

Ministerial Meeting on Food Security & Climate Change in SIDS

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Session 2: Sustainable Agriculture & Fisheries

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Sustainable Agriculture

1. What is Sustainable Agriculture?

2. The Constraints

3. Strategic Intervention Areas

4. Way Forward

5. Concluding Remarks



Sustainable Agriculture

- Management of a production system where there is a multitude of complex interactions - principally between soil, plants, animals, climate and people.
- Integration of all the above into a solid production system that is 'environmentally non-degrading, technically appropriate, economically viable and socially acceptable - for present and future generations'.



THE CONSTRAINTS

- **SIDS primarily food importers**
- **Limited resources – land, labour, water, credit, etc**
- **Adverse agro-climatic conditions – climate change (extreme weather), pests & diseases**
- **High cost & Intensive use of chemical inputs**
- **High costs of feed & lack of fodder**
- **Low productivity - production from family farms**
- **Limited access to technology**
- **Absence of planning of production wrt demand**



THE CONSTRAINTS/ Contd

- Limited/no mechanization
- Unstructured/inexistent markets or market dominated by intermediaries; absence of standards
- Cheaper Imports; non-competitiveness
- Inadequate investment in RDI & Capacity Development
- Farmers: aging population, resistant to change, to regroup, to take risks; not well-trained to cope with new challenges



STRATEGIC INTERVENTION AREAS

- **Intervention 1: Enhancing Food & Nutritional Security**
- **Intervention 2: Efficient & Sustainable Production Practices**
- **Intervention 3: Improve Productivity & Competitiveness**
- **Intervention 4: Developing Climate Change Resilience**
- **Intervention 5: Promote Agro-business & Agro-entrepreneurs**
- **Intervention 6: Creating Enabling Environment**



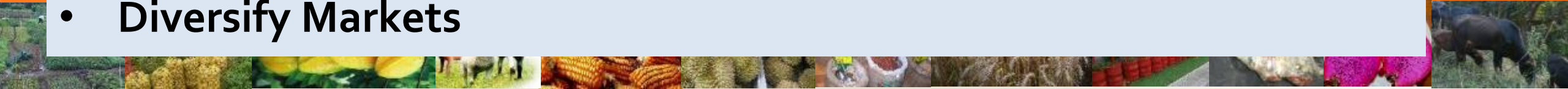
STRATEGIC INTERVENTION AREA 1: ENHANCING FOOD & NUTRITIONAL SECURITY

- Self-sufficiency in most vegetables & fruits
- Near self-sufficiency in certain crops of strategic importance
- Diversification & Import Substitution
- Integrated farming
- Quality food – Growing micronutrient dense, low GI varieties
- Rehabilitation of 'local' crops & landraces
- Judicious land use – land reallocation; vertical farming, kitchen gardens, family plots
- Cross border Initiative



STRATEGIC INTERVENTION AREA 2: EFFICIENT & SUSTAINABLE PRODUCTION PRACTICES

- Shift towards sustainable production systems
- Integrated Crop & Livestock Management
- Efficiency in use of natural resources
- Alternatives to agro chemicals
- GAP such as: crop rotation, cover crops, green manuring, zero tillage, mixed varieties & species, etc.
- Bio farming, zero-budget agriculture, protected culture including bioponics, etc.
- Climate Smart Agriculture
- Reduce waste!
- Develop Traditional / Indigenous Knowledge
- Diversify Markets



STRATEGIC INTERVENTION AREA 3: IMPROVE PRODUCTIVITY & COMPETITIVENESS

- Increase Yields –close gap between 'actual' and 'potential'
- Efficient use of inputs e.g. microdosing
- Introduction & transfer of new and innovative technologies
- Capacity building
- Agricultural extension using modern methods
- Modernization – Mechanization
- Rethinking the Small-holder farmers
- Service providers to the community e.g. spray service providers



STRATEGIC INTERVENTION AREA 4: DEVELOPING CLIMATE CHANGE RESILIENCE

- Development of practices aimed at increasing the resilience of agricultural system to climate change, e.g. better adapted varieties
- Integrated Soil Management - building stronger and healthier soils; zero tillage, permanent soil cover & crop rotation, drip irrigation
- Soil Carbon Sequestration – Nutrient management, manure, improved grazing, etc
- Community-based actions – more sustainable & resilient
- ICT - Efficient Early Warning System
- Crop Insurance



STRATEGIC INTERVENTION AREA 5: PROMOTE AGRO-BUSINESS & AGRO-ENTREPRENEURS

- **Develop & Support agro-entrepreneurs, principally women & youth**
- **Incentives & Support measures e.g. in food processing, product development, including alternate uses for crops & quality control**
- **Formal award course & training = Valorization of the farmer and his trade.**
- **RPL – Recognition of Prior Learning**



STRATEGIC INTERVENTION AREA 6: CREATING ENABLING ENVIRONMENT

- Full-fledged plan to support existing farmers & attract new entrants
- Use of alternative Energy – solar, wind
- Farmers Quality of life: pensions, health insurance, leisure
- Research & Development & CSR (Invest in Science & Technology & Innovations)
- Gender Equality & Empowerment of Women
- PARTNERSHIP (PPP, within & between SIDS, Global, ...)



