HAITI PRODUCTIVE LAND USE SYSTEMS PROJECT

SOUTH-EAST CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

AND

AUBURN UNIVERSITY

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Inventory of Crop Varieties in Haiti or with Potential Value in Haiti

by

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EXECUTIVE SUMMARY

1. This inventory of crop varieties is a compilation of information on crop genetic resources available to the PLUS Project. The varieties listed are varieties existing in Haiti or in other countries (in particular, the Dominican Republic) with similar agroclimatic conditions and which could be of potential value in Haiti. Staple food, vegetable and fruit crops are included.

2. Approximately eighty-five varieties are described with information on agroclimatic adaptation, yields, disease and insect reactions, management considerations and seed sources. Information was obtained, by interview and reference to published reports, from various agencies in Haiti including the Department of Agriculture and associated organizations, NGOs, PVOs, development agencies, agriculture projects and private enterprises. A visit was made to the Dominican Republic to obtain information and to bring back seed of promising varieties. Information was also sought from other national programs as well as regional and international research programs which conduct crop research under agroclimatic conditions similar to those in Haiti.

3. Recommendations are made of varieties for major agroclimatic zones as defined by rainfall and elevation.

4. Recommendations are made with regard to variety preservation and seed multiplication. An artisanal seed production and distribution system is recommended involving farmers' organizations, government agencies, NGOs, private enterprises and universities.

REZIME

1. Envantè sa-a sou varyete ki plante se yon travay rasanble enfòmasyon pou konnen ki resous jenetik Pwojè PLUS kapab jwenn. Varyete ki sou lis yo se varyete ki egziste an Ayiti oubyen nan lòt peyi (espesialman Sen Domeng) ki genyen menm kondysyon klima ak sòl ak Ayiti e ki ta ka gen valè an Ayiti. Tout kalite kilti te konsidere nan rapò-a: kilti vivryè (mayi, diri, pitimi, pwa) legim ak fwi.

2. Apeprè katrevenseuk (85) varyete dekri nan rapò-a. Enfòmasyon bay sou ki kote (kondisyon agroklimatik) chak varyete adapte, randman li bay, ki maladi ak ensèk ki atake-l, kòman pou ta sèvi ak varyete-a ak kote pou jwenn semans yo. Enfòmasyon sa yo te rasanble nan pale ak moun ki konnen ak nan rapò ki te pibliye pa plizyè òganizasyon an Ayiti, nou vle pale de Ministè agrikilti ak lòt òganizasyon ki gen rapò ak li, òganizasyon ki pa gouvènman-an, òganizasyon priye, ajans devlopman, pwojè agrikòl ak biznis prive. Yon vizit te fèt nan Repiblik Dominikèn pou chèche enfòmasyon ak pou vini an Ayiti ak semans varyete ki enteresan. Kontak te pran tou ak lòt pwogram nasyonal, rejional ak entènasyonal ki fè rechèch nan menm kondisyon agroklimatik ak Ayiti.

3. Rekòmandasyon fèt sou varyete ki ta dwe plante nan chak zòn agroklimatik enpòtan yo (diferans fèt ant zòn yo dapre kantite lapli ki tonbe ak nan ki wotè yo ye).

4. Konsiltan-an fè rekòmandasyon sou fason pou konsève varyete yo ak kòman pou miltiplye semans yo. Li pwopoze yon sistèm atizanal pou pwodwi ak distribye semans. Sistèm sa-a genyen ladan-l òganizasyon peyizan, ajans gouvènman-an, òganizasyon ki pa gouvènman-an, antrepriz prive ak inivèsite.

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1. INTRODUCTION

Various institutions in Haïti, including government agencies, non-governmental organizations, universities and private enterprises, are involved in crop variety screening and preservation, and in seed/planting material multiplication and distribution.

Assessing which crop varieties, including staples, vegetables and fruit, are available or have a potential value to the **PLUS -Project**, is the primary purpose of this Crop Variety Inventory (CVI).

This CVI also contains recommendations on agroclimatic adaptation of varieties, variety preservation and seed multiplication, which the **PLUS-Project** might follow, in order to accomplish its objective of enabling the **PLUS-Project** farmers to have access to good-quality seed of improved varieties.

2. SCOPE OF SERVICES

a. Objective

The objective of the inventory was to gather and assemble information on crop genetic resources available to the **PLUS Project**, including staple food, vegetables and fruit crops.

b. Activities

The activities included in the scope of services were to:

1° Prepare a data sheet on which all relevant information for each variety was to be recorded;

2° Prepare a list of agencies to be contacted: Department of Agriculture and associated organizations, NGO's, PVO's, development agencies, agricultural projects, and private enterprises;

3° Interview responsible individuals in various agencies to obtain information on experience with different crop varieties including:

Performance

- agroclimatic adaptation and yields;
- disease/insect resistance/susceptibility;
- management considerations peculiar to the varieties

This information was to be documented with "hard data", i.e. from published reports, farm production records, etc., wherever available.

Sources of seed/planting material

Information was also to be obtained on activities these agencies have carried to preserve and multiply germplasm.

4° Contact national, regional and international research programs which conduct crop research under agroclimatic conditions similar to those in Haiti, in oder to obtain their suggestions of varieties for testing. USAID/Haiti had suggested that the consultant visit the Dominican Republic to obtain such information and to bring back seed of most promising varieties for testing in the second season of 1993.

5° Prepare final report which includes:

- a listing by crop of each variety with:

  Name (s);
  Summary of all relevant information on adaptation and yields;
  Disease resistace/susceptibility;
  Insect resistance/susceptibility;
  Management considerations peculiar to the variety;
  Sources of seed/planting material.

- recommendations of varieties for each major agroclimatic zone defined by elevation and rainfall;

- recommendations for each agroclimatic zone of untested varieties which merit testing.

Recommendations should indicate order of priority for testing.

- recommendations on how to preserve and multiply varieties of crops most important to **PLUS.**

- annexes containing:

  data sheets on which information for each variety was recorded.

  copies of correspondence with international, regional and other national crop research programs.

3. CROP VARIETY DESCRIPTION

The Crop variety description covers eighty-four (84) varieties of twenty-six (26) crops, including staple food, vegetable and fruit crops. In this crop variety description the term variety is used to refer to Cultivated Varieties with either genetic make-up: pure lines, clones, synthetic varieties, open-pollinated varieties and hybrids

Information and data used to prepare this Crop Variety Description was gathered and assembled from the following sources:

- Interviews with responsible individuals

Fourty-one (41) individuals in twenty-five (25) organizations in Haïti and the Dominican Republic were interviewed. The Informants were related to the crop varieties as researchers, extensionnists, producers or market specialists.

- Literature Review

Thirty (30) documents, including reports, scientific reviews, bulletins and others, written in French, English, Spanish and Haïtian Creole were reviewed.

- International Agricultural Research Centers

From about twenty (20) Regional and International Agricultural Research Centers contacted, nine (9) sent information as of to date.

- Field visits

Whenever possible, fields were visited in Haïti and the Dominican Republic.

CHOQUETTE

1. NAMES:
   CHOQUETTE

2. ORIGIN:
   USDA Research and Experimentation Station in Homestead. Florida.

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit form	:	information not found
Fruit color	:	information not found
Taste	:	good
Average fruit weight	:	1.14 kg
Fruit bearing period	:	December-February out of season
Average height of tree	:	15-18 m

5. ADAPTATION AND YIELDS:
   Adapted to the environnement in the South region

Average yield per tree	:	72.5 kg
Average number of fruit per tree	:	64

6. DISEASES REACTION:
   Fruit free of local diseases such as scab

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Plant spacing	:	6 x 6 m
Planting density	:	200 plants/HA

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de L'Environnement (ORE) Camp Perrin. Haiti

TAMAZULAPA

1. NAMES:
   TAMAZULAPA
   ICTA TAMAZULAPA
   DOR 44

2. ORIGIN:
   Instituto de Ciencia y Tecnologia Agropecuaria (ICTA). Guatemala

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:

Grain color	:	black
Growth habit	:	indeterminate
Moisture stress tolerance	:	greater than haitian local black beans
Growing cycle	:	2 weeks later than local varieties in the zone of Les Cayes

5. ADAPTATION AND YIELDS:
   Adapted to all bean growing regions in Haiti.

Site	Elevation (m)	Avg. annual rainfall (mm)	Avg. yield of TAMAZULAPA (MT/HA)*	Avg. yield of local check (MT/HA)
3 sites			1.43(1)	
Port-de-Paix		1180	0.43(1)	0.04
Petit-Goave	70	1350	1.30(1)	0.06
Haut Cap Rouge	500-800	2200	0.60(2)	0.49
Berrault	30-300	1985	1.04(2)	0.88
Maniche	100-350	1200	0.84(2)	0.65

Sources: (1) Emmanuel Prophete: El Mosaico dorado del frijol en Haiti, 1992
(2) ADS-II Report No. 23. 1986
1 MT/HA of maize is approximately 400 marmites/HA.

6. DISEASES REACTION:

Resistant to	:	Bean Golden Mosaic Virus (BGMV)
Tolerant to	:	Bean Common Mosaic Virus (BCMV)
		Bean Rust

7. INSECT PESTS REACTION:

Tolerant to	:	Apion godmanii
		Empoasca kraemeri

8 MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY (1)

Planting density	:	100,000 - 200,000 plants/ha
Seeding spacing	:	8-10cm x 75cm
Irrigation	:	Every 7-10 days if no rain

(1) ADS II Report no. 23, 1986

9. SOURCES OF SEED:
   (1) Instituto de Ciencia y Tecnologia Agropecuaria (ICTA), Guatemala.
   (2) Programa Regional de Frijol (PROFRIJOL), Haiti, Dominican Republic.
   (3) Centre de Recherche et de Documentaion Agricoles (CRDA/MARNDR), Haiti.

SALAGNAC 86

1. NAMES:
   SALAGNAC 86

2. ORIGIN:
   Centre de Madian - Salagnac. Haiti

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:

Grain color	:	light red
Growth habit	:	determinate
Moisture stress tolerance	:	information not found
Growing cycle	:	early-maturing (about 68 days)

5. ADAPTATION AND YIELDS:

Sites	Avg. yield of SALAGNAC 86 (MT/HA)	Avg. yield of local check (MT/HA)
ST.Raphael (North)	1.61	1.59 (1)
ST Raphael (North)	1.16	0.93 (1)

Source: Recherche Agricole Appliquee ODN. 1977/1980
(1) Local check was DECAYETTE

6. DISEASES REACTION:

Resistant to	:	Erysiphe poligony
Moderately tolerant to	:	Bean rust Angular leaf spots
Very susceptible to	:	Bean Golden Mosaic Virus (BGMV)

7. INSECT PESTS REACTION:
   Moderately tolerant to : Empoasca kraemeri

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   Madian-Salagnac Project. Haiti.

MERSAN

1. NAMES:
   MERSAN

2. ORIGIN:
   Centre de Madian - Salagnac. Haiti

3. GENETIC MAKE-UP:
   Composite pure lines

4. VARIETY CHARACTERISTICS:

Grain color	:	black
Growth habit	:	information not found
Moisture stress tolerance	:	information not found
Growing cycle	:	information not found

5. ADAPTATION AND YIELDS:
   Adapted to the Madian-Salagnac region

6. DISEASES REACTION:

Tolerant to	:	Bean rust
		Bean anthracnosis

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   Madian-Salagnac Project. Haiti.

PC-50

1. NAMES:
   PC-50

2. ORIGIN:
   Dominican Republic

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:

Grain color	:	red
Growth habit	:	determinate
Moisture stress tolerance	:	low
Growing cycle	:	75-80 days

5. ADAPTATION AND YIELDS:
   Elevations 30 to 1300 m

Yield range	:	0.99 - 2.44 MT/HA in the Dominican Republic

6. DISEASES REACTION:

Specific resistance to	:	Bean rust
Slightly tolerant to	:	Common blight
Very susceptible to	:	Bean Golden Mosaic Virus (BGMV)
		Web blight

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY (1):

Higher yields at	:	0.40 x 0.10 cm
Good response to	:	Fertilizers
		NPK 20-10-10
		NPK 20-10- 0
		at 350 KG/HA

9. SOURCES OF SEED:
   (1) Centro Sur de Desarrollo Agricola (CESDA). Dominican Republic
   (2) Collaborative Research Support Project. Arroyo Loro Experimental Station, Dominican Republic

CONSTANZA 1

1. NAMES:
   CONSTANZA 1

2. ORIGIN:
   Dominican Republic

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:
   Grain color : deep mottled red
   Growth habit : determinate
   Moisture stress tolerance : information not found
   Growing cycle : 75-80 days

5. ADAPTATION AND YIELDS:
   Elevations from 0 to 600 m
   Yield range : 1.1 - 2.54 MT/HA

Site	Avg. annual rainfall (mm)	Avg. yield of CONSTANZA (MT/MH)*	Avg. yield of local check (MT/HA)
ST. Raphael	940	1.48	1.60

Source: Recherche Agricole Appliquée ODN. Résultats pour la période 1977/1980
1 MT/HA of beans is approximately 400 marmites/HA.

6. DISEASES REACTION:
   Susceptible to : Powdery mildew
   Tolerant to : Bean rust

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   (1) Centro sur de Desarrollo Agricola (CESDA). Dominican Republic
   (2) Collaborative Research Support Project. Arroyo Loro Experimental Station. Dominican Republic

JOSE BETA

1. NAMES:
   JOSE BETA

2. ORIGIN:
   Dominican Republic

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Grain color	:	red
Growth habi	:	determinate
Moisture stress tolerance	:	information not found
Growing cycle	:	75-80 days

5. ADAPTATION AND YIELDS:
   Yield range : 0.86 - 2.51 MT/HA

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   (1) Centro Sur de Desarrollo Agricola (CESDA), Dominican Republic
   (2) Republic Collaborative Research Support Project, Arroyo Loro Experimental Station, Dominican Republic

DETROIT

1. NAMES:
   DETROIT

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Color : red
   Form : round
   Beet size : big
   Growing cycle : 2 1/2 months

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Resistant to : Virus diseases

7. INSECT PESTS REACTION:
   Susceptible to snails in seedbeds

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 25 x 10 cm
   Direct seeding

9. SOURCES OF SEED :
   1) Agri-Supply, Haiti
   2) Darbouco, Haiti

PERSIAN LIME

1. NAMES:
   PERSIAN LIME
   TAHITI LIME

2. ORIGIN:
   Tahiti

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	big
Fruit surface	:	mosth
Fruit color	:	information not found
Oil content	:	information not found

5. ADAPTATION AND YIELDS:
   Adapted to dry and hot conditions

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Rows distance	:	5 m
Scion	:	sour orange

9. SOURCES OF PLANTING MATERIAL:
   Cazeau. Haiti

MEXICAN LIME

1. NAMES:
   MEXICAN LIME

2. ORIGIN:
   Mexico

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS:
   Fruit size : small
   Fruit surface : information not found
   Fruit color : green
   Oil content : high

5. ADAPTATION AND YIELDS:
   Adapted to dry and hot conditions

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Rows distance : 5 m
   Scion : sour orange

9. SOURCES OF PLANTING MATERIAL:
   Mexico

247 BRAVO

1. NAMES:
   247 BRAVO

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Color	:	information not found
Growing cycle	:	82 days in the Salagnac region
Percent headind	:	information not found
Perishability	:	information not found
Firmness	:	firm and big (average weight of head: 1 - 2 kg)

5. ADAPTATION AND YIELDS:
   Adapted to the regions of Kenscoff and Salagnac

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Tolerant to : Xanthomonas campetris

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco. Haiti
   2) Agri-Supply. Haiti

284 MARKET VICTOR

1. NAMES:
   284 MARKET VICTOR

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Color	:	information not found
Growing cycle	:	early-maturing, grouped harvest
Percent headind	:	information not found
Perishability	:	information not found
Firmness	:	firm and small (average weight of head: 0.5 - 1.2 kg)

5. ADAPTATION AND YIELDS:
   Adapted to the regions of Kenscoff and Salagnac

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:

Susceptible to	:	Xanthomonas campestris

8. MANAGEMENT CONSIDERAIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco, Haiti
   2) Agri-Supply, Haiti

RIANA F1

1. NAMES:
   RIANA F1
   IRIANA in Kenscoff

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Hybrid

4. VARIETY CHARACTERISTICS:

Color	:	light blue
Growing cycle	:	2 - 2 1/2 months
Percent heading	:	95 - 100
Perishability	:	3 - 5 days will tend to rot when heavy rain
Firmness	:	firm after heading

5. ADAPTATION AND YIELDS:
   Adapted to intermediate and high elevations
   such as Berry, Kenscoff

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Planting density : higher than TROPIC and OXILUS because of the compcatness of the plants.

