Restoring Heritage Wheat

Friday, June 22, 11-6

MOFGA, Unity, Maine

Maryazarian.com

Restore Almost-Extinct Wheat Biodiversity
& Learn Seed-Saving Arts for Gluten-Safe Foods
with

Gary Nabhan, Dr. Thomas Payne,
Director of World's Largest Wheat Genebank

Eli Rogosa, Heritage Grain Conservancy
Glenn Robertson - Anson Mills Heritage Grains
Will Bonsall, Mark Fulford - Living Soil

Register on:

growseed.org

FUNDED BY SARE

Restoring Landrace Wheat

with Dr. Thomas Payne
Director of the World's Largest Wheat Genebank
& Gary Nabhan
Friday, June 22, 11 AM - 7 PM - Potluck Meals
MOFGA.ORG, Unity, Maine

Global Restoration Of Wheat - GROW

Join us to restore the biodiversity of heritage wheat. Biodiversity is at the heart of community seed systems. Modern wheat, bred in agrochemical-soaked fields for uniformity and high gluten, has replaced the rich biodiversity of landraces world-wide. As we face unprecedented weather extremes, burgeoning gluten allergies and patented wheats that farmers cannot save, almost-lost ancient and heritage wheats offers important resource for organic farmers and gardeners. However our landrace wheats are threatened, many on the verge of extinction.

A treasure trove of delicious, resilient landrace wheats, that may *yield higher in organic fields than modern wheat*, are stored in the world's gene banks, but the process of screening and restoring landraces requires unprecedented vision, ingenuity and cooperation of genebanks, researchers, farmers, bakers and people that love to eat grains.

This seminar will establish GROW working groups to restore landrace wheat biodiversity, and share practical skills for dynamic seed-saving landrace wheats. Participants will receive elite landrace populations from the Heritage Grain Conservancy, the outcome of three years of on-farm organic trials funded by SARE. Landrace list: growseed.org/catalogue1.pdf

Schedule

10:30 Registration
11:00 Will Bonsall - Small-Scale Grain Growing Basics
12:00 Brown Bag Lunch
12:30 Glenn Roberts - Why Restore Landrace Wheat <*ansonmills.com*>
12:45 Dr. Tom Payne - On-Farm Conservation of Wheat Biodiversity <*cimmyt.org*>
2:00 Gary Nabhan - Restoring Landrace Wheat <*garynabhan.com*>
3:00 Round-Table - On-farm Conservation and Dynamic Seed-Saving
4:00 Ellen Mallory, NE Bread Project <*sites.google.com/site/localbreadwheatproject*>
4:20 Mark Fulford - Building Living Soil <*teltanefarm.com*>
4:40 Eli Rogosa - Evolving Landrace Wheat in Living Soil <*growseed.org*>
5:00 Distributing Seed to Teams - Brainstorming Goals and Roles for 'Eat it to Save it'
5:30 Potluck Dinner - Bring your Home-Baked Breads to share!

For further information: growseed@yahoo.com

Co-sponsored by MOFGA and the Heritage Grain Conservancy

growseed.org

GENEROUSLY SUPPORTED BY NESARE, MOFGA, ANSONMILLS.COM & MSPA

REGISTRATION

Please email the completed form to Eli Rogosa: growseed@yahoo.com

Name _____ **Email** _____

Address _____

What are your hopes and goals for the seminar?

_____

Describe your background and experience with grains:

commercial grower _____ **number of acres in cultivation** _____

home-scale grower _____ **scale** _____

seed-saver _____

educator _____

baker or chef _____

What is your experience saving seed?_____

What amount of land can you dedicate for small-scale grow-outs of rare wheats?

_____

What is the history of your land and fertility management system?

_____

Do you have grain cleaning equipment or experience? Details:

_____

Each person that receives seed must work as part of a cooperative team, and report back to us on successes, challenges and needs. Who will you work with? Team goals?

