



United States Department of Agriculture

Natural Resources Conservation Service

2015 Progress Report of Activities

Big Flats Plant Materials Center

3266 State Route 352

Corning, New York 14830

607-562-8404

<http://plant-materials.nrcs.usda.gov/nypmc/>



The Big Flats Plant Materials Center (PMC) is one of 27 plant materials centers operated by the United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). It serves the Northeastern U.S., from Maine to northern West Virginia. The Big Flats PMC is located in the southern Finger Lakes region of New York State. The Big Flats PMC's mission is to select conservation plants and develop innovative planting technology to address today's natural resource challenges and maintain healthy and productive farms in conjunction with national initiatives, like the Farm Bill. Big Flats PMC focuses on using native plants to solve identified conservation issues and re-establish ecosystem function.

This report is a brief summary of 2015 activities at the Big Flats Plant Materials Center. For additional information on the projects, please contact us at the center or visit our National Plant Materials Program Website at <http://Plant-Materials.nrcs.usda.gov> to view Plant Fact Sheets on conservation plants, information on how to obtain conservation plants, publications and technology development from PMC's across the United States and links to websites with additional or supporting information.

Site and Weather Data* for 2015:

Month	Temperature (°F)								Precipitation (in)	
	GDD (base 32)	GDD (base 50)	mean Temp	departure from norm	Ave low	departure from norm	Ave. high	departure from norm	Total	30-year Ave.
April	423	43	41.8	-3.1	29.3	-3.1	54.3	-3.1	3.7	3.4
May	949	395	59.7	3.8	45.0	2.2	74.3	5.3	2.0	3.1
June	1019	479	61.6	-3.2	51.3	-1.5	72.0	-4.7	7.0	2.6
July	1147	589	65.8	-2.8	53.9	-2.8	77.7	-2.8	3.4	3.7
August	1113	555	64.5	-0.3	52.7	-2.7	76.4	-2.3	1.7	3.7
September	997	457	65.4	4.5	51.7	2.7	79.0	6.2	3.3	3.9
October	543	93	49.1	-0.22	37.7	-0.1	60.4	-0.4	2.2	2.6
November	373	49	43.8	4.91	31.4	2.37	56.3	7.53	1.4	1.9
December	311	14	41.9	12.6	33.7	12.7	50.2	12.55	2.1	1.9
	4484	1757							26.9	26.8

*Elmira-Corning Regional Airport Weather Station

- **Elevation**-902 ft
- **Soils**-Unadilla silt loam, Tioga silt loam, Middlebury silt loam, Wallington Silt loam (gravelly substrate), Williamson silt loam (gravelly substrate)
- **# of Frost Free Days**-135

Cropland Erosion, Water Quality, Soil Health

National Cover Crop Adaptation Trials

While cover crops provide numerous benefits, these benefits are not consistently attained unless specific cover crop varieties/cultivars are used that meet the overall objectives and the producer's expectations. In association with the National Soil Health Campaign, 23 Plant Materials Centers (PMCs) across the U.S. have initiated National Cover Crop Adaptation Trials. These trials include cultivars of 8 cover crop species (cereal rye, balansa clover, red clover, field pea, radish, black oats, crimson clover and hairy vetch), which are commercially available, economically feasible, and have multiple benefits. The cultivars are being evaluated at Big

Flats on the following growth characteristics and production attributes (See results of fall growth attributes below):

- Germination and field emergence
- Spring green-up date (if applicable)
- Bloom/ flowering period
- Plant height
- Disease and insect resistance
- Winter hardiness
- Biomass
- N content
- Canopy cover

**** PLEASE NOTE: These are only preliminary results from the Big Flats Plant Materials Center after the 1st fall growing season. Cultivars developed in other areas of the US, may or may not be adapted to our climatic conditions. No recommendations or conclusions can be absolute after only 1 short, fall growing season. ****

All plots in the following section were established by rototilling, hand broadcasting the seed, then cultipacked by driving over each plot with a John Deere Gator.

Daikon Radish Cultivars: seeded @ 9 lb/acre, 5-7 seeds/sq. ft (see Table 1 below).

- All radishes were browsed by deer throughout the growing season
- Low % canopy cover for ‘Lunch’ and ‘Sodbuster’ was possibly from poor seedling emergence or seeding error
- Overall, there was more percent nitrogen in aboveground plant tissue than belowground
- Due to above average temperatures in December, radishes did not show significant signs of frost injury until the 2nd week of January.
- There was little to no disease or insect injury on any of the radishes throughout the growing season
- All radishes were in the rosette stage of growth when harvested.
-

TABLE 1. PRELIMINARY RESULTS AFTER 1ST YEAR SEEDING FOR DAIKON RADISH CULTIVARS. RADISHES WERE SEEDING ON AUGUST 28, 2015 AND HARVESTED ON NOVEMBER 9, 2015. ALL DATA WAS TAKEN AT HARVEST.

