

**PUBLIC INFORMATION SHEET FOR
COMMERCIAL PROPAGATION**

**PROPOSAL FOR THE COMMERCIAL PROPAGATION OF
(Corn MON 87427)**

1. Applicant's Name:

Bayer CropScience, Inc.

2. Applicant's Address:

8/F, Science Hub Tower 1, Campus Ave. cor. Turin St., McKinley Hill Cyberpark, Pinagsama, Taguig City
1630

3. Telephone Number/ Facsimile Number, E-Mail Address of the Applicant:

Telephone Number: (+63 2) 3226-4888

Email address: carloleo.cabral@bayer.com

4. Name of Responsible Officer/Authorized Representative:

Responsible Officer: Ms. Nisha Sharma, *Country Commercial Lead*

Authorized Representative: Mr. Carlo Leo U. Cabral, *Regulatory Science Team Lead*

5. Description of the Regulated Article for Commercial Propagation (mention the crop, transformation event, new trait conferred, name of the gene transferred, method of transformation, and advantages of the trait conferred):

Maize MON 87427 with tissue-selective glyphosate tolerance, and all progenies derived from crosses of the product with any conventionally bred maize, and/or maize containing registered-biotech events. MON 87427 was developed through *Agrobacterium*-mediated transformation of conventional maize using the plasmid vector PV-ZMAP1043. The vector contains one T-DNA consisting of the *cp4 epsps* coding sequence.

6. If to be imported, Country(ies) of Origin of the Regulated Article:

United States of America (USA)

7. Brief Summary of Potential Effects on Human and Animal Health and the Environment (summarize human and animal health and environmental assessments done and studies implemented indicating potential effects on human and animal health and the environment):

Extensive data and information have been demonstrated that MON 87427 is agronomically, phenotypically, and compositionally comparable to conventional maize with the exception of the introduced herbicide tolerance trait. Moreover, the data presented demonstrate MON 87427 is unlikely to pose an increased plant pest risk, including weediness or adverse environmental impact, compared to conventional maize.

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Page __ of __

The source of the *cp4 epsps* coding sequence, a soil bacterium, is not a known human or animal pathogen and for which there are no reports of allergies; CP4 EPSPS protein has been reviewed and approved by numerous independent international regulatory agencies worldwide.

The molecular characterization shows that maize MON 87427 contains a single copy of the T-DNA at a single locus of integration from plasmid PV- ZMAP1043, and all genetic elements of the *cp4 epsps* expression cassette from this plasmid are present in the insert and are intact.

Lack of significant structural similarities of the CP4 EPSPS protein to known allergens, or pharmacologically active proteins known to cause adverse health effects, based on bioinformatic searches of amino acid sequence databases, rapid digestion of the CP4 EPSPS protein, the CP4 EPSPS was deactivated after heating at temperatures above 75°C, with no acute toxicity based on a mouse gavage study.

A comprehensive compositional analysis of maize MON 87427 demonstrates that, with the exception of the introduced trait, it is substantially equivalent to conventional maize and derived feed, foods and food ingredients.

Taken all these together, the maize MON 87427 is as safe as conventional maize and does not pose greater risks to biodiversity, human and animal health than its conventional counterpart.

8. Brief Summary of Potential Benefits (Describe how the new trait will benefit farming, the farmer, the environment, and society as a whole):

Maize MON 87427 offers benefits in the local production of hybrid seed, including;

a. Increased Flexibility in Hybrid Seed Production: The critical time period for detasseling is after the tassel has emerged but prior to pollen shed and silk emergence, and encompasses an average 3 - 4 day window. Current detasseling practices may require up to two passes with mechanical detasseling equipment and up to three passes if hand detasseling is used. Further complicating detasseling activity is the logistical planning required for moving enough labor and resources to the designated hybrid seed production fields at the appropriate time. Glyphosate applications made to MON 87427 during the V8 to V13 vegetative growth stages results in the male sterile phenotype. This timing accounts for significantly improved flexibility in hybrid seed production.

b. Economic Benefits for Hybrid Seed Producers: Seed manufacturers continually seek ways to improve hybrid seed productivity and reduce the inputs and land area used to produce high quality hybrid seed. Agricultural field labor costs continue to make up a large percentage of total costs to produce seed. Compounding this increasing cost is population migration towards urban areas that is shrinking the agricultural labor pool, thus reducing a reliable labor pool for this work. Costs associated with labor recruitment and deployments to perform detasseling are some of the largest cost improvement

opportunities in hybrid seed production. MON 87427 will decrease hybrid seed production costs primarily from a reduction in direct and associated labor costs.

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

Cultivation approvals: United States of America (USA), Brazil, Argentina, Canada

FFP approvals: Japan, Taiwan, South Korea and the Philippines

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

GM maize is widely produced and consumed and is a significant component of global trade of agricultural commodities. Locally, the Philippines has a steady domestic increase on corn production for the past 5 years, and based on its import/production data, imported corn accounts for 5-10% comparing to the domestic productivity. In fact, based on the latest agricultural commodity data by the Philippine Statistics Authority (PSA), in 2021, the volume of imports of corn at 459.73 thousand metric tons was reduced annually by -40.2 percent.

Table 1: Corn Annual Imports (Metric Tons)

Crop	2017	2018	2019	2020	2021
Corn	475,244	1,016,746.9	458,429.3	768,534.7	459,727.7

Source: Philippine Statistics Authority 2022: Agricultural Exports and Imports (2017-2021). 25pp.

This amounted to PhP 7.69 billion or an annual decline of -22.3 percent. Corn imports accounted for 1.0 percent of the total payments for agricultural imports.

In terms of corn production, the area harvested for corn at 2.56 million hectares in 2021 was above their 2018 record by 2.1 percent, while for the period 2017 to 2021, corn area harvested expanded by an average of 0.1 percent. In 2021, corn production went up to 8.30 million metric tons or by 6.8 percent from the base years' record. Annually, the production levels of corn from 2017 to 2021 grew by an average of 1.2 percent.

Table 2. Corn Annual production (Million Metric Tons)

Crop	2017	2018	2019	2020	2021
Corn	7.91	7.77	7.98	8.12	8.30

The

Source: Philippine Statistics Authority 2022: Agricultural output and productivity (2017-2021).


25pp.

introduction of MON 87427 will become a vital component in further achieving self-sufficiency in the Philippine GM corn seed market, continuously bringing benefits to domestic production while helping farmers better plant, grow, and protect their harvest.

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 Corn MON 87427.


Director
Bureau of Plant Industry
San Andres, Malate, Manila
E-mail: bpibiotech@buplant.da.gov.ph

Approved for Publication:


GERALD GLENN PANGANIBAN Ph.D.
Director
Bureau of Plant Industry
Date:

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ATTY. ROLANDO H. CHIONG, JR.
Notary Public
Until December 31, 2024
PTR Nos. 8576046, 01-02-2024 Calamba City
Roll No. 31958, IBP OR No. 180754, 12-09-2022
Chiong Law Office, Calamba City, Philippines
TIN-116-095-254 Not. Com. No. 11-2023-C
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Page of