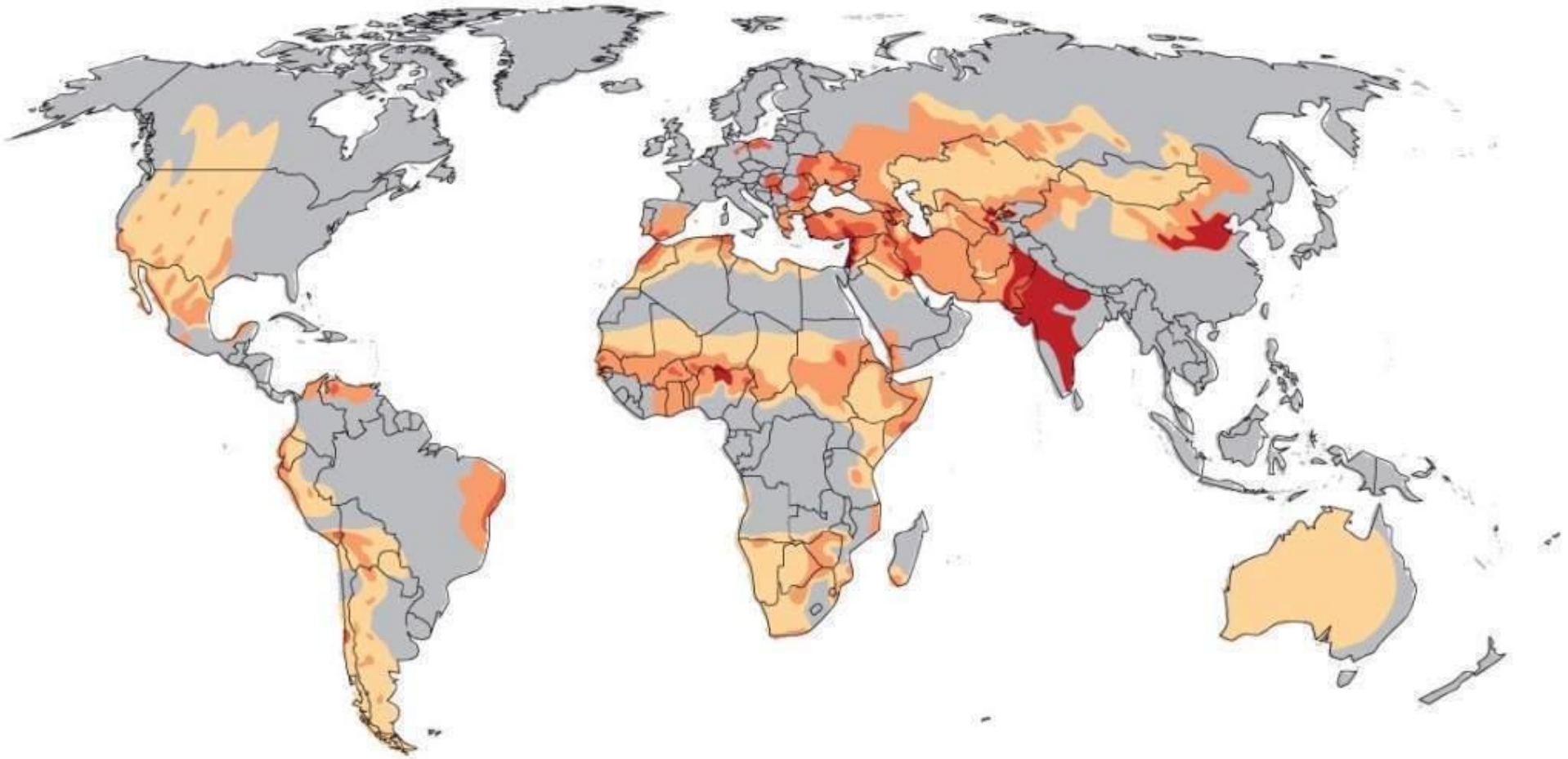
ICRISAT
Science with a human face

International Crops Research Institute for the Semi-Arid Tropics

Talk 2

- Stories about Partnerships

Where are the Dryland Tropics?



