

Seed Production Systems in Pulse Crops in India- Community based perspectives,

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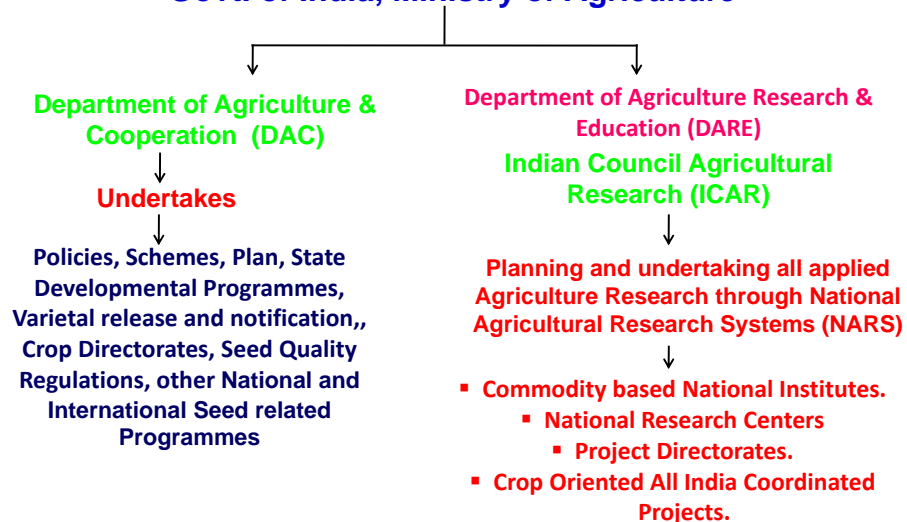
Outline of Presentation

- Brief about India Food Production Scenarios'
- Seed Production System in India
- Community based seed Production
 - Seed Village Concept
- Case Studies- Maize, Mungbean & Rice
- Seed Quality Regulations System

Agriculture in India

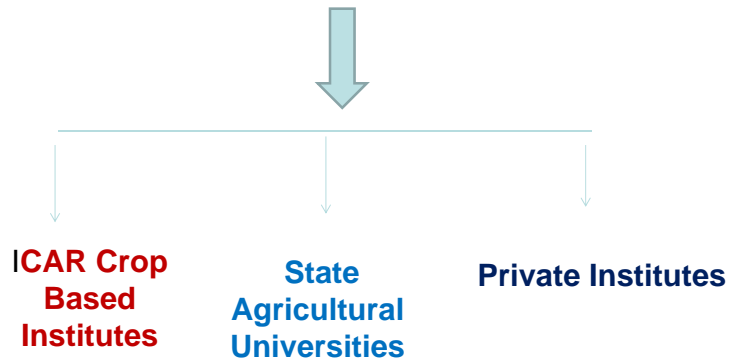
- Agriculture contributes 13.7% GDP.
- 55% population dependent on agriculture.
- 142 m hectares under agriculture.
- 259.27 m tons of food grain produced.
- 11% of exports is from agriculture.
- 95.8 Million farmers (80% Small & Marginal) are in India.

