



IPNI
INTERNATIONAL
PLANT NUTRITION
INSTITUTE

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***Borders without Boundaries:
Exploring Collaboration in Food Studies***

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Nutrient Stewardship for Nutrition Security

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Nutrient Stewardship for Nutrition Security Outline

- Food and Nutrition Security – role of fertilizers
 - Dietary energy
 - Micronutrients
 - Food systems
- Nutrient Stewardship
- Sustainability

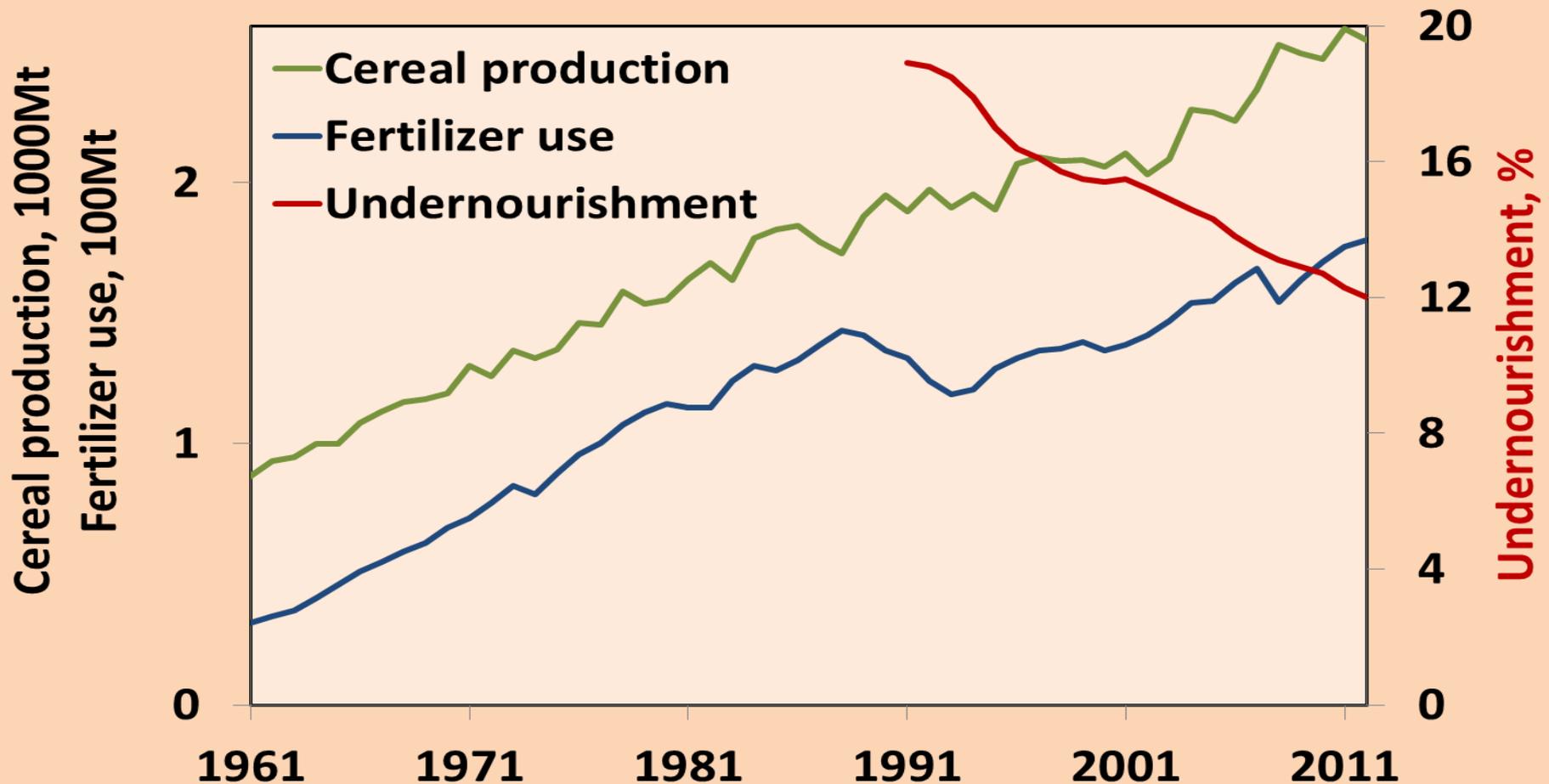
See <http://nane.ipni.net/> for slides



