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**Ministry for Resources
and Rural Affairs**

Plant Health Department

PLANT HEALTH LABORATORIES

Diagnostic and Control Laboratories

The overall responsibilities of the Diagnostic Laboratories of the Plant Health Department consist of the detection and identification of plant diseases caused by plant pests and pathogens with special reference to Council Directive 2000/29/EC and the Plant Quarantine Act 2001 (Act No. XVIII of 2001). Diagnostic techniques implemented by the laboratories are in accordance with EPPO standards. The Diagnostic Laboratories supply the Diagnosis and Control Unit (DCU) with results on tests for the various annual surveys conducted. Tests/diagnosis are also carried out on samples collected during inspections carried out by the Surveillance and Inspectorate Unit (SIU).

Plant Pathology (Mycology) Laboratory

In 2008, the number of samples examined totalled 30, while the number of tests performed amounted to 13. Mycology testing included analysis of imported grain samples for the presence of *Tilletia indica* and testing of suspect samples in conjunction with *Phytophthora ramorum* survey, and the *Gibberella circinata* survey carried out by DCU.

Virology Laboratory

In 2008, the number of samples examined by the virology lab totalled 2,307, the number of tests amounted to 3,352. Tests were performed in conjunction to the annual surveys for CTV, PepMV, PSTVd, and PPV, TSWV, TYLCV and certification viruses carried out by the DCU.

Bacteriology Laboratory

The number of samples examined in 2008 was 227, the number of tests performed was 346. Tests were performed on samples in conjunction with the surveys for quarantine bacterial diseases and monitoring at SVDP for quality diseases carried out by the DCU.

Entomology Laboratory

A total of 51 laboratory tests/diagnosis were performed on entomological material in conjunction with the annual surveys for quarantine insect pests carried out by the DCU/SIU and samples brought to the lab by growers.

Nematology Laboratory

A total of 32 laboratory tests/diagnosis were carried out for nematodes in conjunction with quarantine nematology monitoring carried out by DCU with special reference to the Pine Wood Nematode Survey. In total, more than 15 inspections were carried out.

Tissue Culture Lab (*In-Vitro* Laboratory)

The laboratory focused mainly on the production by micro-propagation techniques of endangered local plant species and commercially marketed species and sanitation of local citrus accessions. Other duties included the drawing up of the standard operating procedures and revision of existing ones, stock-taking and purchasing/repairs of apparatus, chemicals and consumables, etc.

Micro-propagation

Production of ornamental plants: During the year, a batch of around 400 Boston ferns of the genus and species *Nephrolepis bostoniensis* were rooted using *in vitro* techniques and were then acclimatised in the glasshouse in pots. Another batch of around 300 plants has also been transferred to multiplication media *in vitro*. This work involved regular transfers of the plantlets being grown in jars and daily inspections.

Research Work

Research work was continued from previous years on indigenous, endangered wild plants and research work on sanitation of local citrus trees which are very important for Maltese agriculture commenced. A lot of administrative work was carried out in connection with this research mainly related to the applications for permits for the handling and possession of species that are protected by national legislation, publications available on local species, payments in connection with projects, etc. A number of problems were encountered throughout this research as it is innovative work for Malta.

- *Roses:* The propagation of roses proved to be rather successful this year when compared to previous years as new media formulations were utilised which gave satisfactory results both during the multiplication stages as well as the rooting stages. Approximately, 110 plants are presently being maintained in the acclimatisation greenhouse.
- *Tulips:* Experimentation on the local tulip, *Tulipa sylvestris*, has been an ongoing task. This is due to the fact that it is somewhat difficult to induce the *Liliaceae* family to produce bulblets *in vitro* when parts of the original bulb are not maintained with each explant. At the laboratory, various types of multiplication and bulblet formation media were utilised in order to attempt to induce bulblet formation as these are indispensable if plantlets are to be acclimatised and re-introduced in nature. However, none of these media formulations proved satisfactory. Further research revealed that in certain cases plants from the *Liliaceae* family might produce bulblets if given an 11-week cold treatment followed by a dark period. The plantlets available at the laboratory were given this particular treatment and it seems that structures like tiny bulblets have been produced. Currently, rooting of these bulblet-like structures is being attempted.
- *Orchids:* *In vitro* culture of various local orchids has been attempted on various types of media formulations which were never utilised before. Satisfactory results have been achieved, though these have not been similar for all orchid varieties as some of the orchid varieties, such as *Spiranthes spiralis*, have been multiplying. However, other varieties, such as the *Ophrys lutea*, have not really multiplied although the plants look healthier than they did on the other formulations. So far, acclimatisation has also proved to be problematic. A trial on the acclimatisation of *Spiranthes spiralis* has been carried out which did not succeed. Another trial using different substrate is being attempted.
- *Local varieties of fruit trees:* Literature collection and review was carried out as an attempt to try and come up with a reliable method of citrus sanitation for our local accessions as this is the first time that this work shall be carried out in Malta. Not much information was found as sanitation techniques are not made public to a large extent by researchers. Attempts were also made at contacting foreign laboratories and institutions about possible training on sanitation of plants. Other administrative work was carried out in connection with the sanitation process such as drawing up of lists of persons who registered their citrus trees with the Seeds and other Propagation Material Unit in connection with the agri-environmental measures, lists of items needed for experimentation, etc.

