

**PAMPUBLIKONG IMPORMASYON PARA SA
KOMERSYAL NA PAGTATANIM**

**PANUKALA PARA SA KOMERSYAL NA PAGTATANIM NG
(Bt Cotton-GFM Cry1A)**

1. **Pangalan ng Aplikante:**
Philippine Fiber Industry Development Authority (PhilFIDA)
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4. **Pangalan ng Responsableng Opisyal/Awtorisadong Kinatawan:**
Annray V. Rivera - Responsableng Opisyal
Maria Magdalena C. Damo - Awtorisadong Kinatawan
5. **Paglalarawan ng Regulated Artikulo para sa Komersyal na Pagtatanim**

Ang Bt cotton o halamang bulak na nagtataglay ng Event GFM Cry1A ay ina-apply para sa komersyal na pagtatanim. Ito ay genetically modified o binago sa modernong pamamaraan sa pamamagitan ng pagpasok ng isang synthesized insecticidal gene, cry1Ab-Ac sa halamang bulak, mula sa isang uri ng bakterya, na kung tawagin ay *Bacillus thuringiensis (Bt)*. Ang naturang insecticidal gene, ay ipinasok sa bahaging panloob o genome ng nasabing halaman sa pamamagitan ng makabagong teknolohiya na kung tawagin ay Pollen Tube Pathway. Ang ipinasok na Bt gene, na tinatawag ding Bt fusion gene, ay gumagawa sa loob ng halaman ng isang insecticidal Bt-protein na siyang nagbibigay ng lason laban sa uod-bulak.

Dahil sa nagawang katangiang panloob laban sa uod-bulak ay dadami ang mananatiling bunga na siya namang magdudulot ng masaganang ani. Bukod dito, mababawasan, kundi tuluyang maaalis, ang paggamit ng mga lasong pamatay sa peste at mapapababa ang mga gastos-pansaka sa bulak.

6. **Kung aangat, Bansa o Mga Bansang ng Pinagmulan ng Reguladong Artikulo**
India
7. **Maikling Buod ng Mga Potensyal na Epekto sa Kalusugan ng Tao at Hayop at sa Kapaligiran**

Sa Kalusugan ng Tao at Hayop

Hango sa mga pagsusuring *toxicological* at *allergenicity* sa mga malalaki at maliliit na hayop, tulad ng mga nagpapasusong baka, kambing at kuneho, *guinea pig*, nangingitlog na manok, at hito, nakakasigurong ligtas ang mga tao at hayop sa *Bt cotton* katulad ng kaniyang katapat na bulak na hindi binago. Hindi ito nakakalason o nakakapagbigay ng kati sa katawan.

Sa kapaligiran

Sa kapaligiran, ang populasyon ng mga insekto at iba pang organismo na hindi pinupuntirya ng *Bt cotton*, tulad ng mga beetle, bug, thrips, spider, crickets, collembolans at iba pang mga arthropod ay ligtas din, bukod sa mga organismo sa lupa gaya ng mga earthworm, nematodes, at populasyon ng bakterya at fungus.

Kaya, ang kalusugan ng tao at hayop, bukod sa kapaligiran, ay ligtas sa *Bt cotton*.

8. **Maikling Buod ng Mga Potensyal na Benepisyong**

Dahil may mabisang katangian ang *Bt cotton* sa pagpuksa ng uod-bulak, may mga potensyal na benepisyong idudulot, hindi lamang sa pagsasaka, kundi sa bawat magtatanim, sa kapaligiran at sa panlipunan.

Sa pagsasaka

Sa pagsasaka, dahil sa agarang pagpuksa ng *Bt cotton* sa uod-bulak, ito ay nagpapatatag at nagpapataas ng ani, bukod sa pagbawas ng paggamit sa lasong pamatay-pesto. Kaya, bababa din ang gastos sa pagtatanim.

