Introduction to The Global Coffee Quality Research Initiative

PARCH INITIATIVE



Shortage in washed arabicas being felt worldwide

Some origin countries experience supply shortages - Colombia, Guatemala, Kenya... Newer origin prospects slow coming -Congo, Sudan, Ecuador, Bolivia...

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All supply vulnerable to pandemics All supply vulnerable to global warming

Coffee Demand

40% of coffee consumption in US is specialty, and growing

Fast food moving to specialty

Kraft, Sara Lee, and others

 Origin countries consuming more of their own specialty coffees

 Europe, Japan, Australia, Middle East increasing consumption

 China and India rapidly developing appetites for specialty coffee

A World Of Delicious Coffees and Drinks

WE'RE REBUILDING. 14 NEW STORES IN PHOENIX OPENING SOON



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EARCH INSTIN









Coffee Quality

Quality and taste differentiation is major demand driver

We know almost <u>nothing</u> about why coffee tastes the way it does:

- Only 2 of 100 species of Coffea genus studied
- Only 67 studies on effects of different variables on quality in past century!
- Great, un-tapped variability within the *Coffea* genus: Look at Esmeralda!
- Over 800 volatile and non-volatile chemical compounds in coffee responsible for its flavor: interactions are almost infinitive

We don't know how to improve, control, or protect!



Add it Up

Exponential Ques Demand Su

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Questionable Supplies Limited Knowledge On Quality An Industry With Problems

Supplies of quality coffee are becoming inadequate to meet projected needs

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Only Ways to Increase Quality and Supply

Expand arabica coffee area within existing origins Increase yields of arabica coffee from existing areas Transform poor quality arabica plantations into specialty arabica plantations Develop new origins Understand the effects of genetics, environment and their interaction on coffee cup quality

THEY ALL REQUIRE AGRICULTURAL RESEARCH AND DEVELOPMENT

Another big problem specific to coffee



Because of geographic, economic and social disconnects between coffee consuming and producing countries and the disparate nature of the specialty industry, very little has been invested to increase cup quality, production of quality coffee or to protect the quality coffee supply chain

The Solution

The Creation of



A global coffee research program focused on increasing quality and volumes of specialty coffee and protecting the supply chain from economic, climatic and pandemic threats.

Approach

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To build upon and expand the network of existing coffee research institutions and scientists and to fund and conduct research on key factors that improve the cup quality and increased volumes of specialty coffees

A Proven Model

Bring the best and brightest minds in science from all relevant disciplines together in a collaborative mode to alleviate specific constraints to increasing quality and production in origin countries with origin country research institutes.

Based on:

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Successful USAIDfunded Collaborative . Research Support Programs (CRSP)

Tailored by:



Tailored to meet needs of coffee industry

Justification

Alternative of not doing something very risky

Makes good business sense

Authors	Pub. Year	Product	н	Μ	L
Norton & Ortiz	1992	beef & swine	55		
Norton & Ortiz	1992	dairy	95		
Norton & Ortiz	1992	poultry	46		
Norton & Ortiz	1992	grain crops	31		
Norton & Ortiz	1992	potatoes, cotton, tobacco	34		
Norton & Ortiz	1992	vegetables & melons	19		
Norton & Ortiz	1992	fruits & nuts	33		
Haygreen et al	1992	forest products	25	14	36
Bengston	1986	forest products	21	19	22
Smith et al	1984	beef & swine	22		
Smith et al	1983	*dairy	25		
Smith et al	1983	poultry	61		
Schmitz & Seckler	1983	tomato harvester	42	37	
Peterson	1970	poultry	23	21	
Grilliches	1967	corn	38	35	
Grilliches	1958	sorghum	20		

Proven track record on returns on investment

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HL. RESEARCH INT TATUE

Understand

...the causes and effects of genetic, agronomic, processing, and postharvest factors on the quality of coffees in order to increase quality and volumes of quality coffees. ... and freely extend research results to everyone up and down the supply chain so they can readily deliver the expected productivity, premium, quality, sales, and marketing results.

Grow



... the capacity of coffee origin countries to conceive and execute topnotch coffee quality research that will result in increased cup quality and volumes of quality coffee.



