

Agricultural Plastics Recycling in New York State

June 1, 2014 – Aug 31, 2015

Report

NYS Department of Environmental Conservation (DEC) Contract # C009124

NYS Recycling Agricultural Plastics Program (RAPP)

Cornell Waste Management Institute (CWMI)

Cornell University

Ithaca, NY 14853

Overview of RAPP activities across the State

The winter of 2014/2015 brought a number of changes with recycling agricultural plastics partners across New York. The Lewis County Soil & Water Conservation District (SWCD) formally assumed the cooperation agreement with the former Jefferson County baler and the Chautauqua County SWCD assumed the cooperation agreement for the former Washington County baler. Cornell Cooperative Extension (CCE) of Wyoming County expanded their role with RAPP by taking over the cooperation agreement for their local baler and employing Ed James, previously employed directly by RAPP.

RAPP continues to work with the network of outreach educators, generally Cornell Cooperative Extension (CCE) County Associations, in their roles of recruiting plastic recycling participants, maintaining contact with current participants and providing training and education in preparing plastic for efficient recycling.

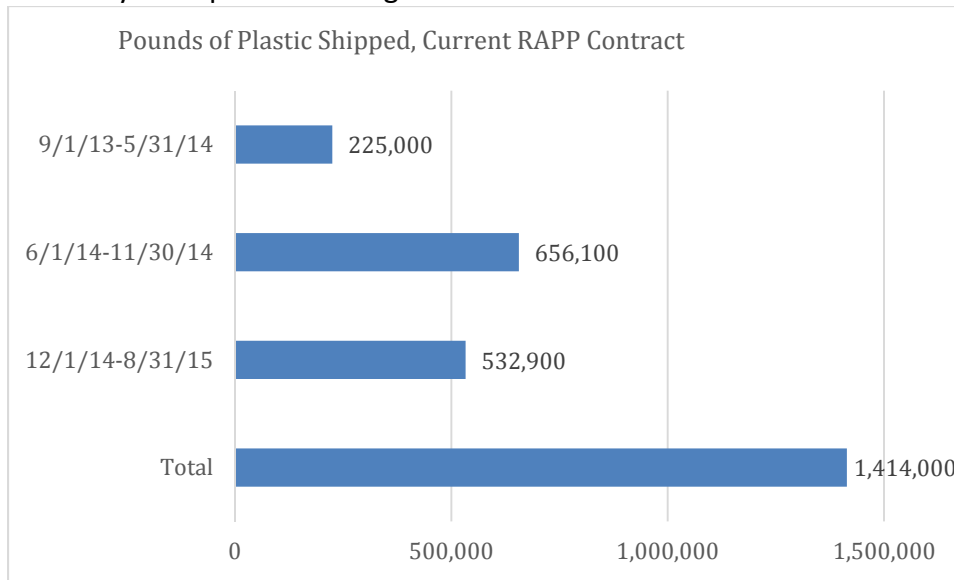
Delaware and Madison Counties Departments of Solid Waste continue to manage their own collection agricultural plastics recycling programs with support from RAPP for education and marketing, as needed.

Ontario County CCE and Planning Department formally joined the RAPP effort. CCE hired a summer intern to survey area farms for quantities of plastic used and assess interest in recycling agricultural and marina plastics – interest is high. This is a public/private effort with Casella Resource Solutions proposing to collect and market the materials.

Over this reporting period approximately 1.2 million pounds of plastics from NY sources have been shipped to markets. These have been delivered in the following quantities:

- 426,500 pounds to Brooklyn, NY, for processing into garbage bags and an additional 82,600 pounds were forwarded to them by NBF Plastics in Auburn, NY.
- 84,000 pounds of mulch film were shipped to Delta Plastics in Little Rock, AR, to be made into industrial-quality garbage bags.
- 252,500 pounds were delivered to NBF Plastics for processing into plastic lumber or forwarding to other markets. 11,000 lbs of Super Sacks® were taken by NBF for reuse.
- 156,000 pounds were taken by TAP Industries, Malone, NY, with intent of being processed into plastic pellets.
- 40,000 pounds were shipped by Madison County Solid Waste to JUM Global, Jacksonville, FL, for plastics to fuel processing. Madison County also shipped 120,000 lbs to Prima-America in Groveton, NH, for plastics to fuel processing.
- 110,600 pounds were shipped to other markets.

