Watershed Agricultural Council

# Watershed Agricultural Program
# 2019 Annual Report and 2020 Workload

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***Cover Photo: Heather Magnan***
***Report Photos: WAP Staff***

## PRIMARY FUNDING SOURCES

NYC Environmental Protection

USDA NRCS United States Department of Agriculture Natural Resources Conservation Service

USDA Farm Service Agency

## Planning For Increased BMP Implementation

The Watershed Agricultural Program (WAP) commenced a 6 year contract with the New York City Department of Environmental Protection (DEP), on April 1, 2019 to accelerate the implementation of BMPs with over $4 million in annual funding. The increase in BMP implementation funds are targeted for the implementation of BMPs that have been on our backlog list prior to 2017. To accomplish the increase in workload the WAP has added two assistant Whole Farm Planner positions and has also increased the number of engineering department staff.

The conservation planners focused on 92 revisions that placed identified resource concerns in the prioritization process, and Whole Farm Plans were revised accordingly.

In 2019 the WAP implemented 487 BMPs on all active farms at a total cost $4.6 million. These figures include 453 BMPs on West of Hudson farms ($4.2m) and 34 BMPs on East of Hudson farms ($400,000).

The Precision Feed Management (PFM) Program is a science based program that develops feed management plans to deal with the large quantity of feed nutrients managed annually on participant farms. 2019 was the fourth year of the PFM Program, the staff were actively planning and monitoring a total of 48 farms and 148 Benchmarks were completed. The Nutrient Management Credit Program has increased to 137 participants. Through the support of DEP funding this Program will allow all those that meet the eligibility criteria to participate.

The WAP partners with Delaware County Soil and Water Conservation Districts (SWCD) and the USDA Natural Resources Conservation Service (NRCS) provides technical design and implementation of water quality BMPs. Farm participants actively followed 258 WFPs and 226 Nutrient Management Plans (NMPs) in the Catskill/Delaware Watershed. Funding provided by DEP, the USDA and other sources helped the Program realize its goals. The WAP continues to partner with Cornell Cooperative Extension of Delaware County to provide educational programs to area farmers. In 2019, 634 farmers and farm advisors attended 24 educational programs with 31% of Watershed farmers attending at least one event.

In 2019 the Conservation Reserve Enhancement Program (CREP) and the Catskill Streams Buffer Initiative (CSBI) pilot program implemented riparian buffers on four properties. Combining these two programs offers landowners with historic farmland (or marginal pastureland) the benefit of both CREP and CSBI programs. The pilot has been extended for two additional years.

The WAP held an Ag tour on May 13, 2019 for the members of the National Academy of Sciences (NAS) committee. The NAS committee is tasked with reviewing and evaluating the NYC DEP's watershed protection program. This tour was an excellent opportunity to showcase the success that the WAP has had improving water quality.

Larry Hulle, Watershed Agricultural Council
Larry Underwood, Delaware County Soil & Water Conservation District
Dale Dewing, Cornell Cooperative Extension of Delaware County
Dennis DeWeese, USDA Natural Resources Conservation Service

## Watershed Agricultural Program
## 2019 Planning Goals and Accomplishments

| Catskill/Delaware Watershed | | Croton Watershed | |
|---|---|---|---|
| Goal | Accomplishment | Goal | Accomplishment |
| **Annual Status Reviews** | | | |
| 289 | 320 | 68 | 75 |
| **New Whole Farm Plans** | | | |
| As identified | 0 | As identified | 2 |

Ashokan Reservoir
Photo: Josh Dick

## 2019 Implementation Accomplishments – Funding

| BMP - Funding Sources | Catskill/Delaware Watershed | Croton Watershed | Total |
|---|---|---|---|
| **Watershed Agricultural Program** | | | |
| - Other BMPs | $ 3,250,476 | $ 348,920 | $ 3,599,396 |
| - RCPP | $ 380,254 | | $ 380,254 |
| | | | |
| - WIRC | $ 23,062 | | $ 23,062 |
| - CREP (WAP) | $ 383,496 | $ - | $ 383,496 |
| Total Watershed Agricultural Program Funding | **$ 4,037,288** | **$ 348,920** | **$ 4,386,207** |
| | | | |
| **Other Funding Sources** | | | |
| - CP-30 (FSA) | $ - | $ - | $ - |
| - CREP (FSA) | $ 175,586 | $ - | $ 175,586 |
| - CREP (DCSWCD) | $ 9,746 | | $ 9,746 |
| - DCSWCD | $ 43,360 | $ - | $ 43,360 |
| - RCPP (Pending $167,506 to be rec'd in 2020)** | $ 561,119 | $ - | $ 561,119 |
| - Landowner | $ - | $ 38,984 | $ 38,984 |
| - AWEP | $ - | $ - | $ - |
| - NRCS | $ 467 | $ - | $ 467 |
| Total Other Funding Sources | **$ 790,278** | **$ 38,984** | **$ 829,261** |
| | | | |
| **Total Funding*** | **$ 4,827,566** | **$ 387,903** | **$ 5,215,469** |
| | | | |
| *** Includes In Progress Payments** | | | |
| **** Pending amount not included in payment shown** | | | |

