

Seed to Kitchen

Prioritizing Flavor in Variety Development for the Upper Midwest

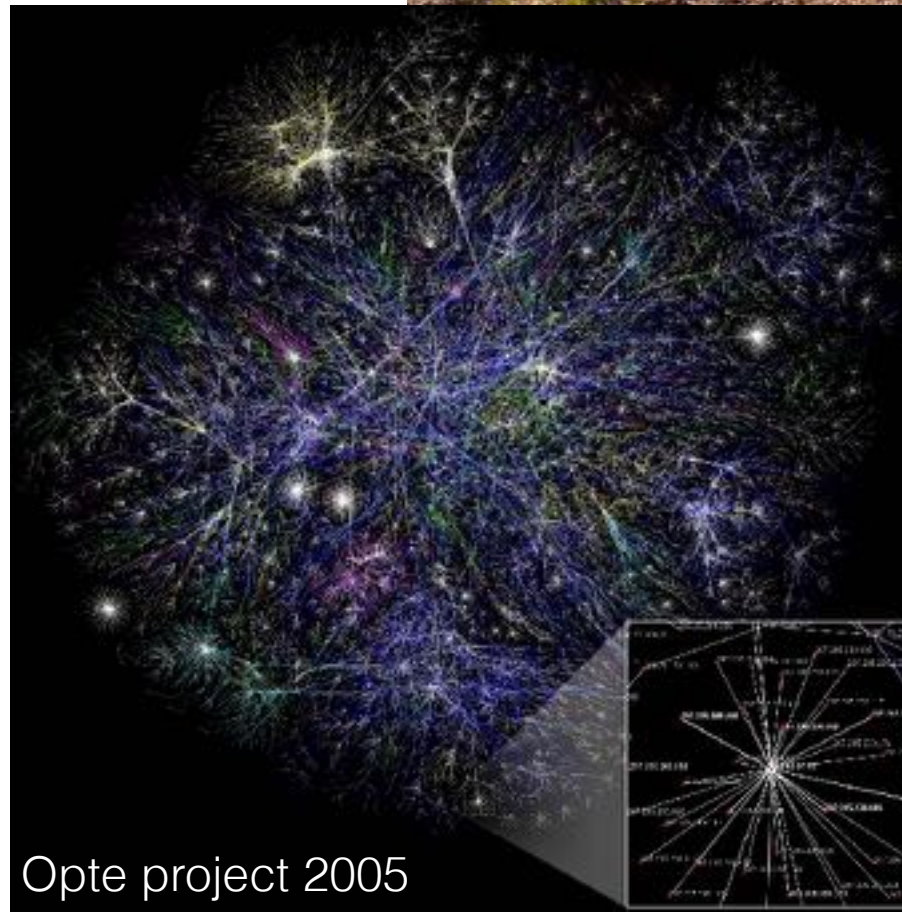
Julie Dawson
University of Wisconsin-Madison

