Arab and Near East Plant Protection Newsletter

Number 53, August 2011

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Arab and Near East
PLANT PROTECTION NEWSLETTER

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News and announcements from all on any aspect of plant protection in the Arab world are invited for the Newsletter. Contributions from the Executive Committee of the Arab Society for Plant Protection and from the four Subject Matter Committees, as well as from national societies in the Arab region dealing with any aspect of plant protection are kindly requested and highly appreciated.

EDITORIAL

Mobile Crop Pest Clinics: Are They an Effective Tool to Help Agricultural Rural Communities

Many countries around the world provide the agricultural rural communities with mobile units that visit them on a regular basis to help them in the diagnosis of their crop pest problems and by suggesting effective solutions. This approach proved to be effective for many decades in many rural regions of Asia, Latin America and Africa. Such units are usually staffed with 3-4 well trained individuals that cover most aspects of crop protection, and equipped with essential equipment to facilitate the proper and quick diagnosis of the pest problem at hand. The mobile unit is practically a trailer pulled by a car with its own power system, satellite communications and the essential diagnostic tools for the different pest categories. With such facility, experienced individuals will be able to identify most of the pest threats within a short period on site, and in case of very difficult issues, communication with experts at research centers or universities can be immediately carried out.

The majority of farmers in rural communities in the Near East is low income individuals, and in practice, cannot seek help by taking their samples to specialist experts to identify the proper solution for their pest problems. At the same time, the agricultural extension workers who are assigned to serve a specific district, when available, are usually general practitioners and not knowledgeable enough in pest identification and management to be able to provide farmers with credible solutions to their problems. Sustainable solutions are often those that do not rely heavily on pesticides use. Thus, the basic thrust in having such mobile diagnostic units is to help low-income growers to reduce reliance on, and expenditures for pesticides while increasing crop yields and consequently farmer's income. Another important advantage of having such well equipped and staffed mobile units is to increase the capacity to intercept new or emerging crop pest problems before they are widespread in the country. This approach which proved to be successful worldwide is worth expanding in the Near East region. Ministries of agriculture in the region are encouraged to consider this tool seriously, and there are many agencies around the world that can help in making such an approach a successful and rewarding venture.

Khaled Makkouk
National Council for Scientific Research
Beirut, Lebanon

INVASIVE AND NEW PESTS

ALGERIA

First report of *Erwinia amylovora* in Algeria. In Algeria, symptoms resembling those of fireblight were detected in several pear orchards (*Pyrus communis*) in the wilayahs of Algiers, Blida, Tipaza and Boumerdès. Samples were tested in the laboratory, and the presence of *Erwinia amylovora* (EPPO A2 List) was confirmed in 2011. Phytosanitary measures are being taken to contain the disease and include: surveys in both infected and non-infected areas, destruction of infected trees, prohibition to move plant material from infected areas, prohibition to move bee hives from infected areas during flowering, pruning of symptomatic shoots and disinfection of pruning tools, information for fruit tree growers and nursery workers. A national committee has been constituted with different stakeholders (administration, growers) to coordinate this action plan. The situation of *Erwinia amylovora* in Algeria can be described as follows: Present, first detected in 2011 in the wilayahs of Algiers, Blida, Tipaza and Boumerdès, under official control. [website: https://www.ippc.int/index.php?id=1110879&frompage=251&tx_pestreport_pi1[showUid]=217051&type=pestreport&L=0, Pest report from Algeria (2011-06-16). Signalement du feu bactérien.].

IRAN

First Report of *Leipotylenchus abulbosus* in Iran. *Leipotylenchus abulbosus* (Thorne, 1949) Sher, 1974 belongs to the family Tylenchidae, subfamily Leipotylenchinae, and order Tylenchida. During the spring and autumn months of 2008 to 2010, 80 samples were collected from rhizosphere soil of symptomatic plants including wheat (*Tritichum aestivum* L.), beet (*Beta vulgaris* L.), and maize (*Zea mays* L.) from Meighan and Gavar regions of Markazi Province in central Iran. Plants were dwarfed and leaves were chlorotic. Diseased plants comprised ~7% of all plants in the field. Sandy loam soil was collected from roots up to 15 cm from the base of the plants. Nematodes were extracted from the soil by sieving and centrifugation. For species identification, nematodes were transferred to anhydrous glycerin and mounted on slides by the paraffin ring method. Identification was based on morphometric and morphological characteristics of females and males. No other forms of the nematode were isolated from collected samples. *L. abulbosus* was found in 10% of the collected samples. The nematodes showed typical characteristics of the genus *Leipotylenchus*: striated and anteriorly flattened lip region, stylet without basal knobs, didelphic gonads, four incisures in lateral fields that were areolated in the posterior portion, presence of deirids and adanal caudal alae, amphid inconspicuous in males. Males contained bursa in tail. Females contained an almost straight body, tapering anteriorly from median bulb and posteriorly beyond the anus; cuticle thick, annules fine. Labial framework was moderately sclerotized. Median bulb with prominent valvular apparatus in the center, oval, occupied two-thirds of the body. Deirids were prominent and at the level of the excretory pore. Vagina a transverse slit at right angles to body axis, extending less than half width into body. Tai1 finely annulated, short, tapering to a narrow tip but becoming broader just before the terminus. Phasmids small in anterior half of the tail. Measurements of 12 females: body length = 1,377±90 (1,276 to 1,469) µm; a = 39.2±1.62 (36.8 to 41.1); b = 7.2±0.34 (6.6 to 8.30); c = 11.1±0.16 (10.7 to 11.3); V% = 52.6±1.42 (50.4 to 53.8); stylet length = 17±0.22 (16.6 to 18) µm; tail length = 124±6.83 (116 to 137) µm); and 7 males: (body length = 1,150±56.84 (1,090 to 1,246) µm; a = 39.5±1.48 (37.5 to 41.5); b = 6.4±0.21 (6.1 to 6.8); c = 9.5±0.06 (9.4 to 9.6); T% = 55.1±0.91 (54.4 to 56.20); stylet length = 17.6±0.36 (17 to 18) µm; tail length = 120±3.77 (115 to 129) µm) conformed to the description of *L. abulbosus*. *L. abulbosus*, originally isolated from crop plants in surveyed regions, was cultured on beet (*B. vulgaris* L.) in the greenhouse. Pure cultures of the nematode were inoculated on beet seedlings at the 4- to 6-leaf stage as described previously. Sterilized soils were inoculated with 1,000 infective mature nematodes with three replications. Infection of beet roots by the nematode resulted in leaf chlorosis and reduction in plant height. Previously, *L. amiri* was collected from soils associated with the roots of onion (*Allium cepa* L.) plants in Pakistan. However there have not been any reports of *L. abulbosus* in crop plants before. To our knowledge, this is also the first report of *L. abulbosus* infecting wheat, beet, and maize plants in Iran. [M. Mirzaee-Qomi, F. Khozeini, S. Barooti, Nematology and S. Rezaee (Iran). *Plant Disease*, 95(7): 882, 2011].

IRAQ

Observations on tomato borers *Tuta absoluta* in some regions in Iraq during the tomato season 2011. A scientific team from Ministry of Science and technology, Office of Agricultural Researches conducted a tomato field visit to Eshaki region in Salah El-Deen province during the tomato season in 2011. Severe infestation of tomato crops with tomato borer *Tuta absoluta* was reported in this region which is considered one of the main tomato cultivation areas in the middle of Iraq, the total area planted is around 6000 Iraqi Donum (2500m^2).

Complete destruction of 100% was evaluated in the two cultivated varieties: Hybrid Queen and Frency, although different insecticides were applied. Few beneficial insects (predators and parasites) were observed in the tomato field which reflects a potential of biological enemies availability. [Mohamaed Zeadan Khalaf, Agricultural Department, Ministry of Science and Technology (Iraq). 2011].

