



**ASSESSMENT OF NATIONAL FOOD AUTHORITY (NFA) PROPOSED SPECIFICATIONS  
 ON PRODUCT, PACKAGING AND LABELLING OF IRON RICE PREMIX**

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**Executive Summary**

Republic Act (RA) 8976, or the Philippine Food Fortification Act of 2000, was enacted in 2000 to address the issue of nutrient deficiency in the Philippines. As a support in the implementation Philippine Food Fortification Act of 2000, the National Food Authority (NFA) initiated an iron fortification process for rice in 2004 but was halted in 2011 because of the challenges related to the supply chain and lack of consumer demand due to sensory properties (WFP, 2022a). In 2019, the findings of the Fill the Nutrition Gap project prompted the NFA to modify the fortification formulation with the aim of improving the color and taste of iron fortified rice (IFR) and consequently change the public perceptions of IFR (WFP, 2023a). In January 2023, the NFA requested inputs from the DA Office of the Senior Undersecretary on its proposed technical specifications for iron rice premix (IRP) to produce iron fortified rice. Thus, this study was conducted to evaluate the nutrition, safety, and quality specifications of iron rice premix, as well as the packaging and labelling requirements proposed by the NFA, which may serve as a basis in making informed decision. Review of secondary data was done to compare the NFA proposed specifications on iron rice premix with relevant international and national standards and published literature.



The following are the key findings:

1. Nutrition-related specifications: NFA's proposed specifications for mixing ratio (1:200), iron content of raw and cooked IFR (2-6 mg/100g and 0.6 mg/100g respectively) are research-supported. No specifications on the parameters were found in PNS or Codex. The proposed minimum iron content of 300 mg/100g (1:200) is lower than DOH-FDA's standard, while the proposed maximum iron content of 2,400 mg/100g is higher than the standard and is inconsistent with NFA's 6 mg/100g target for iron in raw IFR and the 0.6 mg/100g target for cooked IFR.
2. Food safety specifications: NFA's proposed specifications for heavy metal contamination in IRP is aligned with ML established by Codex and PNS milled rice, but the proposed aflatoxin limit (<10 µg/kg) is twice the Codex and PNS limits. NFA's proposed yeasts and molds specifications align with USDA, except for the maximum CFU limit ("m"); NFA's m is 102, while USDA's limit is 103.
3. Quality-related specifications: Specifications for type of iron compound (food grade micronized Ferric Pyrophosphate powder), technology (extrusion), and specific requirements on physical contaminants are aligned with requirements specified by (MR26) USDA (USDA, 2018). The latter two are supported with technical specifications in the World Food Programme (WFP) project (WFP, 2023b) as well. However, difference in some specifications were found. NFA proposed for grayish to yellow color of IRP; WFP (2021) found light creamy yellow as visually indistinguishable from milled rice. Expiry date requirement for NFA was a period of less than 1 year in NFA; WFP required a minimum of 2 years (WFP, 2023b).
4. Packaging Specifications: NFA's product packaging specification aligns with Codex guidelines. NFA has unique specifications which are the specifications for packaging weight, and on packaging strength. Requirements on hygiene protection, non-toxic containers, and appropriate packaging materials that are found in Codex standard (CAC/GL 55-2005) are not included in the NFA proposal.

5. Labelling Specifications: The seven labelling requirements proposed by NFA is aligned with Codex CXS 1-1985 (Rev. 2018). However, the NFA's proposed date marking (Expiry date) differs from Codex's "Best Before". NFA's specifications lacks storage instructions required by Codex. NFA has additional three labelling requirements (iron compound identification, ink characteristics, and "Not suitable for direct consumption" statement) not reflected in Codex or PNS.

Based on the key findings, the following are recommended so that the NFA proposed specifications will be aligned with Codex, PNS, and with recommendations in published literature. It is also expected that these would improve the negative public perception surrounding iron fortified rice leading to increased consumer acceptance and consumption.