Govt. of India, Ministry of Agriculture



- 29 States and 7 Union Territories with varied Agro climatic conditions

CROP IMPROVEMENT

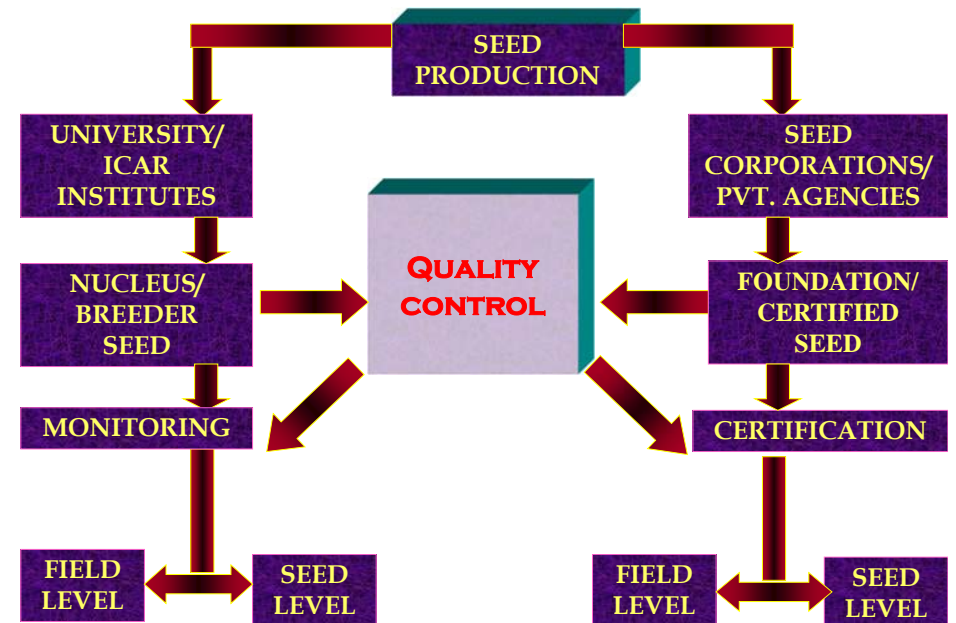
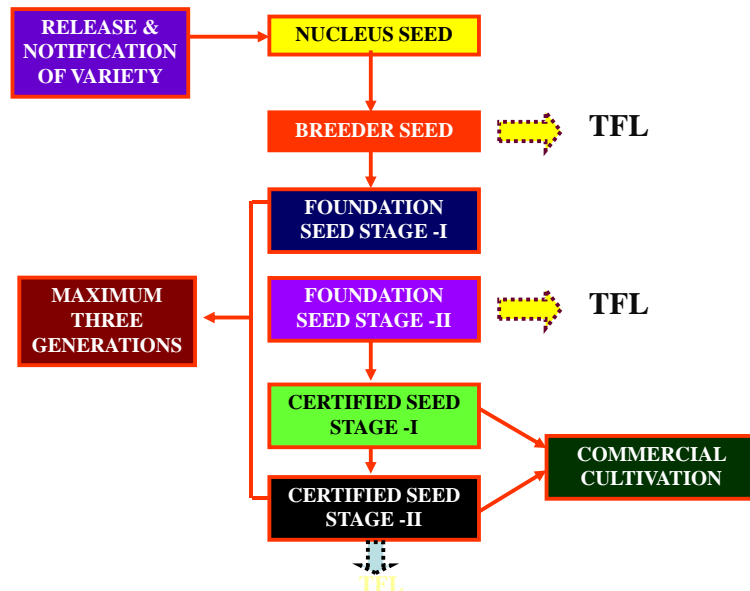


Crop Improvement and Varietal Development Research in India – we have in NARS - ICAR

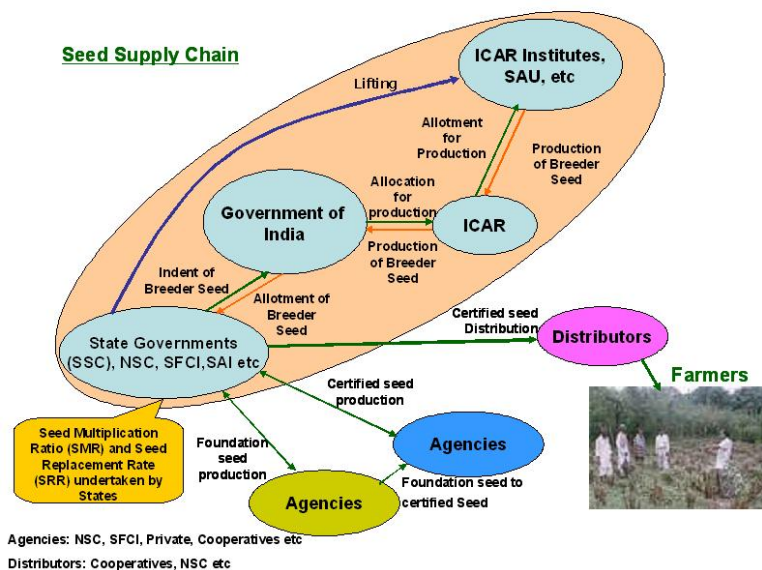
- ❖ 45 National Research Institutes,
- ❖ 56 State Agricultural and 4 Deemed Universities,
- ❖ 32 All India Coordinated Research Projects,
- ❖ 25 Crop Oriented Project Directorates,
- ❖ 17 National Research Centre,
- ❖ > 100 Private Seed Companies with R&D facilities,
- ❖ 638 Krish Vigyan Kendras/ NGOs



Indian Seed Multiplication chain



Seed Supply Chain



National Seed Plan

- SRR has strong positive correlation with the productivity and production of crops.

