

POLICY INTERVENTIONS FOR AGRICULTURE

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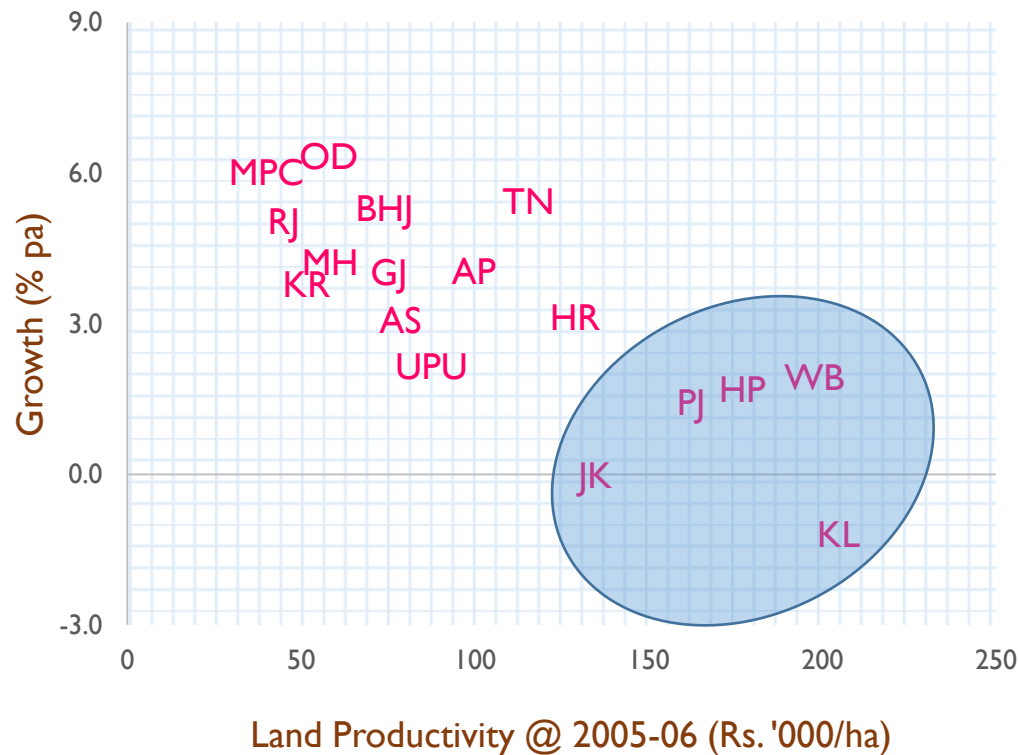
INDIAN AGRICULTURE

- Primarily smallholder agriculture with average size of holding 1.1 ha
- A large proportion of agricultural lands (>50%) rainfed
- Interdependence of social, economic and ecological systems
- Modernization of farm support services and markets
- Major policy shift from crop production to farm income, double by 2022
- 5 trillion dollar economy, economic growth needed nearly 11%, higher investment 36%
 - agriculture share in GDP 16.5%, presently 14.5%

Targeting & Sustaining Growth

2005-06 to 2014-15

Land Productivity Convergence



Sources of growth

Sector to Promote	State
Crops	Madhya Pradesh
	Andhra Pradesh
Livestock	Madhya Pradesh
	Tamil Nadu
Fisheries	Rajasthan
	Andhra Pradesh
	Andhra Pradesh
	Odisha

Approach

- System diversification for higher income, inclusiveness and sustainable systems
- Revisit and align agricultural planning with agro-climatic zones