resilience



Natural and Human Systems

- Diversity
- Decentralization
- Redundancy
- Flexibility



Opte project 2005



Participatory research



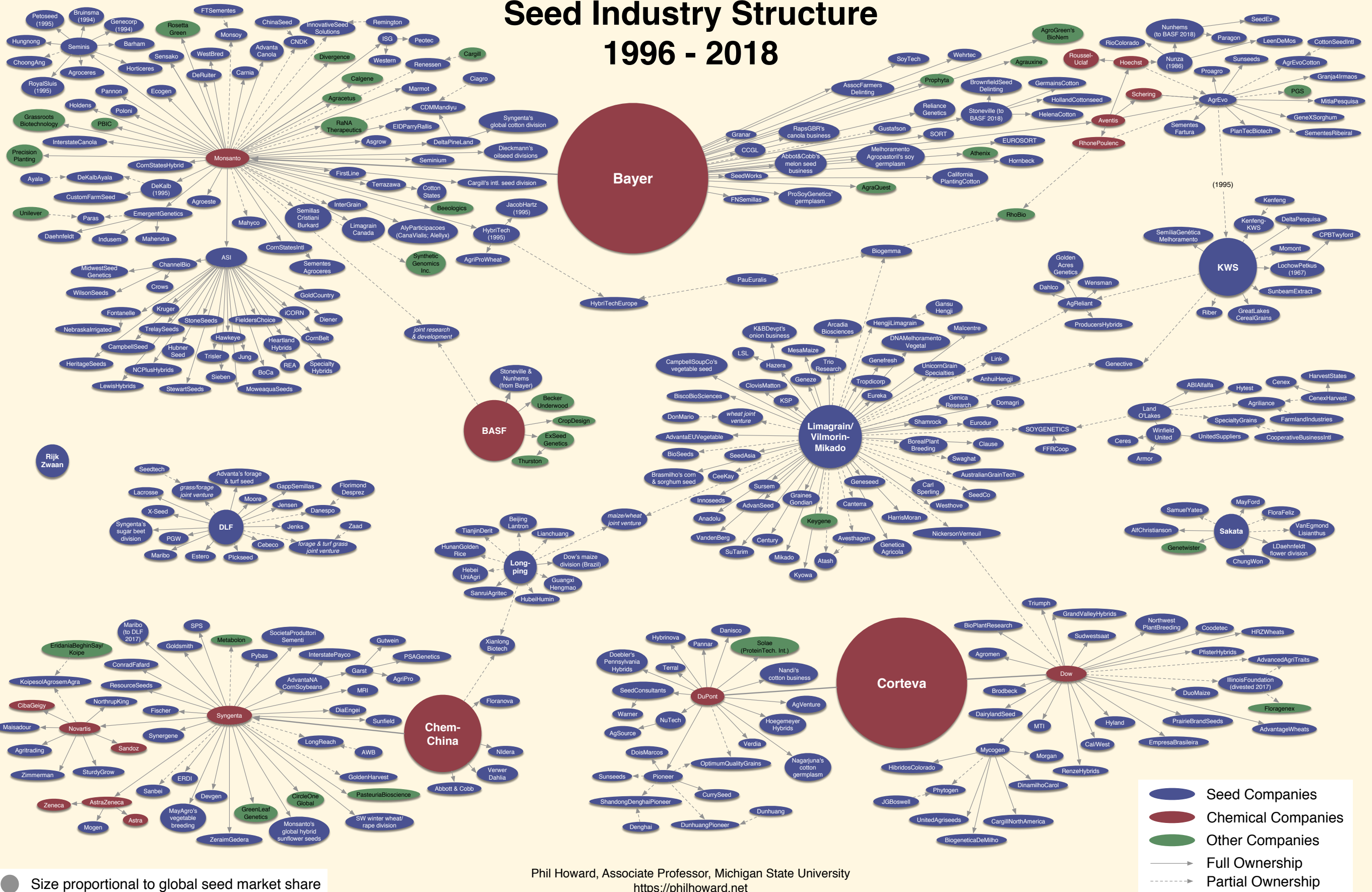
SKC



Seed to Kitchen Collaborative

Breeding better produce for organic farmers and eaters

Seed Industry Structure 1996 - 2018



Phil Howard, Michigan State University, philhoward.net

Changes in seed systems



American organic seed sector





Fertile Valley
Seeds



THE REAL SEED
CATALOGUE

The Good
Seed Company
SELECT. SAVE. SHARE.



Seed Dreams



Cultivariable



Resilient Seeds

E+M seeds

Useful Seeds
Bendigo, Australia

Zulu's Petal's Farm



Joseph Lofthouse
Landrace Seedsman



Harris Seeds
Organic

AmkhaSeed

SOW
TRUE SEED



Uprising
seeds



GRAND
PRISMATIC
SEED

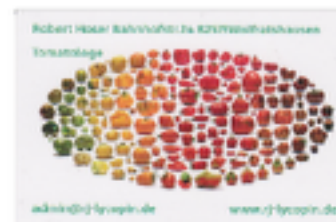
GreatLakesStapleSeeds.com
Love to Eat. Love to Grow. Grow to Eat.



Crossover
Cultivars



Croisée
Cultures



PRAIRIE ROAD ORGANIC SEED



Johnny's
Selected Seeds



open source
seed initiative



Open circle seeds

What is the best variety?

- environmental adaptation
- suitability for the agricultural system
- meets market needs



West Madison



West Madison



RedTail Farm

How do growers choose varieties?



2016 Organic Vegetable Breeding Priorities Survey



daystomat
flavor
appearance
suitabl
pest_resist
diseaseresist
variety
color sourc heattoler
yield adapt
earli
storag size
climatseed season
coldtoler uniform
qualityorganic

