

Training Seed Savers in Plant Characterization and Regeneration

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by L. Robertson

GENEVA, NY: The Plant Genetic Resources Unit (PGRU) of the USDA-ARS at Geneva, New York, hosted a two-day workshop, September 18-19, 2000, for training seed savers in heirloom plant characterization and regeneration.

"The major goals of this workshop were to provide participants from organic farmer and seed-saving non-governmental organizations (NGOs) the skills to describe varieties using the descriptor lists available from the National Plant Germplasm System and elsewhere and to multiply heirloom varieties showing potential in a manner that preserves their identity and provides sufficient high quality seed," said Larry Robertson, USDA vegetable crop curator. "The workshop aimed to train trainers from the organizations involved so that they could act as mentors in training other members of their organizations in the demonstrated methodologies." Seed saver enthusiasts are interested in using heirloom varieties in the PGRU seed repository for production on their farms. Workshop organizers provided the links and basic knowledge to access germplasm and characterize it. After selecting the plants they would like to use, the seed savers have the basic skills needed to regenerate them in a manner that preserves their uniqueness.

Through informed laypersons, the PGRU hopes to get more germplasm out of the vault and into farmer fields, providing for on-farm conservation of important and useful heirloom varieties. Heirloom enthusiasts are expected to play an important role in turning PGRU collections into living plants that all can experience and enjoy.

The workshop was co-sponsored by the Farmers Cooperative Genome Project (FGCP) and the Northeast Organic Farming Association of

Coming Soon

Suggested caption: 1. Seed preservation offers many challenges. Here, David Sharman, of the Plant Genetics Resources Unit, tells seed savers about a recent radish project where the radishes are being dug up now, potted, and kept in a greenhouse over the winter. They will be planted back in the field next spring so the radish plant has time to bolt and make seeds. This year's crop never bolted. CREDIT: K.Stevens/NYSAES/Cornell

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Suggested caption:2. Germplasm preservation starts with the seeds. John Oughterson (right), of the Plant Genetics Resources Unit (PGRU), shows seed savers how to separate tomato seeds from the pulp with a sieve. The seeds will be kept in a cold storage over winter, and then be available for distribution for planting next season. CREDIT: K.Stevens/NYSAES/Cornell

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Coming Soon

Suggested caption:3. Seed savers at the recent USDA-ARS workshop held at the Plant Genetics Resources Unit in Geneva, NY, check out

NY (NOFA-NY). Robertson, Dave Sharman, Debra Johnston, Paul Kisly, John Oughterson, and Sheri Day of the Seed Conservation Group, and Bob Nearpass of the Database Group of the PGRU conducted the workshop. Ellen Chirco of the New York State Seed Lab was also a trainer for the workshop.

honeybee activity during squash pollination. Cages are used to control pollination activities and insure seed germplasm that is true to type. CREDIT: K.Stevens/NYSAES /Cornell

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"We provided a pool of enthusiastic seed savers with the basic training needed to get started characterizing and regenerating heirlooms in a manner that meets minimal standards," said Robertson. Even though the participants still have much to learn, he said they made a "good start" in taking a role in preserving our common heritage of the genetic resources treasure maintained in the genebanks. "We have added a strong, enthusiastic group to our pool of stakeholders," he said, "and we hope to strengthen links with them in future activities."

For instance, several participants expressed an interest in developing a network in New York to work with the PGRU in characterizing the tomato collection for the minimal descriptor list. Workshop organizers will follow up with NOFA-NY on this suggestion.

Workshop Activities

On the first day, lectures covered general concepts of descriptors followed by hands-on experience at the experimental farm in characterizing cabbage, onion and tomato accessions. The lectures covered the minimal descriptor lists used for cabbage, onion and tomato and also gave an introduction to the various types of descriptors used, their format, and the importance of heritability and environmental interaction in characterization and evaluation. Participants were trained to score for such characters as onion bulb shape, tomato fruit shape and other characters. The minimal descriptor lists for all three crops were covered, scoring demonstrated, and the participants trained to score. Imaging of tomato and onion bulb shapes was demonstrated and discussed at the Wellington Farm, in Geneva. The importance of photographic documentation was demonstrated. The day ended with a lecture and demonstration of computerizing characterization data in a format that is easily exchangeable, ending with a brief coverage of the on-line Genetic Resources Information Network (GRIN) and how to access it via the Internet.

Lectures on the second day covered important issues in small-scale regeneration of heirlooms including plant breeding systems, plant habits, use of pollinators, and IPM. This was followed by demonstrations at the Wellington Farm of protocols used in planting varieties for regeneration using cages for pollination, how bee hives are used for pollination, and a demonstration of seed threshing, processing and cleaning equipment used for seed production of tomatoes, *Brassica* crops and onion. The day ended with coverage of the importance of proper drying, storage, and testing germination and other seed quality traits.

There were 15 participants of this workshop who came from two groups: 1) organic farmer organizations, and 2) seed saving/exchange organizations. Members of Oregon Tilth and NOFA-NY participated along with members of Seed Savings Groups such as the Eastern Native Seed Conservancy and Turtle Tree Seeds. They all expressed interest in characterizing germplasm from the National Plant Germplasm System and multiplying seed of heirloom varieties that are useful for production by members of their groups.

"Many good questions from the participants indicate a strong appreciation for the importance of characterization and regeneration and a strong interest in doing it well," said Robertson. "The participants were enthusiastic about returning to their organizations and farms and applying what they learned during the workshop."

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