

Supporting maize research

In a previous Newsletter I looked at the requirements for achieving ‘climate-smart’ maize in the areas of adaptation, mitigation and enhanced security. Climate-smart agriculture requires improvements at each step of the value chain if it is to achieve ‘more with less’. Researchers need to keep pace not only with trends in their own fields but also those in other areas affecting maize cultivation, particularly where those intersect.

We aim to support researchers in maize cultivation achieve this by:

- Commissioning individual reviews of key topics from leading experts in their field
- Bringing these experts and reviews together into an overall framework which puts each review in context of maize cultivation as a whole

An example of an individual review is a recently completed chapter on advances in mycotoxin-resistant maize varieties commissioned from a leading expert in the field (see sample material [here](#)). Based on reviewing and contextualising the key research (in this case through almost 70 references), the chapter includes features such as:

- A clear structure to guide researchers through the subject, from the introduction through key challenges to techniques to resolve them
- Case studies illustrating how research can be implemented in practice
- ‘Future trends’ and ‘Where to look for further information’ sections which help readers to investigate a topic further for themselves

Edited by [Dr Dave Watson](#), Manager of the CGIAR’s Maize Research Program, our brand new volumes on maize bring together these individual reviews from some of the world’s leading experts:

- [Achieving sustainable cultivation of maize Volume 1: From improved varieties to local applications](#)
- [Achieving sustainable cultivation of maize Volume 2: Cultivation techniques, pest and disease control](#)

Volume 1 covers:

- Advances in understanding of plant physiology which help us to understand what determines crop growth and how plants respond to biotic and abiotic stresses.
- Ensuring genetic diversity, by identifying and conserving wild species, which is seen as essential for future breeding, e.g. by exploiting the genes which allow wild plants to survive harsh conditions or resist disease.
- The use of genetics in maize breeding which has helped to accelerate new varieties with desirable traits such as: higher yield varieties (including improved nitrogen uptake), heat and

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drought tolerance, mycotoxin resistance, improved iron content, or enhanced protein, starch or oil content

- Since all these innovations will have limited impact if they are not taken up by farmers, particularly smallholders in developing countries where yield need to improve most, market and other constraints and ways of supporting smallholder access to seed, training and resources

Improved varieties need good husbandry. **Volume 2** goes on to cover:

- Seed variety selection and quality control
- Conservation agricultural techniques (such as maximising soil health)
- Improved nutrient and irrigation management
- Cultivation techniques such as intercropping
- Mechanisation to save labour
- Better understanding and management of pests and diseases

With these two volumes we have created a standard reference for maize researchers and an essential foundation for future research.

For more information about these volumes visit <http://bdspublishing.com/publications/crops/>

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