Cultivar	seeds/lb	seeds/acre	seeds/sq ft	height (cm)	% Canopy Cover	Above ground DM biomass (lb/a)	Below ground DM Biomass (lb/a)	root diameter (cm)	root length (cm)	# of roots
DEFENDER	33,190	298,712	7	39.1	80.8	3044.6	1317.7	1.9	18.4	21
LUNCH	23,462	211,159	5	24.6	57.0	2172.7	2307.5	3.1	25.1	17
ECO-TILL	29,583	266,243	6	28.3	71.3	2145.7	2154.1	2.6	21.7	22
TILLAGE	25,675	231,079	5	26.7	80.8	1943.5	1800.9	2.2	22.9	21
DRILLER	30,240	272,160	6	25.3	80.8	1749.7	1733.5	2.3	22.8	19
NITRO	30,240	272,160	6	26.3	90.3	1741.3	1764.2	2.6	24.9	21
GROUNDHOG	31,647	284,819	7	22.3	80.8	1728.1	1442.3	1.5	19.2	33
SODBUSTER	22,308	200,774	5	26.4	66.5	1660.7	1610.7	2.8	24.7	14

TABLE 2. PERCENT NITROGEN CONCENTRATION IN DAIKON RADISH BELOW- AND ABOVEGROUND

Cultivar	% N DM (above)	% N DM (below)
LUNCH	2.4	1.7
SODBUSTER	2.4	1.4
NITRO	2.4	1.4
TILLAGE	2.3	1.4
DRILLER	2.2	2.1
ECO-TILL	2.1	1.4
DEFENDER	2.0	1.5
GROUNDHOG	1.9	1.5



FIGURE 1. DEFENDER DAIKON RADISH ROOTS.



FIGURE 2. SODBUSTER DAIKON RADISH ROOTS.

Black Oat Cultivars: seeded at 60 lb/acre

- ‘Cosaque’ black oat was released due to its prolific tillering, weed suppression abilities, and increased winter-hardiness. In the first year at our PMC, it showed little signs of frost damage into December compared to ‘SoilSaver’, which was heavily impacted.
- ‘SoilSaver’ was released for its use as a cover crop and biomass yield, decreased susceptibility to leaf and stem rust and excellent fall growth (tall stature and wide leaves).
- ‘Cosaque’ and ‘SoilSaver’ were seeded at the same rate but their seeds/lb differed considerably.
- ‘SoilSaver’ only produced approximately 100 more lb/acre of dry biomass than ‘Cosaque’.

TABLE 3. BLACK OAT CULTIVARS PRELIMINARY EVALUATION RESULTS. BLACK OATS WERE HAND BROADCASTED, @ 60 LBS/A, ON AUGUST 28, 2015 AND HARVESTED ON NOVEMBER 17, 2015. ALL DATA WAS COLLECTED AT HARVEST DATE. DISEASE RATING WAS 0-5, WITH 0=NO DAMAGE, AND 5=SEVERE DAMAGE. GROWTH STAGE WAS BASED ON THE FEEKES RATING SCALE.

Cultivar	seeds/lb	seeds/acre	seeds / sq. ft	canopy cover (%)	heights (cm)	growth stage	Disease	# of tillers	dry matter (lb/acre)	%N DM
SoilSaver	33,190	783,000	46	82.6	34.4	7	2	5	1800.3	2.4
Cosaque	13,053	2,000,000	18	78.4	18.2	5	3	9	1692.6	2.6

Cereal Rye Cultivars: Rye cultivars were seeded at 2 dates; September 3, 2015 (if seeding for fall forage or grain production) and October 7, 2015 (after silage corn harvest in the Northeast). All rye cultivars were seeded at 100 lb/a. There were large differences in seed size between some of the cultivars and because of these differences, as well as broadcasting the seed, some of the cultivars were seeded more or less heavily than recommended (see table 4 below).