In the meantime, trials have started on the surface sterilisation and *in vitro* establishment of bitter oranges' explants. This will help to gain experience in this new experiment which will act as a means of drawing up a protocol for the establishment and maintenance of citrus plantlets utilising *in vitro* techniques.

Chemistry Laboratory

During the year, the main activity carried out within the laboratory related to the testing of soil and irrigation water supplied by various farmers and entities. However, additional duties comprised the interpretation of test reports, stock-taking and purchasing/repairs of apparatus, chemicals and consumables, drafting and forwarding of short documents to farmers with the soil and irrigation water test reports for information purposes, drawing up of a new set of standard operating procedures for apparatus and revision of existing standard operating procedures, processing of requests from third parties for special services, cost calculation exercises for soil and water analysis and the introduction of laboratory fees for tests carried out among others.

Lab Analysis

A summary of the number of samples received and the laboratory tests performed during 2008 at the Chemistry Laboratory is presented in the table below:

Type of agricultural material	No of samples received	No of tests performed
Soil (routine)	324	2,268
Irrigation water (routine)	196	981
Total	520	3,249

Students/Trainees at the Plant Health Laboratories

- *Plant Tissue Culture Laboratory*: The laboratory was visited by a number of students from different schools in Malta and one from Gozo. A presentation on the main activities of this lab was given by MRRA officials. A university student spent one day working at the Plant Tissue Culture Laboratory as she wished to gain experience in the field of micropropagation with the hope of being employed full-time.
- *Chemistry Laboratory*: During the year, two MSc students reading for Environmental Chemistry carried out work on the determination of several heavy metal concentrations in local air using the graphite furnace-atomic absorption spectrophotometer. Another two BSc students reading for Biology and Chemistry and one BSc student reading for Architecture and Civil Engineering carried out soil tests within the Laboratory as part of their dissertation under the supervision of lab officials. Other students reading for the Diploma in Agriculture continued with their research work as part of their dissertation which included extractions and distillations from wild plant species. Water analysis was carried out by a student from the International Environment Institute whose dissertation was to correlate the levels of contaminants in water in the different areas of Malta with the population of dragonfly larvae.
- *Bacteriology and Virology Laboratory*: An MCAST student (lab technologist) worked at the lab between January and May.
- *Entomology and Plant Pathology*: A Junior College student attended three lab sessions in January as part of her Systems of Knowledge project.

DIAGNOSIS AND CONTROL UNIT (DCU)

The main aims of the Diagnostic and Control Unit is the formulation and monitoring of the national plant health strategy. This also includes science consultancy support, pest and disease monitoring and detection, plant health risk analysis and management to deal with quarantine contingency issues and investigation of quarantine pest and disease biology to complete risk assessments.

Annual Surveys in Conjunction with EU Directives and Emergency Measures

Annual surveys are carried out to assess the local situation with respect to emerging pests. Monitoring and testing of certain quarantine and harmful diseases are also regulated by Council Decisions and Directives.

Surveys in conjunction with Council Directive 2000/29/EC - Monitoring of quarantine Fungal diseases

During the year, mycology surveys carried out included the *Phytophthora ramorum* survey, and the *Gibberella circinata* survey.

A total of 28 inspections were carried out as part of the annual surveys required for *Phytophthora ramorum* and *Gibberella circinata*. The annual *Survey for Phytophthora ramorum* for 2008, as specified by Council Directive 2000/29/EC and Commission Decisions 2002/757/EC and 2004/426/EC was carried out and results were reported to the Commission. The report included 16 locations including public gardens, public green areas, parks of national importance, woodland pockets and *garigue-type* areas and susceptible plant species (e.g. *Quercus ilex*, *Laurus nobilis*, *Arbutus unedo*, *Camelia spp.*, *Viburnum spp.*) were inspected.

The *Gibberella circinata* survey was carried out on pine trees in forestry areas covering approximately 35 ha., as well as in nurseries/garden centres growing coniferous trees.

Surveys in conjunction with Council Directive 2000/29/EC- Monitoring of quarantine Viral Diseases

During 2008, the DCU carried out a total of 115 inspections in conjunction with virology surveys.

- *Citrus Tristeza Virus Monitoring for Protected Zones*: The national protected zone CTV survey for 2008 was carried out in accordance with Council Directive 2000/29. Sampling of citrus was performed during the months of January, February, April, June and July as well as in November and December. In all 50 inspections of citrus trees were carried out at private gardens, commercial orchards in various localities around Malta and Gozo as well as in garden centres trading citrus trees from other EU countries.

A total of around 800 samples corresponding to c. 1,900 trees were collected for testing at the Virology Lab. During the inspections, the trees were inspected for CTV symptoms and data on the trees was collected.

Areas inspected included Xaghra, San Blas, Daħlet Qorrot and Xewkija in Gozo; and Attard, Naxxar, Lija, Żebbug, Żejtun, B'Bugia, San Pawl tat-Tarġa, Għaxaq, Mosta, Żurriq, Żebbuġ, Hamrun, Iklin, Qrendi, and Birgu in Malta. The total area inspected is approximately 10 hectares. Intensive sampling was carried out at Daħlet Qorrot and San Blas, Gozo, as part of the contingency plans within the area. Inspections were also carried out on citrus trees traded from EU countries (Italy) at four garden centres.