9. SOURCES OF PLANTING MATERIAL:
   Wynn's Farm in Kenscoff

KK-CROSS

1. NAMES:
   KK-CROSS

2. ORIGIN:
   USA or Japan ?

3. GENETIC MAKE-UP:
   Hybrid

4. VARIETY CHARACTERISTICS:
   Color : white
   Growing cycle : earlier maturing than RIANA, (2 months) will burst out after maturity
   Percent heading : about 75
   Perishability : 3 - 5 days
   Firmness : information not found

   KK-CROSS is more tolerant to drought than RIANA in the zone of BERRY

5. ADAPTATION AND YIELDS:
   Elevation : 500 - 1200 m

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Major problems : Caterpillars

8. MANAGEMENT CCONSIDERATIONS PECULIAR TO THE VARIETY:
   Not to be plauted in the same period as maize to avoid insect pests damages.
   Transplanting : 30-40 days
   Seeding spacing : 80 x 50 cm

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco, Haiti
   2) Agri-Supply, Haiti

TROPIC

1. NAMES:
   TROPIC
   TROPICANA in Kenscoff

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Color	:	light blue
Growing cycle	:	information not found
Percent heading	:	85 - 90
Perishability	:	information not found
Firmness	:	information not found

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco. Haiti
   2) Agri-Supply. Haiti

OXILUS

1. NAMES:
   OXILUS

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Color	:	information not found
Growing cycle	:	information not found
Percent heading	:	95
Perishability	:	information not found
Firmness	:	firmer than KK-CROSS

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco. Haiti
   2) Agri-Supply. Haiti

TROPI CROSS

1. NAMES:
   TROPI CROSS

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:
   Color : information not found
   Growing cycle : 80 days in the Salagnac region
   Percent headind : information not found
   Perishability : information not found
   Firmness : firm and big (average weight of head: 1 - 3 kg)

5. ADAPTATION AND YIELDS:
   Adapted to the regions of Kenscoff and Salagnac

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   More sensible to : Xanthomonas campetris than KK CROSS

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   TROPIC CROOS is less resistant to drought than KK CROSS

9. SOURCES OF PLANTING MATERIAL:
   1) Darbouco. Haiti
   2) Agri-Supply. Haiti

CHATENAY RED CORE

1. NAMES:
   CHATENAY RED CORE

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Lenght	:	8 - 10 inches
Form	:	cylindrico-conical
Growing cycle	:	3 - 3 1/2 months, good result at low rainfall
Perishability	:	3 - 5 days
Color	:	yellow
Skin	:	uniform and soft

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

Yield potential	:	1.4 MT/HA

6. DISEASES REACTION:

More resistant to	:	Black scab disease than ROYAL
Very susceptible to	:	Alternaria sp.

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Direct seeding

Seeding spacing	:	25 x 10 cm

9. SOURCES OF PLANTING MATERIAL:
   Information not found

ROYAL

1. NAMES:
   ROYAL

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:

Lenght	:	longer than CHATENAY RED CORE
Form	:	filiform
Growing cycle	:	later-maturing than CHATENAY RED CORE
Pesishability	:	Information not found
Color	:	Information not found
Skin	:	Information not found

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:

Less resistant to	:	Black scab disease than CHATENAY RED CORE

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

F1 CAMBDEN

1. NAMES:
   F1 CAMBDEN

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:
   Information not found

5. ADAPTATION AND YIELDS:
   Adapted to the region of Salagnac

6. DISEASES REACTION:
   More resistant to : Alternaria sp.
   than CHATENAY RED CORE

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

CMC 40

1. NAMES:
   MADAME JACQUES
   MANYOK ODN in the North
   LLANERA MOCANA in the Dominican Republic

2. ORIGIN:
   Centro Internacional de Agricultura Tropical (CIAT). Colombia

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:

Tuber form	:	cylindrical
Average plant height	:	2.3 m
Average length of tubers	:	0.35 m
Average diameter of tubers	:	6 cm
Flesh color	:	white
Skin color	:	deep brown
Growing cycle	:	8-9 months

5. ADAPTATION AND YIELDS:

Site	Avg. yield of CMC (MT/HA)	Avg. yield of local check (MT/HA) (3)
Acul du Nord (Grand Pre)	38 (1)	21
Zone I of ODN	18 (2)	11

Source: (1) Recherche Agricole Appliquee ODN. Resultats de la periode 1977/1980
(2) Bilan des premiers travaux effectues en vue de recuperer la variete de manioc CMC 40
(3) Local check was MADAME FRANCOIS

6. DISEASES REACTION:
   Susceptible to : Cassava rust

7. INSECT PESTS REACTION:
   Susceptible to : White fly

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Planting density	:	10,000 plants/HA
Seeding spacing	:	10 x 1.0
Fertilizers	:	50-100-100

9. SOURCES OF PLANTING MATERIAL:
   Centro Internacional de Agricultura Tropical (CIAT). Colombia.

PAK CHOY

1. NAMES:
   PAK CHOY

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:
   Information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Susceptible to : Leaf diseases

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

WONG BOX

1. NAMES:
   WONG BOX

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTICS:
   Information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Susceptible to : Leaf diseases

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

CNCX 252-1E

1. NAMES:
   CNCX 252-1E
   PWA MALERE (in the zone of Aquin)

2. ORIGIN:
   Institut de Recherche en Agronomie Tropicale (IRAT). Senegal

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTCS:
   Branching : high
   Moisture stress tolerance : high
   Days to flowering : 60 days (earlier-maturing with respect to local populations in the zone of Aquin)
   Taste : good

5. ADAPTATION AND YIELDS:
   Yield range : 0.9 - 2.4 MT/HA

Site	Avg.yield of COW-PEA (MT/HA)*	Avg. yield (MT/HA) of local check
Pascal (Aquin)	0.9	0.8 (local population)
Ti Coma	2.4	0.9 (Pois Pintade)

Source: Amelioration du rendement du pois inconnu (Vigna sinensis) dans la Plaine d'Aquin). Yves Jean, 1987.
1 MT/HA of maize is approximately 400 marmites/HA.

6. DISEASES REACTION:
   Resistant to : Cow-pea mosaic

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Planting density : 60,000 plants/HA

9. SOURCE OF SEED:
   1) Institut de Recherche en Agronomie Tropicale (IRAT). Senegal.
   2) Centre Agricole de Baptiste (Plaine d'Aquin). Haiti.

LA MAQUINA 7827

1. NAMES:
   LA MAQUINA 7827
   MAQUINA 27

2. ORIGIN:
   Centro Internacional de Mejoramiento de Maiz y de Trigo (CIMMYT). Mexico.

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS (1):

Kernel type	:	mixed
Average plant height	:	1.9 m
Average ear height	:	0.9 m
Average number of days to female flowers	:	59
Ear covering	:	not complete
Moisture stress tolerance	:	less than CHICKEN CORN, a well-known local land race in Camp Perrin
Lodging performance	:	good
Maturity	:	late maturing (4 - 4 1/2months) with respect to local Camp Perrin CHICKEN CORN (in the average: 3 months)
Shelling	:	less easy than CHICKEN CORN
Taste	:	better than CHICKEN CORN

(1) On-farm Research Methodologies at Work. Michael Yates and Juan Carlos Martinez. CIMMYT.

5. ADAPTATION AND YIELDS:

Sites	Avg. yield of LA MAQUINA 7827 (MT/HA)*	Avg. yield of local check (MT/HA)
5 sites in les Cayes	4.1	3.1
7 sites in Les Cayes	2.4	2.2

Source: Michael Yates and J.C. Martinez: On-farm Methodologies at Work. CIMMYT.
Local check was CHICKEN CORN
* 1 MT/HA of maize is approximately 400 marmites/HA.

LA MAQUINA 7827 (CONT'D)

Site	Elevation (m)	Avg. annual rainfall (mm)	Avg. yield of LA MAQUINA 7827 (MT/Ha)	Avg. (t) yield oflocal check(MT/HA)
Haut Cap Rouge	500-800	2200	1.46	1.58
Bas Cap Rouge	30-300	1200	1.80	1.98
Berrault	30-300	1985	1.77	1.70
Maniche	100-350	1200	1.47	1.65

Source: ADS-II Report No. 36, 1986
Local check was ALIZENE

6. DISEASES REACTION :
Information not found

7. INSECT PESTS REACTION:
Susceptible to : Spodoptera frugiperda
Susceptible to : kernel decay because the ear is not fully covered by the spathe

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
Information not found

9. SOURCES OF SEED:
Organisation pour la Rehabilitation de l'Environnement (ORE). Camp Perrin. Haiti.

LA MAQUINA 7928

1. NAMES:
   MAQUINA 7928
   MAQUINA 28

2. ORIGIN:
   Centro Internacional de Mejoramiento de Maiz y de Trigo (CIMMYT), Mexico.

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS (1):

Kernel type	:	mixed
Average plant height	:	1.9 m
Average ear height	:	0.9 m
Average number of days to female flowers	:	59
Ear covering	:	information not found
Moisture stress tolerance	:	information not found
Lodging performance	:	good
Maturity	:	information not found
Shelling	:	information not found
Taste	:	information not found

(1) On-farm Research Methodologies at Work. Michael Yates and Juan Carlos Martinez. CIMMYT.

5. ADAPTATION AND YIELD:

No. of sites	Avg. yield of LA MAQUINA 7928 (MT/HA)*	Avg. yield of local check (MT/HA)
5 sites in les Cayes	4.2	3.1
7 sites in les Cayes	2.5	2.2

Source: On-farm Research Methodologies at Work. Michael Yates and J.C. Martinez. CIMMYT
Local check was CHICKEN CORN
1 MT/HA of corn is approximately 400 marmites/HA.

LA MAQUINA 7928 (CONT'D)

Site	Elevation (m)	Avg. Annual rainfall (mm)	Avg. yield of LA MAQUINA 7928 (MT/HA)	Avg. yield of local (MT/HA) ALIZENE
Haut Cap Rouge	500-800	2200	1.07	1.58

Source: ADS-II Report No. 36, 1986
Local check was CHICKEN CORN

6. DISEASES REACTION:
Information not found

7. INSECT PESTS REACTION:
Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
Information not found

9. SOURCE OF SEED:
Organisation pour la Rehabilitation de l'Environnement (ORE). Camp Perrin. Haiti

COMAYAGUA

1. NAMES:
   COMAYAGUA
   COMAYAGUA 8528
   DANIELLE

2. ORIGIN:
   Honduras

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS (1):

Kernel type	:	yellow, crystalline grain
Average plant height	:	1.8 m
Average ear height	:	information not found
Average number of days to female flowers	:	55
Ear covering	:	good
Moisture stress tolerance	:	information not found
Lodging performance	:	good
Maturity	:	information not found
Shelling	:	information not found
Taste	:	information not found

(1) CRDA. Recherche et Developpement Rural. Vol. 4, No. 1, 1992

5. ADAPTATION AND YIELD:

Site	Elevation (m)	Avg. annual rainfall (mm)	Avg. yield of COMAYAGUA (MT/HA)*	Avg. yield of local check (MT/HA)
Petit Goave	70	1356	4.87	2.62
L'Asile			4.84	3.64
Maissade	250	1900	3.98	2.76
Camp Perrin	160	1800	2.77	2.04
Artibonite	25	900	1.79	1.91

Source: CRDA. Recherche et Developpement Rural Vol.4, No.1, 1992.
1 MT/HA of corn is approximately 400 marmites/HA.

6. DISEASES REACTION:
   Tolerant to : Helminthosporium maydis
   Cercospora sp.
   Corn smut

7. INSECT PESTS REACTION:
   Susceptible to : Spodoptera frugiperda

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   Centre de Recherche et de Documentation Agricoles (CRDA/MARNDR), Haiti.

UNPHU-301C

1. NAMES:
UNPHU-301C

2. ORIGIN:
Universidad Nacional Pedro Henriquez-Urena (UNPHU), Dominican Republic
Centro Sur de Desarrollo Agricola (CESDA), Dominican Republic

3. GENETIC MAKE-UP:
Open-pollinating

4. VARIETY CHARACTERISTICS (1):

Kernel type	:	deep-yellow crystalline
Average plant height	:	1.99 m
Average ear height	:	1.05 m
Average number of days to female flowers	:	59
Ear covering	:	good
Moisture stress tolerance	:	information not found
Lodging performance	:	good
Maturity	:	130 days (2)
Shelling	:	information not found
Taste	:	information not found

(1) Caracterizacion de Cultivares de maiz dominicano. Felix Navarro and Jose R. Ortiz. CESDA-UNPHU, 1992.
(2) SEA. Caracteres Agronomicos mas importantes de las Variedades mejoradas comerciales dominicanas

5. ADAPTATION AND YIELDS (1):
Adapted to low elevations and semi-arid conditions (1).
Average 5.58 MT/HA in 14 localities (2).

(1) Dr. Eladio Arnaud-Santana: Personal communication.
(2) Caracterizacion de Cultivares de maiz dominicano. Felix Navarro and Jose R. Ortiz. CESDA-UNPHU, 1992.

6. DISEASES REACTION:

Tolerant to	:	Helminthosporium maydis
Fairly tolerant to	:	Corn smut
		Phyllacora maydis
		Sphacelotheca relliana
Susceptible to	:	Scolerophtora macrospora

7. INSECT PESTS REACTION:
Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY (1):

Seeding spacing	:	0.70 x 0.25 m (1 Plant/hole)
Fertilizers response	:	good

(1) SEA. Caracteres Agronomicos mas importantes de las Variedades mejoradas comerciales dominicanas

9. SOURCES OF SEED:
(1) Universidad Nacional Pedro-Henriquez Urena (UNPHU), Dominican Republic.
(2) Centro Sur de Desarrollo Agricola (CESDA), Dominican Republic.

UNPHU-304C

1. NAMES:
UNPHU-304C

2. ORIGIN:
Universidad Nacional Pedro Henriquez-Urena (UNPHU) Dominican Republic
Centro Sur de Desarrollo Agricola (CESDA) Dominican Republic.

3. GENETIC MAKE-UP:
Open-pollinating

4. VARIETY CHARACTERISTICS (1):

Kernel type	:	light-yellow endosperm
Average plant height	:	209 m
Average ear height	:	1.07 m
Average number of days to female flowers	:	58
Ear covering	:	information not found
Moisture stress tolerance	:	respouds well to relatively poor environments obtained
Lodging performance	:	good
Maturity	:	120 days
Shelling	:	information not found
Taste	:	information not found

(1) Caracterizacion de Cultivares de maiz dominicano. Felix Navarro and Jose R. Ortiz. CESDA-UNPHU. 1992.

5. ADAPTATION AND YIELDS (1):
Adapted to low elevations and semi-arid conditions (1)
Average 5.51 MT/HA in 3 localities (2).

(1) Dr. Eladio Arnaud-Santana : Personal communication.
(2) Caracterizacion de Cultivares de maiz dominicano. Felix Navarro and Jose R. Ortiz. CESDA-UNPHU

6. DISEASES REACTION:
Information not found

7. INSECT PESTS REACTION:
Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY (1):
Information not found

9. SOURCE OF SEED :
(1) Universidad Nacional Pedro-Henriquez Urena (UNPHU), Dominican Republic.
(2) Centro Sur de Desarrollo Agricola (CESDA), Dominican Republic.

CLEOPATRE

1. NAMES:
   CLEOPATRE

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Information not found

5. ADAPTATION AND YIELDS:
   Informatin not found

6. DISEASES REACTION:
   Tolerant to : Tristeza virus
   Xylasporosis
   Exocortis

7. INSECT PESTS REACTION:
   Inforamtion not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin, Haiti

HADEN

1. NAMES:
   HADEN

2. ORIGIN:
   International variety

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	5 1/2 inches
Fruit weight	:	1 1/2 lb.
Fruit form	:	Oval
Fruit cortex	:	smooth
Fruit color	:	yellow
Pulp	:	juicy
Fiber	:	very low
Acidity	:	low

5. ADAPTATION AND YIELDS:
   Adapted to low rainfall conditions

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Organisation pour la Rehabilitation de l'Environnement (ORE). Camp Perrin. Haiti.
   2) 4VE4 Collection in Cap Haitian. Haiti.

