The debate about the potential benefits and public acceptance of biotechnology in agriculture continues unabated.

The debate seems to have clear polarisations, irrespective of evidence, no matter how robust. There are about 1500 Mha of land worldwide devoted to crop production and about 10% is now allocated to crops with traits derived by various genetic techniques.

As a paper in this issue identifies, most of these are the primary food and commodity crops, soybeans, maize, cotton and canola (or oilseed rape as Europeans know it) and most are grown in the Americas.

The technology, however, is now widely adopted in all continents except Europe, where production is restricted to insect resistant maize mainly in Spain and Portugal.

Scientific knowledge advances by debate based on evidence and opinion can swing widely as information on any particular topic accumulates.

This is a difficult concept to communicate to the general public, who find conflicting reports confusing. Indeed, they often have the unintended effect of destroying public confidence in science as well as researchers.

This effect is frequently exacerbated by the media, much of which has a primary focus of raising revenue, usually most effectively achieved by sensationalising results, whether valid, or not, to achieve impact.

There is a further complication which is difficult to overcome. The human decision making process frequently develops an unconscious bias which can make the assessment of evidence less rational than is desirable.

Such unintentional processes can affect the way we all present information and discuss the significance of evidence.

As scientists we like to believe that we are not influenced by such factors or their unintended consequences. Society and the politics of decision making may be less resistant to these influences, particularly as those whose role is to communicate information are more skilled in presenting facts.

The role of journalists, therefore, becomes paramount; they need to be skilled not only in presenting facts for decision making, but also in assessing the evidence on which they base their articles.

These interactions are highly important when applied to agriculture and advances in relevant technologies. This is especially important in the case of the so-called GM crops.

Although these are widely accepted in most parts of the world, except in Europe, where there is significant opposition.

This seems to have three primary concerns – risks to human health, risks to wildlife and belief that companies which develop the technology are not only large and global, but that they also make a profit, as though that in itself is immoral and renders the technology undesirable.

This often ignores other elements of the debate on crop traits. Why for example is golden rice and vitamin A still so widely condemned, when a deficiency, associated with blindness and other abnormalities occurs in the developing world?

This may be an example of the fact that advanced cultures do not suffer from a scarcity of food, and are less likely to do so for some time, whereas for many developing countries the technologies are critical to their welfare and will be increasingly so in future.

Recent publicity applied to a study of rats fed with GM maize and claiming to show serious health risks, provides an interesting example of the problem.

Not only was this just one study, when there is a multitude of references showing no adverse effects, but serious questions of methodology and analysis have caused several national and international scientific, health and food institutes to identify clearly that the work is suspect and unreliable. Despite this, the work is widely promoted as a reason the technology should be repudiated; evidence to the contrary is ignored by the media.

Likewise, the evidence that herbicide and insect tolerance reduce pesticide use and carbon dioxide emissions is also ignored. Herein lies the problem. In order to improve the quality of decision making, as the world faces an impending food production crisis over the next few years, we need to ensure that policy makers can understand and act on good quality well presented evidence.

However, they also need to lead public opinion. It follows, therefore, that those whose job is to communicate germane information need to be especially vigilant about understanding the facts and providing clear unambiguous interpretations.

1313

Robert Cook

17th April 2013

Comments