CTV presence was confirmed in San Blas. A total of 94 trees were confirmed infected at San Blas/Daħlet Qorrot area. Single infected trees were also randomly found in private residences. Another three infected citrus trees were found at a local nursery. The whole lot of these trees (amounting to 12) were confiscated from the nursery.

Information on CTV was sent to all citrus farmers at San Blas/Daħlet Qorrot area. An informative campaign on CTV (including leaflets, meetings, and seminars) was carried out during 2008.

- *Pepino Mosaic Virus (PepMV), Tomato Spotted Wilt Virus (TSWV) and Tomato Yellow Leaf Curl Virus (TYLCV) Surveys*: These surveys were run in accordance with Commission Decision 2004/200/EC and Council Directive 2000/29/EC. Surveys were carried out during the periods March, April, August and October.

A total of 236 samples corresponding to circa 1,180 plants were collected and tested at the Diagnostic Labs for PepMV. From these, 51 samples were also tested for TSWV, TYLCV. During the inspections plants were inspected for PepMV, TSWV and TYLCV symptoms and data on the plants was collected.

All samples were tested by Enzyme Linked Immunosorbent Assay (ELISA) using commercial polyclonal antibodies. Results of tests performed were sent to the growers visited.

34 inspections on open field and greenhouse tomatoes were carried out. Surveyed areas include Mgarr, San Ġwann, Rabat, Żebbug, Siġġiewi, Dingli, Żejtun, Żabbar, Mellieħa, Attard, Safi, Żurrieq, Qrendi, Xagħra, San Lawrenz, Xewkija, Mosta. The total area inspected is circa 5 hectares. None of the samples gave a positive result.

Nine lettuce samples were also tested for TSWV and seven for TYLCV. One of the lettuce samples resulted positive for TSWV.

- *Potato Spindle Tuber Viroid*: This survey was performed in compliance with Commission Decision 2007/410/EC. All samples were extracted and printed at the Diagnostic Lab at the PHD on a nucleic acid hybridisation assay. The processing of the membrane and issuing of results was carried out at Agdia Incorporated Laboratories.

Between the months of February and April field potato crops were inspected and sampled. During the month of May ware potato samples were also collected. A total of 31 potato inspections amounting to 24 hectares were performed out of which seven samples were taken. Samples of glasshouse tomatoes and open field tomatoes were also taken during field inspections. A total of 24 inspections amounting to five hectares were performed out of which 24 samples were taken. Six samples of *Solanum jasminoides* and *Solanum rantonnetti* were collected during inspections at garden centres and tested for the presence of the viroid.

- *Grapevine Flavescence dorée survey*: The survey was performed in accordance with Council Directive 2000/29/EC and the EPPO protocol for the detection of Grapevine *Flavescence dorée* (GFD) was utilised.

During February and August the GFD survey, which was initiated during 2007, was continued. A total of 92 PCR tests using P1/P7 primers followed by nested PCR using R16 (V) F1/Ri primers were analysed by agarose gel electrophoresis. These were carried out using the new EPPO protocol for the detection of GFD.

During August, three inspections at Girgenti, Manikata and Ta' Qali were carried out. During the inspections all vines within the vineyard were inspected for *Flavescence dorée* symptoms out of which 17 samples were collected.

10 chromo-tropic traps were placed in different locations around Malta and Gozo. This is part of the GFD survey in order to establish the presence/absence of the leafhopper vector *Scaphoideus titanus*. The chromo tropic traps were analysed in the Plant Pathology Lab, Għammieri. 108 vine cuttings were collected from 2 vineyards from Marsaxlokk, Malta and were put in pots for rooting for observation of symptoms.

A total of eight grapevine samples including frozen leaves and phytoplasma enriched nucleic acids were also tested. These gave positive results for phytoplasmas and were sent to University of Bologna for confirmatory testing for Grapevine *Flavescence dorée*. None of the samples resulted positive for *Flavescence dorée* and its vector *Scaphoideus titanus*.

- *Viral Diseases Recorded*: CTV was confirmed present in San Blas. A total of 94 trees were confirmed infected at San Blas/Daħlet Qorrot area. Isolated infected trees were also found in private residences. Another three infected citrus trees were found at a local nursery. The whole lot of trees (amounting to 12) were confiscated from the nursery.
- *SVDP Government Nursery monitoring*: During the months of June, July and August, three inspections were carried out at the SVDP Stone Fruit Government Nursery mother plots. All stone fruit trees within Plots 29 and 30 (demonstration plot) were inspected for quarantine and quality diseases and samples were taken. A total of 450 trees were sampled and tested for the presence of Plum-Pox Virus (PPV) out of which 416 trees were also tested for Prune Necrotic Ringspot Virus and Prune Dwarf Virus. The trees

were inspected for viral, bacterial and fungal symptoms as well as for the presence of insect pests. Collected samples were tested with ELISA for each virus at the Diagnostic Laboratory, Plant Biotechnology Centre, Lija.

- *Others*: Two inspections were made at vineyards in Marsaxlokk and Siġġiewi for symptoms similar to Eutypa dieback and 30 mechanical transmission tests were carried out for quality viruses.