Seed to Kitchen Collaborative







Culinary quality evaluation

conventional

rapid



Image: Laboratoire d'analyses sensorielles, CIRAD







100%

Taste

Low Moderate High

1 2 3 4 5

PSJ
Texture

☐ ☐ ☐ ☐ ☐

PSJ
Sweetness

☐ ☐ ☐ ☐ ☐

PSJ
Acidity

☐ ☐ ☐ ☐ ☐

PSJ
Bitterness

☐ ☐ ☐ ☐ ☐

PSJ
Intensity

☐ ☐ ☐ ☐ ☐

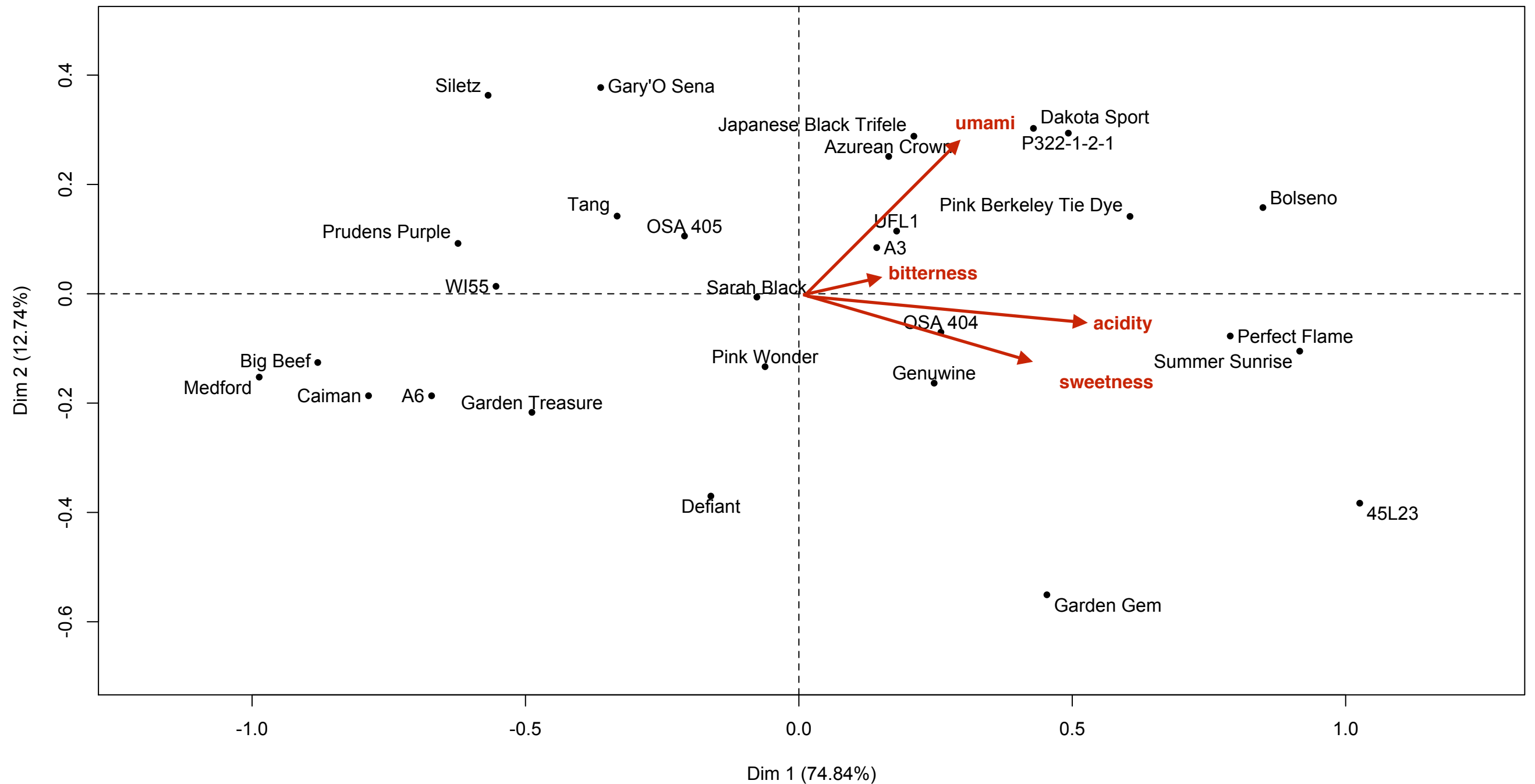
Describe PSJ unique
characteristics



Crew flavor evaluations

| variety | intensity | sweetness | acidity | umami | bitterness | appearance | texture |
|------------------------|-----------|-----------|---------|-------|------------|------------|---------|
| 45L23 | 3.7 | 3.5 | 3.6 | 2.7 | 1.8 | 4.3 | 4.1 |
| A3 | 3.5 | 3.2 | 3.2 | 2.9 | 1.7 | 3.6 | 4.0 |
| P322 | 3.5 | 3.1 | 3.0 | 3.1 | 1.9 | 3.9 | 3.8 |
| Perfect Flame | 3.4 | 3.4 | 3.3 | 2.9 | 1.7 | 4.2 | 3.7 |
| Japanese Black Trifele | 3.3 | 3.0 | 2.8 | 3.1 | 1.7 | 3.3 | 3.4 |
| Siletz | 3.3 | 2.8 | 2.1 | 4.3 | 1.7 | 3.0 | 3.7 |
| Azurean Crown | 3.2 | 2.8 | 2.8 | 2.9 | 2.1 | 3.6 | 3.9 |
| Garden Gem | 3.1 | 3.6 | 2.8 | 2.5 | 1.7 | 4.1 | 3.4 |
| Bolseno | 3.0 | 3.1 | 3.4 | 3.0 | 1.6 | 4.2 | 3.8 |
| Dakota Sport | 3.0 | 2.7 | 3.2 | 2.9 | 1.9 | 4.4 | 3.1 |
| Sarah Black | 3.0 | 3.0 | 2.5 | 2.8 | 1.5 | 3.6 | 3.5 |
| UFL1 | 2.9 | 3.0 | 2.7 | 2.9 | 1.8 | 4.1 | 3.9 |