Outreach

Objectives



How to Put it Together

Development Phase: 1 year "Genesis"

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- Legal establishment of the program
- Setting up long term funding mechanisms
- Defining the major constraints to be addressed, where with whom
- Setting up the network of researchers, institutions, origin countries, laboratories

Operational Phase: 5 year cycles

- Funding research activities
- Monitoring activities and impact
- Compiling and extending results

Cost & Funding

- Approximately one year of full time activity after Symposium
- Produces a comprehensive, global research plan, network, funding mechanism...
- \$375,000 total needed
- Cost share and savings can reduce total

Cost & Funding

- \$15-20 million per cycle (\$3 to \$5 million per year)
- 20-30 research projects in 15-20 origin countries
- >200 researchers at >50 research institutions

Genesis funding so far...

coffee bean



Long-term Research Funding

Voluntary check-off commodity fund
S,M,L,XL roasting companies 5 year commitments

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- Oligarch-like funding from several large companies
- Foundation and/or Government funding

Research Example

Global Plan Constraint Area: Increased quality through defect removal

Constraint: Potato taste defect in E. Africa

Estimated loss to producers: Several million dollars per year in Rwanda and Burundi alone

Estimated loss to roasters:

XX,XXX bags of coffee unsuitable for specialty market

GCORI Approach:

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- 1. Designs RFP (Request for Proposal) for lead coffee research institutions
- 2. Lead institution partners with other qualified and interested institutions for high tech support
- 3. Lead institutions design collaborative project with Rwandan and Burundian Research Institutes
- 4. Project entails research at input phase, production phase, and processing phase
- 5. Quality results on all trials evaluated by trained specialty industry cupping panels
- 6. Results lead to new dry processing equipment with 'potato laser beams'





Reach genesis funding goals
Execute global planning congress
Establish entity
Request for proposals
Begin doing it

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That's it for the introduction to the concept

Norman E. Borlaug

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CH INJ'

Forester who started the Green Revolution

Received the1970 Nobel Peace Prize, Presidential Medal of Freedom, and Congressional Gold Medal

Person of courage, science, action and persistence

Championed agricultural research and development for poor farmers worldwide

The Borlaug Institute

ORLAUG

INSTITUTE

Is the international agriculture R&D arm of the Texas A&M University system

- Manages \$50 M international R&D, out of system-wide \$730 M R&D
- In 2008-2009, deployed 127 scientists and staff drawn from resource base of 27,000 faculty and staff
 - Engaged in 105 countries

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The Borlaug Institute

Through science and education we can combat hunger and poverty in partnership with:

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SEARCH INY

International Agricultural Research Centers
Foreign national research agencies
Private firms
Private foundations
Other universities



"The first essential component of social justice is adequate food for all mankind." – Nobel acceptance speech, 1970.

Agriculture is a powerful force for peace.



The specialty coffee industry has given buying power to thousands of poor farmers, enabling them to buy the food they could not otherwise produce.

And through science, you can improve the lives of millions more all the while improving quality, productivity and protecting the supply chain





> French public Research establishment,

> Specializing in tropical and Mediterranean agriculture.

> staff of 1800, including 800 researchers.

> working with more than 90 countries worldwide.

> Budget of 203 million euros, with two thirds provided by the French government.



Coffee: Some 30 researchers

In Montpellier (France) but also with resident researchers in Brazil, Mexico, Nicaragua, Costa Rica, Kenya, Laos...

Working in collaboration with public sector (Nacional Agronomic Research Centers, Universities) and private sector.

Main axis of research

Creation and Mass Production of new varieties
 Adaptation to Agroforestry Systems

- > Tolerance to drought
- Tolerance to main diseases

Optimizing Agricultural Practices

Cupping and High throughput determination of biochemical composition (NIRS)





Creator of technological innovations for tropical crops including coffee
No capacity for diffusion of these innovations.
Some kind of frustration: do not reach/ benefit the producers

Impact of the research towards beneficiaries ?

Strategic Alliance with Private Coffee players



A Case study

Two key innovations in the Arabica coffee production sector:

- A result from several years of collaborative research
- New generation of varieties
- New tissue culture methodology for mass propagation

Technology Transfer to the private sector: Ecom Group







This new generation of varieties :

- 40-50 % more productivity Precocity
- Equivalent or even better quality

Combining Productivity and Quality....



Study of INCAE - IRR and NPV of one Coffee Hectare

VARIETY	RENOVATION	HORIZON	IRR	NPV
Caturra	YES	6	32 %	1,900
Caturra	YES	10	43 %	5,100
New Hybrids	YES	6	63%	6,400
New Hybrids	YES	10	74%	11,900
Caturra	NO	6		2,000
Caturra	NO	10		2,000





Capacity : 5 Millions F1 Plants / year





Future research



Genetic Ressources (15.000 Trees representative of coffee genetic diversity) Access to field:

Fincas / Research Centers & Skilled staff. (Mex, Nica, CR) Structures and equipments: Lab/ Nirs / Cup testing

Network of Scientific skills: Cirad, Langebio, IBT-Unam, ITV and others







Solid basis to run impactful research...







Research Alliance

Combining Productivity and Quality



Research Platform

Alliance

Platform available to the coffee community through

GCQRI

Designing Coffee Cultivars Combining Productivity and Quality

Offering opportunities for developing new innovations ...

Ecom