



Gobierno Nacional de la
República del Ecuador



Ministerio de
Agricultura, Ganadería,
Acuicultura y Pesca



INSTITUTO NACIONAL AUTÓNOMO DE
INVESTIGACIONES AGROPECUARIAS



II WORLD COCOA CONFERENCE

**PANEL: “*Protecting the diversity of cocoa:
Prospects for fine flavour cocoa*”**

Freddy Amores

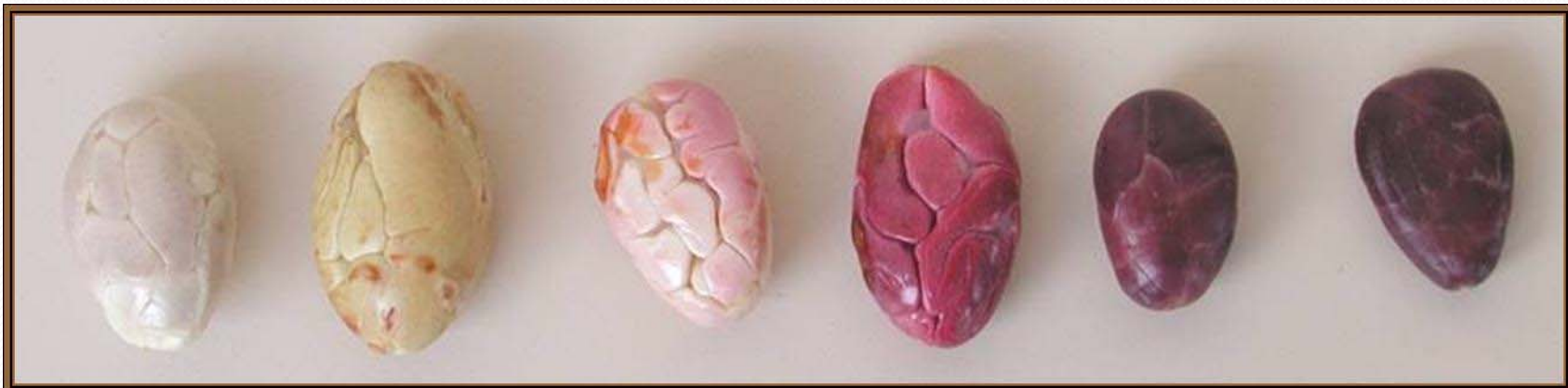
June 9-13 / 2014
Amsterdam, The Netherlands

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- The Amazonas region embraces the origin of the cocoa diversity.
 - The known genetic diversity has been recently structured in 10 clusters.
 - Access to the available diversity is important to breed new cocoa varieties
 - Genetic gains for yield, disease resistant, physiological and quality traits are key to sustainability of the world cocoa economy

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- Knowledge about diversity among landraces in traditional cocoa ecosystems is important for in situ-conservation.
 - Fine/flavour cocoa attributes benefits from thousands of genotypes present in traditional cocoa ecosystems.
 - Rejuvenation/Rehabilitation techniques can change the productive structure within traditional cocoa ecosystems and encourage protection of landraces.
 - NIRS, a forefront technology for quick bean characterization, can make contributions to build up identities for particular cocoa origins.



A traditional cocoa based - ecosystem (Source: Juan Jiménez)



An example of cocoa diversity

(Source: Gladys Ramos)

Prospecting wild cocoa trees

Colecta en bosque primario



(Source: Freddy Amores)

Pod and bean diversity in wild cocoa trees



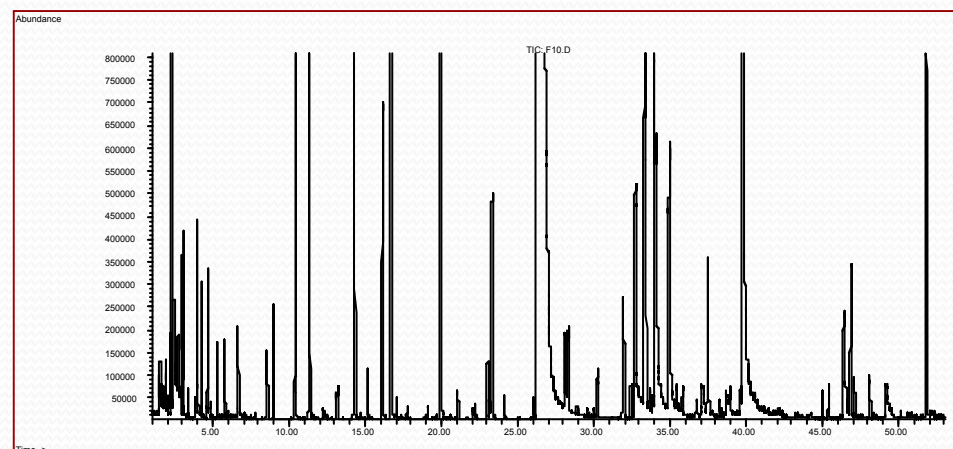
(Source: Freddy Amores)