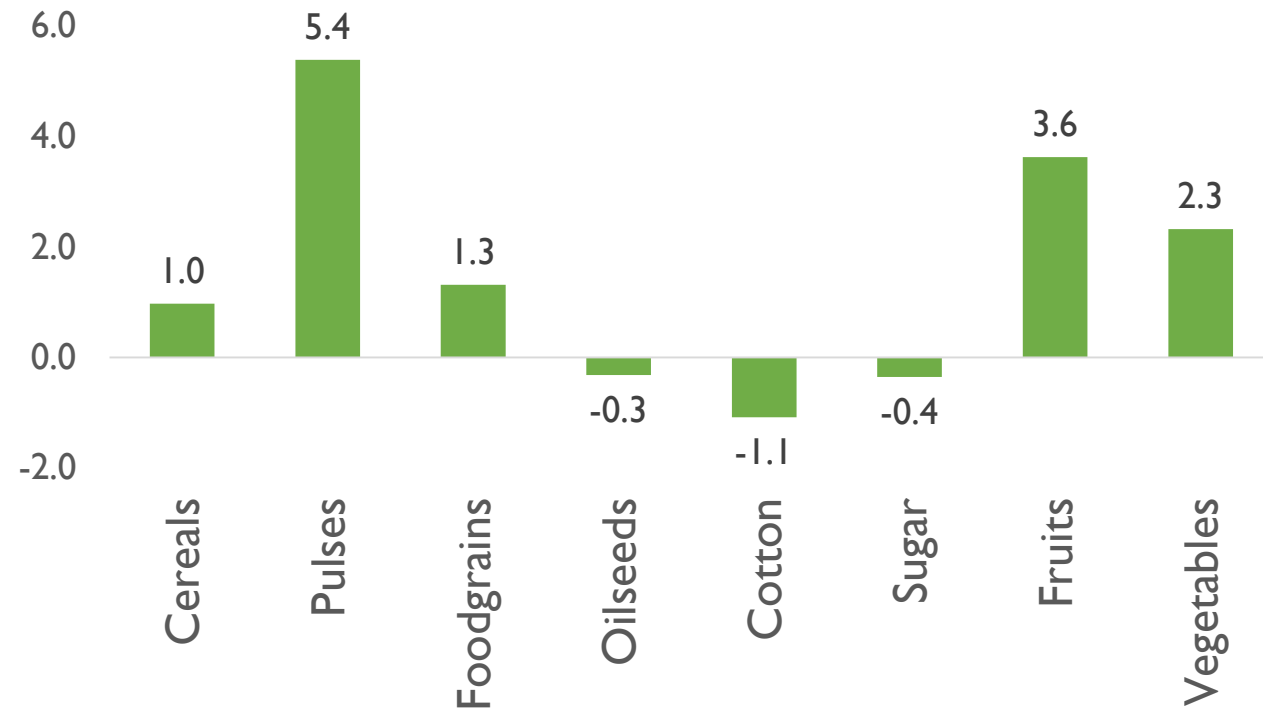
Promoting High-Value Agriculture

Output Growth in Agriculture (2011-12 to 2017-18)

Sector	CAGR (%)
Crops	0.8
Livestock	7.3
Forestry & Logging	2.3
Fishing & Aquaculture	8.5
Agriculture & Allied	2.9

Source: CSO
Base: 2011-12 = 100

Production Growth (CAGR (%), 2011-12 to 2017-18)



