.

### ***Best Management Practices for preparing maple tubing for recycling:***

- Only polyethylene (PE) tubing will be accepted: no PVC. (PVC plastic sinks in water, PE does not),
- Plastic fittings (spouts and connectors) can be left in place,
- Remove all metal from tubing,
- Coil tubing into loops or cut in lengths 4' long. (Keep large coils light enough to lift),
- Tie coils with a piece of drop line.

**GRIT AND GRAVEL DESTROY RECYCLING EQUIPMENT - AVOID OR REMOVE AS MUCH AS POSSIBLE!**

Contact Annie Macmillan [anne.macmillan@state.vt.us](mailto:anne.macmillan@state.vt.us), (802) 828-3479 with questions.

## COLLECTION LOCATIONS AND CONTACT INFORMATION:

- |   |  |   |
|---|--|---|
| • <b>Middlebury, VT Hauling</b><br>533 Exchange St., Middlebury<br>(802) 417-4197   | • <b>Highgate, VT</b><br>2 Transfer Station, Highgate<br>(802) 353-5821    | • <b>Hyde Park, VT</b><br>1855 Rt. 100, Hyde Park<br>(802) 236-4513 |
| • <b>Montpelier, VT Hauling</b><br>408 E Montpelier Rd Montpelier<br>(802) 236-4513 | • <b>Bennington, VT</b><br>904 Houghton Lane, Bennington<br>(802) 733-1311 |   |

This Ag Plastics Recycling Pilot Program is an effort between Casella Resource Solutions, the Vermont Agency of Agriculture and Agri-Mark/Cabot Creamery Cooperative. Special thanks to the RAPP Program at Cornell for use of their technical information regarding agricultural plastic BMPs, see [www.facebook.com/Recycling.Agricultural.Plastics](http://www.facebook.com/Recycling.Agricultural.Plastics).

# Casella Pilot



- In 2014, Casella Resource Solutions, Vermont Agency of Agriculture, and Agrimark/Cabot Creamery Cooperative offered free Agricultural Plastic Product recycling to all Vermont producers;
- Pilot included an educational outreach campaign to notify producers about this opportunity as well as the best practices for recycling (BMPs);
- Lots of interest;
- Lots of clean material, lots of dirty too;
- This pilot also helped to support information and data development, providing a better grasp on existing volumes of agricultural plastics materials.

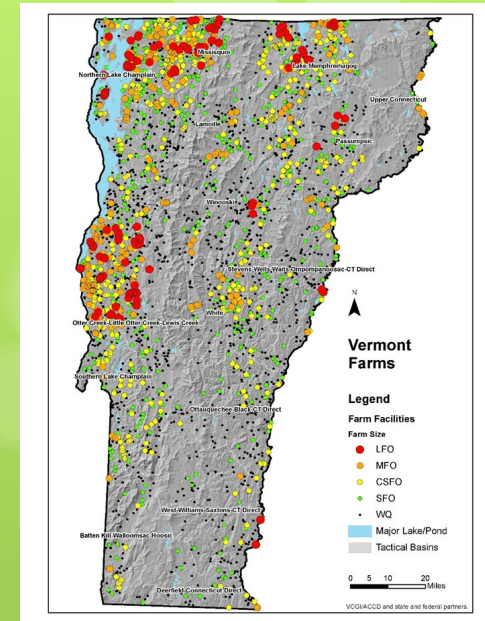
# Casella Pilot (cont.)

- Five collection points: Middlebury, Montpelier, Highgate, Bennington and Hyde Park, during the months from February 1, 2014 through April 30, 2014;
- 8.5 tons of recycled agricultural plastic material collected;
- Casella baled some material but comingled some with other plastics;
- Of all material types collected, Balewrap was the cleanest material;
- Upon sale of the recycled plastics, Casella received approximately \$0.03 to \$0.08 cents/lb.



