

Florida Olive Council Report

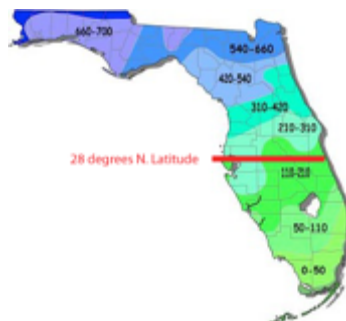


FOC Research Manager Tomas Pollmann with rooted olive cutting

North African Varieties for Low Chill Research

The Florida Olive Council and UF-IFAS Department of Horticulture embarked on a program to find a 'low chill' olive that will reliably produce south of I-4 where greening disease (HLB) has decimated over 50% of the citrus groves.

Most olives grown in Florida originate from European rootstocks acclimated to weather on the northern rim of the Mediterranean Sea (Spain, Italy, Greece). These areas generally receive sufficient chill (200 hours min.) to induce flowering. Areas south of I-4 (28° N. Lat.) receive less than 200 chill hours* annually.



Researchers believe there may be olive varieties native to the Middle East and North Africa (MENA) more compatible with south central Florida's climate and soils. (Continued on page 4).



*1 hr. @ 32-47 F.



Hardee Research Farm Manager Myles Albritton with North African olive graft

Alternative Crop Research

The Hardee County Economic Development Authority (EDA) joined the Florida Olive Council and UF-IFAS to establish an alternative crop research farm for struggling Hardee County citrus growers. The 20-acre test-plot hosts 1000 Olive (10 varieties), Hops, Pongamia (2 varieties), Turmeric and Pomegranate. The focus is on cash crops with established global markets. Olives are flowering this year in Hardee County (photo below).

The research farm is the brainchild of EDA executive director and Hardee county native, Bill Lambert. Recognizing the significant threat of HLB to the Hardee county economy, Lambert said, "we pray citrus will survive and prosper; but we need a back up plan."



Lambert (l.) with growers



2018 Arbequina

Spanish Academics Focus on Olives and Climate Change

FOC President Michael O'Hara Garcia and Research Manager, Tomas Muller Pollmann presented the Council's *low-chill* olive research plan to an academic workshop on olives and climate change at the University of Andalucía in Baen, Spain on 2-3 November 2017.

The event, hosted by Dr. Lourdes Soria Herrera of the University of Andalucía and Dr. Luis Rallo Romero of the University of Cordoba, featured presentations by 30 academics from throughout Europe, the Middle East and South America.

The presentations addressed a host of topics related to the impact of climate change on olive production. How to accurately measure that change and develop predictive models for chilling times, production estimates and other factors were explored in the presentations.

Olive producers are concerned that climate change will have an increasingly negative effect on production; particularly for groves using currently popular commercial cultivars like Arbequina and Hojiblanca. The urgency of the research is indicated by the need of the global olive industry to make long-term strategic decisions regarding grove location, cultivar selection and cultivation practices. Significant capital investment is at stake.

Since many flowering trees require a certain amount of cool weather during winter to stimulate reproduction (*vernalization*); there is concern that currently favored European olive varieties, accustomed to cooler winters, might not produce as well if annual temperatures increase even a few degrees.

In the figure to right (Fig. 1) the impact of rising temperatures on flowering is analyzed across three popular commercial cultivars. Clearly the Arbequina seems to most resist production decrease as temperatures rise; however, the more dramatic drop off of Hojiblanca and the marked impact on Moraiolo suggests temperature increases may vary according to variety. Indeed the researchers concluded in their final report, "yield and eco-physiological responses to climate change may likely be modulated by genotypic traits."



Garcia(r) and Pollmann(l) present Florida olive story in Spain

If the case for cultivar-driven response to chill can be made, the current Florida olive research using varieties from North Africa and the Middle East may prove productive. Some researchers suggest certain olive varieties may flower with less than 100 chill hours. (See chill map on page 1.)

A 2017 article in *Plant, Cell and Environment* (doi:10.1111/pce.12922) discussed how expression of certain genes (*OeFT1/2*) may offer clues to time of flower induction and inflorescence initiation. The authors found "expression of *OeFT1/2* in olive leaves and *OeFT2* in buds increased during early winter, while initiation of inflorescences occurred in later in winter. Trees exposed to an artificial warm winter expressed low levels of *OeFT1/2* in leaves and did not flower. Olive flower induction thus seems to be mediated by an increase in FT levels in response to cold winters"

**Percent of Years
Where Vernalization Needs Are Satisfied As
Temperatures Rise**

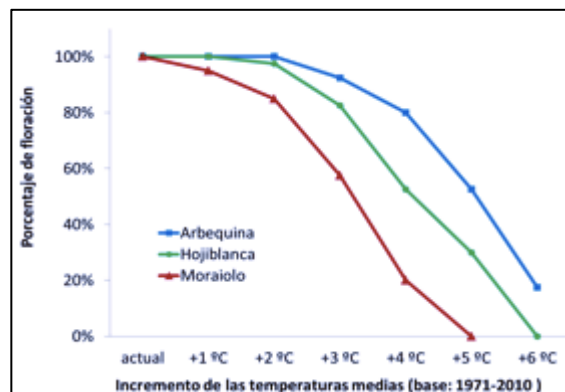


Fig. 1

President's Corner

The next time you plan a trip in Florida, take US 27/SR-17 instead of Interstate 4 or 95 and drive through beautiful south central Florida (Manatee, Hardee, Desoto, and Highlands counties) and see for yourself what is happening to Florida agriculture. Hardee County is a good example.