Summary of shipments during this contract:



State Coordination to build infrastructure:

State Program Work Team (PWT) meetings: Cornell Cooperative Extension assisted RAPP with funding for focus groups to help generate interest in recycling of agricultural plastics. Three PWT meetings were held, one in Malone focusing on Franklin, Clinton and Essex Counties, one in Hamden focusing on Delaware County efforts, and one in Kingston focusing on the lower Hudson Valley counties. These meetings yielded a great deal of interest with new counties taking an interest in recycling ag plastics. In the North Country, a plan emerged for moving bales to a local recycler, TAP Industries in Malone and Plattsburgh.

In the past, moving bales to storage and/or market locations was carried out largely with RAPP funding. As this is not financially sustainable, RAPP has been meeting with Solid Waste and Recycling Authorities regarding the acceptance, storage and recycling of agricultural plastics. As we establish storage locations in each part of the state, farmers, marina operators and other generators can self-convey plastics (baled, in Super Sacks®, loose or in some other manner) to these designated locations. This is work in progress, Delaware and Madison Counties have fully adopted this approach.

Considerable time has been put into supporting collection efforts through SWCDs, Solid Waste and Recycling Authorities and private companies. Five mobile BigFoot balers were used in contract, and often neighboring, counties. During the winter of 2015, Lewis County SWCD assumed the cooperator agreement for the Jefferson County baler and Cornell Cooperative Extension of Wyoming County assumed the cooperator agreement for the Wyoming County baler.

Increased interaction with private industry is proving beneficial. Ontario County Planning Department has written agricultural plastics recycling into their county waste management plan and has engaged Casella Resource Solutions to develop a plan for collecting, baling and marketing ag plastics. Hopefully this will become a regional effort. As mentioned, ongoing efforts in the North Country has resulted in 156,000 lbs of plastic being moved to TAP Industries for processing. TAP Industries received a Regional Economic Development Council (REDC) grant in December to help complete their processing line.

Work has been ongoing to identify methods to move plastics to central locations and markets. Discussions with solid waste authorities and private haulers have identified several alternative methods of collection and transport of ag plastics for recycling. St. Lawrence County Solid Waste indicated that they have transportable compaction containers that could be used for transporting material straight to market without baling. Wheelock Disposal, Winfield, NY, supplied 40-yard roll-off containers, with the ability to move up to 24,000 lbs of plastic at one time for ag plastics delivery to NBF Plastics. A walking floor tractor-trailer was also successfully used to load bales on a farm that had no loading dock. Casella Resource Solutions is also investigating methods of collection.

RAPP has assisted **Madison County** Department of Solid Waste in their interest in attracting a plastics-to-fuel facility to process agricultural and other plastics. A Regional Economic Development Council grant proposal to attract a company was unsuccessful, however meetings with multiple companies resulted in one that appears to be able to finance a plant without grants. Discussions are ongoing.

Meetings with **Otsego County** Solid Waste, SWCD, Otsego County Conservation Association, and Casella Resource Solutions resulted in two collections in the spring of 2015 at the Southern Transfer Station in Oneonta. 6,500 lbs of agricultural plastic were brought in, largely from commercial producers but also homeowners with wood pellet bags. Additional collections are planned for the autumn of 2015 and spring of 2016.

At a review of **Delaware County** Solid Waste's agricultural plastics collections program using Super Sacks® and baling, it was found that the ag plastics collected to date have generally been reasonably clean and sorted properly by the farms. At the PWT meeting in April, a tour of the new MRF showed that the use of Super Sacks® has proven useful for other recyclables. To date, Delaware County reports 14 tons of ag plastics diverted for recycling and 25,000+ lbs of inventory to be marketed. Some of these funds are coming back into the RAPP Program.

