



# Quotable Quotes: Why Biotech?



ISAAA  
INTERNATIONAL SERVICE  
FOR THE ACQUISITION  
OF AGRI-BIOTECH  
APPLICATIONS



**Quotable Quotes: *Why Biotech?*** highlights viewpoints of different key stakeholders from all over the world who have followed the development of biotechnology and are convinced that it has a significant role to play in improving the quality of life. These quotes are from ISAAA Brief 50: *Voices and Views: Why Biotech?*, which is a compilation of essays on biotech perspectives.

Thirty-two experts from Africa, Asia, Europe, and North America were interviewed face-to-face or through email by members of the biotech information network of the International Service for the Acquisition of Agri-biotech Applications (ISAAA). These stakeholders represent policy makers, scientists, academics, media practitioners, and farmers who are willing to have their voices heard amidst the cacophony of divergent opinions.

Respondents with technical background and exposure to biotechnology enumerate many benefits of the technology — from improving yield, reducing use of pesticides and toxic chemicals, decreasing soil erosion, and diminishing agriculture’s carbon footprint; while increasing the nutritive value of major crops and generally playing a vital role in improving the quality of human life.

Unfortunately, there are challenges that the field is faced with as recognized by the experts. One is the

small but committed group of critics who have instilled fear among consumers, policy makers, and governments through misinformation and widespread campaigns using scare tactics and unproven claims. The other challenge involves the strict regulations that have made development and approval of new biotech crops a very rigorous and expensive process. Likewise, the technology is to be regarded as merely one of other possibilities in the quest for better agricultural productivity.

Journalists, economists, and non-technical stakeholders all went through a process of discernment in their search for evidence-based answers. In seeking balance in their writing or analysis of information, they were guided by peer-reviewed articles, interviews with experts, and exposure to farmers through field visits. Similarly, farmers’ experiences with the use of the technology speak for themselves.

We need to hear the voices of those who think technology has something to offer so that these can resonate to others and be part of a chorus that is able to make informed opinions and produce sustained action. May this publication contribute to a more dynamic exchange of narratives and encourage public engagement.

Available online at [www.isaaa.org](http://www.isaaa.org).

## Nina V. Fedoroff



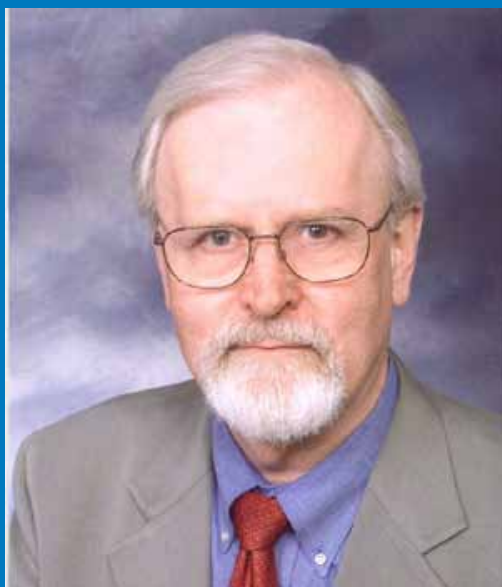
- Eva Pugh Professor at the Pennsylvania State University (USA) and Distinguished Professor Emerita, King Abdullah University of Science and Technology (Saudi Arabia)
- Former Science and Technology Adviser to U.S. Secretary of State
- Former President of the American Association for the Advancement of Science
- National Medal of Science laureate in the field of biological sciences (USA)

“ There’s plenty of evidence that using molecular methods to add, silence, and modify genes is less disruptive of both the genetics and epigenetics of plants than the methods used in the 20th century and before, be it controlled cross-breeding, tissue culture, or chemical and radiation mutagenesis. These are better and less disruptive methods than the ones we used before. That, combined with the astonishing growth of knowledge about plant physiology, biochemistry, and genetics, gives me confidence that molecular modification is the safest and most powerful technology we’ve ever developed for the daunting task of continuing to increase the amount of food for a growing population and doing it more sustainably.

If we throw away these important tools, we’ll find it very difficult to improve sustainability while continuing to increase production. There’s just no other way.