55 countries
6.5 million sq km
2 billion people

ICRISAT
Science with a human face

Improving Crops for the World's Poorest

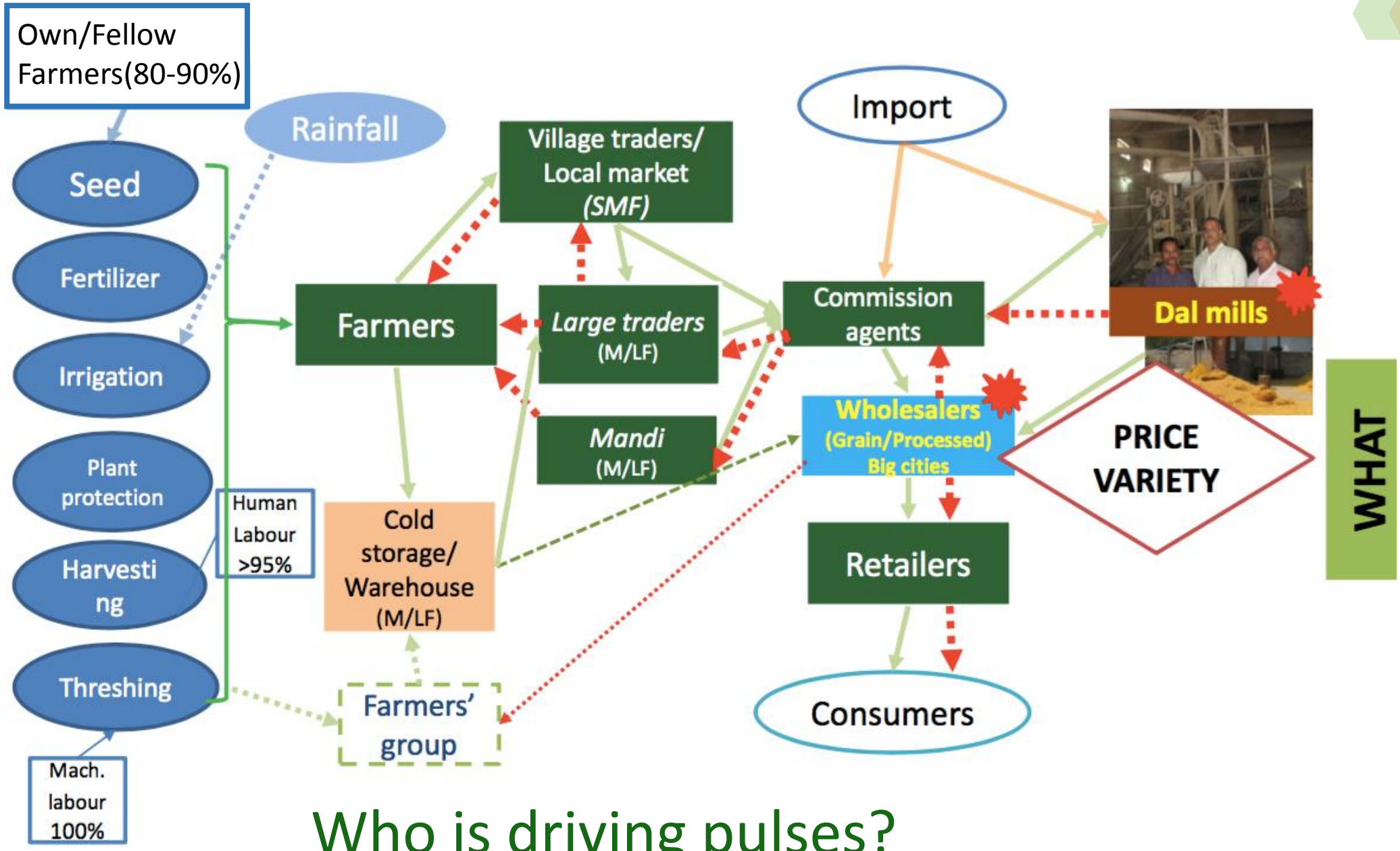
Farming is a Risky Business!