| Genuwine | 2.9 | 3.2 | 2.8 | 2.7 | 1.7 | 3.6 | 2.8 |
| OSA 404 | 2.8 | 3.2 | 2.8 | 2.7 | 1.9 | 4.1 | 3.9 |
| OSA 405 | 2.8 | 2.8 | 2.5 | 2.7 | 1.7 | 3.6 | 3.7 |
| Z4538 | 2.7 | 2.8 | 2.5 | 2.7 | 1.7 | 3.0 | 3.5 |
| Pink Wonder | 2.6 | 2.6 | 2.5 | 2.1 | 1.4 | 2.9 | 3.3 |
| Prudens Purple | 2.6 | 2.7 | 2.3 | 2.6 | 1.6 | 3.2 | 3.4 |
| Tang | 2.6 | 3.0 | 2.2 | 2.8 | 1.6 | 3.7 | 3.2 |
| Gary'O Sena | 2.6 | 2.7 | 2.2 | 3.0 | 1.8 | 3.4 | 3.5 |
| WI55 | 2.6 | 2.7 | 2.1 | 2.6 | 1.6 | 3.5 | 3.4 |
| Geronlmo | 2.6 | 2.3 | 2.5 | 2.0 | 1.9 | 2.9 | 3.0 |
| A6 | 2.5 | 2.7 | 2.2 | 2.4 | 1.6 | 3.5 | 3.7 |
| Garden Treasure | 2.5 | 2.7 | 2.4 | 2.3 | 1.6 | 4.0 | 3.3 |
| Defiant | 2.3 | 2.8 | 2.6 | 2.3 | 1.7 | 4.2 | 3.3 |
| Big Beef | 2.2 | 2.3 | 2.1 | 2.2 | 1.7 | 3.6 | 3.1 |
| Caiman | 2.1 | 2.3 | 2.1 | 2.2 | 1.5 | 3.6 | 2.9 |
| Medford | 1.9 | 2.2 | 1.9 | 2.1 | 1.4 | 4.2 | 3.6 |
| Plum Regal | 1.5 | 1.9 | 1.8 | 2.0 | 1.6 | 3.5 | 2.8 |

Crew flavor evaluations







100%

NVM

Intensity ★★★★★

Preparation ★★★★★

Purchase ★★★★★

Description: enter any interesting flavor, texture, or appearance for each variety
Attributes: enter strongest or weakest characteristics of the variety

NVM Description

100%

NVM Attributes

Do you like the variety?