Biochemical diversity in bean samples collected from wild cocoa trees.

Análisis de compuestos volátiles

Muestras colectadas

Genotype	Concentración en linalol µg/100g
ZAMO-3	13,8
ZAMO-5	49,27
ZAMO-7	67,19
ZAMO-11	26,15
ZAMO-12	43,61
ZAMO-16	5,4
YACU-1	12,07
PANG-23	25,38
PANG-24	5,07
BEVI-1	4,21
BEVI-2	29,44
NANK-1	35,94
NANK-4	15,31
NANK-5	15,3
NANK-6	13,11
MASA DE DOMONO	18,73
MUESTRA DASUM FINCA	21,3
MUESTRA VINCES	23,2



*Compuestos volátiles analizados por:
Gaz chromatography Mass Spectrometry
(GC-MS)*

**Grupo de terpenos
(concentración de
Linalool)**

← Muestra standart de Nacional

(Source: Rey Loor)

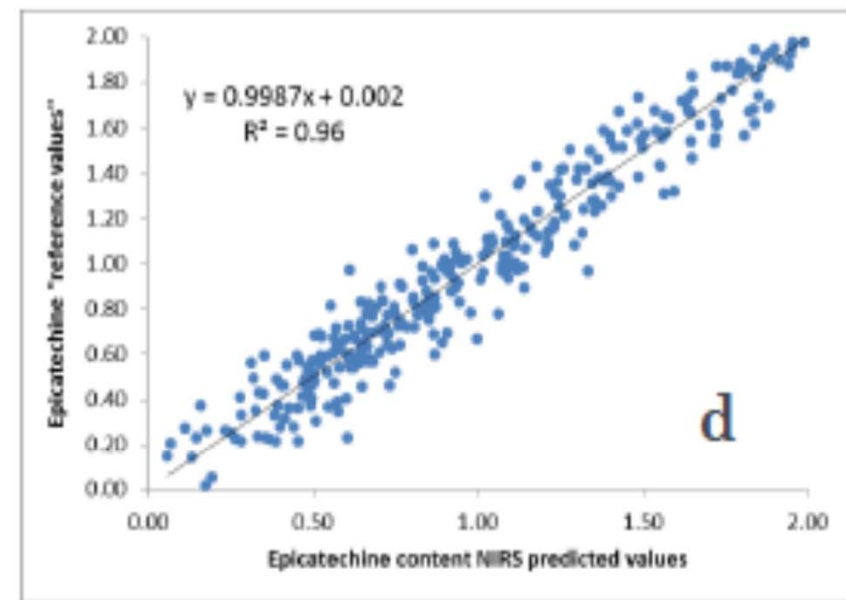
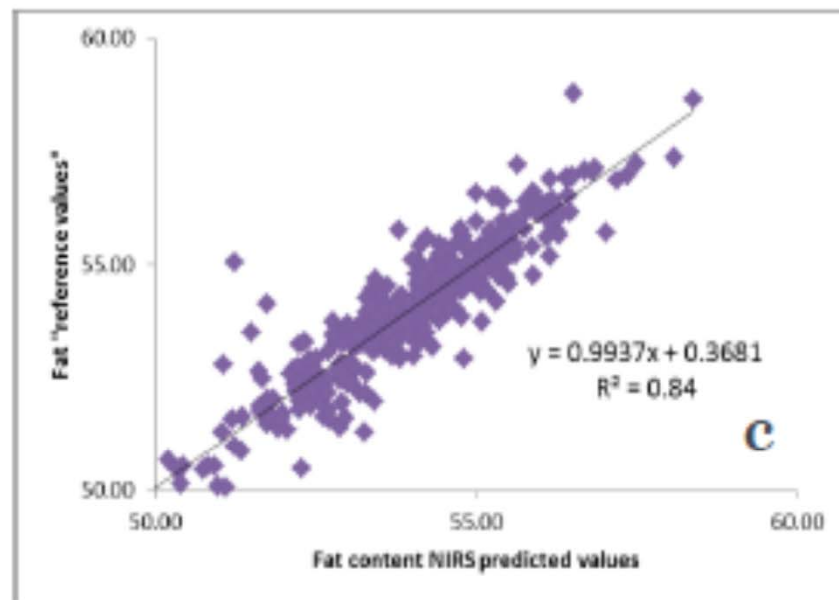
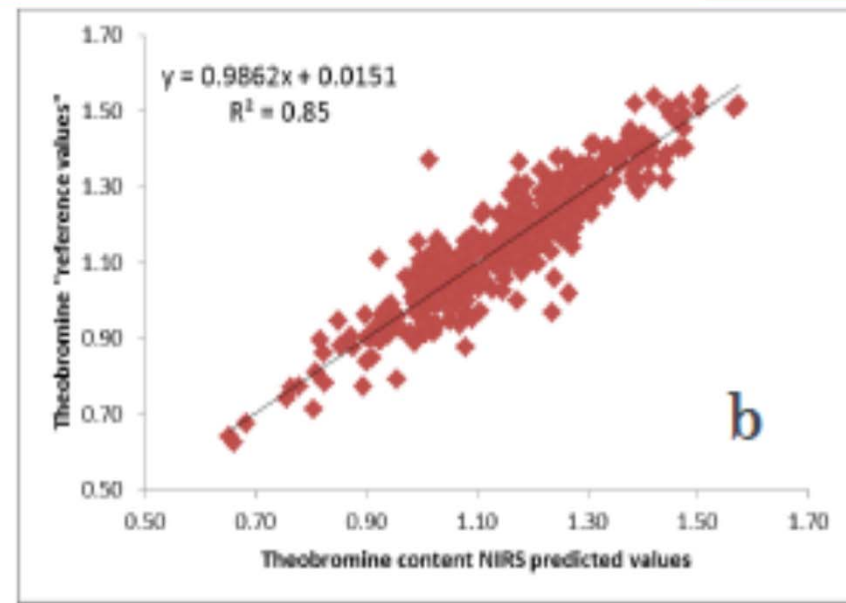
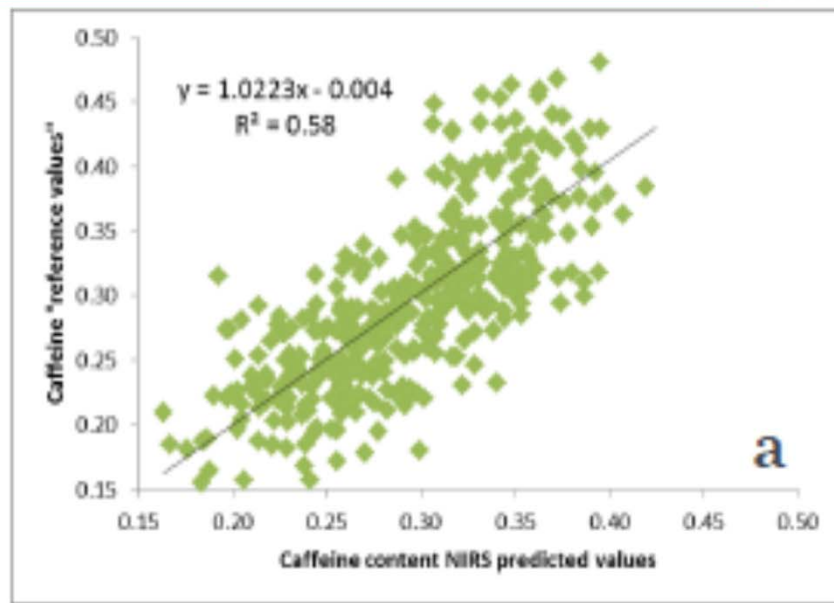
Análisis de ADN (SSRs)

(Source: Rey Loor)