SRR proposed

NSP NSM

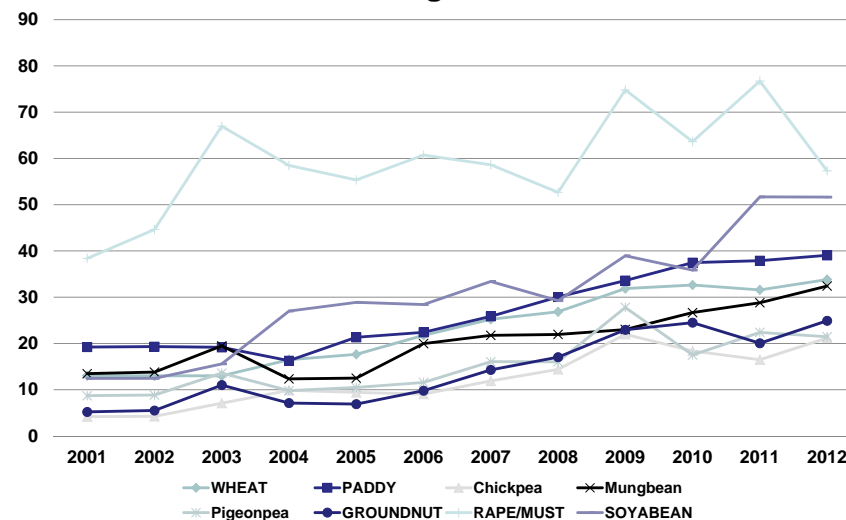
XI Five Year Plan XII Five Year Plan
(2007-08 to 2011-12) (2012-13 to 2016-17)

Self pollinated crops – 25% 33%
Cross pollinated crops – 35% 50%
Hybrids – 100% 100%

Current Status of Seed Production by Different Agencies

| Agencies/Organ ization | % share of total quantity of seed produced | Kind of Seed produced |
|------------------------|--|-----------------------------|
| Public Institutions | 20-22 | Self/Open-Pollinated Crops |
| Private seed companies | 5-8 | Mainly Hybrid seed |
| Farmer Saved seed | 70-75 | Self /Open Pollinated Crops |

Seed Replacement Rate of Certified/Quality Seeds during 2001 to 2012



SeedNet India Portal

**Striving for prosperity of farmers is
A National Initiative for information on quality
seeds**

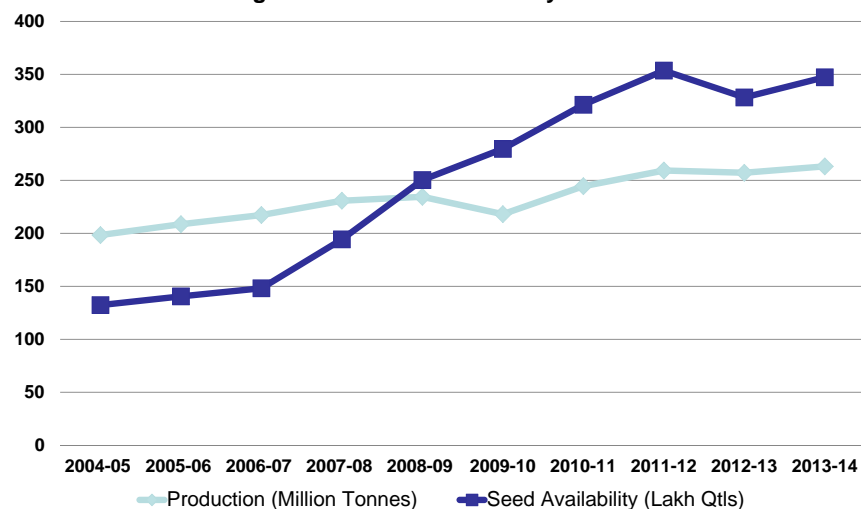


Our Strengths- Seed Industry

- Two National level agencies; NSC & SFCL.
- A Network of 20 seed certification agencies.
- 14 state seed corporations.
- 86 notified Seed Testing Labs and Quality Control System.
- Fast developing private seed sector (about 500 Pvt. Seed Companies).