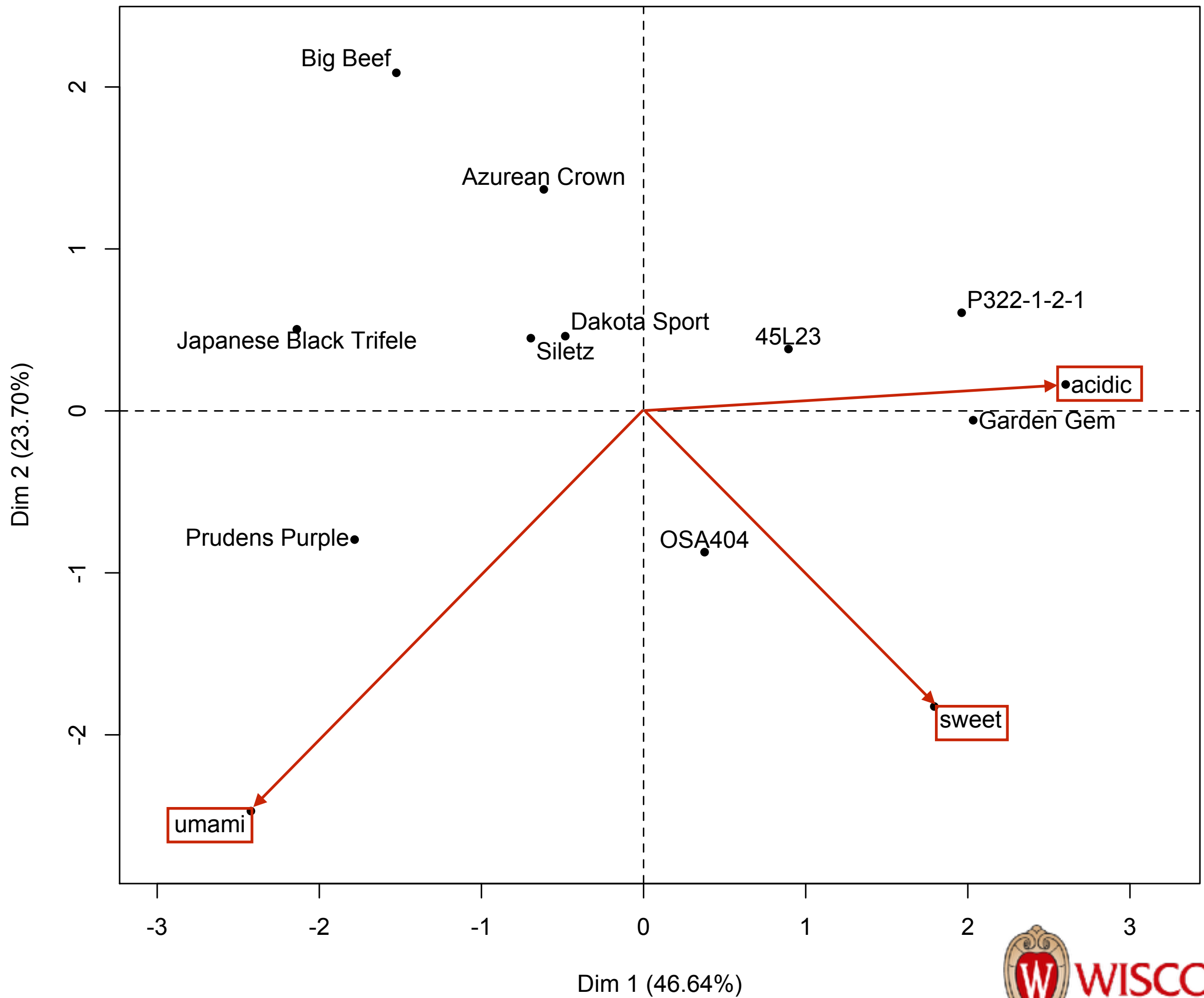
NVM

Overall ★★★★★

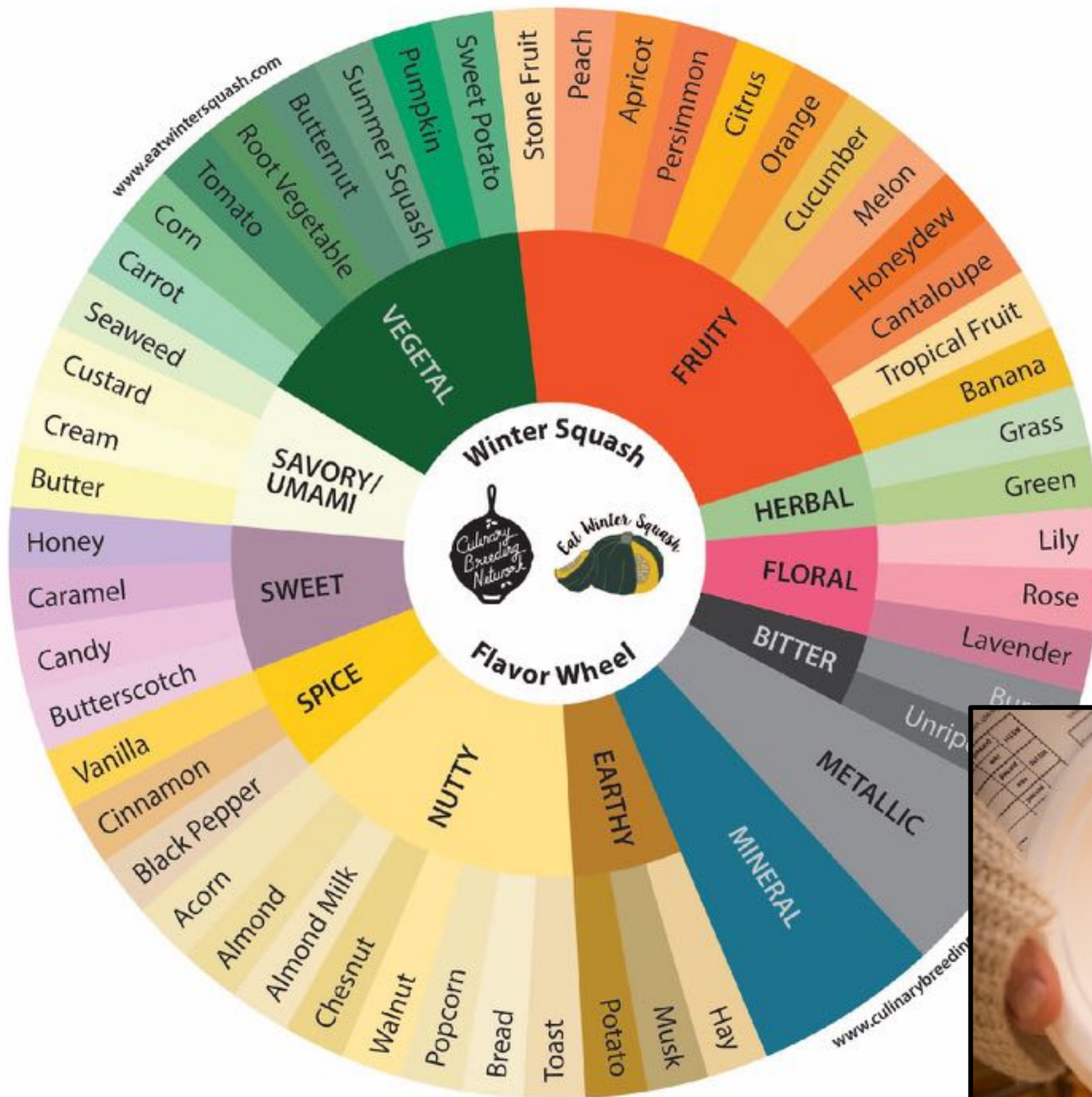
→

Powered by Qualtrics

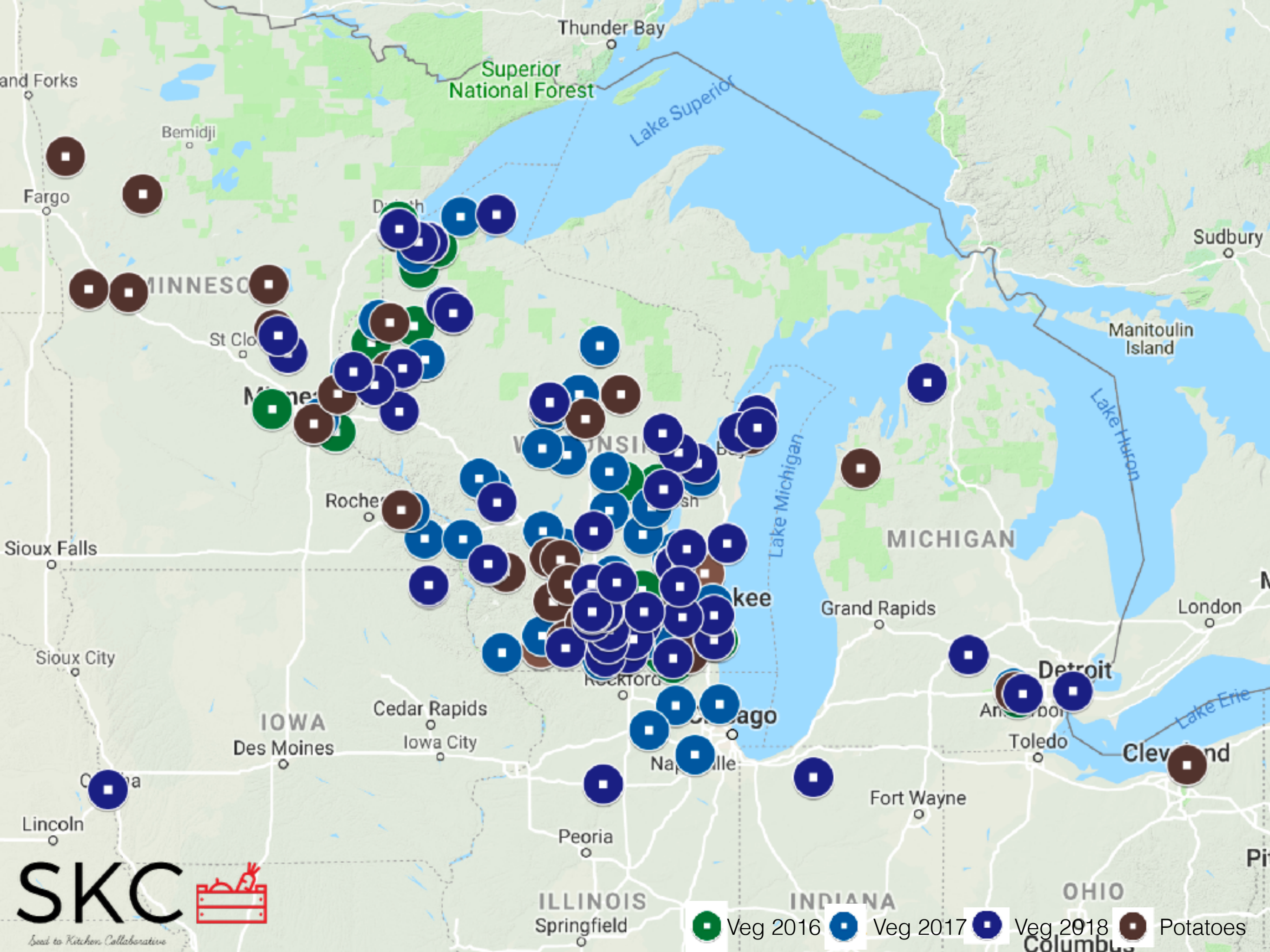








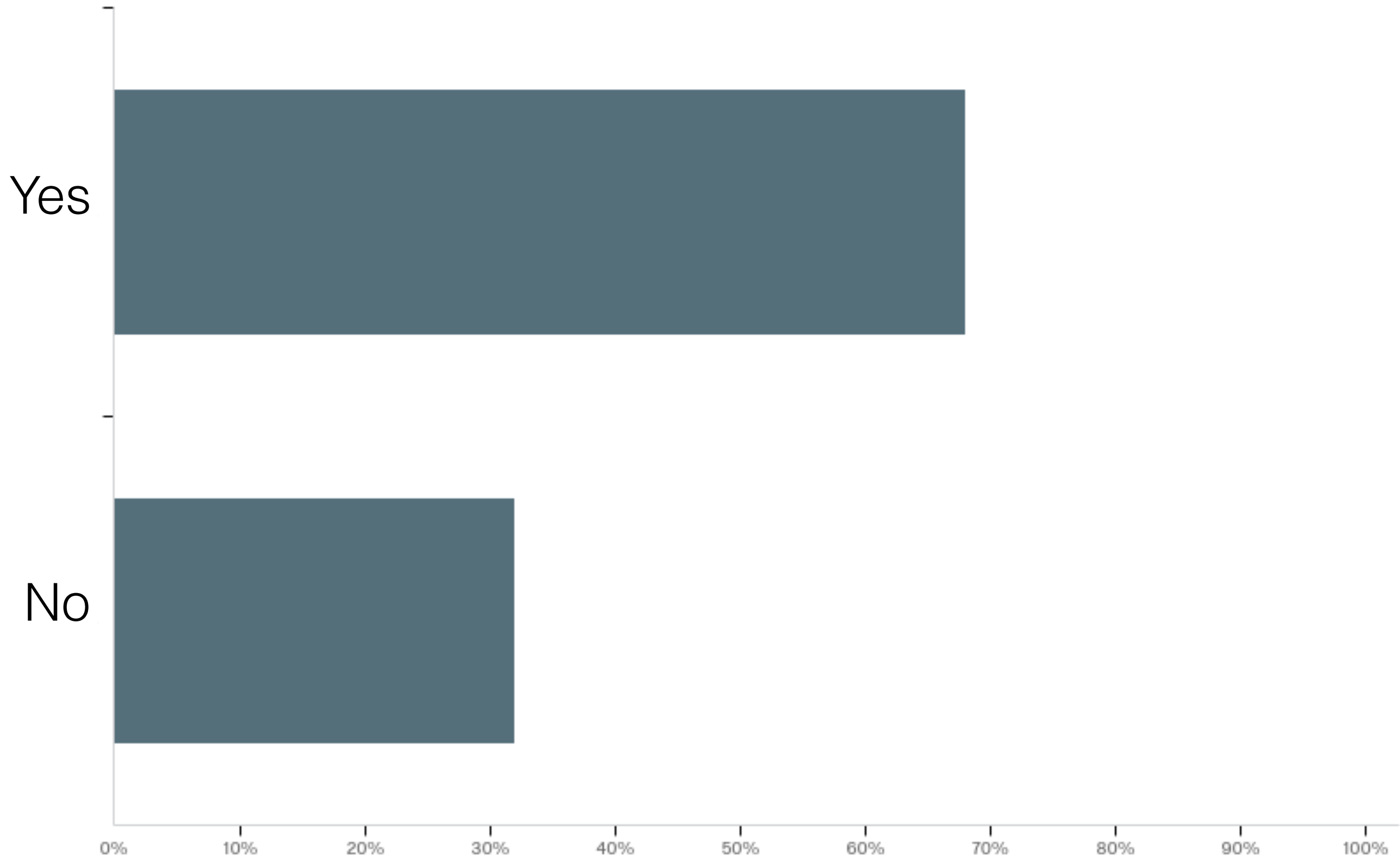




On-farm data collection

| Variety | Would you grow this again? | How marketable is it? | What did you think of the flavor? | How was productivity (excellent, acceptable, poor)? | Disease/ insect/ stress problems? | Strongest point | Major flaws | Which variety was the best/ worst? |
|---------|----------------------------|-----------------------|-----------------------------------|---|-----------------------------------|-------------------------|-------------------|------------------------------------|
| Check | yes | very | good | acceptable | typical for foliar disease | medium size | none | 2 |
| Var 1 | no | OK, uniform | average | acceptable | typical for foliar disease | uniform | flavor | 4 |