TABLE 4. ALL CEREAL RYE WAS SEEDED AT 100 LB/A, BUT SEEDS/FT² DIFFERED GREATLY FOR SOME CULTIVARS. SEEDS/FT² RANGED FROM 26-76.

variety	seeds/lb	seeds/ acre	seeds/sq ft
Merced	33,022	3,302,200	76
Elbon	30,609	3,060,900	70
Aroostook	24,438	2,443,800	56
Wintergrazer-70	23,759	2,375,900	55
Maton	21,860	2,186,024	50
Maton II	21,860	2,186,024	50
Abruzzi	20,855	2,085,517	48
Oklon	19,970	1,997,000	46
Wheeler	14,515	1,451,520	33
Hazlet	14,088	1,408,800	32
Prima	12,870	1,287,000	30
Guardian	12,760	1,276,000	29
Brasetto	11,413	1,141,300	26

FIGURE 3. PERCENT NITROGEN AND % CRUDE PROTEIN AT HARVEST DATE. PLEASE NOTE THAT FL-401 AND MERCED RYE WERE MUCH TALLER (FEEKES GROWTH STAGE 10) AT THE 9/3/15 SEEDING DATE. ALL OTHER RYES WERE AT GROWTH STAGE 5. ALL PLANTS WERE AT GROWTH STAGE 2 FOR THE OCTOBER 7, 2015 SEEDING DATE WHEN HARVESTED.

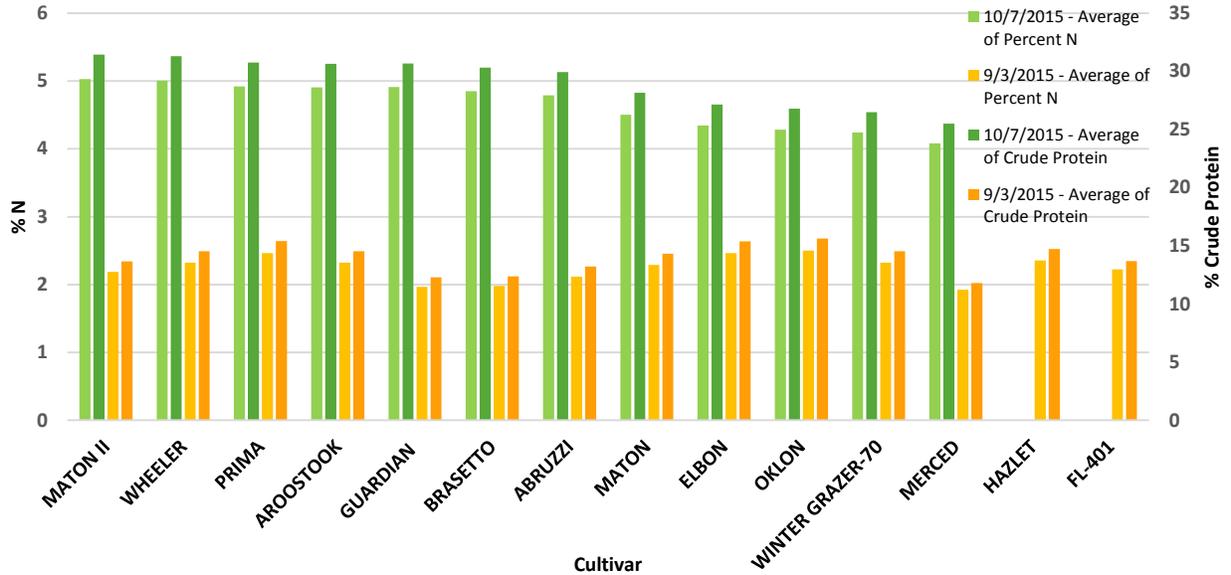


FIGURE 4. HEIGHTS FOR 9/3/15 SEEDING DATES, TAKEN AT 3 DIFFERENT DATES APPROXIMATELY 1 MONTH APART ON 10/1/15, 11/1/15 AND 12/10/15. PLEASE NOTE THAT DEER BROWSE WAS PRESENT IN ALL RYE PLOTS.

