

Introduction to “Recent advances in stored product protection”

Christos G. Athanassiou

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Stored product protection is one of the most critical keystones in a strategy that ensures the consumers' demands for food safety. This strategy is not restricted to a series of techniques that cover only the post-harvest stages: it is a holistic, integrated and dynamic approach that starts with plant health before harvest. Therefore, it is essential to evaluate the aspects that affect all critical stages of food production, processing and transport. Nevertheless, there are certain major differences between stored product protection and plant health. First of all, stored product protection is directly related to the application of ingredients and formulations in storage and processing facilities, which may partially cover what we define as “the urban and the sub-urban environment”. This is why in this sensitive environment the pesticides and the related compounds that are applied are not plant health products, but constitute a separate category, known as “biocides”, which are defined by a different legislation. Secondly, any intervention (e.g., pesticides) in stored product protection is the closest application to food production, just before consumption, while in the case of plant health dissipation of a toxic agent through biotic and abiotic factors is more likely to occur. Finally, post-harvest qualitative degradations (e.g., toxins) in conjunction with application failures (e.g., inappropriate use of pesticides) may seriously endanger human health. Thus, apart from the control of pests and pest-related contaminants and losses, stored product protection should be mostly regarded as a public health issue, and stored product pests as urban pests.

During the last decade, there were significant global changes in traditional post-harvest pest control, in a degree

that, nowadays, “traditional stored product protection” does not exist anymore, at least in the developed world. One major change was the phase out of methyl bromide, which was very effective against pests and microflora. So far, there is no alternative that can be used individually as a replacement of methyl bromide. On the other hand, newer and more demanding regulations in food production (HACCP, etc.) have changed pest control status to a more case-orientated, low risk series of actions. Also, a new developing market, the organic food production, challenges the use of these actions. Hence, contemporary stored product protection can be regarded as the approach that stands between non toxic residues in food and no contaminants in food. This dilemma is definitely the basic challenge in the case of stored product pest control. It is up to stored product research scientists around the globe to investigate the feasibility of this “no pesticide-no pest” demand.

Several working groups (WGs) of scientists have thoroughly investigated the above challenges. The WG “Integrated Protection of Stored Products” of the International Organization of Biological Control (IOBC) or the West Palearctic Regional Section (WPRS) is one of the most active groups, with more than 130 scientists coming from more than 40 countries from all over the world. Last year (2011), the WG meeting was held in the University of Thessaly, Volos, Greece, between July 4 and 7. Despite the fact that a standard Bulletin with the proceedings of the WG meetings is being published by the IOBC, I decided that it was a perfect chance to invite some of the participants to submit their papers to a special issue of the Journal of Pest Science, under the title “Recent Advances in Stored Product Protection”. In addition, I invited several colleagues that regularly participate in this WG to submit reviews and research articles for this issue. All submitted papers were processed through the standard peer-review

C. G. Athanassiou (✉)
University of Thessaly, N. Ionia, Magnesia, Greece
e-mail: athanassiou@agr.uth.gr

system of the Journal of Pest Science. The correspondence from colleagues was enormous, and created a special issue that deals with almost all modern approaches in stored product pest control: botanicals, modified and controlled atmospheres, new active ingredients, semiochemicals, emerging pests and biological control. In this effort, I would like to thank all colleagues that submitted their papers to this issue, regardless if they were eventually published or not, and also the Editor in Chief, Michael Traugott, for his continuous support in this effort. During

the last years, the “stored product section” occupies a considerable amount of the papers that are submitted or published in the Journal of Pest Science which is clearly indicative of the increased interest of stored product research, especially in the case of the developing countries. As a modern, praxis-orientated scientific journal, the Journal of Pest Science, with this special issue, covers the modern requirements in stored product research; in other words, the “Recent Advances”.