Surveys in conjunction with Council Directive 2000/29/EC- Monitoring of quarantine bacterial diseases

In 2008, 68 inspections were carried out by the DCU in conjunction with bacteriology surveys.

- *Potato Ring Rot (Clavibacter michiganensis ssp sepedonicus) and Potato Brown Rot (Ralstonia solanacearum) Surveys*: Surveys for Potato Brown Rot and Ring Rot were carried throughout the year. The Potato Ring Rot survey is obliged annually by Council Directive 2006/56/EC on the Control of Potato Ring Rot of 12 June 2006 as amending Council Directive 93/85/EEC. The Potato Brown Rot survey is obliged annually by Council Directive 2006/63/CE on Control of *Ralstonia solanacearum* of 14 July 2006 amending Council Directive 98/57/EC.

Field inspections on potato crops were carried out in February till April. A total of 31 inspections were carried out covering a total area of 24 Ha. Inspections of potato crops included localities at Żebbuġ, Mġarr, Żurrieq, Siġġiewi, and Burmarrad. During these inspections the whole areas of potato crops visited were inspected for symptoms of bacterial wilt. During the inspections, potato samples were uprooted and tubers were dissected for symptoms of bacterial rot. Field inspections were also carried out on glasshouse tomatoes (January till March) and open field tomatoes (June-July) for bacterial wilt symptoms. A total of 24 inspections were carried out covering 5 Ha of tomato cultivation including the localities of Żebbuġ, Siġġiewi, Attard, Armier, Mġarr, Rabat, Dingli, Qrendi, Luqa, Xagħra, Sannat & San Lawrenz.

A total of 195 laboratory tests were carried out for Potato Ring Rot and Brown Rot using SMSA and NA plating and Immunoflorescence assays on any suspect samples of potato and tomato plants. SIU brought seed potato samples traded from Holland, France & N. Ireland, during October till December 2008. About 200 tubers were extracted as a compound sample from each respective sample, and tested for Potato Brown & Potato Ring Rot accordingly. None of the samples resulted infected.

In total 12 seed potato samples were tested, conducting four tests for each sample i.e. semi-selective isolation on SMSA and MTNA together with an Immunofluorescence assay for both Ring Rot & Brown Rot. All seed samples tested for both diseases were found to be free of such diseases.

- *Bacterial diseases recorded*: One stonefruit sample resulted positive for *Pseudomonas syringae pv.syringae*.

Surveys in conjunction with Council Directive 2000/29/EC-Entomology Monitoring Surveys

A total of around 87 samples were collected during 66 inspections carried out in conjunction with quarantine nematology and entomology surveys.

Insect pests monitored by the Diagnosis and Control Unit included the Red Palm Weevil (*Rhynchophorus ferrugineus*) on palm tree species. *Toxoptera citricida* (Brown Citrus Aphid) survey on citrus trees was carried out in conjunction with the CTV survey. This aphid is not present in the Maltese Islands and is a very efficient vector of CTV. Survey for *Leptinotarsa decemlineata* (Colorado Beetle) was carried out on field potatoes covering approximately 24 hectares. Monitoring for *Scaphoideus titanus*, a vector of Grapevine *Flavescence dorée phytoplasma* was carried out. All monitoring surveys were carried out together with the Surveillance and Inspectorate Unit.

- *Outbreaks of insect pests:* Reports of the Geranium Bronze Butterfly (*Cacyreus marshalli*) were received and its presence have been confirmed, the A Bostrichid borer species was found infesting carob trees and vines and *Phrynetia leprosa* continued to be reported on mulberry trees (*Morus nigra* and *Morus alba*).
- *Insect records:* The red palm weevil was the most commonly recorded insect pest, however peach buprestid beetle (*Capnodis tenebroides*) were recorded on stone fruit trees, Scale insects were recorded on citrus fruit and fig trees, *Aphis spiraecola* and *Toxoptera aurantii* were confirmed present on citrus trees. The Pear tree borer (*Cerambyx nodulosus*) was confirmed on pear trees, Bostrichid borer pest was recorded on carob and vines (studies still undergoing), *Phrynetia leprosa* was on mulberry trees and citrus leaf-miner (*Lyriomyza trifolii*) was confirmed on citrus trees.

Surveys in conjunction with Council Directive 2000/29/EC - Nematology Monitoring Surveys

A total of around 32 samples were collected during 15 inspections carried out in conjunction with the Pine Wood Nematode (*Bursaphelenchus xylophilus*) survey. Suspected samples were forwarded to the Nematology lab for analysis. Traded wood packaging material was also inspected and sampled. The Pine Wood Nematode, *Bursaphelenchus xylophilus* survey was carried out on pine trees in forestry areas covering 35 Ha (in conjunction with *Gibberella circinata* survey) and on traded wood packaging material. None of the suspect samples resulted positive to Pine Wood Nematode.

Three inspections were carried out in July 2008 on the Stone fruit and Pome fruit mother plots at the SVDP Government Nursery for visual symptoms related to bacterial diseases. Samples were collected for laboratory testing using ELISA. A total of 137 ELISA tests were carried out. 97 Pome Fruit samples were tested for *Erwinia amylovora*, while 20 stone fruit samples were tested for *Pseudomonas syringae pv syringae*. One stone fruit sample resulted positive for *Pseudomonas syringae pv syringae*. SVDP were informed of the infected trees for necessary action.

