

27th Dr B.P. Pal Memorial Lecture

Reforms for Secure and Sustainable Agriculture - a Road Map



Dr B. P. Pal F.R.S.
(1906-1989)

1950 – First Indian Director, IARI
1965–1972 - First Director General
of reorganized ICAR
Padma Vibhushan awardee
A well known wheat geneticist
Article on “Search for new genes”
Famous for his Rose varieties
Donated all his property to IARI

Preamble:
Reform Means Change

“Change we must but change is difficult”

Business as usual will not help

Change must come from within

Should be consultative and participatory

Should be disruptive – ‘More from Less’

Green Revolution

An innovation led success

The Cradles of Success:

- 1. Policy Support**
- 2. Institutions**
- 3. Human Resource**
- 4. Partnership**

Capital Investment in Agriculture (1970-2017)

Area (Million ha)	1970-71	1980-81	1990-91	2000-01	2011-12	2016-17
Net sown	140	140	143	141	141	140
Gross cropped	165	172	186	185	196	198
Net irrigated	31	39	48	55.2	66	68.3
Gross irrigated	38	49.8	63.3	76	91.7	96.5
HYV	NA	15.4	43	65	67	
Fertilizer use	2.2	5.5	12.5	16.7	27.8	25.9

INDIAN NARS

- **One of the strongest NARS**
- **ICAR and DARE (Reorganized in 1972)**
- **104 ICAR Institutes + 71 Universities**
- **Research, Education and Extension
(under same umbrella)**

**PCAARRD, PARC, NARC, BARC, CARP
were established on ICAR model but still
lack the status and unification**

Milestones

- **1957 - All India Coordinated Maize Project**
- **1958 – IARI – Status of Deemed University**
- **1960 – First SAU at Pantnagar**
- **1966 – All Institutes under ICAR**
- **1973 – Creation of DARE**
- **1974 – First KVK established**
- **1975 – Start of ARS**
- **1979 – ‘Lab to Land’ program**
- **1989 – King Baudouin Award**
- **1995 - Start of IVLP and ATIC**
- **1996 – National Gene Bank**
- **1998 – NATP (World Bank)**
- **1994-2001 Creation of 30 New Institutes and NASC**
- **2005 – NAIP (World Bank)**

Impact of Green, White & Blue Revolutions

- **Six fold increase in food grains production
(50 mt – 295.67 mt)**
 - **Horticulture production > 320 mt**
 - **Reduction in poverty (From 70% - 20%)**
 - **Maintaining Buffer stock > 50 mt**
 - **Milk Production From 20 mt -184 mt**
 - **Fish Production: <1 mt – 12.6 mt**
 - **Export > 20 mt of food grains**

Record Production this year:

Food grains, Rice, Wheat, maize, oilseeds, cotton

Emerging Second Generation Problems of Green Revolution

- **Factor Productivity Decline**
- **Decline in Soil Health and Water Table**
- **Nutrient Imbalance & Use Efficiency**
- **Increased Incidence of Diseases and Pests**
- **Dependence on Costly inputs**
- **Non availability of labour**
- **Need for Farm Mechanization**
- **Reduced Farm Profitability**

Policy Support & Complacency – A Concern ?

Economic Survey of India (2018 & 2019)

Green Revolution

**An over-exploitative and
non-sustainable approach**

- **Mainly Cereal Centric**
- **Over-exploitation of water, soil nutrients, chemicals, energy etc.**
- **Labour intensive**
- **Dependence on Government subsidy/MSP & procurement**

Source: GOI



**WHY IT IS
NECESSARY TO HAVE REFORMS
IN AGRICULTURE?**

DESPITE THESE REVOLUTIONS

CHALLENGES

SDG RELATED:

- **Poverty**
- **Hunger**
- **Malnutrition**
- **Climate Change**
- **Covid - 19**

FARMER RELATED:

- **Low Income ?**
- **Youth Not Interested**
- **Policy Reforms ?**

Policy Reforms Needed

Global

1. India's commitment to meet SDGs

2 . Paris agreement for Climate Change

National

1. Increased farmers' income

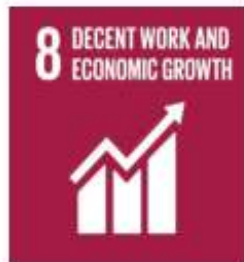
2. Diversified and sustainable agriculture

RECOGNIZING ABOVE,
A COMMITTEE WAS CONSTITUTED BY PSA TO:

- Review agricultural policies
- Suggest strategies/action plan for a secure and sustainable agriculture



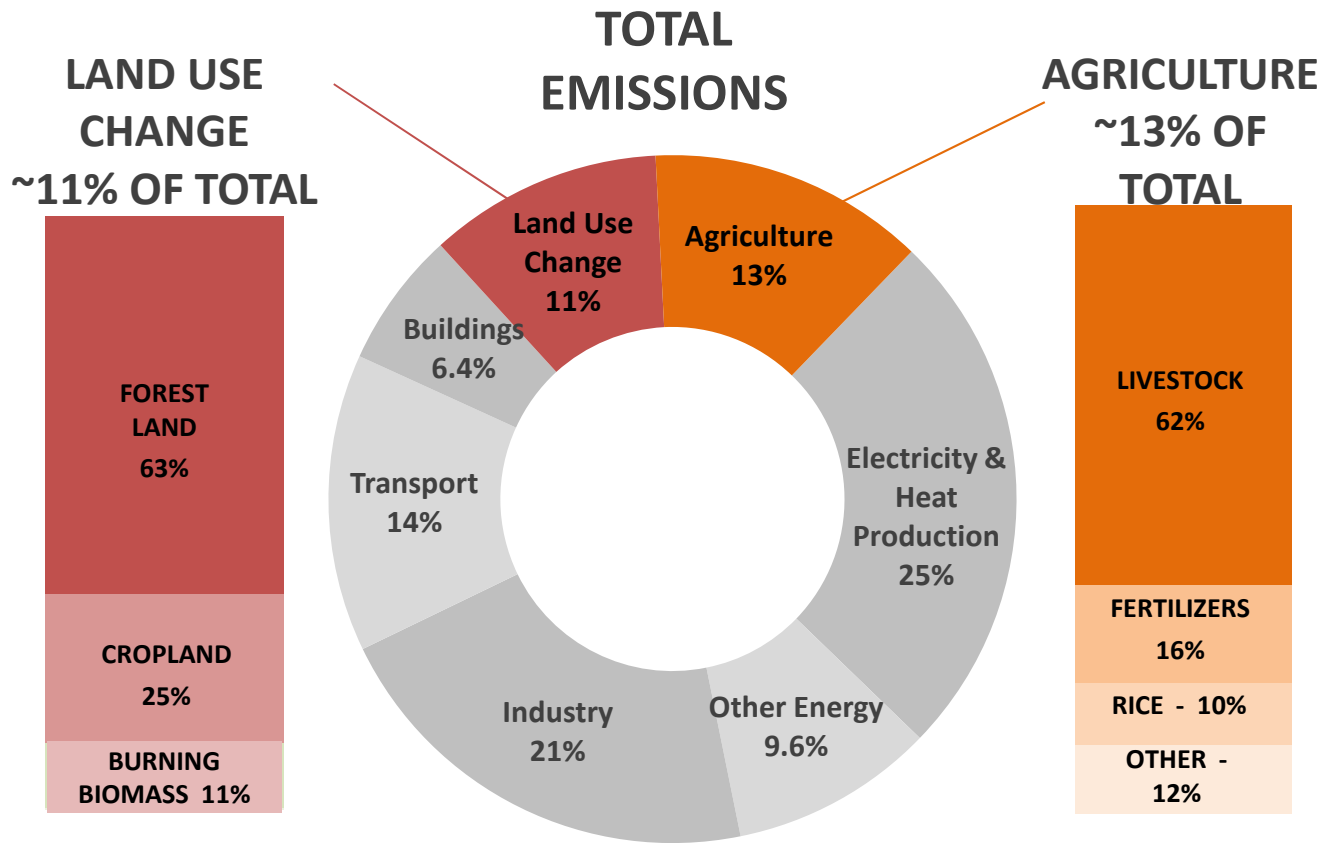
SUSTAINABLE DEVELOPMENT GOALS



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No Poverty, Zero Hunger, Climate Action and Partnership