RAPP met with Solid Waste Divisions of **Chautauqua and Cattaraugus Counties** as well as SWCD and CCE staff from both counties that are interested in participating. Both counties are assessing their resources and potential for Solid Waste to divert ag plastics to recycling. Cattaraugus County Solid Waste offered two sites for collection and baling of ag plastics. Extension is working to educate farmers and a bale of Super Sacks® was left with SWCD and Extension for distribution. Agreement was subsequently reached with Chautauqua County SWCD to receive the Washington County baler and increase collection of ag plastics in the county. The cooperator agreement was signed in the winter 2015. To date, limited plastic collection and baling has occurred, a significant number of farms have committed to participating.

Meetings with recyclers have had very mixed results. RAPP met with Southern Tier Recycling (Taylor Garbage) on 11/11/14. They were interested in recycling agricultural plastics but decided against it at the present time due to the low cost of virgin plastics depressing the recyclable plastics market. Great Lakes Recycling, North Tonawanda, is handling film plastics and would assist with marketing and possibly facilitating pickup of baled plastics from farms in Western NY. Ultra-Poly, a plastics recycling company in Pennsylvania, tried processing greenhouse films at RAPP's suggestion. They liked it and subsequently have started taking in and processing this material.

RAPP Educational Activities

A dedicated RAPP website is located at <http://www.recycleagplastics.css.cals.cornell.edu/>. Some of the postings are listed below:

- Educational materials can be found at <http://www.recycleagplastics.css.cals.cornell.edu/agplastics-2.htm>, including short “fact sheets” for best management practices on preparing and storing plastic for collection/baling. A small number of these have been printed and laminated as double-sided posters and have been distributed at events.
- A map showing baling activity and locations, Super Sack® locations and locations where RAPP education is occurring is located at <http://compost.css.cornell.edu/RAPPmaps.html>.
- The BigFoot Baler Instructional video (English and Spanish versions) and Baler Maintenance Manual

In both August 2014 and 2015, RAPP hosted displays at Empire Farm Days, a three-day event held yearly in Seneca Falls, NY. The booth attracted several hundred visitors, approximately 50 people had specific follow up requests related to recycling their plastics. A significant number of farmers expressed interest in the proposal to collect and divert ag plastics from the Ontario County landfill.

In September 2014, Broome County CCE invited RAPP to speak at the Broome County Local Government Training. A 45-minute presentation titled “Agricultural Waste: Role of Farm and Municipality” was presented to 62 attendees, all of whom were very interested in what was happening with agricultural plastics.

Additional outreach was conveyed through a display at the annual NYSAR3 conference and trade show in Cooperstown, November 2014. One hundred and fifty attendees came through the display area over the 2 days the booth was up. There was a lot of good back and forth talk with solid waste personnel, recycling coordinators and the like, garnering at least five new recruits.

RAPP Plastic Activities

CWMI directly coordinates plastics collections in Central NY and is actively trying to find solid waste and recycling partners. RAPP also assists with marketing ag plastics that have been collected throughout NY both with direct partners and non-affiliated groups.

In lieu of local partners, RAPP has coordinated baling and collection on a limited number of farms across 7 counties in Central NY (Broome, Cayuga, Cortland, Schuyler, Seneca, Tioga and Tompkins). RAPP also brought the mobile baler several times to Owasco Marine in Auburn, NY, where employees baled 20,000 pounds of boat wrap. Three bales of black PE film were made in Seneca County and RAPP facilitated collection of drip tape by NBF Plastics from the Stick and Stone Farm in Tompkins County. Additional bales, eleven of bale wrap, fourteen of bunker cover, and three of boat wrap were made in Tompkins, Schuyler, Broome and Cortland Counties, as well as 8000 lbs of mulch film (7 bales) and 1 bale of PP super sacks from Cornell University’s farming operations.

