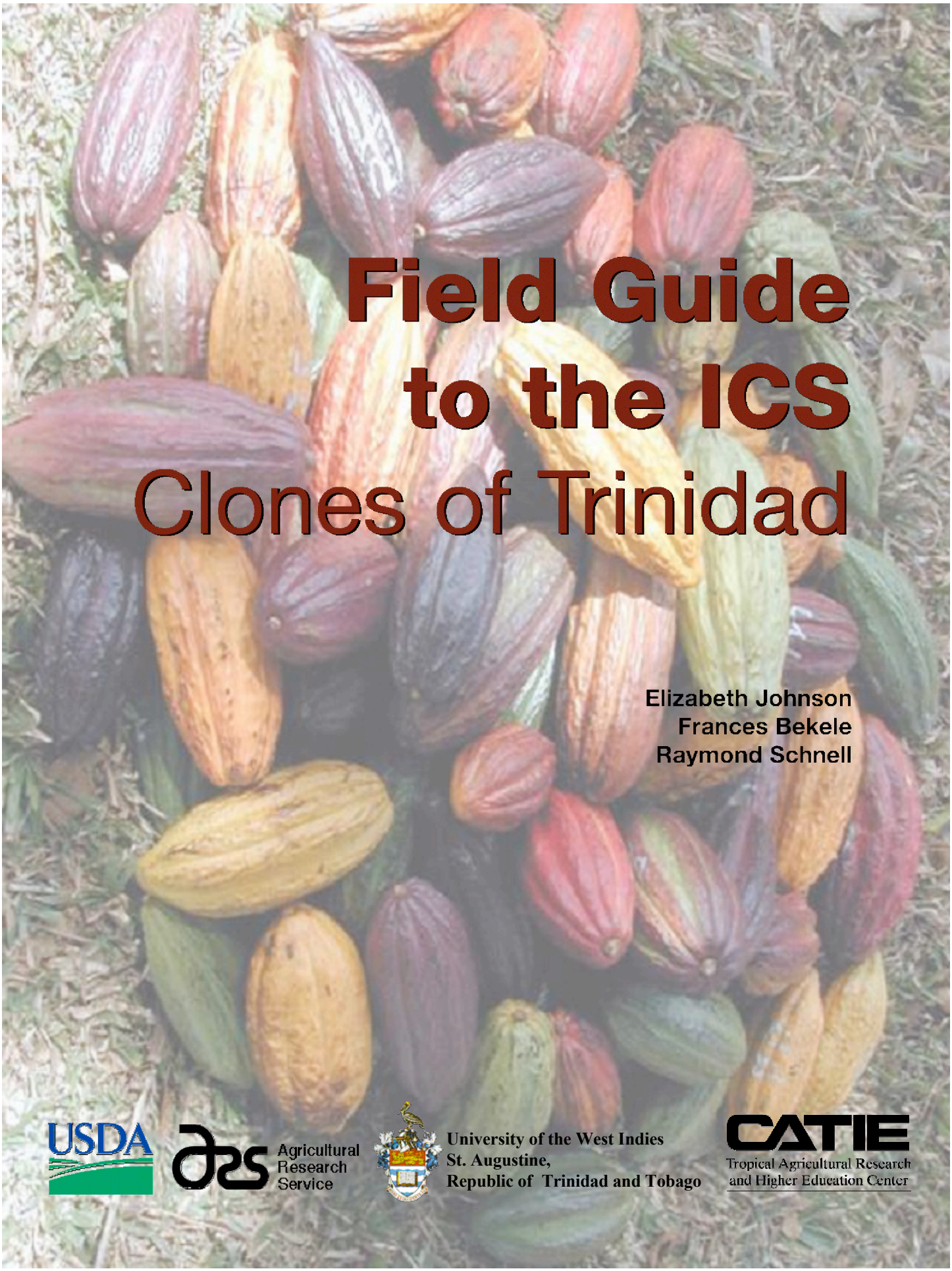

Field Guide to the ICS Clones of Trinidad

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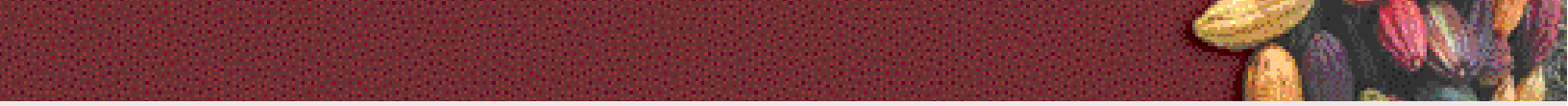

Field Guide to the ICS

Clones of Trinidad

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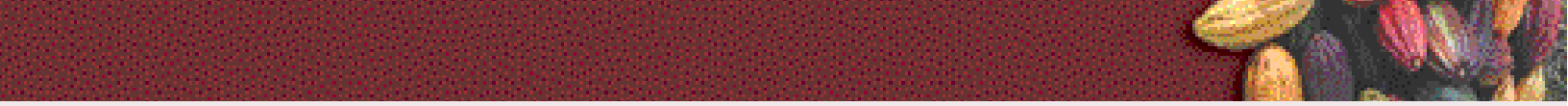


Preface

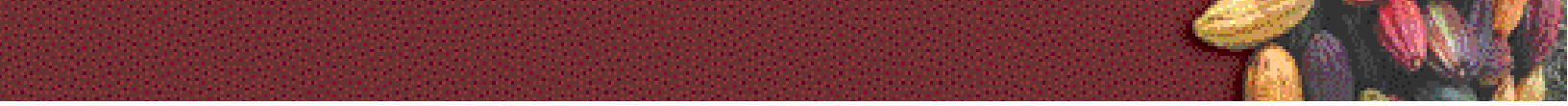
Cacao selection by the indigenous peoples of the Americas and by farmers has been ongoing for centuries. Active cacao breeding by researchers began in the mid 1930s in efforts to increase disease resistance and improve crop agronomic qualities. Traditional cacao breeding has been only marginally successful. The use of a narrow genetic base, mislabeling in breeding/germplasm collections, and the disruption in the continuity of breeding programs due to programmatic and political changes are major contributing factors.

This Field Guide to the ICS Clones of Trinidad will be the first of a series dedicated to concisely presenting all available knowledge on cacao populations and collections. This guide presents detailed information on pod morphological descriptors, methods used to image pods, SSR genotyping and quantitative data. Additional information is available on pod morphological descriptors, quantitative data generation (Frances Bekele fbekele@fans.uwi.tt), SSR fingerprinting (R. J. Schnell miars@ars-grin.gov; Lizz Johnson ljohnson@catie.ac.cr), pod imaging and photo editing (Lizz Johnson ljohnson@catie.ac.cr).

The information presented in this Field Guide was generated by the efforts of individuals from the Cocoa Research Unit of The University of the West Indies, Trinidad and the USDA-ARS in Beltsville, MD and in Miami, FL, USA. It is a reflection of the collaborative spirit in support of cacao research, between researchers at these institutions and donors (Government of the Republic of Trinidad and Tobago, the BCCCA and the USDA).

Ray Schnell
Lizz Johnson

Contents



Introduction

This Field Guide to the Imperial College Selections (ICS clones) of Trinidad, the first of its kind, is a compendium of the agronomic, morphological descriptor and molecular data on a recognized cacao population. It is a tool designed to facilitate rapid identification of the ICS clones, with worldwide distribution, in both field and laboratory applications and to assist in the decision making processes when choosing ICS clones as parents. It is impossible to present in this guide all the data generated over decades of research on the ICS clones. Readers are directed to the compilation of abstracts prepared by Posnette (1986) to locate literature on specific areas of research on the ICS clones.

The Field Guide begins by summarizing Pound's disclosed goals in making the selections. This is followed by the methodology of generating pod images, simple sequence repeat (SSR) fingerprints and some descriptive statistics to aid in interpreting the genetic relationships among the ICS clones. The Field Guide culminates with a presentation of pod images of the remnant original ICS clones located in Trinidad, accompanied by their Profile and SSR fingerprint. The Profile for each ICS clone consists of pod morphological descriptors, compatibility and yield data. The descriptors used are those endorsed by the International Plant Genetic Resources Institute (IPGRI) formerly the IBPGR (Anon, 1981).

Prior to 1727, Trinidad grew Criollo cacao, most of which was destroyed in a catastrophic event referred to as a "blast". About 30 years later Forastero cacao was introduced and through hybridization with the remnant Criollo types resulted in the variation observed in the crop of the 1930's (Pound, 1931). At that time Pound estimated that Trinidad had approximately 50 million cacao trees containing almost every combination of characters known to cacao from Angoletas to types scarcely distinguishable from Criollo to typical Calabacillo (Pound, 1931). His goal was to survey about 0.1% or 50,000 trees to obtain a truly representative sample of the whole population while not overlooking outstanding combinations of desirable characters (Pound, 1931). A comprehensive review on the Criollos and the nomenclature and reclassification of the different types of cacao is given in Cheesman (1944).

The Imperial College Selections were made by F.J. Pound from 1933 to 1935 (Posnette, 1986). Eighteen trees (ICS 1, 2, 3, 4, 5, 6, 8, 18, 19, 21, 22, 29, 30, 31, 32, 98, 99 and 100) were selected in 1933 and described as being extremely efficient (Pound, 1933). In 1934 a further 18 (ICS 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 24, 25, 26, 27, 28, 33 and 97) were selected. These 36 clones, chosen after surveying some 250,000 trees (Pound, 1934), were selected for high yield and good quality as shown by bean size (Pound,

1936). The selection of another 64 trees in 1935 completed the 100 ICS clones (Pound, 1936). Pound observed the trees (between 15 to 30 years of age at the time) for up to two years in the farmers' fields for yield and quality. The data were briefly presented in his descriptions of the 100 selected trees (Pound, 1934; ibid, 1936). He also relied heavily on observations made by researchers with the Department of Agriculture, Trinidad and Tobago.

At the time the selections were made, the Trinidad cacao population was comprised of descendants of hybrids between the numerous introductions to the island and represented over 500 years of cultivation and farmer selection (Cope and Bartley, 1954). Though the population as a whole succumbed to C. perniciosa (Stahel) and P. palmivora (Butler) isolates in Trinidad, there was considerable variation in susceptibility (Cope and Bartley, 1954).

These selections were subsequently characterized as clones in replicated field trials at River Estate in Diego Martin of the then Trinidad and Tobago Department of Agriculture and at the privately owned San Juan Estate (SJE) in Gran Couva, Trinidad from 1945 to 1951. At the San Juan Estate, the 100 ICS clones were planted in five replicated blocks, also called the Cheesman Fields, in serial order. Most of the trees started to produce fruit in the fourth year. Thirteen clones (ICS 3, 15, 18, 19, 23, 29, 30, 33, 36, 42, 58, 59 and 88) were omitted from further analyses because two or more of the five clonal trees died within the course of the field trials (Jolly, 1953). Replanting of dead trees with cuttings of several types commenced in other experiments on the estate in 1936 (Anon, 1938) to maintain production on the estate. The owners kept a record of which trees were replaced in the Cheesman Fields. In 2001, only 57 of the original ICS clones remained at the San Juan Estate.

Pod collection, morphological description and imaging

Pod collection and imaging were conducted between 2001-02. Pods were harvested from the same branch from which leaf samples were collected for molecular analyses. Mature unripe and ripe pods were harvested only from trees with a minimum of 10 pods of the true ICS clones (Table 1) to represent the most common morphology and size. The part of the tree sampled for pod and leaf materials was labeled with a permanent blue metal label bearing the clone name. Pods were labeled on the least photogenic area and carefully wrapped in heavy-duty bubble wrap bags (Figure 1) to minimize damage during transport.

Prior to imaging, each ICS clone genotype was verified using its pod description (Pound, 1934; ibid, 1936) and the stalk cropped to the level of the base. As far as possible, pods were imaged on the same day collected. In a few instances pods were incubated in a ripening box (cardboard box filled with Styrofoam packing peanuts) for a few days at room temperature to allow full color development of the ripe pod.

Pod morphological descriptors in the Profile for each pod in the image library were made based on a sample size of at least four pods following the convention described in the IBPGR descriptor list for cacao (Anon, 1981). The quantitative data in the Profile were based on measurements of pods taken over a period of 10 years. Pods were collected from plots containing clonally replicated trees of each ICS clone at the International Cocoa Genebank, Trinidad (ICG,T).

Pods were imaged on black velvet under fluorescent lighting to show their shape and the degree and distribution of pigmentation with a centimeter ruler and Kodak Color Separation Guide Q13 (Kodak, Rochester, NY). Both the ruler and the Kodak Color Guide were mounted to be at the level of the upper surface of the pod. Four-foot fluorescent lamps were mounted on all 4 walls of the area surrounding the camera stand. Pods were imaged with a stand mounted Nikon Coolpix 950 digital camera using the Automatic setting without flash. It is best to image the same pod from at least two aspects, to give flexibility in choosing the image most representative of a genotype's pod morphology. Images were cropped to the desired size and straightened when necessary using Adobe Photoshop 5.0 (Adobe Systems Inc. San Jose, CA). No color modifications or enhancements were performed.

Figure 1: Pod transport bags made from heavy-duty bubble wrap (1.3 cm bubble height) sheet held together with plastic packaging tape. Paper towels were placed in the bags to absorb water transpired by the pod during transport. Bubble wrap sheets were recycled packaging materials shipped with lab supplies

DNA Extraction, PCR amplification and Electrophoresis

Total genomic DNA was extracted from 150 mg of fully expanded, recently hardened young leaves (lacking flush color) using the FastPrep FP120 and Fast DNA Kits and protocol (Qbiogene, Inc., Carlsbad, CA) and standardized by spectrometry to 2.5 ng/µL. PCR amplifications were performed with thirteen fluorescent microsatellite primers in the following multiplexed groups (mTcCIR12, mTcCIR15, mTcCIR21), (mTcCIR6, mTcCIR25), (mTcCIR1, mTcCIR18) and separately mTcCIR3, mTcCIR9, mTcCIR17, mTcCIR19, mTcCIR24, mTcCIR26. The primers, developed by CIRAD (Lanaud *et al.*, 1999), were used in 10 µL or 25 µL PCR reactions, for single and multiplexed reactions respectively, containing at final concentration 1X PCR buffer with 15 mM $MgCl_2$ (Applied Biosystems, Inc., Foster City, CA), 200 µM dNTP, 1 mg BSA, 200 nM of each Forward and Reverse primer, 0.5 U AmpliTaq DNA polymerase (Applied Biosystems, Inc., Foster City, CA), 2.5 ng of DNA template.

PCR amplifications were performed on a DNA Engine Tetrad (MJ Research, Inc., Watertown, MA) using either a T_A of 46 ° or 51ºC in the cycling protocol 1 cycle of 94 ºC for 4 min, 32 cycles of 94 ºC for 30 sec, primer T_A for 1 min and 72 ºC for 1 min. For multiplexed primers amplification was performed for an additional cycle of 65 ºC for 3 min before the 4 ºC holding cycle. For electrophoretic separation 1 µL of amplification product, 12 mL Hi-Di Formamide and 0.2 µL Rox 500 size standard (Applied Biosystems, Inc., Foster City, CA) was denatured at 95 ºC for 5 min and placed immediately on ice. Electrophoresis was performed on either the ABI 310 or ABI 3100 automated sequencer in 36 cm capillaries using POP4 polymer at 60 ºC injection parameters, 15 kV for 5 sec and run parameters 15 kV.

SSR allele calling, binning and verification

Each primer generated either one peak in clones homozygous at the locus being amplified or two peaks in heterozygous individuals (Figure 2). Allele calling and sizing were accomplished using GeneScan and Genotyper 3.7 software (Applied Biosystems, Inc., Foster City, CA). Allele sizes were standardized between runs by binning, i.e. allele bin 285 for primer mTcCIR9 will contain fragments ranging in size from 284.09 to 285.63 base pairs. Allele bins were developed at the USDA-SHRS in Miami.