The Food System is a PART of Climate Change Problem



Paris Agreement

(Global temperature not > 1.5 degree C)
20/20/20 Targets; Effective since November, 2016

Nationally Determined Contribution (NDC)

- 1. Reduction in Emission intensity**
Target - 35% - on track
- 2. Energy by non-fossil fuel sources**
Target - 40% - on track
- 3. Additional carbon sink (forest)**
Target - 3 billion tons of CO2 equivalent
Forest cover?

(Possible mainly through CA and Agro-forestry)

Vision

Farmer First



Farmers' Needs

- **Good land and healthy soils**
- **Adequate good quality water**
- **Timely supply of key inputs/technologies**
- **Knowledge sharing and efficient extension services**
- **Access to credit at low interest rate**
- **Linkage to national and global markets**
- **Respect and dignity in the society**

Suggested Strategy

Farmer **FIRST** Approach

Increased investment and commitment by the Government

Harnessing science, technology and innovation through institutional reforms and enabling policies

Reforms Must for Secure and Sustainable Agriculture

Through:

- **Agricultural Diversification**
 - **Secondary Agriculture**
 - **Specialty Agriculture**
- **From Production to Post-production (value chain)**

Consolidating the gains

Committee on Agriculture



www.psa.gov.in



Report on Policies and Action Plan for a Secure and Sustainable Agriculture

30 August, 2019

Submitted to

**The Principal Scientific Adviser
to the
Government of India**

Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi-110001

A WAY FORWARD



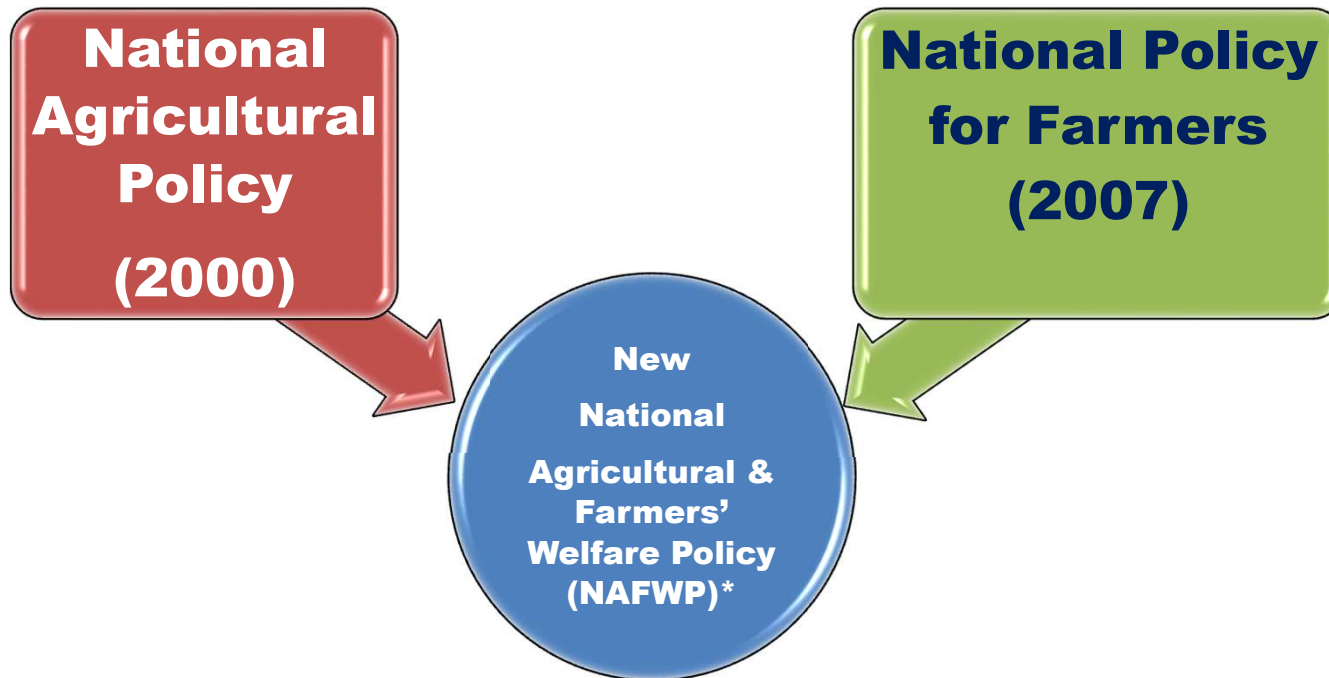
GCARD ROAD MAP

• Key Actions :

- Focus on smallholder farmers
- Research reorientation towards 'farming systems'
- Increased investments in R&D (Triple)
- Linking farmers to market (Triple)
- Role of women and youth
- Emphasis on innovation – x. . .
- Effective partnership
(Farmers, . . . s, private sector)



Revisiting Agricultural Policies



*** New policy to make agriculture more sustainable and profitable business for the smallholder farmers while achieving SDGs and addressing the impact of climate change and COVID-19**

