Aronia Drip Irrigation Trial

Colorado Arid Locations

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What is Aronia?

- Perennial North American native berry bush
  - Also known as chokeberry and also an ornamental
  - *Aronia melanocarpa*, also *Photinia melanocarpa*
    - Small black pomaceous berry
  - *Aronia arbutifolia*, also *Photinia melanocarpa*
    - Small reddish pomaceous berry
  - *Aronia prunifolia*, also *Photinia floribunda*
    - Natural hybrid, w/small dark purple pomaceous berry
  - *Aronia mitschurinii*, also *Sorbaronia mitschurinii*
    - Natural hybrid, w/small dark purple pomaceous berry
Aronia Cultivation

- Most of world commercial culture in Europe
  - Poland = 60% of production
  - Russia, Baltic states, Sweden → most of other %
- Increasing re-introduction into North America
  - Mostly Polish or Russian cultivars
  - Most production in Midwest, recently to Colorado
  - Prolific → up to 5 tons/acre at 3-5 years
  - Hardy to Zone 3, disease and pest resistant
  - Specialty Crop USDA designation
Aronia Marketing

- Marketed for high antioxidant content
- Fresh berries
  - Strong unusual flavor (like or dislike)
  - Very astringent, a bit bitter
  - Freezing and heating reduce astringency
- Jam, juice, tea, baking ingredient, wine
- Juice concentrate
  - Marketed as health tonic
  - Used for juice blends, wine feedstock
Colorado Aronia Project Purpose

USDA/CDA Specialty Crop Block Grant

- “Field irrigation response of *Aronia melanocarpa* cv Galicjanka, a new multi-product Colorado fruit to enhance crop diversity”

- Produce horticultural data for growers
  - Growers use data for new commercial plantings
  - Test plots also are promotional demonstrations
Colorado Aronia Project Purpose
CDA Specialty Crop Block Grant

- Can be grown in arid locations?
  - Test application levels in drip irrigation system
  - Measure growth for levels of available moisture

- Two test plots of two ages, year 1 and year 3
  - CSU Agricultural Experiment Stations
  - CSU-OM and CSU-ARDEC South locations
  - *Aronia melanocarpa* cv Galicjanka
2018 Project Results

OM Results  (ARDEC not yet available)

- Early normal season
  - May 5.82 in. and 66°F ave.

- Mid-season dry and hot
  - June-Aug. 1.77 in. and 77°F ave.

- Late season dry
  - Sep. 0.56 in. and 62.6°F

- Plants stressed by hot, dry, windy mid-season
  - → doubled weekly irrigation for all test levels
2018 Project Results

**OM Results** (ARDEC not yet available)

- Preliminary Growth Data for all replicates
  - Range from 4 to 50 times increase in mass over season for all plants; ave. 9 times increase in mass
  - About 6 times ave. increase in mass for 0.5 gph emitters
  - About 6 times ave. increase in mass for 1.0 gph emitters
  - About 15 times ave. increase in mass for 2.0 gph emitters