| Var 2 | yes | very | excellent | excellent | typical for foliar disease | very productive, flavor | not early enough | best |
| Var 3 | maybe | OK | good | acceptable | better disease resistance | holds well on vine | appearance boring | 3 |
| Var 4 | no | lots of splits | excellent | poor | not disease resistant | color | too much loss | worst |
| Check | yes | very | good | acceptable | typical for foliar disease | medium size | none | 2 |

Have you found new varieties that you are now using because of the Seed to Kitchen trials?



Know your seed... Together

JOIN OUR 2019 PILOT PROGRAM



My Environment



Collective Data Insight



Best Seed
For You



Plant Seed



Share / Review



Breed and Harvest the
Best

We connect plant growers and their data to help breed, source and harvest the best seeds





INFORMATION



For Farmers



For Gardeners



For Breeders



For Chefs



For Eaters



Trial Results



Northeast Seed-to-Table Initiative



Knowledge and Know-How



Many Thanks To:

All Farmers Participating in Trials

Seed companies

Adaptive Seeds
Ball-Pan American
Bejo
Earthworks
High Mowing Organic Seeds
Hudson Valley Seed Co
KC Tomatoes
Johnny's Selected Seeds
Nature and Nurture Seeds
Southern Exposure
Seed Exchange
Seed Savers Exchange
Siskiyou Seeds
Territorial Seeds
Vitalis Organic Seeds
Wild Garden Seeds

Plant Breeders

Phil Simon
Bill Tracy
Irwin Goldman
Solveig Hansen
Jeffrey Endelman
Jim Nienhuis
Yiqun Weng
Juan Zalapa
Lucia Gutierrez
Ruth Genger
Jim Myers
Harry Klee

Organic Seed Alliance

Chefs

Dan Bonanno – A Pig in A fur Coat
Tami Lax - Harvest, The Old Fashioned
Yusuf Bin-Rella - TradeRoots
Elena Terry - Wildbearies
Dan Cornelius - Intertribal Ag Council
Tory Miller - L'Etoile, Estrellon. Graze
Sean Fogarty - Steenbock's on Orchard
Francesca Hong - Morris Ramen