”

## Per Pinstrup-Andersen



- Graduate School Professor and Professor Emeritus of Cornell University (USA)
- World Food Prize laureate
- Former Director General of the International Food Policy Research Institute

“ What really interested me was why something as promising as this [biotechnology] was met with opposition by certain advocacy groups. I spent a great deal of time trying to understand both what genetic engineering had to offer small farmers and poor consumers and what was driving the opposition. The evidence that most of the advocacy groups that opposed genetically modified organisms (GMO) forwarded were reasons other than their concerns for health and the environment. This made me even more interested in trying to contribute to a more evidence-based debate and decision making. I believed then and I believe now that the misinformation and the resulting action (or lack of action) were and are harmful to low-income people’s incomes, food security, and nutrition.

I am a believer in the use of modern science to solve problems confronting people and the environment in which we live because I believe it is essential to achieve and maintain the world we would like for current and future generations.

”

## Zerubabel Mijumbi Nyiira



- State Minister for Agriculture and elected Member of Parliament (Uganda)
- Founding Executive Secretary of the National Council for Science and Technology
- Presidential Awardee for Outstanding Leadership in Agricultural Sciences

“ We must not forget that every new technology has concerns and adoption does not imply zero risk. If we want to be assured of absolute safety in life, we would be doing nothing — including riding in motor vehicles or walking the streets. The important thing is to minimize the risks through improving technology and put in place the necessary safety mechanisms in the way of regulatory systems, good monitoring and evaluation systems, which, in the case of GM technology— is the focus of biosafety.

GM technology is not the preserve of the western world and so [our people] must come to understand that we are not passive recipients of technology but that we are, indeed, capable of defining our own biotechnology research and development agenda to solve uniquely Ugandan and African problems.

”

## Guo Sandui



- Scientist, Biotechnology Research Institute, Chinese Academy of Agricultural Sciences (China)
- Recognized as Father of China's insect-resistant cotton
- One of the top 10 meritorious figures in China's seed industry

“ China puts great importance to research and application of biotechnology. For example, the purpose of the major project aimed at developing technologies for the breeding of new varieties by China is to use biotechnology to cultivate high-yielding, high-quality, disease and insect-resistant, weed-resistant, salinity-tolerant and drought-tolerant new varieties, thereby boosting the capability and competitiveness of China's agricultural sector. So, it has been proven that biotechnology not only has a place in China and even the whole world; it also faces a very bright future.

I believe that biotechnology not only unveils the mystery of life but also transforms nature and promotes human progress and development.

”

## Charity Kawira Mutegi



- East Africa Aflasafe coordinator of the Aflatoxin Policy and Program for East Africa project for the International Institute of Tropical Agriculture (Kenya)
- Norman Borlaug awardee for Field Research and Application

“ We haven’t seen or been given credible information to show that there has been a safety concern on genetically engineered food because we depend on knowledge that is generated by scientists.

I have absolutely no problem about anybody making a decision to, or not, use GM commodities from an informed perspective... You and I must be willing to question the motive and the source; we must be willing to authenticate that information.

”

## Claude M. Fauquet



- Director of the Global Cassava Partnership for the 21st Century – GCP21
- Awardee of the Order of Academic Palms (France)

“ The impact of biotech so far has been on cash crops such as cotton, corn and soybean, and it is a pity that it has not been used on major food crops such as rice, cassava, plantain, sorghum, cowpea, and peanut. Fortunately, some dedicated scientists belonging to the public sector, supported by humanitarian foundations and aid agencies, are persevering and I am hopeful that we will see a number of these products being commercialized in the next few years.

I am a strong believer of biotech because it is a fantastic technology, simple, clean, and safe and because we can change the morphology and physiology of plants to make them drought-tolerant and disease-resistant and, at the same time, have very important and acceptable characteristics in agronomy, productivity, and processing. We will have to feed more people in better ways by 2050, while facing global climatic changes. To achieve this goal, all technologies, including biotech, will be required. If we do not succeed, the world will have to face tremendous instability, unrest, and wars and the ecological equilibrium of our planet will be in jeopardy!

”

“ I believe that the 21st century is the time for those who believe in science and for those who will have the courage to apply its findings. I am sure that Egypt will be one of the countries that understand the importance and the potential of modern science in solving today’s agricultural problems. I hope to develop our techniques and address biosafety issues in order to commercialize transgenic wheat seeds in the Egyptian market.

