



Arab and Near East Plant Protection Newsletter



Number 60, December 2013

EDITORIAL

Maghreb Countries: Most Common Important Phytosanitary Issues

Maghreb countries "Libya, Tunisia, Algeria, Morocco and Mauritania" are sharing most of phytosanitary issues as they are neighboring countries occupying the North-West region of the African continent. These problems have pushed the Maghreb countries to a tight cooperation between them not only at the numerous international and regional phytosanitary organizations level, but also at the closer level of the Arab Maghreb Union, where meetings are convened and workshops are organized to consult, to discuss and to collaborate in facing the evolution of the phytosanitary situation that concerns all of these countries.

Among those dangerous pests that united the Maghreb countries and some other neighboring countries to control it, is the desert locust. This pest is gathering a very important part of the attention of the Maghreb countries regarding the numerous regions that the desert locust invades, usually starting by Mauritania, reaching Libya and Tunisia, crossing Morocco and Algeria as was the cases during 1988 and 2005. We can also remember how the tomato miner invaded in nearly two years (2008-2010) all Maghreb countries starting by Morocco and reaching Libya, and settled in all these regions where it needed to cohabit with it using all available control methods.

Among other pests that emerged since some years, red palm weevil, which is existing presently in the North of Morocco (Tangier since 2008), the suburbs of Tunis (since late 2011) and in Tripoli and Eastern Libya since years. We think that this pest would break through other regions regarding the slow dealing with it because of the shortage of the human, material and financial resources. Also, among other dangerous diseases that break until now through Morocco (since 2006), Algeria (2010) and Tunisia (2012), we have the pome fire blight which is presently quickly disseminating in many regions. We have also to keep in mind the "bayoudh" disease of palms existing in Morocco and the West side of Algeria which succeeds until now to stop its propagation, and we need to continue the collective effort of all of the Maghreb countries to protect the non infested regions from this dangerous disease.

In another phytosanitary field, there is continuous work and important reform performed by most of Maghreb countries concerning the agricultural pesticides. And with regarding the total conviction of human being presently by the danger and harm of these pesticides, all developed countries are working to improve the pesticide quality to cause the lowest possible harm to health and environment and at the same time to reduce to the minimum possible their use in agriculture. We can here report that the European Union have succeeded between 1993 and 2009 to reduce by three quarters the number of the active ingredients accepted to be used in Europe (from 1000 to only 250 actives ingredients), and the French plan to reduce the use of the agricultural pesticides by 50% between 2010 and 2018.

In this general frame oriented to account on the integrated pest management with the reduction of the chemical control to its lowest limits, Tunisia and Morocco, and presently Algeria, have revised methods dealing with the agricultural pesticides registration to reach the use of only the high quality pesticides preserving the human health and the environment safety. And Tunisia succeeded in this procedure (between 2009 and 2012) to revise the registration of around 1200 agricultural pesticides, most of them were low quality generic pesticides, and to keep only about 500 pesticides of high or at least acceptable quality, which corresponds to the used active ingredients from 250 to only 200, during the indicated period.

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❖ Publications

NEW BOOKS

Plant Health Sector in Tunisia: Reality, Prospects and Proposition for Fundamental Reform (Arabic)

Author: Prof. Bouzid Nasraoui

A new Arabic book has been issued in March 2013 and entitled "Plant Health Sector in Tunisia: Reality, Prospects and Proposition for Fundamental Reform".

This book contains two main parts; the first part deals with the general situation of the plant health sector in Tunisia with its cons and pros stressing specially on its weakness as well as prospects for improvement to which it aspires, the second part concerns a proposition which analyzes the way to overcome weakness and to proceed a fundamental structural reform that enables upgrading this sector to good level fitting in the international standards. This book in 103 pages may be domesticated to do reforms in the plant health system in some other Arabic countries.

The book is distributed for free and to get an electronic PDF version of this book, please email the author at the address <nasraouibouzid2012@gmail.com>.



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Arab and Near East Plant Protection Newsletter



Number 62, August 2014

EDITORIAL

Eradication Battle against the Red Palm Weevil:

Is There any Chance to Avoid Disaster Before it Happens in the Oases of Southern Tunisia?

