Bean CAP – Snap Beans

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National Institute of Food and Agriculture

Snap beans – focus on “green” pods

- Phenotypic data collection is focused on this organ
- Traits of interest include:
  - Morphology (length, thickness, cross-sectional shape, height, width, fiber and suture strings)
  - Nutritional qualities (flavonoids and phenolics, minerals, vitamin C and carotenoids)

150 cultivars & breeding lines selected

- 11 pole (vining) as well as 139 bush types
- Range from heirlooms to contemporary commercial types
- Represent both Andean and Mesoamerican centers of domestication
- Flat-podded Romanos, round-podded fresh market and processing, wax, bush blue lake and extra fine European type

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Activities in 2011

- Evaluated for additional phenotypic traits
- Continued to process carotenoids and vitamin C samples
- Harvested seed and provided to Mike Grusak for mineral analysis (complementary to mineral analysis of pods)

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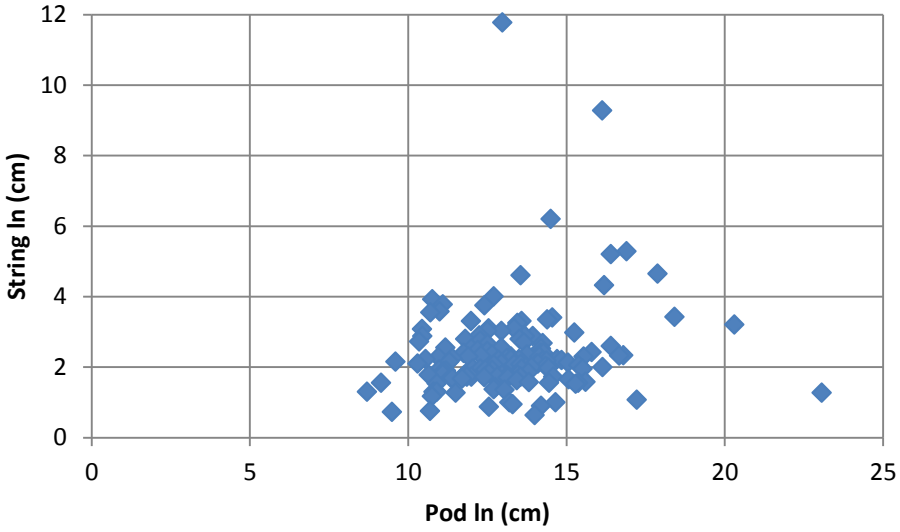
Nutritional analysis nearly complete

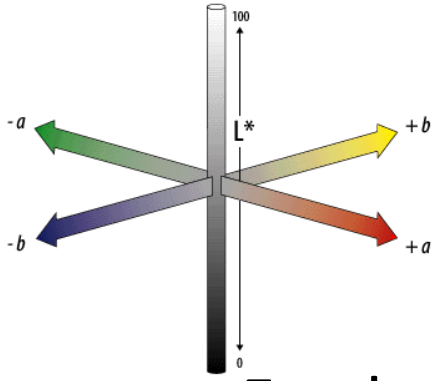
- **Flavonoids**
  - Done
- **Vitamin C**
  - Done
- **Carotenoids**
  - 1/3 done
- **Pod fiber**
  - Done
- **Pod mineral analysis**
  - Done
- **Seed mineral analysis**
  - In process

K deficiency – cold 1st half to growing season?