# 2019 Implementation Accomplishments – Number of BMPs

| NRCS/WAC BMP Code | Best Management Practices | Catskill/Delaware Watershed | Croton Watershed | Total |
|---|---|---|---|---|
| 108 | Precision Feed Management | 56 | 0 | 56 |
| 313 | Waste Storage Facility | 6 | 0 | 6 |
| 314 | Brush Management | 1 | 0 | 1 |
| 328 | Conservation Crop Rotation | 1 | 0 | 1 |
| 340 | Cover Crop | 25 | 0 | 25 |
| 342 | Critical Area Planting | 1 | 0 | 1 |
| 362 | Diversion | 3 | 1 | 4 |
| 378 | Pond | 1 | 0 | 1 |
| 382 | Fencing | 30 | 3 | 33 |
| 391 | Riparian Forest Buffer | 18 | 0 | 18 |
| 468 | Lined Waterway or Outlet | 0 | 1 | 1 |
| 472 | Access Control | 1 | 0 | 1 |
| 500 | Obstruction Removal | 2 | 0 | 2 |
| 512 | Forage and Biomass Planting - Lime | 26 | 6 | 32 |
| 516 | Pipeline | 18 | 1 | 19 |
| 528 | Prescribed Grazing | 1 | 0 | 1 |
| 533 | Pumping Plant | 3 | 0 | 3 |
| 558 | Roof Runoff Structure | 4 | 1 | 5 |
| 558.01 | Roof Runoff Structure - crushed stone drain | 2 | 0 | 2 |
| 560 | Access Road Improvement | 3 | 4 | 7 |
| 561 | Heavy Use Area Protection | 5 | 1 | 6 |
| 574 | Spring Development | 19 | 0 | 19 |
| 575 | Animal Trails and Walkway | 21 | 1 | 22 |
| 578 | Stream Crossing | 16 | 0 | 16 |
| 580 | Streambank Protection | 3 | 0 | 3 |
| 587 | Structure for Water Control | 1 | 4 | 5 |
| 590 | Nutrient Management Plan | 75 | 6 | 81 |
| 606 | Subsurface Drainage | 1 | 0 | 1 |
| 612 | Tree & Shrub Planting | 14 | 0 | 14 |
| 612 | Natural Regeneration | 1 | 0 | 1 |
| 612 | Weed Control & Herbicide Spray | 22 | 0 | 22 |
| 614 | Watering Facility | 19 | 2 | 21 |
| 620 | Underground Outlet | 6 | 2 | 8 |
| 634 | Waste Transfer | 6 | 0 | 6 |
| 634.01 | Waste Transfer - milkhouse pumping station | 3 | 0 | 3 |
| 635 | Vegetated Treatment Area | 1 | 0 | 1 |
| 642 | Well - w/pump | 2 | 0 | 2 |
| 642.01 | Water Well | 2 | 0 | 2 |
| 657 | Potholes | 1 | 0 | 1 |
| 707 | Barnyard Water Management System | 1 | 0 | 1 |
| 3010 | Roofed Barnyard | 6 | 0 | 6 |
| 3010.02 | Roofed Barnyard - Concrete | 6 | 0 | 6 |
| 3050.01 | Manure Storage - Covered Concrete | 1 | 0 | 1 |
| 3060.01 | Manure Storage/Heavy Use Area - Covered - Concrete | 1 | 0 | 1 |
| 3070.01 | Manure Storage/Heavy Use Area - Uncovered - Concrete | 1 | 0 | 1 |
| 3110 | Calf Greenhouse | 3 | 0 | 3 |
| 3115 | Calf Housing - Pens | 1 | 0 | 1 |
| 3168 | Custom Service (NMCP) | 1 | 0 | 1 |
| 3178 | Manure Transportation Credit | 1 | 0 | 1 |
| 3230 | Agitation Pump | 2 | 0 | 2 |
| 3410 | Manure Spreader | 1 | 0 | 1 |
| 3410.01 | Manure Spreader - Box | 1 | 0 | 1 |
| 3420 | Bucket Loader | 2 | 0 | 2 |
| 3430 | Manure Truck | 1 | 0 | 1 |
| 3499 | Misc Manure Handling Equipment | 1 | 0 | 1 |
| 3510 | Farm Dump Cleanup | 1 | 0 | 1 |
| 4100 | Wash Water and Filtration System | 0 | 1 | 1 |
| 5004 | Fencing - Temporary | 2 | 0 | 2 |
| **Total** | | **453** | **34** | **487** |

Included in the above are modifications, emergency repair, repair, and repair and replacement BMPs.

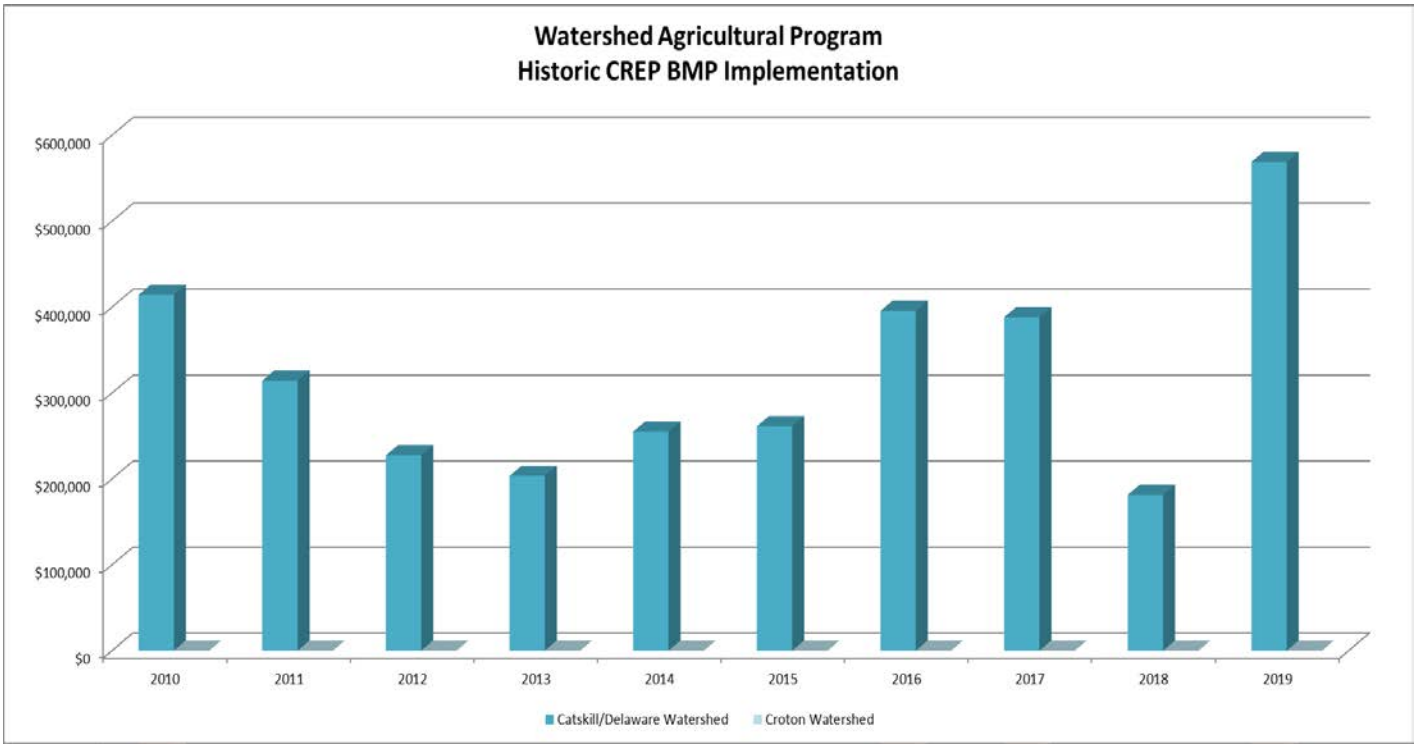
## USDA Conservation Reserve Enhancement Program (CREP)
## 2019 Accomplishments

