B.Sc (Ag) IIIrd Semester
Course Name- Farm Power and Machinery
Course Code- BSCAG-215
D+1

Farm Power and farm Mechanization: Introduction

INTRODUCTION:

Agriculture is a key sector of Indian economy, accounting for about 25 percent share in the gross domestic product (GDP). Agriculture contributes around 15 percent of the country's total export earnings.

Oil seeds account for almost two thirds of the total farm imports making it one of the India's largest items of imports.

Processed food industry is the fifth largest segment of the economy, representing 6.3% of GDP, 13% of exports and 6% of total industrial investment. India is the second largest producer of rice and wheat in the world, first in pulses and fourth in coarse grains. India is also one of the largest producers of cotton, sugar, sugarcane, peanuts jute and tea.

India ranks first in the production of fruits in the world with an annual output of about 32 million MT (8% of the world fruit production). India is the second, largest producer of vegetables in the world (ranks next to China) and accounts for about 15% of the world's production of vegetables. India is a vast country, covering about 329 million hectare geographical area. Out of the total geographical area, about 166 million hectare is cultivable land and net sown area is about 142 million ha. The gross cropped area increased to about 189.5 million hectares. As a result of Green Revolution in sixties, the total food grain production increased from 51 million tons during 50-51 to 511 million tons in 2001-2002 and productivity increased from 522 kg / ha to more than 1500 kg / ha.

The farm holdings in India are classified as:

- Marginal (<1 ha)
- Small (1 to 2 ha)
- Semi medium (2 to 4 ha)
- Medium (4 to 10 ha)
- Large (> 10 ha)

More than 75 percent farmer belongs to marginal and small category with more than 70 percent area under rain fed crops. India has very promising farm machinery industry in general. Approximate yearly productions of machineries are as follows:

- Tractors: More than 2.75 lac.
- Power tiller: More than 15,000.
- Sprayers and dusters: 5 lac.
- Pumping sets: About 10 lac.
- Combine harvester: 2500.
- Approximate population of agricultural machinery: 150 million Power is the basic requirement of agriculture, farming operations need some type of power at the farm to operate machineries for:
  (a) Seed bed preparation.
  (b) Sowing of seeds.
  (c) Water pumping for irrigation.
  (d) Spraying & dusting of crops.
  (e) Intercultural operations harvesting of crops.
  (g) Threshing of crops.
  (h) Processing of crops and
  (i) Transporting of crops for marketing purpose.

For growing population of India, Indian Council of Agricultural Research (ICAR) in its vision 2020 documents has estimated the requirement of grain production and farm power as follows:

1. Average production of grain: 2300 kg / ha.

2. Average farm power: 2 kw / ha.

In recent years, there has been a considerable emphasis on crop diversification towards horticulture (fruits, vegetables, ornamental crops, medicinal & aromatic plants and spices), plantation crops (coconut, cashew nuts and coca) and allied activities. Creation of critical infrastructure for cold storage, refrigerated transportation, rapid transit, grading, processing, packaging and quality control measures on priority have ample scope of major investment.

Biotechnology helps in improving the resistance of crops to pests. New high yielding varieties of seeds are constantly helping farmers to increase farm productivity.

Constant efforts are there to introduce varieties that require less water and are adoptable to various agro climatic and soil conditions especially for wheat and cotton. Biotechnologists are working on eco - friendly fertilizers and pesticides.

High - tech agriculture is evident in the field of soil management, integrated nutrient management, water management, machinery management, manure and fertilizer vermi-compost and bio fertilizers, integrated pest management, improved high quality seeds, planting material, green house and poly house cultivation.

The use of information and communication technology (ICT) in agriculture is making huge strides in India. These technologies have the ability to provide farmers with real time information with regard to weather conditions, price movements and know how about advancement in agricultural technology, hybrid seeds, pesticides & fertilizers at their doorstep in local languages. E-Commerce is also a technological innovation that can improve:

(i) Competitiveness
(ii) Alternative distribution channel &
(iii) New cost structures.

Food processing sector is a vital link between agriculture and the consumer. It ensures value addition to agricultural products, generates employment, enhances the income of the farmers and creates surplus store for the export of agro foods.

There is tremendous scope of capacity building in processing, transportation, storage, and handling facilities. The largest growth potential for the processing is dairy, fruits, vegetables and poultry.

There is good scope of pickles, chutney, fruit pulp, canned fruits, vegetables, concentrated pulp and juices, dehydrated vegetables and frozen fruits. Packaging is also very important. Plastic flexible packaging dominates the packaging industry. Laminated products include form - fill seal pouches, laminated tubes and tetra packs are growing rapidly. Proper execution of the above mentioned activities require suitable farm power which is a challenge for the agricultural engineers in the country.

REFERENCES:

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2.	**Farm Machinery**	**S.C. Jain and Er. Grace Philip**

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