COLOMBO KIDNEY

1. NAMES:
   COLOMBO KIDNEY

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	3 1/2 inches
Fruit weight	:	information not found
Fruit form	:	information not found
Fruit cortex	:	rugous
Fruit color	:	green
Pulp	:	information not found
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Adapted to low rainfall conditions

6. DISEASES REACTION:
   Resistant to : Anthracnosis

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

DAVIS HADEN

1. NAMES:
   DAVIS HADEN

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	6 inches
Fruit weight	:	2 lb
Fruit form	:	oval
Fruit cortex	:	information not found
Fruit color	:	red with green
Pulp	:	information not found
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

PARVIN

1. NAMES:
   PARVIN

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	medium
Fruit weight	:	220 g
Fruit form	:	oval
Fruit cortex	:	information not found
Fruit color	:	yellow with green
Pulp	:	juicy
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

IRWIN

1. NAMES:
   IRVIN

2. ORIGIN:
   International variety

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	small
Fruit wieght	:	160 g
Fruit form	:	oval
Fruit cortex	:	information not found
Fruit color	:	red
Pulp	:	information not found
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Organisation pour la Rehabilitation de l'Environnement (ORE) . Camp Perrin. Haiti.
   2) 4VE4 Collection in Cap Haitian. Haiti.

KENT

1. NAMES:
   KENT

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	5 inches
Fruit weight	:	700 g
Fruit form	:	oval
Fruit cortex	:	waxy
Fruit color	:	greenish yellow
Pulp	:	juicy
Fiber	:	very low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

PALMER

1. NAMES:
   PALMER

2. ORIGIN:

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	6 inches
Fruit weight	:	700 g
Fruit form	:	long
Fruit cortex	:	waxy
Fruit color	:	yellow with red
Pulp	:	firm
Fiber	:	very low
Acidity	:	information not found

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE). Camp Perrin. Haiti.

EDWARD

1. NAMES:
   EDWARD

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	6 inches
Fruit weight	:	450 - 470 g
Fruit form	:	oval
Fruit cortex	:	waxy
Fruit color	:	yellow with pink side
Pulp	:	firm and juicy
Fiber	:	very low
Acidity	:	information not found

5. ADAPTATION AND YIELDS :
   Not recommended for commercial plantings
   Yield : very low

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

TOMMY ATKINS

1. NAMES:
   TOMMY ATKINS

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	13 cm
Fruit weight	:	700 g
Fruit form	:	oval
Fruit cortex	:	shiny
Fruit color	:	yellow with dark and shiny red
Pulp	:	deep yellow
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS :
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

KEITT

1. NAMES:
   KEITT

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	Information not found
Fruit weight	:	700 g
Fruit form	:	oval
Fruit cortex	:	information not found
Fruit color	:	greenish yelow
Pulp	:	juicy
Fiber	:	low
Acidity	:	information not found

5. ADAPTATION AND YIELDS :
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Information not found

YELLOW GRANEX F1 HYBRID

1. NAMES:
   YELLOW GRANEX F1 HYBRID

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Hybrid

4. VARIETY CHARACTERISTCS:
   Bulb shape : oval
   Bulb color : yellow
   Bulb size : big
   Squams : fleshy and juicy
   Growing cycle : 90 - 110 days

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff
   Yield : 8.7 MT/HA

6. DISEASES REACTION:
   Resistant to : Alternaria sp.

7. INSECT PESTS REACTION:
   Susceptible to : thrips

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 25 x 10 cm
   Direct seeding or transplanting

9. SOURCES OF SEED:
   1) Agri-Supply, Haiti
   2) Darbouco, Haiti

TEXAS EARLY GRANO 502

1. NAMES:
   TEXAS EARLY GRANO 502
   GRANO

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Bulb shape : conical
   Bulb color : light yellow
   Bulb size : big (180 - 200 g)
   Growing cycle : 90 - 110 days

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff
   Yield : 8.7 MT/HA

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Susceptible to : thrips

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Direct seeding or transplanting
   Seeding spacing : 25 x 10 cm

9. SOURCES OF SEED :
   1) Agri-Supply, Haiti
   2) Darbouco, Haiti

BERMUDA

1. NAMES:
   BERMUDA

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Bulb shape : flat
   Bulb color : information not found
   Bulb size : small
   Growing cycle : 3 1/2 months

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Susceptible to : thrips

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   More plants/HA because plants are smaller

9. SOURCES OF SEED :
   1) Agri-Supply. Haiti
   2) Darbouco. Haiti

TROPICANA F1 HYBRID

1. NAMES:
   TROPICANA F1 HYBRID

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Bulb shape : oval
   Bulb color : red
   Bulb size : information not found
   Growing cycle : 3 1/2 months

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff
   Yield : 8.6 MT/HA

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Susceptible to : thrips

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   More plants/ha because plants are smaller

9. SOURCES OF SEED:
   1) Agri-Supply, Haiti
   2) Darbouco, Haiti

KAKI

1. NAMES:
   KAKI

2. ORIGIN:
   Puerto Rico

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Photoperiod response : sensitive
   Days to flowering : 190 days
   Growing cycle : late-maturing (about 220 days)

5. ADAPTATION AND YIELDS:
   Elevation : 0 - 600 m
   Yield : 1.4 MT/HA at seeding density of 2.0 x 1.0 m

6. DISEASES REACTION:
   Tolerant to : Macrophomina cajani

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDRERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 2.0 x 1.0 m (1 plant/hole)

9. SOURCE OF SEED:
   Centro Sur de Desarrollo Agricola (CESDA), Dominican Republic

UASD

1. NAMES:
   UASD

2. ORIGIN:
   Puerto Rico

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:
   Photoperiod response : insensitive
   Days to flowering : 125 days
   Growing cycle : early-maturing (about 170 days)

5. ADAPTATION AND YIELDS:
   Elevation : 0 - 250 m
   Yield : 4.25 MT/HA at seeding density of 1.50 x 1.50 m

6. DISEASES REACTION:
   Less tolerant to : Macrophomina cajani than KAKI

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 1.50 x 1.50 m (2 plants/hole)

9. SOURCES OF SEED:
   Centro sur de Desarrollo Agricola (CESDA). Dominican Republic

CAYENA LISA

1. NAMES:
   CAYENA LISA in the Dominican Republic
   SMOOTH CAYENNE in the Caribbean Bean

2. ORIGIN:
   Venezuela/England

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Spines	:	spineless
Fruit siz	:	1.8 - 4.5 kg
Fruit form	:	cylindrical
Pulp color	:	yellow
Pulp	:	juicy
Fiber	:	low
Acidity	:	regular
Industrialization	:	adequate

5. ADAPTATION AND YIELDS :
   Information not found

6. DISEASES REACTION:
   Susceptible to : pineapple diseases

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Dominican Republic
   2) Organisation pour la Rehabilitation de l'Environnement (ORE), Camp Perrin, Haiti.

ESPANOLA ROJA

1. NAMES:
   ESPANOLA ROJA

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Spines	:	spiny
Fruit size	:	1.4 - 2.5 kg
Fruit form	:	cylindrical
Pulp color	:	light yellow
Pulp	:	juicy
Fiber	:	high
Acidity	:	regular
Industrialization	:	adequate

5. ADAPTATION AND YIELDS :
   Information not found

6. DISEASES REACTION:
   Resistant to : Fruit rot

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Dominican Republic

BARAKA

1. NAMES:
   BARAKA

2. ORIGIN:
   Holland

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : white
   Flesh color : white
   Growing cycle : about 3 months
   Tuber form : information not found

5. ADAPTATION AND YIELDS:
   Adapted to intermediate and high elevations
   Yield potential : up to 20 MT/HA

6. DISEASES REACTION:
   Susceptible to : Mildew (Phytophtora infestans)
   Blight (Pseudomonas solanacearum)
   Potato leaf roll virus

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 0.90 x 0.35
   Planting material : Pregerminated tubers
   8-12 applications of fungicides in case of high humidity

9. SOURCES OF PLANTING MATERIAL:
   Commercial seed vendors in Haiti

NOVA

1. NAMES:
   NOVA

2. ORIGIN:
   Holland

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : information not found
   Flesh color : white
   Growing cycle : information not found
   Tuber form : elongated

5. ADAPTATION AND YIELDS:
   Adapted to most potato growing regions in Haiti
   Yield potential : 10-15 MT/HA

6. DISEASES REACTION:
   Susceptible to : Mildew (Phytophitora infestans)
   Potato blight (Pseudomonas solanacearum)

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Seeding spacing : 1.0 x 0.5 m
   Pregerminated seedlings

9. SOURCES OF PLANTING MATERIAL:
   Commercial seed vendors in Haiti

CGN 69.1

1. NAMES:
   CGN 69.9
   CGN

2. ORIGIN:
   Centro Internacional de la Papa (CIP), Peru

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:

Skin color	:	information not found
Flesh color	:	white
Growing cycle	:	earlier maturing than I-1039
Tuber form	:	round

5. ADAPTATION AND YIELDS:

Adapted to most potato growing areas	:	Kenscoff, Savane Zombi, Oriani, Furcy, Seguin
Yield potential	:	up to 30-40 MT/HA

6. DISEASES REACTION:

Resistant to	:	Mildew (Phytophtora infestans)
Susceptible to	:	Late blight (Pseudomonas solanacearum)

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Seeding spacing	:	1.0 x 0.5 m
Fertilizers	:	12-12-20 or 15-15-15 (1/32 pound per plant)

   Pregerminated seedlings

9. SOURCES OF PLANTING MATERIAL:
   1) Centro Internacional de la Papa (CIP), Peru
   2) Programa Regional de la Papa (PRECODEPA), Savane Zombi, Haiti.

I-1039

1. NAMES:
   I-1039

2. ORIGIN:
   Centro Internacional de la Papa (CIP). Peru

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : information not found
   Flesh color : cream
   Growing cycle : information not found
   Tuber form : round

5. ADAPTATION AND YIELDS:
   Adapted to most potato growing regions
   Yield potential : up to 30-40 MT/HA

6. DISEASES REACTION:
   Resistant to : Mildew (Phytophtora infestans)
   Susceptible to : Late blight (Pseudomonas solanacearum)

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATRIAL:
   1) Centro Internacional de la Papa (CIP). Peru
   2) Programa Regional de la Papa (PRECODEPA). Haiti
   3) Centre de Recherche et de Documentation Agricoles (CRDA/MARNDR). Haiti

MEX

1. NAMES:
   MEX

2. ORIGIN:
   Centro Internacional de la Papa (CIP). Peru

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : information not found
   Flesh color : cream
   Growing cycle : information not found
   Tuber form : round

5. ADAPTATION AND YIELDS:
   Adapted to most potato growing regions
   Yield potential : up to 30-40 MT/HA

6. DISEASES REACTION:
   Resistant to : Mildew (Phytophitora infestans)
   Susceptible to : Late Blight (Pseudomonas solanacearum)

7. INSECT PEST REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OFPLANTING MATERIAL:
   1) Centro Internacional de la Papa (CIP). Peru
   2) Programa Regional de la PAPA (PRECODEPA), (CRDA/MARNDR). Haiti

GUETA

1. NAMES:
   GUETA

2. ORIGIN:
   USA ?

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : cream
   Flesh color : cream
   Growing cycle : 3 months
   Tuber form : elliptical

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff
   Yield potential : information not found

6. DISEASES REACTION:
   Resistant to : Mildew (Phytophtora infestans)

7. INSECT PEST REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Pregerminated seed lings

9. SOURCES OF PLANTING MATERIAL:
   Commercial seed vendors in Haiti

RENOVA

1. NAMES:
   RENOVA

2. ORIGIN:
   Holland

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : cream
   Flesh color : white
   Growing cycle : 3 months
   Tuber form : elliptical

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff
   Yield potential : information not found

6. DISEASES REACTION:
   Less resistant to : Mildew (Phytophtora infestans) than GUETA

7. INSECT PEST REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Pregerminated seedlings

9. SOURCES OF PLANTING MATERIAL:
   Commercial seed vendors in Haiti

KOTNOV

1. NAMES:
   KOTNOV

2. ORIGIN:
   Holland

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:
   Skin color : cream
   Flesh color : white
   Growing cycle : 3 months
   Tuber form : round

5. ADAPTATION AND YIELDS:
   Adapted to the regions of Kenscoff and Salagnac
   Yield potential : 13.41 MT/HA in the region of Salagnac

6. DISEASES REACTION:
   Less resistant to : Mildew (Phytophtora infestans)
   than GUETA and RENOVA

7. INSECT PEST REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Pregerminated seed lings

9. SOURCES OF PLANTING MATERIAL:
   Commercial seed vendors in Haiti

CRETE A PIERROT

1. NAMES:
   CRETE A PIERROT

2. ORIGIN:
   Organisation de Développement de la Vallée de l'Artibonite (ODVA). Haiti

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:

Grain length	:	long grain
Tillering capacity	:	high
Yield at milling	:	60%
Maturity	:	about 130 days

5. ADAPTATION AND YIELDS:
   Adapted to the Artibonite Valley
   Yield potential : up to 4.5 MT/HA

6. DISEASES REACTION:
   Tolerant to : Helminthosporium sp.
   Cercospora sp.

7. INSECT PESTS REACTION:
   Tolerant to : Diathraea saccharalis

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Number of days in seedbeds	:	30
Seeding spacing	:	0.25 x 0.25 (2 Plants/hole)

9. SOURCES OF SEED:
   Organism for the Development of the Artibonite Valley (ODVA). Pont Sonde, Haiti.

CICA-8

1. NAMES:
   CICA-8

2. ORIGIN:
   Centro Internacional de Agricultura Tropical (CIAT). Colombia

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:
   Grain length : medium
   Tillering capacity : high
   Yield at milling : 60%
   Maturity : about 140 days

5. ADAPTATION AND YIELDS:
   Adapted to the Artibonite Valley
   Yield potential : up to 5 MT/HA

6. DISEASES REACTION:
   Tolerant to : Helminthosporium sp.
   Cercospora sp.

7. INSECT PESTS REACTION:
   Tolerant to : Diathraea saccharalis

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   No. of days in seedbeds: 30-35
   Seeding spacing : 0.25 x 0.25 (2 plants/hole)

9. SOURCE OF SEED:
   Organism for the Development of the Artibonite Valley (ODVA)
   Centro Internacional de Agricultura Tropical (CIAT). Colombia.

MGG

1. NAMES:
   MGG
   MADAME GOUGOUSSE

2. ORIGIN:
   United States of America

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:
   Grain length : long grain
   Tillering capacity : low
   Yield at milling : 45-50%
   Maturity : about 110 days

5. ADAPTATION AND YIELDS:
   Adapted to the Artibonite Valley
   Yield potential : up to 3 MT/HA

6. DISEASES REACTION:
   Tolerant to : Helminthosporium sp.
   Cercospora sp.

7. INSECT PESTS REACTION:
   Tolerant to : Diathraea saccharalis

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   No. of days in seedbeds: 25
   Seeding spacing : 0.15 x 0.15 (3-4 plants/hole)

9. SOURCE OF SEED:
   Organism for the Development of the Artibonite Valley (ODVA), Pont Sonde, Haiti.

IRAT 13

1. NAMES:
   IRAT 13

2. ORIGIN:
   Institut de Recherche en Agronomie Tropicale (IRAT). Experimental Stations in Ivory Coast

3. GENETIC MAKE-UP:
   Pure line

4. VARIETY CHARACTERISTICS:

Grain length	:	long grain
Tillering capacity	:	low with respect to local varieties in the North
Yield at milling	:	Information not found
Maturity	:	105-120 days
Drought resistant	:	good

5. ADAPTATION AND YIELDS:
   Average yield of 1.48 MT/HA in Colette, in the Les Cayes area.
   Average yield of 2MT/HA in Grand Pre (North)

6. DISEASES REACTION:
   Resistant to : Pyricularia oryzae

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   125 plants/square meter

9. SOURCES OF SEED:
   Institut de Recherche en Agronomie Tropicale (IRAT). Experimental Stations in Senegal. West Africa

DUNCAN

1. NAMES:
   DUNCAN

2. ORIGIN:
   Florida

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	information not found
Fruit form	:	oval
Fruit color	:	light yellow
Juice content	:	high
Acid content	:	information not found
Maturity	:	early

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCE OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin. Haiti

MARSH

1. NAMES:
   MARSH

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	medium
Fruit form	:	spherical
Fruit colo	:	light yellow
Juice content	:	information not found
Acid content	:	informatin not found
Maturity	:	late

5. ADAPTATION AND YIELDS:
   Adapted to hot conditions

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin, Haiti

PIGMENTED RUBY

1. NAMES:
   PIGMENTED RUBY
   RUBY
2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	medium
Fruit form	:	spherical
Fruit color	:	pigmented
Juice content	:	high
Acid content	:	information not found
Maturity	:	medium

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin, Haiti

M-50009

1. NAMES:
M-50009

2. ORIGIN:
Centro Internacional de Mejoramiento de Maiz y de Trigo (CIMMYT). Mexico.
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) India.