SEEDS AND OTHER PROPAGATION UNIT (SPMU)

General Issues

The SPMU was responsible for the preparation of reports, documents, checklists, memoranda, leaflets, posters and presentations on various issues that fall under the remit of this unit and on activities of the Plant Health Department such as EU obligations and derogations on propagation material, quality of propagation material, inspections to be carried out in nurseries and suppliers, budget and business plans, plan of work, establishment of the seed testing laboratory, Plant Health Department seminars, dissemination of information campaigns on plant health and research, etc.

Seeds of Agricultural Plants and Vegetables

The SPMU went through notifications received from other Member States on varieties of agricultural plants and vegetables which are regularly added, deleted or modified on the Common Catalogues of varieties. Also, notifications on authorisations for the marketing of seed of not yet listed varieties according to Commission Decision 2004/842/EC were reviewed. Communication was made by the SPMU with a few responsible official bodies for information to be provided on certain varieties.

Trials on various varieties of cereals and vegetables belonging to local plant genetic resources which are at risk of genetic erosion have continued throughout the year. These are taking place in the fields of the Plant Biotechnology Centre, Lija. The aim is to compile descriptions of all the varieties of local varieties marketed in Malta and also as part of conservation activities. Broad beans, carrots, cauliflower, garlic, kohlrabi, marrows, melon, onions, pumpkin, radish, vetch and watermelons were sown for such purposes. Morphological characterisation of the resulting plants and mature fruit was carried out and recorded according to internationally-recognised technical protocols. Mature seeds from the fruit and plants have

been collected, when possible, to be conserved and also to be used for further trials. Work related to the collection and storage of seeds was carried out. Other administrative work was carried out in connection with the marketing and quality of seeds.

Fruit Trees and Vines

The SPMU continued to work on the establishment of the national catalogue of varieties of fruit trees and vines which are marketed or produced in Malta. This catalogue is covered by Legal Notice 271 of 2004 and 470 of 2004. Only varieties and clones included in this catalogue will be allowed to be marketed and produced in the Maltese territory. A description of the main morphological and physiological characteristics of the plants is being endorsed for each variety.

Inspections of rootstocks of fruit trees that have been produced by micro-propagation techniques at the Tissue Culture Lab have been made by officials of the Diagnostic & Control Unit and the Inspectorate & Surveillance Unit. Following the submission of the report to the SPMU, 12 certificates for 12 batches consisting of 9,040 trees of the rootstocks Myrobolan 29C (7,450 trees) and GF677 (1,590 trees) were issued by the SPMU.

Draft technical protocols that establish the national certification schemes for fruit trees and vines are being drawn up. These include the steps from the identification of candidate stocks to the certification of the plant material. Production of disease free propagation and planting material falls under these schemes. In view of this work, the SPMU made a revision of the national legislation on the general plant certification schemes. The SPMU communicated with a number of units of MRRA and the Ministry for Gozo in order for the SPMU to collect feedback on the revised version of the legislation and on the current practices and intentions of the nurseries *vis-à-vis* fruit tree and vine propagation and marketing.

Forest Trees

The SPMU worked on the establishment of a list of Maltese common names of species of forest trees covered by Council Directive 1999/105/EC (marketing of forest reproductive material). Administrative work was carried out as regards the importation of forest reproductive material from third countries to Malta and on the implementation measures of the mentioned directive.

Ornamental Plants

Data on newly encountered pests that have been found attacking ornamental plants in Malta were gathered from the relevant units of the Plant Health Department. A document was drafted in view of the European Commission's proposed system of exchange of information that shall possibly be adopted at EU level in the future.

GMOs

Administrative work was carried out on GMOs when reference was made to seeds and grain to be used for sowing and seed production. SPMU is a member on MEPA's Biosafety Co-ordinating Committee (BCC) on behalf of the Rural Affairs Division. Review of relevant documentation and participation in BCC meetings were carried out.

Plant Genetic Resources

The Plant Health Department provided replies to a questionnaire forwarded by MEPA on developing the National Biodiversity Strategy and Action Plan of the Maltese Islands in compliance with the National Reform Programme for Malta. The aims of this strategy and action plan are to integrate the conservation

and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

Advisory Services

Information was provided to the Rural Development Department as the latter requested the review of the nomenclature of species being cultivated in Malta and a list of plants being used for bee roaming. Further advice was provided on the use of sunflower seeds as ornamental plants, propagation of ornamentals and marketing of vegetable seeds. Advice relating to the registration of seed varieties and trials for caper propagation was also given.

Projects and Studies

Agri-measures and rural development funds

Support measures for the conservation of endangered plant species that are at risk of genetic erosion were issued for the public in 2008 by the Rural Development Department under the Rural Development Programme for the period 2007-2013. Eligible trees had to belong to old trees of olives, carob, mulberries and citrus. The SPMU, the Applications Unit and the Rural Development Department collaborated on activities related to these measures. Application forms and a database were therefore designed by the SPMU to act as an ancient fruit tree register as applicants have to register their fruit varieties in the register before applying for aid. Short guidelines were also prepared by the SPMU for use by the Gozitan officials who were involved in the registration of ancient fruit trees being cultivated in Gozo. Information on species not covered by financial aid was also included in the database. In all, 353 persons registered with the SPMU and approximately 9,000 trees have been registered.