Phenotypic data collected in 2012

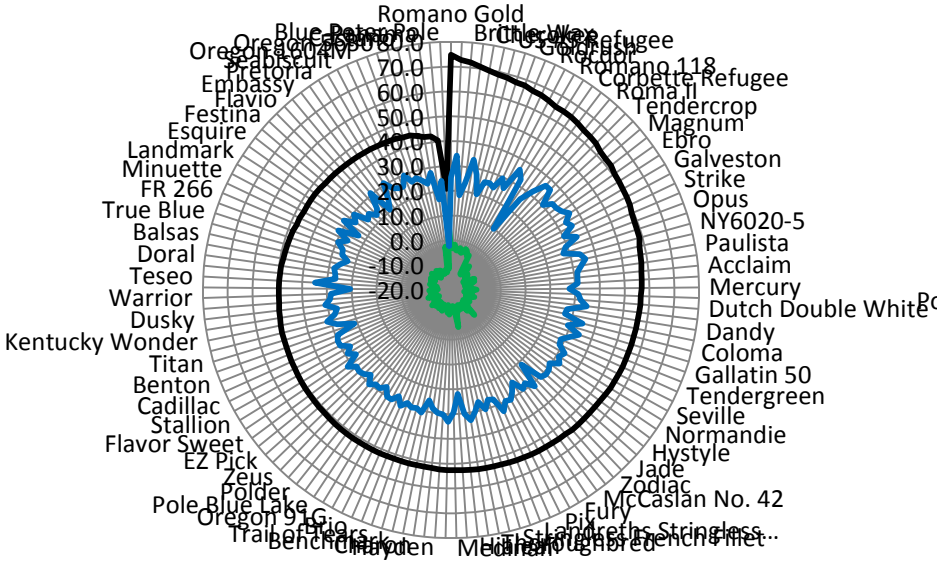
- Flower color (V, v, v^{lae})
- Days to physiological maturity
- Growth habit
- Lodging
- Fresh and frozen pod L*,a*,b* color scale
- Brix
- Flavor (frozen pods)
- Pod & string length