Source: MoAFW

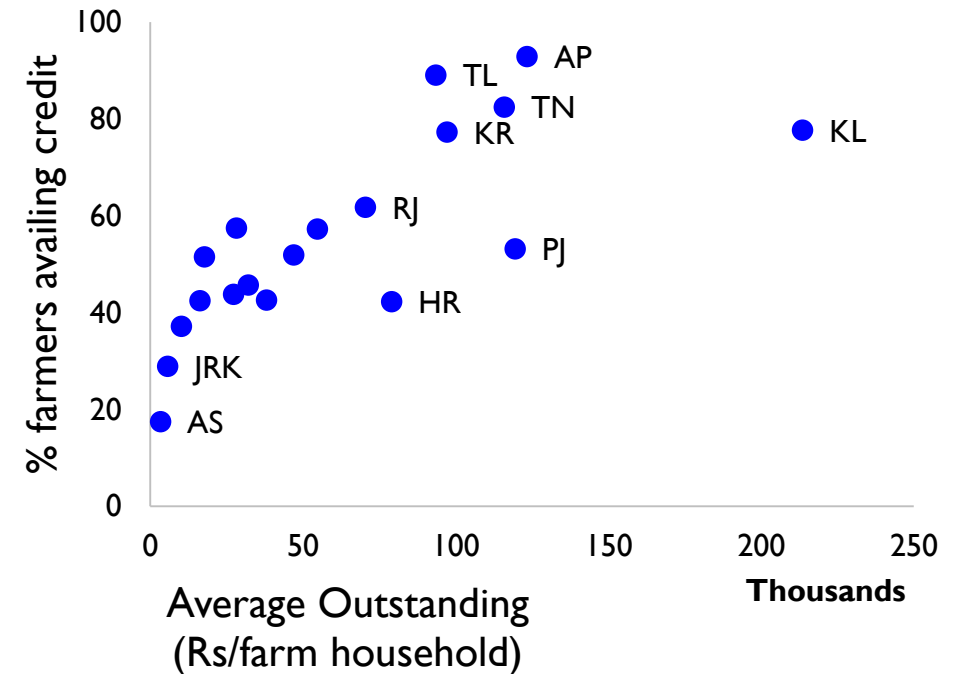
Investment & Credit Interventions

Investment Orientation

Annual Growth (%)	Investment in States	
	Public (2001-02 to 2015-16)	Private (2002-03 to 2012-13)
>10%	MP(+C), Karnataka Bihar(+J), Kerala Himachal Pradesh Andhra Pradesh(+T) Maharashtra Gujarat	Assam, West Bengal J&K, Gujarat Andhra Pradesh(+T)
5-10%	Assam, Punjab West Bengal, Rajasthan, J&K	Odisha, Tamil Nadu, MP(+C), Himachal Pradesh, Bihar(+J) Andhra Pradesh Kerala

Source: Based on CSO/AIDIS Base: 2011-12 = 100

Equity in Credit Access

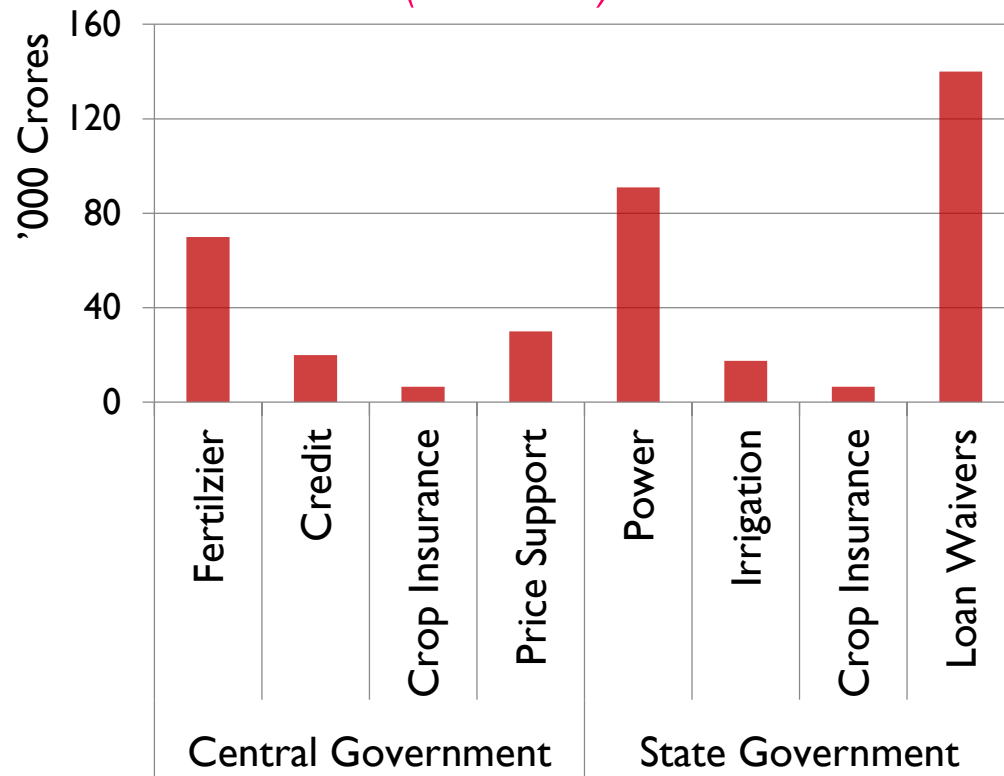


Source: Situation Assessment Survey (2012-13)