Also in Central NY, RAPP assists with other collection efforts, largely with marketing. Chemung County SWCD owns their own mobile baler. In the last year, RAPP made arrangements for 84,400 lbs. of baled ag plastics from Chemung County to move to the Brooklyn market. RAPP also assists coordinating a market for two farm supply businesses in Ontario and Seneca counties using their privately owned baler. They reported baling and shipping approximately 63,000 pounds of mostly bale wrap to NBF Plastics in Auburn. Currently they have more material to go to market.

RAPP facilitated moving 3,000 pounds of loose greenhouse film from NY Parks Greenbelt Native Plants Center to Brooklyn’s plastic bags plant in October. RAPP also arranged to market 17,000 pounds of agricultural plastics from Vermont’s pilot collection and baled by Casella Resource Solutions. In August, a large horticulture operation in Eden, NY, baled 84,000 lbs of mulch film and shipped it to

Delta Plastics. They assisted other members of their farm cooperative in baling an additional 80,000 pounds of mulch film which RAPP is trying to help them market. There has been interest but no recycler has offered to take the material in the current depressed market. In November, after five feet of snow fell in several days in the Buffalo, NY area, RAPP was contacted by this same operation to see if we could help with recycling the greenhouse plastic lost due to the storm. Eight thousand pounds of greenhouse film has been baled and is ready for market.

Program Development

A USDA (USDA NIFA SCRI) regional, multi-year grant was funded to increase the season for berry crops in the Northeast by growing under plastic tunnels. A recycling component was added to address the increased use of plastics. This effort is coordinated by Lois Levitan with NY RAPP assisting. Methods of removing, compacting and transporting plastic from low tunnels and single-bay and multi-bay high tunnels are being evaluated. This will help RAPP increase recycling within the larger greenhouse industry.

County Efforts

Cayuga County

- Participants: Cayuga County has a total of 15 interested farms, 11 of which are dairy farms. The others include 2 beef producers, a horticulture operation and a marina. Four new farms began recycling in 2014/15.
- Outreach and Educational Events: Cayuga County CCE personnel attended and “manned” the RAPP booth at Empire Farm Days in both 2014 and 2015, speaking with a number of interested farms and businesses. As an immediate result, Cargill Animal Nutrition in Liverpool was able to connect with NBF Plastics in Auburn to move 11,000 lbs of Super Sack® bulk bags largely for reuse. Cargill had previously had to landfill these bags.
- SWCD has an interest in participating and baling on Cayuga County farms but has limited funding and personnel. The county is in a holding pattern as NBF Plastics has not commercialized its plastics-to-lumber process. NBF Plastics is limiting the quantity of material they want to receive.
- Plastic Activities: Baling occurred at 6 farms and Owasco Marine, resulting in 34.5 bales of plastic, 28,500 lbs were delivered to NBF Plastics, 6 bales remain on-farm.

Chautauqua County

- Participants: Chautauqua County, new to RAPP, has recruited approximately 25-30 farmers who express intent to save plastic for recycling, approximately 12 are saving plastic and/or have baled. These are primarily dairy and livestock farmers and one agricultural business. A couple of farms are in Cattaraugus County.
- Outreach and Educational Events: In addition to discussions with RAPP and Chautauqua County Soil and Water Conservation staff about plans to participate, CCE presented information at the Resource Conservation and Development (RC&D) committee meeting in October 2014 and spoke at length with several farmers regarding the handling of ag plastics for recycling to recruit them to the program. On March 31, 2015, RAPP hosted a baler training with 8 participants from CCE and SWCD, including three from Cattaraugus County SWCD, at a local marina. Three Field Days and demonstrations were held between May and August of 2015 with approximately 80 participants

and 11 farms indicating they would start saving plastic for recycling. CCE had a RAPP display at the Chautauqua County Fair (7/26 – 8/1/2015) where many people from the general public discussed agricultural plastics recycling. Fifteen farmers were seriously interested and 3 committed saving plastic.

