



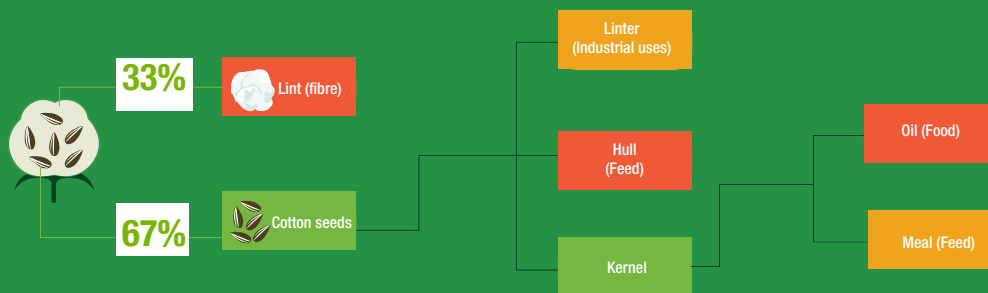
BT COTTON
IN AFRICA
FAQ

Bt Cotton in Africa

Cotton is predominantly a smallholder crop. It represents a crucial source of income for millions of farmers and their families in more than 20 countries across sub-Saharan Africa.

Bt cotton has been genetically improved with a self-protecting ability against the African bollworm that causes up to 100% yield loss. It is a multipurpose crop, producing cotton lint and seeds as principal products. Essentially, 33% of the plant is used as fibre while 67% is consumed directly as food or feed. Cotton seeds yield three important by-products – linters, hulls and kernels. It is the kernel that offers edible oil (as food) and seed cake (as animal feed).

Bt cotton is a multi-purpose crop with lint and seeds being the principal products



In most sub-Saharan African countries, yields of 500-700 kg/ha of seed cotton produced under rain fed conditions are typical for varieties with yield potential close to 3000 kg/ha. In Africa, Bt cotton has a huge potential for generating thousands of jobs along the value chain from seed production, extension services, ginneries, textile mills and cottage industries while contributing to the food/feed sectors.

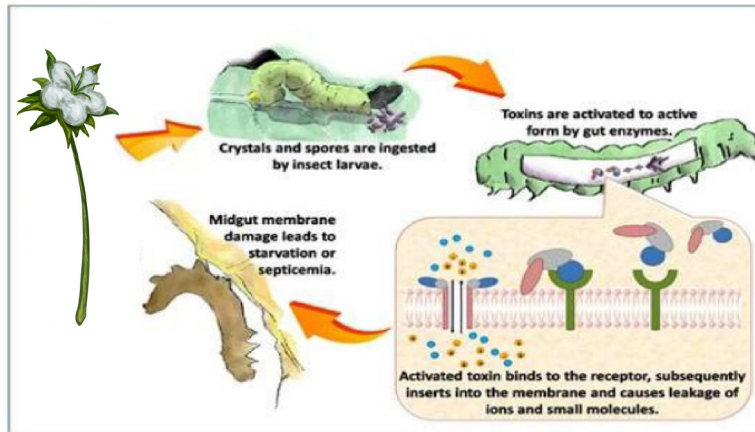
This booklet provides basic information on Bt cotton and addresses some of the frequently asked questions on the genetically modified cotton.

1. What is Bt cotton?

Bt cotton is a cotton variety that has an in-built mechanism to protect itself from caterpillar pests, also commonly known as the bollworm. This protection comes from a scientific process known as genetic modification (GM). The in-built mechanism is from a common soil bacterium also known as Bt, which stands for *Bacillus thuringiensis*.