WAY FORWARD

- **Each SIDS to carry out a SWOT ANALYSIS**
 - **Local Experts + International Expert Panel**
- **Work out a Strategic Plan**
 - **Medium & Long Term; Prioritization**
 - **'Custom-made' rather than 'Ready-to-use'**
 - **Integrated & holistic approach**
- **SIDS: Individually & Partnership with each other & with the International Community**
 - **Many actions similar, so partnership important, e.g. seed harmonization, etc.)**
- **Willpower of all stakeholders to bring the Strategic Plan to term**



CONCLUDING REMARKS

- Sustained political commitment at the highest level
- Policies, Programs & Legal framework in place
- Mobilization of Resources: Human, Financial, etc..
- Capacity building
- Cooperation & Partnership





Increase Crop Production

- Increase production of vegetables & other crops, e.g. potatoes, pulses,
- Grow your own at home – vertical gardening, Roof-top, etc
- Other crops:
 - Rediscover local 'old' unused crops
 - Revisit local unexploited crops
 - New crops, e.g. sea weeds, etc
- Alternatives to wheat flour: potato, sweet potato, bread fruit



Increase Fruit Production

- Eat local - Increase production of locally grown fruits
 - Better, shorter, higher yielding
 - Production on marginal, unused lands
 - Hillocks, river banks, etc. production
 - Back yard production
 - More commercial orchards
 - Keep pests at bay
- Introduction of new varieties of fruits



Increase Meat & Milk Production

- Increase pastures & grazing lands, e.g. on marginal & abandoned lands
- Encourage backyard rearing of animals e.g. rabbits, poultry
- Increase large scale production of small animals e.g. goats, pigs
- Increase number of large scale farms e.g. stags, chicken, ducks
- Encourage rearing in the wild e.g. stags, wild boars, hares
- The Extreme!!
 - Giant African snails, frog legs
 - In SS Africa, 246 insect species consumed!!!



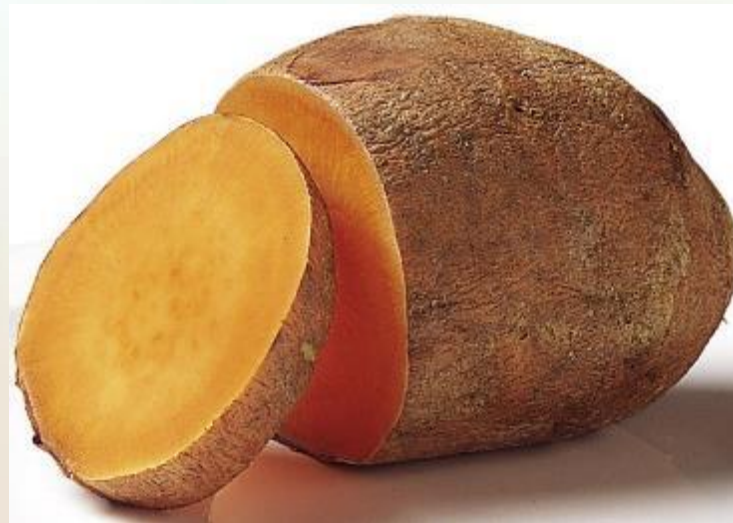
Increase Fish & Allied products

- Increase fresh water farming
- Increase Barachois Culture
- Exploit rivers, etc.
- Intensify lagoon fish rearing
- Intensify lagoon /high sea fishing
- Exploit EEZ more effectively
- Fish ponds at home – Grow your own
- Yearly closure of fishing for limited period – e.g. closure of octopus fishing in lagoons for 2 months in Mauritius & Rodrigues every year.



Quality & Healthy Food

- **Micro nutrient dense varieties:**
 - **Potato, sweet potato & maize with higher level of vitamin A**
 - **Beans with higher level of Fe & Zn**
- **Potatoes & rice -lower GI (Glycaemic Index)**



Local & Regional Cooperation

- **Partnership – Putting Farmers First (PPP, within & between regional SIDS, Global)**
- **Address short term issues, e.g. ensure availability of food produced in the region; Indian Ocean Commission initiative – Madagascar to grow food for the IOC countries**
- **Ensure supply at affordable price**
- **Revisit Trade Agreements/ foster new ones**
- **Reinforce Cross Border Initiative**



