ANNUAL REPORT FOR YEAR 2012

NATIONAL PLANT PROTECTION OFFICE

12.1 INTRODUCTION

The National Plant Protection Office (NPPO), being the National Plant Protection Service, has been entrusted with an overall responsibility for law enforcement on plant protection matters, as per provisions made under the Plant Protection Act 2006.

The NPPO has the overall responsibilities for disease surveillance, prevention of the entry of exotic pests and diseases, policy formulation of phytosanitary measures as related to international trade, implementation of the White Grub Protocol and issue of Phytosanitary Certificate (PC) for export of agricultural commodities and Plant Import Permit (PIP). The Plant Quarantine Services, being the first line of defence, operates at strategic points of entry i.e. Seaport and Sir Seewoosagur Ramgoolam International Airport on a 24-hr basis 7-day a week.

Furthermore, the Office is mandated to carry out research and development programmes in various specialized disciplines of phyto-pathology and quarantine, and Pest Risk Analysis (PRA). The NPPO provides services such as Plant Disease Diagnostic and Advisory, Seed Health Testing and Treatment, Active Growth Inspection for export, Post Entry Quarantine and Postharvest treatment were provided to the planting community/exporters/importers.

The Office is currently hosting the SPS Enquiry Point and acts as an information desk for reception and dissemination of WTO/SPS matters, and is also the Contact Point for the International Plant Protection Convention (IPPC) as per our international obligation under the WTO.

12.2 QUARANTINE AND REGULATORY ACTIVITIES

The Plant Quarantine Service (PQS) of the NPPO, ensured a 24-hr all year round control and disease/pest surveillance at strategic points of entry (airport, sea port, post office etc) in connection with inspection of incoming flights and ship vessels, examination and clearance of incoming agricultural consignment, implementation of White Grub Protocol and interception of illegal and/or nonconforming items of plant origin.

The NPPO has its main office at Reduit and four sub-offices: (i) in Arrival Lounge and in (2) Plaisance Air Transport Services at SSR International Airport, Plaine Magnien; and (3) at Mer Rouge and (4) at New Container Terminal at Port Louis. The Quarantine activities together with revenues for the period under review at Reduit, Mer Rouge and Airport are summarised in Annexure I: Table 1, 2 and 3 respectively.

12.2.1 REDUIT OFFICE
12.2.1.1 Issue of Plant Import Permits (PIP's)

Applications for PIP are made to the Reduit office as well as the Mer Rouge Office, for a wide range of agricultural commodities. Importation of moderate to high risk commodities are carried out through a Pest Risk Analysis (PRA) by Scientific Officers.

On basis of the result of the PRA the application is either rejected or approved. A total of 8358 PIP were issued for the period under review.

12.2.1.2 Issue of Phytosanitary Certificates (PC's)

The Office is also mandated to deliver Phytosanitary Certificates (PC) to prospective exporters and passengers carrying agricultural commodities with them. A total of 4015 commercial and non-commercial PC's were delivered for the year 2012 for agricultural products such as vegetables, fruits, anthurium flowers, other fresh cut flowers (e.g. gerbera, cucurma), ornamentals; vegetables, fruits and flowers seeds; palm seeds, and shoots; medicinal herbs, sugar, wooden articles, and spices.

12.2.1.3 Treatment of planting materials for export

Treatment of all planting materials was carried out prior to issue of a Phytosanitary Certificate as follows:

**Bare rooted Plants/seedlings/cuttings:** Dip in a solution mixture of a broad spectrum insecticide and fungicide

**Seeds:** dusting with a mixture of a broad spectrum insecticide and fungicide

A Total of 206 treatments were carried out.

12.2.1.4 Active Growth Inspection (AGI) of Anthurium plantations for export

Seventy six (76) AGI were carried out for the period under review with the objective to:

(i) monitor status of pests and diseases affecting Anthurium production;

(ii) monitor production of high quality and disease/pest-free anthurium blooms for Phytosanitary certification for export;

(iii) carry out detection surveys throughout an established surveillance system for exotic pests/diseases and other targeted quarantine diseases i.e Anthurium bacterial blight caused by *Xanthomonas axonopodis pv. diffenbachiae*.

Major diseases encountered were Bacterial Wilt (*Ralstonia solanacearum*), Root Rot (*Phytophthora spp.*), Anthracnose (*Colletotrichum gloeosporioides*). Sporadic attack of pests such as mites, thrips and leaf eating caterpillars were also detected.
No quarantine diseases/pests were detected. Recommendations on control measures in collaboration with the Entomology Division were also made to anthurium growers.

**12.2.2 PORT LOUIS OFFICE**

Quarantine activities carried out for the period under review are shown in sections 2.2.1 to 2.2.4.

**12.2.2.1 Inspection of Ships/Vessels**

A total of 1624 ships / vessels / yatch were inspected for the period under review.

**12.2.2.2 Inspection/Clearance of incoming agricultural produce**

Imported agricultural produce comprising mainly of second hand agricultural machinery, fruits, vegetables. Pulses, Spices, planting materials (plants, plant parts & seeds), wood & wooden products were inspected and cleared for delivery.

In this connections 4981 Inspection Certificates (CI) were delivered to the importers by the Quarantine Officers at the Port.