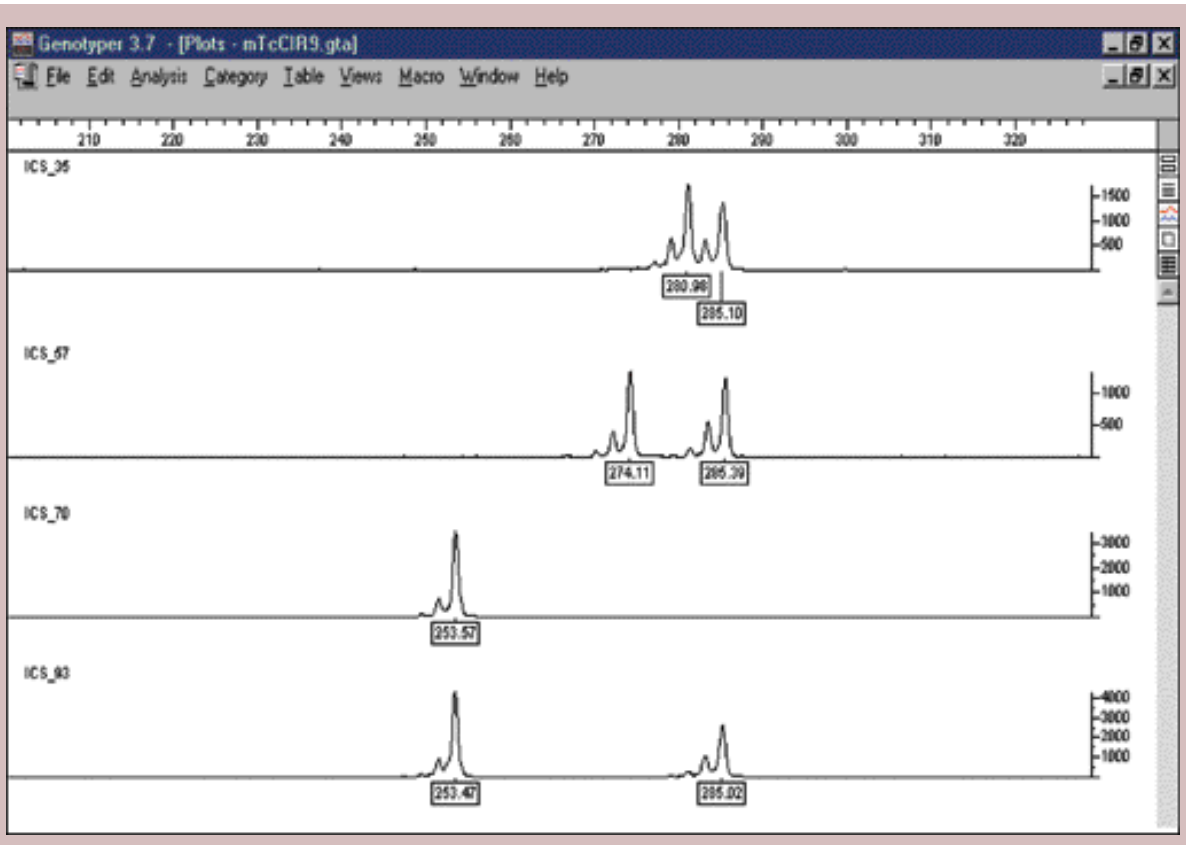


Figure 2: Electropherogram showing alleles amplified by primer mTcCIR9 for ICS clones selected to show degree of polymorphism and fragment size range in allele bin 285 observed at this locus. Either one or two peaks were generated in the expected size range for all 13 primers. Thus far, primer mTcCIR3 exhibits the largest number of allele bins spanning 70 base pairs.

SSR fingerprints for all ICS clones were corroborated by analyses on a Beckman CEQ at the USDA in Beltsville for a subset of the primers. In all cases the allele sizes called by the CEQ's software were larger than that called by the ABI's software. After applying the conversion factors (mTcCIR1: –1bp, mTcCIR 6, 12, 24 and 26: –4 bp, mTcCIR15: -5 bp, mTcCIR18: -3 bp) to the CEQ's allele sizes, the data generated for each clone was the same on both automated sequencers. Rare alleles were validated in putative ancestral accessions (data not shown, but will be published in a later study).

Statistical analyses

Principal Co-ordinate Analysis (PCO) was performed using the UPGMA algorithm with Jaccard coefficient using InfoGen ver 1.0 (Info-Gen, 2003). The distance matrix generated by the Jaccard coefficient had a 91% cophenetic correlation with the data and the plot of the first two co-ordinates (Figure 3) explains 29% of the total genetic variation. Bootstrapping was performed using WinBoot (Yap and Nelson, 1996).

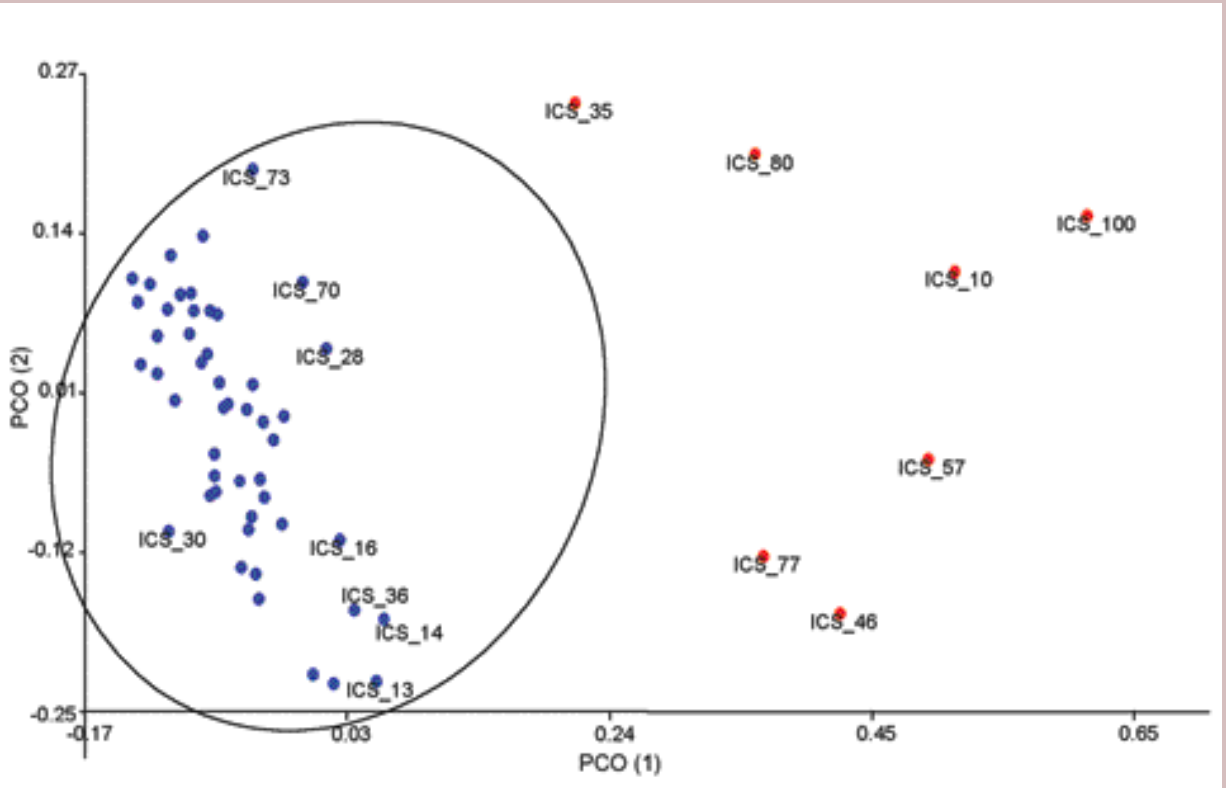


Figure 3: Principal Co-ordinate Analysis plot for the 57 ICS clones based on 64 alleles generated by 13 SSR primers. There is an 86% bootstrap support in 800 permutations for the cluster of ICS clones indicated by blue dots and encircled.

Results and Discussion

The PCO analysis on the SSR data clearly shows the precision Pound achieved in selecting the ICS clones based on yield. The selection criteria for the ICS clones were aimed at producing three classes of exceptionally heavy bearers, those producing 30 pods per annum, and those with good yield but with small pods, retained for research purposes rather than commercial value. The second class would also consist of trees producing 50 to 100 pods per annum requiring 16.5 pods or less per kg of dry beans and the third consisting of trees producing 100 to 200 pods per annum with average bean dry weight of 1.0 to 1.2 grams (Posnette, 1986).

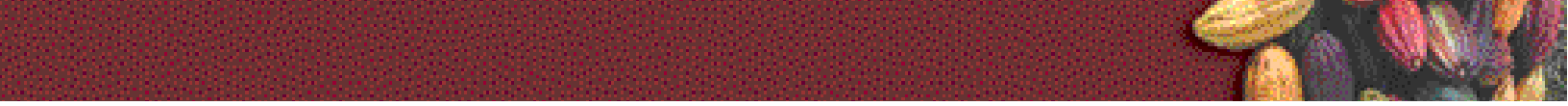
Most of the ICS clones share a number of ancestors in common, but the original Trinitario population has greater genetic diversity. Trinitario accessions from 17 countries were shown by molecular marker analyses to share genetic backgrounds represented by the accessions SP 1 [VEN] (Venezuelan Criollo), MATINA 1-6 (from the Matina region of Costa Rica) and the Brazilian Forastero SIAL 70 (Motamayor et al., 2003). The results of studies conducted to trace the progenitors of the ICS clones will be published separately.

There is significant statistical support, 86% of the permutations or trees generated by bootstrapping, for the separation of the clones indicated by the red dots away from the main group, represented by blue dots and circled. Other associations with considerable bootstrap support include ICS 13 and ICS 14 (63%), ICS 81 and ICS 48 (63%), ICS 63 and ICS 92 (58%) indicating that paired clones are genetically closely related though they are quite different in pod morphology. Progenies generated by these pairs will not perform well and may, in fact, show inbreeding depression. The efficacy of this analysis is further supported by the twenty years of breeding trails performed using the clones as parents.

The clones were screened for agronomic traits in the CRB (Cacao Randomized Block) experiments 1939 to 1945 (Cheesman, 1947), up to 1951 (Jolly, 1953). Progeny trials of eight of the better performing clones divided into Criollo group (ICS 39, 45 and 60) and Trinitario group (ICS 1, 6, 8, 89 and 98) were quite disappointing. In most intra-Criollo crosses development was poor and the progenies were extremely susceptible to Witches' Broom and Ceratocystis wilt. Consequently, breeding with Criollos for cultivar development was discontinued (Bartley, 1969).

The results of our analyses show that the 8 clones used in the progeny trials are all closely related. As such the progenies of these trials were genetically closely related and were possibly exhibiting inbreeding depression indicated by the lower yields of the hybrids compared to the parents. Progenies between these 8 clones and ICS 10, 35, 46, 57, 77, 80 and 100 may perform better, but these crosses were never done. Greater effects of heterosis were realized in crosses between the ICS clones and the genetically different materials Pound collected in the Amazon Valley from 1937-38 (Montserin *et al.*, 1957).

While morphological descriptors are extremely useful to an experienced user for identifying cacao accessions, they fall short of depicting the genetic relationships within populations. The ICS clones exhibit a wide range of pod morphological characteristics from Criollo to Forastero, but share the characteristics of good yield and quality. The results of RAPD and RFLP analyses show that morphologically different cacao groups are not necessarily genetically different (Lerceteau et al., 1997; N'Goran et. al., 2000). The results of these studies, as well as the present, strongly support the USDA's efforts in fingerprinting cacao germplasm.



However, within a population such as the Trinitario there are remarkable individuals. For instance, ICS 95 was found resistant to all Monilia isolates in Latin America (Phillips, 2003). It was also observed to be high yielding and very vigorous in Trinidad, and was described by Toxopeus (1969) as yielding well on most soils. ICS 6 and ICS 60 possess high tolerance to witches broom disease showing high vegetative susceptibility with good pod resistance (Cheesman, 1947). The tolerance in ICS 60 to witches broom disease was still holding after 60 years of disease pressure (E. Johnson field observation at San Juan Estate, 2001). All three clones fall within the genetically closely related group in our analyses and show no statistically significant associations by bootstrapping for the loci under study. Therefore there is a strong need to evaluate existing cacao germplasm.

Rapid progress in breeding new and improved cacao cultivars can best be achieved through a combination of molecular analyses, disease screening and field trials. Molecular marker tools can be used to choose genetically diverse parents to take advantage of heterosis to improve agronomic characters such as yield. Robust disease screening methodologies are needed to identify resistant individuals within genetically closely related groups and finally field trials will identify individuals with the best synergism of desirable characteristics for cultivar release.

The prohibitive cost of cacao field trials and scarce resources for research are major limiting factors to the rapid development and release of new cultivars in this tree crop. Compendia, such as this Field Guide, can be used as a vehicle to concisely present all available information on cacao materials of interest facilitating the decision making process when developing new cultivars. The pod image library with accompanying Profile and SSR fingerprint, which follows, also facilitates rapid identification of the Field Guide's subject material.

Acknowledgements

The authors wish to recognize and express sincere gratitude to Gillian Bidaisee, Clare Bowen-O'Connor, William Mollineau and Antoinette Sankar of the Cocoa Research Unit (CRU), UWI and Allan Meneses of CATIE, Costa Rica for technical assistance. We would also like to express our gratitude to Winston Maharaj retired from CRU for re-mapping the fields at the San Juan Estate (SJE) and the ICG,T. Many thanks also to Mr. Philippe Agostini, former owner of the SJE, for generously donating part of his cacao estate's income in the form of harvestable pods. Special thanks to Dr. Jim Saunders and Emily Leamy (formerly with the USDA) and Dr. Sue Mischke of the USDA Beltsville for analyses performed on the CEQ. We would also like to thank Dr. David Butler, Head Cocoa Research Unit for facilitating part of this work at CRU. Sincere thanks to all whom have reviewed and help make the Field Guide a better document, especially Dr. Rob Lockwood for his comments and useful discussions. The efforts of Nannette Langevin and Dr. Juan Carlos Motamayor of the USDA-SHRS Miami in developing the allele bins are recognized and sincerely appreciated. The authors wish to express our sincere gratitude to the Government of the Republic of Trinidad and Tobago, the BCCCA and the USDA for funding this research.

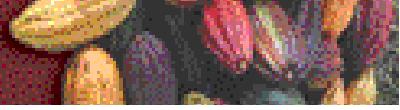


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Table 1: The 57 original ICS clones at the San Juan Estate, Trinidad in 2001-2002 with Pound's observations (Pound 1933 to 1936). * and ** indicate clones making first and second rounds of selection, respectively, all other clones listed were among the final 64 selected.

Clone	Area occupied by Tree	Pods per annum	Excerpts from F.J. Pound's notes
ICS 1*	4.2 m X 4.2 m	106	Produces superior beans.
ICS 4*	6.1 m X 6.1 m	180	Bears pods in clusters all the way up the trunk.
ICS 5*	4.2 m X 4.2 m	70	Good bearer producing very superior beans.
ICS 6*	3.7 m X 3.7 m	54	Only 1 year's crop recorded. Individual wet bean weight of 5 g.
ICS 7**	3.7 m X 3.7 m	53	Sets fruit early.
ICS 8*	4.9 m X 4.9 m	200	An F_2 selection. Tolerates frequent flooding. Beans are exceptionally large. Pods can reach 21 cm X 10.5 cm in size.
ICS 9**	4.2 m X 4.2 m	70	Bean number per pod varies between 20 to 40.
ICS 10**	Large	150	Heavy bearer, tolerates flooding.
ICS 11**	5.4 m X 5.4 m	145	Ancestry not of Trinidad. Sets fruits continuously. Individual wet bean weight of close to 5 g.
ICS 13**	3.6 m X 3.6 m	55	Pods attacked by thrips.
ICS 14**	4.2 m X 4.2 m	70	Tree in same area as ICS 13 and ICS 15.
ICS 15**	3.6 m X 3.6 m	60	Beans are plumper than those of ICS 14.
ICS 16**	3.6 m X 4.2 m	60	Tree habit low and spreading.
ICS 18*	4.2 m X 4.2 m	50	Tree planted as a supply. Similar in Type to ICS 5.
ICS 20**	3.6 m X 4.2 m	70	Sets fruit early. Individual bean wet weight is 4.4 g.
ICS 25**		58	Sets fruit early. Known as a producer of superior beans.
ICS 26**	4.5 m X 4.5 m	100	Heavy bearer.
ICS 28**	5.4 m X 5.4 m	150	Heavy bearer for 10 years and used as replanting stock. Believed to have many Criollo genes because of pod color, shape and warty surface.
ICS 30*	4.2 m X 4.2 m	80	High bearer.
ICS 34	4.2 m X 4.2 m		Heavy bearer with fine pods. Tolerates flooding and considered to have potential.
ICS 35	4.2 m X 4.2 m	99	Heavy bearer.
ICS 36	5.4 m X 5.4 m	148	Probably of Nicaraguan ancestry.
ICS 40	3.6 m X 3.6 m	50	Nicaraguan ancestry, produces very fine beans.
ICS 42	5.1 m X 4.8 m	100	Nicaraguan ancestry. Apex terminates in conspicuous bulbous union of ridges (Frances Bekele). Used as parent to supply missing trees.
ICS 43	4.2 m X 4.2 m	105	Possibly combines, very high quality with vigour and high yield.
ICS 44	5.4 m X 5.4 m	97	Good bearer.
ICS 46	3.6 m X 3.3 m	54	Nicaraguan ancestry.