OMAN

Isolation and identification of the pathogens associated with melon crown blight and the first report of *Monosporascuscannonballus* on sweet melon in Oman. Melon crown blight is one of the devastating diseases that infect cucurbits causing great loss to farmers and reduction of melon cultivated area in the Sultanate of Oman. Symptoms of the disease include canker or blight at the crown area, root rot, sudden wilt and at advance stage of the disease, death of plants at harvest stage occurs. Resistance or tolerance of cucurbits differs among species and sweet melon or cantaloupe is found to be the most sensitive. A number of pathogens associated with melon crown blight (*Fusarium* sp., *Pythium* sp. And *Monosporascus* sp.) have been isolated from infected sweet melon field at Wilayat Suwaiq at Batinah region of Oman. *Monosporascus* sp. is one of the important fungi which proved its ability to cause such a disease in many countries around the world. Molecular identification of Ribosomal ITS of the fungi isolated in Oman was done at ICBS in Holland and proved to be *Monosporascus cannonbollus* and hence the first registration of the pathogen in the Sultanate of Oman. It is worth mentioning that *Monosporascus cannonbollus* was first isolated in 2001for the first time. To study the Pathogenecity of the causal agents that have been isolated from the infected field in March 2010, an experiment was conducted in a greenhouse where sweet melon, of Joyce cultivar, was planted in pots with sterile soil. Two weeks after planting, inoculation to soil with the following pathogens was performed: 1) *Monosporascus* sp., 2) *Fusarium* sp., 3) *Pythium* sp., 4) Combination of the three fungi. The percentages of the crown blight as well as degradation grade were recorded for each plant in addition to percentage mortality. The results showed increased mortality rate in plants treated with the three fungi together in comparison with inoculation with each alone. [Naela Al Muslimi, Yousef Arnisi and Qais Al Miwali, E-mail: almaawaliqais@yahoo.com (Oman), 2011].

SYRIA

First report of Citricola scale *Coccus pseudomagnoliarum* on citrus in Syria. The study was conducted during 2004-2008.The samples were collected from citrus orchards in the Syrian coast. The aim of this study is to study the new soft scale which attacks citrus trees, and it infests other host plants. Citrus trees exposed to lot of insect pests, including the scale insects and citricola scale *Coccus pseudomagnoliarum (*Kuwana) is considered the most important pest. The economical importance of this insect is due to direct and indirect damage caused on citrus leaves and branches. Direct damage comes from sucking plant sap by the different instars of the scale insect that leads to appearance of yellow spots on the leaves. Indirect damage comes as a result of secretion of honey dew by the scale insect which encourages the growth of sooty mould. A new soft scale insect has been seen on citrus and *Jugland* spp. and some ornamental plants. This new scale insect is *Coccus hesperidum*. The study of this insect in details showed that the dorsal spine t extends over the whole body in *C. pseudomagnoliarum*, whereas it is shorter in *C. hesperidum*. The other difference is color, it is grey- brown in the adults of *C. pseudomagnoliarum*, and brown in *C. hesperidum*. This is the first report of *C. pseudomagnoliarum* on citrus in Syria recorded in May 2004. This insect was registered earlier in the Mediterranean countries such as Turkey and Greece. [Kais Gazal and Eyad Mohammed, Center of Rearing Biological Enemies, E-mail: Kaisgazalbc@shuf.com; Eyadm2009@gmail.com (Syria). 2011].

TUNISIA

First Report of Fruit Rot of Olives Caused by *Botryosphaeria dothidea*in Tunisia. During the summer of 2010, unfamiliar symptoms of fruit rot were frequently observed on different Tunisian olive (*Olea europaea*) cultivars. These symptoms appeared to be associated with the damage caused by the olive fruit fly (*Bactrocera oleae*). At first, infected olives showed a brown color and then fruits begin to depress until they become completely mummified and fall immaturely. This problem was more pronounced on table olive cultivars (Ascolana, Meski, and Picholine) in the northern Tunisian regions (Nabeul), with an infection incidence of 65%. Infected Ascolana olives were disinfected with 70% ethanol for 2 min, rinsed in sterile distilled water, and air dried. Several pieces were cut and placed on acidified (2.5 ml of a 25% [vol/vol] solution of lactic acid per liter of medium) potato dextrose agar medium (PDA). All plates were incubated at 25°C for 4 days under continuous fluorescent light. A fast-growing fungus with an abundant, aerial mycelium, which was gradually veering from white to dark gray, was constantly isolated. On the reverse side of the colonies, an olive green coloration spread to the edge and became darker from the center until the underside was completely black. Conidia produced on the PDA plate were hyaline, single or double cell, ellipsoid, with a sub-obtuse apex and a truncate base, and averaged 22.70 × 5.32 µm. Conidiophores were hyaline, cylindrical, smooth, branched at the base, with an average of 14 to 24 × 2 to 3 µm. Pathogenicity of an isolate was conducted by dipping 20 olives wounded by a sterilized scalpel in a conidial suspension (10^5conidia/ml), covering inoculated olives with moisture filter paper, and incubating them in a polyethylene bag under darkness at 25°C. Controls however, were wounded and dipped in sterile distillated water. Seven days after the inoculation, olives showed a brown color covering half of the fruit. Later (15 days after), this browning was accentuated and several black pycnidia were observed. Forty days after inoculation, fruits were completely dried out and the kernel was already appearing. Controls, however, remained totally healthy. Koch's postulates was then verified and showed that pure cultures were obtained after re-isolations from inoculated olives, whereas the controls were free of the fungus. BLAST analysis of the internal transcribed spacer region (ITS) of rDNA of one isolate showed 99% identity with the ITS sequence of *Botryosphaeria dothidea* (GenBank Accession No. FM955381.1). Species of the family of Botryosphaeriaceae are common pathogens causing fruit rot and dieback of many woody plants. Drupe rot problem caused by *B. Dothidea* was reported on olives in Greece and southern Italy. It was reported that the fungus invades the drupes through the wounds caused by the olive fruit fly and may even be transmitted by it, and recently Moral et al. suggested that the olive fruit fly is essential for the initiation of the disease on the fruit. To our knowledge, this is the first report of fruit rot of olives caused by *B. dothidea*in Tunisia. [M. Chattaoui, A. Rhouma, S. Krid, M. Ali Triki, J. Moral, M. Msallemand A. Trapero (Tunisia & Spain). *Plant Disease*, 95(6): 770, 2011].

Effects of *Fusarium culmorum* and water stress on durum wheat in Tunisia. The effects of water stress on *Fusarium* foot and root rot in durum wheat were investigated in growth chamber, greenhouse and field tests in Tunisia. In the seedling stage, emergence of six durum wheat cultivars in the growth chamber was significantly reduced by inoculation with *Fusarium culmorum*and water stress ($P<0.0001$), with more disease under drier conditions. Additionally, the tiller number per mature plant, the 1000grain weight and disease severity in mature stage were reduced by inoculation in greenhouse studies. In a field test, inoculation with *F. culmorum* significantly reduced the yield ($P<0.001$), by more than 17% for Om Rabiaa and 38% for Karim, the two cultivars tested. Yield was also significantly affected by precipitation and irrigation levels. The severity of the disease, estimated by the percentage of white heads, was separately affected by the cultivar ($P<0.001$) and inoculation ($P=0.0004$). Percentage of white heads was 1.5 and 2×higher in inoculated plants than non-inoculated for Om Rabiaa and Karim cultivars, respectively. Disease severity was highest in treatments with the greatest water stress. This is the first detailed study of water stress and *F. culmorum*on durum wheat in Tunisia, and indicates that cultivar resistance and irrigation management may be important in the management of *Fusarium* foot rot. [Samira Chekali, Samia Gargouri, Timothy Pauitz, Julie M. Nicol, Mohsen Rezguiand, Bouzid Nasraoui (Tunisia). *Crop Protection*, 30(6):718-725, 2011].