**12.2.2.3 Exportation of agricultural items**

A total of 3721 commercial and non-commercial Phytosanitary Certificates (PC) were issued at the Port-Louis Office for exportation of agricultural products such as vegetables, anthurium blooms, anthurium leaves, other ornamental flowers, wooden structures and other items. Visual inspection of a representative sample of the produce, treatment of planting materials chemical treatment (by dipping), wooden crafts (by fumigation) and, for some countries, a PIP from the importing country is a prerequisite for the issue of the Phytosanitary Certificate.

A total of 175 treatments (dip in mixture of insecticide & fungicide) of fresh planting materials were also carried out prior to the issue of Phytosanitary Certificates.

**12.2.2.4 Incinerator Plant Facility**

A total of approximately 25273 kg of aircraft kitchen-generated waste and other intercepted items from incoming passengers, Agricultural Marketing Board (AMB) - Cold Room, PATS DHL and UPS were incinerated at the Incinerator Plant. The revenue generated by the Incinerator Plant was Rs 78645 (as from December 2010)

**12.2.3 SSR INTERNATIONAL AIRPORT SUB OFFICES**

Quarantine activities carried out for the period under review are shown in sections 2.3.1 to 2.3.4.

**12.2.3.1 Inspection of Planes**
A total of 9335 incoming planes were attended for inspection and removal of classified quarantine waste (pantry refuse) and monitoring of removal of aircraft kitchen generated waste by the Airport Catering Unit.

12.2.3.2 Inspection/Clearance of incoming agricultural produce

Imported agricultural produce comprising mainly of fruits, vegetables, aromatic & fine herbs, fresh cut flowers and planting materials (plants, plant parts & seeds) were inspected and cleared for delivery by the Quarantine Officers at the PATS and AMB cold store.

In this connections 1405 Inspection Certificates (CI) were delivered to the importers by the Quarantine Officers at the SSR Int. Airport.

12.2.3.3 Issue of Phytosanitary Certificate for Export

Agricultural products destined for export were subjected to visual inspection of a representative sample of the produce and treatment of planting materials (dip) was a prerequisite for the issue of the Phytosanitary Certificate.

A total of 447 commercial & non-commercial Phytosanitary Certificates meant for export of agricultural produce were issued at the SSR Int. Airport Office.

12.2.3.4 Incinerator Plant Facility

A total of approximately 176660 kg of aircraft kitchen-generated waste and other intercepted items from incoming passengers, Agricultural Marketing Board (AMB) - Cold Room, PATS DHL and UPS were incinerated at the Incinerator Plant.

12.2.4 General Aviation (Mauritius) Limited

General Aviation (Mauritius) Limited (GAM) is a branch in Mauritius of General Aviation Ltd, an international organization, to cater for special passengers such as private business flights and passengers requiring special treatment. A separate terminal at the airport is being managed with the help of Airports of Mauritius (AML) to offer this service. GAM operates under the purview of the AML and has its own Health, Immigration, Quarantine and Customs Services. GAM also caters for commercial passengers who would have beforehand requested for GAM services. GAM became operational in July 2008 and was officially launched in October 2008.

A furnished office space has been been allocated to the NPPO to carry quarantine activities. Officers of the NPPO are already carrying spraying and boarding of private flights.

12.2.5 Implementation of White Grub Protocol

The White Grub Protocol (WGP) is a Franco-Mauritian bilateral agreement signed by the two parties, namely Mauritius and Reunion Island, in the year 1990. The Protocol provides for phytosanitary measures to prevent the introduction of
White Grub insects (hannetons; scarabées), *Hoplochelus marginalis*, from Reunion Island. Specific guidelines in relation to movement of planes, ships and people to and from Reunion Island are clearly stipulated; such as specific time of arrival or departure of planes and ships co-relating with the time of flight of the insect (at night), regular monitoring and surveillance program (including spraying program) at airport and seaport areas.

The Protocol was reviewed in 2010 and is now implemented during the period 1st November to 15th January the following year whereby the phytosanitary risk associated with the insect is very acute as this period corresponds to the flight period of the adult insect.

Some twenty three years after the signature of the first Protocol, the White Grub Protocol remains still one of the most successful bilateral agreement between the two parties. Mauritius has so far been kept free from this destructive quarantine pest.

12.2.5.1 SSR International Airport

During the implementation of the White Grub Protocol at SSR Int. Airport for the period 1st November 2012 to 15 January 2013, planes arriving from Reunion island were inspected for the presence of live adult of White Grub (*Hoplochelus marginalis*).

One hundred and twenty three (123) ‘Certificat d'examen visuel’ was issued to the attention of the Plant Protection Service of Reunion Island in connection with the inspection of the departure of the first plane to Reunion Island and 65 “Attestation Desinsectisation” were received from Flights from reunion. Derogation were given to 2 flights.

No traces of the adult white grub have been observed during the period under review.

12.2.5.2 Sea Port

During the implementation of the White Grub Protocol at Port-Louis harbour for the period 1st November 2012 to 15 January 2013, incoming ships/vessels/yatch from Reunion Island were inspected for the presence of White Grub (*Hoplochelus marginalis*).

Eighty six (86) inspections of ships going to Reunion island were carried out and “Certificat Examen Visuel et Traitement” issued accordingly, and 82 “Attestation Desinsectisation” were received from ships from reunion. Derogation were given to fourteen (14) Derogations shipping vessels.

No traces of the adult white grub have been observed during the implementation period of the protocol extending from 1st Nov. 2011 to 15th Jan. 2012.