Red Palm Weevil (RPW) (*Rhynchophorus ferrugineus*) is one of the most dangerous pests that cause heavy damages on palm trees, and it was recently spread from India to a number of Arab countries. RPW was discovered for the first time in Tunisia during late 2011 on some 30 ornamental palms (*Phoenix canariensis*) planted around Carthage municipality, showing infestation symptoms. It is most likely that the insect had entered the country around one to two years earlier by illegal importation of infested ornamental palm seedlings from Italy. Despite the effort of the Plant Protection Department by removing and burning infested trees after total cutting of the tips, cleaning them from the insect and treating all their remains on site, the unstable political situation that characterized Tunisia during the few past years and by not giving priority to this subject by the authorities, lead to the progressive pest spread since early 2013 until it reached other areas such as Kram, Soukra, Marsa and Belvedere. In addition, the pest seems presently invading the southern areas of Grand Tunis governorates and probably it entered Nabeul governorate. If the pest keeps spreading until reaching the date palm trees in southern Tunisia, the result will be a disaster because of the reduction of the oasis date production, which will negatively affect the livelihood of the people living in those regions and the Tunisian economy at large. Lately, the Ministry of Agriculture authorities recognized the coming danger and now a strong pest control program is being executed on a high number of ornamental palms in all regions where the pest infestation symptoms appeared. But, if enough attention and support was provided in early 2012, the result would have been better.

It is now essential to maximize efforts and support to the Plant Protection Department to do the necessary to restrict the pest spread, and eventually to eradicate it. At this time, it is useful to remind the authorities by the success achieved in Morocco during the past six years to prevent the pest spread out of the Tangier area in northern Morocco, and the information coming from there indicates that the pest spread areas started to shrink, which means that the battle against RPW is almost won in Morocco.

Former experiences in many other countries indicated that eradication of any pest after entering a new area is not an easy task, so it is important to increase the effort of all authorities and particularly the Ministry of Agriculture, to avoid the disaster before it happens and to resolve the battle to the benefit of the palm trees, and to protect the oases in southern Tunisia (around 7 million date palms planted in around 35,000 ha) from the risk that endanger them and potentially coming from the north of the country. It is crucial to start a national awareness campaign regarding this issue and to execute decisive measures of internal plant quarantine to prohibit the transportation of any kind of palms or parts of them from the north of the country to its south, and to punish violators by imposing strict penalties, because the battle against RPW is a national battle, where all the Tunisian people should participate to protect the natural resources of the oases in the south and to avoid a real disaster.

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L'Enseignement Supérieur et la Recherche Scientifique Agricoles Attention à la dérive!

Comme pour tous les pays du monde, le développement du secteur agricole en Tunisie est basé entre-autres sur deux composantes principales : l'enseignement supérieur et la recherche scientifique. Or, ces deux activités essentielles pour la Tunisie souffrent d'un certain nombre de problèmes structurels et parfois conjoncturels qui limitent leurs apports au secteur. Et maintenant que la parole est libre dans la Tunisie nouvelle, il est possible d'analyser la situation pour faire sortir les obstacles et les contraintes qui empêchent l'enseignement supérieur et la recherche scientifique de jouer pleinement leurs rôles indispensables dans le développement du secteur agricole et donc du pays d'une façon générale. Cependant, il est difficile de décortiquer le sujet en totalité dans un simple article de presse; c'est pour cela qu'on se limitera dans le cas présent à deux aspects seulement, l'un dans le cadre de l'enseignement supérieur et l'autre relatif à la recherche scientifique dans le domaine agricole précisément.

D'abord pour l'enseignement supérieur agricole, la constatation la plus

flagrante est la multitude d'Instituts et d'Ecoles de spécialités proches ou identiques et dont la formation du Technicien (appelé maintenant Licencié) et de l'Ingénieur simultanément entraîne beaucoup de chevauchements et de redondances et ne montre pas de limites claires entre les deux catégories. Ainsi, beaucoup d'enseignants ont tendance à hausser le niveau d'enseignement du Technicien qui se retrouve en train de suivre presque le même programme d'Ingénieur sans pour autant avoir l'accès à ce diplôme. En plus, ce programme de Technicien est de plus en plus tiré vers la théorie avec de moins en moins de pratique à cause du manque conséquent en moyens humain matériel et logistique dans les établissements concernés. Ainsi, se sentant plus libre vis-à-vis de la tutelle après la révolution, les Conseils Scientifiques de ces établissements sont en train d'accumuler progressivement des cours à caractère principalement théorique au Technicien pour atteindre ou dépasser 2200 heures de formation totale alors que normalement la formation du Technicien doit être aux alentours de 1800