Food and Nutrition Security

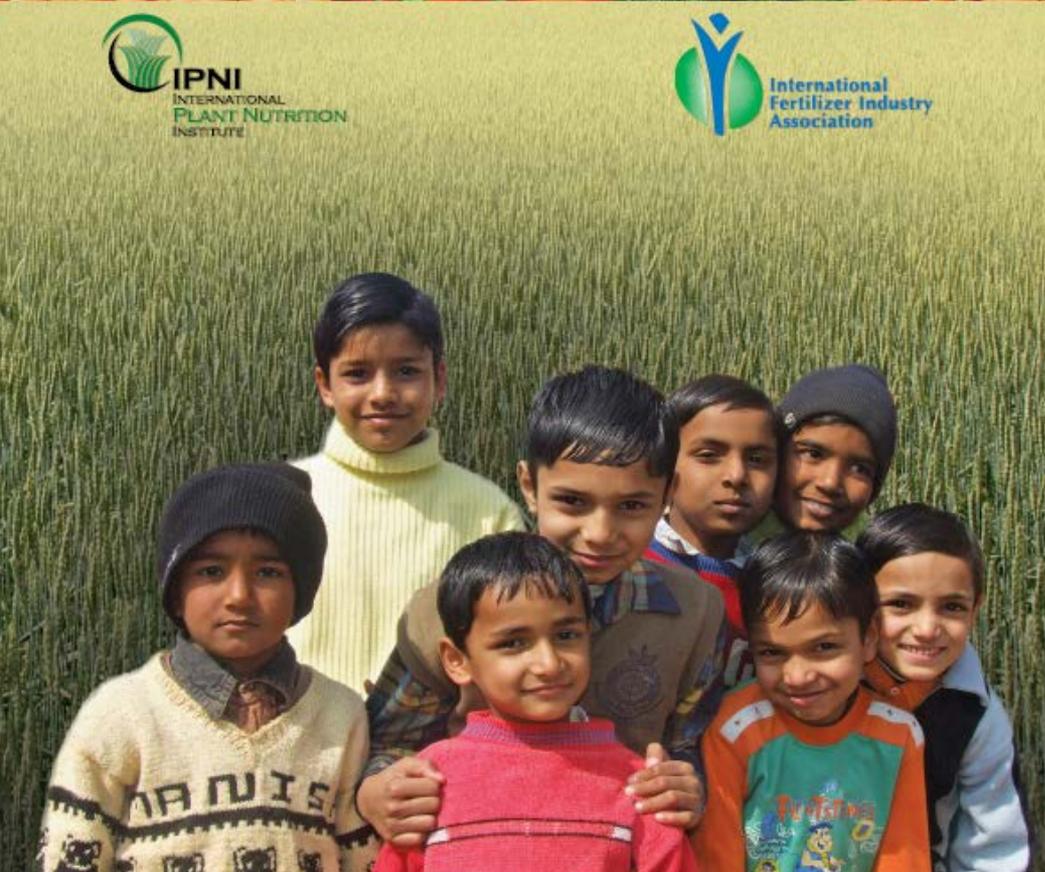
- Food security (CFS, 2012):
 - “freedom from hunger” – emphasis in 1943
 - “exists when all people, at all times, have physical, social and economic **access** to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (World Food Summit 1996, 2009).
- Food and Nutrition Security: triple burden of malnutrition
 1. insufficient intake of dietary energy (hunger)
 2. micronutrient deficiency (hidden hunger)
 3. excess intake of dietary energy (overweight and obesity)
 - **more than access**: depends on sanitation, health care, education, etc., as well

