



Number of People Eating Biofortified Foods On-Farm and From Markets (Off-Farm)

HarvestPlus' goal is that at least one billion people will be eating nutritious biofortified foods in the next decade.

HarvestPlus¹ estimated the number of people eating the biofortified food available on farms and from markets in 13 countries in 2022 and 2023. The estimation methodology² used several input parameters to model the number of people that could eat the available biofortified food; of these, the quantity of biofortified food available for human consumption³ and crop-specific per capita intake are the most important.

In this summary we present the results for the estimated number of farming households growing biofortified crop varieties and the number of people eating biofortified foods (on-farm and off-farm) for 23 country-crop combinations in 13 countries in Africa and Asia where HarvestPlus operates (Tables 1 and 2)⁴. The results depict the progress made by HarvestPlus and its partners in scaling up the production and consumption of biofortified crop varieties and foods. This progress excludes scaling results attributable to other CGIAR centers, for example the International Potato Center (CIP), CIAT-Bioversity Alliance's PABRA program, and others.

In countries where more than one biofortified staple crop is promoted, the data has been adjusted so that people eating two or more biofortified foods are only counted once as a consumer.

It is estimated that in 2023 the biofortified food available in markets was enough to be eaten by over 227 million people; in addition, more than 103 million people were eating biofortified foods they grew on their own farms—bringing the total reach of biofortified foods to 330 million people in the 13 African and Asian countries depicted in the results.

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1. HarvestPlus is a part of IFPRI and works with CGIAR centers, National Agricultural Research and Extension Systems, and public, private, and civil society partners to facilitate the development and dissemination of these nutrient-enriched crops.
 2. The methodology used to estimate these data will be published soon.
 3. Data from FAOSTAT and other public data sources was used to determine crop-specific average yield and per capita intake, while results from HarvestPlus surveys are used to establish the overall quantity of harvested biofortified foods, % allocated for on-farm consumption, average per capita intake of biofortified foods, and % sold to the market.
 4. Estimates are conservative because they are based on the national average yield for each crop, although several biofortified crop varieties have a proven yield advantage over their non-biofortified varieties (except for hybrid vitamin A maize, iron pearl millet and zinc rice varieties).

References

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Table 1. Number Of Households Growing Biofortified Crops

Country	Crop	Nutrient	2022	2023
Rwanda	Bean	Iron	553,012	605,513
DRC	Bean	Iron	623,534	733,997
India	Pearl Millet	Iron	366,268	371,976
Zambia	Maize	Vitamin A	372,520	428,397
Nigeria	Cassava	Vitamin A	2,083,989	2,236,726
DRC	Cassava	Vitamin A	697,673	838,092
India	Wheat	Zinc	1,075,059	1,383,819
Pakistan	Wheat	Zinc	2,152,674	3,276,066
Bangladesh	Rice	Zinc	2,303,497	2,552,319
Uganda	Bean	iron	1,094,019	1,157,992
Uganda	Sweet potato	Vitamin A	1,243,023	1,302,123
Nigeria	Maize	Vitamin A	1,752,529	1,962,832
DRC	Maize	Vitamin A	148,489	313,803
Zimbabwe	Maize	Vitamin A	78,810	75,329
Zimbabwe	Bean	Iron	595,341	623,456
Malawi	Maize	Vitamin A	138,131	98,985
Malawi	Beans	Iron	310,453	350,760
Zambia	Beans	Iron	286,712	388,784
Bangladesh	Wheat	Zinc	677,922	779,610
Kenya	Beans	Iron	192,116	903,695
Tanzania	Maize	Vitamin A	100,545	73,500
Tanzania	beans	iron	38,053	41,858
Indonesia	Rice	Zinc	304,886	1,010,180
Total	Household growing	adjusted for overlap	17,465,969	20,679,635
Total	People eating on-farm	adjusted for overlap	87,329,846	103,398,175

Table 2. Number Of People Eating Biofortified Foods: On-Farm And Off-Farm

Country	2022	2023
Nigeria Vitamin A maize and Vitamin A Cassava	48,945,995	67,260,134
DRC Vitamin A maize, Vitamin A cassava and Iron Beans	11,539,491	26,161,813
India Zinc Wheat and Iron Pearl Millet	57,412,267	71,657,577
Bangladesh Zinc Wheat and Zinc Rice	25,565,871	27,308,088
Pakistan Zinc Wheat	38,102,472	97,484,851
Uganda Vitamin A maize, Vitamin A Sweet Potato and Iron Beans	5,694,854	8,840,965
Kenya Iron Beans	2,982,239	9,442,482
Rwanda Iron Beans	2,664,057	2,892,745
Tanzania Vitamin A maize, and Iron Beans	416,157	336,779
Zambia Vitamin A maize, and Iron Beans	1,828,598	2,648,241
Malawi Vitamin A maize, and Iron Beans	2,562,684	2,105,712
Zimbabwe Vitamin A maize, and Iron Beans	2,792,933	3,644,632
Indonesia Zinc Rice	4,544,397	10,695,382
Total	205,052,015	330,479,402