3. GENETIC MAKE-UP:
Open-pollinating

4. VARIETY CHARACTERISTICS:
Grain color : white
Grain quality : good
Photoperiod response : insensitive
Maturity : early maturing (about 3 months)
Birds attack : high

5. ADAPTATION AND YIELDS:

No. of sites	Avg. yield of M-50009 (MT/HA)*	Avg. yield of local check (MT/HA)
1 LES CAYES	2.30 (1)	1.90

Source: ADS-II Report No. 50
(1): with fertilizers
1 MT/HA of sorghum is approximately 400 marmites/HA.

6. DISEASES REACTION:
Information not found

7. INSECT PESTS REACTION:
Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY (1):
Distance between rows : 0.75 m
Thinning : 2 plants/hole (10 days after seeding)

(1) : ADS-II Report No. 57, 1988

9. SOURCES OF SEED:
Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin. Haiti

CESDA 501

1. NAMES:
   CESDA 501

2. ORIGIN:
   Centro Sur de Desarrollo Agricola (CESDA). Dominican Republic

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS:
   Information not found

5. ADAPTATION AND YIELDS:
   Dry areas

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   Centro Sur de Desarrollo Agricola (CESDA). Dominican Republic

CESDA 526

1. NAMES:
   CESDA 526

2. ORIGIN:
   Centro Sur de Desarrollo Agricola (CESDA). Dominican Republic

3. GENETIC MAKE-UP:
   Open-pollinating

4. VARIETY CHARACTERISTICS:
   Information not found

5. ADAPTATION AND YIELDS:
   Dry areas

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF SEED:
   Centro Sur de Desarrollo Agricola (CESDA). Dominican Republic

F-160

1. NAMES:
   F-160

2. ORIGIN:
   Taiwan

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:
   Ratooning : good
   Growing cycle : 11-12 months
   Milling : easy
   Sugar content : 15 %

5. ADAPTATION AND YIELDS:
   Excellent yield
   Adapted to all types of soils

6. DISEASES REACTION:
   Resistant to : Sugar cane smut disease

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Tolerates flooding

9. SOURCES OF PLANTING MATERIAL
   1) Organism for the Devolpment of the North (ODN) Haiti.
   2) TAIWAN

VALENCIA

1. NAMES:
   VALENCIA

2. ORIGIN:
   Spain

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	medium to big
Fruit form	:	spherical
Fruit colo	:	good
Juice content	:	high
Acid content	:	low
Maturity	:	late

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Susceptible to : Tristeza sporosis virus

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Dominican Republic
   2) Organisation pour la Rehabilitation de l'Environnement (ORE). Camp Perrin. Haiti

HAMLIN

1. NAMES:
   HAMLIN

2. ORIGIN:
   Florida

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTCS:

Fruit size	:	medium to big
Fruit form	:	information not found
Fruit color	:	good
Juice content	:	high
Acid content	:	high
Maturity	:	early

5. ADAPTATION AND YIELDS:
   Information not found

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) USDA Agricultural Research Station in wintergarden. Florida
   2) Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin. Haiti

WASHINGTON NAVEL

1. NAMES:
WASHINGTON NAVEL

2. ORIGIN:
Information not found

3. GENETIC MAKE-UP:
Information not

4. VARIETY CHARACTERISTCS:

Fruit size	:	big
Fruit form	:	oval
Fruit color	:	information not found
Juice content	:	information not found
Acid content	:	information not found
Maturity	:	early

5. ADAPTATION AND YIELDS:
Low to high elevations

6. DISEASES REACTION:
Susceptible to : Anthracnosis

7. INSECT PESTS REACTION:
Susceptible to : Diaprepes causing greasy spot

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
Information not found

9. SOURCES OF PLANTING MATERIAL:
Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin, Haiti

TAPATO

1. NAMES:
   TAPATO
   TI CHON
   TI PACTO

2. ORIGIN:
   USDA Agricultural Research and Experimentation Station. Mayaguez. Puerto Rico.

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:

Skin color	:	light purple
Flesh color	:	cream
Sweetness	:	low
Moisture stress tolerance	:	very low
Maturity	:	early-maturing (2 1/2 - 3 months)
Tuber size	:	big

5. ADAPTATION AND YIELDS:
   Yields are less than for TOQUECITA variety, another improved clone in the area of Camp Perrin; but more than for local Camp Perrin clone TI JOJIN

6. DISEASES REACTIONS:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VEARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   1) Organisation pour la Rehabilitation de l'Environement (ORE), Camp Perrin. Haiti
   2) USDA Agricultural Research and Experimentation Station. Mayaguez. Puerto Rico.

TOQUECITA

1. NAMES:
   TOQUECITA

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:

Skin color	:	white
Flesh color	:	white
Sweetness	:	regular
Moisture stress tolerance	:	high
Maturity	:	early-maturing
Tuber size	:	information not found

5. ADAPTATION AND YIELDS:
   Yields are more than for TAPATO, another improved clone in the area of Camp Perrin and for local Camp Perrin clone TI JOJIN

6. DISEASES REACTIONS:
   Information not found

7. INSECT PESTS REACTION:
   Susceptible to : Cylas formicarius

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VEARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE), Camp Perrin, Haiti

MONA SENT

1. NAMES:
   MONA SENT

2. ORIGIN:
   Dominican Republic

3. GENETIC MAKE-UP:
   Clone

4. VARIETY CHARACTERISTICS:

Skin color	:	brownish
Flesh color	:	white
Sweetness	:	Information not found
Moisture stress tolerance	:	information not found
Maturity	:	information not found
Tuber size	:	information not found

5. ADAPTATION AND YIELDS:

Yield	:	11.86 MT/HA of fresh tubers (1)

(1) Etude comparee des rendements en tubercules frais de deux varietes de patate douce Ipomea batatas pour cinq frequences de sarclage. Paulette NOEZIL, FAMV, 1984.

6. DISEASES REACTIONS:
   Information not found

7. INSECT PESTS REACTION:

Susceptible to	:	Cylas formicarius

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VEARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Centre de Recherche de la Vallee. Jacmel. Haiti.

DANCY

1. NAMES:
   DANCY

2. ORIGIN:
   Information not found

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit size	:	small
Fruit form	:	information not found
Fruit color	:	attractive
Juice content	:	information not found
Acid content	:	information not found
Maturity	:	information not found

5. ADAPTATION AND YIELDS:
   High elevations

6. DISEASES REACTION:
   Information not found

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Information not found

9. SOURCES OF PLANTING MATERIAL:
   Organisation pour la Rehabilitation de l'Environnement (ORE) Camp Perrin. Haiti

PETO 98

1. NAMES:
   PETO 98

2. ORIGIN:
   Petoseed California, USA

3. GENETIC MAKE-UP:
   STANDARD

4. VARIETY CHARACTERISTCS:

Fruit shape	:	blocky
Fruit color	:	red
Shoulder color	:	uniform
Firmness	:	firm
Growing cycle	:	117-124 days
Plant size	:	medium compact
Use	:	Paste, Catsup
Fruit par plant	:	about 30

5. ADAPTATION AND YIELDS:
   Yield : up to 90 MT/HA

6. DISEASES REACTION:
   Resistant to : Tomato viruses

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Double seed rows preferred

9. SOURCES OF SEED:
   Petoseed California, USA

SUPERSOL

1. NAMES:
   SUPERSOL

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Standard variety

4. VARIETY CHARACTERISTCS:

Fruit shape	:	round
Fruit color	:	red
Shoulder color	:	uniform
Firmness	:	firm
Growing cycle	:	117-124 days
Plant size	:	medium compact
Use	:	Paste Catsup
Fruit per plant	:	about 35

5. ADAPTATION AND YIELDS:

Yield	:	up to 90 MT/HA

6. DISEASES REACTION:

Resistant to	:	Most common tomato diseases

7. INSECT PESTS REACTION:

Tolerant to	:	Heliotis zeae

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Adequate irrigation is required

9. SOURCES OF SEED:
   USA

BULL

1. NAMES:
   BULL

2. ORIGIN:
   Italy

3. GENETIC MAKE-UP:
   Standard variety

4. VARIETY CHARACTERISTCS:

Fruit shape	:	round
Fruit color	:	red
Shoulder color	:	uniform
Firmness	:	firm
Growing cycle	:	early
Plant size	:	medium compact
Use	:	Paste, Catsup
Fruit per plant	:	about 30-35

5. ADAPTATION AND YIELDS:

Yield	:	up to 90 MT/HA

6. DISEASES REACTION:

Resistant to	:	Alternaria solani

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Adequate irrigation is required

9. SOURCES OF SEED:
   Italy

BARCELO 102

1. NAMES:
   BARCELO 102
   PETO 102

2. ORIGIN:
   Dominican Republic

3. GENETIC MAKE-UP:
   Standard variety

4. VARIETY CHARACTERISTCS:

Fruit shape	:	round
Fruit color	:	red
Shoulder color	:	uniform
Firmness	:	firm
Growing cycle	:	about 120 days
Plant size	:	mediuu compact
Use	:	Paste, Catsup
Fruit per plant	:	about 30-35

5. ADAPTATION AND YIELDS:

Yield	:	up to 90 MT/HA

6. DISEASES REACTION:

Resistant to	:	Alternaria solani

7. INSECT PESTS REACTION:

Tolerant to	:	Heliotis zeae

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Susceptible to drought

9. SOURCES OF SEED:
   Dominican Republic

FLOR AMERICA

1. NAMES:
   FLOR AMERICA

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Hybrid

4. VARIETY CHARACTERISTCS:

Fruit shape	:	ovoidal
Fruit color	:	red
Shoulder color	:	information not found
Firmness	:	firm
Growing cycle	:	3 1/2- 4 months
Plant size	:	information not found
Use	:	salad
Fruit per plant	:	18 - 20 in the region of Kenscoff

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Resistant to : Mosaic diseases

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Debudding is advised
   Good control of water is necessary

9. SOURCES OF SEED:
   Agri-Supply, Haiti

FLORADEL

1. NAMES:
   FLORADEL

2. ORIGIN:
   USA

3. GENETIC MAKE-UP:
   Information not found

4. VARIETY CHARACTERISTCS:

Fruit shape	:	ovoidal
Fruit color	:	red
Shoulder color	:	information not found
Firmness	:	firm
Growing cycle	:	60 - 70 days after transplanting
Plant size	:	information not found
Use	:	salad
Fruit per plant	:	20 - 25 in the region of Kenscoff

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   Less resistant to : Mosaic diseases than FLOR AMERICA

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:

Transplanting	:	30 days
Seeding spacing	:	80 x 50 cm

   Debudding is advised

9. SOURCES OF SEED:
   Agri-Supply. Haiti

NAPOLI V. F.

1. NAMES:
   NAPOLI V. F.
   TI JOCELINE in Haiti

2. ORIGIN:
   Italy

3. GENETIC MAKE-UP:
   Standard variety

4. VARIETY CHARACTERISTCS:

Fruit shape	:	long
Fruit color	:	light red
Shoulder color	:	information not found
Firmness	:	firm
Growing cycle	:	2 1/2- 3 months
Plant size	:	information not found
Use	:	salad
Fruit per plant	:	10 - 15 in the region of Kenscoff

5. ADAPTATION AND YIELDS:
   Adapted to the region of Kenscoff

6. DISEASES REACTION:
   More resistant to : Mosaic diseases
   than FLOR AMERICA AND FLORADELLE

7. INSECT PESTS REACTION:
   Information not found

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY:
   Direct seeding or transplanting after 35 - 4- days
   Seeding spacing : 80 x 50 cm
   No debudding is required

9. SOURCES OF SEED:
   Agri-Supply, Haiti

PLENBIT

1. NAMES:
   PLENBIT

2. ORIGIN:
   Haiti

3. TYPE OF VARIETY:
   Alata-type improved clone

4. VARIETY CHARACTERISTICS:
   White flesh

5. ADAPTATION AND YIELDS:
   Intermediate and high elevations

6. DISEASES REACTION:
   Resistant to : Yams anthracnosis

7. INSECT PESTS REACTION:
   More susceptible to "maroca" than Guinea-type yams

8. MANAGEMENT CONSIDERATIONS PECULIAR TO THE VARIETY
   No shading or light shading
   Short tutors for plants

9. SOURCES OF PLANTING MATERIAL:
   Centro Internacional de Agricultura Tropical (CIAT). Colombia.

SUMMARY OF VARIETY CHARACTERISTICS

AVOCADO

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT TESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CHOQUETTE		.Scab diseases				LS,LA

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

BEANS

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
TAMAZULAPA	++	.Bean Golden Mosaic Virus .Bean Common Mosaic Virus .Bean Rust		.Apion godmanii .Empoasca kraemeri		LA, LS, MS
SALAGNAC 86		.Erysiphe poligony .Bean rust .Angular leaf spots	.Bean Golden Mosaic Virus	.Empoasca kraemeri		MS
MERSAN		.Bean rust .Bean anthracnosis				
PC-50	+	.Bean Rust .Common Blight	.Bean Golden Mosaic Virus .Web Blight			LS, MS, MH
CONSTANZA 1		.Bean Rust	.Powdery Mildew			LS, MS
JOSE BETA						

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

BEET

VARIETIES	REACTION TO MOISTURE STRESS'	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
DETROIT		.Virus diseases			Snails	MS,MH

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

BITTER LEMON

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
PERSIAN LIME	++					
MEXICAN LIME	++					

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

CABBAGE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
RIANA F1	-					MS, MH
KK-CROSS	+	.Xanthomonas campestris				MS, MH
TROPIC						MS, MH
OXILUS						MS, MH
TROPI CROSS			.Xanthomonas campestris			MS, MH
247 BRAVO		.Xanthomonas campestris				MS, MH
284 MARKET VICTOR			.Xanthomonas campestris			MS, MH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

CARROT

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CHATENAY RED CORE		.Black scab	.Alternaria sp.			MS
ROYAL		.Black scab				MS
F1 CAMBDEN		.Alternaria sp.				MS

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

CASSAVA

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CMC-40			.Cassava rust		.White fly	LS, LH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

CHINESE CABBAGE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
PAK CHOY			.Leaf diseases			
WONG BOX			.Leaf diseases			

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

COW-PEA

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CNCX 252-1E	++	.Cow-pea Mosaic Virus				LS,LH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

MAIZE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
LA MAQUINA 7827	+				.Spodoptera frugiperda .Kernel decay	LS, LH MS, MH
LA MAQUINA 7928						LS, LH MS, MH
COMAYAGUA		.H. maydis .Cercospora sp. .Corn smut			.Spodoptera frugiperda	LS, LH MS, MH
UNPHU-301C		.Sphacelotheca reiliana .H. maydis .Corn smut .Phyllacora maydis	.Scolerophtora macrospora			LA,LS,LH
UNPHU-304C						LA,LS,LH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

MANDARINES

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CLEOPATRE		.Tristeza virus .Xylasporosis .Exocortis				

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

MANGO

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
HADEN	+					
COLOMBO KIDNEY	+	.Anthracnosis				
DAVIS HADEN						
PARVIN						
KENT						
IRWIN						
PALMER						
EDWARD						
TOMMY ATKINS						
KEITT						

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

ONIONS

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	S SUSCEPTIBILITY	
BERMUDA					.Thrips	
YELLOW GRANEX		.Alternaria sp.			.Thrips	MS,MH
TEXAS EARLY GRANO 502					.Thrips	MS,MH
TROPICANA F1 HYBRID					.Thrips	MS,MH

LEGEND: (1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

PIGEON PEA

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
KAKI		.Macrophomina cajani				LS, LH MS, MH
UASD			.Macrophomina cajani			LS, LH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

PINEAPPLE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CAYENA LISA			.Most Pineapple diseases			
ESPANOLA ROJA		.Fruit rot				

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

POTATO

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
BARAKA			.Phytophtora infestans .Pseudomonas solanacearum .Leaf roll virus			MS,MH
CGN 69.1			.Phytophtora infestans .Pseudomonas solanacearum			MS,MH
I-1039			.Phytophtora infestans .Pseudomonas solanacearum			MS,MH
MEX		.Phytophtora infestans .Pseudomonas solanacearum				MS,MH
GUETA		.Phytophtora infestans				MS,MH
RENOVA			.Phytophtora infestans			MS,MH
KOTNOV			.Phytophtora infestans			MS,MH
NOVA			.Phytophtora infestans .Pseudomonas solanacearum			MS,MH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
CRETE A PIERROT				.Diathraea saccharalis		LS, LH
CICA - 8				.Diathraea saccharalis		LS, LH
MGG				.Diathraea saccharalis		LS, LH
IRAT 13						LS, LH

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

SHADDOCK

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
DUNCAN						
MARSH						
PIGMENTED RUBY						

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

SORGHUM

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
M-50009						LS, LH
CESDA 501						LS, LH
CESDA 526						LS, LH

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

SUGAR CANE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
F-160		Sugar cane smut				

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

SWEET ORANGE

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
VALENCIA			.Tristeza sporosis virus			
HAMLIN						
WASHINGTON NAVEL		.Anthracnosis			.Diaprepes sp.	

