

Natural Romanticism Only Yields Need and Misery

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Let Nature, or “natural varieties”, provide for food production of Africa also in the future. Such a slogan, last scripted by director Anuradha Mittal in California, is chanted by nostalgic movements in the wealthy West (IPS 2006).

Ugh! Based on that particular receipt, Africa was hooked by hunger and poverty. Green revolution in cultivation and plant breeding saved millions of human lives in Asia in the 1960s and 70s, whereas the staple crops of Africa remained aside. Accordingly, yields are decreasing and hunger is increasing in the continent.

In order to compensate for the decades of neglect by the international community, two leading charities recently launched a jointed effort to dramatically increase the productivity of small farms in Africa. Gates and Rockefeller Foundations aim at moving tens of millions of people out of extreme poverty.

This Alliance for a Green Revolution in Africa makes a start by financing the development of 100 to 200 new and improved crop varieties, and the training of a new generation of African crop scientists. Furthermore, better access to agricultural inputs and product markets will be provided e.g. by establishing 10 000 small agro-dealers and investing in financial services for the poor.

The political rationale of the "naturalistic" activist campaign above is to attack on sciences in general – and specifically on this donation to human development.

According to the dictates of Vandana Shiva, poor farmers shall remain self-sufficient and only rely on home-made inputs – (scarce) fertilizers, (primitive) equipment, (low-yielding) seeds, (ineffective) drugs, and (poisonous) weeds as vegetables. Companies equate with the Devil. Though, specialization and division of labor were the keys of the rise of human civilizations already 10 millennia ago...

"Natural varieties" do not exist

In fact, “natural varieties” is a popular misconception. Such crop varieties do not exist – and even if they did, such varieties would be inferior to bred ones.

Nature did not give us cultivated plants ready and waiting. Quite the contrary, our staple crops were conquered by man with hard work during millennia. Namely, wild plants are not optimized for human needs but for their own benefits. Hence, crop prototypes were – and are to be – improved by man.

By definition, plant breeding denotes changing the hereditary traits of cultivated plants for suiting human needs better. Thanks to human efforts for millennia, low-yielding and toxic wild plants were transformed to better food and feed. In important staple crops, yields have often increased 10- to 30-fold compared with their wild progenitors.

For example, it took seven thousand years of work plus five radical mutations, and hundreds of smaller ones, to develop the contemporary, highly productive maize crop from its stingy wild

progenitor, teosinte. Accordingly, all maize varieties are fundamentally artificial, man-made organisms, which cannot any more manage without human help at all.

Furthermore, in the infertile soils typical of Africa, crop yields remain poor without human help in fertilization. Though, Nature does provide for taking the bulk of crop yields to pests and diseases in the Third World.

With the help of modern plant breeding, based on genetic understanding and know-how, much more nutritious food can be produced in sufficient quantities in developing countries. In a rapidly changing world, a high premium should be put on resistant varieties, which are not lost due to diseases, pests, drought, salty soil or floods.

Scare stories iterated in the media by activist bosses only have two shortcomings in general. First, these are usually based on urban legends in the Internet. And secondly, these do not deal with plant breeding at all, though the scribes so state. That also holds for their claim that better plant varieties would enforce poor farmers to suicide.

Indian cotton production revives

With the help of up-to-date know-how, much greater improvements can often be reached than the ones we got used to during traditional breeding. The benefits of genetic modification have been treated in hundreds of scientific studies.

For example, five fold yields are obtained from virus resistant cassava, compared with diseased ones. And protein crops with better amino acid composition may often be two times more nutritious than conventional varieties. Resistant varieties usually benefit best the poor farmers who cannot afford to buy control chemicals. That also holds true for moth resistant cotton.

The advantages of genetically modified varieties in India and China are undisputable, based on many scientific studies. Cotton yields now hit record heights in India, and thanks to moth resistant varieties, Indian cotton industry is regaining its position lost to foreign competitors. Whereas the related troubles almost exclusively owe to societal structures – in India as well.

Plant breeding does not kill farmers

"Gene-free" movement imposes on a myth that moth resistant cotton forces farmers to suicide. On Indian countryside, suicides are still rare occasions, compared with many western countries. However, their frequency started to rise in the 1990s – notably far before the introduction of resistant Bt cotton in India. Hence, the increase was not caused by moth resistant varieties.

The straits of farmers do not result from plant breeding but unsafe societal structures, such as caste discrimination (forbidden but firmly alive), corruption, scanty prospects for or hard terms of loans, and inadequate compensation or insurance system for crop failures.

After an unfavorable season, poor farmers must turn to taking loans from profiteers. In case of not obtaining superior yield in subsequent season, the farmer may be driven in a vicious circle due to untenably high interest levels.

In order to provide even the poorest farmer with the possibility of improving his production, a well-functioning public loan system with modest payback terms should be built for small farmers. Family livelihoods should also be adequately protected in case of occasional crop failures (though their probability may often be decreased by cultivating resistant crop varieties).

Moth resistant Bt cotton was first produced commercially in India in 2002, and thanks to the positive experiences, it is now grown on 1.3 million ha in the country. In fact the true area may even be considerably larger, because the area sown with "gray" seed is not included in the statistics. Namely, unlike in the western countries, farmers are free to sell their self-produced sowing seed to each other in India.

Consequently, "home-made" GM cotton lines spread rapidly to further farmers "via kitchen" in India, because their seed is cheaper than in seed companies. However, Indian authorities have now imposed price ceiling on cottonseed, in order to provide access to high-quality seed also for poor farmers.

Access to affordable crop seed is a key issue for poor farmers and countries. It can be resolved in co-operation by universities, FAO-supported international agronomic research centers (CGIAR), and private sector plant breeding and seed companies.

Problems may arise even with better plant varieties

In the early years, farmers' livelihoods were sabotaged by firebomb brigades, which swarmed through the country destroying peoples' GM cotton fields in the name of Shiva.

Currently, production of food plants may decrease, when many farmers are excited and move over to the more profitable cotton cultivation.

Furthermore, new cultivation may require guidance, which may not be available to "gray seed" users. When cultivating moth resistant cotton, regular control sprayings at intervals of a couple of days are given up in favor of more ecologic, integrated control systems. Accordingly, the farmer must be prepared to keep watch on other relevant pests and, if necessary, control these early enough. Or else the pests find time to burst into an epidemic with consequent yield losses in the field.

Summer 2004 was exceptionally cool and wet in China, which led to unexpected outbreaks of mirids in the fields, cotton fields included. These bugs eroded the economic supremacy of moth resistant cotton varieties in 2004, because current Bt varieties are not resistant to mirids yet. In subsequent seasons, bug populations were normalized into much lower levels.

Developed plant varieties do not constitute a problem to farmers. Any unsatisfactory variety is automatically eroded away in favor of better ones, because professional farmers are realistic and cannot be pressured, even by political activists, to cultivate loser varieties.

Nostalgia cannot feed humanity. Whereas, modern biology can help produce sufficiently of food, without endangering the biodiversity hotspots and rare wildlife still remaining in the world.

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