Molly Maciejewski - Madison Sourdough
Nishitha Illanderage - Madison Area
Technical College
Eric Benedict - UW Madison Housing,
Dining, and Culinary
Laila Borokhim - Noosh, Joon
Jonny Hunter - Forequarter, Underground
Food Collective
Kris Smock - Origin Breads
Andrew Hutchinson - Madison Sourdough

Staff and students

Brian Emerson
Kitt Healy
Dylan Bruce
Juan Astroza
Patrick Merscher
Mengsha Gong
Keo Corak
Thomas Hickey
Terry Hodge
Laura Livingston
Kevin Coe
Jenyne Loarca
Scott Brainard
Jamie Bugel
Karen Hill
Marissa Nix
Mariah Rogers
Thi Le
Ty Lee
Nyah Banik
Naio Koehler
Michael O'Conner
Sam Kruse
Zak Buell
Daniella Echeverria
Maryatt Karstensen
Hannah Kruse
Sam Kruse
Sarah deGraff
Sam Vosters
Hannah Reba

Research Stations

Janet Hedtcke (WMARS)
Phil Holman (SARS)
Sue Menzel (LCO)

Extension

Kevin Schoessow
Jane Anklam
Joy Schelble

Funded by:

NCR-SARE
USDA-OREI
USDA-Hatch
CERES Trust