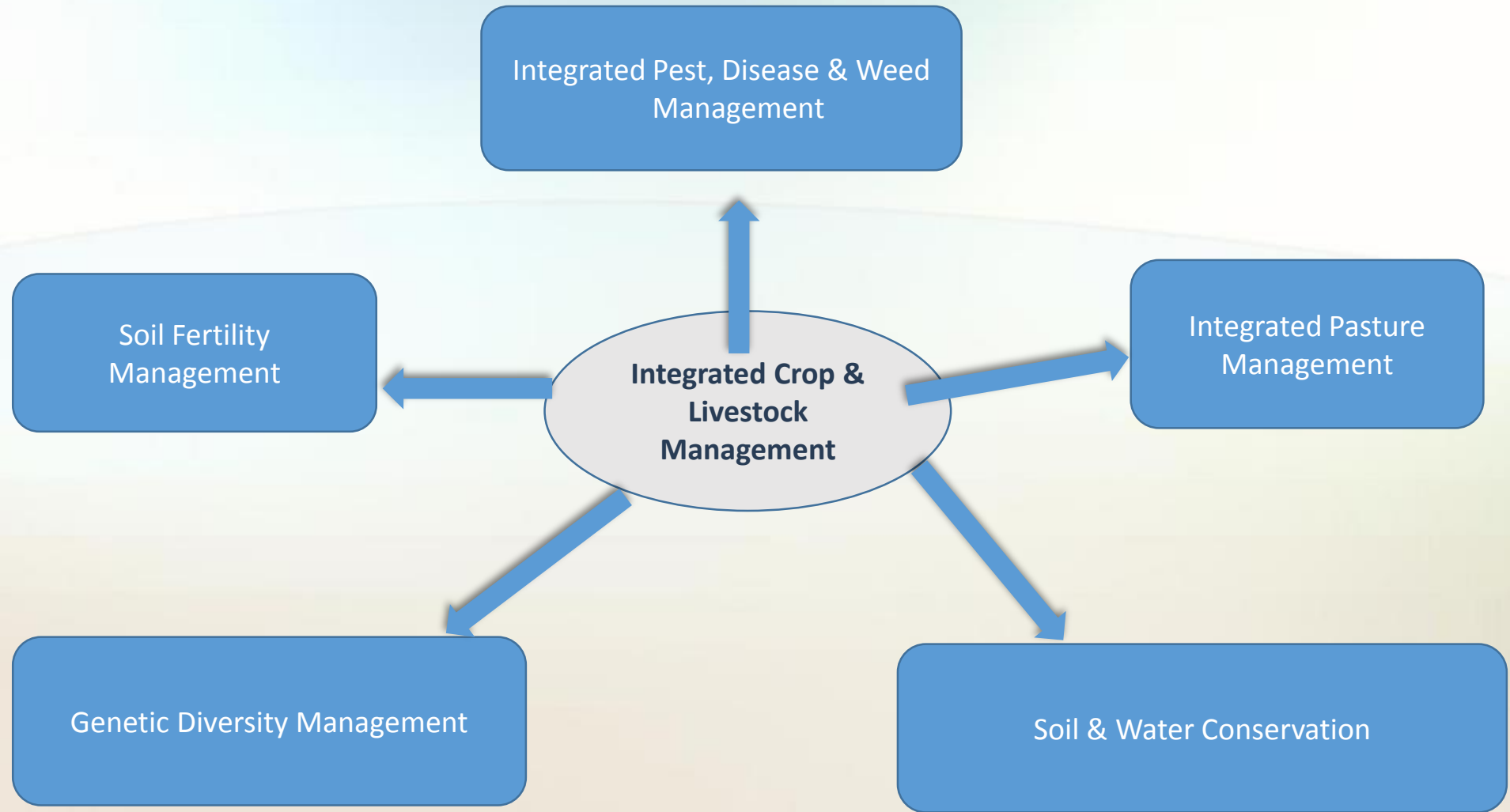
Support to Growers & Breeders

- **Various schemes & facilities by Government**
- **Training**
- **Credit facilities**
- **Crop Insurance Policy**
- **Market intelligence & access**
 - **Local & International markets**
 - **Fair trade, etc.**
- **Access to quality seeds**
- **Access to fertilizers & pesticides**
- **Fiscal measures, e.g. VAT exemption on equipment**
- **Vet services & Products readily available for breeders**
- **Efficient Extension Service**





Sustainable agriculture – Integrated Crop & Livestock Management



PEST, DISEASE & WEED MANAGEMENT

- Resistant varieties
- Physical & Biological Control
- Field Sanitation
- Natural/ bio products for pest & disease control



Traps

Push Pull- growing corn around tomato fields



SOIL FERTILITY MANAGEMENT

- Cover Crop & Green Manuring
- Soil Organic Matter & Composts
- Crop Rotation
- Limited (or Zero) tillage
- Balanced level of plant nutrients & balanced pH
- Soil fertilization