_____

_____

Comments and Suggestions_____

_____

Forgotten Grains of Georgia - Elkana.org.ge - Photo by Tamaz Dundua

RESOURCES

1. **GROW** - **G**lobal **R**estoration **O**f **W**heat - *<http://growseed.org/brochure1.pdf>*
2. **'Forgotten Crops' - Georgia Organic Farmer Assoc** *<.thegef.org/gef/node/2339>*

3. Video: '**Growing Landrace Wheat in France'** - *<youtube.com/watch?v=vxgOycrG0GY>*

4. Restoring Ancient Wheat' - Palestine, Israel & Jordan Genebank 2007 Conference
_ *<http://igb.agri.gov.il/main/index.pl?page=112>*

5. '**Hulled Wheat' - Proceedings International Conference,** 1995, Tuscany, Italy
<bioversityinternational.org/index.php?id=19&user_bioversitypublications_pi1%5BshowUid%5D=2163>

6. **Where Our Food Comes From:** Nikolay Vavilov's Quest to End Famine, Gary Nabhan
Renewing American's Food Traditions *<environment.nau.edu/raft>*

7. **Decentralized selection and participatory plant breeding for low-input systems**
<semencespaysannes.org/bdf/docs/dawson-et-al-reviewppb-euphytica2008.pdf>
Collaborative Organic Breeding in Developed Countries *<mdpi.com/2071-1050/3/8/1206>*

8. Cereal Landraces for Sustainable Agriculture: <*growseed.org/cereal-landraces.pdf***>**

9. Evaluation of Best Practices for Landrace Conservation: Farmer Evaluation
<http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1308_Evaluation%20of%20best%20practices%20for%20landrace%20conservation_farmer%20evaluation.pdf>

10. European landraces: on-farm conservation, management and use
<http://www.bioversityinternational.org/fileadmin/bioversity/publications/pdfs/1347_European%20landraces%20on-farm%20conservation%20management%20use.pdf>

11. Breeding for Resilience - EUCARPIA <*growseed.org/breeding-resilience.pdf***>**
12. Conservation of Wheat Genetic Resources: *<cropgenebank.sgrp.cgiar.org>*

13. Youth Seed-Saving Guidebook - <*growseed.org/seedstewards.html***>**

14. Gluten Allergy Concerns:
Presence of celiac disease epitopes in modern and old hexaploid wheat varieties: Wheat breeding may have contributed to prevalence of celiac disease. Hetty C. van den Broeck -
<ncbi.nlm.nih.gov/pmc/articles/PMC2963738/pdf/122_2010_Article_1408.pdf>

15. Dr. William Davis, Wheatbelly, *<wheatbellyblog.com>*
16. **Transforming the Commodity Wheat System** *<sacred-economics.com>*

Global Restoration of Wheat - GROW

What is GROW?
GROW is a network of researchers, genebanks, organic farming and culinary organizations working in cooperation with farmers, gardeners and bakers. We are dedicated to:

1. Restoring almost-extinct biodiversity of landrace grains and the stories they tell,

2. Restoring the ecological farming and culinary arts of traditional peoples, and

3. 'Eat it to save it' market strategies for genetic conservation.

The networks's goal is to support cooperation between partner organizations, farmers, gardeners and bakers to conserve and revitalize the traditional arts of on-farm seed-saving, community seed systems and landrace cuisine. GROW received four years of support from SARE, with start up support from the AnsonMills.com and field support from the Maine Organic Farming and Gardening Association <mofga.org> and the farmers in Wadi Fukin, Palestine <growseed.org/wadifukin.html>.

Join us June 22, Unity, Maine at our seminar with Tom Payne, director of the world's largest wheat gene bank <cimmyt.org> and Gary Nabhan, founder of RAFT - Renewing America's Food Traditions <environment.nau.edu/raft>.

For further info and to register:

growseed.org/landrace.pdf

Why GROW?

Biodiversity is at the heart of community seed systems and healthy, nutritious cuisine. However modern wheat[1], bred in agrochemical-soaked fields for uniformity and high gluten, has replaced the rich biodiversity of landrace wheats world-wide. Organic consumers seek the richer flavor and more digestible, less toxic gluten of landraces. Organic farmers seek the organic-adapted landraces that thrive in our fields, with hard-working root systems for nutrient-uptake in organic soils, tall height to compete with weeds without lodging, artisan baking quality, and high nutrition without the gluten allergic responses plaguing us today. As we face unprecedented weather extremes, burgeoning gluten allergies and patented wheats that farmers cannot save, almost-lost ancient and heritage wheats offer an important resource for organic farmers and gardeners. However our landrace wheats are threatened, many on the *verge of extinction*.