Our duty as biotech proponents is to deliver the right information about the safety and benefits of biotech crops to the public, to the media, as well as to the decision makers. They should know that biotech crops are as safe as their traditional counterparts. This will contribute to the acceptance of such products by the general public.

”

## Hala Eissa



- Senior Scientist at the Agricultural Genetic Engineering Research Institute, Agricultural Research Center (Egypt)

“ I shall continue to adopt new technologies as long as I live. Bt cotton is not only my life partner but the thread of my life.

With my higher income, I am able to give my children good education, an opportunity I was not able to get. My daughter has a degree in education while my son studies agricultural biotechnology in the university. With the additional money, I have been able to build a *pucca* or cement house, expand the drip irrigation facilities for my fruit crop garden, and establish a dairy farm with 100 animals. In 2010, I was able to purchase an additional 8 acres of land. My farm is now 14.08 ha, while my brother owns 18.15 ha. Six members of our family work in the farms for 7-8 hours daily and we hire people as needed. To top it all, I am able to pay my loans regularly and I have time to spare for my hobby, writing poetry.

”

## Vijay Atmaram Ingle

- Farmer leader from Vidarbha, Maharashtra, India
- Best Yield awardee, Mahyco and East India Cotton Association
- Best Farmer awardee, East India Cotton Association



# Karim Traore



- Bt cotton farmer leader (Burkina Faso)
- Chairman, Union of Burkinabe Cotton Farmers

“ I believe that Bt cotton is a good seed. The main advantage is that we spray less. With conventional cotton, we sprayed 6 to 8 times thus, polluting the country side, but with the reduction in pesticide spraying of two times only, our health is preserved — after all, one’s health is priceless.

Bt cotton has changed my life. I am able to send all my children to school, meet my medical bills, and allow me to afford better accommodation for me and my family. I can tell my fellow African cotton growers that this technology is necessary and we must move with the changing times. Even though there are laws governing the introduction of biotech crops in some countries and others are waiting for these laws to be ratified, I can, nonetheless, reassure my fellow cotton growers that producing Bt cotton is very beneficial, is much easier, and less tedious to plant compared with conventional cotton.

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# Morris Ogenga-Latigo



- Former Member of Parliament and Vice Chairman of the Forum for Democratic Change Party (Uganda)
- Former Professor of entomology and ecology at Makerere University
- Former Chair of the National Biosafety Committee

“ Modern agri-biotechnologies hold enormous potential for revolutionizing African agriculture toward driving economic transformation, so our governments need to facilitate science and not stifle progress.

I understand the science of GM and can see the promise it holds of transforming agricultural productivity. Nevertheless, if there are any plausible risks that science can identify, it is important that we approach these from a scientific premise rather than an emotive one.

It is absolutely unfair to expect that technology will make up for institutional inadequacies; it will still require the professional extension services, the right policies and strategic investments. At the end of the day, technology cannot be expected to work like a magic wand!

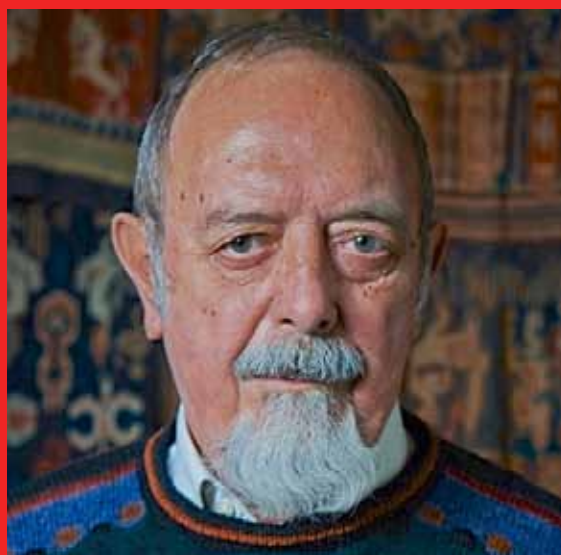
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“ If regulation is meant to prevent harm, it must focus on products, not on the technology applied to produce that product. As soon as GM technology will be freed from automatic, excessive, precautionary regulation, hundreds of public sector projects for the public good would win the minds and hearts of the citizens around the world and this will end the unprecedented hysteria on GMOs.