Increased fertilizer use has contributed to cereal production growth and reduced undernourishment



Data sources: United Nations Food and Agriculture Organization (FAO), International Fertilizer Industry Association (IFA)

Fertilizing Crops to Improve Human Health: A Scientific Review



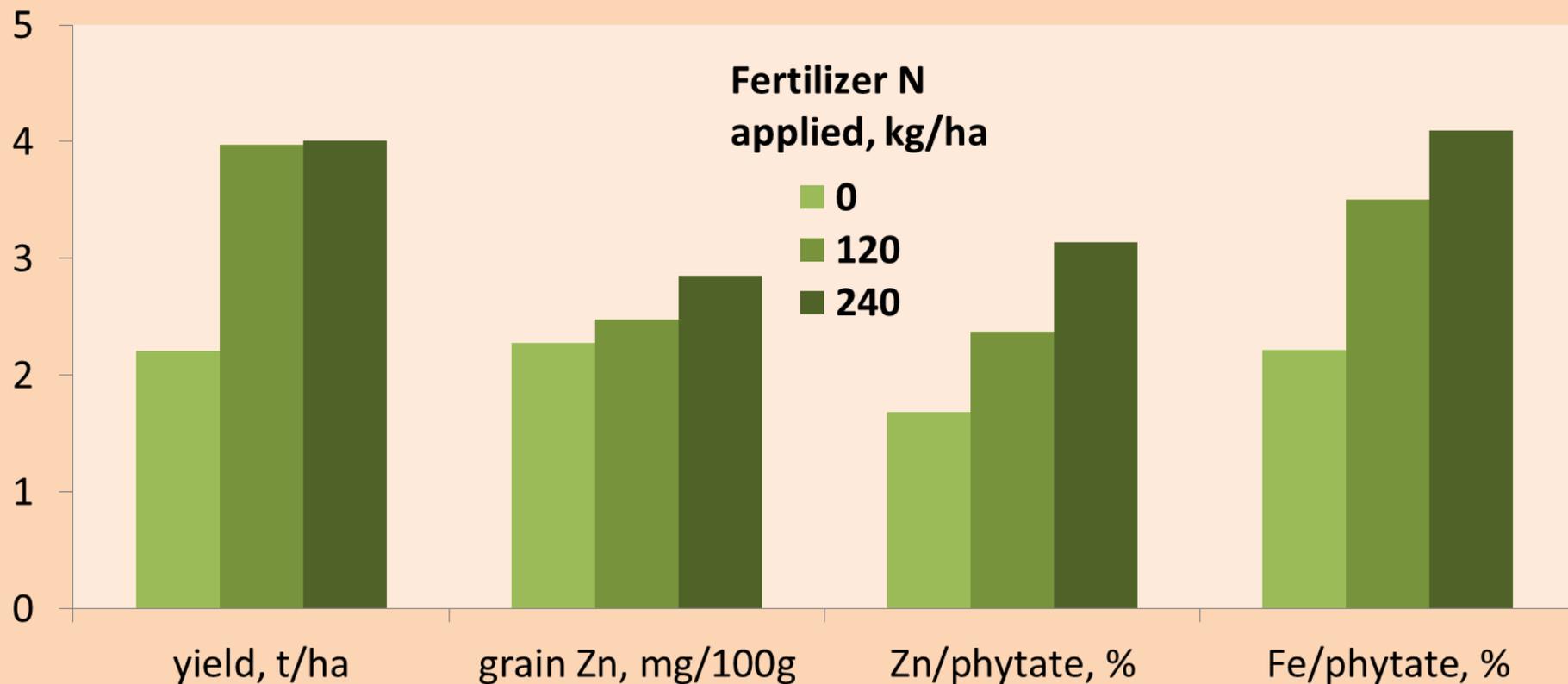
Topics

- Food security
- Micronutrients
- Vitamins
- Functional foods
- Nutraceuticals
- Proteins, oils and carbohydrates
- Plant disease
- Farming systems
- Remediation of soil contaminated with radionuclides

