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## CONCEPTS AND PRINCIPLES OF INTEGRATED FARMING SYSTEM

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## CONCEPTS AND PRINCIPLES OF INTEGRATED FARMING SYSTEM

### Introduction

The Philippines is predominantly an agricultural country which is generally small-scale and dependent on manual labor. It is also characterized by varying topographies and soil types; diverse flora and fauna; and, a mélange of cultures in numerous communities (Zamora and de Guzman, 2012). Thirty-two percent of the total land area of the country is agricultural lands, 51 and 44% of which is arable and permanent croplands, respectively (Philippine Statistics Authority, 2014). There are some commercial and semi-commercial farms but majority are landless farm workers and small subsistence farms with a mean area of 2.0 ha per farm.

The opportunities provided by integrated farming: Includes productivity/increased economic yield per unit area – per unit time by virtue of intensification of crops, agricultural crop rotation and allied enterprises. Integrated Farming Systems provide opportunities as crop insurance cover as money round the year are obtained from different farm produces. It promotes technology Infusion Research and Development (R&D) integrated with indigenous/traditional knowledge.



### Subject Matter Specialist:

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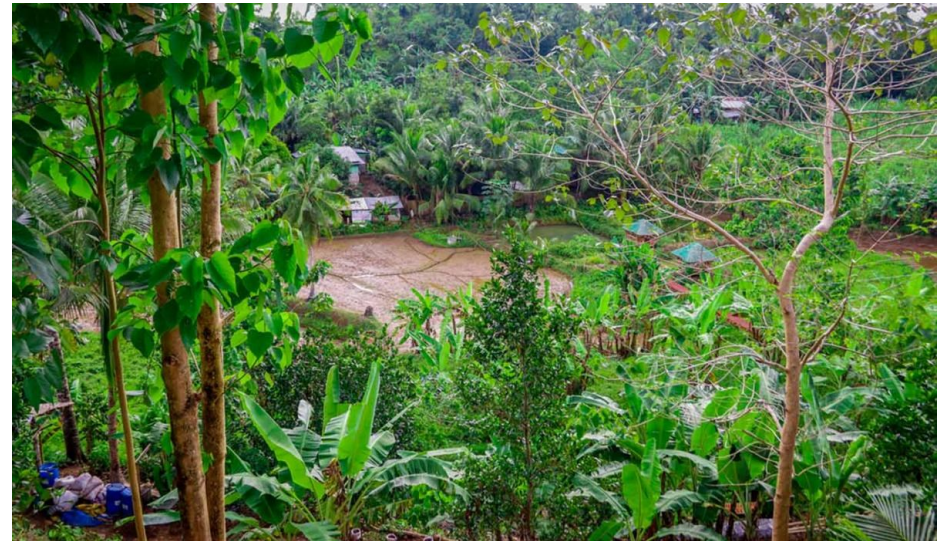
6. **Select Superior Quality Breed (for Livestock and Poultry).** The breeding of animals is under human control, and the breeders decide which individuals shall produce the next generation. The breeder makes a choice. The breeding of animals is based upon the fact that certain qualities are genetic, hence valuable qualities are passed on from parents to off -springs. The qualities can be maintained or improved in the next generation.

The performance of an animal is influenced by two major factors; 1. Genetic potential and, 2. The environment, which includes: Feeding, health, care and the ecological conditions. The genetic potential of an animal is inherited from its parents. In selection and breeding animals with superior characteristics are selected and allowed to mate. In the process they transmit the superior characteristics to their offspring. When this is done over a long period of time, it results in livestock and poultry improvement.



### Benefits or Advantages of Integrated Farming System (IFS)

1. **Sustainability:** In Integrated Farming Systems, organic supplementation through effective utilization of by-products of linked components as a measure is possible and this will certainly provide opportunity to promote soil health and to sustain the potentiality of the soil which is the production base.



2. **Productivity:** Integrated Farming System provides an opportunity to increase economic yield per unit area per unit time by virtue of intensification of crop and allied enterprises.
3. **Profitability:** Use waste material of one component at the least cost. Thus, reduction of cost of production and form the linkage of utilization of waste material, elimination of middleman interference in most input used. Working out net profit B/C ratio is increased.
4. **Potentiality:** Organic supplementation through effective utilization of by-products of linked component is done thus providing an opportunity to sustain the potentiality of production base for much longer periods.

- Balanced Food:** Integrated Farming Systems, components of different nature are linked enabling production of different sources of nutrition, namely, protein, carbohydrates, fats, minerals, vitamins, etc. from the same unit. It provides opportunity to mitigate malnutrition problem of the farmers.