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

SWEET POTATO

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
TOQUECITA	++				.Cylas formicarius	LS, LH MS, MH
TAPATO	–					LS, LH MS, MH
MONA SENT					.Cylas formicarius	LS, LH MS, MH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

TANGORS

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
DANCY						MS,MH

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

TOMATO

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
SUPERSOL	-	.Most common tomato diseases		.Heliotis zeae		
BULL	-	.Alternaria solani				
BARCELO 102	- -	.Alternaria solani		.Heliotis zeae		
FLOR AMERICA	-	.Virus diseases				LH,MS,MH
FLORADEL			.Virus diseases			LH,MS,MH
NAPOLI V.F.		.Virus diseases				LH,MS,MH
PETO 98		.Virus diseases				

LEGEND:

(1).
+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

SUMMARY OF VARIETY CHARACTERISTICS

VARIETIES	REACTION TO MOISTURE STRESS (1)	DISEASES REACTION		INSECT PESTS REACTION		ZONES OF ADAPTATION (2)
		TOLERANCE	SUSCEPTIBILITY	TOLERANCE	SUSCEPTIBILITY	
PLENBIT		.Yams anthracnosis			.Maroca testulalis	LS, LH MS, MH

LEGEND:

(1).

+ Indicates a degree of tolerance
- Indicates a degree of intolerance

(2).

		altitude(m)	ann.ppt'n(mm)
Lowland; arid	LA	<700	<600
Lowland; semi arid	LS	<700	600-1000
Lowland; humid	LH	<700	>1000
Medium altitude; semi arid	MS	700-1200	600-1000
Medium altitude; humid	MH	700-1200	>1000
High altitude; humid	HH	>1200	>1000

BLANK SPACE INDICATES LACK OF INFORMATION

4. Recommendations on varieties for various agroclimatic zones (and recommendations on varieties meriting testing)

Six major agroclimatic zones were defined according to elevation and rainfall:

Lowland; arid (LA)	:	<700m;	<600mm
Lowland; semi-arid (LS)	:	<700m;	600-1000mm
Lowland; humid (LH)	:	<700m;	1000-2000mm
Medium altitude; semi-arid (MS)	:	700-1200m;	600-1000mm
Medium altitude; humid (MH)	:	700-1200m;	1000-2000mm
High altitude; humid (HH)	:	>1200m;	1000-2000mm

The MH (medium altitude; humid) and HH (hidgh altitude; humid) agroclimatic zones correspond roughly to what is known in Haiti as humid mountains (tè frèt). The MS (medium altitude; semi arid) agroclimatic zone corresponds to dry mountains (tè cho). The LA, LS and LH correspond to dry and humid plains, respectively.

RECOMMENDATIONS OF VARIETIES FOR VARIOUS AGROCLIMATIC ZONES (AND RECOMMENDATIONS FOR VARIETIES MERITING TESTING)

CROPS	ZONE OF ADAPTATION					
	LOWLAND, ARID <700m <600mm	LOWLAND; SEMI ARID <700m 600-1000mm	LOWLAND; HUMID <700m >1000mm	MEDIUM ALTITUDE; SEMI ARID 700-1200m 600-1000mm	MEDIUM ALTITUDE; HUMID 700-1200m >1000mm	HIGH ALTITUDE; HUMID >1200m >1000mm
STAPLE FOOD CROPS						
BEANS	TAMAZULAPA	TAMAZULAPA	CONSTANZA 1* JOSE BETA* MERSAN* PC-50* SALAGNAC 86* TAMAZULAPA	CONSTANZA 1* JOSE BETA* MERSAN* PC-50* SALAGNAC 86* TAMAZULAPA	CONSTANZA 1* JOSE BETA* MERSAN* PC-50* SALAGNAC 86* TAMAZULAPA	CONSTANZA 1* JOSE BETA* MERSAN* PC-50* SALAGNAC 86* TAMAZULAPA
CASSAVA		CMC-40	CMC-40	CMC-40*	CMC-40*	
COW-PEA	CNCX 252-1E*	CNCX 252-1E*	CNCX 252-1E	CNCX 252-1E	CNCX 252-1E	
MAIZE		COMAYAGUA* UNPHU-301C* UNPHU-304C*	COMAYAGUA MAQUINA 7827 MAQUINA 7928 UNPHU-301C* UNPHU-304C*	COMAYAGUA MAQUINA 7928 MAQUINA 7827 UNPHU-301C* UNPHU-304C*	COMAYAGUA MAQUINA 7928 MAQUINA 7827 UNPHU-301C* UNPHU-304C*	COMAYAGUA MAQUINA 7928 MAQUINA 7827 UNPHU-301C* UNPHU-304C*
PIGEON PEA		KAKI* UASD*	KAKI* UASD*	KAKI* UASD*	KAKI* UASD*	KAKI* UASD*
RICE UPLAND			IRAT 13*	IRAT 13*	IRAT 13*	
RICE LOWLAND		CICA-8 CRETE A PIERROT MGG	CICA-8 CRETE A PIERROT MGG			
SORGHUM	CESDA 501* CESDA 526* M-50009	CESDA 501* CESDA 526* M-50009	CESDA 501* CESDA 526* M-50009	CESDA 501* CESDA 526* M-50009	CESDA 501* CESDA 526* M-50009	CESDA 501* CESDA 526* M-50009*
SWEET POTATO		MONA SENT TAPATO TOQUECITA	MONA SENT* TAPATO* TOQUECITA*	MONA SENT* TAPATO* TOQUECITA*	MONA SENT* TAPATO* TOQUECITA*	MONA SENT* TAPATO* TOQUECITA*
YAMS		PLENBIT*	PLENBIT*	PLENBIT	PLENBIT	PLENBIT

LEGEND: * MERITS TESTING

RECOMMENDATIONS OF VARIETIES FOR VARIOUS AGROCLIMATIC ZONES
(AND RECOMMENDATIONS FOR VARIETIES MERITING TESTING) (Cont'd)

CROPS	ZONE OF ADAPTATION					
	LOWLAND, ARID <700m <600mm	LOWLAND; SEMI ARID <700m 600-1000mm	LOWLAND; HUMID <700m >1000mm	MEDIUM ALTITUDE; SEMI ARID 700-1200m 600-1000mm	MEDIUM ALTITUDE; HUMID 700-1200m >1000mm	HIGH ALTITUDE; HUMID >1200m >1000mm
OTHER CROPS						
SUGAR CANE		F-160	F-160	F-160*	F-160*	

LEGEND: * MERITS TESTING

RECOMMENDATIONS OF VARIETIES FOR VARIOUS AGROCLIMATIC ZONES
(AND RECOMMENDATIONS FOR VARIETIES MERITING TESTING) (Cont'd)

CROPS	ZONE OF ADAPTATION					
	LOWLAND, ARID <700m <600mm	LOWLAND; SEMI ARID <700m 600-1000mm	LOWLAND; HUMID <700m >1000mm	MEDIUM ALTITUDE; SEMI ARID 700-1200m 600-1000mm	MEDIUM ALTITUDE; HUMID 700-1200m >1000mm	HIGH ALTITUDE; HUMID >1200m >1000mm
VEGETABLES						
BEET			DETROIT*	DETROIT	DETROIT	DETROIT
CABBAGE		247 BRAVO* 284 MARKET VICTOR* KK-CROSS* OXILUS* RIANA F1* TROPI CROSS* TROPIC*	247 BRAVO* 284 MARKET VICTOR* KK-CROSS* OXILUS* RIANA F1* TROPI CROSS* TROPIC*	247 BRAVO 284 MARKET VICTOR KK-CROSS OXILUS RIANA F1 TROPI CROSS TROPIC	247 BRAVO 284 MARKET VICTOR KK-CROSS OXILUS RIANA F1 TROPI CROSS TROPIC	247 BRAVO 284 MARKET VICTOR KK-CROSS OXILUS RIANA F1 TROPI CROSS TROPIC
CARROT		CHATENAY RED CORE* F1 CAMBDEN* ROYAL*	CHATENAY RED CORE* F1 CAMBDEN* ROYAL*	CHATENAY RED CORE F1 CAMBDEN ROYAL	CHATENAY RED CORE F1 CAMBDEN ROYAL	CHATENAY RED CORE F1 CAMBDEN ROYAL
CHINESE CABBAGE			PAK CHOY* WONG BOX*	PAK CHOY* WONG BOX*	PAK CHOY* WONG BOX*	PAK CHOY* WONG BOX*
ONIONS		BERMUDA* TEXAS EARLY GRANO 502* TROPICANA F1 HYBRID* YELLOW GRANEX*	BERMUDA* TEXAS EARLY GRANO 502* TROPICANA F1 HYBRID* YELLOW GRANEX*	BERMUDA TEXAS EARLY GRANO 502 TROPICANA F1 HYBRID YELLOW GRANEX	BERMUDA TEXAS EARLY GRANO 502 TROPICANA F1 HYBRID YELLOW GRANEX	BERMUDA TEXAS EARLY GRANO 502 TROPICANA F1 HYBRID YELLOW GRANEX
POTATO			BARAKA* CGN 69.1* GUETA* I-1039* KOTNOV* MEX* NOVA* RENOVA*	BARAKA* CGN 69.1 GUETA I-1039 KOTNOV MEX NOVA RENOVA	BARAKA* CGN 69.1 GUETA I-1039 KOTNOV MEX NOVA RENOVA	BARAKA* CGN 69.1 GUETA I-1039 KOTNOV MEX NOVA RENOVA
TOMATO		BARCELO 102* BULL* FLOR AMERICA* FLORADEL* NAPOLI V.F.*	BARCELO 102* BULL* FLOR AMERICA FLORADEL NAPOLI V.F.	BARCELO 102* BULL* FLOR AMERICA FLORADEL NAPOLI V.F.	BARCELO 102* BULL* FLOR AMERICA FLORADEL NAPOLI V.F.	BARCELO 102* BULL* FLOR AMERICA FLORADEL NAPOLI V.F.

LEGEND: * MERITS TESTING

RECOMMENDATIONS OF VARIETIES FOR VARIOUS AGROCLIMATIC ZONES
(AND RECOMMENDATIONS FOR VARIETIES MERITING TESTING) (Cont'd)

CROPS	ZONE OF ADAPTATION					
	LOWLAND; ARID <700m <600mm	LOWLAND; SEMI ARID <700m 600-1000mm	LOWLAND; HUMID <700m >1000mm	MEDIUM ALTITUDE; SEMI ARID 700-1200m 600-1000mm	MEDIUM ALTITUDE; HUMID 700-1200m >1000mm	HIGH ALTITUDE; HUMID >1200m >1000mm
FRUIT CROPS						
AVOCADO		CHOQUETTE	CHOQUETTE	CHOQUETTE	CHOQUETTE*	
BITTER LEMON		MEXICAN LIME* PERSIAN LIME*	MEXICAN LIME* PERSIAN LIME*	MEXICAN LIME* PERSIAN LIME*	MEXICAN LIME* PERSIAN LIME*	MEXICAN LIME* PERSIAN LIME*
MANDARINES		CLEOPATRE*	CLEOPATRE*	CLEOPATRE*	CLEOPATRE*	CLEOPATRE*
MANGO		HADEN COLOMBO KIDNEY DAVIS HADEN PARVIN IRWIN KENT PALMER EDWARD TOMMY ATKINS KEITT	HADEN COLOMBO KIDNEY DAVIS HADEN PARVIN IRWIN KENT PALMER EDWARD TOMMY ATKINS KEITT	HADEN* COLOMBO KIDNEY* DAVIS HADEN* PARVIN* IRWIN* KENT* PALMER* EDWARD* TOMMY ATKINS* KEITT*	HADEN* COLOMBO KIDNEY* DAVIS HADEN* PARVIN* IRWIN* KENT* PALMER* EDWARD* TOMMY ATKINS* KEITT*	
PINEAPPLE			CAYENA LISA* ESPANOLA ROJA*	CAYENA LISA* ESPANOLA ROJA*	CAYENA LISA* ESPANOLA ROJA*	CAYENA LISA* ESPANOLA ROJA*
SHADDOCK		DUNCAN* MARSCH* PIGMENTED RUBY*	DUNCAN MARSCH PIGMENTED RUBY	DUNCAN* MARSCH* PIGMENTED RUBY*	DUNCAN* MARSCH* PIGMENTED RUBY*	DUNCAN* MARSCH* PIGMENTED RUBY*
SWEET ORANGE			VALENCIA* HAMLIN* WASHINGTON NAVEL	VALENCIA* HAMLIN* WASHINGTON NAVEL	VALENCIA* HAMLIN* WASHINGTON NAVEL	VALENCIA* HAMLIN* WASHINGTON NAVEL
TANGORS				DANCY*	DANCY*	DANCY*

LEGEND: * MERITS TESTING

5. RECOMMENDATIONS ON CROP VARIETY PRESERVATION AND SEED MULTIPLICATION

a. Basic question and considerations

The PLUS-Project presently targets approximately 19,000 farm families in the Project areas. These farm families plant various crops, including cereals, grain legumes, roots and tubers, fruits and vegetables in multiple cropping systems to provide food and cash to the farmers and their families.

The basic question addressed in this section is:

How could the PLUS-Project enable its client farmers to have access to good-quality seed and planting material of improved crop varieties in a sustainable manner.

As it is known, the PLUS-Project client farmers exist in a great diversity of agro-ecological and socio-economic condi-tions.This makes it impossible to formulate useful recommendations, which are applicable in all cases. For this reason the following discussion will focus on an example of a seed production and distribution scheme for one specific area, that is PADF-Region II.

To answer the question posed above requires analysis of two relevant issues: one is the analysis of the circumstances of the PLUS-Project client farmers in Region II, as related to crop varieties and seed; the other is the assessment of the capabilities within Haiti, which could contribute to a sustainable system of variety preservation, and seed production and distribution.

b. Analysis of the present situation

In PADF Region II, the most important crop economically is beans. During each planting period, 300 PADF client farmers plant 60 ha of beans, on an average plot size of 0.20 ha (range 0.10-1.0 ha).

The principal source of seed is the local market. Local varieties are mainly used. During the planting periods, the "grain-seed" price at local markets is 50 gourdes/marmite (about 2.5 kg). Average bean yield is 850 kg/ ha (range 600-1200 kg).