First Report of *Pythium indigoferae* and *P. irregular* Associated with Apple Trees Decline in Tunisia. *Pythium indigoferae* and *Pythium irregulare*, identified based on morphological and physiological characteristics, were isolated from

necrotic roots, crown tissues and the rhizosphere of apple trees in Tunisia from 23 apple orchards in spring and autumn 2007–2009. The virulence assays on excised twigs, using different *Pythium* species isolated demonstrated that these oomycetes were pathogenic on the Anna, Lorka and Meski varieties and the MM106 rootstock. However, the biggest lesion area was noted on MM106 rootstock. Thus, it appeared that this rootstock is more susceptible to *Pythium* infections than Anna, Meski and Lorka apple varieties. Furthermore, it is important to note that in vitro tests showed that *P. indigoferae*seems to be more virulent than *P. irregulare*. [Mounira Souli, Naima Boughalleb, Paloma Abad-Campos, Luis Armando Á lvarez, Ana Pérez-Sierra, Josep Armengol and José García-Jiménez (Tunisia). *Journal of Phytopathology*, 159(5): 352–357, 2011].

TURKEY

First Report of a Root Rot Caused by *Phytophthora palmivora* on *Lavandula angustifolia* in Turkey. English Lavender (*Lavandula angustifolia* Mill.) has been considered an alternative crop to tobacco in Hatay Province of Turkey because of its great production potential. As a new, nonnative crop, diseases and pests of lavender are not well known in the region. In summer 2010, root rot symptoms were observed with an average incidence of 45% in a 2-year-old lavender nursery in Hatay. Initial symptoms of chlorosis and wilting were followed by progressive death of the plants starting at the shoot tips. An oomycetous species was isolated consistently from the stems and roots of diseased plants on potato dextrose agar (PDA) amended with several fungicides and antibiotics. The culture of the single-zoospore isolate produced arachnoid growth on PDA. Chlamydospores of the isolate were approximately 35.0 µm in diameter. The isolate produced papillate, caduceus, hyaline sporangia in different shapes ranging from spherical to ellipsoidal. Sporangia with short pedicels (5 µm) were 35.0 to 57.5 × 27.5 to 42.5 µm with a length/width ratio of 1.2 to 1.8. On the basis of symptoms and morphology of the organism, the pathogen was identified as *Phytophthora palmivora* (E.J. Butler) E.J. Butler. Identification of the isolate was also confirmed by comparison of the sequence of the nuclear ribosomal internal transcribed spacer (ITS) region with reference isolates. The ITS region of rDNA was amplified by PCR with primers ITS1/ITS4 and sequenced (GenBank Accession No. JF777117). BLAST analysis of the sequence obtained showed a 99 to 100% homology with *P. palmivora*. Pathogenicity tests were performed on 12 greenhouse-grown 2-year-old lavender plants in 2-liter pots containing a steamed sand/peat/soil mixture. After rooting, the plants were inoculated by placing mycelial plugs from a 1-week-old culture of the isolate into an incision made at the base of each plant. Control plants were treated with plugs of sterile PDA. Inoculated plants were kept at 27°C for 5 weeks. Similar symptoms developed on the inoculated plants within 4 weeks after inoculation. *P. palmivora* was consistently reisolated from symptomatic plants. No symptoms developed on control plants. *P. palmivora* attacks a wide range of crop species including lavenders. To our knowledge, this is the first report of a root rot caused by *P. palmivora*, a new pathogen of lavender in Turkey. [S. Dervis, Mustafa Kemal, M. Arslan, C. U. Serce, S. Soylu and I. Uremis (Turkey). *Plant Disease*, 95(8): 1035, 2011].

RESEARCH HIGHLIGHTS

EGYPT

Comparative effectiveness and field persistence of insect growth regulators on a field strain of the cotton leafworm, *Spodoptera littoralis*, Boisd (Lepidoptera: Noctuidae). Toxicity effects and field persistence of the insect growth regulators lufenuron, flufenoxuron and triflumuron were assessed in the laboratory using second and fourth larval instars of *Spodoptera littoralis*. Laboratory bioassays indicated that lufenuron was more effective on both 2nd and 4th larval instars, as well as killing both larval instars faster than flufenoxuron or triflumuron. Field-laboratory experiments were conducted to show direct and residual effects of the tested IGRs in terms of toxicity and stability. They indicated that all the tested insecticides were stable under field conditions and give high percentages of mortality. Overall, lufenuron was more efficient than the other tested insecticides. In addition, it gave a faster kill in some testing periods. Data presented in this work show greater efficiency of lufenuron in controlling *S. littoralis*than flufenoxuron or triflumuron. Using this insecticide for cotton leafworm control in cotton fields may give better results under field condition. [El-Sayed A. El-Sheikh and Mohamed M. Aamir (Egypt). *Crop Protection*, 30(6): 645-650, 2011].

IRAN

Induction of Resistance in Common Bean by *Rhizobium leguminosarum* bv. *phaseoli* and

Decrease of Common Bacterial Blight. *Rhizobium leguminosarum* pv. *phaseoli* was evaluated for its capacity to trigger resistance to common bacterial blight (CBB) of common bean caused by *Xanthomonas axonopodis* pv. *phaseoli* (Xap), under greenhouse and field conditions. A common bean cultivar and three lines including two tolerant lines (Ks51103 and BF13607) and the susceptible cultivar Khomein and line Ks21479, were used *R. leguminosarum* pv. *phaseoli*, was applied as a seed treatment and its effect on disease severity (DS) was compared with untreated (pv. *phaseoli* in common bean roots tended to reduce CBB severity and to improve plant growth, particularly the 100-seed weight, in the field. The greatest decrease in CBB in the greenhouse occurred 15 days after inoculation (DAI) of Xap in the cultivar Khomein and line Ks21479, and 30 DAI in lines Ks51103 and BF13607. In the field, however, the greatest decrease occurred 35 DAI in the cultivar and all lines. Furthermore, in the field the greatest improvement in 100-seed weight occurred in the cultivar Khomein treated with *R. Leguminosarum* pv. *phaseoli*. The potential of using *R. Leguminosarum* pv. *phaseoli* in the management of CBB and the possible mechanisms that induce resistance in this symbiotic system are discussed. [Ebrahim OSDAGHI, Masoud Shams-Bakhsh, Ali Alizadeh, Mohammad Reza Lak, Hamid Hatami Maleki. (Iran), *Phytopathologia Mediterranea*, 50(1): 45-54, 2011].

Uneven distribution of mating type alleles in Iranian populations of *Cercospora beticola*, the causal agent of Cercospora leaf spot disease of sugar beet. *Cercospora beticola*, the causal agent of Cercospora leaf spot disease on sugar beet, is thought to be exclusively asexual because no teleomorph has yet been found. The possibility of a clandestine sexual cycle in the Iranian population of *Cercospora beticola*was evaluated by analyzing the distribution and frequency of the mating type alleles on a microspatial and a macrogeographical scale. A total of 89 single-conidial *Cercospora beticola* isolates were obtained from sugar beet fields in the Moghan, the Talesh and the Khoy regions. The isolates were identified using a *Cercospora beticola*-specifc primer set in a PCR assay. A multiplex PCR method using previously designed mating type primers was used to study the distribution and the frequency of the mating type alleles. All isolates showed either the 805-bp fragment or the 442-bp fragment of the MAT1-1 and MAT1-2 genes, but no isolate had both fragments. The distribution of the mating type genes in the sampled areas was uneven. From three sugar beet fields sampled in the Moghan region, two fields had only MAT1-1 isolates; while in the third field all isolates had only the MAT1-2 allele. In the Talesh region only MAT1-1 isolates occurred, and in the Khoy region the mating type alleles were uniformly distributed amongst the isolates. The skewed distribution of mating type alleles in Northwestern Iran was in line with the lack of a sexual cycle for this species and may also indicate that sugar fields in the Moghan region were infected by *C. beticola* populations of different origins. [Mounes Bakhshi, Mahdi Arzanlou, Asadollah Babai-Ahari (Iran). *Phytopathologia Mediterranea*, 50(1): 101-109, 2011].