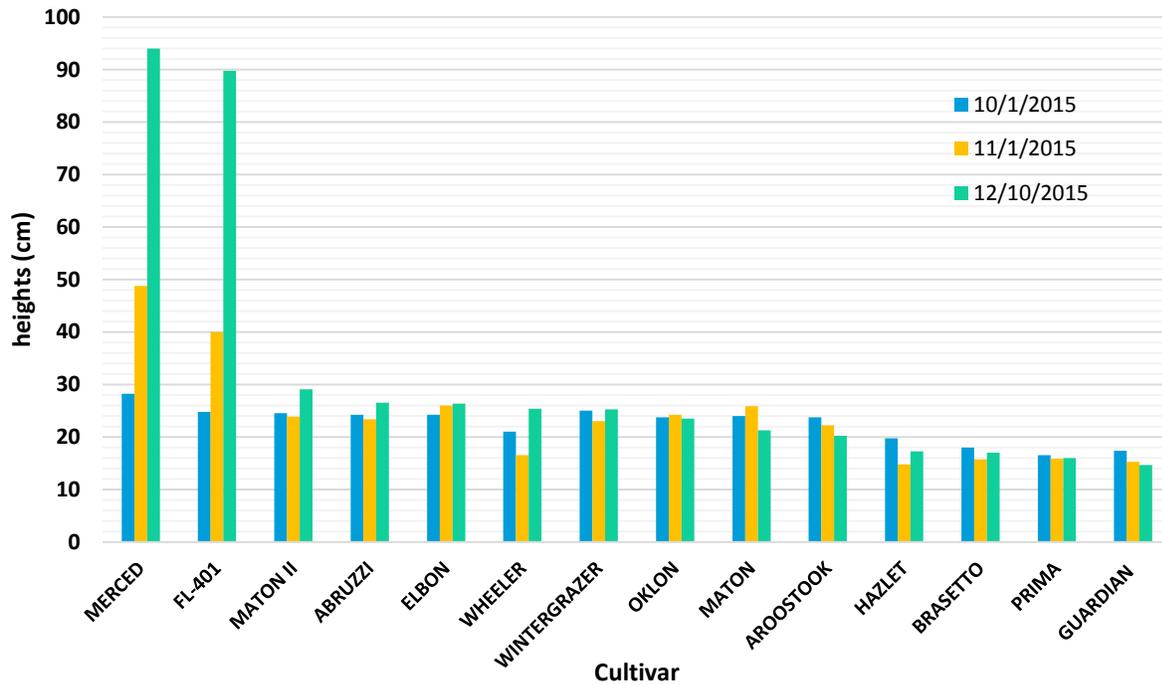


TABLE 5. PERCENT COVER AND DRY MATTER BIOMASS FOR CEREAL RYE CULTIVARS. SEPTEMBER 3, 2015 SEEDING DATE WAS HARVESTED ON 11/20/15 AND THE SPRING-TYPE CULTIVARS, MERCED AND FL-401, WERE HARVESTED ON 11/13/2015. TABLE SORTED BY SEPTEMBER 3, 2015 SEEDING DATE AND ITS CORRESPONDING LB/A BIOMASS DATA. RYE CULTIVARS SEEDED ON OCTOBER 7, 2015 WERE HARVESTED ON 11/30/15.

variety	seeds/ft2	9/3/2015		10/7/2015	
		lb/A	% cover	lb/A	% cover
Merced	76	3539.6	99.0	453.9	47.1
FL-401	68	3277.2	98.5	n/a	n/a
Oklon	46	1713.3	93.3	316.2	32.2
Maton II	50	1689.3	92.5	235.3	34.4
Elbon	70	1620.9	93.8	279.4	38.9
Wintergrazer	55	1586.7	92.3	340.2	47.1
Aroostook	56	1492.4	91.0	316.2	32.4
Hazlet	32	1477.4	88.0	n/a	n/a
Abruzzi	48	1463.6	92.0	311.4	32.2
Maton	50	1386.2	92.0	336.2	38.8
Brasetto	26	1386.2	91.5	313.8	30.9
Wheeler	33	1340.5	93.8	252.1	34.5
Prima	30	1286.5	88.0	249.7	15.5
Guardian	29	830.9	75.7	220.1	11.7

Results will provide local recommendations for producers and NRCS field offices. As well as encourage farmers to use higher quality cultivars appropriate to a landowner’s resource concern and conservation needs, rather than settle for generic cover crop seed (“variety not stated”).

When selecting and seeding different cultivars of any species, it is very important to obtain the number of seeds/lb for that lot of seed which can vary from year to year, especially when broadcasting the seed. The discrepancies in number of seeds/lb, particularly for black oats and cereal rye cultivars, will skew the overall results making direct cultivar comparisons problematic but very important information can be obtained from this data.

