Agronomics of Alternative Crops - Module 2

Carol Bishop, M.S.
Extension Educator
Northeast Clark Co.

University of Nevada Cooperative Extension

College of Agriculture, Biotechnology and Natural Resources
University of Nevada, Reno

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Outline

- Soil
  - NRCS WSS
  - Great Basin soil types
  - Challenges
  - Soil analysis
- Climate
  - WRCC
  - Explanation of terms

Web Soil Survey (WSS)

- Online service of NRCS
- http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
- Walkthrough of site
- Soil vs. dirt

Walkthrough

- Area of interest
  - Navigating to AOI
  - Creating an AOI using polygon
  - Clear an AOI
- Soil map
  - Soil types & percentages
  - Map unit description report

Walkthrough, cont.

- Soil data explorer
  - Intro to soils
  - Suitability and limitations for use
  - Soil properties and qualities
  - Ecological site assessment
  - Reports

Walkthrough, cont.

- Shopping cart
  - Downloads all reports
- Official Soil Series Description
  - Full description by soil layer
  - Map of extent of series occurrence

Worksheet 2

- Go to WSS
- Find for your AOI:
  - Dominant soil & percentage
  - Other main soils & percentage
- Go to official series descriptions
  - Find average pH of dominant soil
- Calculate difference from neutral

Great Basin Soils

- Lacustrine
  - Bonneville & Lahontan
- Saline
  - Common in areas with low rainfall and high evaporation
- Alkaline

Challenges

- Saline
  - No supplements to counteract effects
  - Yields decrease as salinity increases
- Alkaline
  - Reduces available nutrients (such as iron deficiency)
  - Can add organic material or sulfur

Soil Analysis

- Lab testing
- Collecting samples
- http://www.usual.usu.edu/forms/soilform.pdf
- Analyzing results
- http://extension.usu.edu/files/publications/publication/AG_Soils_2008-01pr.pdf

Climate

- Besides water and soil, crops need sun and warmth to grow
- Timing
- Western Regional Climate Center
  - Individual stations record all parameters listed on pg. 22

Growing Degree Days (GDD)

- Measure of heat accumulation against baseline
- Baseline is 50° for tomatoes, 41.9° for lettuce, barley
- Time to emergence and maturity
- Barley
  - 125-162 GDD to emergence
  - 1290- 1540 GDD to harvest

Walkthrough

- Western Regional Climate Center http://www.wrcc.dri.edu/
- Historical and current climate information
- Weather vs. climate

Worksheet 3

- Go to WRCC
- Find the station closest to your AOI
- Find the high & low temps
- Find the average rain and snowfall
- Find the GDD for a 45°F baseline
- Find the frost-free period for days above 32°F

Utilizing Extension Resources

- Many crops have been tested in various areas
- Usually publication of results
- Good starting place for determining variety choices
- Idaho barley example
- http://www.cals.uidaho.edu/edComm/pdf/CIS/CIS1166.pdf

Thank you!

Questions?

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