

Award Category: IPM Practitioner

Type of Nomination: Regional

Nominator Name: Rachid BOUHARROUD

Nominator Company/Affiliation: National Institute of Agronomic Research Morocco Regional Center Agadir

Nominator Title: Dr.

Nominator Phone:

Nominator Email: bouharroud@yahoo.fr

Nominee Name of Individual: Rachid El Aini

Nominee Affiliation (if applicable): IPM Department Manager Omnium Agricole du Souss

Nominee Title (if applicable):

Nominee Phone:

Nominee Email: elaini80@yahoo.fr

The Nominee is From

Outside North America/International

Are you aware if the nominee has plans to present at the 2018 Symposium in Baltimore?

Not Sure

1. Briefly describe IPM practitioners background or practice (500 words)

Since his graduation from the Morocco's premier agricultural research institution, the Institut Agronomique et Vétérinaire Hassan II, Mr. El Aini Rachid joined the private sector in Agadir which is the main horticultural area of Morocco. At 2008 he accepted the challenge offered by Omnium Agricole du Souss (A Moroccan leader in plants protection sector) as IPM Department Manager to a) implement a Biological Control agents and pollinators Production unit, b) Ensure technology transfer from international companies and its adaptation to local conditions and c) Enhance the ability of Moroccan growers to adapt IPM approaches in the local setting in their greenhouses. El Aini Rachid masters mass production of large range of beneficials insects and mites such as Nesidiocoris tenuis, Macrolophus pygmaeus, Eretmocerus eremicus, Aphidius colemani, Aphidoletes aphidimyza, Chrysoperla carnea, Adalia bipunctata, Ephestia Kuhniella, Feltiella acarisuga, Amblyseius californicus, Amblyseius degenerans, Stethorus punctillum, Rodolia cardinalis, Phytoseiulus persimilis, Cryptolaemus montrouzieri He is also among the very limited elite that experienced a large scale production level of the pollinators Bombus terrestris. After several years of intensive experience, Rachid joined several Moroccan professional entities such as: The Tuta absoluta managing action committee (created by AFEFEL :the Association des producteurs exportateurs des fruits et legumes) The steering committee to implement trials for quarantine cold treatment against Ceratitis capitata to export Moroccan Clementine mandarins to Japan Member of steering committee to assess the efficacy of a self-limiting approach to controlling the Mediterranean fruit fly Ceratitis capitata by using modern biotechnology and advanced genetics to provide effective, safe, and sustainable control. Rachid has been impacted very positively the implementation of IPM approaches by

Moroccan growers. His availability to share his experience, his enthusiasm, perseverance and commitment are qualities that helped him to be an outstanding person with effective IPM implementation demonstrating a positive impact on growers, consumer and environment.

2. Describe this individual's contribution to IPM in their local or regional area. (300 words)

*The Souss-Massa region is considered as the most productive area in Morocco since it provides 90% of fruit and vegetables exportation. Since the 1990s, several IPM Programs on Citrus and Tomato have been launched in this area. Thus IPM is widely recognized as a rational approach to provide long-term solutions to pest problems in Morocco. But the rate of adoption of IPM by farmers was low during the first decade, due to the difficulties of extension. The introduction of the TYLCV in 1998 has significantly increased the need for pesticide applications and compromise the conviction of many growers on IPM to protect their crops. Moreover, the introduction of *T. absoluta*, massive come back to IPM approach with biocontrol as major element. Being unable to control a pest with pesticide is a stronger stimulus for farmers to change their ideas on IPM than ideological arguments. As soon as Moroccan greenhouse farmers realized that chemical control was no longer sufficient to complete control of *T. absoluta*. The fact that a local production facility managed by ElAini has been implemented in the area, several beneficial insects and mites were available and facilitate their use by local growers. In addition on his production team that includes many engineers and technician, Rachid spent significant efforts and time to build a local team of advisors able to promote the uses of IPM strategies. Under his supervision, this team organized workshops for technicians, managers and growers to educate them about IPM and practical aspects related to the use of beneficial insects. These efforts have led to increase the area using IPM approach in Souss. As example, the areas using biocontrol as key part of an IPM program increased from 500 and 100 Ha in 2009 to 1400 and 3500 Ha today, respectively for tomato and pepper.*

