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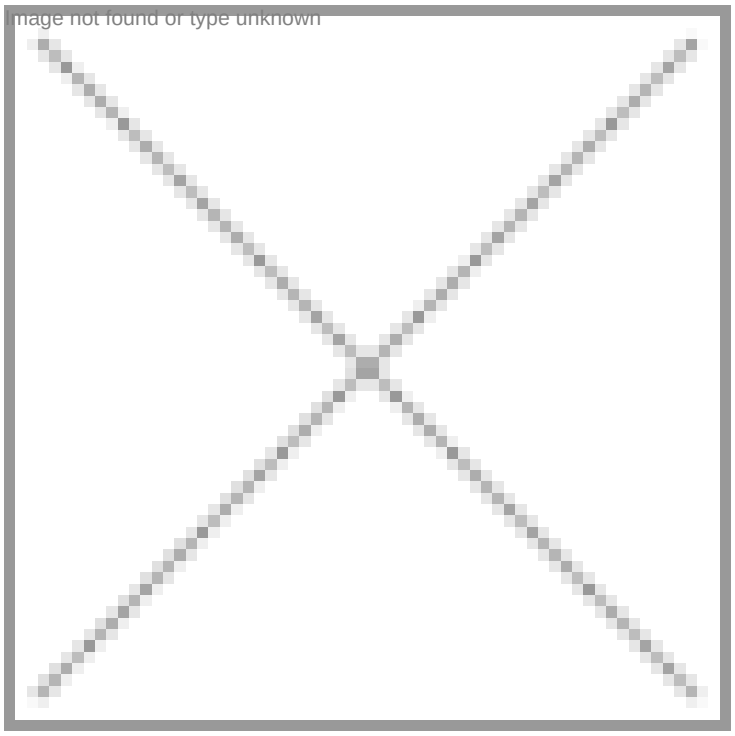

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Dr Clive James, chairman and founder, ISAAA, was in India recently to release the finding of the ISAAA Annual Report 2006. In an exclusive chat with BioSpectrum, Dr James shared the key highlights of the report, its impact, and the future prospects of the GM technology.

How do you view the ISAAA activities in India?

The ISAAA activities in India have been extremely successful. When we established the office here, the aim was to share knowledge with all segments of the Indian society. And if I can use an example from the 2005 release that we did from Sao Paulo, Brazil, we were able to reach 500 million people on a global basis. That is an incredible number; almost eight percent of the global population and 195 million of those people were in India. So we have been more successful in sharing knowledge in India than any country in the world. This is very good as it is through knowledge that people can make knowledge-based decisions about this technology. Our philosophy in terms of sharing is that we share the knowledge but we respect the independence of others to make decisions based on that knowledge. In this context, the investment in India has been very successful. We will continue to work at the different levels with different institutions to even excel on the 195 million people that we reached in 2005 and hopefully the target for 2006 will be 250 million or more.

What are the highlights of the ISAAA Annual Report in 2006?

The release in 2006 is probably one of the most powerful releases that we have made. And the reason for this is that it has reached three major breakthroughs. First, 2006 is the first year when we have breached the 100-million hectare mark, 102 million hectares were planted in 22 countries in 2006 with transgenic crops, a very important historical milestone. Second, the number of farmers reached over 10 millions for the first time, 10.3 million compared to 8.5 million in 2005 and amazingly 90 percent of those are resource-poor farmers. So we have 10.3 million farmers in 2006 that have benefited significantly from this technology.

The third significant milestone is that if one looks at the period from 1996 to 2006, there has been double digit growth every single year, which tells something about the farmer's view about this technology. So over the 11-year period, we have actually planted more than half a billion hectare, 577 million hectares to be precise.

Now from India's point of view, the most important development in 2006 has been that for the first time, India has planted more Bt cotton than China. India is now the leader in Asia in terms of acreage. In 2006, 3.8 million hectares, almost a tripling of area from 2005 when it was 1.3 million hectares, compares with China at 3.5 million hectare. And in terms of number of farmers there were 2.3 million farmers that benefited from Bt cotton in India in 2006.

From Asia's perspective, what has been the progress made in agricultural biotechnology?

If one looks at the first decade of commercialization, from 1996 to 2005, undoubtedly the first decade belonged to the Americas. But my sense is that the second decade of commercialization will be in Asia with the two most populous countries, China and India playing a major part in it. If we look at the figures in 2006, then the biggest absolute gain was still in the US at 4.8 million hectares. The US still has 53 percent of the global acreage but if one looks at the percentage in the developing countries, it has increased every single year, from 1996 until 2006. In 2006, 40 percent of the total global area was grown in developing countries. Now that is a trend that we see continuing. The technology may also be developed in the public sector, in public sector institutes in India, China and Brazil. So the landscape of who owns the technology will change and that is a big issue for many people. Once you get the technology coming out of the public sector, the critics of this technology will not be able to say that it is exploitation by the private sector; they will have to find another reason.

What is your take on the detractors of this GM technology?

I think Greenpeace is green with envy. Probably they would like to be in the driver's seat where they see decreasing acreage of GM crops, because of dissatisfaction, low acceptance but in fact the reverse is true. It is true that the adoption of GM technology is increasing at the rate of more than 10 percent per year, but what one sees is that in 2006, more than half of world's population lives in countries where biotech crops have been approved, have been used and are generating very significant benefits. So I think Greenpeace and Friends of the Earth must be feeling very frustrated that all their predictions are going the other way. It is a mystery to me that how Greenpeace and Friends of the Earth can say that this technology is not delivering any benefits when over the last six weeks, we have five reports: one from the National Council of Agriculture in Washington DC, another one from Switzerland-from independent public sector institutes looking at the environmental issues and coming up with positive comments; last week we had PG economics documenting the fact that in the first ten years farmer income went up by $27 billion; Reports from Argentina estimating that Argentina alone has benefited at the farm income level by about $20 billion. And if we look at the benefits for the rest of the world due to the fact that they are producing more soyabean and therefore the lower prices, it adds up to another $47 billion; so the total benefits are to the tune of $67 billion. We see a very rigorous analysis of the benefits in these studies. So finally, do we believe that all these five studies are wrong, while Greenpeace and Friends of the Earth that provide no data suggest it is the other way. I think that the public can decide.

What is the future agenda and vision for ISAAA?

We will continue to share knowledge and build up a database that is very significant. This will constitute a body of evidence, which will be very important in summarizing and documenting what actually happens at the field level. We will work with different groups at the farmer level, policy level, and government, both federal and state, level to make sure that they have the necessary information. The next decade will brings a whole new set of traits which will be very important for a country like India, in particular, golden rice which will be available for commercialization within 5 years from now. Next a drought gene will be released, probably in 2010-2011, in the US. It will be in corn but the gene will also be available in cotton, in soyabean, and in wheat. The gene is available from both in the public and private sector. We are looking at omega 3 soyabean becoming available in about five years. High lycine corn has been already approved in the US in 2005.

The quality traits that people have been talking about for a long time are going to become available as well as the agronomy traits like the drought gene. The other factor that is going to have a huge influence on the whole adoption of biotech crops is

biofuels- jatropha in India for biodiesel, ethanol from sugarcane. So biotechnology and GM technology in particular will play a very important part in making the biofuels competitive in terms of price. If we look today at Brazil, for instance, it is the biggest producer of sugarcane in the world and can produce ethanol at 18 cents a liter. That compares with 31 cents a liter in the US from corn. These are the exciting developments and my sense is that even though the rate of adoption in the first decade was unprecedented, we will see even steeper rates of adoption in the second decade and Asia will be the region where most of that will happen.

Rolly Dureha