Must make decisions about

- Soil (Fertility and what crops is it suited for)
- Seed (crop, variety, suitability for location, soil, pest/disease spectrum, taste, cooking)
- Moisture (rainfall)
- Inputs - fertilizer, pest/disease/weed control
- Harvest - equipment, storage
- Transport – market
- Market does it exist, when is the right price, can you add value to your crop
- Banking system for loans, insurance
- Crop insurance
- State and federal government policy – planning, land ownership, subsidies, taxes, etc.

If a new variety, (input or technique) is not accepted by the market …

- It is not a success!!!



Who is driving pulses?

Farming is a risky business!

- Needs to grow enough food to feed family, and to sell (for nutritional variety, education, housing, clothes, medicine and the little pleasures of life etc)

- Where does she/he get information from
- Where does the knowledge come from

Information/Knowledge
Green Sim Card

- Govt, ICIRSAT, industry, farmer groups - sms text on phone

- Local languages
- Literacy
- Trust (farmers)

- Voice messages in local languages by a local farmer using information from Govt, ICRISAT, met offices, market

Green Phablet

Times of India, 9th June 2016

- *"ICRISAT, Microsoft develop sowing app for Andhra farmers"*

- Developed by Microsoft, ICRISAT and AP Govt plus farmer groups
- Seed planting conditions
- 2 way communication - refine model
- Roll out over India and Africa