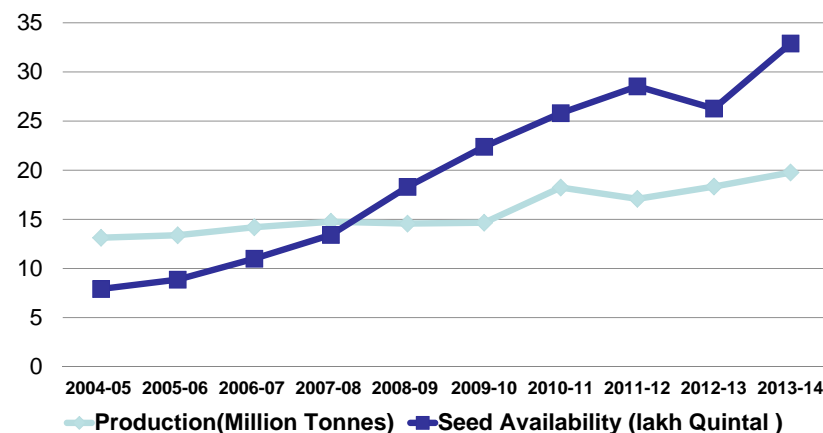


Total Foodgrains Production & Quality Seed Production



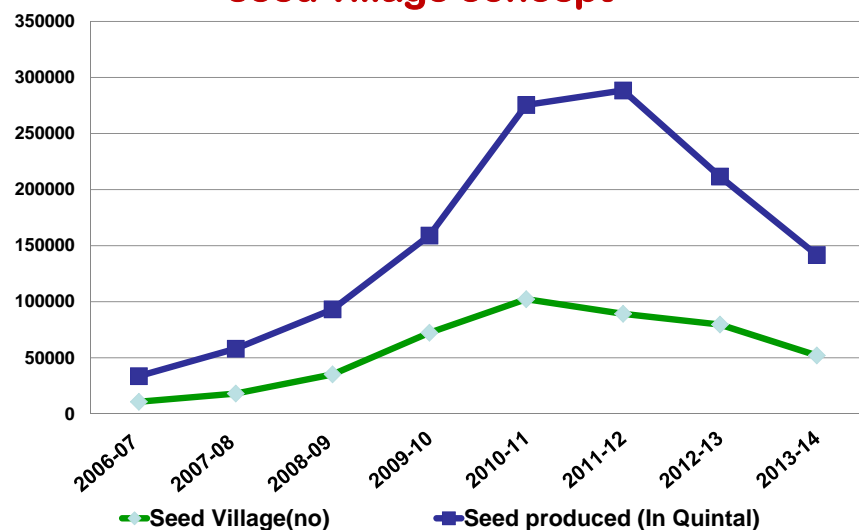
* Production 2013-14 : 2nd Advance Estimates