Micronutrient malnutrition has increased owing to high consumption of cereal-based foods low in zinc (Zn) and iron (Fe)



Fertilizer increases wheat yield and micronutrient bioavailability



Mean of two years, long-term trial.

Wang, S., X. Tian, et al. (2014). *Agron. J.* 106(3):1003-1010.

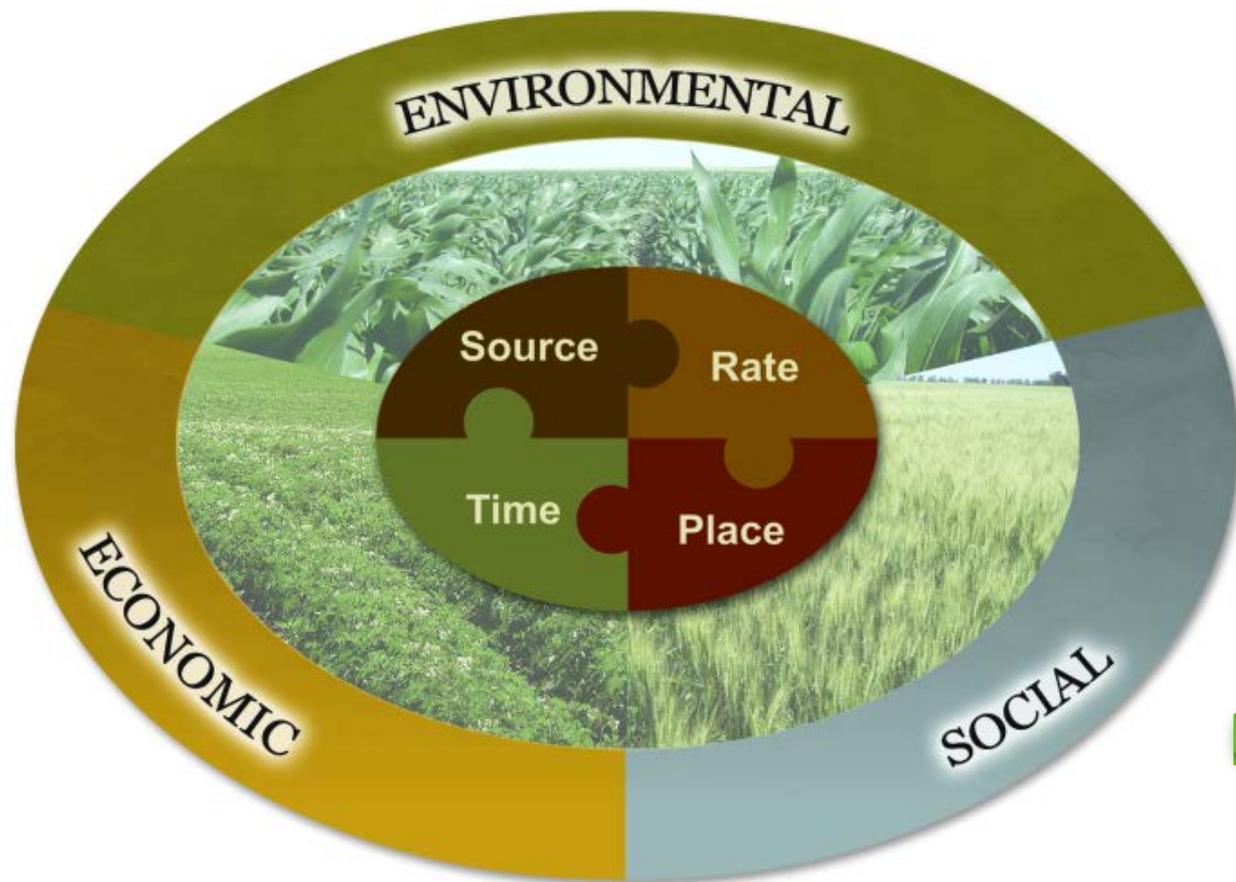


1986 – Bangladeshi farmers: choosing between nutrient-dense soybeans and high-energy rice.