INTERREG IVC

The SPMU and DCU were involved in the possible participation of Malta as a partner in a proposed project on the harmonisation of methodologies for sanitary control and certification of healthy propagation material for trade in the European Union. The proposal was submitted by the lead partner under INTERREG IVC but was not accepted.

PESTICIDES UNIT

As per Malta Standards Authority and various Laws (Amendment) Act, 2007 published on 21 December 2007 and Legal Notice 33 of 2008, the competency for the authorisation and regulation of pesticides in Malta was transferred to the Malta Standards Authority (MSA) on 1 February 2008.

Inspections and Sampling

Placing of Pesticides on the Market

During January 2008, the Plant Health Department started the routine inspections at the retailers for plant production products on the market. These inspections were carried out according to the Manual of Procedure drawn up by department officials.

In all, 55 inspections were carried out as follows in Attard, Balzan, B'Kara, Dingli, Floriana, Gharghur, Hamrun, Mosta, Mtarfa, Naxxar, Nigret, Qormi, Rabat (Malta), San Ġiljan, San Ġwann, Siggiewi, Sliema and Sta Venera. Out of 55 outlets, five had changed their line of business and 31 were found to be in possession of plant protection products which are not registered. All information was transferred to MSA for necessary action.

SURVEILLANCE AND INSPECTORATE

Phytosanitary Inspections

Inspections of Commodities originating from Third Countries

- During the year, 339 full inspections were carried out on third country commodities subject to inspection as per LN 97/2004.

Inspections of Wood Packaging Material (WPM)

- WPM originating from third countries is subject to inspection as per ISPM 15 and EU Directive 2004/102/EC. All WPM imports were according to ISPM 15. Inspections on wood coming from Portugal have also been carried out due to the risk of introduction of Pine Wood nematode.

Inspectors were involved in the stamping of WPM for Comtec Ltd. This service is being given free of charge. There were 241 heat treatments consisting of 3,484 pallets, 203 Boxes and 415 dunnage.

Plant Passport System

- During 2008, various nurserymen contacted the S&IU for clarifications with regard to the implementation of the plant passport system. Producers were also encouraged to utilise a database for recording the purchases and sales similar to the system that had been explained during the seminar held in 2007.

In all, 16 nurseries, including the SVDP Fruit Nursery, were inspected with regard to the plant passport system and around 17,877 plant passports were distributed.

Sampling

- During the year various inspections were carried out in private residences, public gardens and nurseries from where various samples were collected. The S&IU were involved in the collection of samples for Brown Rot, Ring Rot and Potato Spindle Tuber viroid surveys, the Colorado beetle survey and the *Phytophthora ramorum* survey.
- Inspections regarding the Citrus tristeza virus, Pepino Mosaic virus, *Flavescence dorée* and its vector *Scaphoideus titanus*, Pine wood nematode and *Phytophthora ramorum* were carried out. 358 samples were collected for testing. Out of these samples, 143 were sent to Virology lab, 21 were sent to the Nematology lab, 70 were sent to the Entomology lab, 35 were sent to the Mycology lab and 89 were sent to the Bacteriology lab.
- Monitoring for the Red Palm Weevil was carried out throughout the year and the beetle was detected in various areas mainly on the *Phoenix canariensis*. During the 478 inspections carried out in 2008, the beetle was found in all the different stages of growth, i.e. from egg to adult. 193 palm trees had to be destroyed as a consequence and 129 registered enforcement letters were sent to various individuals for palm removal. During these visits, the stakeholders were informed about pesticide treatments which could be utilised for control purposes. A total of 78 pheromone traps were distributed to third parties free of charge.
- Other inspections were carried out on stone fruit cultivation at SVDP Nursery and pine wood nematode and *Giberella circinata* from nurseries and public places.

Phytosanitary Certificates

Phytosanitary Certificates for Export

- A total of 28 export phytosanitary certificates were issued, in compliance with ISPM 12 (IPPC). Certificates are issued after commodities are inspected and found to be free from regulated pests and diseases.

Phytosanitary Certificates for Re-export

- Eight re-export Phytosanitary certificates were issued during 2008, after phytosanitary inspections were carried out.

Collection of Revenue

During 2008, a total of €9,289.34 was collected by the S&I Unit through phytosanitary inspections carried out by SIU.

Registration

During the year, there were three new entries in the Traders Registration. In 2008, there were 243 importers who trade in agricultural products and timber from both third countries and European Member States. These were duly registered in the respective database.

Border Inspection Posts

Necessary arrangements were carried out in 2008 to establish the Border Inspection Posts (BIPs) at Airport and Freeport. These started functioning in September. Various presentations were prepared and delivered during the various seminars organised by the Plant Health Department to describe the function of these BIPs.

Others

- Updating of SIU database on imported commodities of plants and plant products. Collation of data and extracting of information is carried out to help in the drafting of EU specific reporting obligations, drafting of LNs and formulation of local plant health strategy. It is also a tool for planning surveys and inspection.
- The RPW database for infected palm trees was regularly being updated. A further database of non-infected susceptible plants was started in 2008.
- During 2008, the SIU drew up and published guidelines for importers of plants and plant products. Further inspections were carried out with respect to movement of wheat from Kordin Grain Terminal to Italy.

