SNS COLLEGE OF TECHNOLOGY
AN AUTONOMOUS INSTITUTION

Approved by AICTE New Delhi & Affiliated to Anna University Chennai
Accredited by NBA & Accredited by NAAC with A^{++} Grade Recognized by UGC

DEPARTMENT OF AGRICULTURAL ENGINEERING

COURSE CODE & NAME: 19AGO301 & FARM MECHANISATION

III YEAR / VI SEMESTER

UNIT : I **SCOPE OF MECHANISATION IN INDIA**

TOPIC : 2

FARM MECHANIZATION:

Farm mechanization is the application of engineering and technology in agricultural operations, to do a job in a better way to improve productivity. This includes development application and management of all mechanical aids for field production, water control, material handling, storing and processing. Mechanical aids include hand tools, animal drawn equipment, power tillers, tractors, engines, electric motors, processing and hauling equipment.

SCOPE OF FARM MECHANIZATION:

There is a good scope of farm mechanization in India due to the following factors:

1) Improved irrigation facility in the country.
2) Introduction of high yielding varieties of seeds.
3) Introduction of high dose of fertilizers and pesticides for different crops.
4) Introduction of new crops in different parts of the country.
5) Multiple cropping system and intensive cultivation followed in different parts of the country.

SOME OTHER FACTORS WHICH ARE RESPONSIBLE TO ENCOURAGE FARM MECHANIZATION ARE:

i) Population of the country is increasing at the rate of about 2.2% per year. Steps have to be taken to arrange food and fibre for such large population by adopting intensive farming in the country. Intensive farming requires machines on the farm.

ii) In multiple cropping programme, where high yielding variety of seeds are used, all farm operations are required to be completed in limited time with economy and efficiency. This is possible with the help of mechanization.

iii) Farm mechanization removes drudgery of labour to a great extent. A farmer has to walk about 66 km on foot while ploughing 1 ha land once by bullocks with a country plough having 15 cm furrow width.

iv) A large number of females and children work on farm. So, with mechanization females can work at home and children go to school.

v) The proper utilization of basic inputs like water, seeds and fertilizers will be possible with proper equipment.

vi) There are certain operations which are rather difficult to be performed by animal power or human labour such as:

a) Deep ploughing in case of deep rooted crops.

b) Killing the pernicious weeds by deep tillage operations.

c) Levelling of uneven land.

d) Land reclamation.

e) Application of insecticides during epidemic seasons. These operations need heavy mechanical equipment.

BENEFITS OF FARM MECHANIZATION:

There are various benefits of farm mechanization:

1) Timeliness of operation
2) Precision of operation
3) Improvement of work environment
4) Enhancement of safety
5) Reduction of drudgery of labour
6) Reduction of loss of crops and food products
7) Increased productivity of land
8) Increased economic return to farmers
9) Improved dignity of farmers
10) Progress and prosperity in rural areas

PRESENT STATUS OF FARM MECHANIZATION:

Present status of farm mechanization is quite appreciating. We have:

a) Improved manual tools.
b) Improved animal drawn implements.
c) Tractor operated implements.
d) Custom hiring units on the farm.
e) Other stationary equipments like threshers, irrigation pumps, sprayers, dusters etc.

LIMITING FACTORS IN FARM MECHANIZATION:

There are various limitations in adopting farm mechanization:

1) Small and fragmented land holdings.
2) Less investing capacity of farmers.
3) Agricultural labour is easily available.
4) Adequate draught animals are available in the country.
5) Lack of availability of suitable farm machines for different operations.
6) Lack of repair and servicing facilities for machines.
7) Lack of trained man power.
8) Lack of co-ordination between research organization and manufacturers.
9) High cost of machines.
10) Inadequate quality control of machines.

BOTTLENECKS IN INDIAN FARM MECHANIZATION SYSTEM

- Low annual use of tractors (only 500-600 hrs/year against recommended 1000 hrs/yr).
- Non availability of matching equipment.
- Cumbersome and energy inefficient designs.
- Poor reliability, frequent breakdowns and high repair and maintenance cost.
- Low quality.
- Use of ungraded materials, absence of inter-changeability of components.
- Inadequate R&D, Testing &Training facilities and inadequate Research funding.
- Inadequate user education.
- Lack of standardization.
- Non-availability of relevant literature like operator’s manual, parts catalogues etc.

Thank You