Lecture No. 12

IMPACT OF LOW EXTERNAL INPUT AGRICULTURE (LEIA) AND HIGH ETERNAL INPUT AGRICULTURE (HEIA) ON CROP PRODUCTIVITY

Low External Input Agriculture:

The term low input agriculture has been defined as production activity that uses synthetic fertilizer or pesticides below rates commonly recommended by the Extension Service. It does not mean elimination of these materials. Yields are maintained through greater emphasis on cultural practices, IPM and utilization of on-farm resources and management.

The term low-input farming has often been used to describe any system of alternative agriculture, if can be seen that it is distinctly different from organic farming etc. nevertheless any system that reduced purchased chemical inputs can be called low input farming, some examples are:

1. Poultry litter can replace nitrogen fertilizers in the production of watermelons.
2. Legume cover crops can supply the total nitrogen requirements of pecan trees.
3. Compost amended potting mixes produce superior vegetable transplant than traditional soilless mixes.
4. No-till vegetable systems are feasible using reduced herbicides rates to kill cover crops.
5. Subterranean clover living mulches supply nitrogen and weed control in peach orchards.

Criteria for LEISA: (Low External Input Sustainable Agriculture)

A] Ecological criteria:

1. Balanced use of nutrients and organic matter.
2. Efficient use of water resources
3. Diversity of genetic resources
4. Efficient of genetic resources
5. Efficient use of energy resources
6. Minimal negative environmental effects
7. Minimal use of external inputs

**B] Economic criteria:**
1. Sustained framers livelihood systems
2. Competitiveness
3. Efficient use of production factors
4. Low relative value of external inputs

**C] Social criteria:**
1. Wide-spread and equitable adoption potential, especially among small farmers
2. Reduced dependency on external institutions
3. Enhanced food security at the family and national level.
4. Respecting and building on indigenous knowledge, beliefs and value systems
5. Contribution to employment generation.

**High External Input Agriculture (HEIA):**

High External Input Agriculture (HEIA), production for the far off markets necessitated use of external inputs like chemical fertilizers, hybrid seeds, pesticides, irrigation etc. Increased dependency on high cost external inputs in agriculture also made farmers to depend on external credit on a regular basis. Cultivation of cash crops like cotton and tobacco, also led to scarcity of fodder. This resulted in farmers giving up animal husbandry, thereby resulting in acute scarcity of farmyard manure and making the use of chemical fertilizers inevitable.
### DIFFERENCE BETWEEN LEIA AND HEIA:

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<thead>
<tr>
<th>Sr. No.</th>
<th>Characteristics of LEIA</th>
<th>Characteristics of HEIA</th>
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<tbody>
<tr>
<td>1.</td>
<td>LEIA relies on the optimal use of natural processes.</td>
<td>The farming pattern depends heavily on external and chemical inputs.</td>
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<td>2.</td>
<td>The focus is on the sustainability of farming system</td>
<td>The focus mainly on maximizing yields coupled with increasing specialization of production</td>
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<td>3.</td>
<td>Environmentally sound and that have the potential to contribute to the long-term sustainability of agriculture.</td>
<td>There is a great damage to the environment</td>
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<td>4.</td>
<td>HEIA depends on the higher production and profit, without consideration of the local needs and local market</td>
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<td>5.</td>
<td>Greater diversification on farm low risk of failure and market fluctuation.</td>
<td>The number of products and commodities are very minimum, lack of diversity in the farming practices; as a result, there is greater risk of failure and price fluctuation.</td>
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<td>6.</td>
<td>LEIA maintains a healthy soil, recycling nutrients on the farm, and utilizing approaches such as integrated pest management (IPM).</td>
<td>Under HEIA system, soil quality deteriorates, and there is resurgence of pests, lack of resilience in the soil-plant system</td>
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<td>7.</td>
<td>Best bet technologies, for example, soil and water conservation (terraces, ditches, and vegetation strips on sloping land), better timing of operations, improved crop spacing and densities, manure or compost and water application based on local conditions.</td>
<td>In HEIA, there is lack of use of indigenous technologies.</td>
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