Nikolai Vavilov
Russian Scientist 1887-1943

- Seed collector, Botanist, World Traveler, Humanitarian and Linguist
- Mapped the global biodiversity hot spot
- Created the World's largest collection of plant seeds in Leningrad
- “Where our Food Comes From” by Paul Nabhan
Centers of Crop Origins

Graphic: Centers of Origin J.R. Harlan (Rao & Pandey)
Knowing the origins of food crops

- He noticed that the longer a crop had been grown in one area the more *Genetic variation* he saw—this led him to his theory of crop origins.

- **locate wild relatives**

- **Find new genes that are resistant to disease**

- **Avoid genetic erosion**

- **Higher biodiversity = more resilience**

- **Protect cultural heritage**
Landrace

Any animal or plant species that has adapted to the natural and cultural environment in which it lives.

- Are able to withstand extreme conditions
- Thrive in very specific locale
- Needs little inputs
- Maintained by traditional/indigenous farming systems- often for long periods of time.
Locally adapted Landrace varieties

Ethiopian Kale
*Brassica carinata*

Christmas Lima
*Phaseolus lunatus*
Co-Creating with Plants

- Our ancestors had no set of rules or seed manuals to follow, yet somehow managed to develop a huge variety of crops that formed the basis of today's global food supply— including thousands of currently “lost” varieties.

- Practice good observation skills
- Enhance intuitive skills or senses
- Share plant material with others
- Take notes
- Engage in active roguing and selection
Roguing and selection

• Roguing is the removal of plants from a seed production population before the plants flower

• Selection is the active choice to save seeds from the best performing plants and/or fruits after flowering has occurred

• Heavy roguing and selection from a large population can improve the variety over a few number of generations.
Roguing and selection: what to look for

- Rogue all but the strongest seedlings
- Rogue “off types”: shape, height, vigor, etc.
- Select from the last plants to succumb to a disease or pest, or those that continue to bear well under pressure
- Select best taste, form, size of fruit or flower, etc.
- Select latest bolters in leaf crops
Creating our own landraces and locally adapted varieties

**Recommendations by a landrace farmer in Utah—Joseph Lofthouse**

- Add small amounts of new genetics to the gene-pool from time to time—including wild pollen.

- Include a small amount of 2 and 3 year old seed in each year's planting.

- Grow a sufficiently large population to maintain genetic diversity.

- Rouge inferior plants; select for resilience.

- Be liberal during selection: Save fruits of different sizes, shapes, colors, textures, flavors, and maturity dates.

- Swap seeds with the neighbors to enhance local adaptability.

- Have Fun! Be Creative.