Pulses Production and Quality Seed Production



* Production 2013-14 : 2nd Advance Estimates

Seed produced through community based seed village concept



Major Components of Seed Village Programme

1. Supply of Seed of 1/5 ha at 50% cost of New Variety

2. Three Seed production Trainings-

First at sowing time, Second at Flowering Stage and third Harvesting

3. Seed storage Bins of Capacity of 20 quintals at subsidized rate

Government thinking to have A Seed storage Structure own at village level

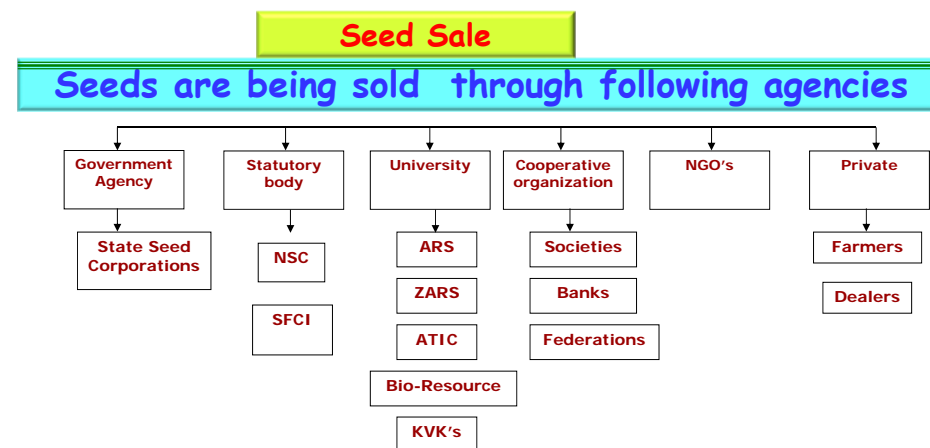
Seed Processing At Community Level



Mobile Seed Grader



Spiral Seed Grader



Farmers Fair –Seed Purchase



Seed Sale



Training for community Seed Production

| Name of the Training | Beneficiary | Duration |
|----------------------------|---|----------|
| Seed Production Technology | 150 (Progressive Farmers, Field staff ,NGOs ,etc) | 3 days |



Seed Production Trainings

| Sl. No. | Name of the training | Beneficiary | Duration |
|---------|--|--|---------------------------|
| 1 | Two Hands on training on techniques to enhance synchrony and seed set in sorghum | 50 farmers in each cluster. A Total of 146 farmers | Three times- One day each |
| 2 | “Seed Regulation and quality control | Progressive Farmers, State Seed Staff | Two days |
| 3 | Seed industry and Researchers' meet for public-private partnership was organized on 22nd September 2009. | 39- Senior Seed industry managers | One day |



Field Inspection cum Training



On Farm Seed Production Training



Farmers participatory Seed programme



Seed Production of Mungbean





SOYBEAN (var. JS 335)



MUSTARD (varM-27)



GROUNDNUT (var. ICGS-76)



BLACKGRAM (var.UTTARA)

Community Based Hybrid Corn Seed Production

- No. of Farmers = 1695
- Area Covered = 892 Ha
- Expected Hybrid seed 13000 quintals
- No. districts = 2 & Villages = 20



Farmers & Experts Interaction



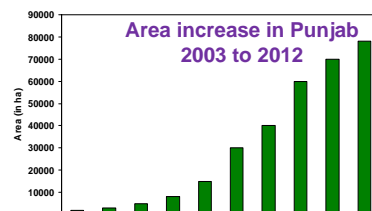
Mungbean - SML 668

- High yield (1.5-2.0 t per ha)
- Short duration (about 60 days)
- Synchronous maturity
- Released in 6 states



Seed Multiplication

- Breeder seed 24Qtls(2002) increased to 325 Qtls
- SVP 270 Farmers produced 2700 tons seed 2003
- Now occupied 5 lakhs ha area



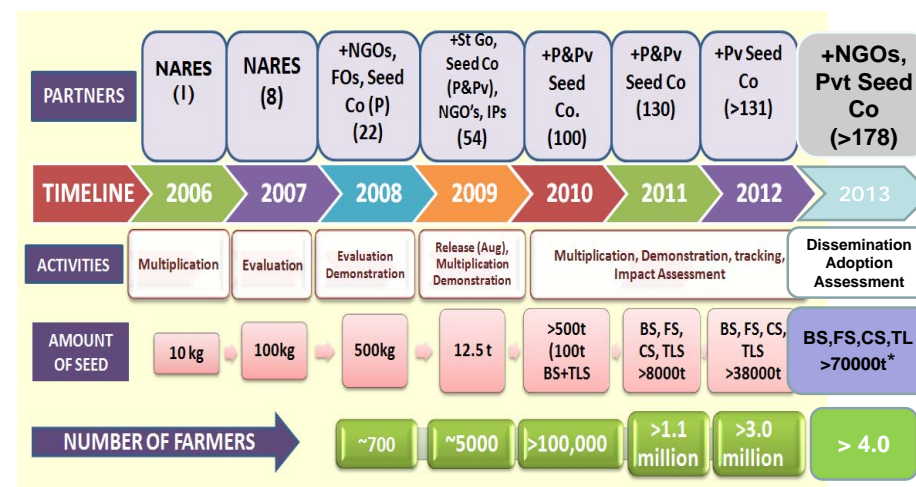
SwarnaSub1 – Rice Variety

1. Swarna Sub1 only variety for submergence Condition
2. Spread Across Eastern States of India in just few year
3. Perfect example of Community based Seed Production