2. How does Bt work?

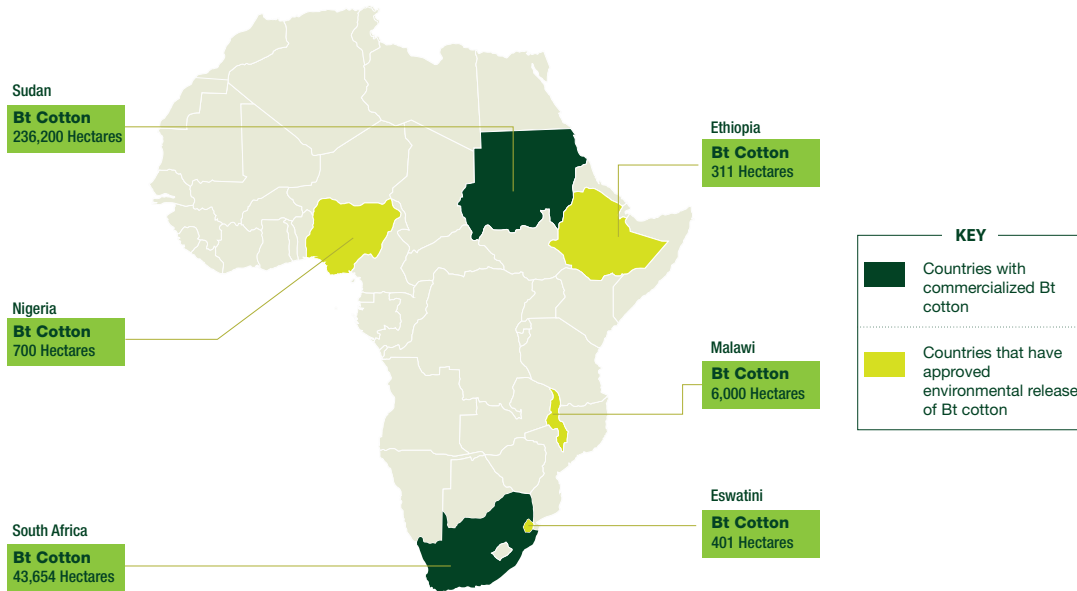
Bt produces a protein that is harmful to the digestive system of a caterpillar pest. When the caterpillar feeds on the Bt cotton plant, its digestive system is weakened, making it unable to feed and it eventually dies. The mode of action works the same way in maize, cowpea and other crops. Bt is very specific and not harmful to humans and other animals. It has been used in organic farming as a spray for over 50 years to control insect pests.



3. What is the adoption rate of Bt cotton in Africa?

Four (4) African countries planted biotech cotton in 2019. The countries in descending order of biotech crop area were Stack Bt and HT cotton in South Africa (43,654 hectares), IR/Bt cotton in Sudan (236,200 hectares), Malawi (6,000 hectares), Nigeria (700 hectares), Eswatini (401 hectares) and Ethiopia (311 hectares). Moreover, Kenya approved the commercialization of biotech cotton in 2019 for cultivation in 2020.

African Countries Planting or with Commercial Approval of Bt cotton by 2019



4. What are the advantages of Bt cotton over conventional cotton?

Bt cotton protects itself from damage by the African bollworm thus protecting farmers yields



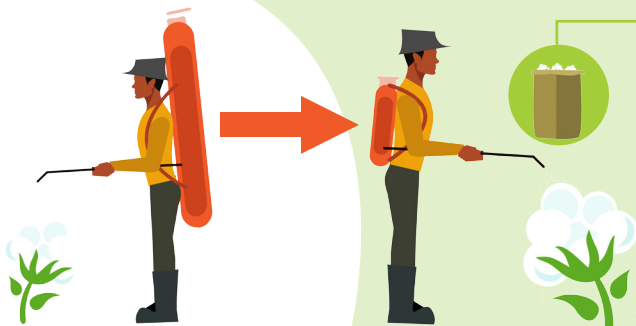
This reduces the number of chemical applications from 12 per season to just about 2-3 sprays.

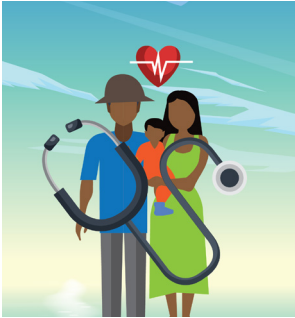


Reduction in number of sprays is beneficial to human health and the environment, improving environmental quality and farmers well-being.



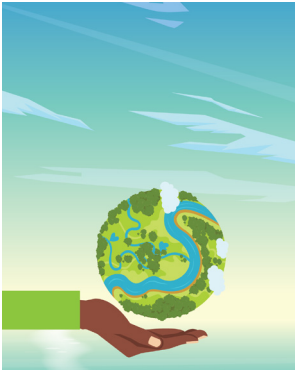
Bt cotton varieties can reach their maximum yield potential because the initial bolls, which are the greatest contributor to overall yield, are protected from insect damage resulting to increased yields.





5. Is Bt cotton safe for humans and animals?

Bt cotton has a history of safe use, having been in the market for over two decades. The crop's safety evaluation has been done according to international scientific standards. These standards are accepted by credible bodies such as World Health Organization (WHO) and Food and Agricultural Organization (FAO). Moreso, 7 African regulatory agencies have already done compliance, substantial equivalence studies through composition analysis (protein, carbohydrate, oil, calories, ash, nitrogen, crude fibers and moisture contents) between GM and Non-GM counterpart and given approval for commercialization of Bt cotton.



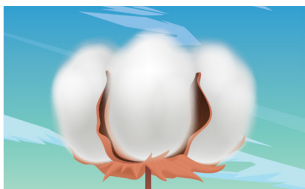
6. Is Bt cotton safe for the environment?

In Bt cotton;

- the protein harmful to caterpillars is very specific and does not affect non- target organisms,
- Bt traits have been evaluated to ensure that they do not negatively affect the ecosystem,
- reduced pesticide application associated with planting Bt cotton is beneficial to the environment.