12.2.5.3 Mission to Reunion Island
As part of the implementation of the Protocol, Officers from the National Plant Protection Service of each island carry out a mission in the sister island each year to monitor in-situ and evaluate the white grub population at the ports and airports. Discussions are held on the Protocol especially on the constraints and weaknesses associated with it.

The delegation also visits the seaports and airports during the flight period of the insect (19:00 to 20:00) and light traps installed at these points of entry and take stock of the existing arrangements for insect trapping in each island.

However for the implementation period of 01 November 2011 to 15 January 2012, the annual visit was not carried out due to delay in processing the approval for officers of the Ministry.

12.2.5.4. Mission of delegation from Reunion to Mauritius

During the implementation of the Protocol, two of Officers namely Mr Emmanuel Foex and Mr Patrick Gracia Reunion Island were on mission in Mauritius from 1 to 13 December 2012. The following activities were carried out:

- Meetings were held with Officers of the NPPO, Entomology Division and Entomologist from the MSIRI.
- Visits were carried out at Entomology trapping sites at Mer Rouge and Les salines in Port Louis, trapping sites at Ferney and Airport and also at a field at Ferney
- Visits were carried out at laboratories (Entomology and Pathology) of MSIRI and AREU.

12.2.6 SURVEILLANCE, MONITORING AND CONTROL OF IN TRANSIT AGRICULTURAL COMMODITIES

Officers of the NPPO carry out constant monitoring of all incoming and outgoing (i.e. in-transit) agricultural commodities at the Plaisance Air Transport Services (PATS), Agricultural Marketing Board (AMB) cold room at the SSR Int. Airport; the Mauritius Freeport Development Authority, Mer Rouge; and from airport to cruise at seaport.

Implementation of Biosecurity Measures for consignments in transit at SSR International Airport

*Bactrocera invadens* is reported to be a highly destructive and invasive polyphagous fruit fly insect pest infecting both wild and cultivated crops (fruits and vegetables) in several countries in the African continent. It is a quarantine pest for Mauritius and, if introduced, can pose a serious threat to Mauritian agriculture. In transit consignments of fresh fruits and vegetables constitutes a potential pathway of introduction of this pest in our territory.

Due to the recent detection of *B. invadens* in Madagascar and an increasingly high volume of in transit agricultural cargo in Mauritius, the NPPO is implementing strict biosecurity measures to prevent introduction of this pest in Mauritius. Measures are being taken to prevent the escape of all live stages of the fruit fly as well as other pests from consignments in transit in Mauritius at the SSR International Airport.
These include (a) requirement that all such whole consignment is wrapped/sealed with plastic (on all six sides) and (b) monitoring and visual inspection of all consignments of fresh fruits and vegetables in transit by Officers of the NPPO.

Sixty six (66) inspections of in transit consignments of fresh fruits and vegetables were carried out. Issues related to 2 consignments which were not covered/properly covered with plastic

12.2.7 INTERCEPTION OF AGRICULTURAL COMMODITIES

Agricultural commodities entering the country without proper phytosanitary certification and/or without declaration to customs/plant protection authorities are considered as illegal agricultural articles and are potential pathway of introduction for quarantine pests. Officers of the NPPO are posted at points of entry both at airport and seaport to minimise risk of such introduction.

12.2.7.1 SSR International Airport Office

12.2.7.1.1 Interception of agricultural produce from incoming passenger at Arrival Lounge

During the period under review approximately 1279 kg, 159 units, 143 packets, and 2 boxes of non-conforming & illegal entry of agricultural produce of plant and animal origin were made from the incoming passengers at the Arrival Lounge of the SSR Int. Airport. These items consisted mainly of assorted fruits and vegetables, peacock feathers, handicraft items, meat & fish produce, seeds of vegetables and flowers, planting materials, flower bouquet and herbs. 260 detained receipts were issued

Approximately 1167 kg, 136 units and 20 packets of intercepted agricultural commodities were secured and destroyed by incineration; 0.15 kg and 2 units were sent to the NPPO for quarantine, 30 kg and 13 units were sent to the Division of veterinary Services for treatment and 31.3 kg, 8 units, 123 packets and 2 boxes of intercepted items of low quarantine risk were reshipped.

12.2.7.1.2 Interception of agricultural produce at PATS/DHL/UPS/AMB cold room

The Plaisance Air Transport Services (PATS) and DHL Office based at Plaisance Airport were regularly monitored for imported agricultural produce. 53 detained receipts were issued for 251 kg, 242 units, 60 boxes, 5 trays and 1 packet of fruits, vegetables, herbs, spices, fresh & dried ornamentals, seeds and other products of plant and animal origin were intercepted.245 kg, 1 units, 60 boxes, 5 trays and 1 packet were destroyed by incineration and 241 units were sent to DVS.

12.2.7.2 Port Louis Office

12.2.7.2.1 Interception of agricultural produce from incoming passengers

Approximately 8 kg and 8 units of agricultural products were intercepted from incoming passengers and destroyed by incineration. 6 detained receipts were issued.
12.2.7.2.2 Interception at Port-Louis Post Office and MIDEX

The Quarantine Service has also exercised strict control on importation and illegal entry of agricultural produce particularly seeds, spices, mixed herbs, etc. arriving by parcel post at the Port-Louis Post Office and MIDEX. 157 detained receipt were issued.

