

# Investments Needed for Food Security and Agricultural Development

*Marco Ferroni  
Syngenta Foundation*

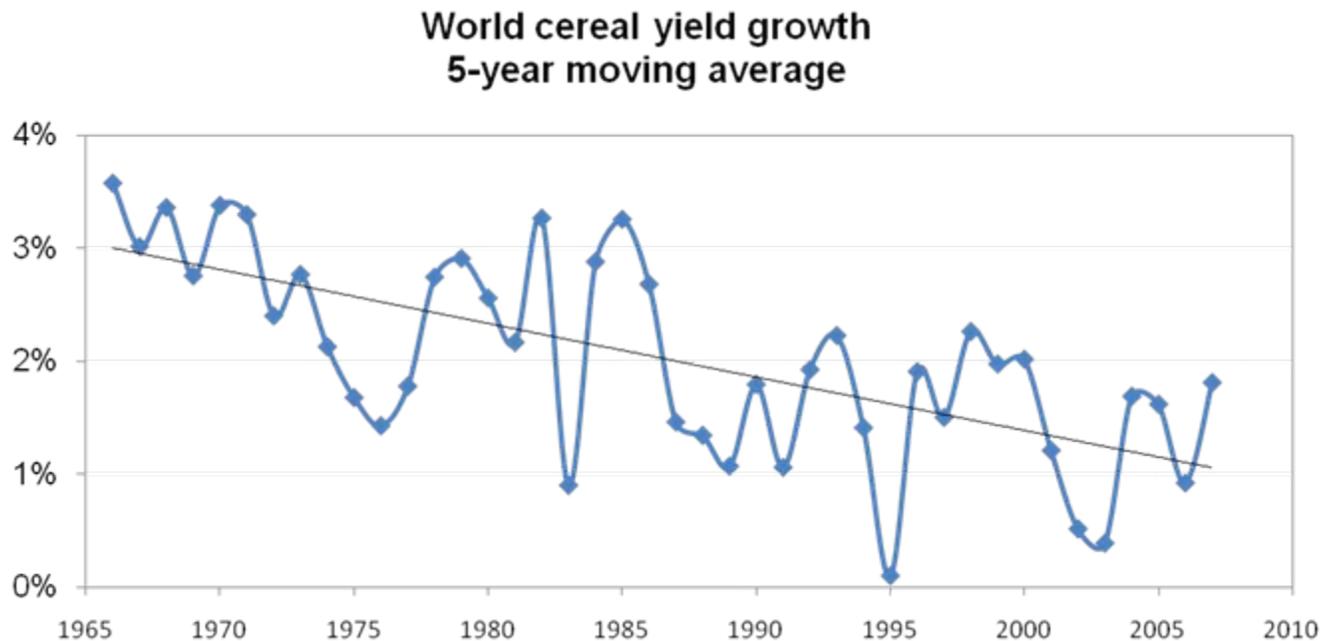
*Conference on Global Food Security  
McGill University  
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# Outline

- Address world food performance gaps
- Be clear about the task
- Focus on smallholders
- Provide public goods
- Bring in the private sector
- Think value chain
- In R&D, do not forget the 'D'
- Place extension front and center
- Develop risk hedging tools

# Address world food performance gaps

- A billion people hungry
- Natural resource base threatened
- Grain yield growth declining (t/ha)
- Small farmers not contributing to food security, poverty reduction and growth as they might