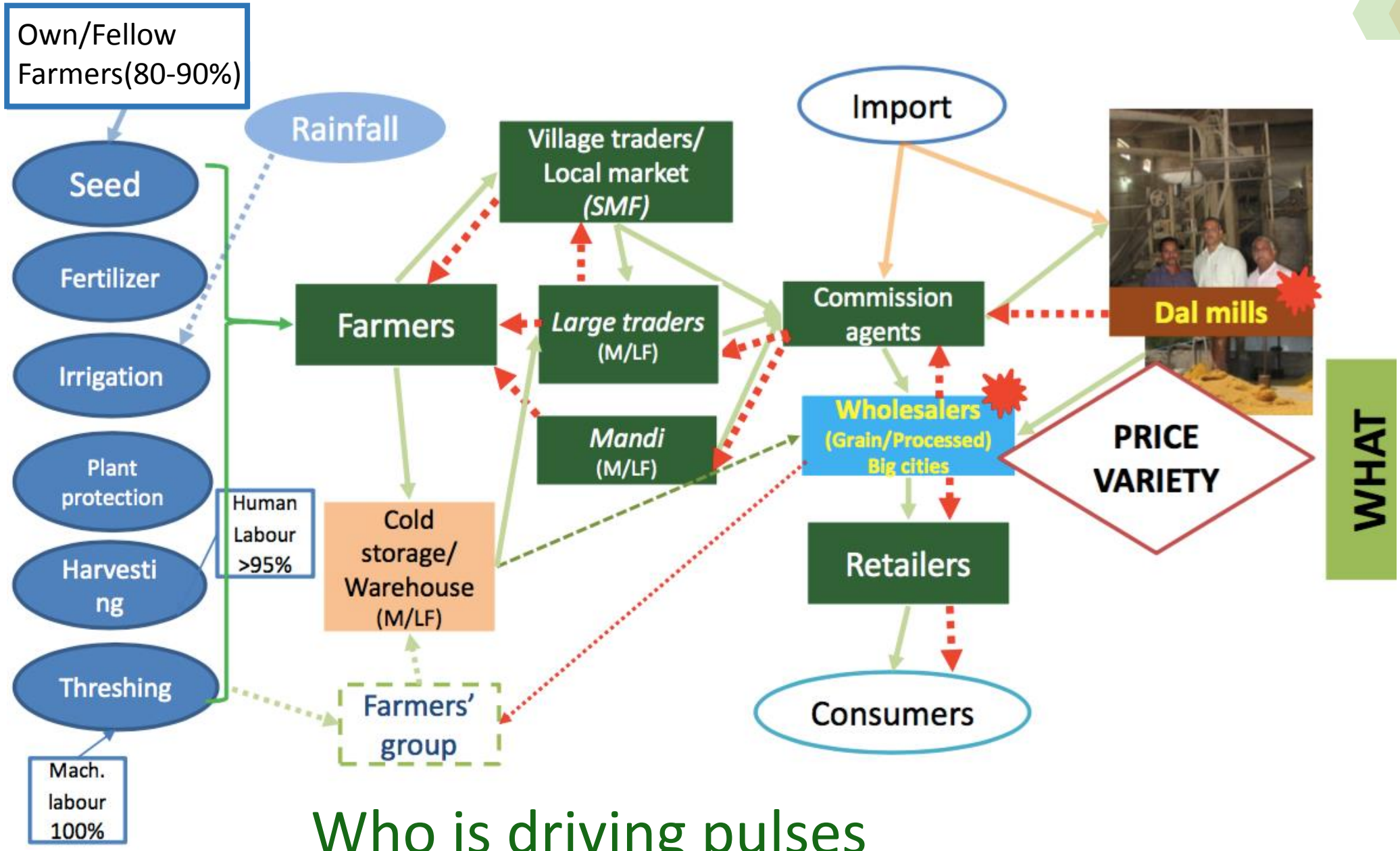
The Hindu, 15 May, 2016

- *App for farmers wins ICRISAT hackathon*

- "Hack4Farming Hackathon" funded by – Microsoft, ICRISAT, T-Hub and "aWhere".
- 11 teams, eight members
- Winner - connects farm producers with markets and prospective buyers.

Pigeonpea

- Forming a partnership in Tanzania
- Hybrid Pigeonpea in India – bring together the market



Who is driving pulses


HONDA

New Hurdles

Communication with market
Whiteness of seed
Banking support

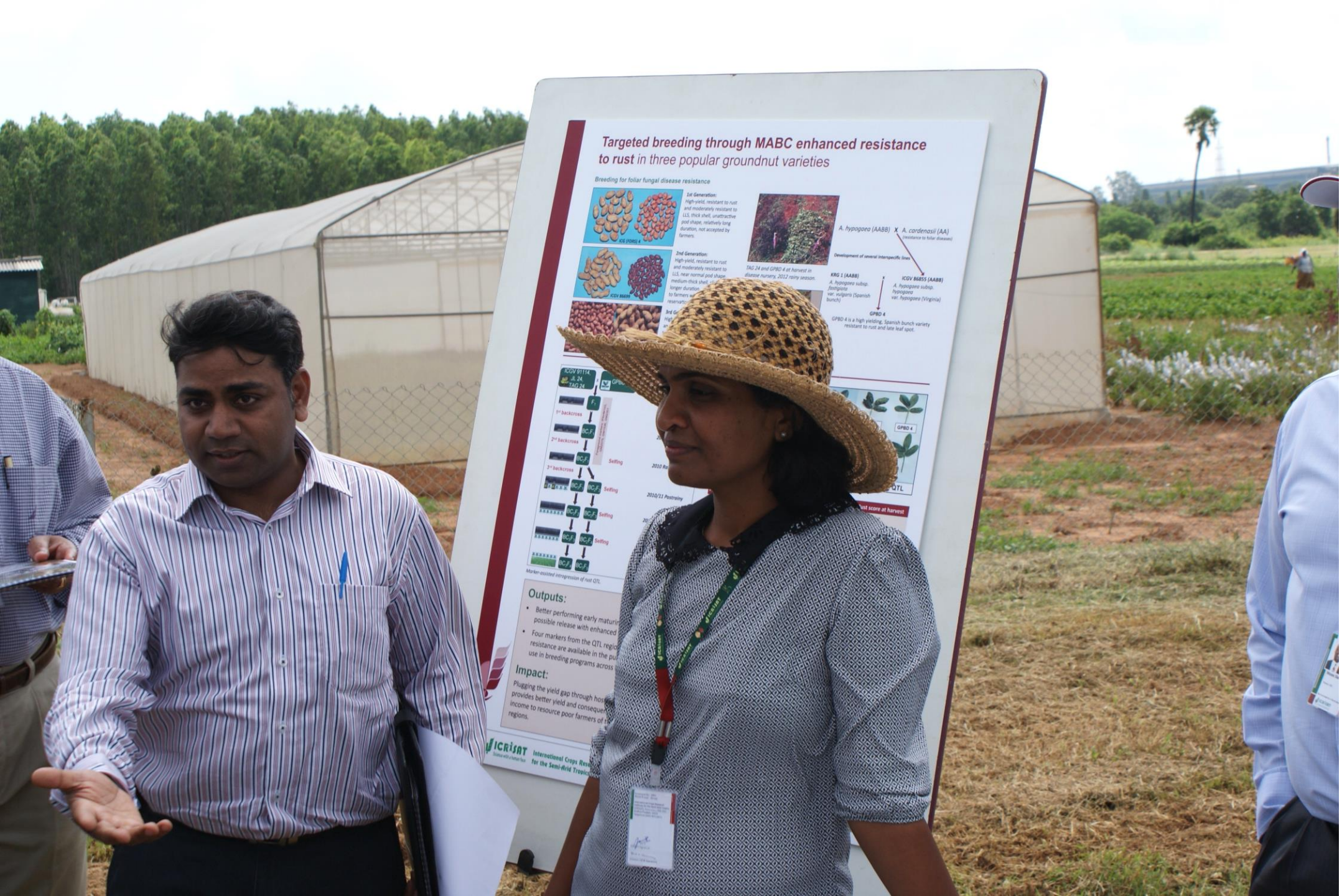
Acceptance of high yielding hybrid Pigeonpea in India

