







BIOFORTIFICATION AND FORTIFICATION: PREVENTING CHRONIC MALNUTRITION



2 BILLION PEOPLE SUFFER FROM MICRONUTRIENT DEFICIENCIES

- **Micronutrient deficiencies** – a leading cause of intellectual disability, blindness in children, maternal death in childbirth. It affects 2 billion people and contributes to 5% loss of GDP globally.
- **Biofortification and fortification** can provide the required **micronutrients** (such as zinc, iron, vitamin A, iodine, folate).

REQUIRED MICRONUTRIENTS FOR:

cognitive function	eye health	physical growth	immune system	healthy pregnancy	mental health
					
Iodine Iron Zinc	Vitamin A	Zinc Iodine Vitamin A	Zinc Iron Vitamin A	Iron Iodine & Folic Acid Vitamin A	Zinc

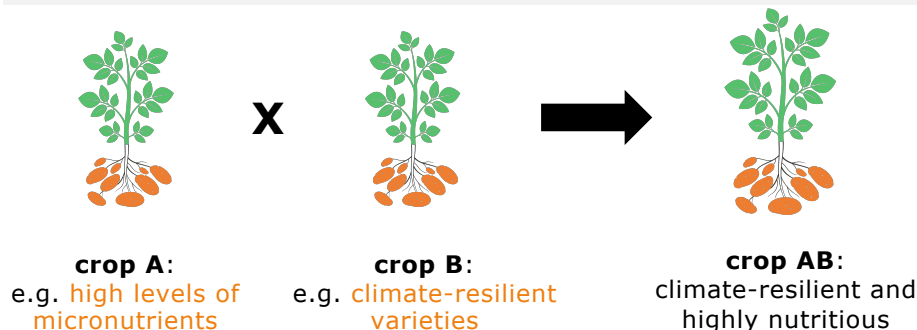
USE CASE:

Over **1 million children** die each year due to Vitamin A and zinc deficiencies

BIOFORTIFICATION

Breeding seed parents with desirable traits, e.g. drought tolerance, high yield to develop high-micronutrient biofortified child varieties.

Only conventional crop breeding and agronomic techniques are used.



- Biofortified foods help fill **daily nutrient requirements**
- **Cost-effective and sustainable:** one time investment in seeds, recurring costs are low
- **Higher yields** and ability to **adjust to climate change**

HIGH RETURN ON INVESTMENT:

\$1 INVESTED IN BIOFORTIFICATION GENERATES

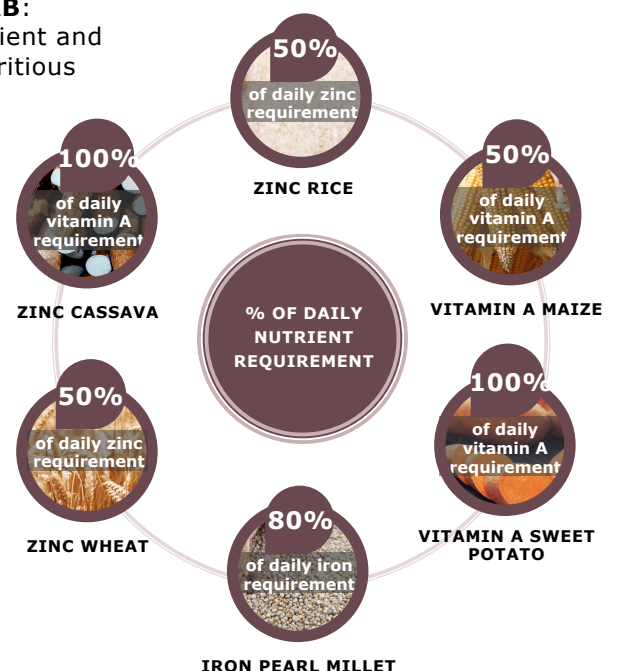
USD \$17 IN RETURN

from reduced illnesses, increased earnings and work productivity.

BIOFORTIFICATION RESULTS: REDUCTION OF

VITAMIN A DEFICIENCY by up to **22%**

via Vitamin A sweet potato (reduction of illness, mortality).



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FORTIFICATION

Adding micronutrients during food processing

- Large scale food fortification provides a substantial increase in nutrients (including iron, folate, vitamin A) to vulnerable populations

ADVANTAGES OF FOOD FORTIFICATION:



easily integrated into daily life



low cost



incorporates local private sector's products



SUCCESS STORY ON IODINE:

Since 1990, the proportion of households consuming iodized salt worldwide increased from less than 20% to 88% and the **number of countries with iodine deficiency** (the world's leading cause of preventable mental impairment) **decreased** from over **110 to 20**.

HIGH RETURN ON INVESTMENT:

\$1 INVESTED IN FOOD FORTIFICATION GENERATES **USD \$27 IN RETURN**

FORTIFICATION RESULTS:

REDUCTION OF **CHRONIC MALNUTRITION**

COMMON FORTIFIED FOODS:

maize meal, wheat flour, salt, rice, cooking oil

Return on Investment (ROI) / low annual cost per person:

\$30 / \$0.05



\$8 / \$0.12



\$46 / \$0.12



HOW TO SOLVE TOGETHER?

We are calling businesses and development aid agencies to help us fund and execute **biofortification and fortification solutions** which have an incredibly high return on investment and which open doors for the young generations to thrive.