Cereal Rye Seeding Rate and Planting Date Comparison Study

Seeding winter hardy cover crops after silage corn is difficult in the Northeast US due to the short growing season. This study is intended to observe the effect of seeding dates and rates on fall and spring percent cover and biomass. In this study, we are looking at 2 well-known cereal rye cultivars: ‘Hazlet’ and ‘Aroostook’. ‘Hazlet’ was developed at The Swift-Current Research and Development Centre, in Saskatchewan, Canada. It was selected for its large seed (grain use), floret fertility and reduced plant height. In contrast, ‘Aroostook’ was released by the NYPMC for its increased cold tolerance and use as a cover crop. ‘Aroostook’ grows fast and tall in the spring, produces large amounts of biomass, and is somewhat prone to lodging. ‘Hazlet’, traditionally used as a grain crop, also produces a lot of spring biomass, but is much shorter and may be easier to plow-down before the commodity crop is planted. Besides looking at seeding rates and dates, we are also evaluating the differences in winter hardiness and early spring growth of ‘Hazlet’ and ‘Aroostook’ rye at the NYPMC.

The tables below display the aboveground biomass (dry matter), percent cover, and heights data. Spring growth characteristics and biomass data will be obtained in the spring of 2016 as well as spring green-up dates. **Please keep in mind the following when looking at the 2015 fall preliminary data:**

- September 15, 2015 seeding was harvested on November 25, 2015, 70 days after planting (DAP)

- October 3, 2015 seeding was also harvested on November 25, 2015, 55 DAP
- October 20, 2015 seeding was harvested on November 30, 2015, 21 DAP
- November 4, 2015 seeding was harvested on December 8, 2015, 34 DAP
- All attribute data was collected at harvest
- ‘Hazlet’ has 14,000 seeds/lb and ‘Aroostook’ rye has 24,000 seeds/lb. Therefore, Aroostook rye had approximately 42% more seeds/ft² in each plot.

TABLE 6. ‘AROOSTOOK’ RYE FALL EVALUATION DATA.

Seeding Rate		9/15/2015			10/3/2015			10/20/2015			11/3/2015		
lbs/acre	seeds/sq ft	Height (cm)	% cover	lb/a DM	Height (cm)	% cover	lb/a DM	Height (cm)	% cover	lb/a DM	Height (cm)	% cover	lb/a DM
145	81	29.2	96	2352.1	18.5	93	1126.4	10.5	62	295.4	7.8	28	164.1
125	70	24.8	93	1787.7	19.2	85	1039.9	9.6	70	274.6	7.8	28	114.5
100	56	24.4	90	1842.9	16.3	80	859.0	9.1	50	198.5	7.9	20	100.1
75	42	24	88	1814.1	15.5	75	866.2	9.7	46	199.3	7.6	15	82.5
50	28	23.1	81	1425.9	13.8	71	685.0	8.4	41	113.7	7.4	9	71.3
25	14	20.7	77	1181.7	12.9	56	321.0	8.5	8	80.9	7.3	2	44.8
Ave-		24.4	87.2	1734.1	16.0	76.7	816.3	9.3	46.1	193.7	7.6	17.1	96.2

TABLE 7. ‘HAZLET’ RYE FALL EVALUATION DATA.

Seeding Rate		9/15/2015			10/3/2015			10/20/2015			11/3/2015		
lbs/acre	seeds/sq ft	Heights (cm)	% cover	lb/a DM	Heights (cm)	% cover	lb/a DM	Heights (cm)	% cover	lb/a DM	Heights (cm)	% cover	lb/a DM
145	47	22.8	91	1804.5	13.6	79	1056.8	9.2	51	246.6	7.1	18	97.6
125	40	17.9	87	1605.2	11.6	75	799.0	7.3	45	270.6	7.3	14	119.3
100	32	18.5	81	1488.3	11.7	68	657.3	7.8	37	150.5	7.3	7	84.1
75	24	18.5	77	1449.1	11.9	73	843.0	8.0	49	181.7	7.2	11	91.3
50	16	15.7	78	1163.2	10.7	54	481.9	7.3	21	78.5	7.2	5	67.3
25	8	15.3	65	1104.8	9.2	31	252.2	7.5	6	54.4	7.0	1	39.2
Ave-		18.1	80.0	1435.9	11.4	63.0	681.7	7.9	35.0	163.7	7.2	9.0	83.1

Preliminary Observations (Comparing Seeding Rates and Seeding Dates):

- The lowest seeding rates produced more tillers (7/seedling) when seeded on 9/15/15.
- Overall, seeding dates and seeding rates had more of an effect on the fall data collected than the cultivar. (early seeding=more time to grow).
- Seeding into the first week of November produced very little biomass and cover for both cultivars
- Interestingly, even with the reduced # of seeds/ft² of ‘Hazlet’ (~40% less), yields biomass measurements similar to that of ‘Aroostook’.