The USDA CREP Program within the Watershed Agricultural Program utilizes the talents found within the multi-agency team assigned to work in the Watershed to promote, design and establish both Riparian Forest Buffers and Vegetative Buffers along watercourses. This year marked the 19th full year of the NYC Watershed Conservation Reserve Enhancement Program (CREP) Memorandum of Agreement between New York City, New York State and the United States Department of Agriculture (USDA). In 2019, 11 Riparian Forest Buffer renewal contracts enrolled an additional 158.16 acres, bringing the total number of enrolled acres to 1,690.11.

## 2019 Total Implementation Expenditures

| | |
|---|---|
| Total Rental Payments (USDA) | $213,160 |
| Sign-Up Incentive Payment (SIP-FSA) | $801 |
| Practice Incentive Payment (PIP-FSA) | $64,812 |
| *BMP Cost (FSA) | $80,860 |
| *BMP Cost (WAP) | $174,373 |

*Based on Federal Fiscal Year Numbers 10/01/18 – 9/30/19




| Program | 99-2008 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Catskill/Delaware Watershed | $ 5,849,220 | $ 314,330 | $ 227,423 | $ 203,211 | $ 254,952 | $ 261,197 | $ 395,490 | $ 475,423 | $ 388,194 | $ 181,405 | $ 568,828 | $ 9,119,673 |
| Croton Watershed | $ 36,515 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 36,515 |

## Nutrient Management Program 2019 Accomplishments

In 2019, the Nutrient Management Team completed 75 nutrient management plans that consisted of 49 large farms and 26 small farms.

## Nutrient Management Plan Percent Current Analysis

| | Large Farms 154 | | Small Farms 72 | | Combined 226 | |
|---|---|---|---|---|---|---|
| | number | % of Total | number | % of Total | number | % of Total |
| Current | 151 | 98.1% | 71 | 98.6% | 222 | 98.2% |
| 1 yr out of date | 1 | 0.6% | 1 | 1% | 2 | 0.9% |
| 2 years out of date | 1 | 1% | 0 | 0% | 1 | 0.4% |
| 3 years out of date | 0 | 0% | 0 | 0% | 0 | 0.0% |
| > 3 yrs out of date | 1 | 1% | 0 | 0.0% | 1 | 0.4% |
| Needs NMP | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Total | 154 | 100% | 72 | 100.0% | 226 | 100.0% |

## Nutrient Management Credit (NM Credit)

The NM Credit Program was offered to 137 participating farms.

The 2018-2019 Credit year allowed for the addition of any eligible farm. One nutrient management credit farm left the program due to not meeting eligibility requirements. Six new farms were selected from the prioritized general list of NM Credit eligible farms.

For the 2019-2020 Nutrient Management Credit Program year, we will continue to add eligible participants.

Photos: Rich Toebe

## Precision Feed Management (PFM)

2019 was the fourth year of the PFM Program through the Watershed Agricultural Program. Implementation includes, 1) feed management planning using the NRCS 592 feed management standard, 2) WAP Quality Management Assistance (QMA) planning and technical assistance to farmers and their feed industry advisors in discreet QMA events, and 3) routine dietary monitoring using NYS PFM Benchmarking tools.

Photo: Paul Cerosaletti

At the close of 2019, there were 48 farms participating in the PFM program. PFM program staff were actively planning and monitoring on a total of 46 farms in 2019.

In 2019 the PFM program fully implemented a cloud computing based benchmarking program that has been in development for the last year and a half through a collaboration with Ag Models LLC. The new system greatly improved benchmarking efficiency, increases options for data summary and reporting and lays the groundwork for enhanced efficiency in data summary.

The PFM Program continues to have a high degree of farmer engagement. Each QMA event recorded is a distinct instance where PFM program staff helped participants in management of rations, cows or crop production.

### 2019 PFM Program Engagement Statistics as of 12/31/2019

| | 2019 |
|---|---|
| Total Farm PFM QMA Events | 200 |
| Total PFM Benchmarks completed to date | 148 |
| Total PFM QMA Annual Implementation Plans | 46 |
| Total Feed Management Plans completed | 10 |
| Total PFM Farm planner contacts | 897 |

### 2019 PFM Program Nutrient Management Scope

Through dietary monitoring and PFM Benchmarking, the WAP PFM Program brought under management scrutiny an extremely large amount of phosphorus and nitrogen.

| | |
|---|---|
| Total number of lactating cows under feed monitoring | 2,937 |
| **Phosphorus** | |
| Average pool of feed phosphorus managed/cow/day, grams | 86 |
| Total pool of feed phosphorus managed per year, program, kg. | 91,684 |
| Average pool of manure phosphorus excretions managed per cow/day, grams | 62 |
| Total pool of manure phosphorus excretions managed per year, program, kg. | 66,218 |
| **Nitrogen** | |
| Average pool of feed nitrogen managed/cow/day, grams | 535 |
| Total pool of feed nitrogen managed per year, program, kg. | 573,728 |
| Average pool of manure nitrogen excretions managed per cow/day, grams | 397 |
| Total pool of manure nitrogen excretions managed per year, program, kg. | 425,166 |

## 2019 Nutrient Management Impact

As in previous years farms were categorized into one of four scenarios with regard to dietary phosphorus sufficiency (phosphorus intake as a percent of animal phosphorus requirement) as measured by the PFM Benchmarks:

1. Persistently within PFM Guidelines of 110% or less of animal requirement;
2. Began year over P guidelines, but was brought within guideline within the year, or implemented a reduction in P feeding level (even if still feeding over requirement);
3. Began the year within guideline, but exceeded P guideline by year end;
4. Persistently over ration P intake guideline of 110% of animal requirement.

