

“The Venoms Of Scorpions And Spiders...”¹

**GLOBAL AGRICULTURE AND GENETICALLY MODIFIED
COTTON IN AFRICA**

By

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for the

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¹ This comes from a quote from the International Cotton Advisory Committee (ICAC) (n.d.:1) which says that apart from the potential of further Bt gene research for future cotton modification, “...venoms of scorpions and spiders have the potential to be used as feeding deterrents”.

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EXECUTIVE SUMMARY

This paper offers an analytical overview of the economic, social and political forces driving the introduction of genetically modified cotton in Africa. The first part of the paper contextualises the rise of agricultural biotechnology by framing it within a broader understanding of the role of technology in the growth of modern, industrial agriculture and its increasing globalisation. Proponents of the use of genetic modification in agriculture (GM) compare the potential of GM to the so-called Green Revolution of the mid-twentieth century. In making this comparison, proponents mean to suggest that GM can result in a rapid increase in yields through the use of the latest technological methods. However, there is a vast body of evidence to suggest that the Green Revolution had a wide range of negative effects. These include the environmentally unsustainable use of chemicals, land concentration, growing social inequality, and heightened farmer dependence on external inputs supplied by big corporations that used this dependence to capture value in the commodity chain.

The introduction of hybrid seed destroyed the widespread practice of seed saving for reuse because hybrids lost vigour after one or two years. The growing reliance on hybrids also served to narrow the gene pool and increase uniformity of commercially available seed regardless of locally specific conditions. In Africa's traditional cotton growing regions, colonial imposition marginalised varieties adapted for local conditions resulting from centuries of local breeding. Green Revolution technologies, including 'improved' seed varieties and chemical inputs facilitated the expansion of production for export markets. The capture of seed for profit facilitated the concentration of input supply and the merging of seed, chemical and biotechnology companies. Global expansion supported by dominant state policies converted the world into markets for these increasingly transnational corporations.

The Green Revolution experience suggests that technology cannot be separated from the social, political and economic systems it emerged from. The Green Revolution technology functioned to draw Africa into global economic relationships as a low value-added raw materials supplier based on continuing political subordination and manipulation and destruction of indigenous social systems. The expansion and intensification of cotton production was geared towards meeting the needs of manufacturing in the metropolises rather than local need in the economic peripheries. As with the GM debate today, local needs are reinterpreted by dominant powers to align with dominant global interests i.e. higher incomes through greater productivity. This binds African producers into a social and economic model in which they will forever be producers of primary goods and consumers of processed goods.

Global cotton commodity chains are characterised by some concentration of power in trading and input supply. At the international trading node of the global cotton commodity chain, traders function as holders of stocks and mediators of quality. Nevertheless, the cotton-to-textile chain recedes in power in relation to global clothing-to-retail chains. On the input side, there is also growing concentration amongst seed, agrochemical and biotechnology companies that

transcends the cotton sector. Most cotton producers are price takers, the result of fragmentation amongst producers and the distribution of power in the commodity chain. Cotton prices are at historic lows, caused by a combination of the depressive effects of subsidies in the US, EU and China, and the growth of cheaper synthetic fibres as an alternative to cotton.

African cotton production is modest compared to the output of China, the US, India and Pakistan but since sub-Saharan African producers export most of their production, especially at the West African centre of cotton production, Africa is one of the largest exporters. China, India and Pakistan consume most of their own produce. Africa and Uzbekistan produce for export, and the US uses about half its own produce and exports the rest based on subsidies. More than 10 million people in Africa rely on cotton production as their main source of income. Smallholders are the main producers of cotton in Africa. This is in contrast to the United States where large-scale agribusinesses dominate production. The volume of production in the US and China means that domestic policies in these two countries have ripple effects throughout the global industry. One example of this is the shift in stockholding policies in the US and then China in the 1980s that caused a sharp decline in prices as stocks flooded the market. Another example is the high levels of domestic subsidy, especially in the US, that permits domestic producers to export competitively even though the cost structure of production is higher than other parts of the world, including Africa.

Africa as a whole is the third largest cotton exporting region in the world behind the US and Uzbekistan. Egypt is the continent's biggest producer but converts most of it domestically. Four West African countries (Mali, Cote d'Ivoire, Benin and Burkina Faso) dominate exports, followed by Zimbabwe. Cotton has also historically been produced in East Africa, and these are targets for the introduction of GM cotton. Apart from the broader ideological justifications for introducing GM cotton, such as increasing productivity and reducing poverty, the technology is seen to be an adequate answer to the problems caused by Green Revolution technologies. In particular GM cotton is presented as an answer to the environmental damage caused by, and rising resistance to, pesticides. While in Africa other pest management techniques have been implemented with success, these have remained isolated in the face of an attack on state-provided services and limited political will.

The rapid growth in the adoption of GM cotton across the world is used to argue that Africa will miss out on this 'second Green Revolution' if it does not immediately adopt the technology. South Africa has been the only African country so far to allow the commercial planting of GM cotton, but field trials are under way in Egypt, Mali and Burkina Faso. South Africa is used as an example of the benefits of GM cotton for African smallholders, despite the fact that only 5% of GM cotton is grown by smallholders in South Africa. The apparent successes of the technology amongst African smallholders in South Africa are premised on concentrated institutional, financial and technical support that is unlikely to be replicated in many places.

Globally, the claimed successes of GM cotton are contested. The apparent benefit of Bt cotton is that farmers save money by spraying less insecticide because the insecticide is built in to the genetic structure of the seed. An additional spin-off is the reduction in environmental damage.