Sa magtatanim

Sa magtatanim, maliban sa pagtaas ng kaniyang ani at kita, may malaking idudulot din ito sa kanyang kalusugan at kaligtasan dahil ang panganib sa paggamit sa mga lasong pamatay sa uod-bulak ay mawawala o mababawasan.

Sa kapaligiran

Bababa ang polusyon at basura mula sa paggamit nito. Dahil napapanatili ang mga populasyon ng mga organismong hindi pinupuntirya ng *Bt cotton*, nakokonserba ang *biodiversity*, at napapahusay ang paggamit sa mga kaibigang insekto bilang *biocontrol agents*.

Sa pangkalahatan

Kaya, nagdudulot ito ng pangmatagalang epekto sa lipunan, sa kalusugan ng mga tao (ang magsasaka at ang kanyang pamilya) at ang komunidad. Ang pagbawas sa paggamit ng pestisidyo ay nangangahulugan ng mas kaunting pagkalantad sa kemikal kaya mas kaunting sakit at ospital, mas maraming matitipid at kasiya-siyang oras para sa pamilya at paglahok sa komunidad. Ang mas mataas na ani sa paggamit ng *Bt cotton* ay nangangahulugan ng mas maraming kita, tungo sa pag-unlad ng lipunan.

9. Mga Bansang may Pahintulot sa Paggamit

USA, India, Tsina, Pakistan, Australia, Brazil, Mexico, Argentina, Paraguay, Colombia, Costa Rica, South Africa, Myanmar, Sudan, at sa Kingdom ng Eswatini

10. Maikling Buod sa Pangsosyo-ekonomiko, Pangkultura at Pang-etika

Pag-sosyo-ekonomiko

Sa *Bt cotton*, mas mataas ang ani at kita sa pamilya, bawas sa paggamit ng pestisidyo, kasama ang pagpapababa ng gastos sa produksyon.

Pangkultura at pang-etika

Dahil sa napaikling gawain sa kabukiran bunsod ng bawas na pagpuksa sa uod-bulak, mas maraming maigugugol ang magsasaka na panahon sa pamilya at sa paglahok sa mga gawain sa komunidad.

Bukod dito, magkakaroon ng epekto sa pakikipag-ugnayan sa pagitan ng mga magsasaka (adopter/nonadopter o buyers/ supplier ng *Bt* at non-*Bt cotton*). Kabilang dito ang tungkol sa mga mabubuting gawi sa agrikultura (pagtatanim, paggamit ng mga likas na yaman, paggamit ng mga katutubong kaalaman at mga kasanayan tungkol sa pagsasaka).

Ang publiko ay inanyayahang magsumite ng kanilang mga puna o komento sa Direktor ng BPI (sa loob ng 15 araw mula sa petsa ng paglalathala) sa Panukala para sa komersyal na pagtatanim ng *Bt cotton*-GFM Cry1A).

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Approved for Publication: **GERALD GLENN F. PANGANIBAN, Ph.D.**
Director
Bureau of Plant Industry
Date 4/20/2023

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**PUBLIC INFORMATION SHEET FOR
COMMERCIAL PROPAGATION**

**PROPOSAL FOR THE COMMERCIAL PROPAGATION OF
(Bt Cotton-GFM cry1A)**

- 1. Applicant's Name:**
Philippine Fiber Industry Development Authority (PhilFIDA)
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3/F, DA-PCAF Bldg., Department of Agriculture, Elliptical Road Diliman, Quezon City
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- 4. Name of Responsible Officer/Authorized Representative:**
Annray V. Rivera - Responsible Officer
Maria Magdalena C. Damo - Authorized Representative
- 5. Description of the Regulated Article for Commercial Propagation**

The Bt cotton, the cotton plant (*Gossypium hirsutum* L.) with the event GFM Cry1A hereto applied for commercial propagation, is genetically modified through the insertion of the synthesized insecticidal gene, *cry1Ab-Ac*, from the bacterium, *Bacillus thuringiensis* (Bt) into the cotton's genome via the Pollen Tube Pathway. The inserted Bt gene, called the Bt fusion gene, encodes for the insecticidal Bt-protein that confers built-in resistance to the cotton bollworm, *Helicoverpa armigera* (Hubner).