Fertilizers and Nutrient Stewardship

- Can address issues of food security and some of the issues of micronutrient malnutrition.
- Can the fertilizer industry address the issue of obesity?
 - Support for a different mix of crops to more closely match production with the needed diversity of foods for health
 - Requires participation of all of agriculture, and market linkages to provide incentives to produce the foods that are truly beneficial to health

4R: "right" means sustainable



Field to Market
The Keystone Alliance for Sustainable Agriculture



THE
**SUSTAINABILITY
CONSORTIUM**



Home Our Goals How To Make A Difference Share What You've

Home > How To Make A Difference > Fertilizer Optimization



**How to Make a Difference -
Fertilizer optimization**

4R Nutrient Stewardship Certification Standard

Requirements for Certification

For Nutrient Service Providers in the Lake Erie Watershed

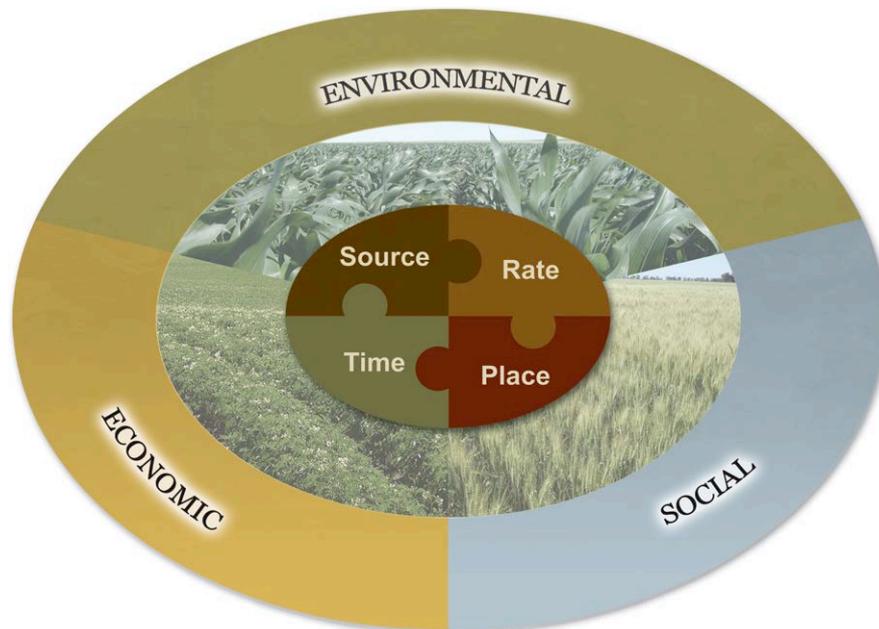
Introduction	
A Background.....	
B Scope	
C Goals	
D Structure and Implementation	
E Contact.....	
Terms and Definitions.....	
References.....	
Standard – Requirements for First 3 Years.....	
1 Initial Training and Ongoing Education.....	
2 Monitoring of 4R Implementation.....	
3 Nutrient Recommendations and Application.....	

Version 2.0
October 2013



Summary

- Plant nutrient stewardship has immense impact on human nutrition security, influencing both the quantity and quality of food produced
- For the fertilizer industry to engage sustainability, it needs to collaborate with many sciences beyond soil fertility and plant nutrition



Thank You
<http://nane.ipni.net>