TABLE 8. PERCENT N CONTENT IN ABOVE GROUND PLANT TISSUE FOR BOTH CULTIVARS OF RYE, SEEDED ON 9/15/15 (FEEKES GROWTH STAGE- 5) AND 10/3/15 (FEEKES GROWTH STAGE-3).

Seeding Rate	9/15/2015		10/3/2016	
	Hazlet	Aroostook	Aroostook	Hazlet
25	4.6	3.9	5.7	5.2
75	4.1	3.6	4.4	4.9
125	3.5	3.6	4.7	4.3
50	3.4	3.3	5.0	4.4
145	3.4	3.6	4.7	4.3
100	3.1	3.2	4.8	4.1
ave:	3.7	3.5	4.9	4.6



FIGURE 5A. PHOTO SHOWS 9/15/15 SEEDING IN THE FOREGROUND.

Native Willow Evaluation

‘Streamco’ purple osier willow has been used extensively for streambank protection projects. Since it is not native to the US, interest has arisen for replacing the use of ‘Streamco’ with native species of shrub willow with similar characteristics. Over the past 5 years, we have evaluated 5 species of shrub willow: Bebb’s willow (*Salix bebbiana*), pussy willow (*Salix discolor*), silky willow (*Salix sericea*), shining willow (*Salix lucida*) and heart-leaved willow (*Salix eriocephala*). In the fall of 2014 dormant cuttings were made of 19 accessions of *S. eriocephala*, 14 accessions of *S. discolor*, 13 accessions of *S. sericea*, 4 accessions of *S. lucida*, and 3 accessions of *S. bebbiana*. In late spring of 2015, cutting material was planted of each selected accessions, then rooted plants dug up in the fall of 2015 just after leaf drop. Each accession is currently being evaluated for rooting ability, root/stem length and root structure as well as overall vigor and heights, which were obtained throughout the growing season. Anyone interested in testing these native willows or obtaining plants/cuttings for increase, please contact us the NYPMC.



FIGURE 5. SALIX ERIOCEPHALA ACCESSIONS.



FIGURES 6. ACCESSIONS OF SALIX SERICEA. PHOTO TAKEN 10/15/15.

Native Plants

Short Stature Switchgrass Evaluation (Northeast Eco-types)

Native populations of switchgrass exhibit a wide range of genetic diversity. NRCS staff in the NE have expressed the importance of collecting, evaluating and preserving various germplasm. Northeastern collections of switchgrass have been evaluated for the past 6 years at the NYPMC and seed samples sent to GRIN. The overall objective of this study was to select shorter stature switchgrass plants that may be easier to manage along highways and right-of-ways, and provide vertically diverse wildlife habitat. Shorter, upright switchgrass plants are less dense, allowing them to be easily integrated into wildlife seed mixes. In 2014, we selected the switchgrass plants that were between 3.5 to 4.0 feet tall, upright throughout the growing season and winter months, vigorous, and relatively high disease resistant. Throughout 2015, we evaluated survival, vigor, plant condition, heights, disease resistance, standability, and general appearance.

Any plants that did not establish adequately were removed from the study. In 2016 seed will be harvested from the crossing block, processed, then used to establish a breeder seed block, representing all selected accessions.



FIGURE 7. ADVANCED EVALUATION BLOCK OF SELECTED LOW STATURE SWITCHGRASS. PICTURE TAKEN ON NOVEMBER 11, 2015.

Optimal Seeding Times of Native Forbs for Pollinator Conservation

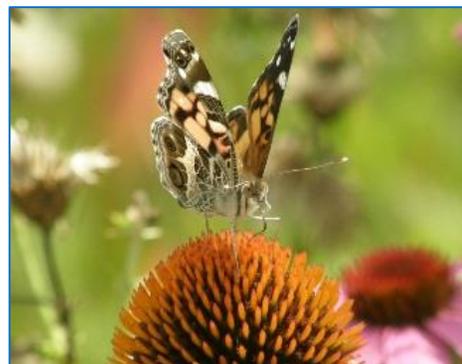
The species listed to the right are being used in CRP and EQIP farm bill programs throughout New York State. Our main objective is to evaluate each species, and a commercially available Northeast pollinator seed mix, seeded at 3 dates throughout the growing season as well as a dormant seeding. NOTE: site preparation is very important before seeding wildflower mixes, at any date. Throughout the growing season each plot was evaluated for wildflower species density, and plots will again be looked at in the spring of 2016, for survival and overall vigor as well as weed species present.