Approximately 76.2 kg, 752 units, 349 packets, 3 bundles, 2 pots and 2 cans of agricultural items were intercepted at post office comprising mainly of nuts, seeds, dried flowers, and feathers. 75.4 kg, 752 units, 347 packets, 3 bundles, 2 pots and 2 cans were destroyed by incineration; .81 kg and 2 packets were sent to reduit for quarantine.

12.2.8 POST ENTRY QUARANTINE MONITORING (PEQM) OF IMPORTED PLANTING MATERIALS

Imported planting materials can present a risk to plant health because they have the potential to introduce quarantine pests. Post-entry quarantine (PEQ) facilities that provide the appropriate containment for the risk that has been identified are used as a safeguard measure.

The objective of the PEQ monitoring is to (i) detect at an early stage latent exotic pests that may be introduced through the imported planting materials such as unrooted and rooted cuttings, grafted plants, seedlings, tissue culture plantlets etc. (ii) prevent the entry establishment and spread of the exotic (quarantine) pests associated with the imported crop species.

12.2.8.1 Imported Tissue culture orchids

Two (2) consignments comprising of 4 varieties of phalaenopsis imported from India and 1 variety of dendrobium and 4 varieties of Oncidium imported from Thailand in the year 2012 underwent PEQ in the Containment Facility at Réduit. The Plantlets were transferred from agar to orchid planting media to undergo for monitoring of hardening for 2 months, followed by a quarantine period of up to three months for quarantine pests and disease.

All the plants were released as no quarantine pest or disease was detected on them.

12.2.8.2 Imported tissue culture Anthurium andreanum

One consignment comprising of a total of 3,030 tissue-cultured plantlets of 3 varieties of Anthurium andreanum imported from Holland in July 2012, were undergoing PEQ in the Containment Facility at Réduit.

The plantlets were transferred from agar to vermiculite medium to undergo for monitoring of hardening for 2 months, followed by a quarantine period of up to 18 months quarantine pests and diseases, particularly anthurium blight caused by Xanthomonas axonopodis pv. Axonopodis.

12.2.9 MONITORING AND INSPECTION OF LITCHI FOR EXPORT
Export of commercial consignment of litchi started on 03 November 2012 and ended on 06 December 2012. A total of 53 tons of fresh litchis were exported with inspection and certification to France and Italy mainly and other countries such Belgium, Switzerland, Spain and Germany.

In this context, 63 inspections and subsequent phytosanitary certification were carried for the 53 tons of litchi destined for export. Also regular monitoring (check for the absence of pests and diseases) of the litchi orchards and sampling of the fruits was carried out by the Officers of the NPPO. Litchi fruits were tested for quality in terms of Total Soluble Solids (TSS) in collaboration with the Agricultural Chemistry Division. The TSS ranged between 18° and 22° Brix.

12.3 SEED PATHOLOGY

The main activities of the Seed Pathology Unit were as follows:

(a) Field inspections were carried out on various government stations to monitor disease status of seed production fields and that of propagating materials.

(b) Health testing of seeds produced on government stations, prior to sale to the public.

(c) Seed health testing of all seeds imported by various organizations, research bodies, members of public and main seed importers.

(d) Provision of Disease Diagnosis Service to the public at large.

(e) Provision of a free seed treatment service to small planters, on request.

12.3.1 MONITORING OF LOCALLY PRODUCED SEEDS ON GOVERNMENT STATIONS

The NPPO is mandated for the monitoring and control of diseases on seed production stations of the Agricultural Services and for seed health monitoring of locally produced seeds.

The present mechanism in place consist of regular visits on seed production stations jointly by a multidisciplinary team comprising of officers from NPPO, Entomology, Horticulture and Agronomy Divisions according to the established cropping programme by the Horticulture Division.

Field inspections undertaken during active growth stage of the crops give an indication of health status of seeds being produced. Technical recommendations regarding disease control, particularly seed borne diseases are submitted to DSO (Hort) and officer in charge of stations for implementation. In case of crops showing infection by seed borne diseases beyond permissible tolerance level, the produce is disposed for sale instead of seed production.

The aim of this exercise is to monitor the level of seed borne diseases within the locally
produced seeds and reduce the level of seed borne infection to an acceptable tolerance level using appropriate cultural and diseases minimising techniques.

In this context 28 routine field inspections were carried out on the 6 Government Stations (Barkly Field Section, Curepipe E.S., Roches Brunes SPC, Richelieu E.S., Plaisance and Belle Vue E.S.) in connection with the Seed Production Programme and a total of 31 fields planted to 20 crops of Chinese White, cabbage, beetroot, sweet pepper, tomato, groundnut, chilli, maize, cucumber, asparagus bean, amaranthus kotachee, cauliflower, broadbean, bean, pea, bittergourd, onion bottlegourd and lettuce were surveyed.

Twenty one (21) of those fields were observed to be free of diseases whilst the remaining 10 were infected either with bacteria, fungi, viruses or a combination of these causal organisms.

The following diseases were observed: stem rot on asparagus bean at Curepipe ES; Rhizoctonia sp on Amaranthus at Curepipe ES; collar and root rot in broadbean at Curepipe ES; viruses on asparagus bean at Curepipe ES, on tomato at Barkly ES and at Plaisance ES and on sweet pepper at Riche Lieu ES.