"Grain-seed" from local markets, as it is known, is a mixture of different genotypes with different requirements in agro-ecological conditions and with low yield potentials. In addition, "grain-seed" may have a low germination percentage, low seedling vigor and may carry seed-borne diseases.

Approximately 50 kg/ha of bean seed is the normal planting rate. Thus, the seed requirement for farmers in PADF Region II is 3 metric tons for each planting season.

Potential varieties (see variety description) for PADF Region II are Constanza 1 (red), Jose Beta (red), PC-50 (red), Salagnac 86 (light red) and Tamazulapa (black).

To estimate bean seed requirements for PADF Region II, the following considerations are made:

1) Full adoption of improved varieties and good-quality seed is not an instantaneous process. Only a small percentage, perhaps 20% of PADF Region II client farmers will, at the beginning, adopt an improved variety and good-quality bean seed. The rest of the farmers will "wait and see". In the following discussion, it is assumed that the rate of adoption, in terms of area planted to improved varieties and good-quality seed will be 20% of the full acreage, during each planting season.

2) Beans are nearly 100% self-pollinating. Assuming a rough 2% of cross-pollination, depending on ecological conditions (mainly air moisture), and cultural practices (mainly the proximity of plots planted to other varieties), the intensity of variety degeneration due to cross-pollination will be relatively low, which means that farmers may save part of their harvest for planting during subsequent seasons. (With 2% cross-pollination, varietal purity, initially at 100%, will decrease to 92% after four planting seasons.) In the following discussion it is assumed that seed corresponding to 5% of current acreage planted to improved varieties, will be saved by farmers in each planting season.

With the foregoing assumptions in mind, the bean seed needs (metric tons) in PADF Region II are as indicated (*):

Year	Season 1	Season 2
1	0.6	1.17
2	1.71	2.23
3	2.71	3.17

Now the question is how may this seed may be produced and distributed *so that PADF client farmers have access to good-quality seed and planting material of improved crop varieties in a sustainable manner.*

(*): The figures are calculated as follows: in season 1 of year 1 20% of the full acreage (60 ha) is planted to improved varieties. This gives 60 ha x 0.20=12 ha. With a planting rate of 50 kg/ha, the seed requirement is 0.6 mt (50 kg/ha x 12 ha). For season 2 of year 1 seed corresponding to 5% previous season's acreage has been saved and is available as "grain seed". Thus, the seed requirement for "old farmers" (farmers beginning to use improved seed in season 1) is 0.57 mt (50 kg/ha x 12 ha x 0.95). But 12 new hectares are planted with improved seed; this makes 0.6 mt (50 kg/ha x 20). So, for season 2 of year 1, the total seed requirement is 0.6 + 0.57= 1.17 mt

The following discussion is an assessment of the capabilities within Haiti, which could contribute to a sustainable system of variety preservation, seed production and distribution.

c. National capabilities in crop variety preservation, seed production and distribution.

There exist a number of organizations in Haiti which are currently involved, or which could be involved in various aspects of crop variety preservation and seed production and marketing. Due to the political and economic crisis which the country has faced since 1986, some of them have reduced, suspended or otherwise changed their activities related to variety preservation and seed multiplication. These institutions are:

CRDA

CRDA is currently involved in screening of introduced experimental lines of bean (the ***PRONATHAR***-Project), maize (the ***PRONATMA***-Project) and potato (the ***PRECODEPA***-Project). It has reduced its activities in germplasm conservation, limited as it is in technical (lack of well-trained people) and physical (lack of adequate handling and storage facilities) aspects. Small amounts of foundation and basic seed of beans and maize are produced. The production of commercial seed thereof is contracted with the agricultural districts of the Ministry of Agriculture. Seed quality testing is carried out by ***SENASA***, the National Service of Improved Seed. Seed quality testing is mainly the determination of germination percentages. CRDA is dependant on foreign aid. Some revenue comes from the sale of commercial bean and maize seed.

ORE

ORE is located in the Camp Perrin area. It is involved in testing introduced varieties (vegetables, fruit, grain, roots and tubers), genetic purification of local varieties, such as the maize variety, Chicken Corn, conservation of germplasm and production of foundation, basic and commercial seed of maize (Chicken Corn and La Maquina 7827), beans (local population and Tamazulapa) and sorghum (M-50009 and the local population). The production of planting material of yams and sweet potato is reduced compared to production before the political crisis. ORE has reasonably good storage facilities for maize and beans. It's staff is knowledgeable. In addition to the production of commercial seed of the Tamazulapa bean variety for its own uses, ORE also produces commercial seed of the same variety on a contractual basis for CRDA.

UniQ

The University Quisqueya (UniQ) has the human resource base for crop variety development and seed technology, but it is limited in physical resources.

ODH

ODH is located on the Cul-de-Sac Plain. It has adequate field and equipment facilities for commercial production (grain, vegetables and planting material of fruit). ODH participates with CRDA in activities related to introduction and screening of introduced experimental lines of beans.

PRIVATE ENTERPRISES

Private enterprises, such as COPRAGSA, PYRAMID S.A., D and B SOCIETE AGRICOLE, and FERMAREV, have irrigated land and good equipment for commercial production of grain, vegetables and fruit. Handling and storage facilities are good for maize and sorghum which they produce for the poultry industry.

COOPERATIVES

Some cooperatives are involved in selling agricultural inputs, including seed of basic grain and vegetables.

NON-GOVERNMENT ORGANIZATIONS

Non-governmental Organizations (NGOs) could be involved in promoting the use of good-quality seed by small farmers.

Overall analysis

From the general picture given in the foregoing paragraphs, the following comments can be made:

1) The human resource base involved in crop variety preservation and seed multiplication is fairly knowledgeable. Some specific training in germplasm management and seed marketing, however, may be necessary. Salary conditions, and the overall economic and political situation may not favor staffing stability.

2) Some linkages already exist between various organizations involved in crop variety preservation and seed multiplication.

3) Replacement of old equipment, and improvement of storage and handling facilities will be necessary.

The question, however, is: are economic incentives large and stable enough as to provide an adequate stimulus for the development of a seed production and marketing industry involving these organizations? At present and in the near future the answer would appear to be "no". However, an alternative is recommended to the Plus Project. This is an artisanal seed production system that would involve certain of the above organizations.

d. Artisanal seed production and marketing

Artisanal, or non-conventional, or non-industrial seed production and marketing differs from industrial or conventional seed production and marketing in the following relevant aspects:

1) Artisanal seed production is an activity which is implemented and controlled by organized groups of farmers, usually cooperatives. Seed security, instead of capitalistic profit making, is the primary objective.

2) Artisanal seed production differs from the conventional seed industry in the scale of operations. While the latter mechanism produces large volumes of seed for large markets, artisanal seed production handles relatively small amounts of seed, usually to serve a maximum of 1,000-2,000 farm families in a relatively small area. This second characteristic dictates the kind of equipment and facilities used to process seed in artisanal seed production, where equipment is home-made, and storage facilities are for short-term, small-volume storage.

Artisanal seed production and marketing is not a totally unknown activity in rural Haiti. Some technically-advanced farmers already practice it, particularly for maize and beans. These are farmers who, having participated in training programs provided by government or non-governmental agencies, have developed some capacity to select plants in their crop fields, dry seed in the sun, clean seed with artisanal winnowing shakers, treat seed with ash and dried tobacco leaves, store seed in cool places in their homes, and sell seeds to neighboring farmers.

At a more formal, cooperative-like level, the Inter-american Institute for Cooperation on Agriculture promoted, in the 70s, artisanal bean seed production in the region of Bongnotte, one of the so-called islets of development. Today, ASSODLO, a non-governmental organization is using a system of artisanal seed production for potatoes in the area of Seguin, with improved varieties originating from CIP, the International Potato Center in Peru.

Favorable conditions exist in PADF Region II for artisanal bean seed production and marketing. These are:

1) Existence of at least two farmer organizations: AGPP and PRESTEN which, in addition to their current activities in agriculture and community development, could be involved in artisanal seed production and distribution with proper training.

2) Conditions suitable for successful bean growing, including sufficient rainfall (1000-2000 mm) during the first growing season, adequate length (3 months) of the first growing season, suitable soils (alluvial), and the existence of an irrigated area (Peredo).

3) The fact that relatively small amounts of bean seed are required for each planting season.

4) The availability in Haiti, or in the nearby Dominican Republic, of improved varieties, with higher yield potential than local varieties, adapted to conditions similar to those in PADF Region II and with higher yield potential than local varieties.

e. The process of artisanal seed production and marketing.

Artisanal seed production and marketing includes the following phases (see flow diagram):

Phase 1: Purchase by seed cooperatives of basic seed produced under contract by seed enterprises.

As indicated earlier, there exist at least five bean varieties adapted to agro-ecological conditions similar to those of PADF Region II. These are: CONSTANZA 1, JOSE BETA, PC-50, SALAGNAC 86 and TAMAZULAPA. Seed of the first three varieties were brought from the Dominican Republic by the consultant; seed of SALAGNAC 86 should be available at the Madian Salagnac Project; and seed of TAMAZULAPA can be obtained from ORE or CRDA. This is for PADF-Region II a good selection of potential varieties.

To evaluate these varieties, it is recommended that SECID and PADF carry out simple yield trials on farmers' fields with farmers' participation. This strategy will facilitate the process of adoption of improved varieties and good quality seed. Yield trials will include these above mentioned varieties and local checks. They will be laid out using current cultural practices (plant density, crop protection and fertilization, etc.). Three to four replications are recommended.

Based on the foregoing figures, the quantities of foundation and basic seed of beans needed to provide the required amounts of commercial seed can be estimated as follows:

1) Take the amount of commercial seed needed, say, for year 1 and season 1 (600 kg) and divide it by the average yield of a particular variety, for example, PC-50 (1,700 kg/ha) to obtain the area of land required for commercial seed production. In this case, 600/1,700 = 0.35 ha.

2) To find the amount of basic seed needed, multiply 0.35 ha by 50 kg (the planting rate). [0.35 x 50 = 18 kg]

3) 18 kg of basic seed can be produced on 0.01 ha (18 kg divided by 1700 kg/ha).

4) Finally, to plant 0.01 ha, 0.5 kg of foundation seed (0.01 ha x 50 kg/ha) is required.

Since artisanal seed producers do not handle foundation seed (Successful foundation seed programs require a higher level of technical and managerial know-how than could be expected at the artisanal level.), what can be done to have available the basic seed needed is the following: The PLUS-Project may, at the launching phase of artisanal seed production in Region II, contract CRDA and/or ORE to produce basic seed of adapted beans varieties. The basic seed produced will then be purchased by the seed cooperatives (to be established), with a medium-term loan (2-4 years) made by PADF or a credit institution, a NGO for example. This loan is part of a larger credit scheme to be made available to seed cooperatives for artisanal seed production.

In the event that there is insufficient foundation seed at ORE or CRDA, it can be imported from ICTA in Guatemala, or from the Dominican Republic (see description of varieties). The preservation of the bean varieties under basic seed production is automatically done by ORE or CRDA, through production and conservation of foundation seed.

Phase 2: Commercial seed production by seed cooperatives.

This phase is consists of three steps: seed multiplication, seed processing and seed storage.

a) Seed multiplication

In each season the corresponding basic seed needed to produce commercial seed must be purchased by the seed cooperatives.

Starting from 18 kg of basic seed, to produce 600 kg of commercial seed of beans (the amount which is needed for the first season of the first year in PADF-Region II), 0.35 ha of land is required. Since the average plot size for beans is 0.20 ha, two farmers could produce 600 kg of commercial seed.

Recommended cultural practices for planting rate, fertilization, and weed, insect and disease control should be followed. Planting should be isolated by at least 5 m from plots planted to other varieties. Ideally the site(s) could be irrigated in the event of a prolonged dry spell.

b) Seed processing

Improved techniques should be used for drying and cleaning of commercial seed in artisanal seed production. Sun-drying should be done by spreading out seed on plastic sheeting. Care should be taken to avoid mixing of commercial seed with commercial grain. Cleaning with winnowing shakers is a simple and low-cost technique appropriate for artisanal seed production.

c) Seed storage

Traditional seed storage techniques, already used by farmers, can be improved and/or new and simple techniques can be introduced for the storage of basic and commercial seed. For example, some farmers use kitchen ash or dried tobacco leaves to protect "grain seed" from stored grain insect pests, such as ***Acanthoscelides obtectus*** and ***Sitophilus oryzae***. Dried neem leaves, neem oil and neem powder could be used with better results. These products are more effective because they disturb the hormonal balance of insect larvae. They are of particular interest as they do no harm to human beings and animals. Basic and commercial seed should be stored under dry and cool conditions in order to maintain seed viability for at least one year.

Phase 3: Commercial seed marketing.

Commercial seed produced in artisanal seed production should be sold by the marmite (approximately 2.5 kg) at prices which are slightly higher than those of grain during the planting periods. Ten percent is a recommended mark-up in order to promote the use in PADF Region II of good-quality seed of improved varieties. Under no circumstances should prices of commercial seed be lower than those of grain seed from local markets in order not to compromise the economic sustainability of artisanal seed production. As previously mentioned, farmers in Region II already purchase grain seed at 50 gourdes per marmite.

Various types of cooperatives, or farmers' organizations can be involved in the marketing of artisanal seed, so that the PLUS-Project client farmers throughout the Region have access to it at the proper planting time.

5. ***Establishing Artisanal Seed Cooperatives.***

Setting up Artisanal Seed Cooperatives (ASCs) requires technical and managerial training, technical assistance and credit. At least two farmers' organizations in PADF Region II can develop the capacity to serve as ASCs in addition to their other activities in agriculture and community development. These are AGPP and PRESTEN.

a) Technical and managerial training.

While basic seed is being produced according to the scheme explained above, the University Quisqueya could be approached by the PLUS-Project to assist in establishing and training of small enterprises for artisanal seed production in PADF Region II. This assistance would have two aspects: managerial and technical.

Managerial training would be provided by the Institute for Research, Training and Counselling in Enterprise Management (IRFEC). Special modules would be developed in such aspects as: developing small enterprises, organization of ASCs, labor division in ASC, input stocks management, computing production costs, simple benefit/cost analysis, basic farm accounting, and marketing techniques.

Technical training would be provided by the Faculty of Agriculture and Environmental Sciences of the University Quisqueya, and would cover such aspects as seed multiplication, handling, processing and storage, field protection and the use of small equipment for artisanal seed production.

Training should be made entirely practical, with training objectives and support material as simple as possible. Furthermore, training should be provided when it is needed, that is during the implementation of each phase of the artisanal seed production process.

b) Technical assistance and credit.

By the time basic seed is available, the PLUS Project, or an NGO would provide the trained seed cooperatives with a long-term loan in order to acquire the basic seed produced by CRDA and ORE, as well as small equipment for artisanal seed production.