In 2019, compared to 2018, the program increased the percentage of the total number of cows on participating farms that were fed diets that were persistently within requirement for phosphorus by 16% and decreased the percentage of the total number of cows on participating farms that were fed diets that were persistently over requirement for phosphorus by 16%. This is positive development. On herds (Scenario 2 herds) where reductions in phosphorus feeding rates were achieved, manure phosphorus excretions were reduced by 19.7%. In all other scenarios, manure phosphorus excretions increased in 2019, for a net program wide increase of 5,447 kg, due to a number of different factors. With regards to manure nitrogen excretions, across all herds, there was a net decrease of 3,164 kg.

### Economic Impact:

Reducing P intakes and manure excretions did not negatively impact farm profitability in 2019, and actually resulted in slight gains in milk income over purchased feed costs ($0.17 per cow per day or $62 per cow per year). Due largely to increases in milk price in the second half of 2019, milk income over purchased feed costs increased $0.38 per cow per day, or $139 per cow per year across all herds.

### Pilot Cropland Liming BMP:

2019 represented the second year of a three year pilot cropland liming BMP. This program was designed to pilot a process for assisting farmers to improve nutrient use efficiency on cropland by improving soil pH. It is focused on PFM farms as these farms have the greatest incentive to increase homegrown feed production in order to reduce reliance on imported feed nutrients. The pilot project is intended to investigate the processes for target field selection, bulk lime bidding, contracting, and delivery, and methods to get the lime spread on farms. To date, in the first two years of this project, 23 farms which have taken delivery of an estimated total of over 3,200 tons of agricultural lime. The first two years of liming contracts have been bid and contracted to Mercy Hill Farms LLC. In the final year of the project approximately 25 farms will receive lime.

Photos: Paul Cerosaletti

## Farmer Education Program

The Watershed Agricultural Program Farmer Education efforts ended 2019 with over 634 farmers and Farm Advisors attending 24 events. This included at least one person from 82 WAP participating farms (31% of active participating farms), and 22 non-participating watershed farms. Our Farmer Education events have a loyal participant base, with 43% of WAP participant farms that attended taking part in 3 or more events during the year, and 24% attending 5 or more events.

Photo: Dale Dewing

| Date | Event | Watershed Farmers | Other Farmers | Students | Agri-Service | Agency | Other | Total |
|---|---|---|---|---|---|---|---|---|
| 1/10 | Catskill Regional Ag Conference | 47 | 51 | 0 | 12 | 67 | 10 | 187 |
| 2/13 | PFM Participants Meeting | 37 | 0 | 0 | 1 | 11 | 0 | 49 |
| 2/19 | Ag CDL Prep Training | 7 | 8 | 0 | 0 | 3 | 0 | 18 |
| 2/21 | Sheep & Goat International Night | 5 | 6 | 0 | 0 | 0 | 1 | 12 |
| 2/28 | Soybean Growers Discussion | 4 | 4 | 0 | 2 | 2 | 0 | 12 |
| 3/4 | Organic Discussion Group - Transition to Spring Pasture & Maintaining Butterfat on Pasture | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| 3/4 | Pesticide Certification | 6 | 1 | 0 | 0 | 8 | 0 | 15 |
| 3/9 | Grazing Workshop - Making a Grazing Plan that Works for Your Farm | 13 | 9 | 0 | 0 | 0 | 0 | 22 |
| 3/18 | Introduction to Sheep Farming | 6 | 2 | 0 | 0 | 0 | 0 | 8 |
| 3/19 | Introduction to Goats | 8 | 3 | 0 | 0 | 0 | 0 | 11 |
| 3/20 | Crop School | 13 | 9 | 0 | 2 | 19 | 0 | 43 |
| 3/23 | Marketing Sheep and Goats | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| 3/26 | Dairy Reproductive Mgmt Barn Mtg | 16 | 7 | 0 | 2 | 3 | 0 | 28 |
| 4/13 | Cow Calf Workshop - Coombe Farm | 15 | 24 | 0 | 2 | 3 | 1 | 45 |
| 4/25 | Nutrient Management Credit Workshop | 6 | 0 | 0 | 0 | 7 | 0 | 13 |
| 4/27 | Small Ruminant Parasite & FAMACHA | 6 | 1 | 31 | 0 | 0 | 0 | 38 |
| 9/18 | Corn Dry Down Days - Franklin | 10 | 17 | 0 | 1 | 0 | 0 | 28 |
| 10/1 | Corn Dry Down Days | 11 | 1 | 0 | 1 | 0 | 0 | 13 |
| 10/3 | Pasture Walk - Riverdale Farm and Forest | 9 | 0 | 0 | 0 | 3 | 0 | 12 |
| 10/18 | To Market, To Market (three day event) | 11 | 2 | 0 | 0 | 1 | 0 | 14 |
| 11/19 | Winter Feed Planning | 4 | 4 | 0 | 0 | 1 | 0 | 9 |
| 12/11 | Farmer Focus Groups | 13 | 0 | 0 | 0 | 0 | 0 | 13 |
| 12/17 | 2019 Small Ruminant Conference Recap | 4 | 2 | 0 | 0 | 0 | 0 | 6 |
| | QMA Farms Assisted | 72 | | | | | | 72 |
| | Total Attendance (year to day) | 331 | 152 | 31 | 23 | 128 | 12 | 677 |
| | Number of Events | 24 | | | | | | |

**Number of Events:** **24**

**Number and percent of participating Watershed Farms attending at least one event*:** 82 31%

**Number of non-participating Watershed Farms attending at least one event:** 22

| | |
|---|---|
| Farmers | 483 |
| Advisors | 151 |
| **Total** | **634** |

*Based on 263 active large and small farms WoH (Dec 2019)

## Economic Viability: Enhancing the Profitability of Working Landscapes

Photo: Joe Damone

At the core of the Watershed Agricultural Council's (WAC) mission is the balance of water quality with economic viability. True to this, the WAC's Economic Viability (EV) Program works to enhance the profitability and sustainability of all agricultural and forestry enterprises in the NYC Watershed and Greater Catskill Region through initiatives including our Pure Catskills buy local campaign, our Micro Grants Reimbursement Program, and the newly launched in 2019 Business Planning Reimbursement Program.