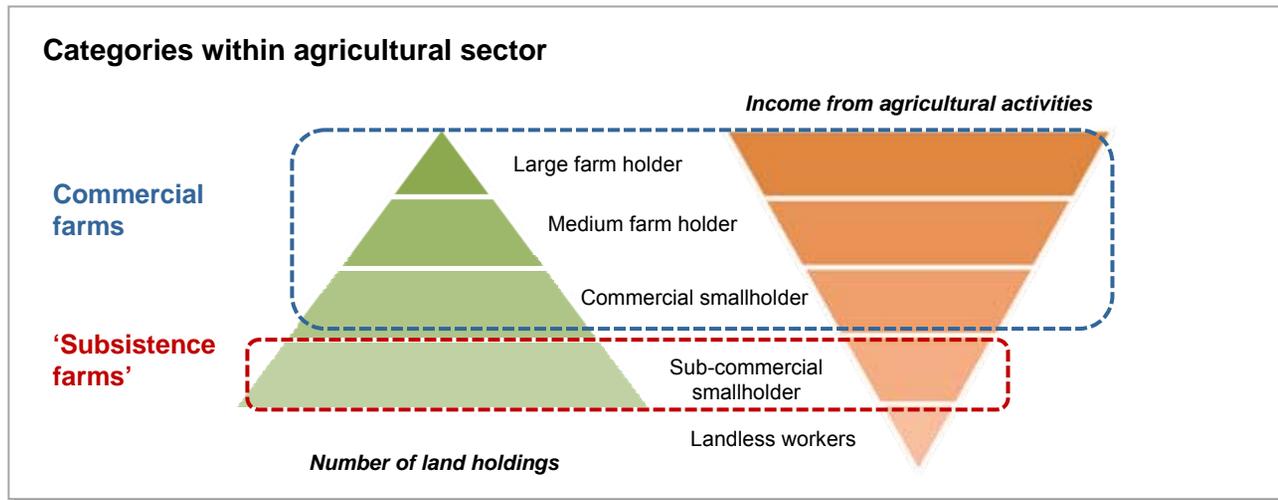


Source: Developed based on FAOSTAT 2008

- Raise agricultural productivity
  - Grow more with less in the 4 functions of agriculture: food, feed, fuel, fibre
- Use land and water sustainably
  - The need to protect land is becoming ever more urgent, for reasons ranging from biodiversity conservation to environmental, quality-of-life and climate considerations
- In this way, cope with the supply-side aspect of the food security challenge and with climate change as induced by agriculture

# Focus on smallholders

*Indirect relationship between farm size and productivity of land in LDCs an asset*



## Characteristics

- Technology uptake
- Location
- Infrastructure (road, irrigation etc.)
- Access to capital/credit
- Diversification (income, cropping)
- Access to market
- Household characteristics (education, dependence ratio)
- Risk management capacity

## Subsistence farms

Low  
 Remote area  
 Poor  
 Little access  
 Little  
 Inadequate  
 Poor education  
 High depdc ratio  
 No access to risk  
 hedging tools

## Commercial small farms

Relatively high  
 Near towns or main roads  
 Fair  
 Moderate access  
 Some degree of diversification  
 Moderate access  
 Relatively high education  
 Low depdc ratio  
 Moderate access

# Provide public goods

- Rural infrastructure, connectivity, education, health care, agricultural research and extension
- Institutions, public security, rule of law
- Land policies for secure rights, to enable investment
- Conducive, non-discriminatory trade, price and subsidies policies
- Responsible and responsive regulatory frameworks (for example: bio-safety regulation; seed policy and seed trade regulations)
- A business climate permitting freedom to operate, sustainable agricultural intensification, and the creation of rural on-farm and off-farm jobs

**Sadly, public policy often fails the small farmer**

## Bring in the private sector

- The private sector (specifically, the crop science and agricultural services and input industry):
  - Spends billions on solutions to feed the world
  - Reaches large numbers of small farmers and strives daily to reach more (seed, crop protection, fertilizer, connectivity)
  - Comes in many shapes and forms
  - Knows how to commercialize products
  - But goes where there is a business case (hence, for example, hybrid seed)
  - Needs public goods and partnerships to develop the smallholder market (public-private; with foundations and NGOs; private-private)

# Think value chain

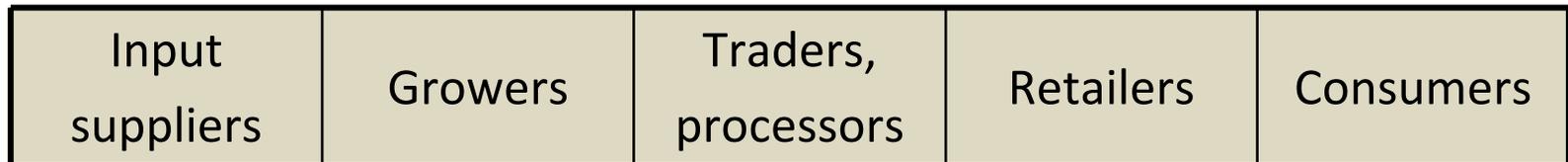
## Productivity:

- Seeds, technology, improved agronomy
- Training, extension and rural services
- Risk management
- Investments in the natural resource base

## Markets:

- Link smallholders to markets
- Develop the value chain
- Public-private partnerships
- Standards and food safety
- Contract farming
- Policy & market development

## Value chain:



***Sustainability, Food Security, Income Growth, Business Development***

# In R&D, do not forget the 'D'

## Where PPPs can help:

- **Combine skills in science**
- **Bring products to market**

## Example: CIMMYT - SYNGENTA Wheat Rust Partnership

### POSSIBLE MIGRATION ROUTES OF WHEAT RUST Ug99

Based on prevailing winds and areas of wheat production, route A via the Arabian peninsula is considered the more likely route for the continuing advance of the disease



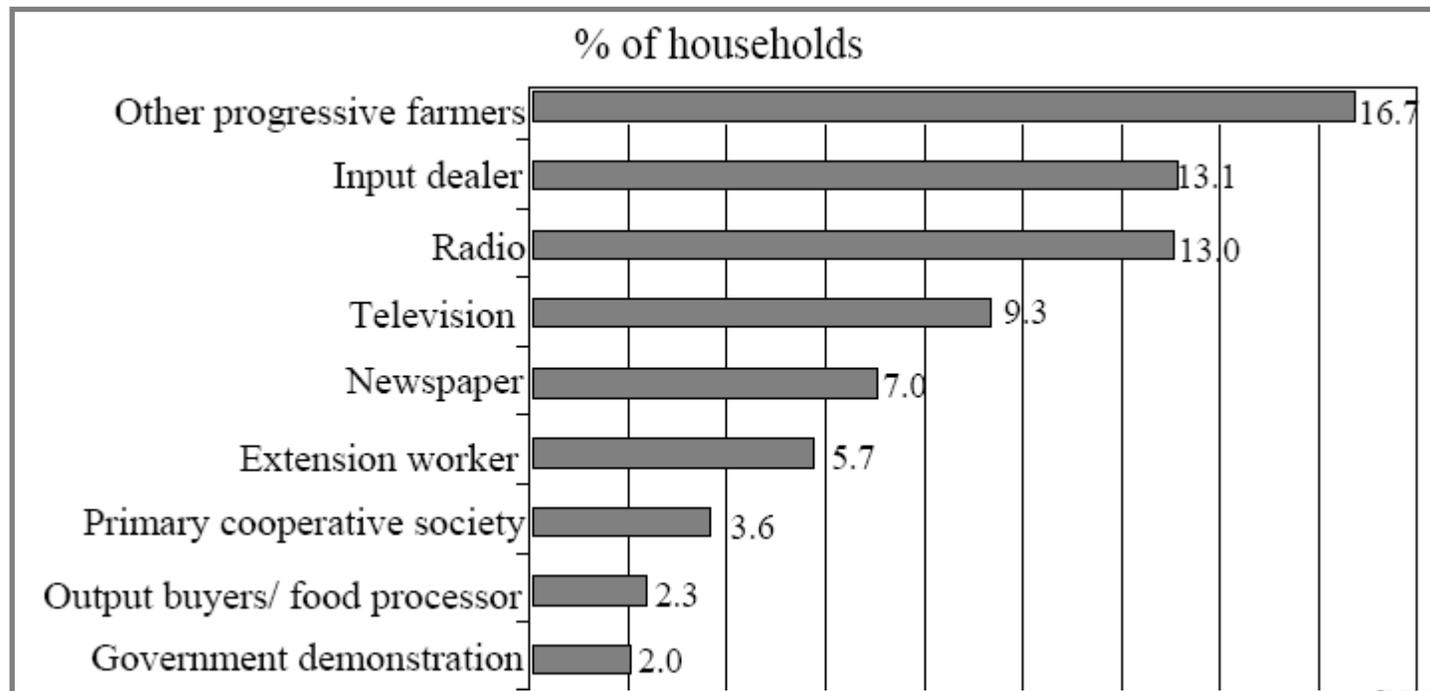
- Identify, characterize and map durable resistance QTLs to stem rust
- Identify markers in flanking regions for use in marker assisted trait selection
- Characterize the known Sr2 gene complex and determine how this interacts with other important genes in wheat

