International Cocoa Quarantine Centre, Reading (ICQC, R) Newsletter

University of Reading

September 2011

Welcome to the latest edition of the International Cocoa Quarantine Centre (ICQC, R) Newsletter. In this issue, we report on the latest releases of accessions from quarantine, publications of updated guidelines for the safe movement of germplasm and a paper on genotypic variation in photosynthesis, use of Material Transfer Agreements and recent success at an international horticultural show.

Releases from Quarantine

Recent releases from quarantine include clones from the CFC/ICCO/Bioversity Collection that were selected for superior yield traits and/ or disease resistance, a clone with a moderate level of resistance to *Moniliophthora* (CC 137) and enhanced breeding material for black pod resistance developed in Trinidad (GEBP series) (See Table 1).

The full list of accessions held at ICQC, R is available at the link below:-
http://www.icgd.reading.ac.uk/accession.php

***Table 1**: Recent releases of accessions from quarantine, which are now available for budwood export. Click on clone name to access further information from ICGD where available (underlined)*

Clone	Reading accession number	Donor genebank
A 645	RUQ 1603	INIAP
AM 2/19[1]	RUQ 1571	ICG, T
B 6/3 [POU]	RUQ 1595	ICG, T
CC 137[2]	RUQ 1637	CATIE
CL 10/15	RUQ 1610	ICG, T
CRU 78	RUQ 1629	ICG, T
CRU 101	RUQ 1627	ICG, T
EBC 135[4]	RUQ 1561	INIAP
EBC 148[4]	RUQ 1559	ICG, T
EET 183 [ECU][2]	RUQ 1640	CATIE
GEBP 35/A-F [ADI][3]	RUQ 1647	ICG, T
GEBP 37/A-F [ADI][3]	RUQ 1626	ICG, T
GEBP 165/A-M [ADI][3]	RUQ 1616	ICG, T
GEBP 180/A-M [ADI][3]	RUQ 1615	ICG, T
GEBP 617/A-F [ADI][3]	RUQ 1662	ICG, T
GEBP 914/A-F [ADI][3]	RUQ 1650	ICG, T
IMC 60	RUQ 1617	ICG, T
LX 31[1]	RUQ 1591	ICG, T
MOQ 6/99[1]	RUQ 1503	ICG, T
NA 702[1]	RUQ 1587	ICG, T
NA 710[1]	RUQ 1588	ICG, T
PA 71 [PER][1]	RUQ 1564	ICG, T
PA 195 [PER]	RUQ 1642	ICG, T
PA 121 [PER][1]	RUQ 1059	ICG, T
PA 299 [PER][1]	RUQ 1621	ICG, T
SJ 1/40 [POU][1]	RUQ 1438	ICG, T
U 26 [PER]	RUQ 1496	UNAS
UNAP 2[4]	RUQ 1604	ICG, T

[1]CFC/ICCO/Bioversity Collection
[2]Moderate *Moniliophthora* resistance
[3]Enhanced breeding material for black pod resistance (Trinidad)
[4]Allen Collection

Safe Movement Guidelines

Technical Guidelines for the Safe Movement of Cacao Germplasm have been updated as part of the CacaoNet initiative. The updated guidelines include:-

- General advice regarding safe procedures to use when moving cocoa germplasm.
- The geographical spread of significant pests and diseases of cocoa.
- A description of the key features of pests and diseases (each section being authored by experts in the relevant field).
- Quarantine advice in relation to moving germplasm from a region where a specific pest or disease may be present.

It was agreed at the recent CacaoNet Workshop (held at the University of Reading in July) that this document will be reviewed regularly and updated when new information becomes available (e.g. on the spread of particular pests and diseases and on new quarantine technologies).

The document has been published on-line under the auspices of CacaoNet and Bioversity International and can be found at:-
http://www.bioversityinternational.org/nc/publications/publication/issue/technical_guidelines_for_the_safe_movement_of_cacao_germplasm.html

Material Transfer Agreements

We are now using a Standard Material Transfer Agreement (SMTA) to accompany consignments of budwood being sent from ICQC, R. Such agreements serve to facilitate the sharing of biological materials whilst

protecting certain rights of the donor. These agreements cover material that has been received from the Cocoa Research Unit in Trinidad (CRU) and from CATIE, Costa Rica. Both CRU and CATIE have signed agreements with the Governing Body for Plant Genetic Resources which effectively provide the legal basis for using SMTAs when exchanging cocoa material. Individual institutes are being asked to sign an SMTA, either covering a three-year period or else on an export-by-export basis, which ensures continued free access to material.

Showcasing Cocoa at the RHS Chelsea Flower Show

The University of Reading presented an exhibit on cocoa at the prestigious Chelsea Flower show (23-28/05/11), which is run annually by the Royal Horticultural Society in central London. The stand, in the "Continuous Learning Section" explained about the issues facing cocoa farmers and the role that the International Cocoa Quarantine Centre is playing in providing disease-free germplasm to breeders working on such challenges. The stand also included a seedling nursery area, mature trees with pods and a demonstration of fermenting and drying beans. The stand was well received by the judges who awarded it a gold medal. The event provided an opportunity to engage with members of the public about the work that we are doing at Reading on cocoa and also about cocoa cultivation in general.
http://www.reading.ac.uk/about/newsandevents/releases/PR367460.aspx

Physiological Characterisation of Germplasm from ICQC, R

Recently published work utilising germplasm from ICQC, R has demonstrated genotypic differences in photosynthetic characteristics amongst a set of eight diverse cocoa clones (Daymond et al, 2011), including water-use efficiency and light-use efficiency. The study also demonstrated a high correlation between genotypic differences in both stomatal conductance and leaf nitrogen with photosynthetic rate.

Selected Removal of Accessions from the ICQC, R Collection

We are scheduled to remove three accessions that are now very widely distributed and have no longer been in demand (Table 2). If any institute wishes to receive any of these clones, please let us know as they will not be available after April 2012.

Table 2: Accessions scheduled for removal from the ICQC, R In vivo collection in April 2012.

Clone	Reading accession number
CC 11	RUQ 4
GS 36	RUQ 1157
UF 221	RUQ 54

Imports of New Material

Please let us know if there are any specific clones needed by your Institute that are not currently held at ICQC, R and we will endeavour to make the necessary arrangements for them to be imported.

Enquiries

Enquires or further information on ICQC, R and how to receive germplasm should be directed to: Andrew Daymond.
(a.j.daymond@reading.ac.uk).

To Receive Budwood

Cocoa budwood is supplied free of charge. Please provide as much advanced warning of your requirements as possible and send us an import permit *at least two weeks* before the date of shipment. This should state that you wish to import cocoa as budwood and any treatment of the budwood required (*e.g.* pesticide and/ or fungicide treatment, if applicable). Please fax the permit to: 00 44 118 378 7468 or send as an e-mail attachment.

Funding

The International Cocoa Quarantine Centre is funded by the Cocoa Research Association Ltd (CRA Ltd) and the United States Department of Agriculture (USDA).

References

A.J.Daymond, Tricker, P.J. and Hadley, P. 2011. Genotypic variation in photosynthesis in cacao is correlated with stomatal conductance and leaf nitrogen. Biologia Plantarum 55: 99-104.

Acronyms and Abbreviations

CATIE: Centro Agronómico Tropical de Investigión y Enseñanza (Costa Rica)

ICG, T: International Cocoa Genebank, Trinidad

INIAP: Instituto Nacional Autónomo de Investigaciones Agropecuarias

UNAS: Universidad Nacional Agraria de la Selva (Peru)

CRA Ltd. research towards sustainable cocoa

USDA ars