Population density and life-history parameters of the psyllid *Bactericera nigricornis* (Forster) on four commercial cultivars of potato. The psyllid *Bactericera nigricornis* (Forster) (Hemiptera: Triozidae) is one of the most important pests of potato,*Solanum tuberosum*L., in the Ardabil region, Iran. The use of host plant resistance is an essential component of the integrated management of *B. nigricornis*. In this study, we investigated the population density of *B.nigricornis*on four commercial cultivars of potato under field conditions and its life-history parameters under laboratory conditions. In field experiments, the lowest and highest densities of *B. nigricornis* were observed on cvs. Agria and Marfona, respectively. Population densities did not differ significantly between cvs. Kaiserkrone and Satina. In experiments on life-history parameters, the longest and shortest developmental times of nymphs were observed on cv. Agria (22.3 days) and cv. Marfona (18.2 days). The developmental time of nymphs on Kaiserkrone did not differ significantly from that on Satina. The lowest number of eggs laid per female (47.2) and the lowest survival rate (50%) were observed on Agria. The survival rate on Agria did not differ significantly from that on Kaiserkrone and Satina. The intrinsic rate of natural increase (r_m) and population growth rate (λ) were lowest on Agria and highest on Marfona. The generation time on Agria and Kaiserkrone was significantly longer than on Satina and Marfona. The doubling time (*DT*) was longest on Agria (15.9 days) and shortest on Marfona (11.8 days). Amongst the cultivars investigated, host plant resistance acted by decreasing the numbers of eggs laid per female, increasing the development time and reducing the survival rate of *B. nigricornis*, so decreasing population growth. Of the cultivars tested, Agria is the most resistant host and has potential for use in the integrated management of *B. nigricornis*on

potato. [Seyed Ali Asghar Fathi (Iran). *Crop Protection*, 30(7): 844-848, 2011].

PAKISTAN

Cross-resistance, inheritance and stability of resistance to acetamiprid in cotton whitefly, *Bemisia tabaci* Genn (Hemiptera: Aleyrodidae). The cotton whitefly *Bemisia tabaci*, (Genn.) is an important pest of field crops, vegetables and ornamentals worldwide. Neonicotinoids are considered an important group of insecticides being used against *B. tabaci*for several years. *B. tabaci*has developed resistance to some of the compounds of the group. This study was designed to investigate if the selection of *B. tabaci* with acetamiprid would give a broad-spectrum of cross-resistance and to genetically classify the resistance. At G_1a low level of resistance to acetamiprid, imidacloprid, thiamethoxam, thiacloprid and nitenpyram was observed with resistance ratios of 3-fold, 8-, 9-, 6- and 5-fold, respectively, compared with a laboratory susceptible population. After selection for eight generations with acetamiprid, resistance to acetamiprid increased to 118-fold compared with the laboratory susceptible population. Selection also increased resistance to imidacloprid, thiamethoxam, thiacloprid, nitenpyram, endosulfan and bifenthrin but no change in susceptibility to fipronil was observed. Furthermore resistance in a field population was stable in the absence of acetamiprid selection pressure. Genetic crosses between resistant and susceptible populations indicated autosomal and incompletely recessive resistance. Further genetic analysis suggested that resistance could be controlled by a single factor. The high level of cross-resistance and stability of incomplete resistance in the field population is of some concern. However, lack of cross-resistance between acetamiprid and fipronil or unstable resistance in the resistant population could provide options to use alternative products which could reduce acetamiprid selection pressure. Muhammad Basit, Ali H. Sayyed, Mushtaq A. Saleem and Shafqat Saeed (Pakistan). *Crop Protection*, 30(6): 705-712, 2011].

SAUDI ARABIA

Population dynamics of *Xanthomonas campestris* pv. *vitians* on different plant species and management of bacterial leaf spot of lettuce under greenhouse conditions. The population dynamics of *Xanthomonas campestris* pv. *vitians* (*Xcv*) was studied both externally and internally in lettuce, tomato and pepper plants. In addition, the application of bactericides during transplant production period was carried out for the management of bacterial leaf spot of lettuce under greenhouse conditions. Epiphytic populations of *Xcv* were recovered on leaves of lettuce plants (10^5CFU/g) 5 weeks after sprayed than the other plant species when inoculated with 10^8CFU/ml of *Xcv*. When plants of each crop species infiltrated with the bacterium at 10^5CFU/ml, the highest populations were developed in lettuce (10^8CFU/cm^2) followed by pepper with 10^6CFU/cm^{2}and tomato with 10^5CFU/cm^{2}10-days after infiltration. Application of a mixture of Maneb and Kocide or Kocide alone as a foliar spray on lettuce significantly reduced the incidence and disease severity of bacterial leaf spot by 29 and 27% respectively. Spread of the bacterium and development of the disease may partly be managed by avoiding intercropping of these plants commonly grown in close proximity to lettuce. For the management of leaf-associated populations of *Xcv* in lettuce, use of a mixture of Maneb and Kocide is advocated to minimize the effect of attacks. [M.A. Al-Saleh, Y.E. Ibrahim, K.A.M. Abo-Elyousrand, J.S. Alibrahim (Saudi Arabia & Egypt). *Crop Protection*, 30(7): 883-887, 2011].

SYRIA

Chickpea Ascochyta Blight: Disease Status and Pathogen Mating Type Distribution in Syria. Chickpea fields were surveyed in nine major chickpea-growing provinces of Syria in 2008 and 2009 to determine the prevalence and severity of Ascochyta blight, and the distribution of *Didymella rabiei* mating types (MATs) in the country. A total of 133 *Ascochyta rabiei* isolates were assayed for mating type, including isolates from older collections that date back to 1982. Multiplex MAT-specific PCR with three primers was used for MAT analysis. Out of the 133 tested isolates, 64% were MAT1-1 and 36% were MAT1-2. Both MATs were found in six provinces but MAT1-1 alone was found in three provinces. Chi-squared analysis was used to test for a 1:1 ratio of MAT frequencies in all samples. The MAT ratios in the six provinces were not significantly different from 1:1, suggesting that there is random mating of the pathogen population under natural conditions. The presence of the two MATs is expected to play a role in the evolution of novel virulence genes that could threaten currently resistant chickpea varieties. Overall analysis of the 133 isolates showed a significant deviation from the 1:1 ratio with almost twice as many MAT1-1 isolates than

MAT1-2 isolates, which indicates a competitive advantage associated with MAT1-1 in Syria. However, the overall picture of an unequal frequency in MATs indicates that there may be limited sexual recombination occurring in the Syrian population. [Omar Atik, Michael Baum, Ahmed El-Ahmed, Seid Ahmed, Mathew M. Abang, Mohammad M. Yabrak, Samer Murad, Siham Kabbabeh, Aladdin Hamwieh (Syria). *Journal of Phytopathology*, 159(6): 443–449, 2011].

TURKEY

Fire blight (*Erwinia amylovora*) resistant/susceptibility of native apple germplasm from eastern Turkey. This study aimed to determine the resistance/susceptibility to fire blight of apple germplasm resources from the province of Erzincan in eastern Turkey. In total, 32 native apple accessions from four regions within the province were tested under greenhouse conditions by inoculating the shoot tips with pathogenic bacterium. Shoot tips were wounded for inoculation. Genotypical susceptibility index (GSI%) values were computed for each genotype based on the length of the lesion that developed on each shoot. Accessions were grouped into five classes of resistance/susceptibility, as follows: Class A (resistant); Class B (moderately resistant); Class C (moderately susceptible); Class D (susceptible); and Class E (highly susceptible). GSI% values differed significantly among accessions (p<0.01). Five accessions received a rating of Class A, and 7 accessions received a rating of Class B. This was followed by 9 accessions with a rating of Class C, 5 accessions with a rating of Class D and 6 accessions with a rating of Class E. The findings of this study are expected to contribute to breeding efforts with respect to apple resistance to fire blight. [Koray Ozrenk, Fikri Balta, Muharrem Guleryuzand, Tuncay Kan (Turkey). *Crop Protection*, 30(5): 526-530, 2011].