Advisory Work

- Inspectors visited a number of private farmers to carry out inspections and collect samples for further diagnosis. This was mainly based on visual inspections especially for *Leptinotarsa decemlineata*.
- Most advisory work by the SIU was on the Red Palm Weevil. The Unit received many queries from third parties who sought help through all possible means. Many inspections were also carried out following such requests.
- A number of importers and individuals called the Unit for queries regarding any import regulations and wood packaging material. Assistance was also given to nurseries to implement the plant passport system.

PLANT BIOTECHNOLOGY CENTRE MANAGEMENT

Glasshouse Facilities

Routine work such as cleaning of pots, application of pesticides and fertilisers was carried out in the glasshouses, screen houses, shade house, mother block and outdoor areas. Routine works for the up keeping of the PBC grounds were carried out. These included weeding and rotovation of fields and general cleaning and maintenance of the premises.

- *Acclimatisation glasshouse:* During the year, 22 jars of roses and around 400 ferns were sent from the *in vitro* laboratory for acclimatisation. Acclimatisation of various local orchid and tulip plants was also attempted. Rootstocks and ornamental plants were continually cared for and regular applications of insecticides were necessary to control sciarid flies and other insects. Preventative drenching with fungicides was carried out to avoid soil borne fungal diseases and fertilisers were applied during irrigation. Acclimatised rootstocks were transferred to the shade house for hardening and certification. Conventional propagation of various ornamental plants was also carried out within the glasshouse.
- *Diagnostic glasshouse:* A continuous production of herbaceous indicator and indexing plants for virus diagnosis was carried out throughout the whole year. Apart from the regular herbaceous plants, pumpkins, cucumbers, tomatoes, aubergines, fava beans and others were used as indicator plants. Works include regular sowing, transplanting, repotting, irrigation and spraying with pesticides for the control of insect pests such as sciarid flies, thrips, whiteflies and red spider mites. Old material was discarded. Hygiene, such as cleaning of benches and floors was carried out. A stock of mother plants for the collection of seeds was maintained. The ornamental and endemic plants are being maintained in the 3rd compartment and required regular irrigation and spraying. Commercial propagation of spider plants, *Myrtus*, *Cremnophyton*, *Helichrysum* and other ornamental plants was carried out. The compartments, benches and floors were cleaned on a regular basis and one of these benches is currently being utilised by the PARC Unit in connection with the 34U campaign.
- *Plastic house:* The plastic house was mainly used for the production and upkeep of herbaceous indicator mother plants which are used for seed collection. These plants were given regular care. Maintenance work was also carried out on some of the benches.
- *Shade house:* Rootstocks were transferred to the shade house for hardening off prior to being certified for eventual collection by SVDP staff. Regular irrigation, application of pesticides and drenching with fungicides for the control of insect pests was carried out. Other work included organisation of plants and weeding. The remaining *Sarcopoterium* plants were repotted as they had outgrown their pots.
- *Screen houses:* Plants were regularly cared for and required irrigation, weeding and spraying for insect pests. The stone fruits and vines were pruned and organised and slow release fertilisers were applied.

Sale/Donation of Plants

During the year, 500 Myrabolan and 500 GF 677 plants were forwarded to the Government Farm in Xewkija, Gozo while 7,150 Myrabolan 29C and 2,240 GF 677 plants were forwarded to SVDP. 113 bales of wheat were donated to the Government Experimental Farm, Għammieri.

The following plants were donated to various entities including PARC Unit, Nature Trust, MRAE and the Education Department: 2 *Myrtus communis*, 2 *Lavandula*, 77 *Cremnophyton lanfranconi*, 24 *widnet il-baħar*, 23 *Ficus*, 47 ferns, 21 spider plants, 5 *Philodendron*, 14 *Yucca*, 161 carob and 130 dwarf palm trees. A further 15 baskets with plants were donated to MRRA upon request. 190 *Sarcopoterium spinosum* plants were forwarded to Argotti gardens after the necessary arrangements were made with MEPA and Argotti gardens.

77 ferns, 2 spider plants, 4 *Philodendron* and 8 *Ficus benjamina* and 8 *Yucca* were sold to the general public, which amounted to €425.

Maintenance Work

During the year several maintenance works and services were carried out at the PBC premises related to the upkeep of the laboratories, offices, glasshouses and ancillary equipment and also at the Border Inspection Posts and Għammieri.

Efforts have also been made to repair the glasshouse computer system and the hot room by a team of engineers from the University Engineering Department who have been carrying out tests to try and isolate the problems.

Local Vegetable Varieties

During the year, trials on the local vegetable seeds were continued within the premises. Such trials included local varieties of vetch, onions, garlic, white and purple kohlrabi, broad beans, broad carrots, cauliflowers, pumpkin, vegetable marrows, melons and watermelons. The aim of these trials is to determine the characteristics of the local varieties. Trials will be continued during 2009.

TECHNICAL AND OPERATIONAL

EU Related Affairs

Various EU related meetings were attended as listed hereunder. Instruction notes and reports have been prepared by the respective officials for such meetings and the former have also been prepared together with proxy arrangements for meetings for which no Maltese representatives were present. All the documents to be used in the meetings have been reviewed thoroughly and comments were sent to the European Commission and the Presidencies (Slovenia and France) when needed.