12.3.2 Seed Health Testing

12.3.2.1 Imported seeds

Seed Health Testing was done under laboratory conditions on seeds which are particularly known to be affected by seed borne diseases of economic importance. Seed health testing involving standard blotter tests according to ISTA norms (International Seed Testing Association), artificial growing media, biological, serological and growing on tests are currently used for detection and identification of, seed borne fungi, bacteria and viruses in seeds samples collected from imported consignments.

Test being performed were as follows:

(i) Microscopic examination to reveal the presence of any surface pathogen in the form of spores or mycelium
(ii) Blotter testing to reveal any seed borne pathogens mostly of fungal origin
(iii) Growing on test performed in greenhouses to check for any pathogen that could possibly be seed transmitted, including bacteria, virus and fungus.

The tests were carried out on a wide range of imported seeds prior to their release.

In all, 38 consignments of imported seeds were tested. A total of 140 samples of seeds imported from India, Thailand, Korea, France, South Africa, United Kingdom, United States of America, Holland, Italy and China comprising of seeds of vegetable, flower, aromatic herb and feed seeds were received during the course of the year for the growing-on test.

The results of blotter test have revealed no incidence of seed-borne pathogens was revealed in blotter test.

Growing on test performed in greenhouses as well as blotter test carried out in the laboratory, to check for any pathogen that could possibly be seed transmitted.

### 12.3.2.2 Imported Potato seeds

Importation of potato seed is subject to regulation by (i) the Agricultural Marketing Board (AMB) as regards for quota allocation and (ii) the NPPO as regards Plant Import Permit (on the basis of quota allocated by AMB) and phytosanitary inspection and clearance upon importation.

In the year 2012, 2166.46 Metric Tons of seventeen (17) varieties potato seed were imported from four (4) countries namely Australia, Netherlands, USA and France by six (6) importers (including the AMB). All the imported consignments of potato seed were subject to quarantine inspection at ports of entry or at importers premises through a random sampling (including destructive sampling) procedure. Fifty eight (58) samples of potato seed were forwarded to NPPO for laboratory examination and observation in the green houses during active growth (growing on tests) for quarantine for quarantine and regulated non quarantine diseases.

The main pests and diseases observed were Potato tuber moth, bacterial scab and Silver scurf.

### 12.3.2.3 Quality Declared Seed by AREU

The Quality Declared Seed (QDS) Project has been initiated by AREU with the collaboration of Agricultural Services on a pilot scale to produce quality seeds locally for the planting community as per established guidelines for QDS. This project is an endeavour to motivate planter for the production of seed on a commercial basis and development of seeds on a profitable basis recognising the significant increase in price of imported seeds as the unavailability of quality seeds in the local market. A multidisciplinary team comprising of scientist from AREU and the Agricultural Services effected 2 visits to a planter at Les Mariannes who have embarked in the production of cucumber seeds under the Quality Declared Seed project under taken by AREU.
The team comprises of Extension officers, Officers from the Entomology Division, NPPO, and Agronomy Division of the Ministry, and Officer from the Plant Pathology, Entomology and Crops department of AREU.

12.4 RESEARCH AND DEVELOPMENT ACTIVITIES (REDUIT OFFICE)

12.4.1 Status of virus diseases in vegetable crops in seed production stations in Mauritius

Monitoring surveys were conducted on the main seed production stations of the agricultural services namely Arsenal ES, Bois Marchand SPC, Barkly ES, Roche Brunes SPC, Riche lieu ES, belle Vue ES, Curepipe ES and Plaisance ES. The objective of the survey was to determine the status of viruses affecting leguminous, solanaceous, cucurbitaceous and cruciferous crops.

Symptomatic leaf samples and seed samples were collected and screened for viruses using biological indexation and Enzyme Linked Immunosorbant Assay (ELISA).

The main crops surveyed were Cucumber, snakegourd, tomato, asparagus bean, French bean, cucumber, pumpkin, lettuce, tomato, chilli, onion, and squash.

The viruses detected were Zucchini Yellow Mosaic Virus (ZYMV), Cucumber Mosaic Virus (CMV), Papaya Rinspot virus (PRSV), Bean Common Mosaic Virus (BCMV), Potato Virus Y (PVY), Turnip Mosaic Virus (TuMV), Tomato Mosaic Virus (ToMV) and Tobacco Mosaic Virus (TMV).

12.4.2 Citrus Improvement Programme

The insect proof repository at the Quarantine Service, Reduit, was donated by Caisse Central de Coopération Francaise in mid 1990 under the Projet Fruitière and was designed for use as a repository for imported certified citrus materials. The objective of this project was to rehabilitate the existing infrastructures for production of disease free material and establishment of diagnostic tools for indexation of citrus planting materials.

Several scions have been taken from these stocks and delivered to Barkly ES. It can now be used as a pre-multiplication block for production of disease free budwoods for citrus propagation Program.

In addition, seedlings have been raised from seeds from Variety Carizo under the same insect proof repository and some seedlings have been grafted with different varieties of citrus species namely Kumquat Marumi, Pomelo Star Ruby, Sweety, Washington NAVEL, New Navel, Kumquat, Meyer and Beauty.

For the year 2012, carrizo seeds were grown and potted and budwoods were collected for grafting at Barkly ES.
12.5 PROJECTS AND ACTIVITIES

12.5.1 IMPLEMENTATION OF AUSTRALIAN QUARANTINE INSPECTION SERVICES (AQIS) GIANT AFRICAN SNAIL (GAS) COUNTRY ACTION LIST FOR SEA CONTAINERS DESTINED FOR AUSTRALIA

The Australian Quarantine Inspection Services (AQIS) have identified containers originating from and/or transshipping through GAS infected countries as a potential pathway of introduction of GAS into Australia, GAS being considered as invasive alien species and a potential threat to important food crops, natural resources and human health.