Toxicity, inheritance of fenpyroximate resistance, and detoxification-enzyme levels in a laboratory-selected fenpyroximate-resistant strain of *Tetranychus urticae* Koch (Acari: Tetranychidae). A strain (BEYO 2) of *Tetranychus urticae* was selected with fenpyroximate for 14 selections. The resulting strain (named FPY 14) became resistant to fenpyroximate. The present study examines the inheritance of fenpyroximate resistance, the toxicity of some insecticides and acaricides, detoxification enzymes [esterase, glutathione S-transferase (GST), and monooxygenase (P450)], and the synergistic ratios of certain synergists [piperonyl butoxide (PBO),*S*-benzyl-*O*,*O*-diisopropyl phosphorothioate (IBP), and triphenyl phosphate (TPP)] in the FPY 14 strain of *T. urticae*. A spray tower-Petri dish method was used in the selection and toxicity studies. The level of fenpyroximate resistance was 64.43-fold higher in the FPY 14 strain and 1.06-fold higher in the BEYO 2 strain compared to the GSS (German susceptible strain) strain. The FPY 14 strain was 7.80-, 6.90-, 6.43-, 4.78- and 2.78-fold more resistant to abamectin, chlorpyrifos, propargite, clofentezine and amitraz, respectively. Fenpyroximate resistance is inherited as an incompletely dominant trait with no sex linkage. None of the synergists showed a significant synergistic effect. In the FPY 14 strain, the activities of esterase, GST and P450 enzymes were 1.92-, 1.06- and 3.96-fold higher, respectively, when compared to the susceptible GSS strain. The P450 and esterase enzymes might play a role in the mechanism of resistance to fenpyroximate. [Recep Ay and Fatma Ebru Kara (Turkey). *Crop Protection* 30(6): 605-610, 2011].

Phytotoxins produced by *Pestalotiopsis guepinii*, the causal agent of hazelnut twig blight. The main lipophilic phytotoxic metabolite was isolated from the culture filtrates of *Pestalotiopsis guepinii*, the fungus causing twig blight of hazelnut. The metabolite was spectroscopically identified as pestalopyrone, a pentaketide that it was originally identified as a minor toxin produced by *Pestalotiopsis oenotherae*. The toxic activity of pestalopyrone was compared with that of nectriapyrone, a structurally related monoterpenoid recently isolated from *Phomopsis foeniculi*, and that of the new dihydro-derivative of nectriapyrone. The high phytotoxic activity of nectriapyrone and its dihydro-derivative on three non host plants showed that the double bond of the 1-methylpropenyl group at C-6 of the aromatic ring is inessential for its activity, while the much lower activity of pestalopyrone showed that the methyl group at C-3 of the same ring is an important structural feature. The high molecular weight hydrophilic phytotoxins produced by this fungus are reported for the first time. [Muharrem Tűrkkan, Anna Andolfi, Maria Chiara Zonno, Ismail Erper, Carmen Perrone, Alessio Cimmino, Maurizio Vurro, Antonio Evidente. (Turkey), *Phytopathologia Mediterranea*, 50(1): 154-158, 2011f.

Host range of *Phytophthora parsiana*: a new high temperature pathogen of woody plants. Among several *Phytophthora* spp. reported previously from *Pistacia vera* in Iran, a high temperature species recently identified as *P. parsiana* (formerly known as high temperature *P. cryptogea*) is becoming important in woody plants, including *P. vera*. The host range of this newly recognized species, including both annual and perennial plants, is reported here. The pathogen infected 4–5 month-old glasshouse grown seedlings of *P. vera*, *Ficus carica*, *Malus pumila* and *Prunus dulcis*, and detached stems of 23 woody plants collected during dormant and growing seasons. Nineteen field and vegetable crops and 17 weed species were not infected by *P. parsiana*in these pathogenicity assays. [Somieh Hajebrahimi, Zia Banihashemi (Iran). *Phytopathologia Mediterranea*, 50(1): 159-165, 2011.

Update on *Plum pox virus* distribution in Turkey. Extensive surveys to determine the occurrence of *Plum pox virus* (PPV) in Turkey were carried out between 2007 and 2010 in commercial stone fruit orchards and nurseries, in non commercial stone fruit trees at other locations, and in rural and urban residential properties located in 56 of Turkey's 81 provinces. A total of 5,762 samples were collected from almond, apricot, mahaleb, nectarine, plum, peach, sweet cherry and sour cherry and tested by biological indexing, DAS-ELISA and RT-PCR. Two hundred and twenty two samples from 4 regions (the Aegean region, the Central Anatolia region, the Marmara region and the Mediterranean region) were found to be infected with PPV. This virus has occurred in Turkey since 1968. This is the first record of PPV occurrence in Aksaray, Çanakkale, İzmir, Kayseri, and Konya provinces. [Birol Akbaş, Kemal Değírmencí, Osman Çíftçí, Aydan Kaya, Melike Yurtmen, Nesrin Uzunoğullari, Nejla Çelik, Şahinerdam Tŭrkölmez (Turkey). *Phytopathologia Mediterranea*, 50(1): 50-75, 2011].

❖Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

General Situation during May 2011 Forecast until mid-July 2011

Significant Desert Locust infestations continued to be present in May on the Red Sea coast in Saudi Arabia where substantial ground and aerial control operations were conducted. Control operations declined in Mauritania and Egypt but were undertaken in the spring breeding areas in Iran and Pakistan. Smaller operations were carried out in Western Sahara and Algeria. During the forecast period, adults that are not controlled in Saudi Arabia are likely to form small groups or swarms that could move to the summer breeding areas in the interior of Sudan and Yemen and lay eggs. This poses a very significant threat to Yemen where survey and control operations are not currently possible. Therefore all efforts are required to contain the current infestations along the Red Sea coast. Higher than normal numbers of locusts will move from the spring breeding areas in northwest Africa to the northern Sahel in West Africa, and from southeast Iran and western Pakistan to the Indo-Pakistan border. Small-scale breeding will commence in these areas with the onset of the summer rains.

Western Region: Ground control operations declined in northwest Mauritania (4,600 ha) during May where small groups of hoppers and adults persisted in three areas. The situation remained calm in adjacent areas of the southern part of Western Sahara but adult groups appeared further north and laid eggs. Ground teams treated some 500 ha. Scattered adults persisted in some places along the southern side of the Atlas Mountains in Morocco.

Small hopper bands and groups of hoppers and adults formed near irrigated areas in the central Sahara of Algeria where ground teams treated nearly 300 ha. During the forecast period, an increasing number of adults will appear in the summer breeding areas in the northern Sahel, primarily in Mauritania and, to a lesser extent, in northern Mali and Niger. Initial adult numbers will be slightly higher than normal this year due to extended breeding in northwest Mauritania. Small-scale breeding will occur with the onset of the seasonal rains.

Central Region: Ground and aerial control operations increased during May along the Red Sea coast in Saudi Arabia, treating nearly 25,000 ha of hopper bands and hopper and adult groups that formed from recent breeding. Adults that are not controlled are likely to form small groups or swarms that could move to the summer breeding areas in the interior of Sudan and Yemen and lay eggs. Consequently, locust numbers are expected to increase in both countries during the forecast period. As it is not possible to carry out survey and

control operations at present in Yemen, the current situation poses a significant threat if rains fall in the summer breeding areas of the interior. Therefore, all efforts are required to contain the current infestations in Saudi Arabia. The locust situation improved along the Red Sea coast in Egypt due to drying vegetation and control operations (65 ha)

Eastern Region: Breeding occurred during May in southeast Iran and western Pakistan, causing locusts to increase and form small groups in both countries. Ground teams treated 6,700 ha in Iran and nearly 6,000 ha in Pakistan. Any adults that are not detected or controlled could form small groups that will move to the summer breeding areas along the Indo-Pakistan border in June and lay eggs on a small scale once the monsoon rains commence.