- Capital adequacy and investment linked with infrastructure for livestock, horticulture, processing and associated infrastructure
- Focus on investment credit, small farmers and regional balance

Rationalizing Agricultural Subsidies

Expenditure on Subsidies (2017-18)



Issues

1. Targeting (benefit large farmers)
2. Effectiveness
3. Environmental Externalities
4. Regional dimensions
5. Promote water-intensive crops

Policy Options

1. DBT (backend, fertilizers)
2. Back-end Subsidy (Power)
3. Minimum Income: Replace loan waiver & all other subsidy forms

Policy and Regulations

- Inter-departmental convergence, as most of the matters are outside MoA&FW
- Investment for quality data: collection, management and use
- Stability and consistency of regulatory policy, e.g. trade, market operations
- Partnership with business sector for different activities, particularly post-production activities
- Ensure protection of land rights and land market for access to land and increasing size of operation

Markets & Value Chain Promotion

1. Market infrastructure and price discovery
2. Greater participation of states in market operations
3. Production aggregation
 - *Promote farmer producer organization with adequate capital and professional management support*
4. Value chains
 - *Sensitize and train farmers and SMEs on food-safety standards and compliance*
 - *Promote business investment in value chains, contract farming and processing clusters*
 - *Mapping and strengthen global value chains*
 - *Contract enforcement for partnerships and inclusiveness*

Risk Management

Risk Management Tools

1. Crop Insurance
2. Price risk for perishables, forecasting and compensation
3. Weather mapping and forecasting
4. Remote sensing and AI for risk assessment and targeting regions

Scope

1. Address operational issues in crop insurance
2. Fisheries sector: Expanding risk components, i.e. craft & gear, household assets
3. Regional differentiated strategy for insurance, addressing critical risk

Science & Technology for Better Future

Action Points

1. R&D Investment

- TE 2017-18: 13,786 crores
- Investment intensity = 0.56%, research even less, target investment to 1% of AgGDP
- Balancing fund between basic and applied research
- Strengthening SAUs and regional research capacity

2. IPRs

Technology access and cost effective enforcement of IPRs

3. Need for Competitive Input Markets

To promote competition among input industry, quality assurance, farmers compensation

Science & Technology

4. *Innovation & Extension*

- *Creation of a Board for outscaling innovations*
- *Promote interaction among stakeholders for knowledge creation, sharing and use*
- *Partnership and multiplicity for technology dissemination and imparting skills*

5. *Internet of Things & Artificial Intelligence*

- *Precision farming and smart irrigation (to improve microcontroller based irrigation system controller, to control irrigation system through mobile phone)*
- *'Image processing' in plant disease management and market intelligence*
- *Early warning of pest outbreaks, weather forewarning*

Doubling Farmers' Income

Targeted income by 2022-23: Rs. 1.9 lakhs/year

Targeted farm-nonfarm income composition: 70:30

Major sources

- Crop planning and diversification, cropping intensity, livestock productivity*
- Resource use efficiency and precision farming for cost reduction*
- Secondary agriculture and nonfarm income*
- Prices, export policy and export infrastructure*

Price stability: Vegetables – Tomato, Onion, Potato – processing and product clusters linked with markets

Ecosystem Services

Incentivizing efforts to generate eco-services, i.e. ecological foundations of agriculture and natural systems

Focus Areas

- *Micro-irrigation: Water conservation – Arid and semi-arid agriculture*
- *Afforestation programs: Barren lands*
- *Nutrient fixing crops: Higher support prices*
- *Residue burning: Composting/Ethanol production, co-power generation*
- *Watershed management and tank irrigation*

Mechanism

- *Valuation of services*
- *Incentives and transfer mechanism*



THANK YOU !