Strengthening Existing Institutions

ICAR

**Elevating to stature of BARC; Doubling resource allocation (1% of Agric. GDP);
Need for restructuring**

State Agricultural Universities

**Revisiting LGS; Functional autonomy; Vocational programs;
Catch up grant; No bifurcation of Universities**

Krishi Vigyan Kendras

**Expanding the mandate as: 'Knowledge-Skill-Innovation Centres';
Facilitate Agri-Clinics ;
KVK & ATMA together**

Panchayati Raj Institutions

More responsibility and authority for agricultural development

Creating New Institutions

**National
Agricultural
Development
and Farmers'
Welfare
Council
(NAD&FWC)**

For inter-state,
centre-state
and inter-
ministerial
coordination

**Farmers'
Welfare
Commission
at National
and State
Level**

Forum
with
statutory
powers
for
farmers'
welfare

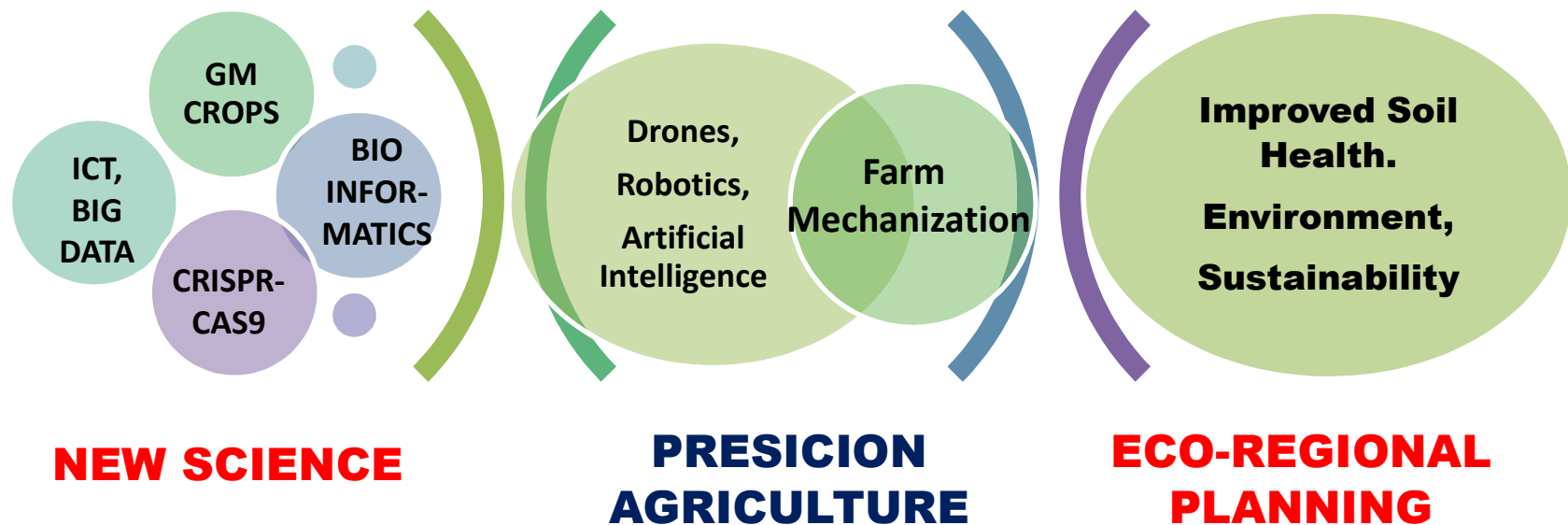
**PME
NITI Aayog**

To review
all
missions,
programs
and the
schemes

**Agricultural
Education
Council of
India under
DARE**

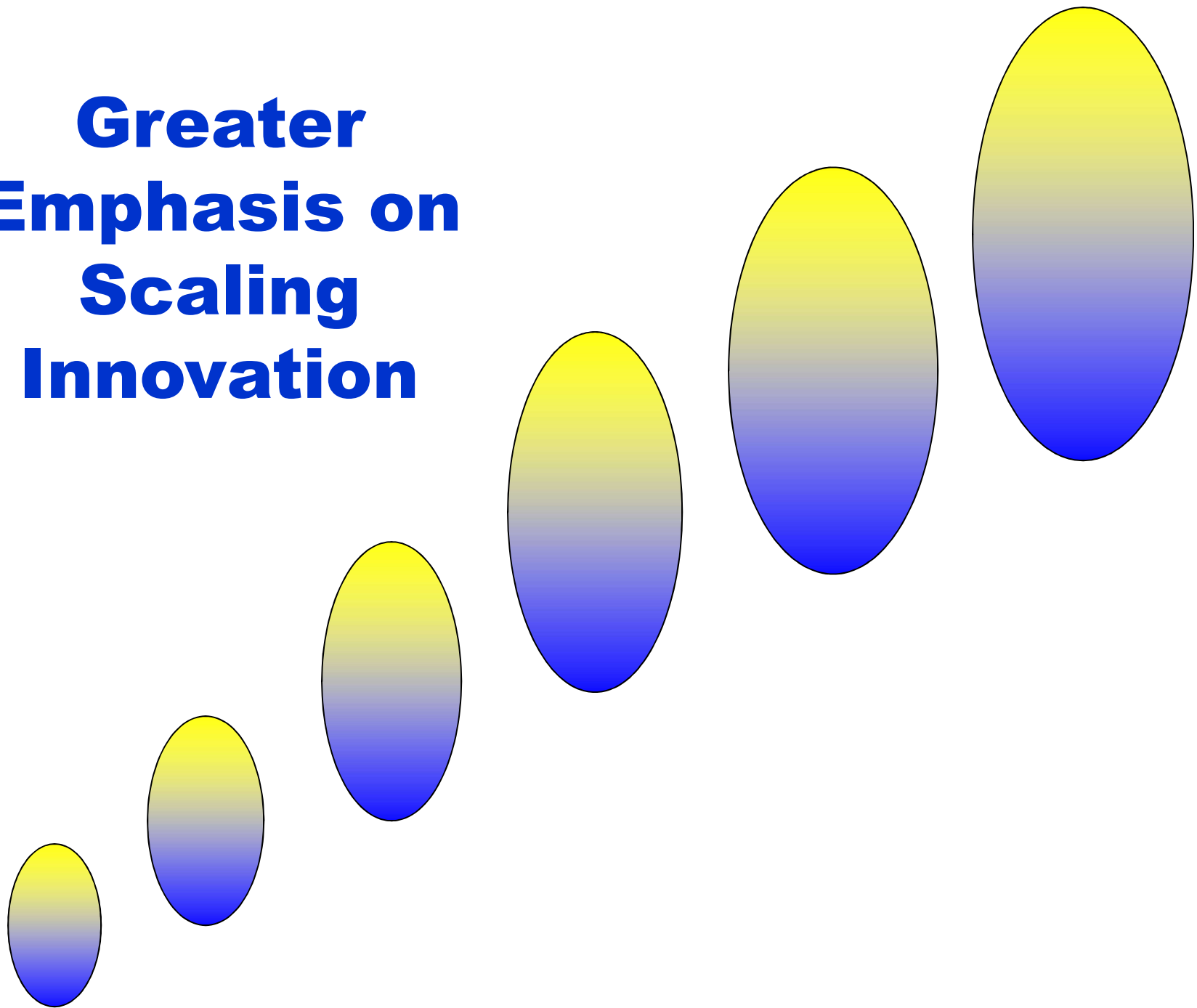
A
regulatory
authority to
maintain
quality of
agricultural
education

