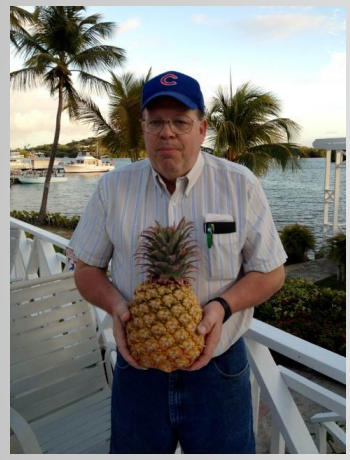

A CERTIFIED ORGANIC WINTER NURSERY FOR CORN BREEDING

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eOrganic webinar series

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INTRODUCTIONS

- We are a group of corn breeders
- Funded by US government grant from NIFA-OREI
  - Strengthening public corn breeding to ensure that organic farmers have access to elite cultivars.
- Objective: Create infrastructure to support public corn breeding

INTRODUCTIONS

- Grant cooperator sites

WHAT IS A WINTER NURSERY?

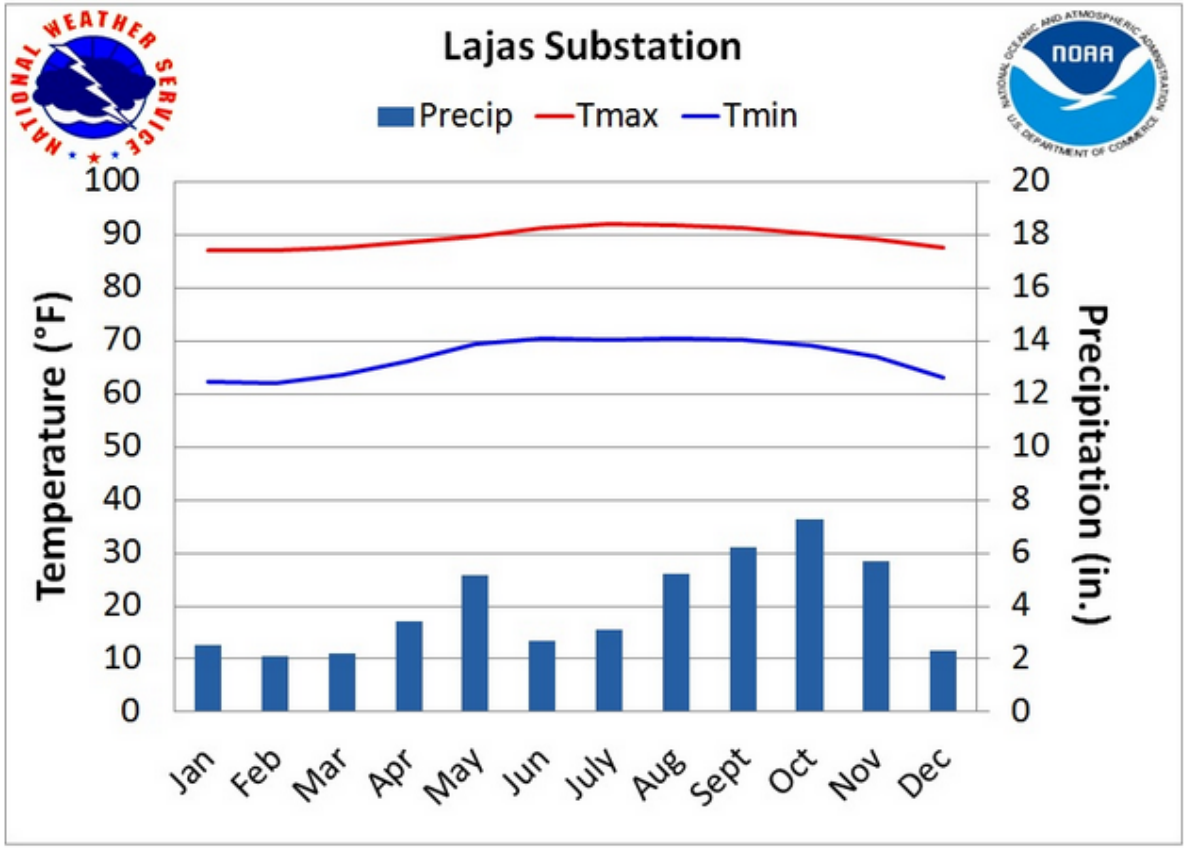
- A nursery is a field used by plant breeders to produce seeds.
- A winter nursery is located somewhere that crops can grow during our winter
  - Southern US, tropics, southern hemisphere
  - For example, Puerto Rico!

WHY IS IT IMPORTANT?

- Mini corn breeding lesson
  - One growing season = one generation
  - Developing a new corn hybrid takes at least seven or eight generations
  - Testing it takes several more seasons
  - Winter nursery can cut the development time in half (two generations each year!)

GROWING CONDITIONS

- Rain
- Soil
- Day Length
- Temperature
- Humidity



NCDC 1981-2010	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average High (F)	87.1	86.9	87.5	88.5	89.6	91.2	92.1	91.8	91.2	90.2	89.1	87.6	89.4
Average Low (F)	62.2	62.0	63.5	66.2	69.4	70.5	70.2	70.3	70.1	69.1	67.0	63.1	67.0
Average Rain (in.)	2.51	2.12	2.19	3.43	5.14	2.7	3.13	5.23	6.2	7.29	5.71	2.33	47.98

WHAT WERE THE CHALLENGES?

- No winter kill of insects and diseases
- Holidays and Strikes
- Weather: Rain and irrigation
- Weed control
- Emergence/Stand establishment

BEST PRACTICES: SOIL FERTILITY

- Green manures

BEST PRACTICES: PEST MANAGEMENT

- Rotation
- Trap crops
- Certified sprays

BEST PRACTICES: IRRIGATION

- Drip worked better than overhead

WEED CONTROL

- Cultivation timing critical (not new…)
- Lots of people and hoes

BEST PRACTICES: POST HARVEST

- Seed Drying –
  - Never more than 105 degrees F
  - High humidity a problem
  - No heat during the day
- Phytosanitary controls-
  - Freezing

ANY SURPRISES?

- Opportunity to select for general resistance to disease and pests. Do we have any evidence that this has been beneficial?
  - Unsprayed "native insect resistance" experiment
- Shorter season materials have a harder time at this latitude than longer season materials

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- Institutions

USDA United States Department of Agriculture
National Institute of Food and Agriculture

  - Practical Farmers of Iowa, Mandaamin Institute, USDA-ARS, Montgomery Consulting, New Mexico State University, Cornell University
  - University of Puerto Rico

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- Thank you for coming!