FIGURE 8. NEW ENGLAND ASTER IN FULL BLOOM AFTER FIRST YEAR.

Common Name	lbs/A (PLS) Seeding Rate	seeds/ft2 (PLS)
purple bergamot	0.06	1.61
blue wild indigo	0.15	0.12
partridge pea	0.5	0.75
lanced-leaved coreopsis	0.75	3.62
gray headed coneflower	0.5	6.31
early goldenrod	0.1	4.59
purple coneflower	1.15	3.04
tall white beard tongue	0.15	6.89
black-eyed susan	0.03	0.86
New England aster	0.1	2.57
wild bergamot	0.13	3.58
narrow-ldv mountain mint	0.1	6.89
oxeye sunflower	0.5	1.19
common milkweed	0.1	0.16
Total	4.32	42.17

FIGURE 9. GREAT SPANGLED FRITILLARY BUTTERFLY



Critical Area Stabilization & Streambank Stabilization

Low Cost Methods for Establishing Forest Riparian Buffer Plantings

In collaboration with *The Stroud Water Research Center* in Avondale, PA, the *Chesapeake Bay Foundation*, *Pennsylvania Department of Conservation and Natural Resources*, *Penn State University* and *Big Flats PMC*, a multi-state project on developing low-cost methods for establishing forest riparian buffers was established. The methods being evaluated include natural regeneration, direct seeding, live stakes and small container stock. In addition, the use of double rows of 4 foot fencing placed 10 feet apart will be

assessed as a means of protecting plantings from deer. The use of selective herbicides to help establish young woody plants from competing forbs and grasses is also being evaluated. This project hopes to develop methods that can improve reforestation success at lower costs for USDA farm bills programs such as CREP and help facilitate the adoption of these management practices by landowners.

Preliminary findings from all locations after 2 years:

- Direct seeding shows better potential on upland locations than on riparian locations
- Direct seeding appears more effective in former cropland than in former pastures (high weed pressure)
- Direct seeding has potential for reforestation under the assumption that the 2-year old seedlings surviving, to date, continue to grow and progress.

Seed and Plant Production

Plant materials of all released conservation plants and plants currently under development are processed at the Plant Materials Center.

Seed harvested in 2015-

‘Aroostook’ rye,
‘Niagara’ big bluestem,
‘Tioga’ deertongue,
‘Copper’ chinquapin,
Canada and Virginia wildrye,
Canada bluejoint,
sideoats grama,
New England collections of little bluestem, big bluestem, and
Indiangrass, and intermediate wheatgrass.

Seed of blue vervain, white flat-topped aster, nodding sedge and butterfly milkweed (NE Native Seed Initiative working group)

Vegetative material available for increase includes:

‘Streamco’ purple osier willow
‘Greenbank’ sandbar willow
‘Ruby’ red osier dogwood

‘Catskill’ sand cherry
‘Kingston Germplasm’ prairie cordgrass
‘Spike’ hybrid poplar

Any commercial grower or nursery interested in producing any of our plant releases should contact us directly at the NYPMC. Landowners that need information on conservation uses of these varieties or local sources of plant materials can contact their local NRCS Field Office or visit our website (see last page for link).



FIGURE 10. 'COPPER' CHINQUAPIN SEED BEFORE HARVEST.

Outreach

Conservation Plantings in Huntingdon, PA

The PMC provided technical assistance and plant materials to PA NRCS staff in 2014 and 2015. The emphasis was to demonstrate pollinator and wildlife habitat at the Old Crow Wetlands and a WRP site in Huntingdon, Pennsylvania. The Old Crow Wetlands encompass 6.5 acres of bird and other wildlife habitat as well as an interpretive and educational center for teaching the public on the importance of wetland habitat.



FIGURE 11. INTERPRETIVE CENTER AFTER PENNDOT PREPARED THE SITE, IN 2014.



FIGURE 12. SNAPPING TURTLE EGGS FOUND AT THE PLANTING SITE, IN 2015.