Table 1 Cont'd: The 57 original ICS clones at the San Juan Estate, Trinidad in 2001-2002 with Pound's observations (Pound 1933 to 1936). * and ** indicate clones making first and second rounds of selection, respectively, all other clones listed were among the final 64 selected.

Clone	Area occupied by Tree	Pods per annum	Excerpts from F.J. Pound's notes
ICS 48	3.6 m X 3.6 m	50	Nicaraguan ancestry. Possible sib of ICS 46 and ICS 47.
ICS 50	6.1 m X 6.1 m	150	Used as supply to replace trees. Tolerates flooding.
ICS 51	5.4 m X 6.1 m	200	Known as a heavy bearer for several years.
ICS 57	3 m X 3 m		Sib of heavy bearing tree.
ICS 59		100	Exceptional bearer.
ICS 60	3.6 m X 3.6 m	54	Nicaraguan or Venezuelan Criollo ancestry. Thrives without windbreak or shade.
ICS 63	4.8 m X 4.8 m	86	Tall tree. Pods are usually bottlenecked.
ICS 65	3.6 m X 3.6 m	70	Prone to Cherelle wilt. Beans are fairly plump.
ICS 66		96	Heavy bearer indicated by masses of cushions.
ICS 69	4.5 m X 4.5 m	89	Was late in setting 1935-36 crop.
ICS 70	4.2 m X 4.2 m	78	Only 5 furrows in mature pods. Flooded for half the year.
ICS 71	Large tree	92	Beans are Large (6 g to 7 g each). Pods attacked by Squirrels.
ICS 72	4.2 m X 4.2 m	80	Low bean number like ICS 71.
ICS 73		80	Only 5 furrows in mature pods. Beans up to standard.
ICS 75	5.1 m X 5.1 m	100	Sib of ICS 74.
ICS 77	4.5 m X 4.5 m	88	
ICS 80	4.2 m X 4.5 m	72	Large tree.
ICS 81	5.4 m X 5.4 m	200	Large and vigorous tree. Beans are large and plump.
ICS 82	5.4 m X 5.4 m	100	Exceptional vegetative vigour and good cropping powers.
ICS 84	4.8 m X 4.8 m	198	Similar to ICS 83 in growth habit and bearing. Yields fluctuates from 150 to 246 pods per annum.
ICS 86	5.4 m X 5.4 m	140	Yields are consistent.
ICS 87	5.1 m X 5.1 m	152	Beans are large and plump. Good bearer.
ICS 89		170	Large tree.
ICS 92	3.6 m X 3.6 m	73	Fairly large pod to pod variation.
ICS 93	3 m X 3 m	36	Seedling supply. Tree was only 9 yrs old.
ICS 94	7.2 m X 7.2 m	252	Tree was located on bad gravel soil.
ICS 95	4.2 m X 4.2 m	85	Described as an efficient type of tree.
ICS 97**	6 m X 6 m	200	Shell is thin. Yields well in potash deficient soils.
ICS 98*	6.1 m X 6.1 m	200	Tolerates flooding.
ICS 100*	5.4 m X 5.4 m	191	Yield per annum over 10 years. Beans are very large. Not recognized as Criollo type.

Appendix

List of abbreviations and scale used in Pod Image Library:

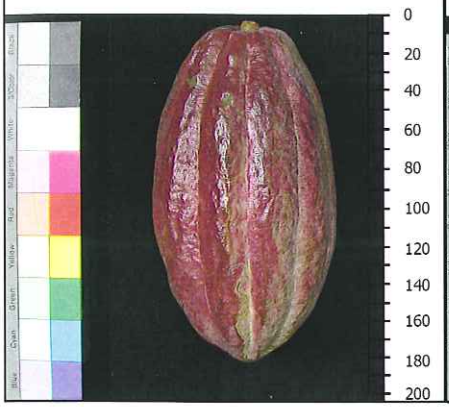
Clone name:	ICS – Imperial College Selection
Scale:	Ruler is in millimeters.
Pod Size:	S – Small pod ranging in size from 12 cm to 14.9 cm M – Medium pod ranging in size from 15 cm to 16.9 cm L – Pod greater than 17 cm long
Basal Constriction:	Sli. to Int. – Slight to Intermediate Int. to Str. – Intermediate to Strong
Compatibility:	SC – Self-compatible SI – Self-incompatible
Missing Data:	Blank spaces.

Interpretation of SSR Fingerprint Data:

1 allele in SSR Fingerprint:	Clone is homozygous at that locus having 2 copies of the same allele.
2 alleles in SSR Fingerprint:	Clone is heterozygous at that locus having 2 different alleles.

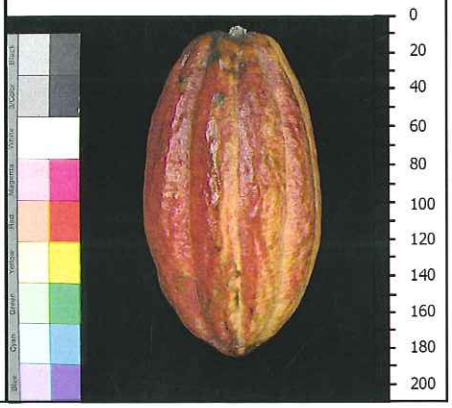
San Juan Estate, Trinidad

ICS 1 Block 4



San Juan Estate, Trinidad

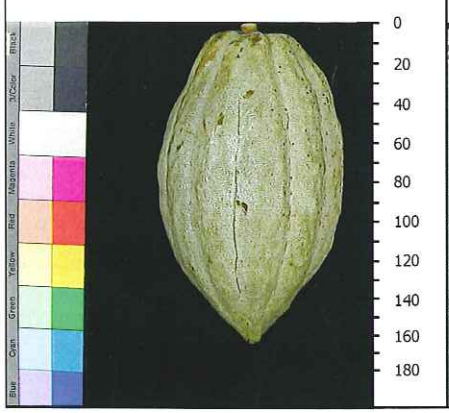
ICS 1 Block 4



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 206, 217
Basal Constriction	Intermediate	mTcCIR6	- 228, 246
		mTcCIR9	- 285
Pod Size	M	mTcCIR12	- 187, 211
Pod Length (cm)	16.2 ± 0.5	mTcCIR15	- 232, 250
Pod Width (cm)	8.0 ± 0.3	mTcCIR17	- 271, 281
Pod Index	19.88	mTcCIR18	- 331, 344
Bean Number	39 ± 5	mTcCIR19	- 371, 375
Dried Bean Weight (g)	1.29 ± 0.23	mTcCIR21	- 153, 163
		mTcCIR24	- 184
Bean Shape	Plump, Elliptic	mTcCIR25	- 145
Compatibility	SC	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 4 Block 5



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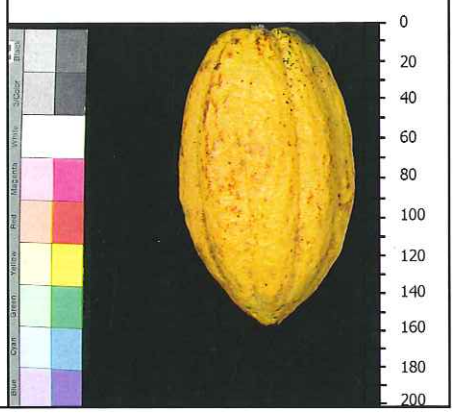
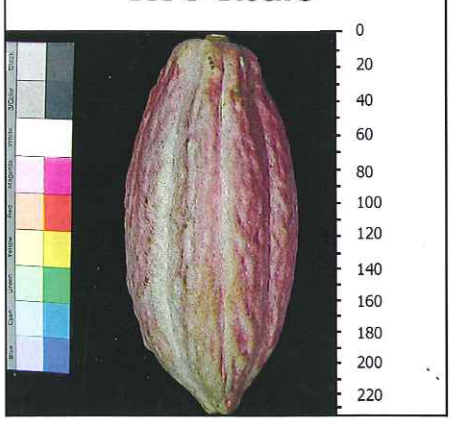
ICS 4 Block 5



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 206, 246
Basal Constriction	Slight	mTcCIR6	- 228, 246
		mTcCIR9	- 285
Pod Size	S-M	mTcCIR12	- 211
Pod Length (cm)	17	mTcCIR15	- 248, 250
Pod Width (cm)	9.5	mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	36	mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153
		mTcCIR24	- 184
Bean Shape	Elliptic	mTcCIR25	- 145
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

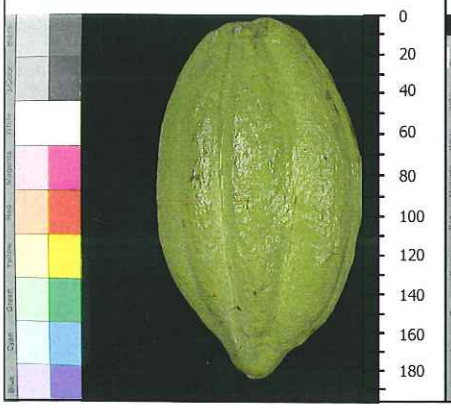
ICS 5 Block 5



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Acute	mTcCIR3	- 206, 246
Basal Constriction	Intermediate	mTcCIR6	- 228, 246
		mTcCIR9	- 285
Pod Size	L	mTcCIR12	- 211
Pod Length (cm)	18.8 ± 1.6	mTcCIR15	- 232, 250
Pod Width (cm)	8.2 ± 0.3	mTcCIR17	- 271, 281
Pod Index	16.98	mTcCIR18	- 331, 344
Bean Number	43 ± 4	mTcCIR19	- 371, 375
Dried Bean Weight (g)	1.37 ± 0.2	mTcCIR21	- 163
		mTcCIR24	- 184, 196
Bean Shape	Plump, Elliptic	mTcCIR25	- 145
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 6 Block 2



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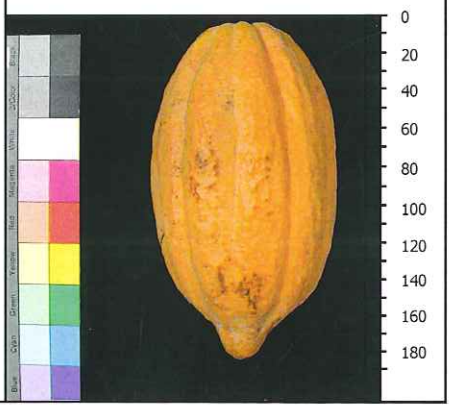
ICS 6 Block 2



Profile	
Pod Shape	Elliptic
Pod Apex	Acute
Basal Constriction	Sli. to Int.
Pod Size	M
Pod Length (cm)	16.6 ± 1.5
Pod Width (cm)	8.7 ± 0.4
Pod Index	17.49
Bean Number	43 ± 6
Dried Bean Weight (g)	1.33 ± 0.11
Bean Shape	Plump, Elliptic
Compatibility	SC

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	217, 246
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	187, 211
mTcCIR15	232, 250
mTcCIR17	271
mTcCIR18	344
mTcCIR19	371
mTcCIR21	153, 163
mTcCIR24	184
mTcCIR25	145
mTcCIR26	296

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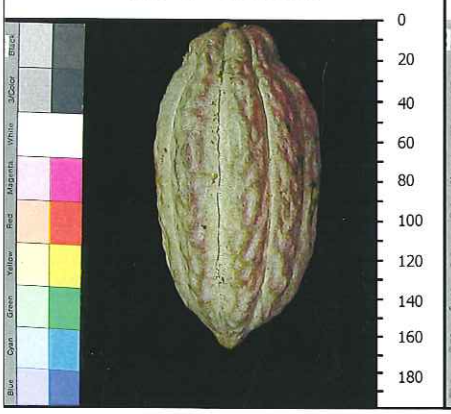
ICS 7 Block 5



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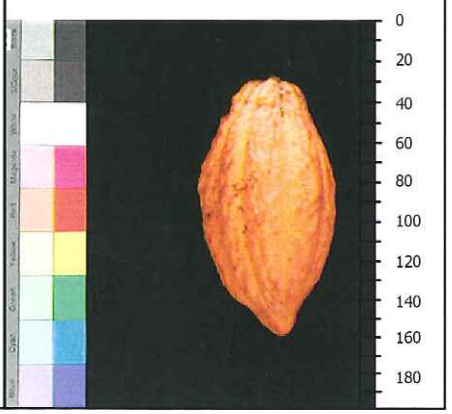
ICS 7 Block 5



Profile	
Pod Shape	Elliptic
Pod Apex	Mammelate
Basal Constriction	Sli. to Int.
Pod Size	S-M
Pod Length (cm)	15
Pod Width (cm)	8.5
Pod Index	
Bean Number	40
Dried Bean Weight (g)	
Bean Shape	
Compatibility	SC

SSR Fingerprint	
mTcCIR1	126
mTcCIR3	206, 246
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	187, 211
mTcCIR15	232, 250
mTcCIR17	271, 281
mTcCIR18	344
mTcCIR19	371, 375
mTcCIR21	153, 163
mTcCIR24	184, 196
mTcCIR25	145
mTcCIR26	296

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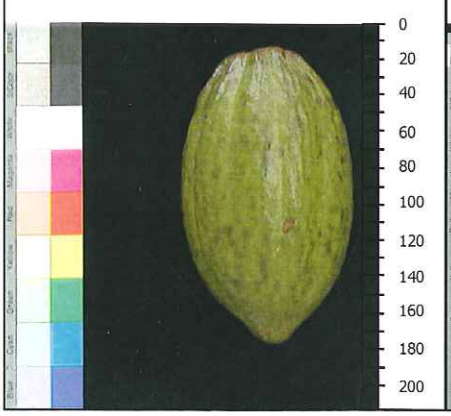
ICS 8 Block 5



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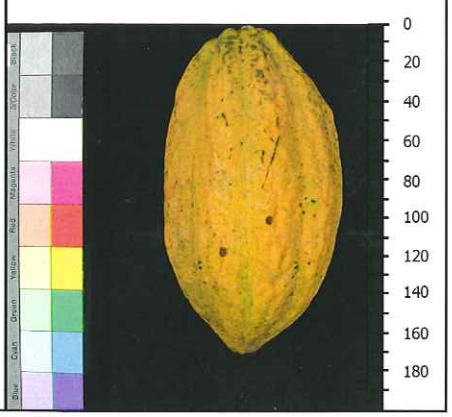
ICS 8 Block 5



Profile	
Pod Shape	Elliptic
Pod Apex	Obtuse
Basal Constriction	Intermediate
Pod Size	M
Pod Length (cm)	15.9± 0.6
Pod Width (cm)	7.7 ± 0.6
Pod Index	16.98
Bean Number	43 ± 4
Dried Bean Weight (g)	1.37 ± 0.29
Bean Shape	Plump, Elliptic
Compatibility	SC

SSR Fingerprint	
mTcCIR1	139
mTcCIR3	206, 217
mTcCIR6	246
mTcCIR9	285
mTcCIR12	187, 211
mTcCIR15	232, 250
mTcCIR17	271, 281
mTcCIR18	331, 344
mTcCIR19	375
mTcCIR21	153
mTcCIR24	184
mTcCIR25	145, 150
mTcCIR26	296, 303

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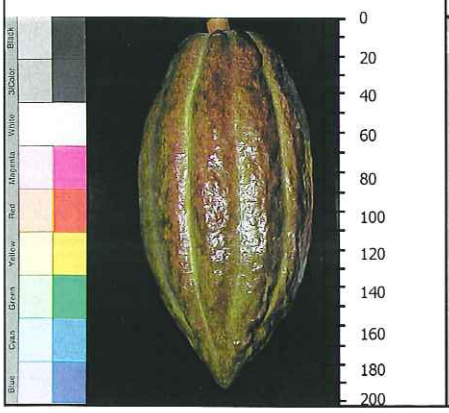
ICS 9 Block 3



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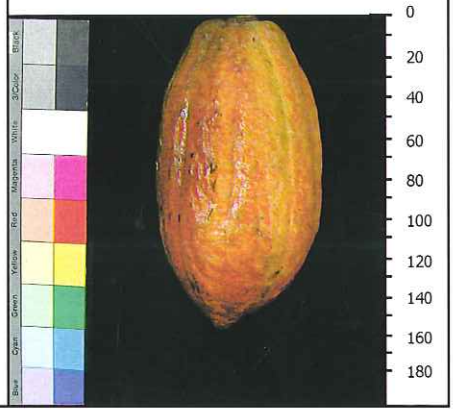
ICS 9 Block 3



Profile	
Pod Shape	Elliptic
Pod Apex	Attenuate
Basal Constriction	Sli. to Int.
Pod Size	L
Pod Length (cm)	18
Pod Width (cm)	7.6
Pod Index	
Bean Number	34
Dried Bean Weight (g)	
Bean Shape	Plump
Compatibility	SC

