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Popular Article

Basic Concepts of Sustainable Integrated Livestock Production (SILPS) to Counter Climate Change and Generation of Employment for Youth

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“Sustainable Integrated Livestock Production Systems (SILPS) is an integral part of Indian Agriculture since mortal time. (SILPS) counter climate change by recycling farm waste (like cow dung, urine, unutilised feed etc. into bio fertilizer) and reducing greenhouse gas emissions, and restoring soil health. Government is also promoting (SILPS) by adopting modern technologies. The rural youth can transform traditional farming into profitable, climate-resilient enterprises that generate year-round local employment and ensure food security to the nation”.

Introduction:

Sustainable livestock production system refers to the efficient and environmentally suitable rearing of animal husbandry for educated and health-conscious consumer for growing demands for animal products. As the society is more educated and every one is concern to conserving natural resources, reducing greenhouse gas emissions, and improving rural livelihoods. (Twine, 2021; Dumont et al., 2019) It plays a vital role in food security, climate resilience, and employment generation, particularly for rural youth.

Basic Concepts of Sustainable Livestock Production System:

1. Efficient Resource Utilization:

SILPS is a circular approach to agriculture: wastes or by-products from one production system are used as inputs within another production system. This will help in improving land use efficiency and productivity. To ensure integrated farms produce food that is safe to eat and maintain healthy livestock, entry points for food safety issues must be assured.

Land is very important resource for any farming and day by day land availability is decreasing for farming to meet the demand of development for highway, industry and infrastructure. Optimum utilization of land is need of hour. Multi-layer farming on same land and hydroponic or roof farming are becoming

very popular among urban area.

To counter climate change there is an urgent need to create awareness among farmer for Optimum use of land, water, feed, and energy resources. Integration of livestock with crop farming is a proven tool to recycle nutrients. Like paddy straw, wheat straw and other agriculture waste as a feed to animals. Reduction of feed wastage and improvement of feed conversion efficiency. Now a days many young entrepreneurs are coming ahead for efficient use of resource utilization to reduce the cost of farming and extra income generation.

2. Climate-Smart Livestock Management:

Climate-smart livestock management practices refer to sustainable livestock production practices that which increase productivity, to meet demand enhance resilience to climate change, and reduce greenhouse gas (GHG) emissions while ensuring food and livelihood security.

Now a days farmers are shifting of traditional practices to modern practices of animal husbandry due to more extension activities of KVK, that reduce greenhouse gas (GHG) like methane and nitrous oxide emissions. Use of improved breeds with higher productivity and lower emission intensity. (Leinonen, 2019) Promotion of heat-stress management through proper loose housing and shade. By adopting (SILPS) farmers can achieve following objectives to counter climate change: -

- Increase in livestock productivity and sustainably.
- Reduction in GHG emissions.
- Improve adaptation and resilience to climate change.
- Enhance farmers' income and employment opportunities for new generation.
- Promote environmental conservation and resource efficiency.
- Key Climate-Smart Livestock Management Practices by mechanisation and computer operated systems. (Automation)

2.1 Key Climate-Smart Livestock Management Practices:

- a. Improved Feeding and Nutrition:** The availability of quality feeds and green fodder to prepare balanced ration must be ensured for sustainable livestock production. A balanced ration is not only required for growth, production and reproductive performance but also for enhancing immunity of the animals against the disease. Beside supplementation of area specific mineral mixture in the ration is also prime need to enhance productivity.
- b. Genetic Improvement and Breeding:** The breeding policy is a programme document for genetic improvement of livestock wealth of the area. For this selection of climate-resilient and disease-resistant breed is essential by application of Genomics. (Eisler et al., 2014). Genomics research is dedicated to understanding how genetics influence the biology and health of animals, allowing the development of new breeds and improved genetic lines. Promotion of indigenous breed adapted to

local environmental conditions. The genetic improvement programme must be based on perception and wishes and need of the farmers. (Van Zanten et al., 2018)

- c. **Efficient Manure Management:** Now a days new concept is coming waste to wealth. Compost manure is becoming an alternative for costly fertilizer and protect the soil health. Cow dung is becoming a popular for biogas plants to convert waste into renewable energy. Use manure as organic fertilizer to improve soil health. Prevent nutrient losses and reduce methane emissions.
- d. **Animal Health Management:** Livestock production in India is seriously handicapped by recurrent ravages of epidemics across all species of animals leading to annuals loss of over billions of rupees in India. To prevent these losses a regular vaccination and deworming programs should be carried out in smart way. Early disease diagnosis and treatment will help to reduce the losses. Strengthen biosecurity measures will be added advantage. Healthy animals produce more with lower environmental impact.
- e. **Renewal Energy utilization:** Use of solar power pumps will cut cost of cultivation for fodder and milk production. Biogas plat will give additional income and renewal energy. This reduces the dependence on fossil fuels. (Twine, 2021)

Climate-smart livestock management practices are essential for mitigating climate change in one hand while in another hand ensuring sustainable livestock production. Through improved feeding, breeding, health care, manure management, agroforestry, and renewable energy use, livestock systems can become more productive, resilient, and environmentally friendly, contributing to sustainable rural development and food security.

3. Role of Sustainable Integrated Livestock Production (SILPS) in Countering Climate Change:

Sustainable Integrated Livestock Production Systems (SILPS) counter climate change by transforming agriculture and Animal Husbandry from a net-emitter to a carbon-sequestering cycle. Reduces greenhouse gas emissions through improved feeding and management. Improves resilience to droughts, floods, and temperature extremes. Promotes sustainable use of natural resources. Supports climate adaptation in vulnerable farming communities.

4. Employment Generation Opportunities for Youth:

Direct employment in rural and semi urban area. Today government is promoting Dairy farming, Goat farming, Sheep farming, Poultry farming, Pig farming, Rabbit farming, Allied Enterprises, Fodder production and seed supply, Feed manufacturing, Para Veterinary services, Livestock insurances and extension services by subsidy, training or through incubation centres.

On the other hand, new areas are explored by Value Addition and Agribusiness like, Milk processing and dairy products, Meat processing and packaging, Egg grading and marketing, Organic manure and vermicompost production, Biogas production and marketing

Digital and Smart Livestock Farming is also becoming very popular by Precision livestock farming, Livestock data management services, Mobile advisory platforms E-commerce marketing of livestock products. One of the most promising practices in sustainable livestock production is the integration of technology (Tilman and Clark, 2014)

5. Benefits of Sustainable Integrated Livestock Production (SILPS):

- Increased farm income and profitability.
- Improved food and nutritional security.
- Reduced environmental footprint.
- Enhanced resilience to climate change.
- Sustainable employment and entrepreneurship opportunities for rural youth.

Conclusion:

Sustainable livestock production is a key strategy to counter climate change for addressing climate change related problems. In another aspect a creating employment opportunity for youth. By adopting climate-smart technologies, efficient resource management, renewable energy, and value-added livestock enterprises, young entrepreneurs can contribute to environmental sustainability, rural development, and economic growth of our country to achieve a “Viksit Bharat 2047.”

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