I am not a specific believer of biotech. I believe in science, in the social responsibility of scientists, and in the use of progress in science for humanity. It has been established beyond any reasonable doubt that plant biotechnology does not carry any technology-inherent risk. It is a fact that the technology has the safest track record compared with any other technology in history. There is not a single documented case of harm since its use! It is, therefore, insane not to use it efficiently and prudently. It is immoral to prevent its use for public good. And it is criminal to prevent it from contributing to food- and nutrition security.

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## Ingo Potrykus



- Scientist and co-inventor of Golden Rice
- One of Top Living Contributors to Biotechnology by the peers of *Scientist* (2005)
- Most Influential Scientist (1995-2005) by the peers of *Nature Biotechnology*

“ Biotechnology is simply a breeding tool, like many others, which gives humans the ability to add, remove, or amplify specific traits to a plant, animal, or microorganism. But unlike other breeding methods, biotechnology gives breeders the ability to move single, well-characterized genes rather than rely on the hit-or-miss approaches of classical breeding in which many, typically uncharacterized genes must be moved or altered at the same time. This more precise nature gives breeders a far greater ability to predict the genotype and phenotype that will result from any given breeding experiment.

Biotechnology is therefore far more powerful than other breeding methods. But it is that very power that makes biotechnology safer than classical breeding. Biotechnology cannot solve most of agriculture's problems. However, it has already addressed many once-intractable problems, and it has the potential to address many, many more.

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## Gregory Conko



- Executive Director of Competitive Enterprise Institute (USA)
- Co-author, *The Frankenfood Myth: How Protest and Politics Threaten the Biotech Revolution*



## Pamela Ronald



- Professor at the Department of Plant Pathology and the Genome Center at the University of California, Davis and faculty director of the UC Davis Institute for Food and Agricultural Literacy (USA)
- Louis Malassis International Scientific Prize awardee for agriculture and food

“ Although genetic modification by conventional breeding and genetic engineering methods are distinct processes, they ultimately have the same end — to alter and improve the genetic makeup of the plant. Whether GE crops fit into a framework of ecological farming gets back to the first thing I tell my students: Organic farming is about health — health of the soil, the plants and animals, the farmer, the consumer, and the environment. A marriage of farming with biological science has always been an important strand of the organic approach. Plants that have been genetically modified using older methods have given rise to nearly every food we eat. Such crops are resistant to diseases, insects, or nematodes; fit in well with organic production; and it seems to me that there is a role there for the right GE crops as well.

At the same time, I think that much of the potential of GE plants is lost in conventional systems that continue to use pesticides and synthetic fertilizers. To maximize the benefit of GE plants, they would best be integrated into an organic farming system. In this way, there is a complementation of practices and technology — the organic practices protect the environment and the GE technology helps reduce crop losses to disease or environmental stress.

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## Inez Slamet-Loedin



- Senior Scientist and Head of the Genetic Transformation Laboratory at the International Rice Research Institute
- LIPI Young Scientist awardee and National Food Security awardee (Indonesia)

“ Regulation is certainly needed for the safe and responsible use of modern biotechnology, but we must determine what information is really needed versus information that might be nice to know. For any agriculture product, it is difficult, if not impossible, to prove with absolute certainty the absence of risk; reasonable consensus is needed to agree when accumulated evidence is sufficient to show that certain GM products are as safe as their non-GM counterparts.

We need to continue the discussion and share with the general public, especially the youth, the real nature of biotech products. Scientists have to speak out because, if not, who else will?

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“ Ultimately, the wealth of mankind starts with agricultural productivity. So, first and foremost, I am a believer in plant breeding. As a minimum, biotechnology in all its forms contributes to make breeding more efficient. At its best, biotechnology extends the reach of plant breeding to produce crops we could only dream about a generation ago.

As long as there is malnutrition in the world, there is a place for biotech. As long as there are farmers who cannot progress past subsistence, there is a place for biotech. As long as there are crop failures, there is a place for biotech. As long as agriculture uses too much water, fertilizers, and pesticides, and causes too much erosion, there will be a place for biotech. Biotech remains the most powerful and flexible set of technologies we have when deployed within the context of a comprehensive rural development strategy that includes education, infrastructure, and advanced agronomic practices.