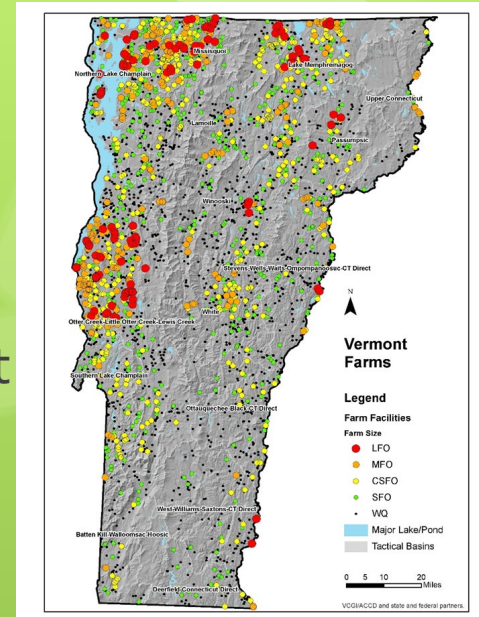
# Northeast Kingdom Solid Waste District

- Collecting ag film since 2005 from district farmers;
- Performs on-farm visits to ensure ag film meets their specifications;
- Collect 60-80,000 lb./year;
- Can collect/process/market twice that volume, yet needs sustainable long-term outlet for the material;
- Material going to Prima America, in Groveton, NH, only 2 hours from facility. Prima is converting plastic to off-road diesel. Prima pays shipping;
- Estimates costs to bale material at \$0.025/lb.



# Northwest Vermont Solid Waste District

- Collects approximately 60-69,000 ag plastics per year (twine and black/white bunker covers, smaller component white ag film), and maple tubing;
- Process with a horizontal baler, bales to be aggregated into 42000 lb., material moves to Delta Plastics in Arkansas. Delta pays shipping.



# Logistics: Collection- things to think about.

- Need to educate farmers about Best Management Practices (BMPs);
- Consolidation on farm – farmers drop off at specified times of year;
- Collection events must be at a time and of a duration during which times farmers can participate;
- Significant volume of bale wrap is generated through the winter into early spring, so having an event coincide with that time is best (post feeding-out, pre-plant corn);
- Waste tubing is typically generated in the summer/fall as producers repair lines, prepare for next season;
- Charge for drop off? Some districts charge, others do not.

# Logistics: Collection- things to think about.

- Do you own/have access to a baler?
- Is your baler able to handle the challenges of agricultural plastics – grit, long pieces of plastic, compaction pressures demanded by the material?
- Where are you going to store material?
- How much storage space do you have?
- If you store outside can you at least keep it covered so it is not exposed to the elements?
- Do you have a loading dock from which to fill a truck with baled material?

# Partners and Resources

- State Agencies;
- Solid Waste Districts;
- Industry Stakeholders;
- Farmers;
- Manufacturers;
- Plastic Recyclers;
- Interest/Support;
- Funding.



# Strategies

- Develop New Collection and Processing Facilities/Programs;
- Support Existing Collection and Processing Programs;
- Develop On-Farm Collection Program;
- Increase Recycling Market Outlets;
- Reduce use of Agricultural Plastics;
- Provide VT Farmers Incentives to Recycle Agricultural Plastics;
- Consider Extended Producer Responsibility in some form.

# Strategy

## Cost

What is cost of this, to producer, and for program?

## Feasibility / Realistic

How likely is this to succeed in a timely fashion?

## Geographic Consideration

Would this support be serving our major agricultural regions?

## Innovation

Are we considering what might work, not just what has worked in the past?

**Develop New Collection and Processing Facilities/Programs**

**Support Existing Collection and Processing Programs**

**Develop On-Farm Collection Program**

**Consider Extended Producer Responsibility**

**Reduce Agricultural Plastics**

**Provide VT Farmers Incentives to Recycle Agricultural Plastics**

**Increase Recycling Market Outlets**

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## Next Steps

Complete

Complete Program Planning and Budgeting



Finalize

Finalize Report



Distribute

Distribute for Feedback

# Questions?!

