Introduction

Our goal is to enhance the ecological dynamics within the soil, plant and human systems, by adapting age-old traditions of husbandry and selective seed-saving to evolve resilient community seed systems in the face of unprecedented climate change and globalization.

Methods

Ecological Crop Improvement

Ninety-six populations of landrace winter wheats were procured in Europe and from the USDA genebank. Gene pools were screened and selected under organic management in 2008-9. Three plants with desirable traits were crossed to generate cross-composite gene pools, and seeds from superior landraces were selected. 15 elite gene pools and gene pools were planted in the fall of 2009 in 4’ x 50’ plots x 3 replications, and selected over a three year period. Each year seed material collected from Europe was screened. A Grain Conference-Festival was held each summer to involve local bakers, educators and community members in exchanging knowledge, skills, breads and seeds.

Discussion

Increasing Genetic Diversity

Increasing genetic diversity of wheat through the use of landrace populations and composite-cross gene pools in combination with introgressing traits from modern wheat as appropriate, can be an effective strategy to increase yield in organic fields.

Landrace Terroir

Landrace wheats exhibit less gluten toxicity, richer flavor and higher nutrition. As farmers rediscover the power of selective seed-saving, new local organic-adapted landraces can emerge for artisan markets that celebrate ‘terroir’ - history of the grain, taste-of-the-land, and farmer-in-the-community.

Next Steps

The project is sustaining itself beyond SARE funding through sale of seeds, flour and artisan breads. Lead farmer seed-savers are exchanging locally-adapted landraces. The Heritage Grain Conservancy is continuing on-farm seed-saving for evolutionary in-situ conservation of wheat landraces. We welcome cooperation - the work is vast.