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## Wayne Parrott



- Professor of the Institute of Plant Breeding, Genetics and Genomics at the University of Georgia (USA)
- Member, Editorial Boards of Plant Cell Reports, Plant Cell Tissue and Organ Culture, and Crop Science

“ Pakistan’s growing population requires careful planning and coordinated efforts to cater to the country’s present and future needs. The most important of these human needs are food, fodder, and fiber. These all come from the agriculture sector; it is, and will remain the most important sector in the economy. Effective and judicious applications of modern agricultural biotechnology can thus play an important role in the sustainable agriculture development and economy of Pakistan as well as in improving the livelihood of poor farmers. However, it demands national commitment for increased production of food, fodder, and medicine.

We must advance our knowledge of biotechnology and make its applications our mission for the sake of humanity, not only in Pakistan, but the world over.

”

## Anwar Nasim



- Secretary General of the Pakistan Academy of Sciences
- Father of Biotechnology in Pakistan
- Presidential Awardee: Pride of Performance and *Sitara-i-Imtiaz*

## Emil Q. Javier



- Former Minister of Science and Technology (Philippines)
- Former President, University of the Philippines System
- Former President, National Academy of Science and Technology
- Chairman of the Coalition for Modern Agriculture Modernization in the Philippines

“ I know enough of the science to understand that it has many potential useful applications. There are enough safeguards. The benefits outweigh the risks, which are speculative and exaggerated.

There is nothing to fear nor wonder about the transfer of DNA across widely unrelated forms of life, e.g. DNA from bacteria to plants and animals. These merely confirm the theory of evolution — that all living things have a common genetic blueprint (our DNA) because all life originated from single-celled organisms billions of years ago.

”

## Mohd Nazlee Kamal



- CEO, BiotechCorp (Malaysia)
- Former Professor at the University Technology Malaysia

“ Many see it as human intervention in altering the blueprint of life itself and hence, an unnatural act. Others may believe that biotechnology disrupts the natural order and violates the limits of what humans are ethically permitted to do. But on the other end, some may also share the view that life sciences/ biotechnology are merely tools for progress designed to benefit mankind.

Not limiting to biotechnology, what is more important is these knowledge and/or technologies are being used responsibly. It is true that there will be some universal ethical concerns that we must consider and to address accordingly. However, these technologies present opportunities for progress faster than what nature can offer.

If done responsibly, these are all very promising technologies, yielding enhanced products to provide social and economic benefits, without compromising health, safety and the environment.

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“ The unprecedented adoption by millions of resource-poor farmers has become a ‘game changer’ in the sense that proper utilization of modified seeds produces so much more: increased yield, reduced need for pesticides, and adoption of no-till land preparation that reduces soil erosion. As more research for better versions of rice, cassava, sweet potato, millet, and other crops — in terms of increased yield and drought, pest and disease tolerance and other desirable characteristics, — and for greater capacity to address pollution and climate change are completed, thinking men everywhere cannot help but realize what a boon biotechnology has to offer.

As more people shed the shackles of ignorance, safe and responsible use of biotechnology will be widespread. People will demand better access to the fruits of this technology. Consumers will want a free choice in the products they consume, regardless of what pressure groups say or do. Moreover, in the primary health care arena, presently marketed biotechnology products and future applications are just too awesome to ignore. Let us hope and pray that onerous overregulation will not dry up the funding needed to reap the fruits of biotechnology.

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## Benigno D. Peczon



- Former Vice President of United Laboratories (Philippines)
- First President of the Biotechnology Association of the Philippines, Inc.

“ Thailand heavily uses chemical insecticides and is imported in great amounts. But even pesticides cannot completely solve the problem. Biotechnology is one way to cope with the predicament and at the same time conserve the environment. If there is a better way, let us use it. Illegal planting of GM papaya and Bt cotton (estimated at 80% of total production) has been observed in farmers’ fields. There is a real need for better alternatives but, unfortunately, these have not been approved for cultivation.

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## Sutat Sriwatanapongse



- Former Director, Thailand Biodiversity Center
- Former Deputy Director, National Center for Genetic Engineering and Biotechnology (Thailand)

## Emiliana N. Bernardo



- Professor of entomology, University of the Philippines Los Baños (UPLB) and Visayas State College of Agriculture (Philippines)
- Member, Department of Agriculture's Scientific and Technical Review Panel
- Member, Institutional Biosafety Committee of UPLB

“ Entomologists help take care of the environment. And one way of doing that is by minimizing the heavy use of pesticides. I'm not saying we should not use pesticides, no. There are cases when pesticides are absolutely necessary. But, when there are other safer alternatives, why not explore them?