How to GROW

The first step is to be attend a GROW workshop, and become part of a working group to share seeds and practical skills for growing landrace wheats with local partners. Participants will receive elite landrace populations from the Heritage Grain Conservancy, the outcome of four years of on-farm organic trials funded by SARE. People who agree to return a portion of their best harvest will receive seeds for free. We provide one seed packet of each variety to a person, due to the limited supply. Your job is to multiply the seed using organic fertility management, nutrient-dense mineral amendments and cover crop rotations. Each seed is to be planted at 5 lbs per acre (one seed per square foot). Save the largest healthy seedheads for multiplications. For field production, the seeding rate in 15 lbs per acre (one seed per eight inches). Undersow with clover to suppress weeds. All our seed is public domain. If you commercialize the seed, we request that you credit SARE and the Heritage Grain Conservancy for their contribution. See 'Seed-Saving Guidelines' for details*.

Planting Guidelines: growseed.org/brochure1.pdf
Seed List: growseed.org/catalogue1.pdf

Who GROWs?

GROW is for everyone. Backyard gardeners and seed-savers have a key role in the program. We offer a free Seed-Saving curriculum for educators on: <fedcoseeds.com/forms/seedschool.pdf>, and provide individualized workshops. See: growseed.org/education.html

GROW Living Seedbanks for Community Seed Systems

Biodiversity is the foundation of food security, agroecological health and nutritious cuisine. Prior to the Green Revolution breeding for agrochemical-based systems, almost every farmer was a seed-saver. Community seed systems fostered the dynamic evolutionary processes of natural mutation, natural and human selection, genetic shift and adaptability. Maintenance of landrace wheat in genebanks is essential for long-term preservation, a key link in a long change of actors needed preserve threatened crops. However today, the vast collections of landrace seeds stored in world genebanks are available in tiny amounts of 1 gram to 5 grams of seeds, and then only if you know how to navigate the complex system designed for researchers and plant breeders.

GROW - The Key Role of the Farmer and Gardener in Evolutionary Conservation

In order to maintain vital agrobiodiversity, the role of small-scale farmers and gardeners in landrace wheat's total evolutionary systems needs to be restored. In response, the **GROW (Global Restoration of Wheat)** initiative has been established. Our goal is to cooperate with genebanks to preserve and enhance agrobiodiversity in the hands of farmers - where landraces evolved. Just as wild crops are genetic resources that cannot be contained in *ex situ* facilities, ecological relationships such as gene flows between populations, natural adaptation to the environment and climate change, co-evolution of plants-pest-pathogen complexes with selection for durable resistances, and culinary uses are integral components of a landrace crop's total evolutionary system.

Gluten-safe Einkorn bread baked by Eli Rogosa

*Seed-Saving Guidelines

'Seed-saving and adaptive selection has been the right and responsibility of farmers since the emergence of agriculture. As practitioners of a traditional art, let us reclaim our power to forge crops for our land, our markets and our imagination.' Frank Morton

Organic farmers today can enhance yield and quality of crops by selective seed-saving to improve traits, as generations of farmers have done before us, using the following guidelines:

* **Decide what variety has potential for improvement**. Select traits to improve based on the variations of the plants in your field and your market needs, such as cold tolerance for year-round harvest, resistance to disease or attractive appearance.

* **Grow as large a population as possible for a diverse pool of traits.** Trial and compare the same crop from many different companies. Select large numbers of plants from the best lines with traits you seek . Use your intuition. **Plant thin** so you can evaluate each plant. Allow **wild native habitats** to grow in your fields to attract beneficial pollinators and predators of insect pests.

* **Screen** out weaker plants. Don't baby the crop. Remove or market the less desirable plants before flowering to prevent cross-pollination with the superior mother plants. **Keep the whole plant in mind** as you select to unwittingly select out valuable but less visible traits. Save the best plants for seed.

* **Tips**: Let the best plants cross-pollinate. For crossers of pre- flower green leaves (ie brassicas), taste and rogue out less desirable plants to sell or eat. For post-flower fruits (ie: cucurbits) evaluate the first fruits, tag best plants, remove poorer plants (nothing to sell at this stage). Isolate to prevent accidental crossing, unless you want new crop combinations.

* **Harvest** the now-improved line. Remove smaller, lower quality seed.**Repeat** your selection process year-by-year.