New Initiative Started to Popularize Hybrid Pigeonpea for Self-Sufficiency 4th June

- “INDIAN SECRETARY FOR AG has called on all value chain actors including farmers, seed companies, private sector and research organizations to find a joint solution to resolve all hurdles and issues that are preventing Indian farmers from meeting their demand for hybrid pigeonpea seeds and other pulses.”

Genetics Linking to Plant Breeding Linking to Market

Role of Genetics


Targeted breeding through MABC enhanced resistance to rust in three popular groundnut varieties
Breeding for foliar fungal disease resistance
1st Generation:
2nd Generation:
A. hypogaea (AABB) X A. cardenasii (AA)
Development of several interspecific lines
KRG 1 (AABB)
ICGV 86855 (AABB)
GPBD 4
GPBD 4 is a high yielding, Spanish bunch variety resistant to rust and late leaf spot.
Outputs:
Impact:
ICRISAT


GPBD 4
TAG 24

High Temp Tolerant Chickpea–Nigeria

NOT ROCKET **SCIENCE - COMMUNICATION**

Land degradation in the drylands

Models to help smallholder farmers cope
(NOT ROCKET SCIENCE)

Drylands are a hotspot of land degradation

- 12m hectares of arable land are lost every year due to desertification and drought.

- Degradation is accelerating due to growing aridity and water scarcity. The humanitarian cost is rising, leads to migration and conflict.

- ICRISAT works with farmers to help them cope with and prevent further degradation.

Research on **farming systems** to cope with degraded lands

- water and soil conservation and water harvesting practices
- Finding the right cropping system to get good yields, income and/or nutrition

Bioreclamation of Degraded Lands: women's groups can revitalise barren lands by using simple water and soil conservation techniques.

These include using zai pits (small holes enriched with compost), planting drought-tolerant trees and annual crops, and applying small amounts of fertiliser to the plant root, a technique known as microdosing.