The very basic question that we should ask ourselves is, which is safer, the present practice or the alternative: the Bt eggplant that is rigorously evaluated by experts or unharvested eggplant fruits bathed and dipped in chemicals, which would end up in our dinner tables?

”

## Agus Pakpahan



- Chairman of Biosafety Commission of Genetic Engineering Products (Indonesia)
- Founder of Max Havelaar Foundation

“ We must build an institutional model that produces a win-win solution. It must be based on precautionary principle, must apply valid scientific principles, and must follow virtuous business ethics. To achieve food security, better environmental quality, energy sufficiency, as well as improved farmers' welfare, we need some support, such as biotechnology. Biotech products must have satisfied food, feed, and environmental safety parameters as well as considered socioeconomic concerns, especially of farmers.

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“ The irony is that the government is not approving the commercialization of genetically modified (GM) crops in the country [Thailand] but what we are importing in great amounts are the very products we oppose.

The use of GM crops is not the only solution, but if they open a door of opportunity, why not try it? Let us not wait for a crisis to happen for the government to understand why we need to explore other alternatives.

We must put our acts together and think about how the country can benefit from all these endeavors. The easy way out is to be weak and to keep quiet. But we need to make strong and clear decisions about using modern technology...before time runs out, before a crisis looms.

”

## Pornsil Patchrintanakul



- Executive at the Charoen Pokphand (CP) Company (Thailand)
- Vice Chairman of the Thai Chamber of Commerce
- President of the Thai Feed Mill Association
- Secretary of the Federation of Livestock and Aquaculture (Thailand)

“ It is not an exaggeration to say that the 21st century is the century of biology, and biotechnology has already begun to impact so many aspects of our life — our food, our medicine, our environment, and even our law. We are going to see more of biotech in our future as it has the best potential to advance humanity by enhancing our quality of life. Biotech has transformed the way we farm, the foods that we consume, and of course, the medicine that we take. Its impact is widely documented in enhancing our farm productivity, reducing the usage of insecticides, increasing farming efficiency, and reducing tillage through herbicide-tolerant crops.

Potential future benefits include hardier crops tailored to tolerate climate changes including drought; smaller environmental footprint of farming (through reduced consumption of pesticides, fertilizers, and fuel); mitigating global warming through reduced emission of greenhouse gases; conserving biodiversity through reduced expansion of land for farming; and nutritionally enhanced foods with added vitamins, antioxidants, protein quality and content.

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## Channapatna Prakash



- Professor of plant genetics, biotechnology and genomics at Tuskegee University (USA)
- Morrison-Evans Outstanding Scientist awardee
- Top 30 social influencers on biotech and biopharma (NEMUS Bioscience)

## Chris Kakunta



- Development journalist at the National Agricultural Information Services (Zambia)

“ As someone who has seen GMO crops in the lab and on the farms and who has witnessed the benefits accruing to farmers, I would say that the media, the industry to which I belong, must work extra hard so that every farmer hears the facts and makes the right decision. There is no doubt that mass media today wields a more enormous influence over the daily lives of the people than before. ”

## Jon Entine



- Founding Director of the Genetic Literacy Project
- Senior Fellow at the World Food Center's Institute for Food and Agricultural Literacy at the University of California-Davis (USA)
- Senior Fellow at the Center for Health and Risk Communication at George Mason University (USA)

“ There is no other word but revolutionary—at least the potential for being revolutionary. Facing ecological and demographic challenges, biotechnology offers the prospect of increasing farm yields while limiting environmental consequences. Some of that potential has been realized, dramatically decreasing toxins in the environment and improving yields. ”

We have no choice but to embrace innovation. Literally. The science is robust and checks and balances are in place. We are already seeing significant benefits. ”

“ As a science communicator, my role is to promote the sustainable development of science amidst various social and public concerns, at least to smoothen the increasing tension between fast-growing science and technology and the rising social uneasiness towards it.

Biotechnologies in general and agri-biotechnology in particular will have a brilliant future in this world and in China. It is one of the key forces to promote food security, social progress, and economic prosperity in the world. I think the next-generation agri-biotechnology will play an even bigger role in the sustainable development of our society amidst various challenges, among them climate change and swelling global population, which are particularly important to China as the world's most populous nation. We will have much more evidence to understand the mechanism underlying people's attitude to GMO and thus we will be able to promote its acceptance by strengthening those positive factors.