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	206
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	211
mTcCIR15	250
mTcCIR17	271, 281
mTcCIR18	331, 344
mTcCIR19	371, 375
mTcCIR21	163
mTcCIR24	196
mTcCIR25	145
mTcCIR26	303

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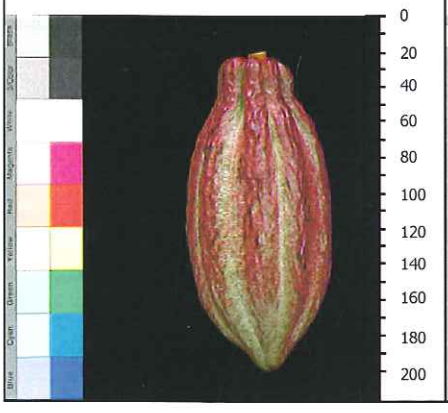
ICS 10 Block 5



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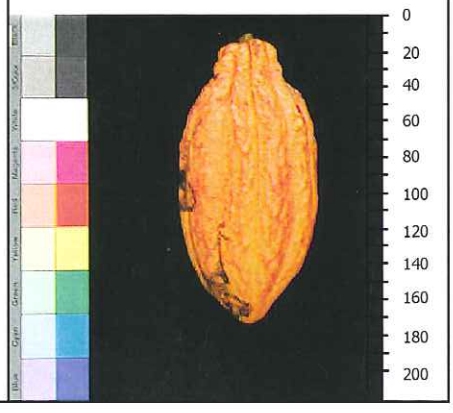
ICS 10 Block 5

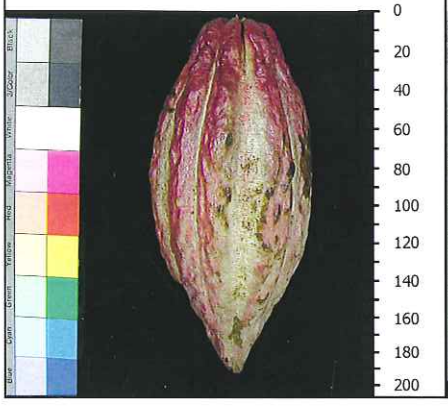


Profile	
Pod Shape	Elliptic
Pod Apex	Acute
Basal Constriction	Int. to Str.
Pod Size	M
Pod Length (cm)	16.4 ± 1.4
Pod Width (cm)	7.6 ± 0.5
Pod Index	22.2
Bean Number	48 ± 8
Dried Bean Weight (g)	0.94 ± 0.15
Bean Shape	Elliptic
Compatibility	SC

SSR Fingerprint	
mTcCIR1	139
mTcCIR3	226, 246
mTcCIR6	228, 238
mTcCIR9	273, 281
mTcCIR12	201, 203
mTcCIR15	232
mTcCIR17	269, 281
mTcCIR18	331, 335
mTcCIR19	371
mTcCIR21	142, 153
mTcCIR24	184
mTcCIR25	132, 152
mTcCIR26	294, 303

San Juan Estate, Trinidad

ICS 11 Block 1



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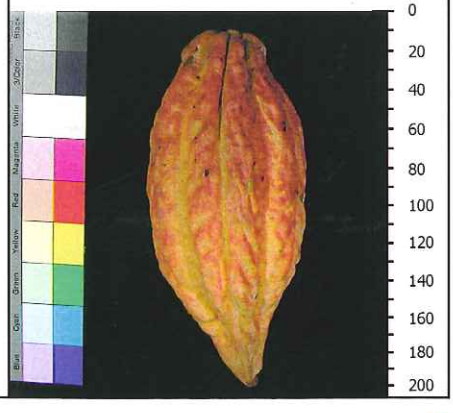
ICS 11 Block 1

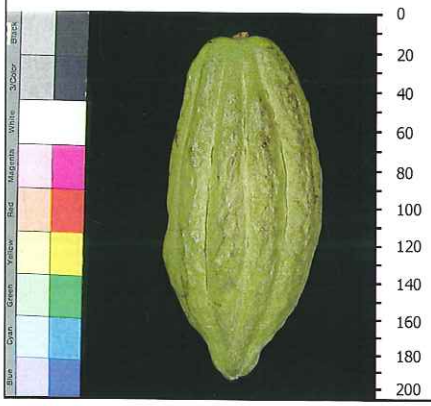


Profile	
Pod Shape	Elliptic
Pod Apex	Attenuate
Basal Constriction	Int. to Str.
Pod Size	L
Pod Length (cm)	
Pod Width (cm)	
Pod Index	17.6
Bean Number	30
Dried Bean Weight (g)	
Bean Shape	Plump, Elliptic
Compatibility	SI

SSR Fingerprint	
mTcCIR1	126
mTcCIR3	206
mTcCIR6	228, 246
mTcCIR9	254
mTcCIR12	187, 211
mTcCIR15	232, 250
mTcCIR17	271, 281
mTcCIR18	331, 344
mTcCIR19	371, 375
mTcCIR21	163
mTcCIR24	184
mTcCIR25	145, 150
mTcCIR26	296, 303

San Juan Estate, Trinidad

ICS 13 Block 5



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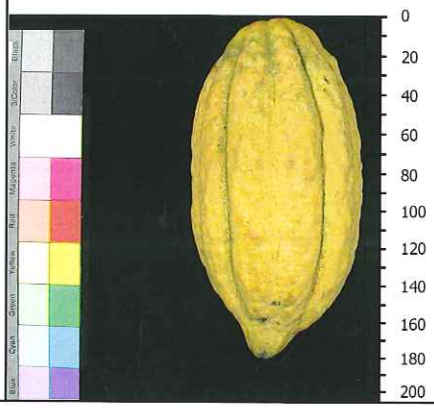
ICS 13 Block 5



Profile	
Pod Shape	Elliptic
Pod Apex	Acute
Basal Constriction	Slight
Pod Size	L
Pod Length (cm)	22
Pod Width (cm)	11
Pod Index	
Bean Number	40
Dried Bean Weight (g)	
Bean Shape	Elliptic
Compatibility	SI

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	217
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	211
mTcCIR15	232, 248
mTcCIR17	271
mTcCIR18	344
mTcCIR19	371, 375
mTcCIR21	153
mTcCIR24	184
mTcCIR25	145
mTcCIR26	296, 303

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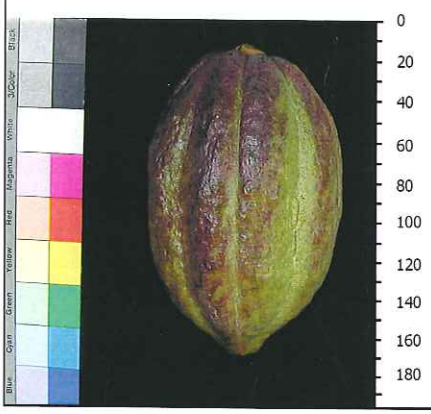
ICS 14 Block 2



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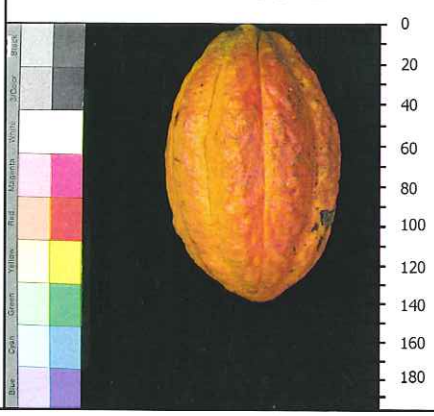
ICS 14 Block 2



Profile	
Pod Shape	Orbicular
Pod Apex	Obtuse
Basal Constriction	Slight
Pod Size	S
Pod Length (cm)	12.7 ± 0.8
Pod Width (cm)	7.9 ± 0.4
Pod Index	26.32
Bean Number	40 ± 5
Dried Bean Weight (g)	0.95 ± 0.22
Bean Shape	Elliptic
Compatibility	SC?

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	217
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	211
mTcCIR15	232, 248
mTcCIR17	271
mTcCIR18	331
mTcCIR19	371, 375
mTcCIR21	153
mTcCIR24	184
mTcCIR25	145
mTcCIR26	296, 303

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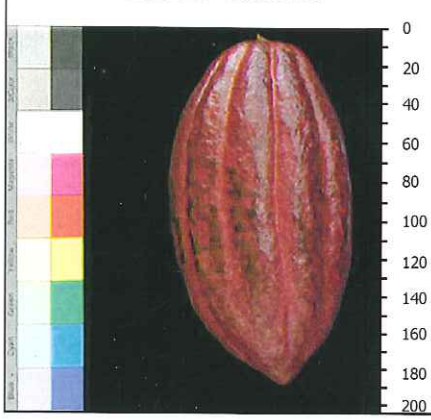
ICS 15 Block 5



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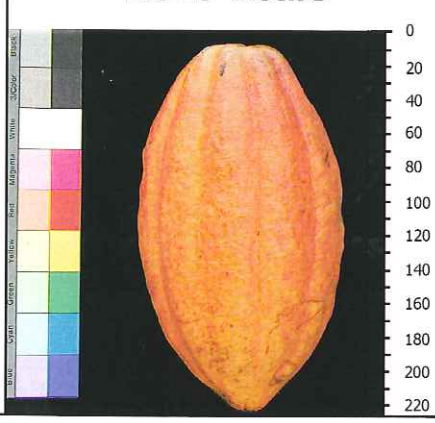
ICS 15 Block 5



Profile	
Pod Shape	Elliptic
Pod Apex	Obtuse
Basal Constriction	Slight
Pod Size	L
Pod Length (cm)	17.7 ± 1.3
Pod Width (cm)	9.3 ± 0.7
Pod Index	20.9
Bean Number	34 ± 6
Dried Bean Weight (g)	1.4 ± 0.2
Bean Shape	Elliptic
Compatibility	SI

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	217
mTcCIR6	228, 246
mTcCIR9	285
mTcCIR12	211
mTcCIR15	232, 250
mTcCIR17	281
mTcCIR18	331, 344
mTcCIR19	371, 375
mTcCIR21	153
mTcCIR24	184, 196
mTcCIR25	145
mTcCIR26	296

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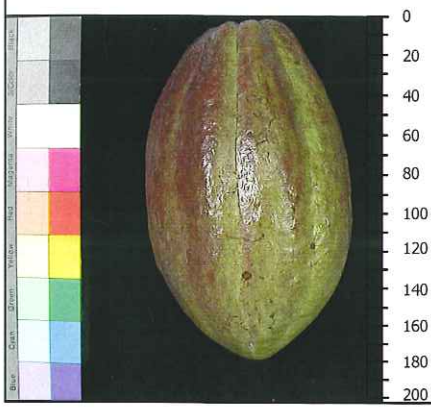
ICS 16 Block 2



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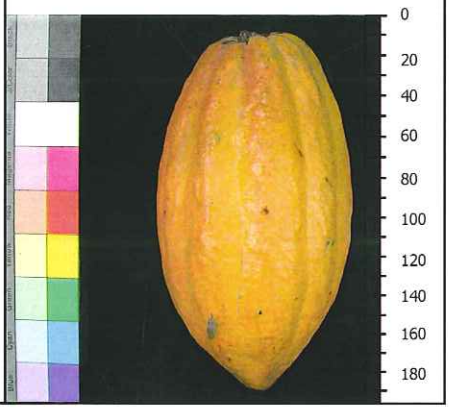
ICS 16 Block 2

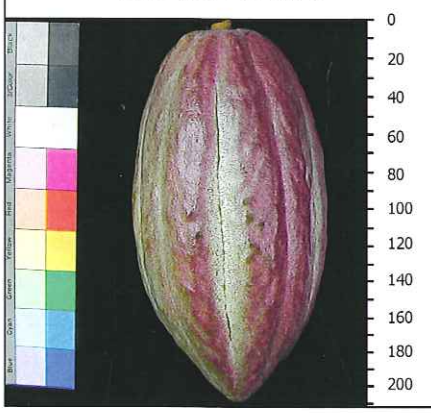


Profile	
Pod Shape	Elliptic
Pod Apex	Obtuse
Basal Constriction	Sli. to Int.
Pod Size	M
Pod Length (cm)	15.3 ± 1.2
Pod Width (cm)	9.3 ± 0.6
Pod Index	17.25
Bean Number	42 ± 5
Dried Bean Weight (g)	1.38 ± 0.2
Bean Shape	Plump, Elliptic
Compatibility	SI

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	217
mTcCIR6	228
mTcCIR9	285
mTcCIR12	187, 211
mTcCIR15	232, 248
mTcCIR17	271, 281
mTcCIR18	331, 344
mTcCIR19	371
mTcCIR21	153, 163
mTcCIR24	184
mTcCIR25	145, 150
mTcCIR26	296, 303

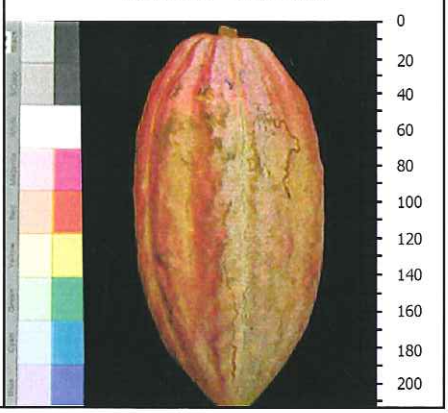
San Juan Estate, Trinidad

ICS 18 Block 5



San Juan Estate, Trinidad

ICS 18 Block 5

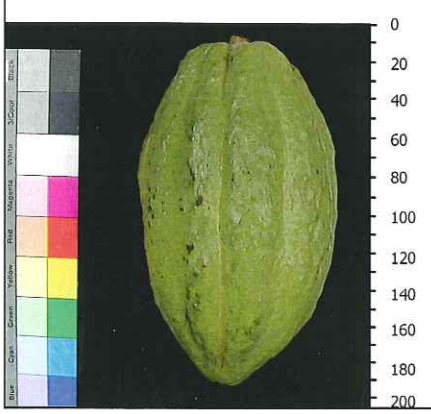


Profile	
Pod Shape	Elliptic
Pod Apex	Obtuse
Basal Constriction	Slight
Pod Size	L
Pod Length (cm)	22
Pod Width (cm)	11
Pod Index	
Bean Number	44
Dried Bean Weight (g)	
Bean Shape	
Compatibility	SC

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	206, 217
mTcCIR6	228
mTcCIR9	254, 285
mTcCIR12	187, 211
mTcCIR15	250
mTcCIR17	271, 281
mTcCIR18	331, 344
mTcCIR19	371
mTcCIR21	153, 163
mTcCIR24	184, 196
mTcCIR25	145
mTcCIR26	296, 303

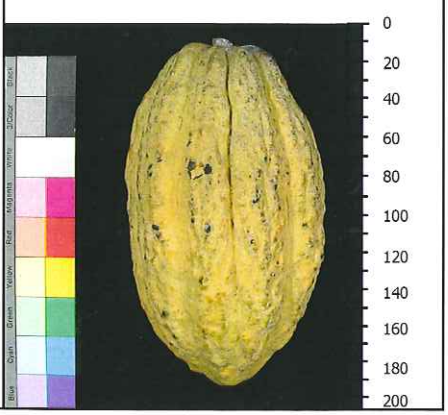
San Juan Estate, Trinidad

ICS 20 Block 2



San Juan Estate, Trinidad

ICS 20 Block 2

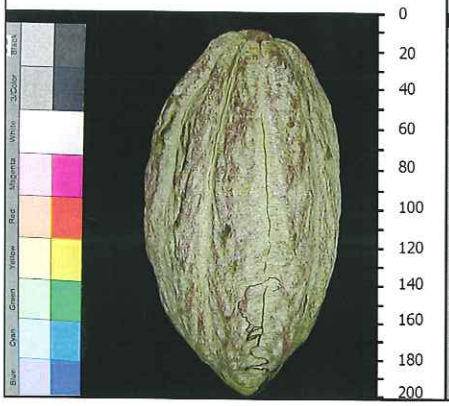


Profile	
Pod Shape	Elliptic
Pod Apex	Indented
Basal Constriction	Intermediate
Pod Size	M-L
Pod Length (cm)	
Pod Width (cm)	
Pod Index	
Bean Number	43
Dried Bean Weight (g)	
Bean Shape	Plump
Compatibility	SI

SSR Fingerprint	
mTcCIR1	126, 139
mTcCIR3	206, 217
mTcCIR6	228, 246
mTcCIR9	254, 285
mTcCIR12	211
mTcCIR15	248, 250
mTcCIR17	271
mTcCIR18	344
mTcCIR19	371
mTcCIR21	153, 163
mTcCIR24	184, 196
mTcCIR25	145, 150
mTcCIR26	296