This year, we want to take the opportunity to highlight the success of the first year of offering our Micro Grants Reimbursement Program. The purpose of these grants are simple: to encourage the implementation of activities that can enhance the economic viability of farm and forest businesses. Any farmer, logger, forester, forest landowner or Pure Catskills member with business property inside the West of Hudson NYC Watershed are eligible. We had four grant rounds in January, April, July and October. Over 25 applications were submitted, 22 were approved, and the total funds awarded were $81,917 (as of September 30, 2019), to date $41,357 has been reimbursed. 2019 Grant categories include:

- Training: to encourage continuing education intended to enhance the economic viability profitability and sustainability of eligible applicant's businesses by providing grant funding to help applicants offset the cost of online courses, workshops, seminars, conferences and college courses.
- Marketing: to encourage branding, advertising and communications related to the marketing of products and services provided by eligible applicants.
- Event/Mileage: to enhance the economic viability of farm and forest businesses by off-setting the cost of attending new events, fairs, farmers' markets and/or transporting products to new markets or venues through mileage reimbursement and/or vendor fees reimbursement.
- Staffing: to enhance profitability, productivity and/or assist with business expansion.
- Loggers Workers Compensation: to enhance the economic viability of New York City Watershed Logging businesses by off-setting the cost of Workers Compensation Insurance by encouraging the use of the Planning Analysis in Timber Harvesting (PATH) software to assess logging costs and revenue.

The EV Program continues to play a unique role not only within the WAC organization, but the region. We have the ability to adapt with changing farm and forest trends and needs. The WAC is not only a resource for water quality protection, but we are now a resource for increased education, marketing, new markets, business expansion and more. These efforts will remain the focus of the EV Program as we look to evolve with future needs, and work to strengthen and foster economic growth for years to come!


Photo: Heather Magnan

Economic Viability Program Statistics 2019

- 322 Pure Catskills Members
- 26 Micro Grants Approved, Totaling $96,144
- 15+ Events Sponsored/Attended
- Business Planning Program Launched

## 2019 Watershed Agricultural Program Farm Tours

The Watershed Agricultural Program (WAP) hosted two bus tours organized to showcase participant's agricultural enterprises and water quality achievements implemented throughout their operations.

On Monday May 13, 2019, the WAP hosted members of the National Academies of Science (NAS), to view Best Management Practices recently implemented on participating farms. SRJF Inc., the Town Brook Watershed Sub Basin Region, Byebrook Farm, and Squan I, LLC, were visited by the group.

On October 17, 2019, the Watershed Agricultural Program Committee toured Holley-Hill Farm, Posthaven Farm, LLC, and Gladstone Farms with 105 attendees. Lunch presentations were given by Paul Rush (NYC DEP), Blake Glover (NRCS State Conservationist) and Theresa Cerosaletti (Delaware County Dairy Princess).

Attendees from the WAC Council of Directors, Agricultural Program Committee Members, NYC Department of Environmental Protection, Environmental Protection Agency, Department of Health, Cornell Cooperative Extension, Soil & Water Conservation District, United States Department of Agriculture, Natural Resource Conservation Service, Farm Service Agency, WAP staff, and participants attended both tours.

SRJF, Inc.

Byebrook Farm

Squan I, LLC.


Photos: Heather Magnan

# 2019 Projects

## Holley-Hill Farm, Dave and Elaine Holley

There were runoff resource concerns on Holley-Hill Farm at the heifer feeding area. The animals were feeding at an open feed rail in a lot in close proximity to Kerrs Creek. The area was heavily used, and runoff from the lot would end up in the Creek. To solve this issue, a covered barnyard was planned. During the design process, staff decided to try a new type of barnyard. The new type of barnyard design is a "Counter-Slope" floor. The loafing area is sloped toward the scrape alley, and there is a raised feed alley. This additional slope helps the animals move the soiled bedding to the scrape alley when they come to feed at the rail. The farmer scrapes the alley once a day, and puts it in the stacking area at the end of the building. The hope is to reduce the amount of times the bedded pack needs to be changed.

Two ball waterers were installed to be shared by the four separate pens. The pens are separated by a series of gates. The farmer bought head locks for the two pens with the older animals. An adjustable feed rail spans the other two pens. A concrete turnaround area will be used to offload sawdust bedding and manage the placement of the bedding.

The Contractor for this job was Parker Excavating (Dave Parker). The sub-contractors were: Building – SCC Construction (Jim Cole), and Concrete – Little Lakes Contracting (Ron Peplinski)

Photos: Paula O'Brien

*This farm was featured on the October 17, 2019 WAP Farm Tour

## WB Farm/Posthaven Farm, LLC., Andy and Betty Post

The Posthaven Farm is a dairy business operation located on Delaware County Route 18 just outside the hamlet of South Kortright in the town of Stamford. The farm's daily operations are run by Andy, and his wife Betty, along with their four children Randy, Andrew, Rosie, and Brett. The farm consists of a premier Registered Holstein dairy herd and a small beef herd.

The farmstead and a majority of the cropland are leased from the landowner WB Farms, LLC. This 800 acre farm sits along the West Branch of Delaware River system and entered into a WAC Conservation Easement partnership in 2006. By doing so, the farm and it's agricultural/forest resources have been secured as a working landscape for generations to come. The WAC Easement Program, Agricultural Program, and Forestry Program all continue to work with both the farmer and the landowner to preserve farming while protecting water quality.

Posthaven Farm has been an active participant in the Watershed Agricultural Program since 1997. During the summer of 2018, implementation occurred to address the identified resource concerns associated to winter manure spreading and nutrient runoff from the existing barnyard. The waste storage facility and covered barnyard were both cost-shared through the Regional Conservation Partnership Program (RCPP) funded by NRCS. This additional funding allowed for both projects to occur simultaneously. This limited the disturbance of the farm operations while maximizing efficiencies of funding sources.

The Contractor for this job was Parker Excavation and subcontractors were Timber Fabrication, Little Lakes Contracting and Center State Ag.