The conferred built-in resistance to the bollworm results in increased boll retention from pest damage, contributing to increased yield. Besides, it consequently reduces, if not eliminates, insecticide use that, in turn, lowers production cost.
- 6. If to be imported, Country(ies) of Origin of the Regulated Article**
India
- 7. Brief Summary of Potential Effects on Human and Animal Health and the Environment**
On human and animal health
Based on evaluations from toxicological and allergenicity tests on large and small animals, such as lactating cows, goats and rabbits, guinea pigs, egg-laying hen and catfish, Bt cotton is just as safe to humans and animals as the non-Bt cotton counterpart. It is not toxic and does not cause allergenicity.
In the environment
In the environment, Bt cotton further demonstrated its safety on non-target organisms. For instance, it does not reduce the populations of beetles, bugs, thrips, spiders, crickets, collembolans and other arthropods in similar manner as in the soil on earthworms, nematodes, and bacterial and fungal populations.
In general
Thus, Bt cotton is safe to human and animal health and the environment.
- 8. Brief Summary of Potential Benefits**
Bt cotton, having the new trait to effectively control the cotton bollworm, will have tremendous benefits, not only to farming, but to farmers per se, the environment and the society as a whole.

In farming, due to bollworm control, it stabilizes and increases farm productivity. Due to its built-in resistance against the target pest, it reduces pesticide use resulting in a reduction in the cost of production.

To the farmer

To the farmer, apart from increasing his income, this has a tremendous impact on his health and safety through reduced exposure to and use of insecticides against the bollworm.

To the environment

It consequently reduces pesticide runoff, air pollution and waste from pesticide use, making the environment safe. Since the use of Bt cotton preserves the populations of non-target organisms, it maintains biodiversity, and the utility of beneficial insects as pest control agents is enhanced.

To the society as a whole

Summing up all the benefits redounds to a lasting societal impact on people's health at large (the farmer and his family) and the community's environment. With the reduction in pesticide use comes reduction in chemical exposure which means less illness, less hospitalization, more savings and more satisfying and enjoyable time for the family and community. The use of Bt cotton ushers in higher farm productivity which means more income, more savings, more socio-economic developments particularly in the textile industry where it provides livelihood and ADDITIONAL opportunities to people engaged in loom weaving to convert seed cotton produce into fabric/cloth. With the reduction of pesticide use also comes less manufacture of pesticide and their plastic containers which means safety to the community's environment.

9. Countries Where Approvals Have Been Granted (for FFP, for Commercial Propagation)

USA, India, China,, Pakistan, Australia, Brazil, Mexico, Argentina, Paraguay, Colombia, Costa Rica, South Africa, Myanmar, Sudan, and Kingdom of Eswatini

10. Brief Summary on Socio-economic, Cultural and Ethical considerations

Socio-economic considerations

The adoption of Bt cotton results in increased yield and income, along with decreased labor and pesticide use, reducing the cost of production.

Cultural and ethical considerations

The farmers will have more time to participate in community activities and bond with their family because of the reduced field activities due to reduction in the control of bollworms

Additionally, there can be an impact on social interactions between farmers (i.e. between adopters/nonadopters or a shift/change in buyers and suppliers of Bt and non-Bt cotton). Impacts at the farm level can include ethical and cultural effects, such as a change in moral values (i.e to use or not to plant, sell or process genetically modified cotton, the use of indigenous knowledge and cultural practices concerning farming.

The public is hereby invited to submit their comments to the BPI Director (within 15 days from the date of publication) on the Proposed Commercial Propagation of Bt cotton-GFM Cry1A).

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