Harnessing Science for New Gains



Incentives for Innovation

**Greater
Emphasis on
Scaling
Innovation**



Scaling Innovations

- **Hybrid Technology: (maize, bajra, sorghum, rice)**
- **Biotechnology - GM crops: (soybean, mustard, maize, brinjal)**
- **Conservation Agriculture (3.5 to 20 m ha)**
- **Protected Cultivation (expand area from 50,000 ha to 0.5 m ha)**
- **Micro-irrigation (discourage use of flood irrigation) – From 6 to at least 10 m ha**
- **Bioenergy/Biofuel (use of sugar cane and maize - initially 20%)**
- **Biofortified Crops (Quality protein maize, iron & zinc rich rice, iron rich bajra, zinc rich wheat)**
- **ICT for Knowledge Sharing– ex. e-Chaupal**

Motivating & Attracting Youth in Agriculture (MAYA)

**Youth (including women) as
'Job Creator and not Job Seeker'**

- Youth as extension agents
(Paid extension)**
- Youth as input and service providers**
- Youth as Entrepreneurs**

**Establishing Agri-Clinics
in each KVK with funding support from ATMA and
Private Sector under CSR**

GOVERNMENT INTERVENTION NEEDED

Create Enabling Policy Environment :

- Uniform adoption of Produce and Livestock Marketing Act**
- Decentralized State procurement**
- Revisit EXIM policy to harness benefits of Globalization**
- MSP at 1.5 times of cost C2**
- Mandi Tax: uniform around 5-7%**

GOVERNMENT INTERVENTION NEEDED

Speedy Action on:

Seed Act

Pesticide Management Bill

BRAI Bill

Land Tenure Act

Market Reforms Through: ECA, APMC, e-NAM

Subsidies linked to input use efficiency

(Rs 10,000/acre (up to 10 acres) to farmers)

**Credit Reforms –easy access to loan at low
interest rates**

CSR to be linked to MAYA



**Recent
Announcement
by FM**

**Governance and
Administrative
Reforms**

Amendments to Essential Commodities Act to enable better price realisation for farmers

- EC Act, 1955 was enacted in days of scarcity.
- Need to enable better price realisation for farmers by attracting investments and making agriculture sector competitive
- Agriculture food stuffs including **cereals, edible oils, oilseeds, pulses, onions and potato to be deregulated.**
- Stock limit to be imposed under very exceptional circumstances like national calamities, famine with surge in prices.
- No such stock limit shall apply to processors or value chain participant, subject to their installed capacity or to any exporter subject to the export demand.
- **Government will amend Essential Commodities Act.**

Agriculture Marketing Reforms to provide marketing choices to farmers

- Farmers bound to sell agriculture produce only to Licensees in APMCs
- Such restriction of sale is not there for any industrial produce
- Results in Hindrances in free flow of Agricultural Produce and Fragmentation of Markets and Supply Chain;
- Less price realization for farmers.

A Central law will be formulated to provide -

- Adequate choices to farmer to sell produce at attractive price;
- Barrier free Inter-State Trade;
- Framework for e-trading of agriculture produce.

Finally



Secured Future for our young Generation