Rice Area affected by different stresses in eastern India (lakh ha)

| States | Flash Flood prone | Drought Prone | Salinity/Sodicity | |
|--------------|-------------------|---------------|-------------------|------------|
| | | | Coastal | Inland |
| Assam | 8.0 | 2.0 | Nil | Nil |
| Bihar | 11.0 | 10.0 | Nil | 1.5 |
| Jharkhand | Nil | 8.2 | Nil | Nil |
| Chhatisgarh | Nil | 27.3 | Nil | Nil |
| Orissa | 11.6 | 12.6 | 1.5 | Nil |
| U.P | 9.3 | 13.1 | Nil | 6 |
| West Bengal | 10.3 | 14.6 | 4.4 | Nil |
| Total | 50.2 | 87.8 | 5.9 | 7.5 |
| Proportion | 2/3 | 2/3 | | |

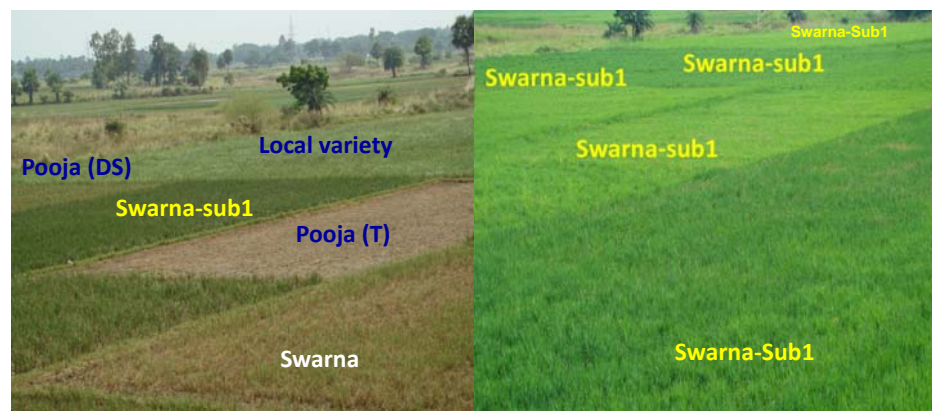
Fast adoption of Swarna-Sub1 by Indian farmers



2013: Sub1 Varieties (mainly Swarna-Sub1 & BR11-Sub1) reached approx. 5 m farm households covering 2.50 m ha area in South Asia

*Both formal and informal seed sectors

Farmer to farmer diffusion of Swarna-Sub1.
Nimapara Block, Puri Odisha



2011

2012

Seed Quality Regulation system

- ✓ Regulated by a well defined legal system.
- ✓ Responsibility of the Government to enforce measures for regulating the quality of seed being produced & marketed.
- ✓ To provide quality assurance to farmers – through legislation in the form of Acts and Rules.
- ✓ 2 components in seed quality control system :
 - Seed Certification is voluntary &
 - Labelling is compulsory
- ✓ 3 essential components in seed quality control programme :
 - Quality control through Seed supply chain
 - Quality quality measurements
 - Seed law enforcement

Legislation on Seeds and Propagating materials

- Seeds Act 1966 & Seed Rules 1968
- Seeds (Control) Order, 1983
- New Policy on Seed Development, 1988
- EPA1986 & EPA Rules 1989
- Plants, fruits & seeds (regulation of import in India) order 1989
- PPV&FR Act 2001
- Exim Policy, 2008-13
- Plant Quarantine - Regulation of Import into India Order 2003
- Seed Policy, 2002
- Seeds Bill, 2004 —yet to be passed



NEW POLICY ON SEED DEVELOPMENT, 1988

- ❖ Make available best planting material available any were in the word to the farmers.
- ❖ The policy liberalized the import the seeds and planting material.

SEED POLICY, 2002

- ✓ Varietal Development and Plant Variety Protection.
- ✓ Seed Production/Quality Assurance
- ✓ Seed Distribution and Marketing
- ✓ Infrastructure Facilities
- ✓ Transgenic Plant Varieties
- ✓ Import of Seeds and Planting Material
- ✓ Exports of Seeds
- ✓ Promotion of Domestic Seed Industry
- ✓ Strengthening of Monitoring System.



Conclusion

1. Initial hand holding of Farmer is important for Sustainability of Community based Seed System
2. Capacity building of Farmers
3. Creations of Infrastructure