Legume crops fix atmospheric N in the soil
(bean, pea, cowpea, groundnut, soybean, pulses)



GENETIC DIVERSITY MANAGEMENT

- Grow a mix of varieties & mix of crop species
- Resistant varieties, also Landraces, unexploited local varieties
- Mixed seed lots
- Facilitate access to genetic resources & equitable sharing of benefits



SOIL & WATER CONSERVATION

- Use of mulch
- Contour Planting
- Water harvesting

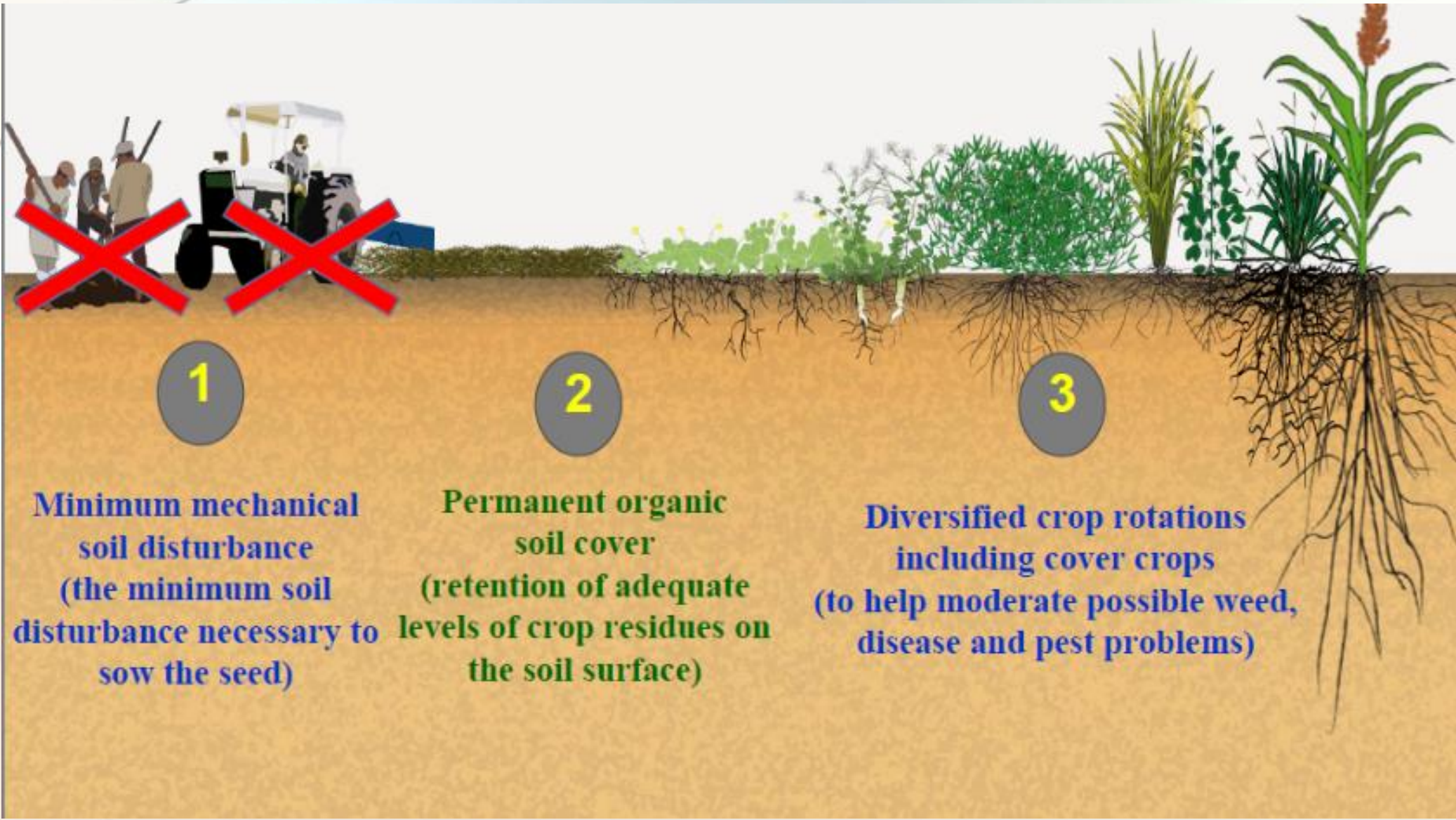
Minimum tillage & use of mulch

- Conserve moisture
- Increase infiltration
- Reduce runoff
- Suppress weeds

Contour planting / vegetative barrier/ drains

- Minimize soil erosion &
- Nutrients leaching and runoff





RESIDUE MANAGEMENT & RECYCLING

- Field sanitation
- Recycle farm waste into Compost



THANK YOU FOR YOUR ATTENTION



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