Parameter	NFA Specification	Recommendation
<b>1. Nutrition-related Specifications of Iron Rice Premix</b>		
Minimum Iron Content (IRP) (mg/100 g)	300	700
Maximum Iron Content (IRP) (mg/100g)	2,400	1,200,
Mixing Ratio (IRP:Milled Rice)	1:200	1:200
Raw IFR (mg/100g)	2-6	2-6
Cooked IFR (mg/100g)	0.6	0.6
<b>2. Food Safety Specifications of Iron Rice Premix</b>		

Arsenic, inorganic (mg/kg)	<0.2	<0.2
Cadmium (mg/kg)	<0.4	<0.4
<b>Parameter</b>	<b>NFA Specification</b>	<b>Recommendation</b>
Lead, total (mg/kg)	<0.2	<0.2
Total Aflatoxin (µg/kg)	<10	5
Yeast and Molds n = number of samples to be examined c = number of acceptable sample units between m and M m = maximum of cfc of the organism per gram that are of no concern M = maximum allowable number of microorganism (cfu) per gram in any one sub-sample	n:5 c:2 m: 10 <sup>2</sup> M:10 <sup>4</sup>	n:5 c:2 m: 10 <sup>2</sup> M:10 <sup>4</sup>

### 3. Quality-related Requirements of Iron Rice Premix

Type of Iron Compound	Food grade micronized Ferric Pyrophosphate powder [Fe <sub>4</sub> (P <sub>2</sub> O <sub>7</sub> ) <sub>3</sub> ]	Food grade micronized Ferric Pyrophosphate powder [Fe <sub>4</sub> (P <sub>2</sub> O <sub>7</sub> ) <sub>3</sub> ]
Technology	Extrusion	Extrusion
Color	Grayish to yellow	Light creamy yellow
Whole Kernel	85%, min	Further evaluation
Moisture Content	13%, max.	Further evaluation
Additional Requirement	No rancid-like odor	No rancid-like odor

	Free from insects, filth, and extraneous matter	Free from insects, filth, and extraneous matter
	Expiry date shall not be less than 1 year upon delivery	Further evaluation
<b>Parameter</b>	<b>NFA Specification</b>	<b>Recommendation</b>
<b>4. Packaging Requirements of Iron Rice Premix</b>		
Packaging weight	50/kg bag	50/kg bag
Packaging material	The packaging should be properly sealed and able to provide adequate product protection against the entry moisture and direct exposure to sunlight.	The packaging should be properly sealed and able to provide adequate product protection against the entry moisture and direct exposure to sunlight.
Packaging strength	The packaging shall provide adequate strength to withstand normal handling conditions.	The packaging shall provide adequate strength to withstand normal handling conditions.
<b>5. Labelling Requirements of Iron Rice Premix</b>		
Ink	The ink of the label graphics do not smear or wear off upon contact with the liquid and/or hard surface	The ink of the label graphics do not smear or wear off upon contact with the liquid and/or hard surface
Information to provide	Name of the product "Iron Rice Premix"	Name of the product "Iron Rice Premix"
	Brand Name and/or trademark	Brand Name and/or trademark
	Type of iron compound used	Type of iron compound used
	Name and Address of the Manufacturer, Packer or	Name and Address of the Manufacturer, Packer or

	Distributor	Distributor
	Product of the Philippines or country of origin, if imported	Product of the Philippines or country of origin, if imported
	Lot/Batch Identification Code	Lot/Batch Identification Code
<b>Parameter</b>	<b>NFA Specification</b>	<b>Recommendation</b>
	Date Manufactured	Date Manufactured
	Expiry date	“Best Before” with storage instructions provided
	The statement “This product is not suitable for direct consumption” in big and bold letters.	The statement “This product is not suitable for direct consumption” in big and bold letters.
	Actual Net weight	Actual Net weight