In this respect AQIS reviewed its risk management strategies in order to minimize the risk of introduction of this invasive species into Australia and proposed Mauritius an Operating Arrangement that defines the terms of implementation and ongoing operation of a mutual recognition arrangement between AQIS and MAIFPS Mauritius, initially for the inspection and assurance of containers being transshipped through Mauritius to Australia. The scope of this arrangement covers a port hygiene system that effectively manages the biosecurity risk for sea containers being landed in Australia from Mauritius as per ISPM 4 (Establishment of a Pest free Area).

According to the Operating Agreement, the NPPO developed a Standard Operating Procedure (SOP) and supplied to AQIS which was approved by two Officers from AQIS, Dr Lindr Cayzer and Mr Nathan Reid, during their visit in Mauritius from 02 to 04 June 2010.

However in 2012, AQIS had proposed some amendments to the Operating Agreement. The amendments were studied by Officers of the NPPO and Entomology division. Clarifications were sought from AQIS which were being awaited.

The Operating Agreement still remained to be signed and the name of designated person to sign the agreement is awaited.

12.5.2 PHYTOSANITARY MEASURES FOR IMPORT AND EXPORT

a. In the context of implementation of SPS agreement of WTO, Import Risk analysis was carried out prior to the importation to evaluate the probability of introduction, spread and establishment of potential pests and the magnitude of potential economic consequences in Mauritius and phytosanitary regulations are formulated accordingly for the following:

b. Bamboo Plants from Indonesia,
c. barerooted cuttings of rose, *Hibiscus rosa, Tabernae montera* devaricala, *Tabernae montera* oorymbusa, Duranta sp golden Den, *Brianthus sp* and *Plumeria sp* from India,
d. orchid plantlets from India,
e. liliium bulbs from India, Plumbogo from India,
f. cotton from India,
g. Arabia from India
h. aquatic plants from Malaysia
i. *Grevillea robusta*,

j. peat from South Africa for vertical garden,

k. *Asplenium fimbriatum*, *Selaginella kraussiera* and *Carpobrotus edulis*

l. millets from Bulgaria,

m. blueberry plants from the USA,

n. phytoplankton from France

o. aquatic plants from China

**12.5.3 REGISTRATION OF PRIVATE HEAT-TREATMENT PROVIDERS FOR COMPLIANCE WITH INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES (ISPM) 15**

ISPM 15 is a guideline from the FAO meant for regulating packaging materials in international trade. Heat treatment, which is a measure approved by FAO, is being used for the treatment of pallets in international trade by private operators.

A request for the operation of a new heat-treatment plant facility was received for registration as heat-treatment service provider for wood packaging materials. In this regard, a meeting was held at the Mauritius Standards Bureau (MSB) for auditing of the heat-treatment facility. A site visit/inspection of the new plant was carried by Officers from MSB, Engineering Division and NPPO.

The prospective service provider was advised to first equip his plant with a treatment (core) temperature monitoring device and appropriate software.

A multidisciplinary auditing team has set up comprising of Officer from NPPO and Engineering Division. Guidelines for Certification of Heat Treatment Plant facility for treatment of wood packaging material were drafted by the NPPO.

A second visit was carried out for auditing purposes whereby a full load testing was carried out. The facility was audited by the auditing team and the Heat Treatment Plant was approved for service delivery. Consequently, the NPPO has issued to the new Heat Treatment Operator, a Certificate of registration and the IPPC logo HT 005 for use as certification mark on treated wood packaging materials.

**12.5.4 LEGISLATIONS - PREPARATION OF REGULATIONS UNDER THE PLANT PROTECTION ACT (2006)**

The Plant Protection Act (PPA) was prepared and promulgated in November 2006 in order to replace the Plant Act (1976). As per provisions made under section 32 of the PPA (2006) for regulations, a draft Plant Protection Regulation was prepared by a consultant and submitted in year 2007. Amendments have been made to this draft regulation and an amended draft regulation was prepared and submitted was submitted to the State Law Office (SLO) in 2010 in order to provide for the legislative framework and capacity for the enforcement of the PPA (2006).
Previous regulations drafted under section 32 of the Plant protection Act 2006 were reviewed in a meeting held with the State Law Office (SLO). Following discussions on classification of items/commodities in relation to the proposed fees, regulations were reviewed to bring amendments in relation to proposed fees. In this regard, amendments regarding proposed fees to the draft regulations were submitted the ministry and a meeting with the latter was awaited.

12.5.5. Proposal for an Electronic Permit System

In line with the Ministry of Finance and Government’s policy on online application and issue of permits, the Mauritius Network Services in collaboration with the NPPO is implementing an Electronic permit System (MNS) with a view to incorporate the issue of Plant Import permits (PIP), Phytosanitary Certificates (PC) and Certificate of Inspection (CI) under the Tradenet Single Window.

In this context, the MNS drafted a proposal for Online Application of Plant Import permits and Phytosanitary certificates following technical information submitted by the NPPO regarding the present system for issue of PIP, PC and CI. Seven (7) consultative meetings were held in 2011 between the representative of MNS and Officers of the NPPO to review the process spelt out in the document for issue of PIP, PC and CI.