# Put extension front and center

## India: 90 mn smallholder farms < 2 ha

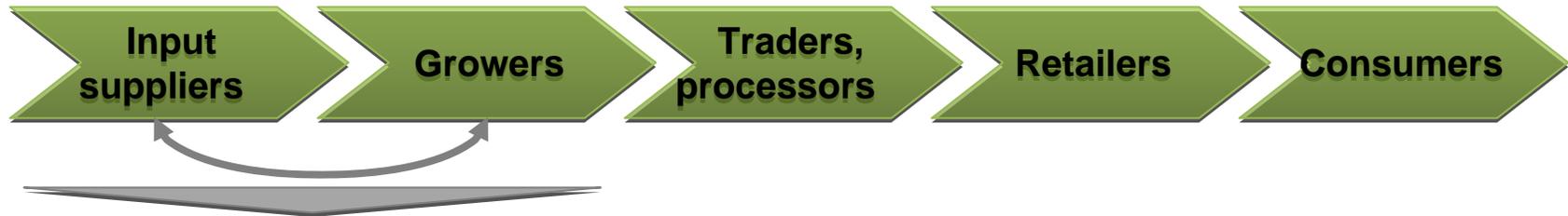
- About 40% of all farmers are accessing information. Of these, most get it from **input dealers** – directly or via progressive farmers!
- How to consolidate this advance and reach the remaining 60%?

### Percentage of farm households accessing information on modern agricultural technologies, by source



Source: NSSO, 2005/7

# Extension -- business solution 1



## Input suppliers as sources of extension

- **Examples:**
  - The crop science industry
  - Rural businesses like Hariyali Kisaan Bazaar; Godrej Agrovet Ltd; E-Choupal; etc.
- **Extension advanced through networks involving:**
  - Distributors
  - Retailers
  - NGOs, technical personnel
  - Lead farmers
  - Farmer organizations
  - Women's groups
  - Advertisement (mass media, internet)
- **Input suppliers increasingly understand that they sell not products, but effects. This necessarily requires knowledge transfer (intangibles) to go along with the sale of products. Market share a function of the quality and extent of knowledge transfer.**
- **Potential concerns:**
  - Advice may be limited to the product(s) sold
  - Stewardship and training regarding application may not be guaranteed
  - Limited incentive to reach out to remote and marginal farms

# Extension -- business solution 2



## Buyers of produce as sources of extension

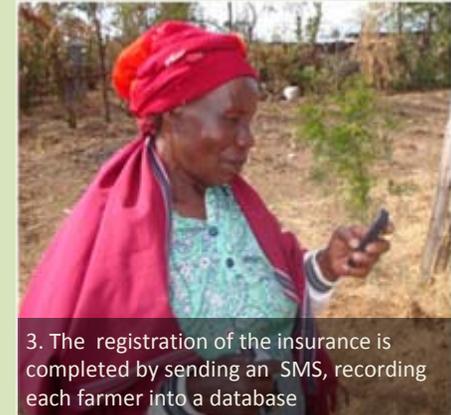
- **Examples:**
  - Processors (mills, canners) and exporters
  - Supermarkets
  - Businesses like Pepsico; Mother Dairy Fruits and Vegetables; Nestle India; Hindustan Lever
- **Extension advanced through networks involving:**
  - Collectors
  - Traders/middlemen
  - Processors/millers
  - Food and beverage manufacturers
  - Packaging firms
  - Food retailers
- **Buyers of output are increasingly organizing themselves vertically, noting the need for extension. Contract farming holds promise in this respect, but the experience is relatively young and sometimes controversial.**
- **Potential concerns:**
  - Only provide support to specific crops
  - Food quality and safety issues
  - Contract enforcement
  - Dispute settlement



1. Farmers learn about the insurance through farmers group meetings.



2. At the input retailer, the farmers can buy the maize seed and register the insurance by filling the insurance card



3. The registration of the insurance is completed by sending an SMS, recording each farmer into a database



4. A local weather station records the rainfall and sends the data to the insurance company



5. With the rainfall data, the insurer calculates a payout according to an agronomic model



6. At the end of the season the farmer receives an SMS if there is a payout and can pick up inputs for the payout value at the input shop.

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