Barnyard Before construction

Manure Storage after completion

Barnyard After construction

*This farm was featured on the October 17, 2019 WAP Farm Tour

Photos: Troy Bookhout

## Walterna Farm, Fred Kuhn & Family
## Covered Barnyard/Manure Storage

Fred Kuhn and his family operate a dairy farm off of NY State Route 23, just outside of Grand Gorge. The resource concerns that were addressed with this project were a barnyard heifer feeding area that resulted in manure laden runoff reaching a watercourse. In addition, manure was piled in a hydrologically sensitive area when manure from the dairy could not be spread on fields in the winter.

A covered barnyard/manure storage was implemented this season with funding in part, from the Regional Conservation Partnership Program (RCPP) and the WAP. The covered barnyard portion was 45' X 98' and the manure storage was 50' X 127'. The covered barnyard allows the Kuhn's to feed the heifers under cover from Nov-April with little to no runoff. The three-sided ramped storage was sized to store manure for six months for the heifers and two months for the milking cows. The manure is stored until more favorable weather conditions allow manure spreading.

Other BMPs associated with this project were fencing, which achieved stream exclusion, an underground outlet to pipe a spring away from site, an access road to facilitate management of the barnyard/manure storage, a spring development and a grassed waterway. There was also a culvert crossing installed to accomplish a dry crossing for the dairy cows to and from the barn to pasture.

The Contractor for this job was Belgian Trucking (Floyd Dart).

Photos: Rob Orleski and Dan Flaherty

## Backus View Farm, Jim and Nancy Backus
## Calf Housing Repair/Replacement

During an annual status review and after a wind storm at the Backus Farm. It was determined that a new cover and side curtains were needed after twenty years of use. The original hoop type building was installed in 1999. A new washroom was also added to the list of improvements to be implemented.

The design for the new washroom included a new hot water heater, a double well sink, and an exhaust fan. Double doors open into the calf facility, and a man door was installed for exterior access to the room. A drain was installed in the floor and outlets into a blind stone drain. The new wash room was insulated and wired for electricity.

The new cover was installed in one day. New shade cloth on both ends of the building was also put in place. The new side curtains, with all the pulleys required some new framing. Bird netting and hog panels were installed to deter other animals from entering the facility. New headlocks were installed in the group pen area because the old ones were damaged.

The Backus family have always maintained a beautiful farm, and this rehabilitation should be no different.

The Contractor for this job was Loitch Construction.

Calf housing before

Washroom before

Calf housing after

Washroom after

Photos: Paula O'Brien

## Rich-Nan, Richard LaTourette
## Covered Barnyard and Animal Trail & Walkway

On the Rich-Nan Farm, an old concrete barnyard was built in the early years of the Agricultural Program. It used the old style screens to filter barnyard runoff into an underground leach field. This technology is outdated and is no longer functioning properly. The planner developed remediation utilizing a covered barnyard to fully exclude runoff from entering a watercourse that is only 50 feet away from the old screen box.

The project was designed by a private engineer, and construction oversight done by Brian Danforth. The design includes a mono-slope roof toward the back, a heated waterer inside the structure and a concrete feed pad on the front where the animals eat through headlock gates. The pad is protected by a cantilevered overhanging roof. The walkway leading from the barnyard to the pastures had also reached its' lifespan and had numerous mud holes. This was recapped and crowned with crusher run gravel to enable easier, cleaner travel to the fields.

The Contractor for this job was Loitch Construction.

Construction in mid progress. Lane shows large mud holes making cattle traffic unhealthy.

Project nearing completion. Final grading of access area in front of the BY where Ag bags will be stored in the future.

Detail of the concrete feed alley and headlocks.

Final seed and mulch being applied and new walkway where mud holes once were.

Photos: Brian Danforth

## Huntersfield Christian Training Center Farm
## Concrete HUAP and Manure Storage

The Huntersfield Christian Training Center Farm, run by producer Charlie Gockel, is a beef farm located in Prattsville. The original feeding area located off of the barn would become denuded every winter due to the beef cows being fed in a concentrated area. Additionally, this area was difficult to collect manure from once the cows were moved to pasture. This concentrated feeding and inability to adequately collect manure caused phosphorus laden runoff to reach surface water. In the summer of 2019 a concrete HUAP and manure storage were built to resolve the resource issue. The structure is an unroofed HUAP that confines the cows to the HUAP area and inside the barn. The runoff from the exposed manure flows to a screen box, and outlets to a grass waterway that is designed to filter the water as it slowly moves down slope. There were also access roads, fence system, culvert crossings, well, waterers & manure spreader installed to supplement this project. These BMP's will enable the farm to collect all of the beef manure and spread it according to their nutrient management plan while preserving water quality.

The Contractor for this job was S.M. Young.

Photos: Scott Boyce

Hi Team at WAC,

I am writing to thank you all for a wonderful job with our small farm project. The project of the new barnyard, fence lines, water system and equipment is so much more than we expected. This winter it has allowed for our animals to get out of the elements and provide a much better feeding program. The feeder gate is an awesome idea and has worked very well to allow our little calves to separate themselves from the herd which has made feeding of them so easy. We love to be able to keep an area clean and dry for our animals and are looking forward to spreading manure for the first time in years. We are so thankful for the acreage of our addition pasture and the fence lines that create them.

Your team has done an exceptional job. I know many have worked on this project in creating what we see now. From Rob Birdsall as my first contact, to Nate Townsend our first planner, to Kari Sheridan and Dan Gehl our present nutrient specialist and planner who are both doing a great job and so many others I haven't mentioned. I want to say a special thanks to Scott Boyce our engineering specialist who worked with us many hours to create and oversee our finished project. I could have not asked for a more professional individual. Scott, I would not change a thing that you designed. Thanks. I want to also add that Steve Young our contractor for the project did and exceptional and timely job.

It is our hopes to be able to add more animals now that we have more pasture. Many of you know that we use the funds of this farm to operate a ministry here that works with men coming of drugs and alcohol. In a real way you are a part of that. Our men and their families thank you.

## WIRC Team Highlights 2019

The Watershed Investigation Repair Crew (WIRC) had another productive full calendar year of investigations, repairs, and assistance. Tim Hebbard, WIRC Specialist along with Assistant Planner Alison Heaney, performed 41 investigations that included:

9 on-site repairs, 6 landowner assisted repairs, 23 completed WIRC repair projects, and 3 repair requests referred to workload for WAC Procurement process. The WIRC Team also made 5 deliveries/transportation of WAC rental equipment-calf hutches; pumps; etc. to area farms.