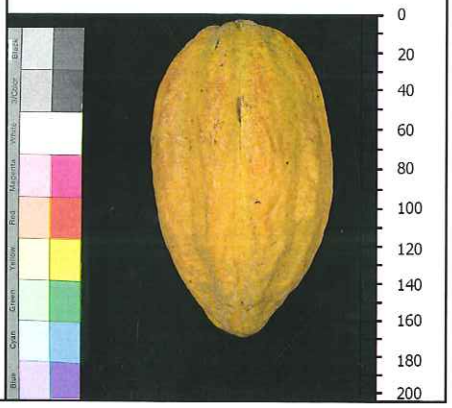
San Juan Estate, Trinidad

ICS 25 Block 1



San Juan Estate, Trinidad

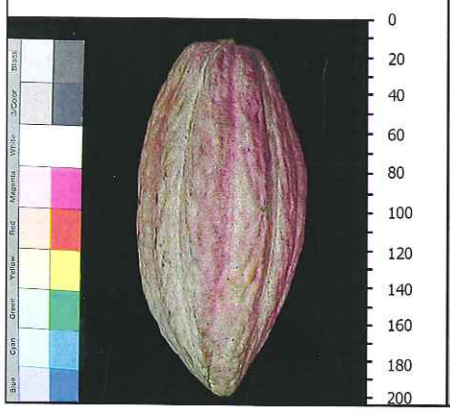
ICS 25 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 206, 215
Basal Constriction	Sli. to Int.	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	S	mTcCIR12	- 187, 211
Pod Length (cm)	14.7 ± 1.3	mTcCIR15	- 232, 250
Pod Width (cm)	7.8 ± 0.6	mTcCIR17	- 271, 281
Pod Index	28.3	mTcCIR18	- 331, 344
Bean Number	34	mTcCIR19	- 371, 375
Dried Bean Weight (g)	0.98 ± 0.17	mTcCIR21	- 153, 163
		mTcCIR24	- 184
Bean Shape	Ovate	mTcCIR25	- 145, 150
Compatibility	SC	mTcCIR26	- 303

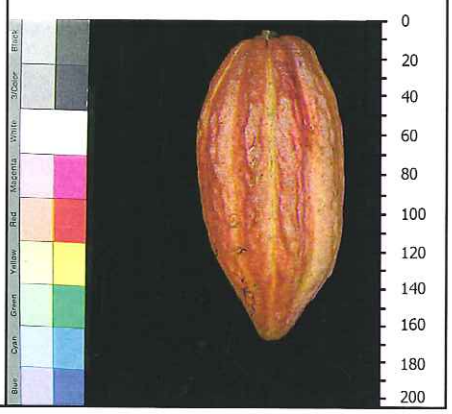
San Juan Estate, Trinidad

ICS 26 Block 3



San Juan Estate, Trinidad

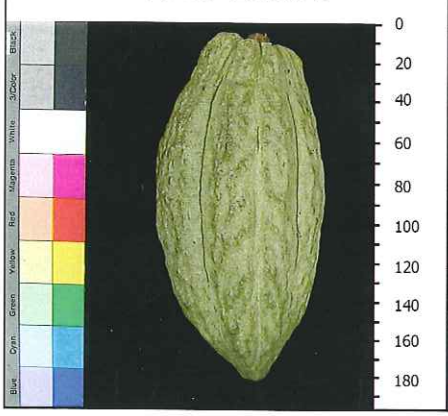
ICS 26 Block 3



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 139
Pod Apex	Acute	mTcCIR3	- 206, 217
Basal Constriction	Slight	mTcCIR6	- 228
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 211
Pod Length (cm)	20	mTcCIR15	- 250
Pod Width (cm)		mTcCIR17	- 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	37	mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153
		mTcCIR24	- 184
Bean Shape	Plump, Elliptic	mTcCIR25	- 145
Compatibility	SI	mTcCIR26	- 296, 303

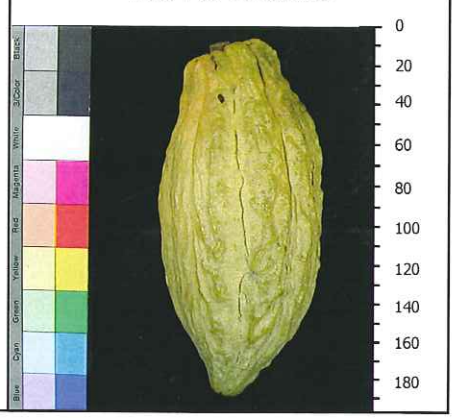
San Juan Estate, Trinidad

ICS 28 Block 5



San Juan Estate, Trinidad

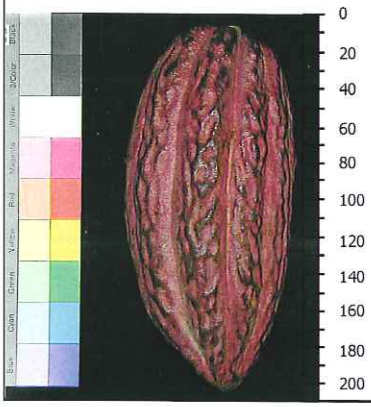
ICS 28 Block 5



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Acute	mTcCIR3	- 206, 215
Basal Constriction	Int. to Str.	mTcCIR6	- 228
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 187, 211
Pod Length (cm)		mTcCIR15	- 232
Pod Width (cm)		mTcCIR17	- 271
Pod Index		mTcCIR18	- 344
Bean Number	40	mTcCIR19	- 371
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 184, 196
Bean Shape	Oblong	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296, 303

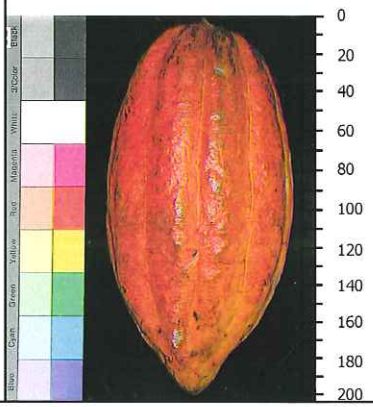
San Juan Estate, Trinidad

ICS 30 Block 1



San Juan Estate, Trinidad

ICS 30 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Acute	mTcCIR3	206, 217
Basal Constriction	Sli. to Int.	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	M	mTcCIR12	187, 211
Pod Length (cm)	15 ± 1.7	mTcCIR15	232, 250
Pod Width (cm)	7.8 ± 0.8	mTcCIR17	271, 281
Pod Index	28.35	mTcCIR18	331, 344
Bean Number	42 ± 6	mTcCIR19	371, 375
Dried Bean Weight (g)	0.84 ± 0.24	mTcCIR21	163
		mTcCIR24	184
Bean Shape	Elliptic	mTcCIR25	145
Compatibility	SI	mTcCIR26	296

San Juan Estate, Trinidad

ICS 34 Block 2

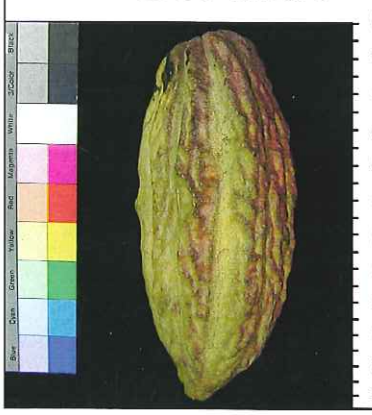
San Juan Estate, Trinidad

ICS 34 Block 2

Profile		SSR Fingerprint	
Pod Shape	Orbicular	mTcCIR1	139
Pod Apex	Rounded	mTcCIR3	217, 246
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	S	mTcCIR12	211
Pod Length (cm)		mTcCIR15	250
Pod Width (cm)		mTcCIR17	271, 281
Pod Index		mTcCIR18	344
Bean Number	40	mTcCIR19	371, 375
Dried Bean Weight (g)		mTcCIR21	153, 163
		mTcCIR24	184
Bean Shape	Elliptic	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296

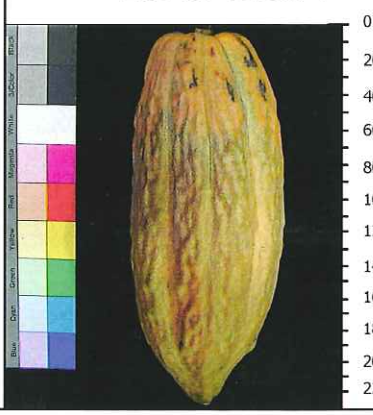
San Juan Estate, Trinidad

ICS 35 Block 4



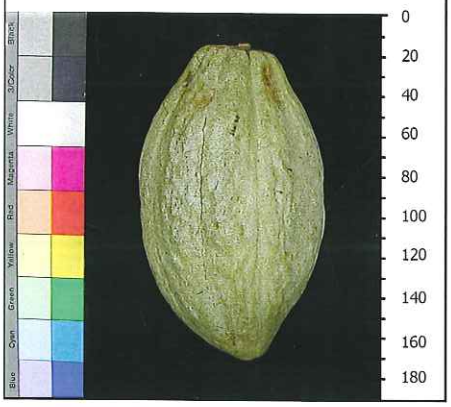
San Juan Estate, Trinidad

ICS 35 Block 4



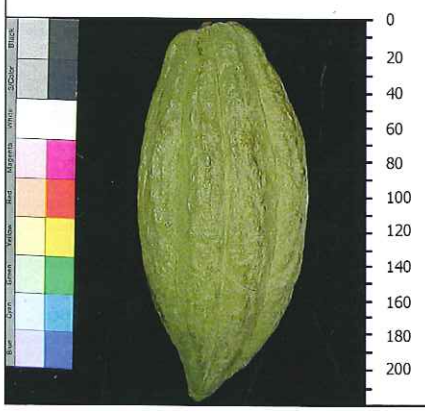
Profile		SSR Fingerprint	
Pod Shape	Oblong	mTcCIR1	126
Pod Apex	Acute	mTcCIR3	217, 224
Basal Constriction	Slight	mTcCIR6	224, 246
		mTcCIR9	281, 285
Pod Size	L	mTcCIR12	187, 209
Pod Length (cm)	18.2 ± 1.8	mTcCIR15	232, 240
Pod Width (cm)	8.0 ± 0.4	mTcCIR17	271, 281
Pod Index	33.69	mTcCIR18	331, 342
Bean Number	28 ± 8	mTcCIR19	367, 371
Dried Bean Weight (g)	1.06 ± 0.09	mTcCIR21	140, 163
		mTcCIR24	192, 196
Bean Shape	Oblong	mTcCIR25	150, 152
Compatibility	SI	mTcCIR26	296, 303

San Juan Estate, Trinidad
ICS 36 Block 4

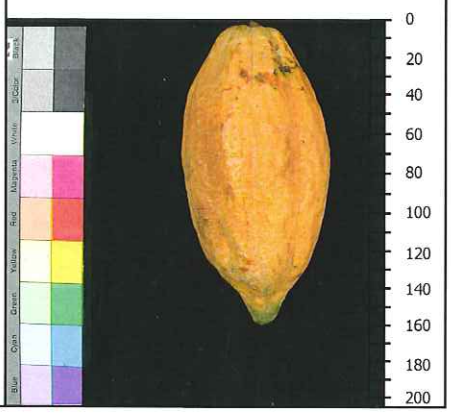


Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Obtuse	mTcCIR3	217
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	M	mTcCIR12	211
Pod Length (cm)		mTcCIR15	248, 250
Pod Width (cm)		mTcCIR17	271, 281
Pod Index		mTcCIR18	333, 344
Bean Number	38	mTcCIR19	371
Dried Bean Weight (g)		mTcCIR21	153
		mTcCIR24	184
Bean Shape		mTcCIR25	145, 150
Compatibility		mTcCIR26	296

San Juan Estate, Trinidad
ICS 40 Block 2



San Juan Estate, Trinidad
ICS 40 Block 2



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Attenuate	mTcCIR3	206, 246
Basal Constriction	Strong	mTcCIR6	228, 246
		mTcCIR9	254, 285
Pod Size	L	mTcCIR12	187, 211
Pod Length (cm)	18.1 ± 2.5	mTcCIR15	232, 250
Pod Width (cm)	7.8 ± 0.5	mTcCIR17	271, 281
Pod Index	20.83	mTcCIR18	331, 344
Bean Number	49 ± 2	mTcCIR19	370, 375
Dried Bean Weight (g)	0.98 ± 0.26	mTcCIR21	153, 163
		mTcCIR24	184, 196
Bean Shape	Plump, Elliptic	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296, 303

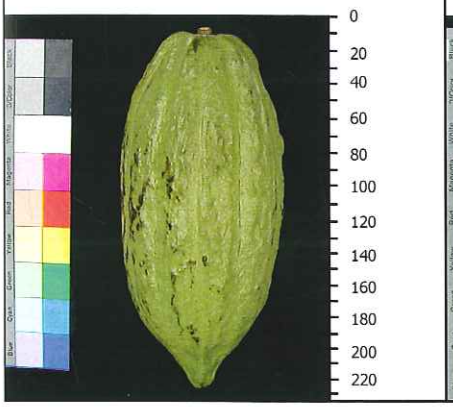
San Juan Estate, Trinidad
ICS 42 Block 5

San Juan Estate, Trinidad
ICS 42 Block 5

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Attenuate	mTcCIR3	206, 246
Basal Constriction	Sli. to Int.	mTcCIR6	228
		mTcCIR9	254, 285
Pod Size	L	mTcCIR12	211
Pod Length (cm)		mTcCIR15	250
Pod Width (cm)		mTcCIR17	271, 281
Pod Index		mTcCIR18	331, 344
Bean Number	40	mTcCIR19	370, 375
Dried Bean Weight (g)		mTcCIR21	153
		mTcCIR24	184, 196
Bean Shape	Elliptic	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296, 303

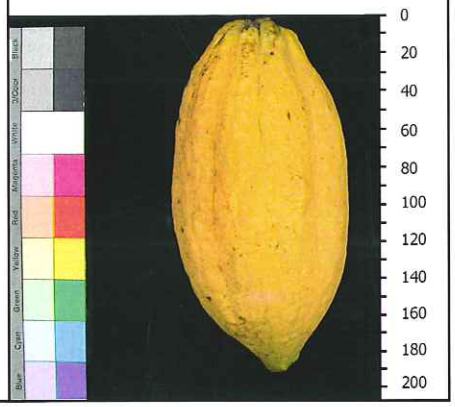
San Juan Estate, Trinidad

ICS 43 Block 3



San Juan Estate, Trinidad

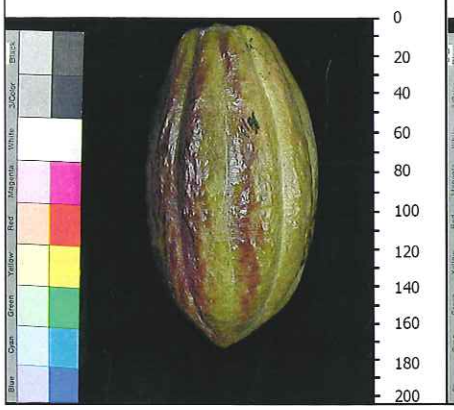
ICS 43 Block 3



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Attenuate	mTcCIR3	206, 246
Basal Constriction	Int. to Str.	mTcCIR6	228, 246
		mTcCIR9	254, 285
Pod Size	L	mTcCIR12	211
Pod Length (cm)	19.4 ± 2.1	mTcCIR15	232, 250
Pod Width (cm)	8.3 ± 0.9	mTcCIR17	271
Pod Index	16.05	mTcCIR18	344
Bean Number	38 ± 8	mTcCIR19	370, 375
Dried Bean Weight (g)	1.64 ± 0.26	mTcCIR21	153, 163
		mTcCIR24	184, 196
Bean Shape	Elliptic	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296, 303

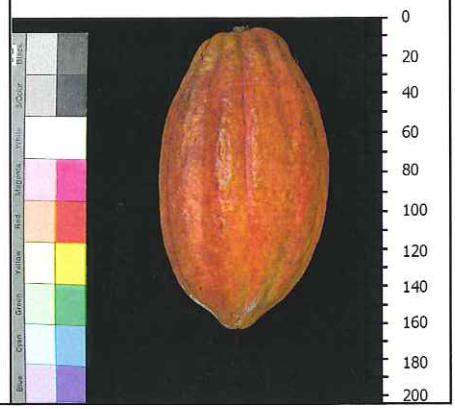
San Juan Estate, Trinidad

ICS 44 Block 1



San Juan Estate, Trinidad

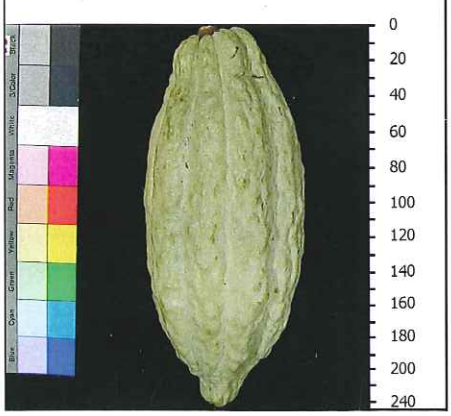
ICS 44 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Obtuse	mTcCIR3	206, 217
Basal Constriction	Slight	mTcCIR6	228
		mTcCIR9	285
Pod Size	M	mTcCIR12	187, 211
Pod Length (cm)	15.2	mTcCIR15	232, 250
Pod Width (cm)	8.9	mTcCIR17	271, 281
Pod Index		mTcCIR18	331, 344
Bean Number	40	mTcCIR19	371, 375
Dried Bean Weight (g)		mTcCIR21	153, 163
		mTcCIR24	184, 192
Bean Shape	Elliptic	mTcCIR25	145
Compatibility	SC	mTcCIR26	296