- Plastic Activities: The program got off to a slow start as it was late winter 2015 before the cooperator agreement was signed between SWCD and DEC. Farms were also reluctant to start saving plastic during the severe winter weather. Twenty-one bales of plastic have been generated for recycling, 13 are being stored at the NYP Management Company facility (the agricultural service business from above), 5 are at the Agriculture Service Center in Jamestown and 3 remain on the farms where they were baled.

Chenango County

- Participants: Chenango County CCE recruited 6 new participants over this time period for a total of 30+ interested farms in both Broome and Chenango Counties. The farms/businesses that have plastic include 12 dairies, 2 livestock, and a horticulture operation. The Chenango County DPW and their North Norwich Recycling Center have been an active participant in the program by baling and storing agricultural plastics for recycling.
- Outreach and Educational Events: Donald Franklin from the Farmland Protection Board in Chenango County invited CCE to provide an update on RAPP in both 2014 and 2015. A baling demonstration was performed using plastic from 3 farms at Chenango County Dairy Day in June (2014). CCE discussed issues and the program with legislative representatives on an Ag Tour held in Chenango County in July 2014. A RAPP booth/poster and pamphlets was set-up at both the Afton Fair in July and at the Chenango County Fair in August. CCE personnel spoke with dairy farmers at both events.
- Plastic Activities: Chenango County DPW had been limiting outreach for baling in 2014 due to a lack of storage. After having rented a storage container, they were able to build a storage facility for agricultural plastics in 2015 through a grant from the Constitution Pipeline to CCE. Approximately 6 farms have been actively bringing bale wrap into the recycling center and 16,260 lbs of baled ag plastics are in storage and in the near future much of it will be shipped to market. With storage and the use of a different baler, the recycling center anticipates they will be able to accept larger volumes of plastic.

Delaware County:

- Participants: Twenty-four new participants were recruited in the last year bringing the total participants up to 80.
- Outreach and Educational Events: In July 2014, Delaware County CCE promoted ag plastic recycling directly to a large group of farmers and agribusiness attendees during the 84th Annual Dairy Tour. The first stop featured one of the first dairy farmers to adopt the practice and there was a display at a second farm from an early adopter. In August 2014 and 2015, CCE set up a display and sign-up sheet at the Delaware County Fair. In April 2015, CCE hosted a RAPP Program Work Team (PWT) meeting including a tour of the new Delaware County Solid Waste Recycling Center. The meeting discussed how agricultural plastic recycling has been integrated with county recycling and generate enthusiasm and ideas for getting more areas of NY participating.

- Plastic Activities: Plastics are collected at the Delaware County Solid Waste Facility. They are brought in by participating farmers. Collecting plastics at central points attracts significant participation but it is observed that it tends to be smaller users of plastic, partially due to the logistics of transporting larger amounts of plastic. Sue McIntyre, director of the facility, reported that seven tons of agricultural plastic has left the county for market and 27,000+ lbs has been baled in this time period and are in inventory.