Meetings Attended

- Various council and commission meetings (monthly SCPH meetings, COPHs meetings, WP) were attended by PHD officials. Respective instruction notes and follow-up reports were drawn up for each meeting.

MERTENS/COPERPER/AGRIFISH/SCA/Environmental Council and other EU matters

- Review of documentation was made and comments and clearance were given by Plant Health Department as regards issues that were going to be discussed during COREPER I, CODEV and SHERPA meetings and that relate to propagation and planting material of various species and phytosanitary issues.

Communications to the EU

The Plant Health Department sent its comments to the Commission Services, the Council Secretariat and the Presidencies when requested. These were mainly on the draft EU legislation, evaluation of the Community *acquis* on the marketing of seeds and plant propagation material, seed marketing, plant health issues of ornamental plants and certification of propagation material of fruit trees.

Community Plant Variety Office (CPVO) matters

- Officials from the Seeds and other Propagation Material Unit attended meetings between the CPVO and its Administrative Council and the examination offices during which issues on the functioning and activities of the CPVO, the technical examination of plant varieties and granting of Community plant variety rights were discussed.

Communication was held between the SPMU and the CPVO mainly on issues that dealt with entrustment of examination offices to carry out distinctness, uniformity and stability (DUS) testing of different plant species, technical examinations of plant material, internal CPVO procedures, variety denominations and applications for Community plant variety rights originating from Malta.

Reporting Obligations:

Various reports (total 28) were forwarded to EU Commission through the EU Secretariat as obliged through EU legislation. Reporting on the Multi annual National Control Plant was also submitted in 2008.

National Legislation - New Legal Notices Adopted

- *Legal Notices under the Plant Quarantine Act 2001*: Two EU directives were transposed into Maltese law during 2008.
- *Trees and Woodland Regulations*: A draft legal notice on the Trees and Woodland Protection Regulations drafted by MEPA had been forwarded to the Plant Health Department for review. The Plant Health Department attended a public consultation seminar held by MEPA dealing with the draft legal notice.

Boards

The Plant Protection Board, as stipulated under the Plant Quarantine Act (Cap. 433), was set up during this year. Staff from the Plant Health Department represent the Ministry on a number of boards, namely Plant Protection Board, Red Palm Weevil Commission, Institute of Agriculture (University) Board and Food Safety Commission.

Seminars/Meetings Organised by the Plant Health Department

The Plant Health Department organised a series of seminars between May and September as part of an EU funded project under the Rural Development Plan 2004-2006. These include:

- Controlling Pests and Diseases to Reduce the Use of Plant Protection Products (71 attendees)
- Controlling Pests and Diseases; How, Why and When? (109 attendees)
- Export, Import and Marketing of Plants and Plant Products (60 attendees)
- Plant Protection Products; Registration, Marketing and Use (71 attendees)
- Plant Protection Products; the Way Forward (119 attendees)
- Import Regulations for Seed Potatoes (2 attendees)
- Quarantine Diseases Affecting Grape Vines (68 attendees).

Five courses were also organised for farmers and traders on the use and correct sale of plant protection products (PPPs); a total of 108 farmers and 33 retailers attended the courses. The attendees at the farmers' courses have undergone an examination and a certificate was given which is recognised by MSA to obtain the licence for use of PPPs as per LN 115 of 2004.

The Plant Health Department organised, in conjunction with WasteServ Ltd, the Civil Protection Department and SDO, talks on waste management and fire wardens as well as a two-day course on team building. These were organised for the staff of the Plant Health Department.

In December, staff from the Diagnosis and Control Unit gave a presentation on the role of the Plant Health Department on harmful organisms to mayors from the local councils through AKL. Discussions were also held on how local councils can collaborate on the prevention, eradication and containment of emerging pests.

Meetings/Seminars/Courses Attended

Departmental officials attended several meetings, seminars and training courses, both locally and abroad, in the course of the year.

List of Publications Published by the Department

During the year various flyers, leaflets and posters were published and distributed during the Plant Health seminars. These include leaflets on: Citrus Tristeza Virus; Integrated Weed Management; Colorado Beetle; Parasitic Plants; The Soil Laboratory; Old Fruit Tree Varieties; Plant Viral Diseases; Red Palm Weevil; Citrus Longhorned Beetle; Sudden Oak Death; Ergot; SPMU Section; *Reġistrazzjoni tal-Varjetajiet ta' Pjanti; Il-Kummerċ ta' Materjal għat-Tkattir tal-Pjanti*.

Publications were also published in the MRAE monthly magazine *Biedja u Saja*, press releases appeared on the Government Gazette and on the Department of Information website.

GENERAL ISSUES

The organisation and management of official controls by the Plant Health Department was audited by Malta Standards Authority (MSA) within the context of Regulation (EC) No 882/2004 of the European Parliament and of the Council on official controls to verify compliance with feed and food law, animal health and animal welfare rules.

During the year, the existing department website was kept up to date with regard to the published legal notices and news items. Presentations and photos from the seminars organised by the Plant Health Department have also been uploaded onto the website and a photo library was created.

DR MARICA GATT
Director (Plant Health)