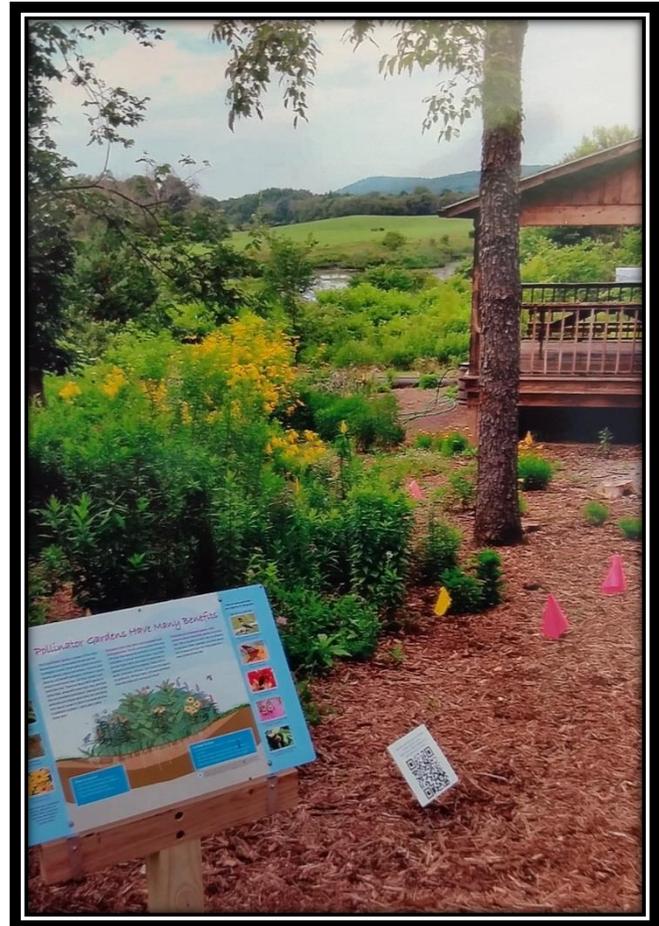


FIGURE 13. INTERPRETIVE CENTER, IN SUMMER OF 2015 (ABOVE AND TO THE LEFT).

Other Outreach Activities:

- Soil Health Training in Rock Springs, Pa: provided an overview of the Plant Materials Program and its Mission, and specifically on projects currently being carried out by the PMP, especially in the Northeast, related to cover crops and soil health.
- Seed Processing Technology: presentation to Cornell University Seed Science Technology Class
- Biofuels and PM Program- presentation on PM program and how it has assisted with biofuel research and covered all aspects of warm season grasses from establishment to biomass harvest
- Big Flats PMC's Seed and Plant Production Techniques and Methods: Staff members from the Toledo Ohio Metro Parks received a 6-hour tour of our methods and techniques to produce seed and plants, reviewed our equipment and toured plots
- Plant Materials Program and How we Address Local Environmental Issues: gave Elmira College's Environmental Concerns class an overall presentation of the PM program, soil health demonstration and toured our research plots
- PM Program Addresses Local Environmental Issues- presentation and tour to the Campbell-Savona ACE environmental concerns class
- NYS Vegetable Producers Expo: Presentation on "The Effects of Cover Crops and other Soil Health Practices on Soil and Water Relations".
- Training to NRCS NY (southeast): "Critical Area Seeding and Establishment"
- Training to NRCS personnel and SWCD employees: on "Tree and Shrub Selection and Planting to NRCS staff and SWCD employees".
- Training to Lewis County, NY staff: on "The Timing and Selection of Cover Crop Species and mixes and The Effects of Soil Health Management on Soil and Water Relations".
- Training to Northeast Area Staff: on "Critical Area Seeding Establishment and Maintenance."
- Training to 175 participants at an on farm workshop in Perry, NY: "The Purpose of Cover Crops, Selection and Establishment"

Tours & Workshops

- **Critical Area Seeding, Stabilization, Erosion and Sediment Control Workshop** - attended by 73 participants
- **Pollinator Conservation Short Course** - attended by 77 participants
- **Cover Crop and Soil Health Workshop and Tour** - attended by 115 participants
- **Cover Crops and Reduced Tillage Workshop for Organic Vegetable Growers** - attended by 61 participants

Please visit our website, by clicking [HERE](#) for other information not found in this progress report such as PMC highlights, publications, and News and Events. All of our plant release brochures are now up to date and available for download.

For any additional information on the material presented here please contact us at 607-562-8404.



FIGURE 14. DURING THE SUMMER OF 2015, HONEY BEES PRODUCED THIS BEAUTIFUL HIVE, IN ONE OF OUR CEDAR TREES AT THE CENTER. LUCKILY DURING THE POLLINATOR WORKSHOP, A LOCAL BEEKEEPER WAS ABLE TO COME AND MOVE THE HIVE BEFORE TEMPERATURES FELL TO LOW AND KILLED THE WHOLE HIVE.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250- 9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer. USDA is committed to making its information materials accessible to all USDA customers and employees.