Overall, there are **NO** known negative impacts of Bt cotton on the environment relative to conventional cotton.

7. What concerns have been raised about Bt cotton?



a. Lint quality: Concerns related to lint quality have recently come up, due to an observed short-staple length challenge in Burkina Faso, Africa's second Bt cotton adopter nation. However, the short-staple length issue is a breeding challenge related to the variety, and is in no way linked to Bt technology. The government is working closely with scientists and other key stakeholders to address this issue. It is important for the African governments to invest in research and breeding programs for cotton to ensure sustainability.



b. Insect resistance: It is prudent for various African countries to establish an Insect Resistant Management (IRM) and stewardship plan, as a mandatory requirement before approval of Bt cotton. Such a plan is necessary because resistance, including to insecticides, is a common response among insects in nature. The IRM and stewardship plan will minimize and delay resistance development as the technology keeps evolving.



c. Seed-saving culture: It is good agronomic practice to plant new seeds each year to ensure consistently good harvests, especially where the seed is a hybrid. Since Bt cotton seeds will be available as hybrids, farmers are advised to apply same management practices as for other hybrid seeds.

8. How will Bt cotton benefit African farmers?



The new insect-protected cotton varieties will provide better seed choices to farmers and help them produce improved yields by reducing losses incurred by pest damage.



Bt cotton will reduce pesticide use, which will be beneficial to both the environment and human health. This will also reduce labour and farm input costs by helping farmers who have no access to pesticides to control the African bollworm and protect their yields.



A more reliable harvest will give farmers additional confidence to invest in their farms and improve their farming practices, as well as their well-being.



This type of smart farming has been shown to attract young people in countries where Bt cotton has been adopted.

9. Is there a market for Bt cotton produce?

Africa is currently exporting less than 2 percent (approx. USD 1 billion) of the potential AGOA market, meaning there is a huge market for Bt-cotton production.

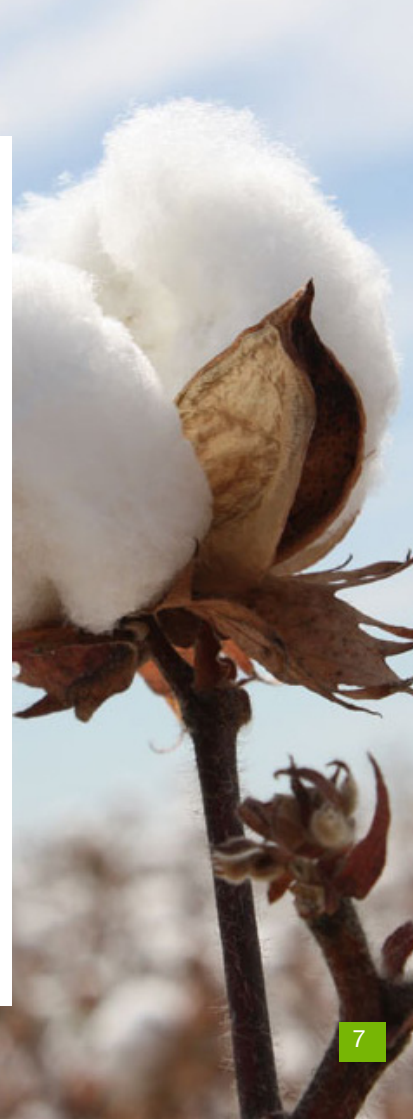
Some of the trade agreements the African countries can benefit from to tap into the preferential market access include:

- African Growth and Opportunity Act (AGOA) with the US
- Economic Partnership Agreement (EPA) with EU
- Common Market for Eastern and Southern Africa (COMESA)
- East African Community (EAC)

10. What will happen to the by-products?

According to the International Cotton Advisory Committee (ICAC) at a June 2019 workshop on cotton by-products held at the World Trade Organization (WTO), “cottonseed by-products have growing markets and are potentially an important complementary source of revenue for the cotton sector in Africa.”

Cotton by-products can be divided into two broad categories: those derived from residues from the ginning and oil milling processes such as linters, hulls, oil and cake; and the products processed from the stalks of the plant, such as briquettes, pellets, mushrooms and particle boards. Diversification into cotton by-products has the potential to create socio-economic benefits. It can generate parallel activities for income generation and employment for farmers. Increasing local processing can increase value addition, create jobs and reduce waste. Additional income would insulate farmers from the fluctuations of international lint prices, encourage them to grow more cotton and thereby help redress the raw material challenge faced by many value-added processing businesses in Africa.





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Citation: Karembu M. and Wangari D. Frequently Asked Questions on Bt Cotton in Africa. International Service for the Acquisition of Agri-biotech Applications (ISAAA AfriCenter), Nairobi Kenya.