



# Literature Review of Whole Foods vs. Supplements

Case Study

# Literature Review of Whole Foods vs. Supplements

<b>Client</b>	A chemicals company
<b>Industry</b>	Chemicals and fertilizers
<b>Products</b>	Fertilizers

## Context

- The client wanted to understand the best approach to obtain nutrients for human/animal consumption and their bioavailability.
- The client also wanted to gain insights regarding key food products that are being explored for imparting important micro and macro nutrients.

## Key Business Questions

- What are the bioavailability properties of nutrients acquired from whole foods and supplements?
- Which approach provides the optimum route to reach the daily recommended intake?
- What is the role of staple foods and efficacy in achieving the recommended intake?

## Engagement Scope

1

### Nutritional Profiling

- What are the key food sources that are rich in critical macro and micro nutrients?
- What are the advantages and disadvantages for each type of approach?
- Are there any health challenges in these approaches?
- What are the key macro and micro nutrients critical for human?

2

### Category Assessment

- What is the bioavailability of nutrients from each category?
- Which is the key demographic factor and which approach is the most favorable to reach the daily recommended intake?

3

### Literature Review

- What are the key approaches to obtain various macro and micro nutrients?
- What are the possible side effects and health challenges?
- What is the acceptance level for each of the ingredients?

# Literature Review of Whole Foods vs. Supplements

## Research Methodology

### Secondary Research

- Conducted desk research to analyze studies on food and nutrition
- Evaluated approaches to obtain nutrients for human/animal consumption in terms of bioavailability
- Identified studies that provide comparison between foods/grains and supplements

## Benefits to Client

- Sources for optimum supply of nutrients for consumption
- Overview of foods and supplements and their bioavailability properties
- Guidance on whether the client should consider the adoption of bio-fortification technologies

## Sample Analysis

1

### Nutritional Profiling

This is a good source of bioavailable iron, exhibiting similar properties to ferrous sulfate bioavailability

**Bioavailability of potassium is as high from potatoes as from potassium gluconate supplements**

**Phytic acid content mainly inhibits iron bioavailability, biofortification programs have improved iron bioavailability by decreasing phytic acid content**

Food/Supplement	Iron (mg)	Bioavailability (%)
Whole Wheat Flour	4.5	~10
Enriched Flour	4.5	~30
Whole Wheat Flour + Iron	4.5	~25
Enriched Flour + Iron	4.5	~35

**Conclusion:** Bioavailability of potassium was similar between potassium gluconate and potatoes. Bioavailability of iron was higher from enriched flour than whole wheat flour.

2

### Category Assessment

Biofortified and enriched crops have increased the nutritional bioavailability and shown to meet the recommended daily intakes in people

**Phytic acid content mainly inhibits iron bioavailability, biofortification programs have improved iron bioavailability by decreasing phytic acid content**

Food/Supplement	Iron (mg)	Bioavailability (%)
Whole Wheat Flour	4.5	~10
Enriched Flour	4.5	~30
Whole Wheat Flour + Iron	4.5	~25
Enriched Flour + Iron	4.5	~35

**Conclusion:** Biofortification programs have improved iron bioavailability by decreasing phytic acid content.

3

### Literature Review

Recommended nutrient intake can be achieved from crops, biofortification has improved the scope of nourishment especially for the economically challenged

**Beans and wheat are widely consumed foods around the world, biofortified beans are gaining traction in developing countries as they are able to fulfill the dietary intake requirements**

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**Conclusion:** Beans and wheat are widely consumed foods around the world, biofortified beans are gaining traction in developing countries as they are able to fulfill the dietary intake requirements.

# Thank you

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