heures au total seulement (soit 2/3 de la formation de l'Ingénieur qui est de 2700 heures au total) avec au moins 50% de formation pratique, sinon plus. Quant à la formation de l'Ingénieur, elle n'échappe pas elle-même à cette tendance vers la théorie alors que deux décennies auparavant, l'Ingénieur recevait 1/3 de sa formation sous forme pratique en plus de véritables stages bien organisés et bien contrôlés. C'est à se demander si maintenant on forme des Techniciens et Ingénieurs ou simplement des Biologistes pour l'agriculture. La réponse est facile à donner quand on voit que nos Techniciens et Ingénieurs nouvellement sortants ne sont pas du tout opérationnels sur le terrain et qu'il leur faut quelques années pour acquérir sur le tas l'aspect pratique de leur travail. Ainsi, les Techniciens et Ingénieurs qui vont prendre en charge le développement du secteur agricole du pays, se trouvent incapables de réaliser leur mission comme il se doit à cause de leur grand handicap au niveau pratique; ils ne deviennent efficaces qu'après quelques années de travail. Ce risque de dérive vers la formation ...

...de Biologistes est encore accentué par un nouveau phénomène qu'on commence à constater depuis quelques temps: il s'agit du recrutement de biologistes fondamentalistes pour enseigner des matières agronomiques à caractère technique. Ainsi, on peut concevoir qu'un enseignant fundamentaliste non agronome enseigne des sciences fondamentales telles que les mathématiques, la physique, la chimie, la physiologie, etc. ou de réaliser un programme précis de recherche agronomique au sein d'un groupe de chercheurs agronomes, mais il est inconcevable qu'un biologiste fundamentaliste enseigne des matières agronomiques comme la pathologie végétale, la zoologie agricole, les sciences du sol ou autres, puisqu'il n'a pas lui-même une base et des connaissances en agronomie qui lui permettent d'intégrer son cours dans l'ensemble des sciences agronomiques dont la plupart sont interdépendantes. Il y a donc un grand risque de dérive auquel il faut donner toute l'attention qu'il mérite. D'ailleurs, ce flux des biologistes vers les établissements d'enseignement supérieur agricole est à sens unique, car aucun enseignant agronome même de très haut

niveau, ne peut être recruté dans des établissements non agronomiques à cause déjà du terme "Agricole" que traîne les enseignants agronomes dans leurs titres au niveau de tous les grades.

Concernant la recherche scientifique agricole et comme pour l'enseignement supérieur agricole, la quasi-totalité des établissements nationaux sont situés dans et autour de la capitale ou à la limite dans quelques zones côtières. Leur mission est de faire de la recherche agronomique afin d'aboutir à des résultats vulgarisables et donc utilisables par l'agriculteur. Mais une question se pose à ce niveau: de quelle recherche parle-t-on? Est-ce que cette recherche au service du développement agricole est une recherche fondamentale ou appliquée? D'abord, il est difficile d'envisager une recherche agronomique totalement appliquée parce qu'elle deviendra de la simple expérimentation, incapable d'aller au fond des problèmes de l'agriculture pour les résoudre et elle sera très vite dépassée par l'apport scientifique des recherches agronomiques dans le monde. D'un autre côté, si les chercheurs agronomes se mettent à faire de la recherche fondamentale, ils

vont entrer dans un processus sans limite, où chaque réponse

apportée à une question, entraîne une autre question, sans que toutes ces questions soient nécessairement utiles pour le développement agricole. Cette situation fait que l'impact des résultats obtenus sur le secteur agricole devient faible et tardif, et c'est là un luxe que notre pays ne peut pas se permettre. La solution semble être au milieu, avec un bon dosage entre recherches fondamentale et appliquée. Ainsi, pour éviter une dérive dans un sens ou l'autre, le chercheur agronome doit garder un œil sur l'avancement de la recherche dans le monde en travaillant sur les aspects les plus pertinents pour construire un dossier scientifique solide pour ses propres promotions et pour nouer des relations de coopération avec des chercheurs étrangers de haut niveau. En même temps, le choix du même chercheur agronome doit s'orienter vers des sujets ayant une bonne et rapide portée pratique, ce qui lui permet de résoudre des problèmes réels posés par le secteur agricole; l'intérêt des résultats obtenus est d'autant plus important qu'il est positivement ressenti par l'agriculteur dans sa ferme.



ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



Food and Agriculture Organization of the United Nations

Number 67, March 2016

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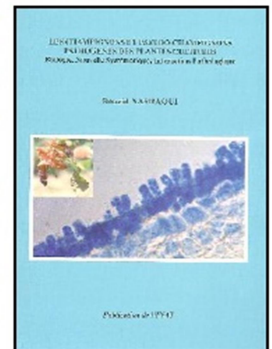
NEWLY ISSUED BOOKS & JOURNALS

A new book was recently published (December 2015) in French by Prof. Bouzid Nasraoui from the National Agronomic Institute of Tunisia, University of Carthage, Tunis, Tunisia. This book is entitled "Pathogenic fungi and pseudo-fungi of cultivated plants: Biology, New systematic, Pathological interaction" and is a partial update of his old book (2006) entitled "Parasitic fungi of cultivated plants: Biology, Systematic, Pathology, Diseases", both books may be consulted on the website <www.nasraouibouid.tn/Livres/Livres.htm>. The main goal of this updating is to resume



fundamentally the higher fungi systematic on the basis of the countless molecular studies that finally allowed the implementation of a normal classification on these fungi, like all other living organisms, and to abandon hence the artificial phenotypic classification of the anamorphs that have not known teleomorphs. Presently, all these anamorphs

become phyletically linked to their teleomorphic groups even though the teleomorphs themselves are not encountered in the nature. This same molecular approach has also allowed rearranging the fungi and pseudo-fungi systematic on the basis of genotypes and not phenotypes which are very influenced by the environment. Outside the refreshing of the systematic, this book contains also the updating of the section relative to the interaction between pathogenic fungi and pseudo-fungi with their host plants. The biological section was also resumed with minor changes; the rest of the old book (disease and some other chapters) did not need updating. *Correct reference: Nasraoui B., 2015. Les champignons et pseudo-champignons pathogènes des plantes cultivées: Biologie, Nouvelle systématique, Interaction pathologique. Publication de l'INAT, 180 p, Tunisia.*



NEW ARTICLE

Pierce's Disease (*Xylella fastidiosa*) Threatening the Maghrebian Regions. Plant Pierce's disease due to the bacterium *Xylella fastidiosa* appeared two years ago in Southern Italy causing heavy damages on olive trees and the competent Italian services did not succeed to control it until now. The same disease appeared during 2015 on one ornamental plant species in the French Corsica Island and then infiltrated to the Nice region in the Southern France. The gravity of this disease resides in the fact that the bacterium infecting the host plant, spread in all parts of the plant becoming systemic in a way that it is useless to cut or to chemically treat plants, and the only solution is to burn plants and destroy the inside bacterium. Besides, this bacterium can infect a high number of host plant species, counted by tens. The disease is also characterized by high numerous and varied bacterial insect vectors, exceeding forty species presently known, some of them already exist in the Maghrebian regions. Hence, the big gravity of Pierce's disease resides in the possibility that it can easily infiltrate in Tunisia or Morocco due to their geographical closeness to the Southern Europe and to the rest of the Maghrebian regions and the whole North Africa. For more details, please visit the website <http://www.nasraouibouid.tn/Profession/Profession.pdf>. Bouzid Nasraoui, Tunisia.



ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



Food and Agriculture
Organization of the
United Nations

Number 69 December, 2016

PLANT PROTECTION NEWS IN THE ARAB COUNTRIES AND NEAR EAST

Yellow Shoot Disease (or Greening) on Citrus: A Dangerous Disease Threatening Citrus of the Mediterranean Region. In many countries in the world exists a citrus bacterial disease, due to a bacterium from the genus '*Candidatus Liberibacter*', that is very dangerous and hard to control. Even this disease had been known by the name 'Greening', this appellation is presently quite abandoned because it does not reflect exactly symptoms caused by the disease. Symptoms that characterize this disease are (1) yellowing of the tree top shoots, (2) appearance of blotched mottle on leaves, and (3) a reverse yellowing of the fruit which started from the fruit basis attached by the petiole and not from its top as when fruit is safely ripening. And since this disease was firstly identified in China, especially by shoot yellowing symptoms, it was called and largely known by its Chinese name "Huang-Long-Bing" (abbreviated as HLB). The disease is caused by the bacterium species '*Candidatus Liberibacter africanus*', '*Candidatus Liberibacter asiaticus*' and '*Candidatus Liberibacter americanus*'. These three bacteria (African, Asian and American species) live in the host plant inside the phloem tissue, after their introduction in the plant by two insect species feeding on citrus tree: African citrus psyllid (*Trioza erythrae*) that naturally carries the African bacterium and Asian citrus psyllid (*Diaphorina citri*) that naturally carries the Asian and American bacteria. By looking to the HLB disease dispersal in the world, we find the African bacterium existing in the Eastern cost of Africa continent from South Africa to Ethiopia, and in some areas of Western Africa in Cameroon and Zaire. Regarding the Asian bacterium, it is dispersed in most of the Southern regions of the Asian continent. Unfortunately, both these two species of bacteria are disseminating in the South-West region of the Arabic peninsula (Yemen and Kingdom of Saudi Arabia) and the North of Ethiopia. In the American continent, especially in areas of Florida in USA and some other areas in Brazil, two bacterial species exist which are American and Asian bacteria. With regard to the psyllid vectors of the bacteria, they cover all regions where HLB disease exists, but also in other regions where the disease does not occur yet, among which, the closest one to the Mediterranean region are the Spanish Canary islands (West of Morocco), where the African bacterium was reported since 2002, but the most danger situation presently is the discover of the this vector in August 2014 in the Pontevedra region, then in the Coruna region, both in the Galicia district in the North-West of Spain. Moreover, the insect was also found in January 2015 in the North of Portugal in Porto region from which it spread to the coastal areas of the Northern Portugal. This situation threatens by the dissemination of the disease vector inside whole Spain and Portugal and then to Southern Europe regions as well as North-Africa regions such as it was the case of the fire blight in 2006 and the red palm weevil in 2008 which crossed from Spain to Morocco. [Bouzid Nasraoui, INAT, University of Carthage, Tunis, Tunisia].





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Yellow Shoot Disease (or Huanglongbing) on Citrus: A Dangerous Disease Threatening Citrus Crops of the Mediterranean Region

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Received date: February 24, 2018; Accepted date: March 10, 2018; Published date: March 15, 2018

Citation: Nasraoui B (2018) Yellow Shoot Disease (or Huanglongbing) on Citrus: A Dangerous Disease Threatening Citrus Crops of the Mediterranean Region. Res J Plant Pathol Vol.1 No.1: 04

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Editorial

In many countries in the world exists a citrus bacterial disease, due to a bacterium from the genus '*Candidatus Liberibacter*', that is very dangerous and hard to control. Even this disease had been known by the name 'Greening', this appellation is presently quite abandoned because it does not reflect exactly symptoms caused by the disease. Symptoms that characterize this disease are [1] yellowing of the tree top shoots, [2] appearance of blotched mottle on leaves, and [3] a reverse yellowing of the fruit which started from the fruit basis attached by the petiole and not from its top as when fruit is safely ripening. And since this disease was firstly identified in China, especially by shoot yellowing symptoms, it was called and largely known by its Chinese name "Huang-Long-Bing" (abbreviated as HLB).

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all regions where HLB disease exists, but also in other regions where the disease does not occur yet, among which, the closest one to the Mediterranean region are the Spanish Canary islands (West of Morocco), where the African bacterium was reported since 2002, but the most danger situation presently is the discover of this vector in August 2014 in the Pontevedra region [5], then in the Coruna region, both in the Galicia district in the North-West of Spain. Moreover, the insect was also found in January 2015 in the North of Portugal in Porto region from which it is currently spreading in the coastal areas of the Northern Portugal. This situation threatens by the dissemination of the disease vector inside whole Spain and Portugal and then to Southern Europe regions as well as North-Africa regions, invading hence whole the Mediterranean countries.

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