

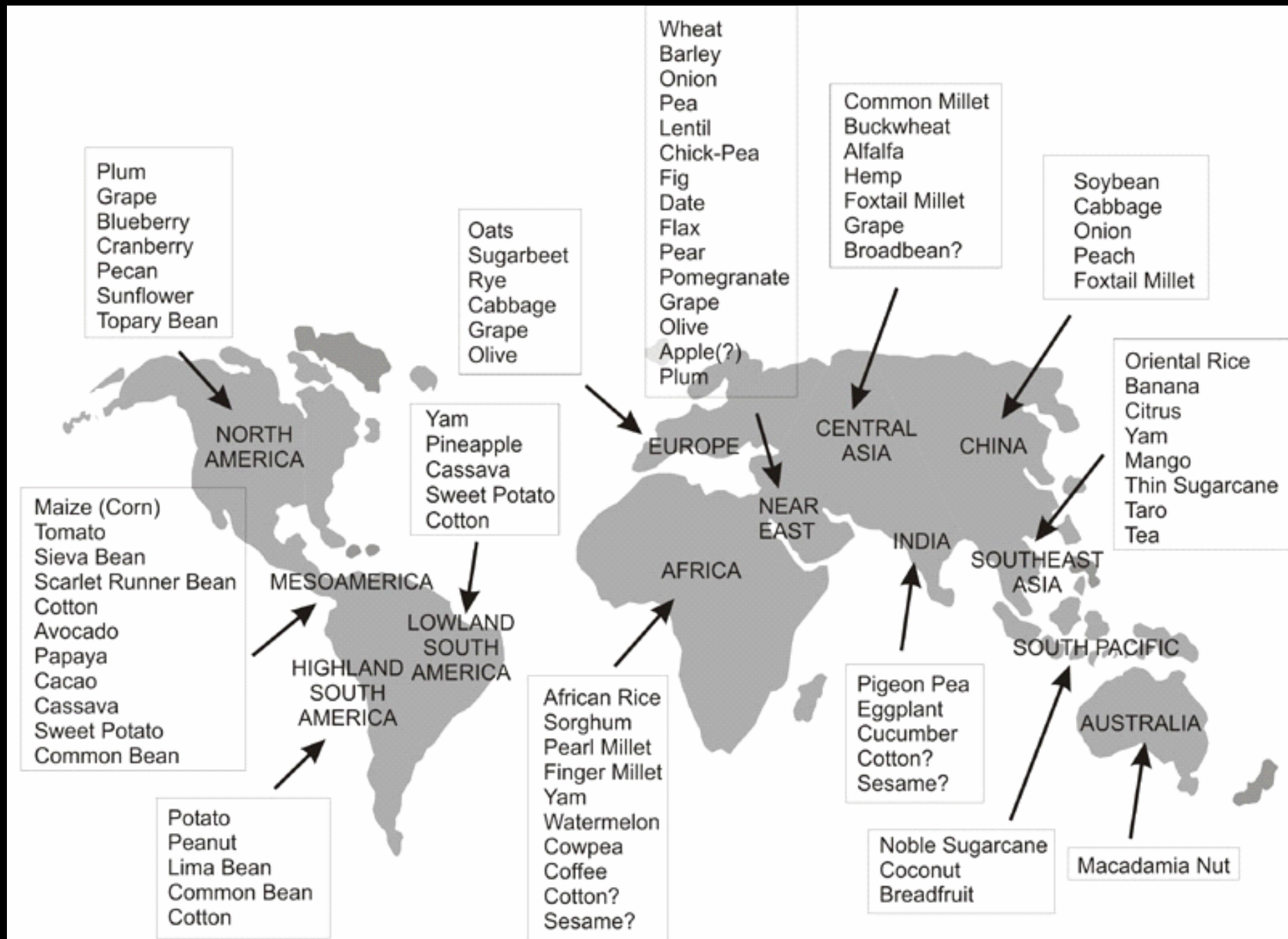
Nikolai Vavilov

Russian Scientist 1887-1943

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



Centers of Crop Origins



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



Kaua'i Community
Seed Bank & Library



regenerations
botanical garden

KAUA'I COMMUNITY COLLEGE



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 years 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