The document containing the processes for the issue of PIPs, PCs and CI was being finalized. Data Sheet of regulated plants and plant products (for import and export) for online application, and list of exporters and importer is being established in connection with the software development. Import Conditions were also being reviewed and updated.

A steering committee was been set up at the level of the Ministry of Finance to monitor the project and two meetings were attended. Another meeting was held with MNS in order to discuss new application fees for software development.

The NPPO also participated in a workshop organized by Mauritius Revenue Authority (MRA) in order to review the process mapping and data management by the MRA for different agencies that are linked in the single window project, following which, three Officers from the Ministry of Finance and one Officer from the MRA had a meeting with Officers of the NPPO in order to take stock of the status of the project and to discuss on the mode of payment of user fees under the online system to be put in place. Information and documents related to the present manual system of the NPPO was transmitted to the MRA.

Discussions were also held with the Accountant General on issues related to online payment of user fees, and subsequently information on the procedures on the issuance of permits and certificates have been provided to the latter by NPPO and a response was being awaited.

12.5.6 Phytosanitary Capacity Evaluation (PCE)
Following a request made by the Government of Mauritius for the setting up of a certification body for plant and plant products, the FAO initiated the process of consultation and appointed 3 local consultants to carry out studies in the food safety, animal health and plant protection sectors in Mauritius under the Technical Cooperation Programme FAO/TCP/MAR/3301 “Strengthening Official Control and certification authorities for plant, animal and food products”.

For plant protection sector, the FAO decided to conduct a Phytosanitary Capacity Evaluation (PCE).

A meeting was held by the NPPO with the National Consultant for plant protection, former CAO Dr. G. M. Lallmahomed, and with all stakeholders concerned to sensitize them on the project. The PCE tool has 13 modules that need to be filled in consensually with all stakeholders to eventually serve towards the development of a National Phytosanitary Action Plan. All scientific staff of the NPPO had working sessions with the National Consultant to fill in the 13 modules.

A one week mission was carried out by the FAO/IPPC Facilitator, Dr. Orlando Sosa, in Mauritius from 14 to 21 April 2012 to start the PCE exercise in plant protection. A second one week working session was held from 07 to 11 May 2012 to complete with the PCE Exercise. Both working sessions involved Officers from the NPPO, Entomology Division of the Agricultural Services, scientists from Mauritius Sugar Industry Research Institute, Agricultural Research and Extension Unit, as well as representative from the University of Mauritius APEXHOM and the State Law Office. All the 13 modules of the PCE tool were filled in consensus with all stakeholders and logistic frameworks were developed which eventually led to the development of a National Phytosanitary Action Plan.

The National Consultant presented the Phytosanitary Capacity Development Strategy to stakeholders on 18 May 2012.

After, studying the consultancy reports of the 3 consultants the FAO appointed a Consultant who carried out a mission in Mauritius from 4 – 10 September 2012. A National Workshop was carried out to communicate findings and validate recommendations of the studies carried out by 3 local consultants in the food safety, animal health and plant protection sector of Mauritius on 10 September 2012 at Domaine des Pailles.

12.5.7 WORLD FOOD DAY CELEBRATIONS

In the context of the celebration of the World Food Day, the Ministry decided to hold agricultural expositions at the Agricultural services SSR Botanical Garden from 12 – 14 October 2012. The theme chosen to commemorate the World Food day the year 2012 was “Agricultural Cooperatives – Key to feeding the world”. Both private sector and public sector were convened to participate in the exposition.

The NPPO prepared, displayed and presented comprehensive posters to the public to create better awareness on the plant protection, quarantine and regulatory activities as well as services and facilities offered in relation to the import and export trade of agricultural produce. A video presentation on the quarantine activities particularly at tge port, airport and disease surveillance
effected on imported high risk crops was also presented. Plant species showing some harmful diseases were displayed. Approximately 3000 brochures of the NPPO highlighting the objective and key facilities offered were distributed to the public.

12.5.8 TRAINING OFFERED BY THE NPPO

Two Students from the University of Mauritius, Faculty of Agriculture underwent training at the NPPO for 8 weeks in the following fields:

- Introduction and general principles of Quarantine in Mauritian Perspective
- Techniques in identification and detection of organisms of quarantine importance
- Seed Health testing and detection of seed borne and seed transmitted micro organisms
- Implementation of ISPM 15 and notification systems
- Quarantine inspection procedures at points of entry
- Inspection procedures of incoming crafts and agricultural commodities
- Interface with Customs, Veterinary and Health
- Interception and methods of screening of intercepted items
- Procedures, inspections and reporting system for post entry quarantine monitoring of imported planting materials

Visits were also effected at
- Airport (Incinerator Plant, AMB Cold Room, PATS, DHL)
- Sea Port (Harbour, Ship, Fumigation Plant)
- Reduit (Laboratory, post entry quarantine greenhouses, Entomology Division)
- Premises (Rose, strawberry and gerbera plantations)

12.6 CAPITAL PROJECTS

12.6.1 STATUS REPORT ON SETTING UP OF A MULTIPURPOSE CONTAINMENT FACILITY

Under the Non-Sugar Sector Strategic Plan 2003-2007, our Ministry had proposed the setting up of a multipurpose Containment Facility that would interalia serve for:
(i) Introduction and testing for subsequent breeding and multiplication of biological control agents
(ii) Investigation of high risk quarantine material and pathogen, and
(iii) Containment of genetically modified organism as per provision of our GMO Act 2004 and the Plant Protection Act 2006