Participants' comments:

- Skilled and proficient WIRC Staff
- Efficiency and quality of the finished project
- Perceived understanding and gain in knowledge of how repaired BMP operates on farm by participant
- Information shared on how to maintain BMP to increase lifespan
- Perceived ownership of BMP by participant through explanation of O&M
- Personal care and communication shown by WIRC staff
- Team is professional and operates safely
- WIRC staff takes the time to listen and apply participants' personal, unique knowledge of farm land base

**Byebrook Farm**
Manure Storage Facility-ER Gate & Concrete
Engineer Cost Estimate = $4,752.50 WIRC Invoice =$1,086.17

**Wheeler Farms**
Roofed Barnyard-Priority Modification-Slant Rails
Engineer Cost Estimate = $7,723.00 WIRC Invoice = $3,121.65

Photos: Tim Hebbard

## East of Hudson – Haviland Hollow Farm

Haviland Hollow Farm is located on 225 acres in Patterson, NY in the heart of the Great Swamp. This historic Putnam County farm has indoor and outdoor riding arenas, stables, boarding facilities, two polo fields, riding trails and is home to 120 horses. The farm is an active and engaged partner in WAC's conservation stewardship efforts and is a leader in the East of Hudson equestrian community.

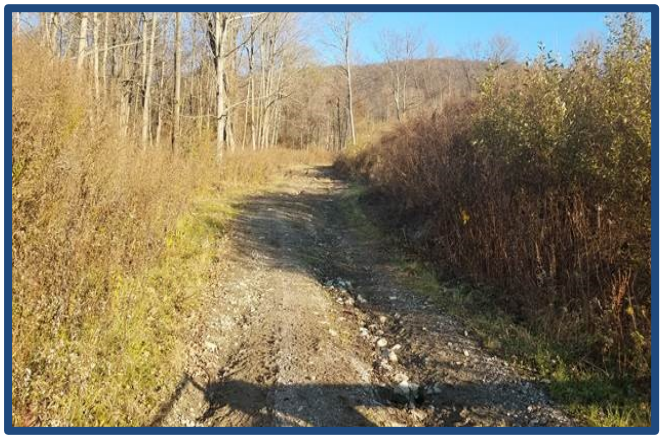
Haviland Hollow became a member of the East of Hudson Agricultural Program in 2010 and has implemented thirteen BMPs to protect the East Branch Croton River and the important wetlands surrounding the farm. The East of Hudson Program has implemented two manure pads and heavy use areas to protect local waterways and allow for animal waste to be exported from the farm. WAC has also created additional paddocks to improve grazing practices, a solar watering facility, a stream crossing, riparian herbaceous cover, as well as a nutrient management plan and a grazing plan to improve pasture rotation. This year, EOH implemented an access road and additional structures for water control to reduce surface water run-off, erosion and to ensure the farm has year-round access to all their pastures. The access road consisted of approximately 1,700 LF of access road consisting of 12" of compacted gravel and a non-woven geotextile. In addition, a rip-rap channel approximately 1,020 LF ran alongside the gravel access road and discharged storm water into the existing town catch basin. Rubber deflectors were also installed along the road to prevent erosion under heavy storm conditions.

The access road and storm water collection system provide an improved surface for moving horses, accessing the paddocks with farm equipment and prevent erosion of the hillside. The implemented BMPs will allow Haviland Hollow to rotate and rest the hillside paddocks and protect the Great Swamp and East Branch reservoir.

Haviland Hollow Implemented BMPs

- Nutrient Management Planning
- Access Road
- Structure for Water Control

Photos: Andy Cheung



Haviland Hollow before

Haviland Hollow after

## East of Hudson – Tomahawk Farm

Manure pad before

Tomahawk is a small family-run horse farm located in Somers, NY. The farm provides riding lessons, horse boarding, a children's summer camp and a therapeutic riding program. The farm also operates a Mustang rescue and rehabilitation program in association with the Bureau of Land Management. The farm joined the East of Hudson Agricultural Program in 2017 and had 9 BMPs scheduled for implementation to address water quality concerns and protect the Amawalk Reservoir, located a few hundred feet from the farm.

Manure pad after

This year the EOH program implemented heavy use areas, fencing, an access road, a structure for water control, roof run-off structures, watering facilities and a pipeline to mitigate the animal waste and run-off issues on the property. A structure for water control/storm water collection system was designed and installed to exclude horses from a watercourse running through the property. A waterline, electric line and waters were also installed to provide clean water for the animals. A heavy use area protection (roofed dumpster pad) was constructed to allow the landowner to safely collect and export manure off the farm instead of stockpiling waste in a paddock. An access road was implemented to allow trucks to access the dumpster pad to remove manure. Fencing was also installed to divide paddocks and improve rotational grazing of the property.

Structure for water control before

Access Road after

Pasture planting is also taking place at the farm to improve grazing and reduce erosion and surface water run-off.

The implemented BMPs at Tomahawk Farm will improve farm operations, enhance animal welfare and protect drinking water quality in the Amawalk Reservoir.

Photos: Andy Cheung

Tomahawk Implemented BMPs

- 2 Heavy Use area Protection
- Fencing
- Nutrient Management
- Access Road
- Structure for Water Control
- Roof Runoff Structures
- Pipeline
- Watering Facility
- Forage and Biomass Planting

Structure for water control after

## East of Hudson – Overview

69 active farms
2 new program Farms
7,305 acres

The Croton Watershed spans Dutchess, Putnam, Westchester and Fairfield Counties, the most densely populated areas of the New York City Watershed. Agriculture in these counties is under pressure from changes in land uses, development, urban expansion, rising land values and a loss of agricultural infrastructure. In this challenging environment, the Watershed Agricultural Council plays a critical role in providing technical assistance, implementing Best Management Practices and creating a support network for farms.

The East of Hudson Agricultural Program continues to evolve to provide crucial support for our farm partners protect drinking water quality, preserve working farms in the Watershed and foster a strong stewardship ethic.