Franklin County

- Participants: Several new participants were recruited during this time period bringing the total count up to 66 in Franklin, Essex and Clinton Counties. A number of the participants are maple producers. Franklin County Extension educators have been working very closely with TAP Industries, a materials recovery/reclamation/recycling facility that receives, separates and prepares recyclable materials for marketing to end-user manufacturers. TAP Industries is currently working on a processing line involving agricultural films; i.e. hay and silage bale wrap, feed bags, bunker cover, as well as maple tubing, nursery and greenhouse film, horticultural pots and trays, agricultural jugs, drums, and pails, and wood pellet bags. TAP Industries management would like to receive these plastics from any location, where it is logistically possible. The cost of transportation appears to be their foremost limiting factor, but this will diminish as their facility becomes fully operational and all agricultural plastic that is collected is made into new plastic.
- Outreach and Educational Events: During this reporting period, Franklin County CCE set up educational displays featuring RAPP BMPs at numerous events. Over the summer they attended area Farmer's Markets as well as at each of the Northeastern NY Maple Producer Association meetings. They also set up a display at the Franklin County Fair both August of 2014 and 2015. September, RAPP BMPs were featured at the Value Added Maple Production Workshop held at the Franklin County Courthouse and at the Malone Chamber of Commerce Fall Festival. In October 2014, an educational display was set up for Franklin County CCE's annual meeting. A manned display was at a Future Farmers of America breakfast in April 2015. Multiple articles regarding RAPP were published in 2015 in the Malone Telegram, Plattsburgh Press Republican and the Adirondack Enterprise.
- Plastic Activities: One hundred-twenty one bales were picked up from Franklin, Clinton and Essex counties and moved to TAP Industries during the summer of 2015. In addition 35,000 lbs of plastic was picked up from two farms in Saratoga County and moved to TAP Industries. An estimated 40,000 lbs of baled plastic remains on-farm in Clinton County and an undetermined amount in Essex County. The Clinton County SWCD baler continues to bale on-farm in Clinton and Essex Counties. TAP Industries is putting in place a program to accept loose plastic for recycling direct from farmers.

Jefferson County

- SWCD had used a program supplied BigFoot baler until September 2014. Jefferson County SWCD notified DEC that they were ending their participation in the program, Lewis County SWCD has since assumed the baler cooperater agreement.
- In July of 2015 the remaining 19 bales of plastic on farms and area marinas were moved to the recycler in Brooklyn.

- A number of participating farms and all of the marinas desire to have a continuation of RAPP in Jefferson County. Jefferson County Solid Waste (part of County Highway) is unable to manage the full program but can assist with receiving and shipping baled materials. Lewis County SWCD would be willing to make the baler available but is unable to manage operations outside their county. The Development Authority of the North Country is interested in maintaining agricultural (and marina) recycling in the area but also doesn't have the ability to manage a program. They might be able to coordinate collection sites.

Lewis County

- SWCD assumed the cooperator agreement for the former Jefferson County BigFoot baler during the winter of 2015. Twenty-four bales of plastic were generated on 11 participating farms and in August of 2015, 15,534 lbs of plastic were shipped to the Brooklyn market, combined with 19,000 lbs from Jefferson County.
- The Lowville transfer station has expressed willingness to resume collections of plastic. This was done in the past and they have continued to receive baled ag plastics to load for shipping to market.

Madison County

- Participants: Due to a staff retirement, Madison County CCE discontinued active outreach and education (previously reported). These efforts have largely been assumed by Madison County Solid Waste and Recycling. With ag plastics collection now available at most township transfer stations, farm participation is increasing but numbers are not specifically tracked.
- As reported earlier, Madison County baled and shipped approximately 160,000 lbs of plastic for processing into fuel during this time period. RAPP helped arrange both of the processors for Madison County Solid Waste.
- Madison County continues to try to attract a plastics-to-fuel plant to the Madison County Agriculture and Renewable Energy Business Park to process hard to recycle plastics from Madison County, diverting them from the landfill. They would also accept plastic regionally. There is an active RFP for proposals from businesses.

Ontario County

The Ontario County Planning Department included agricultural plastics recycling in their updated Solid Waste Management Plan. The county has placed a priority on diverting potentially recyclable materials from their regional landfill. Cornell Cooperative Extension staff have taken the lead in interacting with the agricultural community as well as facilitating discussions between the County and Casella Waste Systems, which manages the landfill and the recycling center, regarding the agricultural plastics.