However, the pests targeted by Bt cotton are only a few amongst many pests that damage cotton plants. In Africa, broad-spectrum insecticides are used that target all pests including those targeted by the Bt toxin. This means these pesticides will not be used any less as a result of the use of Bt cotton. Pests also develop resistance to insecticides, including Bt and therefore additional pest management techniques will still be required. There is also growing evidence to suggest that Bt cotton is more susceptible to secondary pests, necessitating additional pesticide use to control these pests. In the US, although insecticide use for pests targeted by Bt has declined since the introduction of Bt cotton, overall insecticide use has not declined because of the growth of secondary pests.

The introduction of transgenic crops cannot be separated from the perceived role of agriculture as a driver of market and private sector-led development in Africa. USAID defines its agenda in African agriculture as being to improve productivity and incomes for African farmers. Yet rising cotton productivity in current conditions will merely result in even lower prices. Primary producers are also not in a position to capture a greater share of value in the context of an uneven distribution of power in the commodity chain. Dominant states have played a key role in maintaining and extending the uneven distribution of power through the continuing provision of subsidies, facilitating and enforcing skewed trade liberalisation, privatisation and deregulation policies, framing and enforcing one-sided intellectual property rights protections based on patents as a feature of their own legal systems, and facilitated the expansion of the private sector in agricultural research and the formulation of biosafety laws.

The US, EU and Chinese governments pay producers massive subsidies to continue production, even though these cost the state more than the total value of production. In the US and the EU, large-scale agribusinesses are the primary beneficiaries of state subsidies. These subsidies permit producers to adopt more expensive technology such as GM cotton and its associated chemicals and still sell their cotton on the world market cheaper than unsubsidised producers in other parts of the world including in Africa. The subsidies can only be understood in conjunction with trade liberalisation because the World Trade Organisation (WTO) determines the legality of subsidies. Although the WTO recently ruled against US cotton subsidies, the 2004 'July framework' that aims to restart global negotiations around trade in agriculture permits the US and EU to continue to manipulate the various categories of support. Both the US and the EU have indicated their intentions to reorganise their subsidy systems to comply with WTO regulations while not substantively reducing the subsidies.

Other aspects of the trade liberalisation agenda include a continued reduction in domestic support in developing countries through bilateral agreements rather than the WTO, and trade preferences being made conditional on continuing liberalisation of agricultural markets, including cotton. International cotton traders and processors are supported through foreign policy interventions that impose skewed trade liberalisation, deregulation and privatisation policies through multilateral institutions like the WTO, the World Bank and the International Monetary Fund (IMF). Across the African continent, cotton industries have undergone a remarkably

similar process of withdrawal of state support and privatisation of processing and exporting in particular, regardless of country specific conditions. The growing privatisation of plant breeding and seed supply, agricultural research and development, and the provision of essential services characterise every national cotton-producing sector on the continent. The results of privatisation have stimulated cotton production in some countries and increased the involvement of TNCs in most. But a number of essential services formerly provided by vertically integrated parastatals, including extension, the provision of credit and quality control, have generally failed in the era of privatisation and deregulation.

Coupled with conditionalities that have encouraged or enforced privatisation and deregulation policies onto cotton systems in Africa, dominant states have also played a key role in enforcing intellectual property rights protection before technology is transferred. However, the intellectual work of countless generations of farmers and plant breeders in improving varieties is marginalised in favour of intellectual property rights based on patents registered in the dominant capitalist countries, in particular the US, the EU and Japan. The protection of patents requires a reorganisation of legal and political systems to align with private property rights and their monitoring and enforcement.

Legally enforceable contracts between input suppliers and cotton producers are one of the legal mechanisms for the protection of right to profit from the intellectual property captured in genetically modified seed. Contracts stipulate the payment of technology fees for the use of the seed over and above the normal cost of the seed, and bind the producer to exclusive use of chemicals produced by the same company.

The privatisation of agricultural research, supported by the actions of dominant states, has seen Africa's agricultural research institutions becoming subordinated to the private interests of biotechnology companies. USAID together with the largest TNCs in the seed-biotech-chemical sector are setting the research agenda by providing funding in the context of withdrawal of national state support for agricultural research. Their express intention is to produce commercially viable biotechnology products under the ownership of the TNCs. The US in particular assists biotechnology and seed companies to undermine or water down multilateral environmental agreements that seek to limit their spheres of operation. The United States government and biotech companies are driving an alternative process based on the formulation of national biosafety laws that aim to shift the focus away from biosafety and towards capacity building in biotechnology. The dominant states help to construct regulatory and legal systems that protect corporate property rights and favour their insertion into new areas of operation. In the case of cotton, this is both to introduce their products (including seed) and to access commercially untapped genetic resources for future product development.

Given this multi-pronged attack on African cotton systems, it is recommended that African producers and governments reject the introduction of GM cotton, and the utilisation of existing agricultural infrastructure and institutions for the insertion of GM cotton into their systems. Far more sustainable alternatives to GM cotton exist. Pest management techniques that rely on increasing producers' knowledge and integrating farmers' own knowledge with environmentally

sustainable best practices from elsewhere are preferable to the introduction of technology that draws pest management away from control of the direct producer. Poverty reduction is more feasible if based on the redistribution of existing resources, including secure access to land, water and locally available genetic material than if based on a single technology reliant on a vast array of external inputs only made available on the basis of payment. Instead of privatising agricultural institutions and focusing on biotechnology that places control in the hands of distant experts, research and development could become more participatory, allowing producers to determine their own needs whether for the global market or not. In particular, dedicated support for the production of food and fibre for local need first and only then for exchange should be encouraged. At the end of the day, primary producers, farm workers and the landless need to organise themselves to press for their own demands. A rejection of the imposition of GM crops and the associated restructuring is imperative in this regard.