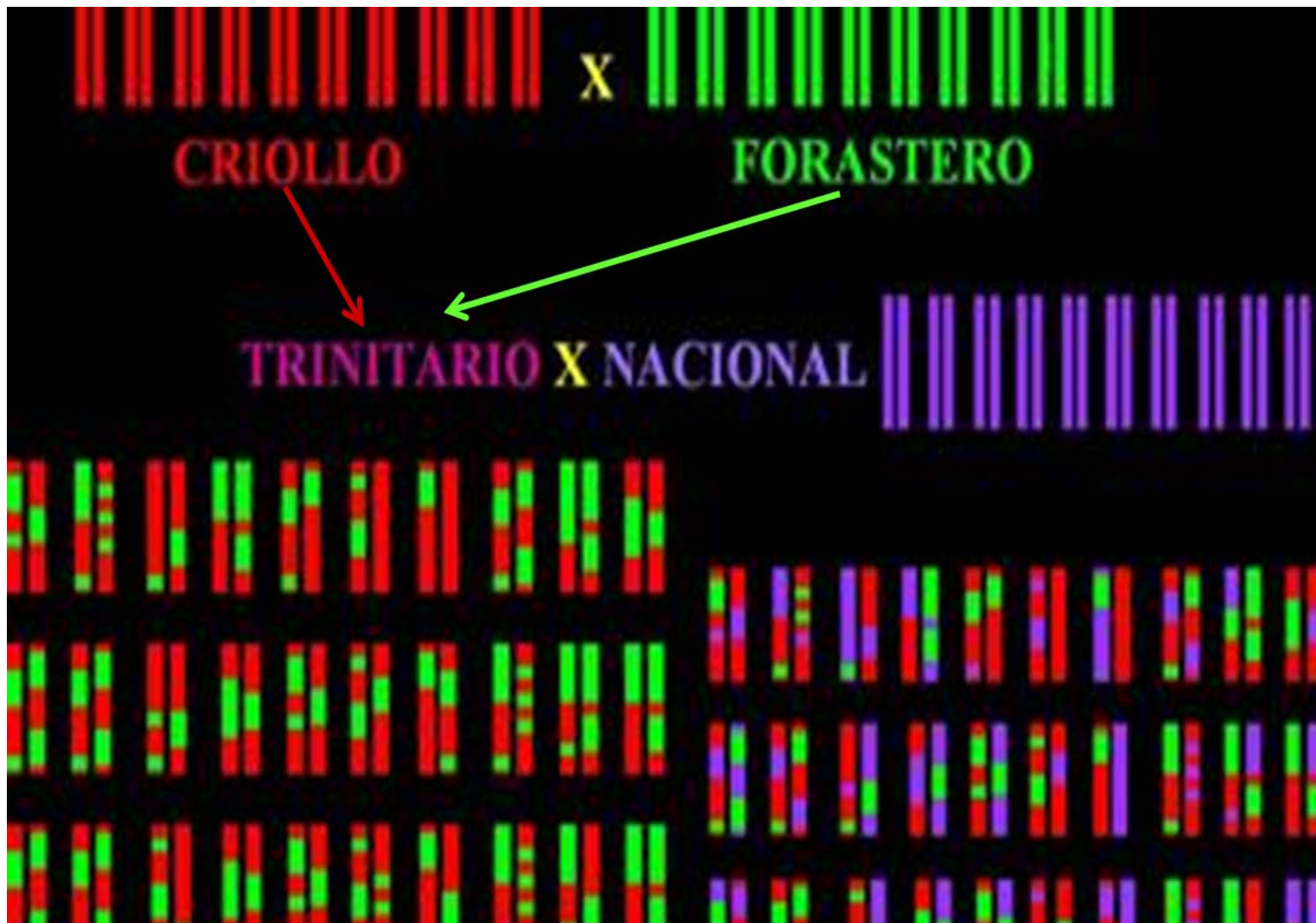
(Source: Rey Loor)

Characterizing beans from cocoa-based ecosystems.





Scatter plot of NIRS predicted values versus "reference" values a) caffeine, b) theobromine, c) fat and d) epicatechin. (Source: INIAP-CIRAD Report)



Genetic introgression into the National cocoa variety (Source: Rey



**High yielding clones obtained from superior trees
traditional field (Source: Wilbert Phillips)**



Gracias