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## Jia Hepeng



- Science communicator (China)
- Former Editor-in-Chief of *Science News Magazine* affiliated with the Chinese Academy of Sciences
- Former Executive Director of the World Federation of Science Journalists

“ Today's biotech crops have offered a host of improvements in agriculture, which include improved yields, lowered input costs, less use of chemicals, better stewardship and less labor, disease resistance, and improved sustainability. In the future, we can expect to see crops with improved nutrition and other desirable traits, crops that will cope with climate changes, will be intrinsically more productive, and will make more efficient use of resources. The impact on agriculture has been phenomenally positive and beneficial. There are many studies and papers that document the benefits of biotechnology. Ironically, I am astounded that there is opposition to and criticism of biotechnology after almost 20 years of successful use on billions of hectares of farmland.

It is not unusual for humans to be cautious and concerned about new technologies about which we know little and which we have been told are untested — in fact, it makes good sense to be careful. As a result of widespread campaigning against biotechnology in agriculture and food, many people around the world are not certain that biotechnology is either necessary or safe. Society will need to move past this opposition in order to capture the benefits offered by biotechnology.

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## Bruce Chassy



- Professor of University of Illinois at Urbana Champaign (USA)
- Author, *History and Future of GMOs in Food and Agriculture*, *Crop Biotechnology and the Future of Food: A Scientific Assessment*, and *GMOs: A Plateful of Promises*



## Nina Gloriani



- Medical researcher and doctor, University of the Philippines (UP) Manila
- President, Biotechnology Coalition of the Philippines
- Former Dean of the College of Public Health at UP Manila

“ Everything we do, everything we have, there are risks. We look at the risk, we assess the risk, and we manage the risk. We will never put you in harm’s way.

With economic development, it is already certain that technologies will come in. There will be more products, and the public has to understand their applications and what good they will do for us.

”

## Mark Lynas



- Visiting Fellow at Cornell University’s Office of International Programs at the College of Agriculture and Life Sciences (USA)
- Author, *The God Species: Saving the Planet in the Age of Humans* and *Six Degrees: Our Future on a Hotter Planet*
- Vice-Chair of the World Economic Forum’s Global Agenda Council on Emerging Technologies

“ It is not enough to sit back and hope that technological innovation will solve our problems. We have to be much more activist and strategic than that. We have to ensure that technological innovation moves much more rapidly, and in the right direction for those who most need it.

I don’t know about you, but I’ve had enough. So my conclusion here today is very clear: the GM debate is over. It is finished. We no longer need to discuss whether or not it is safe — over a decade and a half with 3 trillion GM meals eaten — there has never been a single substantiated case of harm.

”

“ Farmers are ready to accept the latest technology, including biotech crops, as it can bring substantial benefits to farmers. I have had opportunities to be invited to several events that showcased the technology to enable me to come to this conclusion.

As a product of the latest technology, biotech crops must also be applied within a stewardship context by assigning agricultural extension workers whom farmers could interact with and who could answer their questions about the technology.

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## Winarno Tohir



- Chairman of the National Outstanding Farmers and Fishermen Association (Indonesia)

“ Biotechnology is a branch of knowledge that is important in the modern world. Its applications can be found in many sectors — agricultural, biomedical, pharmaceutical, food production, and environmental sectors, to name a few. Such wide-ranging applications highlight the need for Muslims to view biotechnology as a critical branch of knowledge and to strive to pursue and master this knowledge.

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## Shaikh Mohd Saifuddeen bin Shaikh Mohd Salleh

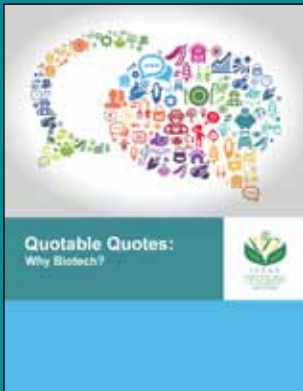


- Senior Fellow, Centre for Science and Environment Studies, Institute of Islamic Understanding Malaysia



We need to hear the voices of those who think technology has something to offer so that these can resonate to others and be part of a chorus that is able to make informed opinions and produce sustained action.





## Quotable Quotes: Why Biotech?

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