The Rust Crisis within the Rust Crisis

Nowhere to screen new genetic materials for coffee leaf rust resistance
The Rust Crisis Continues

- Same incidence at 50% but less damage in 2014
- Fungicide and GAP campaigns have had favorable effects on production for Central America.
- Climatic conditions continue to be favorable for high CLR incidence
How do we stop it?

- **Most effective short term control are fungicides coupled with GAP**
  - Expensive
  - High technicity for effectiveness
  - Not best choice for environment or organic coffee producers

- **Rust resistant varieties are the most economical, effective and sustainable control measure for controlling coffee leaf rust**
  - Simple seed or seedling is product for farmer and lasts 20-30 years
  - New rust resistant varieties can incorporate excellent cup quality characteristics needed for Central America
  - New rust resistance genes from other species will be found and incorporated for stronger resistance
Why not get on with it and fix the problem?

Must have a method whereby we are able to ‘test’ the resistance and/or susceptibility of new breeding lines and varieties.

There is no center or laboratory today in the world to SCREEN new coffee varieties, populations, genotypes, and accessions for coffee leaf rust.

WHY?
Enter the Centro de Investigação das Ferrugens do Cafeeiro-CIFC

- Established in 1955 by the Governments of Portugal and the U.S.
- To centralize the investigations on coffee rusts in one place with no danger of introducing these diseases or new races of the parasites in the coffee producing regions.
- Originally to assist coffee research centers in the Portuguese colonies and then became a free service offered to coffee growing countries for the selection of rust resistance coffees through screening other country’s coffee breeding materials.
- Developed the best parent ‘Timor Hybrid’ which is the main source of resistance in almost all resistant varieties.
- Funded by the Government of Portugal + grants.
CIFC Resources

- 6 PhD Research Scientists
- 9 Technicians
- 5,000 m² of greenhouse space
- Laboratories
- 45 maintained rust races
- 18 coffee genotype differentials
- 50 years of research and experience on rust
What happened?
The rust crisis within the rust crisis

- 2011: European economic crisis results in some budget cuts to the center
- 2012: CIFC challenged on operations
- 2013: CIFC unable to respond to PROMECAFE request to screen new genotypes from Rust Project
- 2014: CIFC staffed moved to University of Lisbon and situation remains unknown for future
Who is affected?

- All national coffee breeding programs: Colombia, Brazil, India, Costa Rica, Kenya, Tanzania, Ethiopia...
- Companies like Nespresso, Starbucks, ILLY...
- Geneticists searching for resistance genes in the wild species of coffee
- Geneticists searching for resistance genes in the World Collections of Coffea arabica, Coffea canephora, Coffea eugenioides, Coffea liberica...
- PROMECAFE-WCR Central American Rust Research Project
What to do?

• Restructure the old CIFC: Who? When? How?
  • Lack of knowledge on government plans
  • Proposal at ICO for CCF
  • Language in EU documents

• Re-create CIFC: Where? With what resources?
  • WCR-Texas A&M? Why?
Sub-tropical research center falls victim to federal budget woes

Logan Hawkes

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USDA’s only subtropical agriculture research center now sits dormant on the South Texas prairie.
USDA personnel are confirming that the Weslaco Center is one of the 259 USDA offices and facilities that will be closed this summer.
Suspension of research and the closing of the Weslaco Center have garnered harsh criticism from local supporters.

What is in this article?
Sub-tropical research center falls victim to federal budget woes.

Criticism from supporters

Like a fallen fort on America’s great frontier, USDA’s only subtropical agriculture research center now sits dormant on the South Texas prairie, a sleeping giant on the Texas-Mexico border, a condemned prisoner waiting on the executioner’s arrival, its rich history and noble cause lost in a federal budget reorganization and controversial policy decision that some say will put U.S. agriculture at risk from foreign invasive pest species and diseases that could ultimately threaten U.S. agriculture and food safety.

Known for such pioneering work as boll weevil eradication in cotton, fever tick eradication in cattle, control and eradication of invading tropical fruit flies, citrus...
What would it look like?

• Agreement with CIFC
• Trimmed down staff and focus on screening, maintaining cultures and coffee differentials
  • 1 PhD Researcher in charge
  • 2 Technicians + Admin
  • Operations budget
  • Service fee for screening to offset costs
• Basic rust research activities conducted only through competitive grant process

Estimated annual cost
$500,000
Looking for a SOLUTION

Not a revolution

Thanks!
Effect of climate on rust incidence for 2014

[Graph showing the incidence of H. vastatrix in 2013, with data points for January (33.0%), June (3.9%), and August (17.4%).]
What is rust screening?

Hand inoculation of different rust races onto a coffee plant to see if the rust germinates and infects the plant.

There are 45 different rust races and 7 main common ones.

There 18 coffee genotype differentials.