San Juan Estate, Trinidad

ICS 46 Block 2



Profile		SSR Fingerprint	
Pod Shape	Oblong	mTcCIR1	126, 139
Pod Apex	Acute	mTcCIR3	222, 226
Basal Constriction	Strong	mTcCIR6	228, 230
		mTcCIR9	274, 285
Pod Size	L	mTcCIR12	203, 209
Pod Length (cm)	17.1 ± 2.3	mTcCIR15	230, 232
Pod Width (cm)	8.4 ± 0.7	mTcCIR17	269, 271
Pod Index	22.65	mTcCIR18	335, 344
Bean Number	32 ± 9	mTcCIR19	371
Dried Bean Weight (g)	1.38 ± 0.32	mTcCIR21	153, 163
		mTcCIR24	184, 192
Bean Shape	Elliptic	mTcCIR25	132, 145
Compatibility	SI	mTcCIR26	282, 296

San Juan Estate, Trinidad

ICS 48 Block 3

San Juan Estate, Trinidad

ICS 48 Block 3

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126
Pod Apex	Attenuate	mTcCIR3	- 206, 217
Basal Constriction	Slight	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	M	mTcCIR12	- 187, 211
Pod Length (cm)	16.9 ± 2.3	mTcCIR15	- 232, 250
Pod Width (cm)	8.0 ± 1.0	mTcCIR17	- 271, 281
Pod Index	20.13	mTcCIR18	- 331, 344
Bean Number	36 ± 6	mTcCIR19	- 371, 375
Dried Bean Weight (g)	1.38 ± 0.34	mTcCIR21	- 153, 163
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 50 Block 5

San Juan Estate, Trinidad

ICS 50 Block 5

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Acute	mTcCIR3	- 217
Basal Constriction	Strong	mTcCIR6	- 246
		mTcCIR9	- 254
Pod Size	M	mTcCIR12	- 211
Pod Length (cm)	17.7	mTcCIR15	- 232
Pod Width (cm)	10.1	mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 344
Bean Number	36 ± 6	mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296

San Juan Estate, Trinidad

ICS 51 Block 1

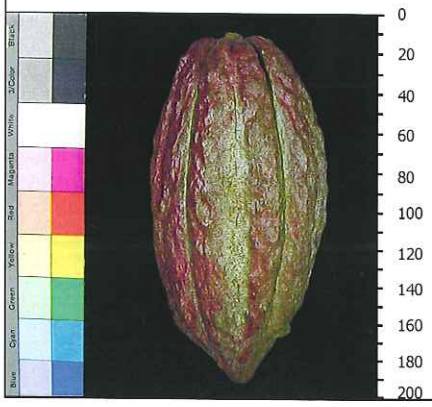
San Juan Estate, Trinidad

ICS 51 Block 1

Profile		SSR Fingerprint	
Pod Shape	Orbicular	mTcCIR1	- 126, 139
Pod Apex	Mammelate	mTcCIR3	- 217
Basal Constriction	Slight	mTcCIR6	- 246
		mTcCIR9	- 254, 285
Pod Size	M	mTcCIR12	- 211
Pod Length (cm)		mTcCIR15	- 232
Pod Width (cm)		mTcCIR17	- 281
Pod Index		mTcCIR18	- 331, 344
Bean Number		mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 184
Bean Shape	Elliptic	mTcCIR25	- 145
Compatibility	SI	mTcCIR26	- 296

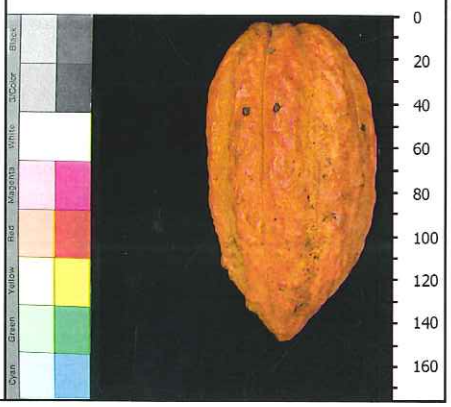
San Juan Estate, Trinidad

ICS 57 Block 5



San Juan Estate, Trinidad

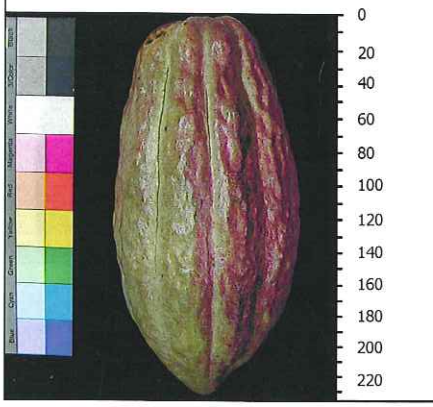
ICS 57 Block 5



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 139
Pod Apex	Acute	mTcCIR3	- 226, 246
Basal Constriction	Int. to Str.	mTcCIR6	- 228, 230
		mTcCIR9	- 274, 285
Pod Size	M	mTcCIR12	- 199, 211
Pod Length (cm)	16.5 ± 1.9	mTcCIR15	- 230, 236
Pod Width (cm)	7.1 ± 0.7	mTcCIR17	- 271, 281
Pod Index	23.73	mTcCIR18	- 333
Bean Number	43 ± 6	mTcCIR19	- 371
Dried Bean Weight (g)	0.98 ± 0.15	mTcCIR21	- 142, 153
		mTcCIR24	- 184, 192
Bean Shape	Elliptic to Oblong	mTcCIR25	- 132, 145
Compatibility	SI	mTcCIR26	- 294, 303

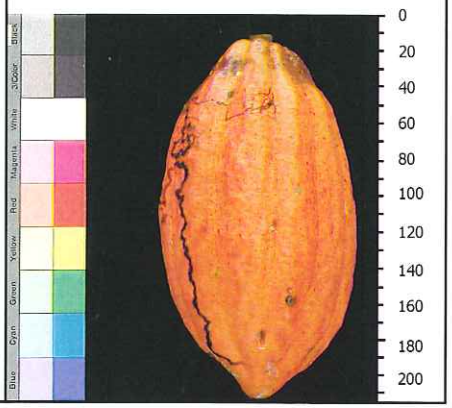
San Juan Estate, Trinidad

ICS 59 Block 5



San Juan Estate, Trinidad

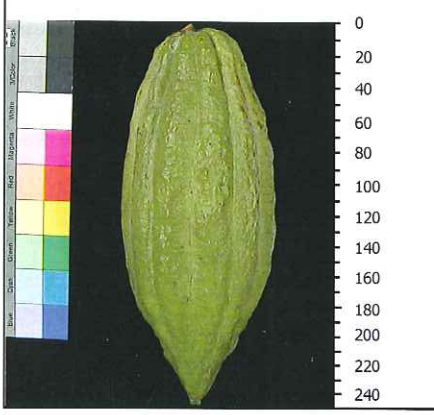
ICS 59 Block 5



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	- 126
Pod Apex	Acute	mTcCIR3	- 217
Basal Constriction	Sli. to Int.	mTcCIR6	- 228
		mTcCIR9	- 254, 285
Pod Size		mTcCIR12	- 211
Pod Length (cm)		mTcCIR15	- 250
Pod Width (cm)		mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	36	mTcCIR19	- 371
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 196
Bean Shape	Elliptic	mTcCIR25	- 145
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 60 Block 3



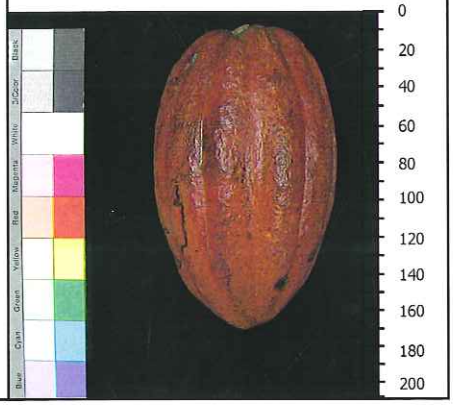
Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Attenuate	mTcCIR3	- 206, 217
Basal Constriction	Int. to Str.	mTcCIR6	- 246
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 187, 211
Pod Length (cm)	19.5 ± 1.6	mTcCIR15	- 232, 248
Pod Width (cm)	8.4 ± 0.5	mTcCIR17	- 271, 281
Pod Index	15.6	mTcCIR18	- 331, 344
Bean Number	39 ± 7	mTcCIR19	- 371, 375
Dried Bean Weight (g)	1.64 ± 0.15	mTcCIR21	- 153, 163
		mTcCIR24	- 184, 196
Bean Shape	Plump, Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 63 Block 5

San Juan Estate, Trinidad

ICS 63 Block 5

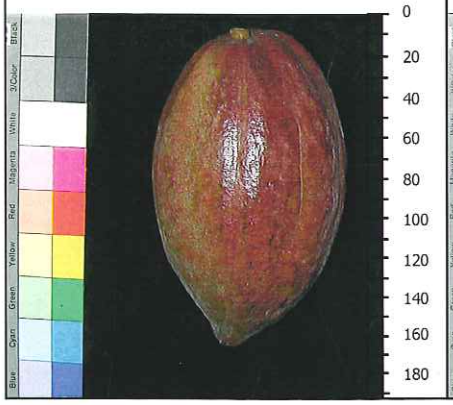


Profile	
Pod Shape	Orbicular
Pod Apex	Rounded
Basal Constriction	Negligible
Pod Size	S-M
Pod Length (cm)	14.7 ± 1.0
Pod Width (cm)	8.3 ± 0.4
Pod Index	19.57
Bean Number	39 ± 4
Dried Bean Weight (g)	1.31 ± 0.16
Bean Shape	Elliptic
Compatibility	SI

SSR Fingerprint	
mTcCIR1	- 139
mTcCIR3	- 206, 217
mTcCIR6	- 228, 246
mTcCIR9	- 285
mTcCIR12	- 211
mTcCIR15	- 232, 250
mTcCIR17	- 271, 281
mTcCIR18	- 331, 344
mTcCIR19	- 375
mTcCIR21	- 153, 163
mTcCIR24	- 184, 196
mTcCIR25	- 145
mTcCIR26	- 296, 303

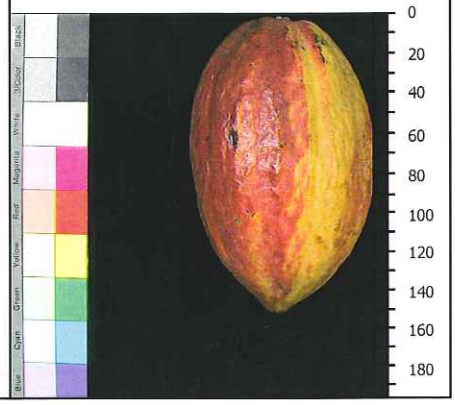
San Juan Estate, Trinidad

ICS 65 Block 3



San Juan Estate, Trinidad

ICS 65 Block 3

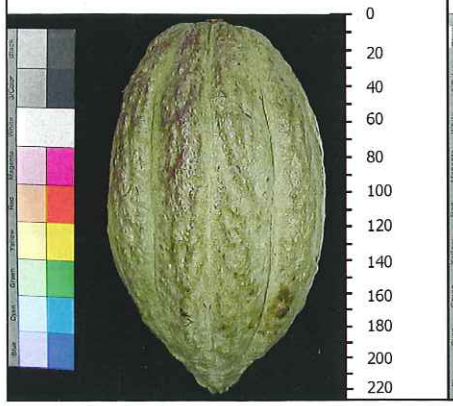


Profile	
Pod Shape	Orbicular
Pod Apex	Acute
Basal Constriction	Slight
Pod Size	S
Pod Length (cm)	12.7 ± 1.6
Pod Width (cm)	7.4 ± 0.8
Pod Index	32.58
Bean Number	33 ± 6
Dried Bean Weight (g)	0.93 ± 0.31
Bean Shape	Elliptic
Compatibility	SC

SSR Fingerprint	
mTcCIR1	- 126, 139
mTcCIR3	- 217
mTcCIR6	- 228, 246
mTcCIR9	- 285
mTcCIR12	- 187
mTcCIR15	- 232
mTcCIR17	- 271, 281
mTcCIR18	- 344
mTcCIR19	- 375
mTcCIR21	- 153, 163
mTcCIR24	- 184, 196
mTcCIR25	- 145, 150
mTcCIR26	- 296

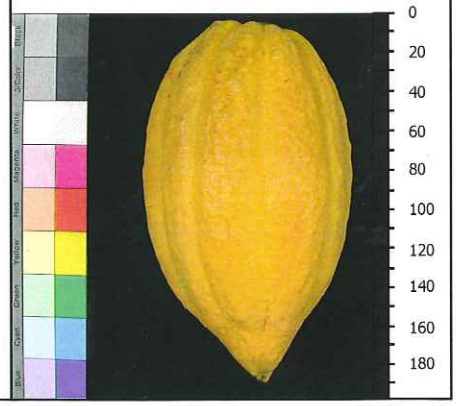
San Juan Estate, Trinidad

ICS 66 Block 1



San Juan Estate, Trinidad

ICS 66 Block 1

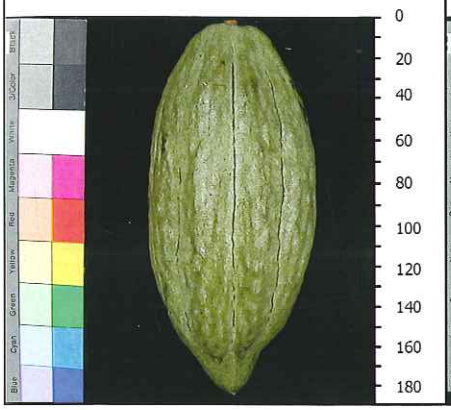


Profile	
Pod Shape	Elliptic
Pod Apex	Attenuate
Basal Constriction	Absent
Pod Size	M
Pod Length (cm)	16.1 ± 2.5
Pod Width (cm)	8.2 ± 0.9
Pod Index	38.85
Bean Number	33 ± 6
Dried Bean Weight (g)	0.78 ± 0.29
Bean Shape	Oblong to Elliptic
Compatibility	

SSR Fingerprint	
mTcCIR1	- 139
mTcCIR3	- 217
mTcCIR6	- 228, 246
mTcCIR9	- 254, 285
mTcCIR12	- 187, 211
mTcCIR15	- 232
mTcCIR17	- 271
mTcCIR18	- 344
mTcCIR19	- 371, 375
mTcCIR21	- 163
mTcCIR24	- 184
mTcCIR25	- 145, 150
mTcCIR26	- 296

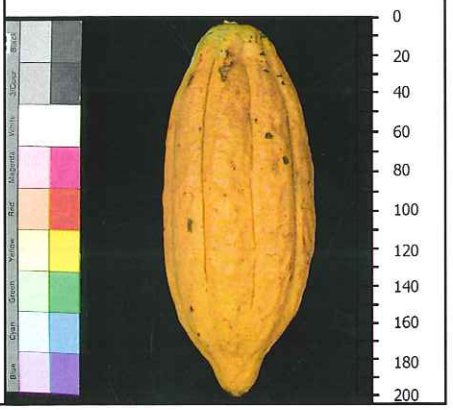
San Juan Estate, Trinidad

ICS 69 Block 1



San Juan Estate, Trinidad

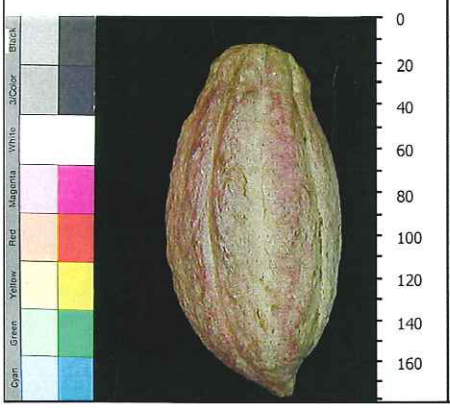
ICS 69 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126
Pod Apex	Acute	mTcCIR3	217
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	L	mTcCIR12	187, 211
Pod Length (cm)	17.7 ± 0.9	mTcCIR15	232, 248
Pod Width (cm)	7.6 ± 0.5	mTcCIR17	271
Pod Index		mTcCIR18	344
Bean Number	25 ± 4	mTcCIR19	371, 375
Dried Bean Weight (g)	1.21 ± 0.18	mTcCIR21	153, 163
		mTcCIR24	184
Bean Shape	Oblong to Elliptic	mTcCIR25	145
Compatibility	SC	mTcCIR26	296, 303