At a meeting on January 7, 2015, Ontario County Planning requested CCE Ontario County to survey farms in Ontario County to better estimate the types and amounts of plastic used. RAPP partnered with CCE in doing this and funded CCE to hire a summer college intern, Dana Hogg, to manage the survey. The survey went out in April and was summarized in June. Three hundred-seventeen in-depth surveys were mailed to area farms and 131 were returned, showing very high interest. Farmers expressed willingness to recycle about 60 tons (annually) of used plastics. Given that Casella collects

regionally and 60% of the farms in Ontario County did not report, real potential is considerable higher. Casella is exploring the logistics of collection. There was a farm tour including RAPP, Casella, CCE and County Planning in July of 2015 where three farms, representing different types of plastic, were visited. This allowed Casella and County Planning (representing county transfer stations) staff to better understand what collection will require. Efforts are ongoing.

Otsego County Conservation Association

- Otsego County Conservation Association and Otsego County SWCD recruited 25 new participants in this time period, including an agricultural services provider with a trailer who has been contracted to pick-up bales from farms. This brings participant numbers up to 45 through OCCA and SWCD. Most of the participants are dairy farmers in Otsego County, but there are three farms in Herkimer County that have been recruited by these 2 entities.
- Outreach and Educational Events: OCCA personnel conducted over 20 farm visits in which they discussed BMPs with participants over this time period. In addition, a display was set up with RAPP information at several festivals and the County fair (Otsego Lakes Festival twice, the Goodyear Lake Festival and the County Fair twice). Over 2000 people in the general public had some exposure to the topic of agricultural plastic recycling and several new farms were recruited.
- Plastic Activities: Otsego County SWCD has a BigFoot 300 baler and coordinates baling. Most baling to date has been on-farm. The local RAPP team expanded to include Casella Resource Solutions and County Planning. This has resulted in two spring collections (March and April, 2015) at the Southern Transfer Station in Oneonta. Six thousand-five hundred lbs of plastic were brought in by area farmers. This reduces program cost of collection. Wood pellet bags were added to these collections, popular with homeowners using wood pellets. Additional collections are scheduled for the fall of 2015 and spring of 2016.
- Over this reporting period 133 bales were made. In most cases, the plastic collected was good quality. Several farms struggle to save it as clean as the market wants, but it was all marketable.
- Eighty-seven bales (81,360 pounds) were shipped to the plant in Brooklyn

St. Lawrence County is no longer participating with RAPP, but did report regarding marketing of material.

- Plastic Activities: Thirty-nine bales of assorted plastic were shipped out for recycling over the summer of 2014. The remaining inventory of bales include: three net wrap, one greenhouse media bag, and one clear greenhouse cover in reasonably dense, wired bales.

Tompkins County

SWCD has held the cooperator agreement but does not operate the baler. RAPP has been using the baler contracted to Tompkins County in the central NY region for on-farm baling and demonstrations. At the end of August 2015, a SWCD staff member left which resulted in a reassessment of staff and program priorities. At the September (2015) Board meeting, SWCD voted to not continue the cooperator agreement. Cayuga, Cortland and Tioga SWCD managers have expressed interest in continuing the program but have limited ability with current staffing and questionable funding.

- Plastic Activities: During this reporting period, ~57,500 lbs of plastic were baled. Most of these bales have been moved to NBF Plastics in Auburn, NY, some remain on farm or collected at the Cornell University Agricultural Experiment Station in Ithaca.

Washington County

SWCD has opted out of the program. The largest factor was the county privatizing their solid waste management, making the transfer stations unavailable for farms to bring their baled plastic in for consolidation and shipment to market. The Washington County baler is slated to go to Chautauqua County soon. Washington County's final shipment to market consisted of 55 bales, of which only about 1/3 were reasonably marketable. Some of the load was material that isn't actively collected and marketed by RAPP and another 1/3 was so dirty it was unmarketable. This emphasizes the need for strong outreach and education so farms know what RAPP wants and needs. In Washington County farmers did their own baling. When the program does not supply a trained operator the risk of unacceptable materials being baled greatly increases.