❖Short plant protection notes

- As many as 5.1 million fungal species may exist based on analyses of soil, water, and organisms that harbor large numbers of understudied fungi reports M. Blackwell at Louisiana State University. (Am. J. Bot. 98:426-438, 2011)
- The isoflavone biosynthesis enzyme is a virulence target of the Type III effector to promote Pseudomonas syringae infection of soybean report H. Zhou and associates at the University of California, Riverside. (Cell Host Microbe 9:177-186, 2011)
- Three RNAs associated with tobacco bushy top disease represent a new virus dependent on a helper polerovirus for transmission report X.-H. Mo and associates at Zhejiang University and Yunan Academy of Agricultural Sciences, China. (Ann. Appl. Biol. 158:188-193, 2011)
- The two component regulatory system CoIR/CoIS is critical to Xanthomonas citri for growth in plants, virulence, biofilms, catalase activity, LPS production, and stress resistance report Q. Yan and N. Wang at University of Florida. (J. Bacteriol. 191:1590-1599, 2011)
- Hydrophilic phytotoxins from Mycosphaerella fijiensis are non-host selective; their toxicity is not light dependent and can alter plasma permeability report C. A. Cruz-Cruz at Centro de Investigación de Yucatán, Mexico. (J. Gen. Plant Pathol. 77:93-100, 2011)
- Titanium oxide is an alternative control for bacterial leafspot of geranium and Xanthomonas leaf spot of poinsettia report D. J. Norman and J. Chen of the University of Florida, Apopka. (HortScience 46:426-428, 2011)
- The differential activity of the trichothecene biosynthetic gene determines the 3- ADON and 15-ADON chemotypes in Fusariumgraminearum report N. J. Alexander and associates at ARS-USDA Peoria and Plant Research International B.V., Netherlands. (Fungal Genet. Biol. 48:485-495, 2011)
- An evolution difference of Cassava brown streak virus and Uganda cassava brown streak virus is congruent with the latter outbreak in East Africa, where the disease had been insignificant, report D. R. Mbanzibwa and associates at MikocheniAgr. Res. Inst., Tanzania; Makerere University and NCRRI, Uganda; Kenya Agr. Res. Inst.; University of Malawi; University of Helsinki; and University of Greenwich, UK. (J. Gen. Virol. 92:974-987, 2011)
- Three novel resistant gene analogs were obtained from a downy mildew and anthracnose resistant grape hybrid report W. Seehalak and associates at Suranaree University of Technology and Kasetsart University, Thailand. (Sci. Hortic. 128:357-363, 2011)
- Hordeum chilense is resistant to loose smuts of wheat and barley expressed in xTritordeum amphiploids report D. Rubiales and A. Moral at the Institute for Sustainable Agriculture, CSIC, Spain. (Plant Breed. 130:101-103, 2011)
- A cDNA similar to polygalacturonase-inhibiting proteins was isolated by cDNA-AFLP from pea roots infected with Heterodera goettingiana report P. Veronico and associates at CNR, UniversitàdegliStudi, Bari, Italy; and Scottish Crop Research Institute, UK. (Mol. Plant Pathol. 12:275-287, 2011)
- Leaf stripe and stem rot, a new disease on maize in Mexico, is caused by Burkholderia gladioli report A. Gijon-Hernandez and associates at Instituto de Fitosanidad; Universidad AutonomaChapingo; and UNAM, UBIPRO, FES Izlacala; Mexico. (J. Phytopathol. 159:377-381, 2011)
- Sodium bicarbonate plus Botryosphaeria berengeriana control pear ring rot in storage report Y. Liu and associates at Nanjing

Agricultural University and Jiangsu Academy of Agricultural Sciences, China. (Biol. Control 57:110-117, 2011)

- Bursaphelenchus xylophilus DNA in 5 mg pine tissue samples was detected by PCR amplification report Y. Q. Hu and associates at South China Agricultural University, Forest Pest Management & Quarantine Station, Guangzhou, China; and Universidade de Évora, Portugal. (For. Pathol. 41:165-168, 2011).

❖GENERAL NEWS

SYSTEMWIDE PROGRAM ON INTEGRATED PEST MANAGEMENT (SP-IPM)

The Systemwide Program on Integrated Pest Management (SP-IPM) draws upon the strengths and expertise of several CGIAR centers and partners so that their scientists and institutions can provide research and outreach on pest and disease management in crops. It aims to develop innovative crop protection for the production of safe food in environmentally and economically sound ways. Its research concerns current and future challenges including food scarcity, increased pest pressure and declining soil health, and is targeted in particular at:

- Adapting IPM to climate variability and change
- Improving agroecosystem resilience
- Managing contaminants in food, feed and the environment.

Research in these areas will be strengthened by co-operation with other scientific disciplines and by expanding knowledge on IPM technologies through capacity building in the National Agricultural Research Systems (NARS) in co-operating countries and at the farmer level.

The ultimate goal is to help in reducing poverty and hunger in low-income nations by improving established methods and developing new practices of pest and disease control techniques. The ultimate beneficiaries are farmers of all income groups of both genders including those who feed themselves and small communities, and those who are responsible for feeding wider and urban populations. These people will include subsistence, smallholder and commercial farmers.

Primary beneficiaries include scientists from International Agriculture Research Centers (IARCs) and National Agricultural Research and Extension Systems (NARES) who apply the research results in their own research for developing country and pest specific IPM strategies. Policy and decision makers will benefit through the recommendations derived from the research results, enabling them to make informed decisions and to adopt constructive and enabling policies.

SP-IPM will organize a Rotational Advanced Training and Knowledge Exchange Program at member centers in different countries. It will organize and participate in international fora to exchange knowledge and research outcomes to inform the wider scientific community and decision makers. It will also stimulate and take part in policy debates. It will also disseminate the transfer of knowledge to farmers at all levels of development.

IRAQI DATE PALM WEBSITE; A DEVELOPMENT PROJECT FOR THE DISSEMINATION OF DATE PALM AND DATES PRODUCTION CULTURE IN THE ARAB WORLD COUNTRIES.

Iraqi Date Palm Website: www.iraqi-datepalms.net, was created, sponsored, developed and maintained completely by Dr. Ibrahim J. Al-Jboory (member of Executive Committee of the ASPP) in order to collect, retype and represent the scattered date palm information on one website uploaded to the internet which is easy accessible to everybody all over the world.

The main website homepage menu contains 39 main topics includes all the date palm and dates activates of which 27 subtitle are included. The number of visitors is increasing significantly in a daily range between 150-250 visitors since the time of operation in 1/12/2007. The total visitors' number are 179720 up to the time of the summary preparation 22/8/2011. The total subjects added to the web site are more than 1200 topics.

This web site adds a very good contribution to the date palm cultivation and disseminates the date palm culture among the farmers, researchers and others. The Iraqi date palm forum www.iraqi-date-palm.net was established as a subsidy measure for the web site to exchange ideas and news of date palm activates and to allow the members chatting between each other for solving date palm problems. The international ranking number of the website is between 3.5-4 millions among the 300 millions website internationally. The website granted three researchers a financial award for their distinguished researches on date palm. The English version is under preparation hopefully in the next year it will be launched.

❖ Arab Society for Plant Protection News

11TH ARAB CONGRESS OF PLANT PROTECTION

The Arab society of Plant Protection announces that the 11th Arab Congress of Plant Protection will be held in Cairo, Egypt during the period 4-8 November, 2012. The Congress will be hosted by Ain Shams University and Zagazig University. An Organizing Committee of distinguished plant protection scientists was established, and the first announcement for the congress will be distributed soon, which will contain all the details related to the congress including the secretariat address which will be hosted at Ain Shams University.