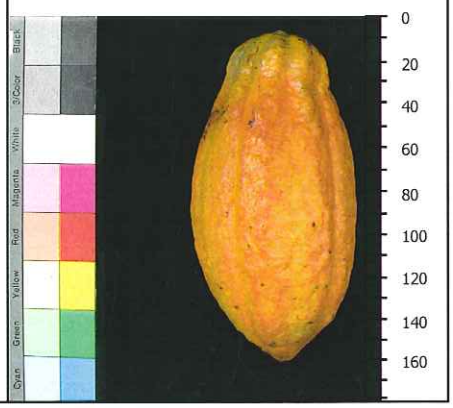
San Juan Estate, Trinidad

ICS 70 Block 5



San Juan Estate, Trinidad

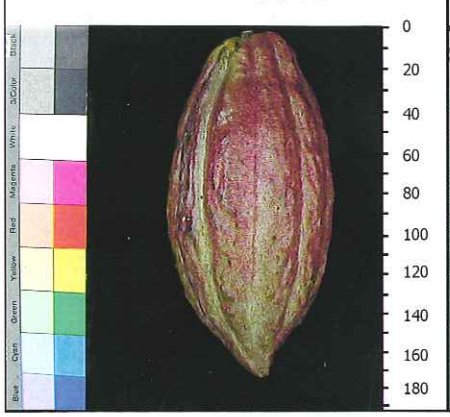
ICS 70 Block 5



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	126, 139
Pod Apex	Mammelate	mTcCIR3	206, 217
Basal Constriction	Wide Shoulder	mTcCIR6	246
		mTcCIR9	254
Pod Size	M	mTcCIR12	211
Pod Length (cm)	17.2	mTcCIR15	232, 250
Pod Width (cm)	8.5	mTcCIR17	271, 281
Pod Index	16.03	mTcCIR18	344
Bean Number	48	mTcCIR19	371
Dried Bean Weight (g)		mTcCIR21	153
		mTcCIR24	184
Bean Shape	Elliptic	mTcCIR25	150
Compatibility	SC	mTcCIR26	303

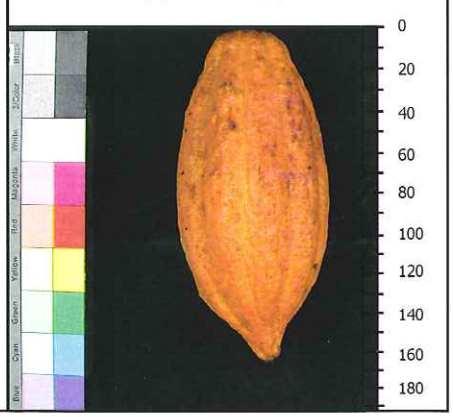
San Juan Estate, Trinidad

ICS 71 Block 1



San Juan Estate, Trinidad

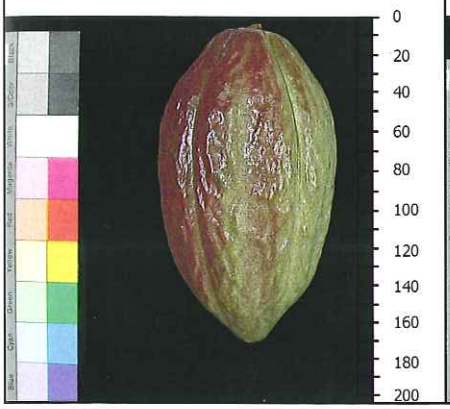
ICS 71 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Attenuate	mTcCIR3	206, 217
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	254
Pod Size	S-M	mTcCIR12	187, 211
Pod Length (cm)		mTcCIR15	232, 250
Pod Width (cm)		mTcCIR17	271, 281
Pod Index		mTcCIR18	331, 344
Bean Number	32	mTcCIR19	375
Dried Bean Weight (g)		mTcCIR21	153
		mTcCIR24	184
Bean Shape		mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	303

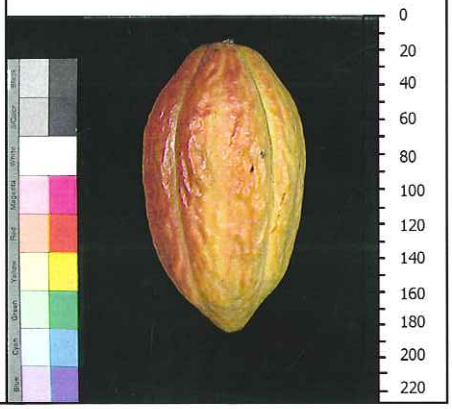
San Juan Estate, Trinidad

ICS 72 Block 4



San Juan Estate, Trinidad

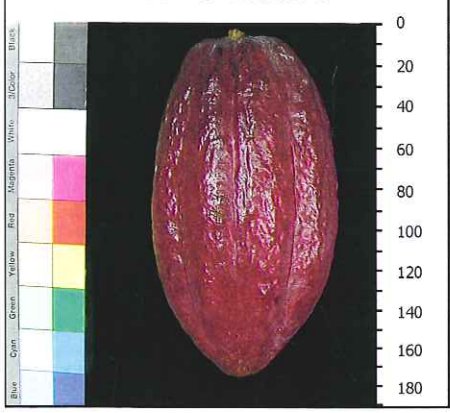
ICS 72 Block 4



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 206
Basal Constriction	Intermediate	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	S	mTcCIR12	- 211
Pod Length (cm)		mTcCIR15	- 250
Pod Width (cm)		mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	32	mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 184
Bean Shape	Plump	mTcCIR25	- 150
Compatibility	SI	mTcCIR26	- 296, 303

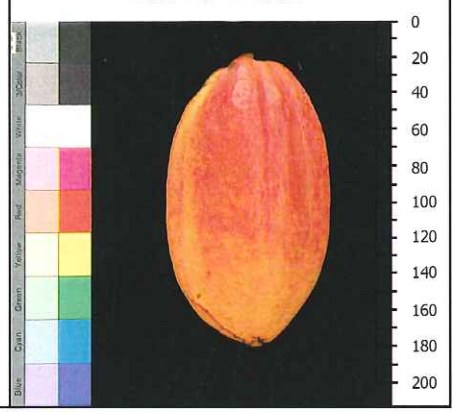
San Juan Estate, Trinidad

ICS 73 Block 4



San Juan Estate, Trinidad

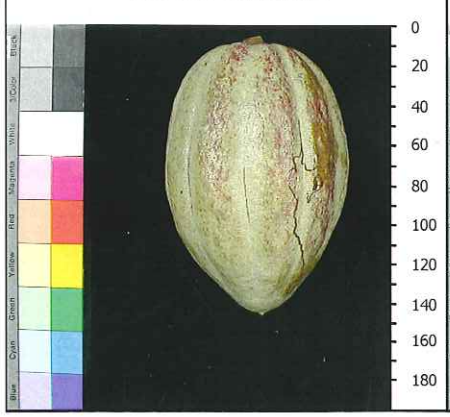
ICS 73 Block 4



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	- 139
Pod Apex	Obtuse	mTcCIR3	- 206, 217
Basal Constriction	Absent	mTcCIR6	- 228, 246
		mTcCIR9	- 254
Pod Size	L	mTcCIR12	- 211
Pod Length (cm)		mTcCIR15	- 232, 248
Pod Width (cm)		mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	40	mTcCIR19	- 375
Dried Bean Weight (g)		mTcCIR21	- 140, 153
		mTcCIR24	- 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SC	mTcCIR26	- 303

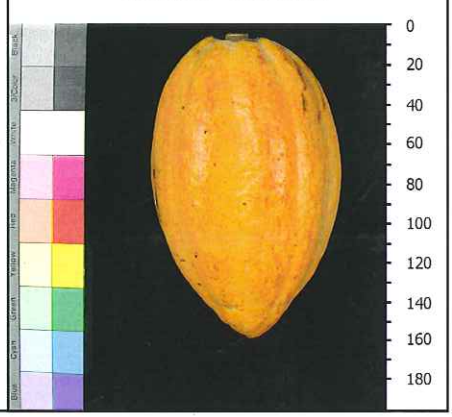
San Juan Estate, Trinidad

ICS 75 Block 1



San Juan Estate, Trinidad

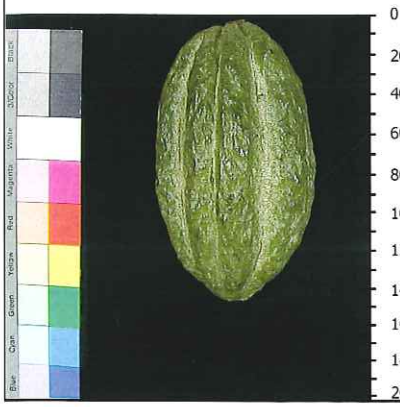
ICS 75 Block 1



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 215
Basal Constriction	Absent	mTcCIR6	- 228
		mTcCIR9	- 285
Pod Size	M	mTcCIR12	- 187, 211
Pod Length (cm)	15.1 ± 1.7	mTcCIR15	- 232, 250
Pod Width (cm)	8.9 ± 0.5	mTcCIR17	- 271, 281
Pod Index	18.66	mTcCIR18	- 331, 344
Bean Number	38 ± 6	mTcCIR19	- 371, 375
Dried Bean Weight (g)	1.41 ± 0.22	mTcCIR21	- 153, 163
		mTcCIR24	- 184
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 77 Block 1



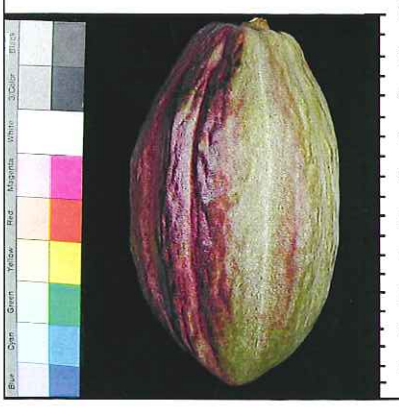
San Juan Estate, Trinidad

ICS 77 Block 1

Profile		SSR Fingerprint	
Pod Shape	Oblong	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 208, 217
Basal Constriction	Absent	mTcCIR6	- 228
		mTcCIR9	- 254, 291
Pod Size	S	mTcCIR12	- 187, 209
Pod Length (cm)	S	mTcCIR15	- 230, 248
Pod Width (cm)		mTcCIR17	- 271
Pod Index		mTcCIR18	- 344
Bean Number	36	mTcCIR19	- 358, 371
Dried Bean Weight (g)		mTcCIR21	- 142, 153
		mTcCIR24	- 184, 192
Bean Shape		mTcCIR25	- 132, 145
Compatibility	SI	mTcCIR26	- 282, 303

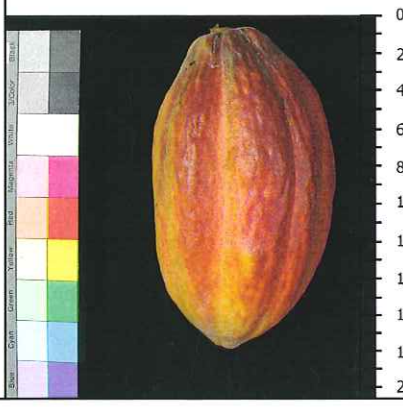
San Juan Estate, Trinidad

ICS 80 Block 4



San Juan Estate, Trinidad

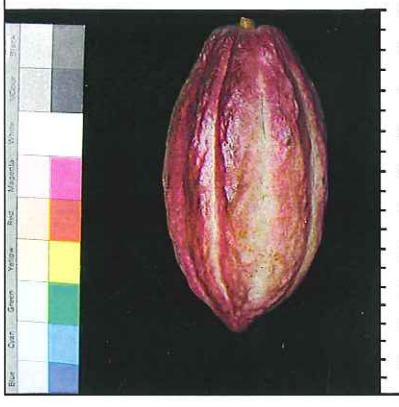
ICS 80 Block 4



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	- 139
Pod Apex	Obtuse	mTcCIR3	- 215, 224
Basal Constriction	Intermediate	mTcCIR6	- 230, 246
		mTcCIR9	- 283, 285
Pod Size	M-L	mTcCIR12	- 203, 211
Pod Length (cm)	17 ± 1.6	mTcCIR15	- 232
Pod Width (cm)	8.9 ± 0.4	mTcCIR17	- 271
Pod Index	23.34	mTcCIR18	- 333, 342
Bean Number	36 ± 6	mTcCIR19	- 352, 371
Dried Bean Weight (g)	1.19 ± 0.2	mTcCIR21	- 140, 153
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 130, 150
Compatibility		mTcCIR26	- 294, 303

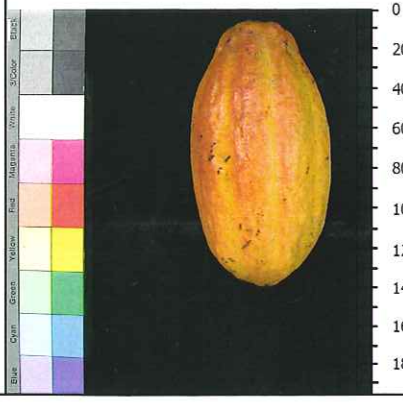
San Juan Estate, Trinidad

ICS 81 Block 3



San Juan Estate, Trinidad

ICS 81 Block 3



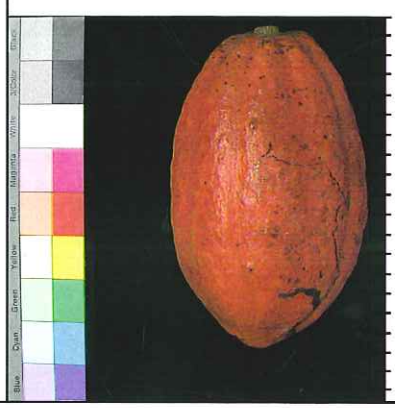
Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126
Pod Apex	Mammelate	mTcCIR3	- 206, 217
Basal Constriction	Intermediate	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	S	mTcCIR12	- 187, 211
Pod Length (cm)		mTcCIR15	- 232, 250
Pod Width (cm)		mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	34	mTcCIR19	- 371, 375
Dried Bean Weight (g)		mTcCIR21	- 153, 163
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296

San Juan Estate, Trinidad

ICS 82 Block 4

San Juan Estate, Trinidad

ICS 82 Block 4



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	126, 139
Pod Apex	Obtuse	mTcCIR3	206
Basal Constriction	Slight	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size		mTcCIR12	211
Pod Length (cm)		mTcCIR15	232, 250
Pod Width (cm)		mTcCIR17	281
Pod Index		mTcCIR18	331, 344
Bean Number	40	mTcCIR19	371, 375
Dried Bean Weight (g)		mTcCIR21	153
		mTcCIR24	184, 196
Bean Shape	Ovate Plump	mTcCIR25	145, 150
Compatibility		mTcCIR26	296

San Juan Estate, Trinidad

ICS 84 Block 2

San Juan Estate, Trinidad

ICS 84 Block 2

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Acute	mTcCIR3	217, 246
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	M-L	mTcCIR12	187, 211
Pod Length (cm)	17.4 ± 1.7	mTcCIR15	250
Pod Width (cm)	8.5 ± 0.6	mTcCIR17	271, 281
Pod Index	28.27	mTcCIR18	331, 344
Bean Number	29 ± 9	mTcCIR19	371
Dried Bean Weight (g)	1.22 ± 0.24	mTcCIR21	153
		mTcCIR24	184, 196
Bean Shape	Oblong to Elliptic	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296, 303