In 2000, agriculture accounted for 33% of Hardee's gross domestic product (AgGDP); in 2016 (thanks primarily to HLB disease), Hardee's AgGDP was 18%. That 50% decline over 15 years mirrors the decline in AgGDP statewide - from 1.16% in 2000 to 0.63% in 2016. Due to HLB and other factors, half of all Florida citrus land sits fallow.

Despite spending \$250 million over 10 years; science has not found a remedy for HLB. For their part, the Tallahassee "leadership" has done little other than rubber-stamping appropriations for the usual suspects and hoping for miracle cure.

Logically, scarce dollars should be focused prudently and indeed citrus is the top priority. However, if current trends continue and virtually *all* citrus is dead before a rootstock or other solution for HLB can be found; what will the Tallahassee leadership do then?

Last year, FOC, Hardee County and UF/IFAS endowed the *Pioneer Plant Lab*. The purpose of the lab is to study world markets and find new cash crops we can grow here. Olives have potential as do other crops but more research must be done before we can ask our famers to invest.

To support the lab contact: Julie Conn jconn@ufl.edu

Statewide Survey of Florida Olive Growers

Since 2011 the Florida Olive Council (FOC) has documented the development of olive cultivation in Florida. As interest in Florida olives increased and many new groves installed; the Council thought it prudent to establish a baseline of data so support future research.

During June-August 2017 FOC researchers visited olive plantations throughout the state. Each site was documented for geo-location, varieties planted, age of tree(s), irrigation status, history of disease, production, etc. Soil and leaf tissue samples as well as grower contact information was collected.

A universe of 80 olive groves was identified using FOC data.



is ongoing and reports will be sent to Council members as appropriate.



These grove locations represented most of Florida's climate and geography. From that universe researchers drew a raw sample of 50 locations. Of those, 30 growers were selected.

The raw data was entered into the FOC research database and reports sent to all grower participants. Additional research

Olive Council Wants Harvest Partners

The Florida Olive Council wishes to partner with a few small olive growers to harvest and press olive oil to be used in our research. UF Food Science will analyze the oil for quality and other factors. The Council owns two electric (DC) pickers and special ground cloths to collect fruit.



In photos we are harvesting at Green Gate olive grove near Marianna. If you have interest in partnering on this project, please contact us as soon as possible. We will have limited time once fruiting begins.

Contact: Michael O'Hara Garcia
(202) 246-2001 michael@floridaolive.org

New Olive Cultivars Propagated for Low Chill Research

(cont'd) Acknowledging many factors impact olive flowering and target areas of MENA are often much more arid than Florida; nevertheless, considering how olives uniquely adapt to a particular area; researchers want to determine if more "southerly-originated" olive varieties require less chilling and will produce acceptable fruit on a regular basis.



Since many olive varieties require at least three years to reach maturity, the challenge was to design an experiment shortcutting the time needed to determine if a particular variety would bloom south of the I-4 corridor.

After consultation with academics and technicians in California, Spain and Chile, the research team decided to graft each variety

onto a mature olive tree hoping the grafted material may demonstrate blooming tendencies before 3 years.

In the full experiment, half the cuttings were grafted onto 4+year old Arbequina olive trees at the Hardee County Research Farm (Wauchula) and the other half were rooted at the FOC research facility in La Crosse, FL. In the photo above, greenhouse manager Jan "RootGirl" Gray shows off one of her experiments with cv. Toffahi olive, native to Egypt and Syria.



While the greenhouse in La Crosse was spared great damage from Hurricane Irma, the graft experiment in Hardee County suffered significant damage. But as in the photo at right, some grafts held. The experiment will be repeated this year (2018) with more knowledge and the researchers hope, better weather.

Florida Olive Council Membership Application

I would like to join the Florida Olive Council and support olive research in Florida

Name _____ Phone _____ Email _____

Address _____ City _____ Zip _____

Annual Membership Donations (federal tax deductible):

Member \$45 Small Grower* \$75 Commercial Grower \$150 Associate \$350 Research Partner \$1000

* 500 tress or less

Mail application and check to Florida Olive Council Membership 3324 W. University Ave. #160, Gainesville, FL 32607 or membership@floridaolive.org



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