2020 Planning Goals

Annual Status Review: 68
New Whole Farm Plans: As Identified

2020 Projected Design and Implementation Workload

*Watershed Agricultural Program*
New BMPs: $276,000
Repair & Replacement: $74,000

*Other Funding Source*
Landowner: $25,000
Climate Resilient Farming Grant: $31,250

2020 Planned Implementation

| NRCS/WAC Code | Implemented Best Management Practice | 2020 |
|---|---|---|
| 561 | Heavy Use Area Protection | 5 |
| 516 | Pipeline | 1 |
| 614 | Watering Facility | 3 |
| 612 | Riparian Herbaceous Cover | 1 |
| 580 | Streambank Stabilization/Protection | 1 |
| 606 | Subsurface Drainage | 1 |
| 560 | Access Road | 3 |
| 4100 | Waste Infiltration System | 1 |
| 317 | Composting Facility | 1 |
| 635 | Vegetated Treatment Area | 2 |
| 587 | Structure for Water Control | 3 |
| 468 | Lined Waterway or Outlet | 1 |
| 558 | Roof Runoff Structure - gutters | 3 |
| 362 | Diversion | 1 |
| 620 | Underground Outlet | 2 |
| 436 | Irrigation Reservoir | 1 |
| 575 | Animal Trails & Walkway | 1 |
| 313 | Waste Storage Facility | 2 |
| 309 | Agrichemical Handling Facility | 1 |
| 512 | Forage and Biomass | 3 |
| 382 | Fencing | 2 |
| 528 | Prescribed Grazing | 2 |
| 590 | Nutrient Management System | 7 |
| | **Total** | **48** |

## 2020 Planning Goals

| Catskill/Delaware Watershed | Croton Watershed |
|---|---|
| Goal | Goal |
| **Annual Status Reviews** | |
| 287 | 68 |
| **New Whole Farm Plans** | |
| As identified | As identified |

## 2020 Projected Design & Implementation Workload

| BMP - Funding Sources | Catskill/Delaware Watershed |
|---|---|
| | |
| **Watershed Agricultural Program** | |
| - Non-CREP BMPs | $ 1,991,400 |
| - CREP (WAP)* | $ 259,681 |
| - Grazing | $ 61,565 |
| - WAP Stream Buffers* | $ 413,575 |
| - Repair, Repair & Replacement & Modificatio | $ 379,181 |
| - Agonomic BMPs*** | $ 290,884 |
| - RCPP | $ - |
| Total Watershed Agricultural Program Funding | $ 3,396,286 |
| | |
| **Other Funding Sources** | |
| - CREP (FSA) | $ 42,316 |
| - GRP | $ - |
| - AWEP | |
| - DCSWCD | |
| - EQIP | |
| - Landowner | |
| - RCPP | $ - |
| Total Other Funding Sources | $ 42,316 |
| | |
| **Total Projected Workload**** | **$ 3,438,602** |
| | |
| * Includes companion BMPs for Catskill/Delaware. | |
| ** Does not included $150,000 for emergency repairs for Catskill/Delaware. | |
| *** Does not include unknown cover crop and lime pilot BMPs. | |

## 2020 Projected Design & Implementation Workload – Number of BMPs

| NRCS/WAC BMP Code | Best Management Practices | Catskill/Delaware Watershed |
|---|---|---|
| 313 | Waste Storage Facility | 2 |
| 314 | Brush Management | 2 |
| 340 | Cover Crop | 33 |
| 342 | Critical Area Planting | 1 |
| 362 | Diversion | 4 |
| 382 | Fencing | 50 |
| 391 | Riparian Forest Buffer | 26 |
| 412 | Grassed Waterway | 2 |
| 472 | Access Control | 1 |
| 500 | Obstruction Removal | 3 |
| 512 | Forage and Biomass Planting - Lime | 13 |
| 512 | Forage and Biomass Planting | 1 |
| 516 | Pipeline | 25 |
| 528 | Prescribed Grazing | 12 |
| 533 | Pumping Plant | 2 |
| 558 | Roof Runoff Management System | 1 |
| 560 | Access Road Improvement | 6 |
| 561 | Heavy Use Area Protection | 3 |
| 574 | Spring Development | 11 |
| 575 | Animal Trails and Walkway | 12 |
| 578 | Stream Crossing | 15 |
| 590 | Nutrient Management Plans | 81 |
| 612 | Tree & Shrub Planting | 6 |
| 612 | Weed Control & Herbicide Spray | 24 |
| 612 | Natural Regeneration | 2 |
| 614 | Watering Facility* | 16 |
| 620 | Underground Outlet | 1 |
| 629 | Waste Treatment | 1 |
| 634 | Waste Transfer System | 1 |
| 635 | Wastewater Treatment Strip | 1 |
| 642 | Well | 4 |
| 657 | Marginal Pastureland Wetland Buffer | 1 |
| 3010 | Roofed Barnyard | 3 |
| 3060.1 | Manure Storage/Heavy Use AreaCovered - Concret | 3 |
| 3110 | Solar Calf Housing | 2 |
| 3410 | Manure Spreader | 4 |
| 3499 | Misc Manure Handling Equipment | 1 |
| 3710 | Feed Wagon | 1 |
| 3720 | Hay Saver Feeder | 1 |
| 3730 | Solar Pump | 1 |
| 3840 | Rotational Feeding Area | 2 |
| 4100 | Waterwash Infiltration System | 2 |
| 5002 | Bridge Replacement | 1 |
| 5004 | Fencing - Semi-Permanent | 3 |
| | | |
| **Total** | | **387** |

Included in the above are modifications, emergency repair, repair or repair and replacement BMPs.

# WATERSHED AGRICULTURAL PROGRAM PARTNERING AGENCY STAFF

## USDA NRCS
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Natural Resources Conservation Service

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Nate Townsend

*Whole Farm Planners*
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Dan Vredenburgh
Ben Hendee
Alison Heaney – Asst. WF Planner
Tristin Tait – Asst. WF Planner
Troy Bookhout (Easement Prog.)
Susanne Sahler (EoH)

*Precision Feed Management Planner*
Shylabeth Taylor

*CSBI/CREP Pilot Program Planner*
Vera Neroni

## DELAWARE COUNTY
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Soil & Water Conservation District

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Chris Savage

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Rick Neuman

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