Global Legume Researchers Meeting

Achieving Concurrent Agricultural Productivity and Nutrition Goals Through Research

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May 2014
Athens, Greece

Twin pillars of USAID Feed the Future:

➢ Accelerate agriculture growth through improved agricultural productivity, expanded markets and trade in vulnerable areas.

➢ Improve nutritional status of individuals through access to diverse quality foods and by strengthening prevention/treatment of undernutrition.

“Cowpea enriched porridge provides another opportunity for value addition that can significantly improve infant and child nutrition.”

USAID RFP March 2013
Trends in global legume (pulse) consumption

Yes, we need research on how to promote higher, better, more resilient, sustained levels of legume production!

“Higher calorie intake has improved nutrition and health.”

➢ “Merely producing more food does not ensure food security or improved nutrition.” (Herforth (2012) World Bank)

➢ “Agriculture interventions do not always contribute to positive nutritional outcomes.” (FAO 2012)
Nutritional Impacts of Targeted Agricultural Programmes

**Evidence of nutritional impact is inconclusive**

- Although there is some evidence of impact from home gardens and homestead food production systems on vitamin A intake and status of children.
- Strong evidence from roll out of biofortified vitamin A rich orange sweet potato on vitamin A intake of mothers and children and vitamin A status of children.

**Limited evidence likely due to**

- Weaknesses in program goals, design, targeting, implementation.
- Lack of rigor in impact evaluation, including lack of theory-based program impact pathway analysis.

Net return/day of labor \( \times 3 \)

Net rise in real income 13%/hh

10% income rise = 4.8% rise in calorie supply

10% rise in calories = 2.4% fall in undernutrition

Child nutrition improved (but less than expected)

Higher productivity

Higher income, consumption

Higher labor and inputs

New crop

Source: von Braun et al. (1989)

Mycotoxins and legumes

Potential Nutrition Confounders

Water Quality

Bioavailability

Antinutrients

Agriculture investments
Iron absorption studies: Rwandan women with low iron status.

- Human iron absorption from beans high in polyphenols 27% lower (P<0.01) than in from low polyphenol beans.

Iron absorbed from biofortified beans no higher than normal beans: “indicating that efficacious iron biofortification may be difficult to achieve in beans rich in [phytates and polyphenols].”


Designing impactful research

Global Pulse Production and Consumption Trends: The Potential of Pulses to Achieve ‘Feed the Future’ Food and Nutritional Security Goals

Mywish Maredia
Department of Agricultural, Food and Resource Economics, Michigan State University
Global Pulse Researchers Meeting, Rwanda, Feb 13-19, 2012

Remember, the FTF goals are ‘people’ focused...and so should the research we do

Source: Maredia 2012

Upstream Agronomy

- Cultivar selection, breeding
- Multiplication, marketing

Midstream Value-chain

- Household income
- Household consumption
- Improved nutrition
- Improved supply

Downstream Nutrition

How can pulse crop research contribute towards FTF goals?

- By exploiting the diverse roles pulse crops play in the food system
  - Develop pulse crop technologies that will lead to increased consumption of nutritious food – not just consumption of pulse crops (i.e. recognize the indirect role pulse crops play in enhancing the consumption of nutrition rich animal-based foods)
  - Develop technologies that will allow households utilize different stages of legume crop as food in critical ‘hunger period’
- By generating credible evidence on the benefits of a diet rich in legume based foods to influence policy decisions

Source: Maredia 2012
Conclusions

1. Yes, legumes can support improved nutrition. But legume researchers need to help empirically demonstrate it.

2. We all need more honesty about feasible contributions to nutrition, and rigor (outcome-appropriate methods).

3. More explicit logical framework and value-chain analyses needed to identify most cost-effective contributions of legumes to nutrition.