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Encouraging innovation in biopesticide development

Biopesticides can control crop pests effectively with minimal environmental impact when used as part of an Integrated Pest Management programme. However, their regulation is governed by a system originally designed for chemical pesticides and this can act as a barrier to investment in biopesticide research and development (R&D). A recent study investigated two innovative biopesticide regulatory schemes in the UK and The Netherlands which could help overcome this barrier.

Biopesticides are a form of pesticide based on micro-organisms or natural products. The European Commission is proposing new regulations for pesticides that could result in the withdrawal of some chemical pesticides currently available and in mandatory application of Integrated Pest Management (IPM) techniques as from 2014[1]. IPM combines a range of complementary methods to reduce a pest population, while minimising impacts on other components of the ecosystems.

The need for more environmentally-friendly forms of pesticide is therefore greater than ever. In response to demands from retailers and consumers, farmers are also trying to reduce the amount of conventional pesticides used. However, they need continued access to a diverse range of plant protection products if they are to sustain yields and productivity. Without pesticides and other products, food security may be compromised and food prices could rise.

There is an increasing number of non-chemical methods that can be used to complement the use of chemical pesticides as part of IPM. Biopesticides, such as naturally occurring fungi, bacteria and other microorganisms and some naturally occurring chemicals, such as plant extracts and pheromones, can be applied to crops in much the same way as conventional chemical pesticides to target insect pests and diseases. They generally have little impact on other organisms, as well as reduced negative effects on biodiversity.

A previous UK study brought together political and scientific experts, who assessed barriers to biopesticide uptake by interviewing regulators, biopesticide manufacturers, farmers, retailers, EU officials and environmental groups. This helped lead to changes in biopesticide regulation in the UK to encourage R&D[2]. A 'biopesticides champion' was designated within the regulatory body, the Pesticides Safety Directorate (PSD). The champion is an individual who acts as a contact for biopesticide manufacturers, to help them through the product approval process. A pilot scheme offering reduced registration fees for new biopesticides was also created.

This new research compared the UK innovations with those of the Genoeg[3] scheme in the Netherlands, which was also designed to increase use of biopesticides, and found that:

- Companies receive a subsidy from public funds in the Netherlands, while in the UK registration fees are lowered
- both regulatory agencies face the challenge of cost recovery
- Genoeg is a 'bottom up' process whereby a coalition of agencies and other interested parties are involved in creating new regulations
- the UK process was more 'top down', initiated by government, with the PSD then reaching out to interested parties and building a network of new relationships

The study concludes that a better understanding of the mode of action and effects of biopesticides, and of the regulatory issues that arise in their adoption, may help raise their profile among policymakers and hence enable them to realise their potential contribution to sustainable crop production.

1. See: http://ec.europa.eu/environment/ppps/strategy.htm
2. See www.pesticides.gov.uk/environment.asp?id=1846
3. See: www.genoeg.net

Source: Chandler, D., Davidson, G., Grant, W.P., *et al.* (2008). Microbial biopesticides for integrated crop management: and assessment of environmental and regulatory sustainability. *Trends in Food Science and Technology.* 19: 275-283.
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