RECOMMENDATIONS OF THE SCIENTIFIC REGIONAL SYMPOSIUM *TUTA ABSOLUTA* ON TOMATO AT MENA REGION

This Symposium was organized under the supervision of the National Center for Research and Extension in cooperation with Jordanian Agricultural Engineers Association and Arab Society for Plant Protection in Amman during 19-21/7/2011. The activities of this symposium were launched under the patronage of his Excellency the State Minister and Minister of Agriculture, Engineer Sameer Habashneh.

More than 120 participants attended the symposium representing 12 countries from MENA region; Saudi Arabia, Iraq, Iran, Qatar, Algeria, Tunisia, Morocco, Sudan, Syria, Lebanon, Palestine and Jordan, in addition to 4 European countries; England, Italy, Germany, France, with representatives from USAID of Iraq (INMA), and from Near East Plant Protection Organization (NEPPO) of Morocco.

Over 24 differentscientific and fieldcontributions were presented during this symposium focusing on the integrated control of this insect, the usage of pheromone traps, biological control and environmentally safe selected pesticides.

The organizing and the scientific committees recommended the followings upon negotiations with the attendants Arab specialists:

1. Exchange of information between the various countries of MENA region regarding the exotic agricultural pests for assessment and early notifications about the presence of these pests.
2. Use the term "Tomato Borer" to describe this pest in English and the term "حـــافرة البنـــدورة/الطمـــاطم" in Arabic instead of different names used in the Arabic literatures.
3. Training farmers on the right usage and good management practices of pheromones and traps for monitoring and mass trapping of insects.
4. Conducting research experiments certified by at least two official research institutes in the MENA region for new technology or product proposed to manage tomato borer and other pests and publish the research results through the research institutions. In addition to encourage MENA countries on developing legislations for biological pesticides.
5. To convert the symposium to a conference to be held every two years in one of the Arabic countries to discuss new issues and quarantine pests on different crops.
6. Publish presentations submitted during the symposium on the web site of the National Center for Research and Extension\Jordan www.ncare.gov.jo and the Ministry of Agriculture website www.moa.gov.jo.

7. Surveillances and identifications for the beneficial insects (biological agents) and exchange experiences between countries to choose the best and more efficient agents for rearing and to cooperate with the private sector in this aspect.
8. Collaborate with the official organizations to implement training courses to educate the farmers, agricultural engineers, technicians working in plant protection and in marketing of pesticides.
9. Implement local courses in cooperation between the governmental sector and the private sector to discuss the new issues and new techniques that may develop to control this pest and other pests and to implement field observations especially for the tomato borer.
10. Monitoring alternative hosts for this pest especially potato.
11. Using low risk pesticides that are more environmentally safe, and reducing the use of traditional pesticides and educating the farmers to adopt this idea.
12. Contact the donors and the international agencies to allocate a budget to support researches on tomato borer in MENA region and also establish cooperation with the private sector to achieve the same goal.
13. Encourage and support researchers to attend scientific conferences and symposiums that deal with tomato borer and other pests.
14. Develop a regional strategy to control tomato borer that depends on Integrated Control Management for the pest.
15. Support Near East Plant Protection Organization (NEPPO) to reach its goals.

❖ Publications

NEW BOOKS

Pests of Stored Grains in Syria, Fumigation and Pest Control

By Bahaa Al Rahban and Adwan Shehab, July 2011.

This book is a comprehensive review of the measures adopted for the protection of grain in storages in Syria. It has been designed to be a reference guide for the specialized technicians in wheat and barley-storing establishments, especially those responsible for the fumigation procedures, about major insect and rodent pests that attack grain in storage, state-of-the-art safety techniques and methods of using aluminum phosphide for grain fumigation in both silos and bag stacks; the use of phosphine generators; and the necessary equipment to conduct a fumigation and measure gas concentrations.

This book is issued by the General Commission for Scientific Agricultural Research (GCSAR) in collaboration with United Nations Industrial Development Organization (UNIDO), The General Establishment for Cereal Processing and Trade (GECPT) and The National Ozone Unit Ministry, of State for Environment Affairs (NOU). This publication is funded by the United Nations Industrial Development Organization (UNIDO) under the phase-out of Methyl Bromide in Grain Fumigation in the Syrian Arab Republic. The Book can be ordered in the early future (Arabic or English PDF) through the website: http://www.gcsar.gov.sy/

Genome-Enabled Analysis of Plant-Pathogen Interactions

Edited by Thomas Wolpert, Tomonori Shiraishi, Alan Collmer, Kazuya Akimitsu, and Jane Glazebrook (Includes a Synopsis by Jan E. Leach and Shinji Tsuyumu).

This important new book updates and documents the recent progress on genome-enabled technologies that have enhanced, and will continue to refine, our understanding of how plants and microbes interact at the molecular level. It includes studies that show the power of integrating imaging with genetic and genomic tools to not only link genes to function, but also to understand the dynamic behaviors and interactions of plant and pathogen molecules.

It emphasizes the contribution of computational biology to deciphering the genome and to revealing the complex signals and biochemical networks that are involved in plant-pathogen interactions, including intriguing advances reported for fungal, oomycete, and bacterial pathogens. It reports new approaches to identify host genes important in disease, and suggests novel strategies for generating crops with broad-

spectrum and durable resistance to important pathogens.

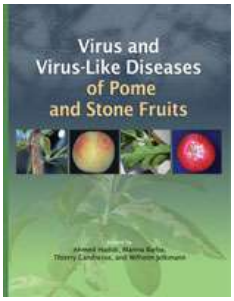
Twenty-five leading molecular scientists from Japan and USA contributed to this effort. These scientists participated in the 2010 *Japan-US Seminar on Plant-Pathogen Interactions* and the result of their collective research is now available in this limited-edition reference book.

$79.96 Member Price

Virus and Virus-like Diseases of Pome and Stone Fruits

Edited by Ahmed Hadidi, Marina Barba, Thierry Candresse, and Wilhelm Jelkmann

This impressive new reference presents state-of-the-art biological, molecular, and immunological advances surrounding the causes and strategies for diagnosing and controlling virus diseases of stone fruits. The book's vivid color images aid in the visual identification of symptomatology while distribution data and improved laboratory techniques provide reliable information and tools for higher diagnostic accuracy. It includes information on economic impact, biology, distribution, taxonomy, genomes, epidemiology, pathogenicity detection, and control measures. This will be an important resource for anyone working with these high-value crops.



From the Preface:

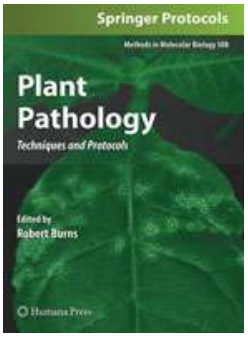
Graft transmissible diseases of pome and stone fruits have been known for several centuries to reduce yield and quality of fruits before the discovery that their etiological agents are viruses, viroids or phytoplasmas. The recognition that these agents are involved in the etiology of pome and/or stone fruit diseases was revealed during the first few decades of the 20th century for viruses and the 1970s and 1980s for viroids and phytoplasmas. During the last three decades much progress has been made in the fields of plant virology, molecular biology, genomics, biotechnology, and immunology, which significantly accelerated and facilitated research on these pathogens. As a consequence, the flow of published information on these systemic pathogens has increased steadily, reporting both new findings on known pathogens and the discovery of new ones. After having collaborated with each other for many years in this research field, Virus and Virus-Like Diseases of Pome and Stone Fruits was conceived in 2004 with our recognition of the need for a book that would provide state-of-the-art information on biological, molecular and immunological advances in our knowledge of these pathogens and of strategies to control them. This book presents the result of this team endeavour, providing up to date information in a comprehensive, scientific, and systematic manner.