A feasibility study was carried out in 2008 by a private firm from Belgium, together with a Biosafety Expert, a Quarantine Expert and an Entomology Expert given the limited expertise available locally for the setting up of such a plant. The Government decided to go for demolition of the existing greenhouses and construction of a new facility and to fund the entire project. The feasibility report was submitted to the Engineering Division for onward transmission to the MPI for preparation of the tender documents.
Budgetary Funds of Rs 15 million were allocated for the year 2012 for the setting up of a multipurpose containment facility and submission of the relevant specifications by the Ministry of Public Infrastructure was awaited to enable the procurement and Supply Division to carry out the bidding exercise. In a meeting held on 03 February 2012 under the chairmanship of PAS Mrs Mudhoo, it has been decided that monitoring and implementation of this project will henceforth fall under the responsibility of PAS Mrs Mudhoo. A site visit was carried out by Officers of the Ministry of Public Infrastructure in this regard.

12.6.2 Setting up of a Sulphuryl Fluoride Treatment Plant for NPPO at Fort George in the Port Area

The Setting up of a Sulphuryl Fluoride Treatment Plant (SFTP) at Fort George in the Port Area is a component under the Multipurpose Quarantine Treatment Project which has the overall objective to provide treatment facilities and services to stakeholders (importers, exporters and public at large) for quarantine the treatment of agricultural products so as to eliminate insect pests prior to export so as to comply with the phytosanitary requirement of trading partners as well as the treatment of imported products for their safe introduction into Mauritius as per the requirement under the Plant Protection Act 2006.

Budgetary Funds of Rs 8 million were allocated in 2012 for implementation of the Fumigation Plant Facility using Sulphuryl Fluoride with an intended quarantine use and tender documents were finalized and launched on 14 March 2012 by the Procurement and Supply Office. After completion of the tender exercise, the contract has been awarded to Steam House Ltd by the Bid Evaluation Committee. Site for construction of the facility at Fort George in port area was allocated to the contractor in presence of Ag DSO of the NPPO and Officers of the Engineering division.

Construction of the facility at Fort George in port area started in May 2012 and was completed in August. Demonstration on operation of the treatment plant was carried out by the supplier in presence of staff from the NPPO and the Agricultural Engineering division for operating the plant.

Cost benefit analysis was being carried out to work out the fees for the fumigation treatment. Suppliers of the SF gas were being sourced.

12.7 SPS MATTERS

12.7.1 WTO Sanitary and Phytosanitary
Notifications-reception and dissemination

During the year 2012, 1072 Notifications were received from the WTO. These notifications were studied and 579 notifications regarding food safety were forwarded to the Codex Point and 156 notifications regarding animal health to OIE Focal Point, Veterinary Division from January to December 2010. 256 Notifications were obtained regarding plant health and 81 notifications regarding reports and other documents.

12.7.2 Export of DDT-contaminated soil to the Netherlands

In the context of the implementation of GEF-funded project “Sustainable Management of Persistent Organic Pesticides (POPs) on Mauritius” by the Ministry of Environment and Sustainable Development where one of the activities under the project is the remediation of POPs contaminated soil, approximately 450 tons (290 m3) of Soil Contaminated with DDT has been identified and which need to be decontaminated under the project. Since Mauritius has no hazardous waste disposal site and no suitable incineration facilities, the disposal was to be done in Netherlands.

In this context, the NPPO facilitated the export of the soil contaminated with POPs by liaising with the NPPO of Holland to meet the import requirements of such products as well as certification and collaborating with the Ministry of Environment and Ministry of Local Government in this regard.

12.8 Participation in the PAEPARD Project

The NPPO participated in a Partnership Inception Workshop for a consortium on the breadfruit sector in Mauritius to re-formulate a project proposal titled “Micro-propagation and Cultivation of in vitro Breadfruit Plants and development of novel products from Breadfruit as an alternative source of carbohydrate in Mauritius” which was submitted by the Food and Research Council to the Platform for African-European Partnership on Agricultural Research for Development (PAEPARD). A Scientific Officer of the NPPO attended 2 two-day workshops and 2 half day workshops for the formulation of 5 research areas/

12.9 Meetings, Seminars/Workshop/Training Abroad/Local for the Year 2010

a. 103 meetings were attended by Officers of the NPPO.

b. One (1) Mission abroad was attended by Mrs. P. Peerthum (SO) on Sub regional Consultation on the Identification of the elements of a national action plan or strategy for the implementation of the Rotterdam Convention from 26 – 30 November 2012 in Pretoria, South Africa.

c. Two (2) trainings abroad were attended by 4 Officers of the NPPO as follows:
(i) Mrs S. Ragho (STO), Mr P. Panchoo (STO) and Mrs R. Baulum (STO) attended a Training course on ‘Fonctionnaires d’Inspection et de Quarantine des Pays Africains Francophones’ from 10 – 30 July 2012 in Changzhou, China.

(ii) Mr V. Y. Gooljar (TO) attended a Training course on ‘Traitement et l’Utilisation Comprehensive de Fruits pour les Fonctionnaires des Pays Africains Francophones’ from 23 August to 19 September 2013 in Beijing, China.