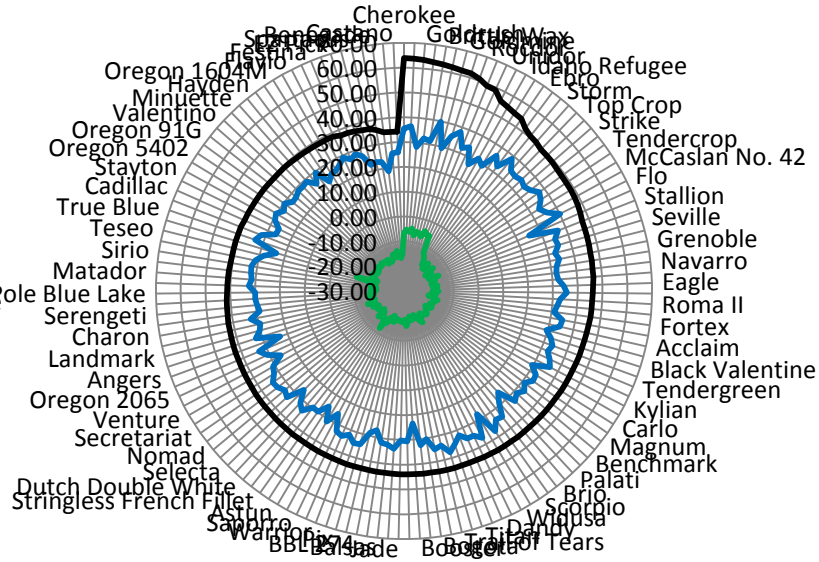


L*,a*,b* color scale

Fresh pod color

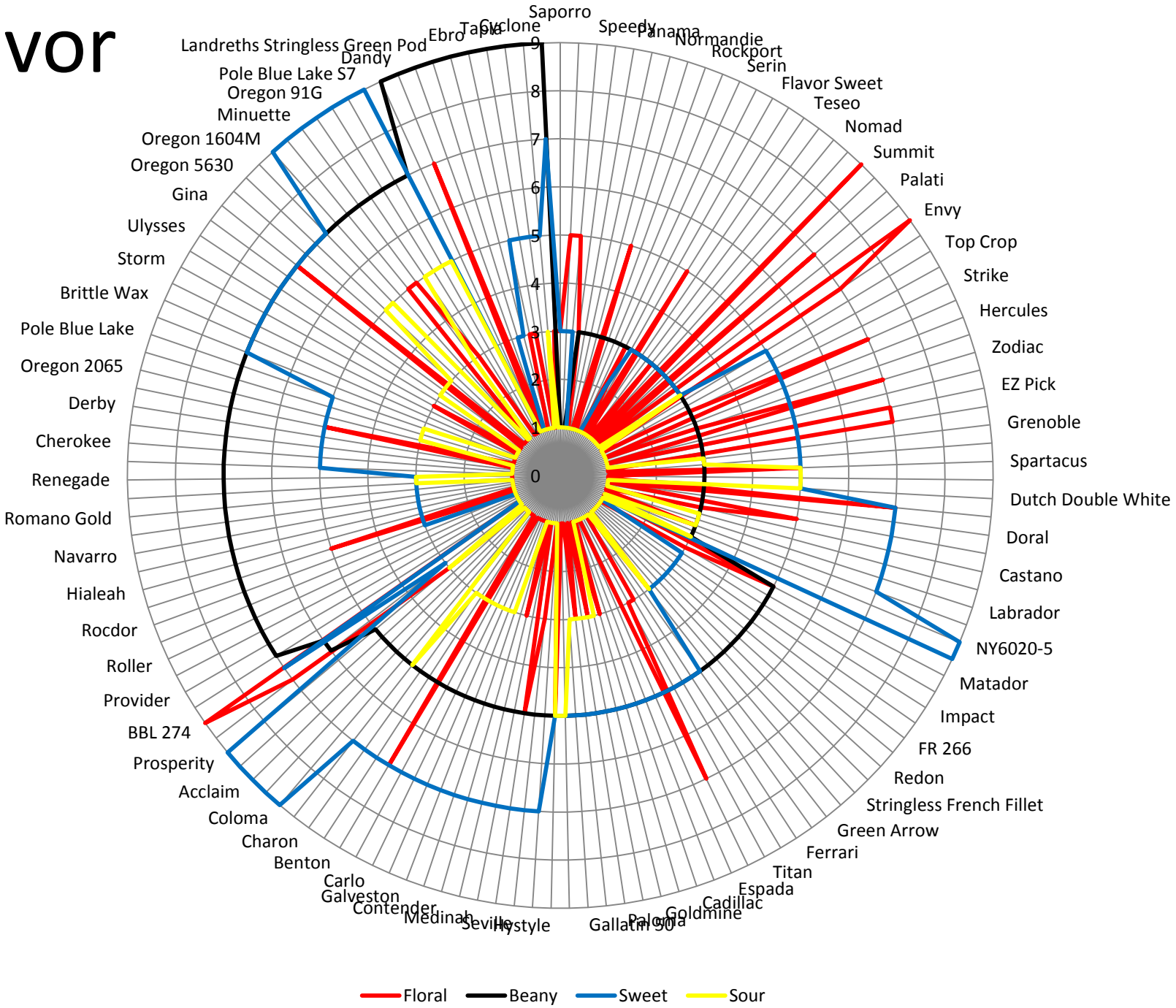


Blanched & frozen pod color



L = black; a = green; b = blue

Flavor


Saporro
Speedy
Panama
Normandie
Rockport
Serin
Flavor Sweet
Teseo
Nomad
Summit
Palati
Envy
Top Crop
Strike
Hercules
Zodiac
EZ Pick
Grenoble
Spartacus
Dutch Double White
Doral
Castano
Labrador
NY6020-5
Matador
Impact
FR 266
Redon
Stringless French Fillet
Green Arrow
Ferrari
Titan
Espada
Cadillac
Goldmine
Paloma
Gallatin 50
Hystyle
Seville
Medinah
Contender
Galveston
Carlo
Benton
Charon
Coloma
Acclaim
Prosperity
BBL 274
Provider
Roller
Rocdor
Hialeah
Navarro
Romano Gold
Renegade
Cherokee
Derby
Oregon 2065
Pole Blue Lake
Brittle Wax
Storm
Ulysses
Gina
Oregon 5630
Oregon 1604M
Minuette
Oregon 91G
Pole Blue Lake S7
Dandy
Landreths Stringless Green Pod
Ebro
Tasha
Cyclone
0
1
2
3
4
5
6
7
8
9
Floral
Beany
Sweet
Sour

Progress with phenolics data

- Subset of phenolics data collected on fresh pods to examine potential for GxE
- Manuscript in progress on phenolics data – combined with previous data on relationship to sieve size and light exposure.

Total phenolics vs fresh pod color