- Environmental Safety:** In IFFS waste materials are effectively recycled by linking appropriate components, thus minimize environment pollution.
- Pollution Abatement:** In crop-based activity, some of the organics are left as waste materials which in turn pollute the environment on decomposition. Application of huge quantities of fertilizers, pesticides, weedicides/herbicides, insecticides, etc. pollute soil, water and air. Much of the wastes could be converted/recycled to some other forms of economic/ecological/social value, under the Integrated Farming System. Integrated farming also provides opportunities for agri-oriented industries, tourism and related tourism-based activities.
- Recycling:** Effective recycling of waste material in IFFS.
- Year-round Income:** Due to interaction of enterprises with crops, eggs, milk, mushroom, honey, cocoons silkworm. Provides flow of money to the farmer round the year.

- Use Good Quality Seed (for Crops).** Be sure to work with reputable seed dealers who know your area and who provide strong technical support for crop management and not just seed sales. For vegetable crops other than cereal grains, be cautious of using VNS (“variety not stated”). Avoid cheap deals from unknown sources. It is important to know where your seed comes from and to know if the dealer took any measures during the cleaning process to keep out unwanted weeds. Weeds are particularly difficult to control and have been known to appear in seed used in different types of conservation plantings. Planting reliable seed is good advice in general, not just for cash crops.



3. **Adjust your Planter and Practices.** Many vegetable crop considerations are similar to those for no-till, but vegetable crops result in additional surface/plant residues on the soil. Be sure to adjust the planter so that it operates properly and effectively for conditions in the field. Also, be prepared for greater than expected crop growth in the rainy season. Consider equipping your planter/drill with coulters, row cleaners, and/or heavy-duty furrow closers. Avoid trapping or “pinning” surface residue into the seed furrow, planting seed at an uneven depth, and leaving the furrow open. Strongly consider equipping your corn planter with 2x2 starter fertilizer applicators, and aim for a starter fertilizer rate (please refer to the recommended rate/ha.).
4. **Be Timely.** It is important to seed crops, terminate them, and scout at the proper times. If you plant a crop significantly after its recommended seeding period, it is not likely to produce enough benefit to be worth the cost. Establish at the right time/reliable period. Reliable establishment means that there is generally enough time for the crop to establish and grow to provide benefits to the soil and the following cash crops.



10. **Adoption of New Technology:** Resources farmer (big farmer) fully utilize technology. IFS farmers, linkage of dairy/mushroom/sericulture/vegetable. Money flow round the year gives an inducement to the small/original farmers to go for the adoption of technologies.
11. **Saving Energy:** To identify an alternative source to reduce our dependence on fossil energy source within short time. Effective recycling technique the organic wastes available in the system can be utilized to generate biogas. Energy crisis can be postponed to the later period.
12. **Meeting Fodder Crisis:** Every piece of land area is effectively utilized. Plantation of perennial legume fodder trees on field borders and also fixing the atmospheric nitrogen. These practices will greatly relieve the problem of non – availability of quality fodder to the animal component linked.



13. **Solving Fuel and Timber Crisis:** Linking agro – forestry appropriately the production level of fuel and industrial wood can be enhanced without determining effect on crop. This will also greatly reduce deforestation, preserving our natural ecosystem.
14. **Employment Generation:** Combining crop with livestock enterprises would increase the labor requirement significantly and would help in reducing the problems of under employment to a great extent IFS provide enough scope to employ family labor round the year.

15. **Agro - industries:** When one of produce linked in IFS are increased to commercial level there is surplus value adoption leading to development of allied agro - industries.

16. **Increasing Input Efficiency:** IFS provide good scope to use inputs in different component greater efficiency and benefit cost ratio.



## General Considerations

1. **Take a Long-term View.** The benefits of vegetable crops and livestock accrue over a number of years, and most soil health benefits will not be evident in the first year or two. Vegetables/livestock have their greatest potential when you consider them as a practice that will increase the resiliency and long-term sustainability of your soils resource.
2. **Do your Homework and Start Slowly.** You should observe the basic recommendations for a certain crop sequence for a corn-vegetable/livestock integration. There are many details to learn and consider as you integrate crops and livestock into your system. Attend workshops, trainings or seminars; talk with other growers and raisers who have successfully implemented crop or animal production; and consult resources from accredited institutions and other land-grant SUCs, state and federal conservation agencies. Plan ahead, start with a small part of your farm, and expect to fine-tune your management over the first few years. If you use an ag retailer to apply your herbicides/pesticides, have a discussion with them about your crops/commodities, how they will affect the timing and choice of herbicides/pesticides, and then formulate a plan together.