Technical assistance to the ASCs during the implementation of each phase of the process of artisanal seed production would be part of the overall assistance provided by the University of Quisqueya.

f. Final recommendation

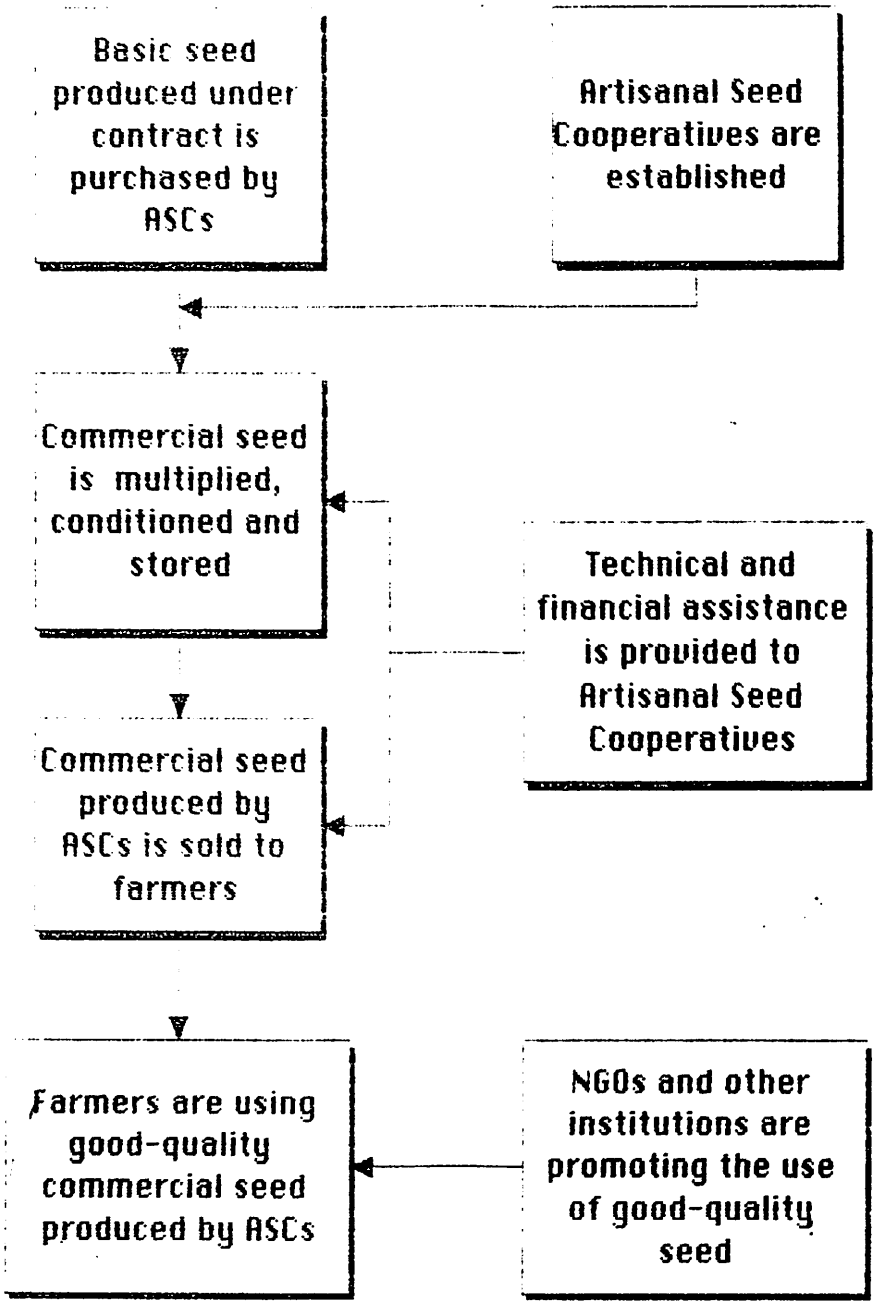
The mechanism of artisanal seed production and marketing, as described for beans in PADF Region II, can be applied to other PADF and CARE regions with different agro-ecological conditions, to other farmers with different socio-economic conditions, and to other crops, self-pollinated, open-pollinated and vegetatively propagated, if the necessary adjustments are made, in terms of organizational, technical and managerial aspects.

Some important questions to be asked before starting to set up ASCs are the following:

- What is the economic importance of a particular crop in a particular PADF or CARE Region?
- Are the agro-ecological conditions suitable for successful production of seed of the crop?
- What is the seed situation?
- What are the organizations which can be involved in basic seed production and variety preservation?
- What kind of training (technical, managerial and financial) is to be provided to the ASC?

Since PADF and CARE technicians and their client farmers are not familiar with artisanal seed production, it is recommended that a pilot activity be implemented in PADF Region II, starting with beans.

Flow diagram of artisanal seed production and distribution



Annex 1

List of responsible institutions and individuals interviewed

HAITI

INSTITUTIONS

CENTRE DE RECHERCHE ET DE DOCUMENTATION AGRICOLES (CRDA)

EMMANUEL PROPHETE	BEANS
GERARD ALEXIS	CORN
JEAN RENE BOSSA	CORN
RICOT SCUTT	YAMS
PIERRE MARIE BASQUIAT	POTATO
BERTRAND DESROUILLERES	SWEET POTATO
PASCALE CHATELAIN	TOMATO

ORGANISATION POUR LA REHABILITATION DE L'ENVIRONNEMENT (ORE)

ELIACIN MAGLOIRE	CORN
	SWEET POTATO
	SORGHUM
	BEANS
	YAMS
	VEGETABLES
SEAN FINNIGAN	FRUIT

OPERATION DOUBLE HARVEST (ODH)

DAVID MARSHALL	VEGETABLES

PROJET D'INTENSIFICATION DES CULTURES VIVRIERES

DENIS DALIEN	FOOD CROPS

WINN'S FARM

FAMOSA

MARNDR/KENSCOFF

CENTRE AGRICOLE SAINT BARNABAS

ORGANIZATION FOR THE DEVELOPMENT OF THE NORTH

WILFRID BRIZE	FOOD CROPS

DOMINICAN REPUBLIC

INTERAMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE (IICA)

GILBERTO PAEZ	FOOD CROPS
HORACIO STAGNO	
RAUL PINEDA	

CENTRO SUR DE DESARROLLO AGRICOLA (CESDA)

MIGUEL HERRERA	BEANS
FELIX NAVARRO	CORN
PIERRE ORTIZ	CORN

CENTRO DE INVESTIGACIONES APLICADAS A ZONAS ARIDAS (CIAZA)

	CORN

COLLABORATIVE RESEARCH SUPPORT PROJECT (CRSP)

ELADIO ARNAUD SANTANA	BEANS

FUNDACION DE DESARROLLO AGROPECUARIO

TEOFILO SURIEL	BEANS
	CORN
RAFAEL P. DUVERGE	CORN

VITRO LAB

LUIS E. NOBOA	PLANTAIN

SEMILLAS SURENAS

RICARDO E. DICLO	BEANS
	PIGEON PEA

PROFRIJOL

FREDDY SALADIN	BEANS

SECRETARIA DE ESTADO DE AGRICULTURA (SEA)

FRANCISCO M. GONZALES	FOOD CROPS

PEDRO HENRIQUEZ URENA UNIVERSITY (UNPHU)

J.P. MORALES-PAYAN	CORN

JUNTA AGROEMPRESARIAL DOMINICANA (JAD)

ABRAHAM ABUD	CORN

Annex 2

Literature review

1. Premier Cours National sur la Production du Haricot PRONATHAR, CRDA, 1990.

2. The role of adaptive research in increasing agricultural productivity: The experience from Haiti. Ousmane Guindo. Canadian Journal of Economics. 37 (1989) 887-897.

3. La papa en Haiti. CRDA/FAMV/PRECODEPA, 1987.

4. Legumineuses alimentaires. Project Madian-Salagnac.

5. A review of PDAI and ADS-II Project Technologies. SECID/AUBURN Report No. 2.

6. PROGRAMA REGIONAL DE MAIZ. CENTRO AMERICA PANAMA Y EL CARIBE. PLAN OPERATIVO 1989-1994.

7. Essai d'adaptation de la pomme de terre (Solanum tuberosum) var CGN). Projet d'Intensification des Cultures Vivrieres (PICV), 1993 .

8. Etapas del Mejoramiento del maiz en la Republica Dominicana. FERTILIZANTES DE SANTO DOMINGO (FERSAN). 1989.

9. Cultivo del Gandul. FUNDACION DE DESARROLLO AGROPECUARIO (FDA). Compilado por Freddy Saladin.

10. Survey on Rice Production in the Artibonite Valley. CARIBBEAN RICE IMPROVEMENT NETWORK (CRIN).

11. PROJET D'INTENSIFICATION DES CULTURES VIVRIERES (PICV): summary of project status: major trends and problems.

12. Freddy Saladin: El frijol en la Republica Dominicana. Compilacion.

13. Agricultural Sector Assessment. Haiti. USAID, 1987

14. Recherche Agricole ODN. Resultats pour la periode 1977/1980

15. El mosaico dorado del frijol en Haiti. Emmanuel Prophete. 1992

16. ADS-II Report No. 23, 1986

17. On-Farm Research Methodologies at work. Michael Yates and J.C. Martinez. CIMMYT.

18. ADS-II Report No. 36, 1986.

19. CRDA: Recherche et Developpement Rural. Vol.4 No.1, 1992.

20. FAMV: Caracterisation de cultivars de patate douce et evaluation des degats du charancon Cylas formicarius.

Annex 3

List of institutions contacted for information on crop varieties of potential value in haiti

B

BARC: BELTVILLE AGRICULTURAL RESEARCH CENTER (USA)
TROPICAL CROPS

C

CARDI:CARIBBEAN RESEARCH DEVELOPMENT INSTITUTE (EASTERN CARIBBEAN)
TROPICAL CROPS

CATIE:CENTRO AGRONOMICA TROPICAL DE INVESTIGACION Y ENSENANZA (COSTA RICA)
TROPICAL CROPS

CENTA:CENTRO DE TECNOLOGIA AGROPECUARIA (EL SALVADOR)
BEANS/MAIZE

CESDA:CENTRO SUR DE DESARROLLO AGRICOLA (DOMINICAN REPUBLIC)
BEANS/MAIZE
PIGEON PEA

CIAT: CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL (COLOMBIA)
BEANS
CASSAVA/RICE

CIMMYT:CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO (MEXICO)
MAIZE

CIP: CENTRO INTERNACIONAL DE LA PAPA (PERU)
IRISH AND SWEET/POTATO

CRSP: COLLABORATIVE RESEARCH SUPPORT PROJECT (DOMINICAN REPUBLIC)
BEANS
COW-PEAS

I

ICARDA:INTERNACIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS (SYRIA)
FOOD LEGUMES

ICRISAT:INTERNATIONAL CENTER FOR RESEARCH IN THE SEMI-ARID TROPICS (INDIA)
SORGHUM/COW-PEA/PIGEON PEA

IITA: INTERNATIONAL INSTITUTE FOR TROPICAL AGRICULTURE (NIGERIA)
TROPICAL CROPS

ICTA: INSTITUTO DE CIENCIA Y TECNOLOGIA AGROPECUARIA (GUATEMALA)
BEANS

INRA: INSTITUT NATIONAL DE LA RECHERCHE AGRICOLE (GUADALOUPE)
YAMS

IPS: INSTITUTO POLITECNICO LOYOLA (DOMINICAN REPUBLIC)
MAIZE

IRAT: INSTITUT DE RECHERCHE EN AGRONOMIE TROPICALE (WEST AFRICA)
TROPICAL CROPS

IRRI: INTERNATIONAL RICE RESEARCH INSTITUTE (THE PHILIPPINES)
RICE

U

UPI: UNIVERSITY OF PUERTO RICO (PUERTO RICO)
TROPICAL CROPS

UWI: UNIVERSITY OF THE WEST INDIES (TRINIDAD)
TROPICAL CROPS

Annex 4

Copies of correspondence with international, regional and national crop research programs

September 3, 1993
OVV-021-93

Dr. Ariel Azael
Consultant
The South-East Consortium for International
Development and Auburn University
c/o Lynx Air (LA)
P.O.Box 407139
Ft. Lauderdale, FL. 33340
USA

Dear Dr. Azael:

Your letter dated August 9, has been referred to me for its attention.

The enclosed brochure includes a list of the most recent outstanding experimental lines that CIAT is distributed for testing. Lines are grouped by market classes and agroclimatic adaptation. Reaction for the most widespread diseases is also shown in 1-9 scale (1-3 resistant; 7-9 susceptible).

I understand that in Haiti, the red-mottled beans are the preferred ones; in that case, lines included in the trial 6-9100C, 6-9100D, 6-9100E and 6-9100F would be the most suitable for testing. These, however are experimental lines. Many of them have been tested last year in Haiti. You might want to contact Anne Delbeke, Expert Agronome-Développement, Project FAO-HAI/90/017, c/o représentation de la FAO, BP 13 225 - Delmas, Port-au-Prince, Haiti, about the performance of these lines and perhaps get seed samples.

If your interest is only on commercial varieties your best choice would be the red-mottled varieties from Colombia (FRIJOLICA P1.1; ICA Cafetero, ICA Caucayá; ICA Citara; Diacol Calima) Ecuador (Cargabello, Imbabello, and Dominican Republic (all the Pompadour series), all them adapted to conditions prevailing up to 1200 m.a.s.l.

Please fell free to write us in case you need further information.

Sincerely,

OSWALDO VOYSEST

Enclosure

Mailing address, Apdo. aéreo 6713, CALI, COLOMBIA. Telex 05769 CIAT CO. ITT Dialcom ID 57:CGI301 FAX 57-23-647243. Tel. 57-23-675050

Also included you will find the list of potato material that we have sent to Haiti in the last 10 years.

Please let us know of your contacts in Haiti and do not hesitate in contacting us as soon as you have made a decision. We will happy to help Haiti.

Sincerely yours,

p.

Oscar A. Hidalgo
Regional Representative
Latin America & The Caribbean

c.c.: Eng. R. Rodriguez
Mr. J.E. Bryan
Mr. J.V. Henry

OAH:ldt

Caroni (1975) Limited

The National Agro Industrial Company of Trinidad and Tobago

Brechin Castle, Couva, Trinidad, West Indies.

Cable Address: Trincaroni, Port of Spain
Tel: 1 (809) 636-2311 (9 lines)
1 (809) 636-2371 (5 lines)
Fax: (809) 636-1259 Telex: 31361

Caroni Research Station
Waterloo Road
Carapichaima
Trinidad, West Indies

Our Reference:
CRS/1450/284

December 10, 1993

Dr. Ariel Azael
c/o Lynx Air (LAI)
P.O. Box 407139
Ft. Lauderdale
Fl. 33340
U.S.A.

Dear Dr. Azael,

Thank you for your letter of August 9, 1993. As you would have realized by now I am no longer with CARDI but am now based in Trinidad as a research agronomist with Caroni (1975) Limited. However, I am willing to co-operate in your project re Haiti.

The crops that I suggest for your arid conditions are cashew, pineapple, tamarind and pitahaya. Caroni (1975) Limited is producing both pineapple and cashew although under conditions that are not very dry. There is a selection of sweet tamarind at the Central Experiment Station in Centeno, Trinidad. If you are interested I can get some seed for you. Pitahaya introduced from Colombia is currently growing in St. Lucia but is not yet fruiting. Caroni's production is as follows:-

Crop	Cultivar	Elevation	Ann. Rainfall	Field
Cashew	Seedlings of select mother trees	Sea level	2000 mm	350 kg/ha 5 yr old trees
Pineapple	Deltada (Red Spanish type)	Sea level	1750 mm	28 t/ha (plant crop) 50,000 pl/ha.

...../2

DIRECTORS: Dr. K. Haraksingh (Chairman), Mr. G. Braithwaite, Dr. W. Debideen, Mr. A. Gopaulsingh, Dr. S. Howard, Dr. E. Jones, Mr. Sam Maharaj, Mr. S.N. Maharaj, Dr. H. Rafeeq, Mr. Ms. R. Sarran-Persad, Mr. R. Shah, Mr. J.R. Singh

The major problems with these two crops are susceptability of the cashew to anthracnose and small fruit size of the Deltada 1 kg.

If you are interested in any of these I will determine cost of acquisition and shipping to Haiti for you.

Sincerely

L. Andrews

L. Andrews
Research Agronomist
Caroni Research Station

International Institute of Tropical Agriculture

Oyo Road, PMB 5320, Ibadan, Nigeria • Telephone: 400300—400314 • Cable: TROPFOUND IKEJA
Telex: TDS IBA NG 20311 (BOX 015) or TROPIB NG 31417

15 October, 1993

Dr. Ariel Azae
Consultant
Haiti Productive Land Use System Project
The South-East Consortum for International Development and
Auburn University
c/o Lynx Air Air (LAI)
P.O. Box 407139
Ft. Lauderdale
FL. 33340, USA.

Dear Dr. Azae:

Thank you for your letter of 9 August, 1993 enquiring on varieties for testing. IITA's work covers corn (maize), cowpeas, plantain, cassava and yams.

Cowpea

I attach a publication about general guide for cowpea cultivation. And a form for you to complete if you do need soybean.

Maize (corn)

Since Haiti is not far from Mexico, and CIMMYT has a mandate to assist corn program in that region, we advice Haiti - Plus contact CIMMYT for maize information. Our materials have never been tested in Haiti and we do not expect they will be well adapted.

Plantain

We suggest you contact FHIA in Honduras. Again, they are nearer to Haiti and could provide you with well adapted materials.

Yam

Am sorry I cannot send you any information on yam right now; this will be forwarded as soon as possible.

