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AGRICULTURE & ENVIRONMENT: GM CROPS

OPINIONS

How to engage with farmers over GM crops

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Farmers are more likely to use GM crops if they are involved in crop development in the right way, say *Obidimma Ezezika and Justin Mabeya.*

Biotech researchers should explain that developing insect-resistant crops can take years
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The rapid uptake of genetically modified (GM) crops in developing countries poses a dilemma for agri-biotech programmes: when and how should researchers engage farmers in the process of developing crops?

If farmers are engaged too early, they are likely to develop high expectations that the projects may not be able to meet. Engaging them too late may lead to low adoption of the technology.

To better understand when and how to involve farmers, we interviewed agricultural experts from five countries in Sub-Saharan Africa — from individual farmers to farmers' associations, seed companies, scientists and non-governmental organisations.

Realistic expectations

Reaching out to farmers early in the process of developing GM crops is crucial, and can help avoid the perception of the technology being 'dumped on them'. But this should be done gradually. Ideally, engagement should peak about a year before the technology is available, when farmers are selecting planting materials for the following season.

This helps to ensure that farmers' expectations can be met. For example, the enthusiasm of farmers and seed companies involved in the Insect Resistant Maize for Africa project in Kenya was dampened by the delayed delivery of maize products.

Managers of agri-biotech programmes should be clear about a project's limitations, such as the technical and regulatory hurdles that can lead to delays or failure to deliver a product.

And they should explain the difference between research and the end product, and that developing biotech crops could take ten years or more — as was the case for the Insect Resistant Maize for Africa project.

Communication is important. Messages about new GM crops should be optimistic but realistic about their potential to address a problem, such as insect resistance, herbicide tolerance or drought tolerance.

Seeing is believing

Campaigns informing farmers about crop development projects can encourage them to participate, giving them an opportunity to assess the potential benefits. If farmers are part of the decision-making, it is easier to keep them involved and manage their expectations.

Using improved conventionally bred crops that have already been accepted by the farmers makes engagement easier, and can be a stepping stone to introducing GM crops.

Trials on farms, rather than in restricted environments, can help farmers appreciate the time it takes to develop technologies and so temper their expectations. When used alongside confined field trials, farm trials are also likely to give farmers confidence in the biotech crops — after all, 'seeing is believing'.

Adoption rates tend to be higher when farmers actively participate in technology development. In South Africa, for example, the Ministry of Agriculture established the Farmer Support Program in 1995 [1] to help farmers access and adopt technologies developed by the Agricultural Research Council. As part of the programme, farmers were invited to participate through training and on-farm demonstration trials.

The development of *quncho*, [2] a new variety of tef (Ethiopia's main cereal), by the Debre Zeit Agricultural Research Centre in Ethiopia, shows the benefits of this approach. By involving farmers through participatory variety selection, breeding and on-farm trials, the area planted rose from 150 hectares in 2006 to 2,938 hectares in 2009, and yields doubled to 2.2 tonnes per hectare.

Targeting farmers

Religious and cultural concerns, over how new technologies might affect traditional seed systems, for example, can make it difficult for farmers to adopt GM crops. Understanding these concerns and addressing them through continuous dialogue can help farmers accept the technology.

One way to encourage adoption is to engage with a few progressive farmers (rather than many small-scale farmers), who will then liaise with the rest of the farming community. Progressive farmers are those who have good crop yields, for example, are consulted for advice by other farmers, or are leaders of farmers' associations.

This strategy of targeting farmers to act as liaisons has been used successfully in several programmes in Africa. [1,3,4] To be effective, it requires clear communication about the project.

Collaborating with other local organisations — such as seed companies or cooperative societies — to leverage their connections and experience can also help with creating awareness and sharing information.

Working with seed companies at an early stage in breeding and developing crop varieties can help to ensure that farmers benefit. And collaborating with the government is essential.

Farmers are integral to the development of biotech crops. It is important to engage with them from the beginning of the process, and to recognise the value of their knowledge and advice. But researchers should be careful to avoid making promises and raising expectations that may not be met.

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