Wyoming County

- Participants: Wyoming County CCE recruited ten new participants in this reporting period from Chautauqua, Genesee, Livingston and Wyoming counties, bringing their total participant number up to over 60.
- Outreach and Educational Events: CCE displayed RAPP material at several events in this time period. At Agri-Palooza 2014 and 2015, a fun-filled day on the farm designed for the general public to experience and enjoy learning about modern day farming, attendees got to watch a baling demonstration and take home printed material about agricultural plastics recycling. The 2015 event was held at Broughton Farm, a RAPP participant. A display table with information was set up at Artisan Villa in September, the Harvest Fest in the Warsaw Village Park in October 2014. In November 2014, Wyoming County CCE personnel manned the RAPP booth at the NYSAR³ conference and trade show in Cooperstown and RAPP was represented at the Wyoming County winter Maple School 2014 and 2015.
- Plastic Activities: Over this time period, ~124,600 lbs of ag plastics shipped from the Wyoming County program for recycling. They have baled and have in inventory over 90,000 lbs of material from approximately 30 farms and two dry bean businesses. Some of this is scheduled to go to market. Most of the bales are silage cover, but there is also bale wrap and bulk bags.

Activities of Cooperating SWCDs

The BigFoot 300 balers are now operating in Chautauqua, Lewis, Otsego, Tompkins and Wyoming counties. The Jefferson County baler moved to Lewis County SWCD and the Washington County baler moved to Chautauqua County SWCD.

Jefferson County had used a program supplied BigFoot baler until September 2014. Jefferson County SWCD notified DEC that they are ending their participation in the program, Lewis County SWCD has since assumed the baler cooperator agreement.

In July of 2015, the remaining 19 bales of plastic on farms and area marinas were moved to the recycler in Brooklyn.

Baling and Activities in other portions of NYS

- **Chemung SWCD:** In July 2014, 22,000 lbs of silage bags and 24,000 lbs of bale wrap were sent to the Brooklyn market from Chemung County. In July of 2015, 38,400 lbs of mixed baled films were sent to the same market. These were farmer-baled then collected and shipped by Chemung County SWCD.
- **Clinton County SWCD:** SWCD owns and supplies two mobile balers to farms primarily in Clinton and Essex Counties. Until recently large numbers of bales of plastic have been generated and not marketed due to the lack of logistics to move them to a central shipping point. TAP Industries in Malone is in the process of commercializing a plastics recycling facility. An agreement was reached with TAP Industries to move the materials to them. Approximately 80 bales were moved from Clinton County to TAP Industries and an additional 40+ will be moved in the near future.
- **Suffolk County SWCD** collected and shipped 60,000 lbs of greenhouse film from approximately 650-700 greenhouses for recycling during 2014. They held bids for the plastic from five or six companies and the winning bid was \$0.13/pound. The BF400 pulls the plastic off the house and into the baler for crushing as it is towed alongside the greenhouses; it works quite nicely. The baler broke down in 2015 and was sidelined for a good period of time. After being repaired in June, SWCD was able to collect and store ~17,500 lbs of plastic, 16,000 lbs of greenhouse film and 1,500 lbs of boat wrap.

BigFoot 300 Mobile Balers

Managing existing baling equipment: The BigFoot 300 balers remain a maintenance challenge as they age. They are an excellent prototype but many, mostly minor, design flaws contribute to the high maintenance along with wear from use over time. The building rights for these balers were turned over to Kennco Manufacturing. As mentioned previously, RAPP has shared extensive notes and recommendations about these balers.

During this time period, RAPP has been exploring other mobile baling equipment, not for our use but for the benefit of other programs, businesses or farms expressing interest in mobile balers. Several balers have been identified in the UK and Ireland. One of these companies has US operations and inventory.

Status of OFAB Balers

Cornell Legal Counsel reached agreement with OFAB Inc. regarding the fate of the two balers that failed to perform. Fifty percent of their cost was been reimbursed (\$39,440.50 +/-) shortly after this reporting period. OFAB requested that one baler be returned (at OFAB's cost) and one baler will be scrapped.