3. What type of outreach/educational programming has this individual implemented/developed. (300 words)

*Export growers in Morocco have become fully aware of the fact that if they wish to guarantee the market for Moroccan fresh produce in the long term, they should anticipate consumer demands. These demands imply that a product should be nourishing as well as cultivated in an environmentally-friendly way. In addition accidental introduction of *Tuta absoluta* pushed growers to be convinced that only a holistic approach is able to prevent their crops against pests. Rachid's team usually starts by choosing a pilot grower with good technical level because this minimize resistance to any change. The staff of chosen growers attends a workshop where an IPM strategy adapted to given crop is detailed. The training focuses on : General concepts, major pests and diseases of the chosen crop, preventive and curative strategies, biological control solutions, pesticides side effects and finally practical aspects to implement an IPM program for the given crop. Later, an IPM team including the technical manager and monitoring team is appointed and roles and responsibilities are identified. After, a visit to greenhouses is planned where, monitoring system using sticky traps is implemented. The information gathered from monitoring, guides technical decisions and is useful to make appropriate recommendations to the growers. Regular visits are maintained in order to follow up, evaluate and react.*

4. Provide an example of successful outcomes resulting from the nominee's IPM practice in regards to:
 - a. What economic advantages that were enabled for clients and stakeholders?
 - b. What positive environmental outcomes has the nominee enabled for clients and stakeholders?
 - c. What human health/veterinary advantages has the nominee enabled for clients, and stakeholders?

Since the implementation of the beneficial production unit by Omnium Agricole du Souss, areas under IPM programs have known progressive increase. Thus, stakeholders were very satisfied about the profitability of the business as biological control agents and pollinators sold increases continuously. Farmers that have been convince to switch to IPM, experienced different advantages such as reduction use of pesticides, less stress on plants driven to higher yield levels, and lower costs to protect their crops. For example, detailed study suggested reduction of insecticides spraying from 42 applications to only 14 in tomato crop. Today, after three years of experience in the fight against Tuta absoluta, very satisfactory results have been achieved. Indeed, this pest is no longer considered the first pest that threatens the cultivation of tomatoes in the region of Souss. Also, chemical protection decreased by 60% on paper crops. Indirect benefits were also observed like the increasing demand for "safe" food, increasing use of pollinators (bumble bees in tomato and honey bees in other vegetable crops), insecticide/fungicide resistance for some crops, rich native fauna of natural enemies and antagonists, and, the need to reduce production costs. In addition With many IPM techniques, particularly with non-chemical ones, there is no mandatory waiting period between application and harvesting fruit. After applying chemical controls, one has to wait several days. As a conclusion, in the long run farmers realize finally that IPM is cheaper than chemical control.

5. Please share one article that represents the work of the nominee (No Vita's or Resumes) Our committee would prefer if you include a link to this article in the box below; however, if that is not possible please send this document via email to Janet Hurley at jahurley@ag.tamu.edu with the subject line "IPM Practitioner Award Category and nominee's name."

<http://www.hortitecnews.com/journee-de-sensibilisation-tuta-absoluta-cha/>

<http://www.hortitecnews.com/nous-avons-toujours-eu-a-lesprit-la-volonte-de-produire-les-bourdons-au-maroc-entretien-avec-m-rachid-elaini-saoas/>

<http://www.hortitecnews.com/15999-2/>

https://issuu.com/agriculturemaghreb/docs/agri_102_issuu/48

https://issuu.com/agriculturemaghreb/docs/agri_99_issuu/36

<http://www.leconomiste.com/article/1013678-tomates-tuta-absoluta-il-faut-sauver-les-prochaines-campagnes>

<http://www.agrimaroc.ma/agadir-journee-tuta-absoluta/>

<https://agadirmichelterrier.wordpress.com/2017/06/06/agadir-journee-dinformation-sur-tuta-absoluta/>

http://archives.eppo.int/MEETINGS/2011_conferences/tuta/brochure_tuta.pdf