$220.20 Member Price

Plant Pathology: Techniques and Protocols

Edited by Robert Burns

Plant diseases can have an enormous impact on our lives. In a world where total crop failure can quickly lead to human misery and starvation, accurate diagnostics play a key role in keeping plants free from pathogens. In *Plant Pathology: Techniques and Protocols*, expert researchers provide methods which are vital to the diagnosis of plant diseases across the globe, addressing all three categories of plant pathology techniques: traditional, serological, and nucleic acid. Chapters examine recent and developing issues with crop identity and authenticity, allowing workers to genotype samples from two major food groups. Each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a notes section which shares tips on troubleshooting and avoiding known pitfalls. Authoritative and reader-friendly, *Plant Pathology: Techniques and Protocols* is an incredible guide which will be indispensable, both to novices and expert researchers alike.



Features include:

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- Cross-cutting approach to diagnostics, including molecular, serological, and traditional methodologies
- All classes of plant pathogen covered in methodologies
- Provides methods for crop plant genetic validation

Member Price: $98.10

ARAB JOURNAL OF PLANT PROTECTION

Volume 29, Issue 1, June 201

SELECTED RESEARCH PAPERS

ENTOMOLOGY AND ACAROLOGY

Parasitoids of Asian Rice Planthopper (Hemiptera: Delphacidae) Pests and Prospects for Enhancing Biological Control by Ecological Engineering," 2011. Gurr, G.M., *et al*. Annals of Applied Biology, 158(2): 149-176.

T**he Constraints of Selecting for Insect Resistance in Plantation Trees**," Henery, M.L. Agriculture and forest Entomology, 13(2): 111-120, 2011.

FUNGI

Evaluation of Fungicide Efficacy and Application Frequency for the Control of Ascochyta Blight in Chickpea," 2011. Banniza, S. * Canadian Journal of Plant Pathology, 33(2):135-149.

Involvement of *Phytophthora citrophthora* in Kiwifruit Decline in Turkey. 2011. S. Akilli, C. Ulubas Serce, Y. Zekai Katircioglu, A. Karakaya and S. Maden. Journal of Phytopathology, 159(6): 579-581.

WEED SCIENCE / INVASIVE

Cover Crop Residue and Organic Mulches Provide Weed Control during Limited-Input No-Till Collard Production," 2011. Mulvaney, M.J., *et al*. Journal of Sustainable Agriculture, 35(3):312-328.

Weed Detection for Site-specific Weed Management: Mapping and Real-time Approaches," 2011. Lopez-Granados, F. Weed Research, 51(1):01-11.

RODENTS

Performance of taste enhancers mixed with cereal bases and evaluation of the most preferred bait composition for *Bandicota bengalensis* (Gray). 2011. M. Naeem, I. Ahmed, I. Hussain and M. S. Ahmedani (Bakistan). *African Journal of Biotecnology*, 10(19): 3438-3444.

CONTROL

Pathogenicity of *Verticillium epiphytum* isolates against *Meloidogyne javanica.* 2011. Mohammad Reza Moosavi, Rasoul Zare, Hamid Reza Zamanizadeh and Seddigheh Fatemy (Iran). International Journal of Pest Management, 57(4): 291-297.

EVENTS OF INTEREST

2011

*** 11-14 September**

8th International Symposium on Mycosphaerella and Stagonospora Diseases of Cereals in Mexico City.
http://conferences.cimmyt.org/en/8th-international-symposium

*** 12-16 September**

Second Meeting of the International Phytoplasmologist Working Group (IPWG) in Neustadt an der Weinstra e (Germany).
Website: www.ipwgnet.org

*** 26-30 September**

8th European Vertebrate Pest Management Conference. Berlin, Germany. Website:
Website: http://www.evpmc.org/

*** 02-07 October**

3rd International Symposium on environmental weeds &invasive plants (Intractable Weeds and Plant Invaders), Ascona, Switzerland.
Email: Christian.Bohren@acw.admin.ch;
Website: http://tinyurl.com/24wnjxo

*** 16-19 November (postponed to 04-08 November 2012)**

Second Conference of the Near East Weed Science Society. The Near East Weed Science Society (NEWSS) tends to hold its second conference (the Second Conference of The Near East Weed Science Society) with cooperation of the local and international supporting parties during the period 16-19 November 2011 (Sunday-Wednesday) at the University of Jordan, Amman, Jordan.
"Due to the present circumstances prevailing in many Arab countries, the date of the second conference of the Near East Weed Science Society was postponed. Arrangements are underway to hold the conference as part of the 11th Arab Congress of Plant Protection during 4-8 November 2012. in Egypt". For more information contact Dr. Barakat Abu Irmaileh, e-mail Barakat@ju.edu.jo, You can also review announcements on the NEWSS site at: http://www.ju.edu.jo/sites/newss

*** 16-18 November**

Joint International Symposium on Management of *Tuta absoluta*. Agadir, Morocco. EPPO/IOBC/FAO/NEPPO Joint International Symposium on Management of *Tuta absoluta*.
Website: http://tuta-absoluta.blogspot.com/2011/04/ppoiobcfaoneppo-joint-international.html

*** 27-30 November**

The Fifth International Conference Plant Protection Research Institute. Giza, Egypt. All correspondence sent on behalf of the Preparatory committee; Prof. Dr. Khalil Gharib Al-Maliky,

Plant Protection Research Institute 7 Nadi El-Seid St. – Dokki; Email: ppri1951@yahoo.com

*** 25-28 September**

The 1st Scientific Conference forthe Development of Palm and Dates Sector in the Arab World. King Abdulaziz City for Science and Technology (KACST) in cooperation with the League of Arab Research Institutions and Saudi Chamber of Commerce, Riyadh, Saudi Arabia**.**
Website: ttp://arabpalm.org/2011/eng/index.html

*** 13-14 November**

International Symposium on the Date Palm Tree. University of Science and Technology Houari Boumediene. Algeria in association with INRA Algeria: contact: Secretarial Department, E-mail: sympada2011@gmail.com,
Website: http://lrza.usthb.dz/

2012

***08-09 January**

International Crop Science Conference & Buyer-Seller Meet. Dubai, UAE,
Email: pmfai@bom4.vsnl.net.in
Website: http://www.pmfai.org

***27-29 March**

7th International Integrated Pest Management (IPM) Symposium. Memphis, Tennessee, USA.
http://www.ipmcenters.org/ipmsymposium12/

*** 30 March – 02 April**

11th European Congress of Fungal Genetics.
Marburg, Germany. http://www.ecfg.info/

***21-25 May**

4th International Workshop for Phytophthora, Pythium, and Phytopythium. at University of Maryland, College Park, Maryland.
Website: http://www.psla.umd.edu/faculty/Balci/workshop2011/index.cfm

***03-08 June**

22nd 'International Conference on Virus and Other Graft Transmissible Diseases of Fruit Crops' (ICVF). Rome, Italy.
Email: icvf2012@cra-pav.itor

***17-22 June**

VI International Weed Science Congress, Dynamic Weeds, Diverse Solutions, Hangzhou, CHINA.
Email: iwsc2012local@wssc.org.cn
Web: www.iwss.info/coming_events.asp

***18-21 June**

8th International Workshop on Grapevine Trunk Diseases in Valencia, Spain**.**www.icgtd.org/8IWGTD.html

***17–20 September.**

7th Australasian Soilborne Diseases Symposium in Fremantle, Western Australia**.**
Website:www.asds7.org

2013

***18-22 February**

International Herbicide Resistance conference, Perth, Australia. Contact address: S. Powles, AHRI, School of Plant Biol., Univ. of Western Australia, 35 Stirling Hwy., Crawley, Perth 6009, WA, Australia.
Email: Stephen.Powles@uwa.edu.au

*** 25-30 August**

10th International Congress of Plant Pathology (ICPP2013), Beijing, China.
Email: president@cspp.org.cn
Website: http://www.icppbj2013.org/

2014

***03-08 August**

10th International Mycological Congress (IMC10). Bangkok, Thailand. Contact: Leka Manoch; E-mail: agrlkm@ku.ac.th

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