

**PUBLIC INFORMATION SHEET FOR
COMMERCIAL PROPAGATION**

**PROPOSAL FOR THE COMMERCIAL PROPAGATION OF
High Iron and Zinc Rice Event HIZ039**

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2. Applicant's Address
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Executive Director, DA-PhilRice
Authorized Representative: Mr. Christopher Cabusora
Technical Team Lead for High Iron and Zinc Rice Project,
DA-PhilRice
5. Description of the Regulated Article for Commercial Propagation

Event HIZ039 rice was developed using recombinant-DNA techniques to increase the amount of iron and zinc in the rice grain. HIZ039 rice was produced by *Agrobacterium tumefaciens*-mediated transformation of immature rice embryos. Increased levels of iron and zinc in the grain come from two genes: (1) nicotianamine synthase 2 (*nas2*) gene from *Oryza sativa* and (2) ferritin (*fer*) gene from *Malus baccata*. A third gene, hygromycin phosphotransferase (*aph4*) gene from *Escherichia coli* was used as a selectable marker to help identify the transformed cells. This gene has no function in the cultivation of the plant.
6. If to be imported, Country of Origin of the Regulated Article

HIZ039 rice varieties will not be imported. The Philippines is the intended country of cultivation of HIZ039 rice and is the country of origin.
7. Brief Summary of Potential Effects on Human and Animal Health and the Environment

The safety assessment of HIZ039 rice considered information on the history of safe use of rice as a crop, the source of donor genes introduced into HIZ039 rice, the genetics of the modified plant, safety of new proteins produced in the modified plant. Comparative assessments between HIZ039 rice and conventional rice based on data generated from molecular characterization, compositional analyses, and agro-phenotypic studies in the Philippines showed the following results:

HIZ039 rice differs from regular rice only by the presence of three additional proteins-NAS2, FER, and APH4. These proteins are not similar to any known toxins or allergens, and tests confirm they are easily digested and not heat-stable, indicating no risk of toxicity or allergenicity. NAS2 and FER are naturally found in plants and are involved in storing and transporting iron and zinc, while APH4 has a long record of safe use in other genetically modified crops. Nutrient analyses show no significant differences between HIZ039 and conventional rice, except for the intended increase in iron and zinc. Overall, the findings confirm that HIZ039 rice is as safe and nutritious as regular rice and supports its safety for future commercial use.

HIZ039 rice behaves the same as regular rice in the field. The higher iron and zinc content in its grains does not affect how the plant grows, reproduces, or interacts with the environment. Because this trait does not give the plant any advantage in survival or spreading, HIZ039 rice is not expected to become weedy, invasive, or harmful to biodiversity. Since it does not produce any pest-control substances, it poses no risk to insects or other non-target organisms. Tests also show no differences in either gross pollen morphology or in pollen viability between HIZ039 and conventional rice. Farmers can grow HIZ039 rice using the same methods and inputs as ordinary rice, with no expected changes in soil processes or farm management. Overall, the evidence indicates that HIZ039 rice presents no new or increased risk to the environment.
8. Brief Summary of Potential Benefits


HIZ039 rice is intended to complement existing iron and zinc deficiency control efforts, such as food fortification, supplementation, and dietary diversification, by supplying up to 30-50 percent of the estimated average requirement for iron and zinc for preschool-age children and pregnant or lactating mothers. The availability of HIZ039 rice varieties will provide communities with access to a more nutritious form of rice that will help alleviate the burden of preventable childhood anemia, poor brain development, stunting, and susceptibility to disease.
9. Countries Where Approvals Have Been Granted

The Philippines is the first country where HIZ039 is being submitted for FFP and commercial propagation.
10. Brief Summary on Socio-economic, Cultural, and Ethical considerations

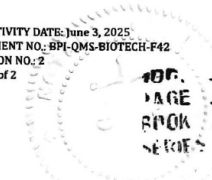
From 2020-2022, the Philippines had an average annual rice supply of about 18.2 million metric tons, with 71% from local production and 29% from imports. If HIZ039 rice is approved for planting and use, it is not expected to change current patterns of rice production, trade, or consumption. The new trait was not designed to affect yield or other farming characteristics. HIZ039 rice grows like regular rice, and farmers can cultivate it using the same inputs and practices. There will be no additional costs such as license fees or special contracts for accessing seeds. Smallholder farmers are expected to remain competitive. Socially and culturally, HIZ039 rice will not affect food traditions, availability of rice alternatives, or community structures. Its main impact will be positive: providing a more nutritious type of rice that can potentially help reduce preventable problems like childhood anemia, stunting, poor brain development, and higher risk of disease.

The public is hereby invited to submit their comments to the BPI Director (within 15 working days from the date of publication) on the Proposed Commercial Propagation of Event HIZ039 rice.

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Date:

EFFECTIVITY DATE: June 3, 2025
DOCUMENT NO.: BPI-QMS-BIOTECH-F42
REVISION NO.: 2
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DA-PhilRice
2025

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