Restoring underutilized Native American food crops
Navajo Spinach, Cleome serrulata & Native Peach

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Spinach Introduction
- *Cleome serrulata* has been used as fresh greens and natural dye by the Navajo & Pueblo Tribes.
- Consistent supply could be of benefit as a local source of food and dye.
- This may require managed plantings.
- Germination requirements unknown.

Materials & Methods
Seed collected from 7 locations in NM, AZ, & UT

2018 Germination Treatments
- 4 weeks chilling at 4, 7, or 10°C ±
- ± Promalin® (GA3 & BA); ± Novagib® (GA3); ± MaxCel® (BA); ± Novagib® + MaxCel®; ± H2O2
- Seed soaked for 4 hours
- 25 seeds per rep; 5 replications
- Canyon De Chelly seed source.

Spinach Results
Soaking Trial 2017
- Treatments include GA3 + H2O2, H2O2, and No Treatment
- GA3 increased % germination at all temperatures except 20°C
- As temperatures increases, % germination decreases
- Navajo Spinach does not germinate at 20°C
- Increasing chilling time does not improve germination
- Inconsistent T50 and T10/90 between 4 and 8 week trials

Gibberellin Trial 2017
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Germination improves when seed are treated with Promalin®
- % germination at 10°C was very low compared to 4°C or 7°C treatments when GA3 used alone.
- Germination uniformity (T10-90) varied by treatment

Hormone Trial 2018
- H2O2 does not break physiological dormancy
- Stratification at 7C more commonly achieves highest germination
- MaxCel® (BA) suppresses seed germination when chilled at 7 & 10C

Peach Introduction
First recorded sighting in Southwest by Spanish missionaries in 1619.
Found growing with Pueblo and Navajo Tribes
Seed propagated (Land Race)
Only 2% of original orchards remain

Fruit Characteristics
White free-stone (Most common)
Yellow Free-stone
Small

Uses
Boiled
Fresh
Sundried
Trade goods

Peach Objectives
- DNA analysis to compare Old World peach varieties to Southwest varieties
- Seed sources
  - 2 Hopi, AZ
  - 2 Canyon Del Muerto, AZ
  - Multiple from Navajo Mountain, UT

Dendrochronology
- Compare ring widths with oral histories regarding irrigation management
- Determine life span
- Time period

Discussion
Final results for peach will be Fall 2018.