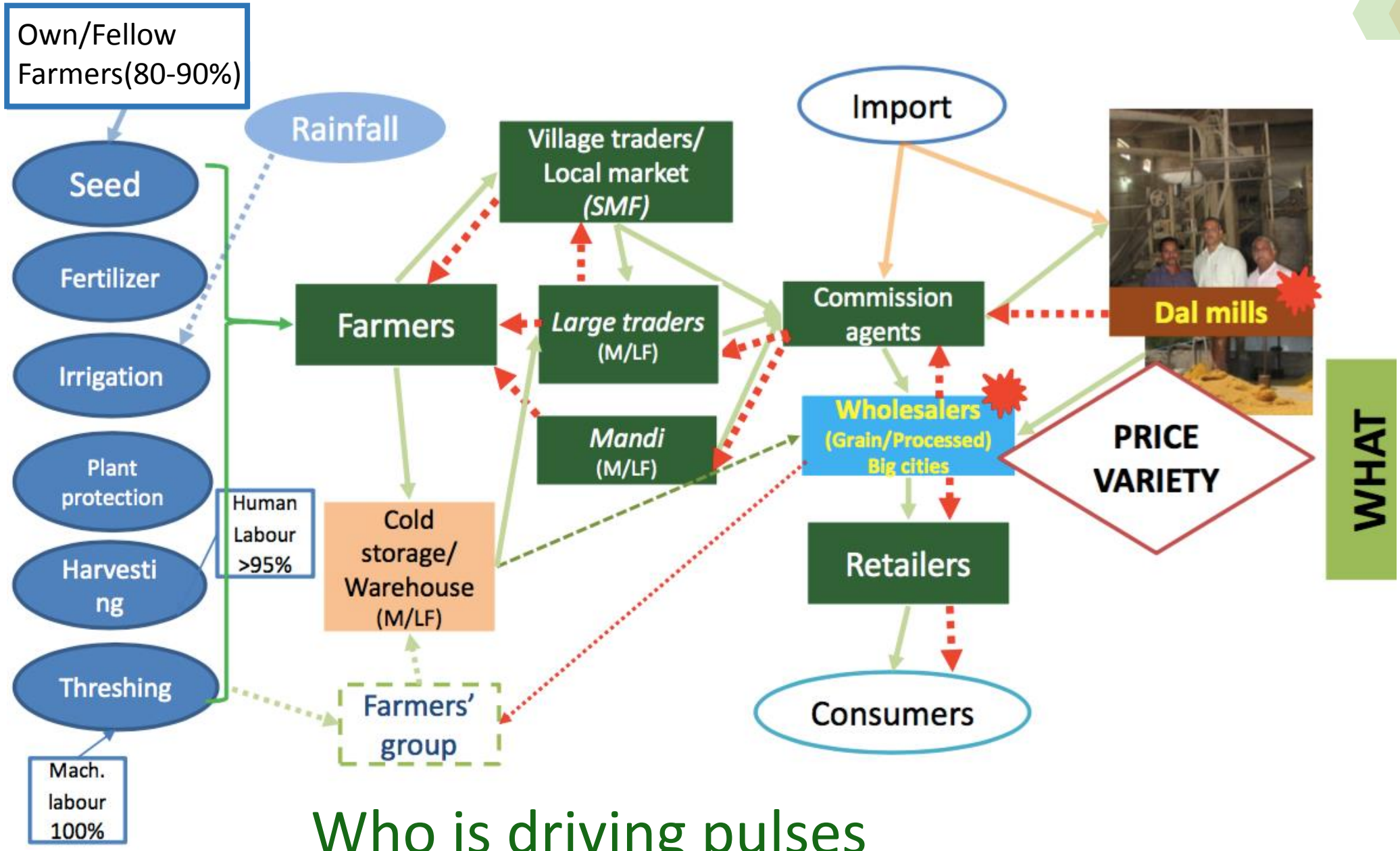
Karnataka. Bhoo Chetana (land rejuvenation)

Entry point - address soil nutrient deficiencies, through extensive soil health mapping in all districts and large scale farmer outreach with government support

By adding soil micronutrients such as zinc and boron to exhausted soils, farmers are getting better and more nutritious harvests.

Farmers made up to **$500** net gain per ha in one season


20 - 66% yield increase
5% rise in agriculture growth
$130 million in 2011 season
$1 invested = $3-14 return



Who is driving pulses

Creating Consumer Pull