San Juan Estate, Trinidad

ICS 86 Block 2

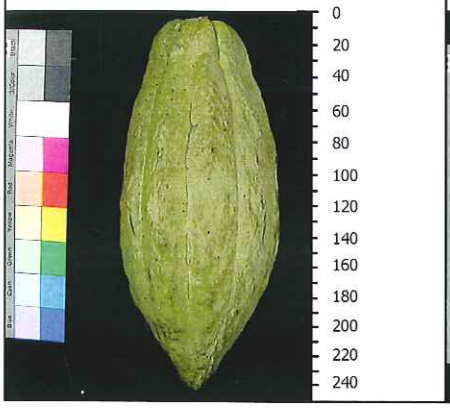
San Juan Estate, Trinidad

ICS 86 Block 2

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126
Pod Apex	Acute	mTcCIR3	206
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	254, 285
Pod Size	S-M	mTcCIR12	187, 211
Pod Length (cm)	14.8 ± 1.4	mTcCIR15	248, 250
Pod Width (cm)	7.6 ± 0.7	mTcCIR17	271, 281
Pod Index	32.3	mTcCIR18	344
Bean Number	36 ± 7	mTcCIR19	371
Dried Bean Weight (g)	0.86 ± 0.28	mTcCIR21	153, 163
		mTcCIR24	184, 196
Bean Shape	Elliptic to Ovate	mTcCIR25	145
Compatibility	SI	mTcCIR26	296, 303

San Juan Estate, Trinidad

ICS 87 Block 1



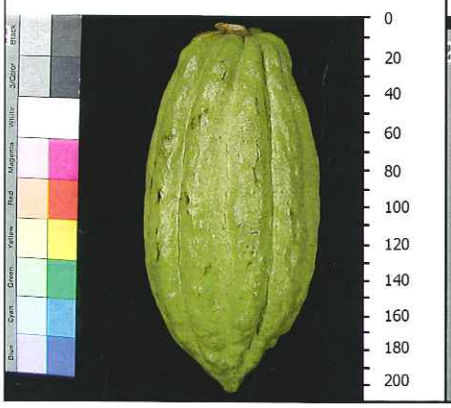
San Juan Estate, Trinidad

ICS 87 Block 1

Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Acute	mTcCIR3	206
Basal Constriction	Int. to Str.	mTcCIR6	228, 246
		mTcCIR9	254, 285
Pod Size	M-L	mTcCIR12	187, 211
Pod Length (cm)	16.3 ± 2.3	mTcCIR15	248, 250
Pod Width (cm)	7.3 ± 0.7	mTcCIR17	271, 281
Pod Index	25.99	mTcCIR18	331, 344
Bean Number	37 ± 4	mTcCIR19	371, 375
Dried Bean Weight (g)	1.04 ± 0.33	mTcCIR21	153, 163
		mTcCIR24	184, 196
Bean Shape	Ovate to Elliptic	mTcCIR25	150
Compatibility	SI	mTcCIR26	296, 303

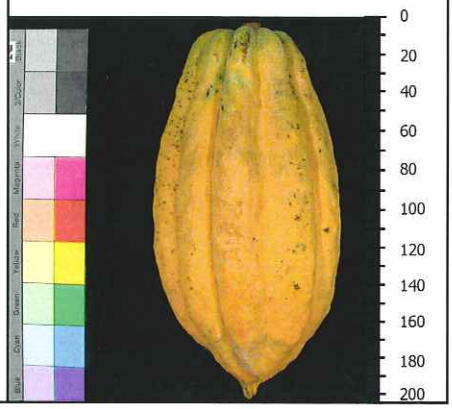
San Juan Estate, Trinidad

ICS 89 Block 1



San Juan Estate, Trinidad

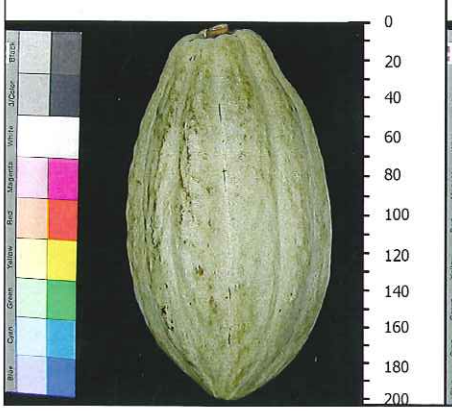
ICS 89 Block 1



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	139
Pod Apex	Mammelate	mTcCIR3	206, 217
Basal Constriction	Sli. to Int.	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	M-L	mTcCIR12	187
Pod Length (cm)	16.5 ± 1.8	mTcCIR15	250
Pod Width (cm)	8.1 ± 0.9	mTcCIR17	271, 281
Pod Index	28.28	mTcCIR18	331, 344
Bean Number	34 ± 5	mTcCIR19	371
Dried Bean Weight (g)	1.04 ± 0.2	mTcCIR21	153, 163
		mTcCIR24	184
Bean Shape	Elliptic to Ovate	mTcCIR25	145
Compatibility	SI	mTcCIR26	296, 303

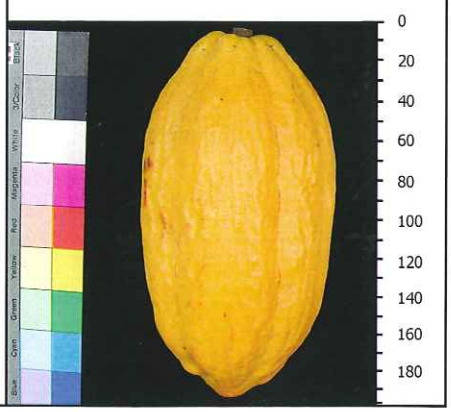
San Juan Estate, Trinidad

ICS 92 Block 1



San Juan Estate, Trinidad

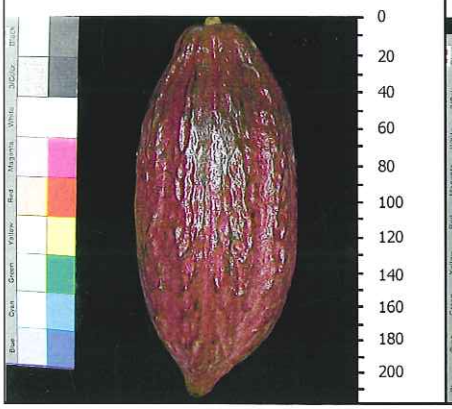
ICS 92 Block 1



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	139
Pod Apex	Obtuse	mTcCIR3	206, 217
Basal Constriction	Intermediate	mTcCIR6	228, 246
		mTcCIR9	285
Pod Size	M	mTcCIR12	211
Pod Length (cm)	16.1 ± 1.2	mTcCIR15	232
Pod Width (cm)	8.1 ± 0.3	mTcCIR17	271, 281
Pod Index	20.67	mTcCIR18	331, 344
Bean Number	41 ± 4	mTcCIR19	375
Dried Bean Weight (g)	1.18 ± 0.15	mTcCIR21	153, 163
		mTcCIR24	184
Bean Shape	Elliptic	mTcCIR25	145
Compatibility	SI	mTcCIR26	296, 303

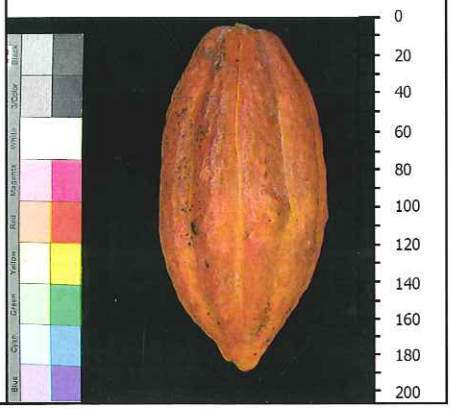
San Juan Estate, Trinidad

ICS 93 Block 3



San Juan Estate, Trinidad

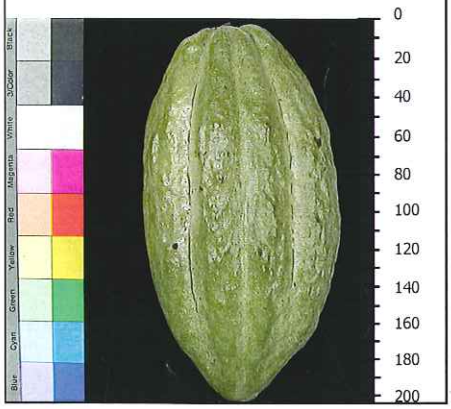
ICS 93 Block 3



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126
Pod Apex	Acute	mTcCIR3	- 206, 217
Basal Constriction	Intermediate	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 211
Pod Length (cm)	20	mTcCIR15	- 232, 250
Pod Width (cm)	8.9	mTcCIR17	- 271, 281
Pod Index		mTcCIR18	- 331, 344
Bean Number	38	mTcCIR19	- 371
Dried Bean Weight (g)		mTcCIR21	- 163
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility		mTcCIR26	- 296, 303

San Juan Estate, Trinidad

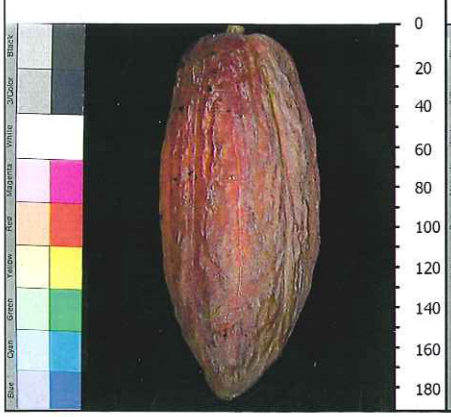
ICS 94 Block 3



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	- 126, 139
Pod Apex	Obtuse	mTcCIR3	- 206
Basal Constriction	Slight	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 187, 211
Pod Length (cm)	17.6 ± 1.5	mTcCIR15	- 232, 250
Pod Width (cm)	9.4 ± 0.8	mTcCIR17	- 271, 281
Pod Index	26.71	mTcCIR18	- 331, 344
Bean Number	36 ± 5	mTcCIR19	- 375
Dried Bean Weight (g)	1.04 ± 0.17	mTcCIR21	- 153
		mTcCIR24	- 184, 196
Bean Shape	Elliptic	mTcCIR25	- 145, 150
Compatibility	SI	mTcCIR26	- 296

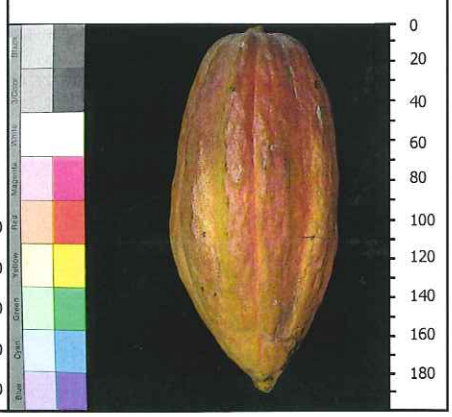
San Juan Estate, Trinidad

ICS 95 Block 1



San Juan Estate, Trinidad

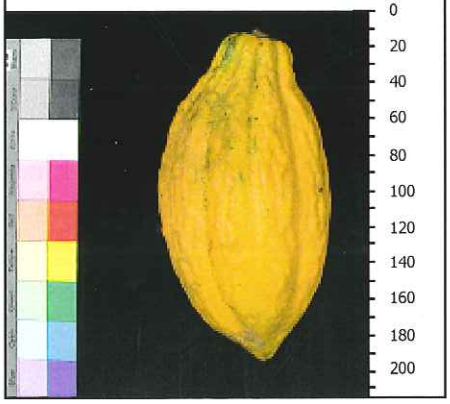
ICS 95 Block 1



Profile		SSR Fingerprint	
Pod Shape	Oblong	mTcCIR1	- 126, 139
Pod Apex	Acute	mTcCIR3	- 206, 217
Basal Constriction	Slight	mTcCIR6	- 228, 246
		mTcCIR9	- 254, 285
Pod Size	L	mTcCIR12	- 187, 211
Pod Length (cm)	19 ± 1.9	mTcCIR15	- 232, 250
Pod Width (cm)	8.4 ± 0.7	mTcCIR17	- 271, 281
Pod Index	22.15	mTcCIR18	- 331, 344
Bean Number	35 ± 7	mTcCIR19	- 375
Dried Bean Weight (g)	1.29 ± 0.21	mTcCIR21	- 153, 163
		mTcCIR24	- 196
Bean Shape	Plump, Elliptic	mTcCIR25	- 145, 150
Compatibility	SC	mTcCIR26	- 296, 303

San Juan Estate, Trinidad

ICS 97 Block 2



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Acute	mTcCIR3	206, 246
Basal Constriction	Strong	mTcCIR6	228, 246
		mTcCIR9	254, 285
Pod Size	L	mTcCIR12	211
Pod Length (cm)	18 ± 2.1	mTcCIR15	232, 250
Pod Width (cm)	8.7 ± 0.6	mTcCIR17	271
Pod Index	23.81	mTcCIR18	344
Bean Number	40 ± 6	mTcCIR19	371, 375
Dried Bean Weight (g)	1.05 ± 0.17	mTcCIR21	153
		mTcCIR24	184, 196
Bean Shape	Elliptic to Oblong	mTcCIR25	145, 150
Compatibility	SI	mTcCIR26	296

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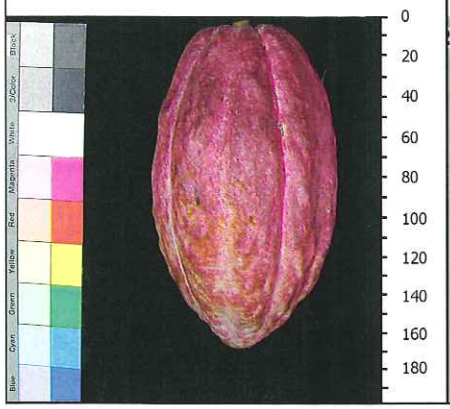
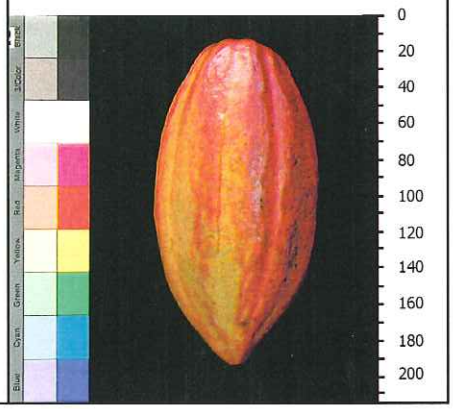
ICS 98 Block 3



San Juan Estate, Trinidad

ICS 98 Block 3



Profile		SSR Fingerprint	
Pod Shape	Elliptic	mTcCIR1	126, 139
Pod Apex	Obtuse	mTcCIR3	206, 217
Basal Constriction	Slight	mTcCIR6	228
		mTcCIR9	285
Pod Size	L	mTcCIR12	211
Pod Length (cm)	17.2 ± 1.5	mTcCIR15	232, 250
Pod Width (cm)	7.6 ± 0.4	mTcCIR17	271
Pod Index	30.5	mTcCIR18	331, 344
Bean Number	29 ± 6	mTcCIR19	371, 375
Dried Bean Weight (g)	1.13 ± 0.34	mTcCIR21	153, 163
		mTcCIR24	184
Bean Shape		mTcCIR25	145
Compatibility	SC	mTcCIR26	303

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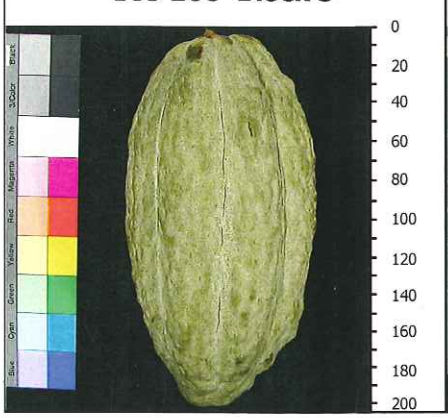
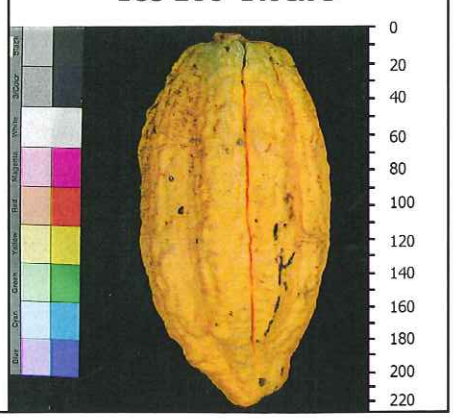
ICS 100 Block 5



San Juan Estate, Trinidad

ICS 100 Block 5



Profile		SSR Fingerprint	
Pod Shape	Obovate	mTcCIR1	126, 139
Pod Apex	Indented	mTcCIR3	226
Basal Constriction	Absent	mTcCIR6	228, 238
		mTcCIR9	274, 281
Pod Size	L	mTcCIR12	199, 209
Pod Length (cm)		mTcCIR15	232, 240
Pod Width (cm)		mTcCIR17	271
Pod Index		mTcCIR18	333, 342
Bean Number		mTcCIR19	358, 371
Dried Bean Weight (g)		mTcCIR21	153, 155
		mTcCIR24	192, 196
Bean Shape		mTcCIR25	132, 164
Compatibility	SI	mTcCIR26	294