Kind regards.

Sincerely,

for F.M. Quin
Director
Crop Improvement Program

Encl.
xvi

Lagos/Ikeja Office: Plots 531 & 532 Ogba Road, Ogba Estate P.O. Box 145, Ikeja Telephone: Lagos 933931

International Mailing Address:
c/o L.W. Lambourn & Co., Carolyn House, 26 Dingwall Road, Croydon CR9 3EE, England

Universidad de Puerto Rico
RECINTO UNIVERSITARIO DE MAYAGUEZ
P.O. Box 5000
Mayagüez, Puerto Rico 00681-5000

Colegio de Ciencias Agrícolas
Departamento de Agronomía y Suelos

September 4, 1993

Dr. Ariel Azael
Consultant
Haiti Productive Land Use System Project
c/o Lynx Air (LAI)
P.O. Box 407139
Ft. Lauderdale, FL 33340

Dear Dr. Azael,

Thank you for your letter dated 16 August 1993 concerning the Haiti Productive Land Use Project in Haiti. I believe that the University of Puerto Rico has expertise that would be of great use to your project. I am presently involved in a USAID supported project in the Dominican Republic which is developing bean varieties with greater disease resistance and heat tolerance. Some of the lines developed by our project have already been tested in Haiti. Last year, Ms. Anne Delbeke of Project FAO-HAI/90/017 tested our bean lines in the Artibonite Valley. I recently sent Mr. Emmanuel Prophete of the Ministre de L'Agriculture another group of bean lines for testing in Haiti. I collaborate with Mr. Prophete through the Swiss supported PROFRIJOL regional project. In addition to improved bean germplasm, project personnel have developed management techniques that have significantly reduced losses due bean golden mosaic virus in the Dominican Republic. We would look forward to the possibility of collaborating with your project. In fact, USAID encourages us to seek "buy-ins" to permit our project to work in other countries where we may be of benefit.

During the past few years, I have been testing local landraces and breeding lines of cowpeas from IITA. We have identified two determinate cowpea lines IITA that are yield well and have resistance to aphids and weevils.

The University of Puerto Rico has a pigeonpea breeding program. The project has developed some daylength insensitive pigeonpea lines which may be of particular use to subsistence farmers. We also have active research programs for yams and plantains.

TITULO IX; PROHIBE AL RUM A DESCRIMINAR POR RAZON DE SEXO EN AREA EDUCATIVA Y DE EMPLEOS

The Agricultural Research Service of the United States Department of Agriculture has conducted extensive research in Puerto Rico on corn and sorghum production. The researchers at the Tropical Agriculture Research Station in Mayaguez, PR could provide useful germplasm and recommendations for producing these crops.

The Agricultural Experiment Station of the University of Puerto Rico has developed a series of "technology packages" for many different crops including beans, pigeonpeas, yams, plantains. I would expect that much of this information would be directly transferable to conditions in Haiti.

The Haiti Productive Land Use Project sounds very worthwhile and I believe that you will find a willingness among agricultural scientists in Puerto Rico to help our neighbors. If possible, I would recommend that you visit us in the near future. That would permit you to gather the information and germplasm that would be of greatest use to you. I would be pleased to make local arrangements for your visit.

Sincerely yours,

James Beaver

James Beaver
Associate Professor

Telex: 422203 ICRI IN or 4256366 ICRI IN
Phone: Hyderabad +91(842) 224016
Cable: CRISAT, Hyderabad

ICRISAT

E-mail: Dialcom 157:CGI505
Fax: +91(842) 241239
Airport: Hyderabad

International Crops Research Institute for the Semi-Arid Tropics

Patancheru, Andhra Pradesh 502 324, India

27 Sep 1993

Dr Ariel Azael
Haiti Productive Land Use System Project
The South-East Consortium for International
Development and Auburn University
C/O. Lynx Air (LAI)
P.O. Box 407139
Ft Lauderdale
Florida 33340
USA

Dear Dr Azael:

I refer to your letter of 9 August concerning varieties of crops with potential for cultivation in Haiti. This has been passed to me for response regarding sorghum and to arrange supply of seed.

We have no direct information on the performance in Haiti of the specific cultivars of sorghum available here in India. But by extrapolation from their performances at sites in Central America, the following varieties would be worth evaluation there: ICSV 112, ICSV 210, ICSV 401, ICSV 725, ICSV 88002, ICSV 88032, ICSV 89102, ICSV-LM 86513, ICSV-LM 89522, SPV 462 and SPV 669. These varieties are all of medium duration (ca 110 days to maturity) and should be adapted to the full altitude range in the PLUS-Project area. They should be adapted to the semi-arid areas of your project area (500-800 mm rainfall during the cropping season) but would be inappropriate for very low or very high rainfall areas.

We have little information on the specific stresses that sorghum would be exposed to in Haiti but the varieties suggested above are generally resistant to leaf diseases and susceptible to insect attack (with the exception of ICSV 88032 which is resistant to midge). All would be susceptible to grain mold if exposed to wet conditions at and after grain maturity. They have no specific management requirements but are better adapted to high fertility levels than to low ones.

We will arrange to send small samples of seed (5-10 g) of the varieties mentioned above. Because of US phytosanitary regulations, we will be unable to send to your international mailing address and will have to send them directly to Haiti. Please let us know if this is appropriate or if there is a faster or more secure means of delivery.

xix

Delhi Office: 23 Golf Links, New Delhi 110 003
Phone: +91(11)615931. Telex: 31-65009 ICRI IN. Cable: INTCRISAT, New Delhi. E-Mail: Dialcom 157:CGI505. Fax: +91(11)619865.

Other varieties that we know do well in Haiti include M-62641 (released in Mexico as Costeno 201), Sureno, ICTA Mitlan 85, Istmeno, and Nicasor (T-43). Costeno 201 in particular has been shown to do well in on-farm trials in Haiti and would be particularly worth testing. Seed of these varieties can be obtained from Dr Compton L Paul, Team Leader of the ICRISAT/WASIP project, care of CIMMYT, El Batan, Texcoco, Mexico, if they are not already available to you. Dr Paul may be able to propose other options for you to consider, and by a copy of this letter I have asked him to advise you directly on this. We will be interested to be informed on the results of your trials with the various varieties. I will integrate your advice regarding an appropriate address for consignment of seed.

With best regards.

Yours sincerely,

Don E. Byth
Director
Cereals Program

xx

IRRI
INTERNATIONAL RICE RESEARCH INSTITUTE

14 September 1993

Dear Dr. Azael,

Many thanks for your kind letter of August 9 enquiring about the availability of seeds of the crop varieties. I would like to inform you that we only work on rice and we have had only limited contact with scientists in Haiti. However, our sister institute, CIAT in Cali, Colombia has been working with the rice scientists in Latin America. You may wish to write to Dr. Federico Cuevas at the following address and enquire about the suitable varieties of rice and availability of seeds. Dr. Cuevas' address is as follows:

Dr. Federico Cuevas
CIAT
Apartado Aeroe 67013
Cali, Colombia

With kind regards,

Sincerely yours,

Gurdev S. Khush

Gurdev S. Khush
Principal Plant Breeder and Head
Division of Plant Breeding,
Genetics and Biochemistry

Dr. Ariel Azael
Consultant
The South-East Consortium for International
Development and Auburn University
52, Rue Mangones
Berthe, Petion-Ville
Haiti

GSK/enn

P.O. Box 933 • 1099 Manila, Philippines • Telephone: *City office* - 88-48-69; 88-83-51 to 53; *Research Center* - 818-1926
Cable: Ricefound Manila • Telex: (ITT) 45365 RICE PM, 40890 RICE PM; (RCA) 22456 IRI PH; (EASTERN) 63786 RICE PN • FAX: (63-2) 817-8470; (63-2) 818-2087

C93052

September 22, 1993

Doctor
ARIEL AZAEL
Consultant
The South-East Consortium for International
Development and Auburn University
c/o Lynx Air (LA)
P.O. Box 407139
Ft. Lauderdale, Fl. 33340
U. S. A.

Dear Sir:

Our Program has selected groups of genotypes for adaptation to specific agro-ecosystems. Those genotypes are available to transfer to any National Program by in vitro meristem culture. In order to better target our introductions. I need a better description of the climate and soils for each region. There is also a need to confirm the capacity to recover the genotypes from in vitro culture.

We have previously introduced materials to Haiti. Enclosed you find the list of genotypes with corresponding characteristics. Those were sent in 1990 to World Hunger Relief. You may ..... to check if those genotypes are still kept; because they may represent a good starting point for your project.

I look forward to hearing from you in the near future.

Sincerely,

CARLOS IGLESIAS
Cassava Program

Mailing address. Apdo. aéreo 6713. CALI, COLOMBIA. Telex 05769 CIAT CO. ITT Dialcom ID 57:CGI301 FAX 57-23-647243. Tel. 57-23-675050

DESCRIPTION OF CASSAVA CLONES SENT TO WORLD HUNGER RELIEF, INC: PROJECT T.P.E.E.S.:
C/O FRANZ PIGUION; P.O. BOX 15270; PORT AU PRINCE; HAITI. SEPTEMBER 1990. SHIPMENT NO. 9094C

CLONE	ZONE PRPL	ZONE SCND	(1 = LOW) YLD	DM	HCN	CUL QTY	(1=GOOD) TRP	MON	CBB	SED	DPL	(1=RESISTENT) RESISTANT TO:	MORPHOLOGICAL TRAITS ROOT COLR	FLSH COLR	PGMN CRTX	BRN- CHNG	PLNT HGHT
CG 5- 79	4		4	4	2	3	1	1	5	5	5		1	1	0	2	4
CG 7- 64	4		5	4	3	2	3	2	4	5	5		1	2	0	4	3
CG 915- 1	1	4	5	4	3	2	3	2	2	4	5		3	1	1	2	3
CG 996- 6	4	1 2	5	4	2	3	2	2	2	2	5		3	1	0	2	4
CG 1141- 1	1	4 2	5	5	2	1	2	2	3	3	1		3	1	0	2	3
CG 1355- 2	1		5	3	3	2	4	4	3	4			3	1	0	2	4
CG 1372- 5	1		5	4	2	2	3	3	2	5			2	1	0	2	5
CM 523- 7	2	3 4 1	4	5	2	3	3	3	2	2	5		3	1	1	3	4
CM 723- 3	2	3	3	3	2	3	2	2	1	1			3	1	0	4	2
CM 955- 2	4	1	5	4	2	3	2	2	4	4	3		3	1	0	2	4
CM 2177- 2	2	4	5	3	2	1	3	3	2	2	2		3	1	0	3	3
CM 3306- 9	1		4	5	2	2	2	2	3	5	5		2	1	0	2	2
CM 3320- 4	1		4	3	3	3	3	3	3	4			3	1		3	3

ZONE = EDAPHOCLIMATIC ZONE OF ADAPTATION
PRPL = PRINCIPAL ZONE OF ADAPTATION
SCND = SECONDARY ZONE(S) OF ADAPTATION

1: TROPICAL LOWLANDS; LONG DRY SEASON
2: ACID SOIL SAVANNAS
3: HUMID TROPICS
4: MIDDLE ALTITUDE TROPICS
5: HIGHLAND TROPICS
6: SUBTROPICS
7: SEMI-ARID TROPICS

YIELD, QUALITY AND RESISTANCE
(1-5 SCALE)
YLD = YIELD POTENTIAL IN ZONE(S) OF ADAPTATION
DM = ROOT DRY MATTER CONTENT
HCN = ROOT HCN CONTENT
(1-3: SUITABLE FOR FRESH CONSUMPTION;
4-5: BITTER)
CUL QTY = CULINARY QUALITY
TRP = THRIPS
MON = MONONYCHELLUS TANAJOA
CBB = CASSAVA BACTERIAL BLIGHT
SED = SUPERELONGATION DISEASE
DPL = DIPLODIA ROOT ROT; GREENHOUSE EVAL.

MORPHOLOGICAL CHARACTERISTICS

ROOT COLR = ROOT SURFACE COLOR
1 = LIGHT
2 = MEDIUM BROWN
3 = DARK BROWN

FLSH COLR = ROOT FLESH COLOR
1 = WHITE
2 = CREAM
3 = YELLOW

PGMN CRTX = PIGMENTATION OF ROOT CORTEX
0 = ABSENT
1 = SLIGHT PINK
2 = LIGHT PURPLE
3 = PURPLE
Y = YELLOW

BRNCHNG = BRANCHING HABIT
1 = VERY LITTLE BRANCHING
5 = VERY HIGHLY BRANCHED

PLNT HGHT = PLANT HEIGHT
1 = VERY SHORT
5 = VERY TALL

International Institute of Tropical Agriculture

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Onne, December 2, 1993

Dr. Ariel Azael
Haiti Productive Land Use System Project
The South-East Consortium for International
Development and Auburn University
c/o Lynx Air (LAI)
P.O. Box 407139
Ft. Lauderdale
FL 33340
USA

Dear Dr. Azael:

PBIP acknowledges reception of your request for plantain germplasm. Enclosed is copy of recent paper published by us in HortScience about improved plantain germplasm developed at IITA. INIBAP has indicated that TMPx 1621-1, TMPx 2796-5 and TMPx 5706-1 are free of both CMV and BSV. IITA virologists are checking the rest of entries and results may be available in March 1994. To proceed with your request we need an import permit issued by Haiti's authorities. The Nigerian Plant Quarantine Service may provide an export permit after inspecting our stocks and upon request. Also we would like to know whether you can receive the clones in proliferating cultures or not. Some expertise in handling in vitro materials may be needed. We may send more clones when we received negative results from IITA virus indexing.

Looking forward to hearing from you soon.

Sincerely yours,

ORTIZ

Rodomiro Ortiz
Ag. Leader PBIP

cc. M. Quin (CID Director), D. Vulysteke (PBIP), D. Florini (SHU), H. Rossel (HPRP), D. Jones (INIBAP).

INTERNATIONAL POTATO CENTER (CIP)
Address: Apartado 5969 - Lima, Perú. Telex: 25672 PE. Cables: CIPAPA, Lima
Telephones: 366920; 354354. FAX: 351570. E-Mail: 157:CGI801; 157:CGI043

REGION
LATIN AMERICA &
THE CARIBBEAN

L-127-LAC-93

La Molina, September 21, 1993

Dr. Ariel Azael
Consultant
Haiti Productive Land Use System Project
The SE Consortium for International Development
and Auburn University (SECID)
c/o Lynx Air (LAI)
P.O. Box 407139
Ft. Lauderdale, FL 33340
U.S.A.

Dear Dr. Azael :

Your letter dated October 9 has been transferred to my office that attends The Caribbean countries.

We are very pleased to know that SECID is implementing the PLUS Project in order to help the development of Haiti 's agriculture.

Let me first inform you that we maintain contact in Haiti with Dr. Jean Vernet Henry and Jude Pierre Marie B., both from the Faculte D'agronomie et de Medicine Veterinarie (Damien Port-au-prince, Haiti, Tel. 24781/24592) who have been closely associated to the Regional Network called PRECODEPA (Programa Regional Cooperativo de Papa) that serves Central America and some Caribbean countries, including Haiti in terms of potato research and technical assistance.

PRECODEPA could provide valuable materials of potato as well as assistance in this crop. Of course we could also provide your program with potato material depending on the type of material you may need. We could also provide experimental materials for sweetpotato. Attached you will find the list of materials available at CIP in potato and sweetpotato. Most of them are *in vitro* and need to be multiplied before using them in the field. All sweetpotato materials are sent *in vitro* only. We could also offer you some true potato seed (TPS). Mr. Vernet knows this technique very well.

I strongly suggest that you contact Mr. Vernet Henry and/or Mr. Marie who can provide you with valuable information on the type of material that PRECODEPA or CIP could provide to your project. Copy of your letter is being sent to Eng. Roberto Rodriguez, Coordinator of PRECODEPA who may want to add something more to help your programa (Apartado Postal 322, Volcán, Chiriquí, Panamá).

The International Potato Center (CIP) is a scientific, autonomous, and non-profit institution dedicated to develop and disseminate knowledge for greater use of the potato and sweetpotato as basic foods in the developing world. CIP was established by agreement with the Government of Peru and is supported by the Consultative Group on International Agricultural Research (CGIAR) whose members provide funding for international agricultural development.