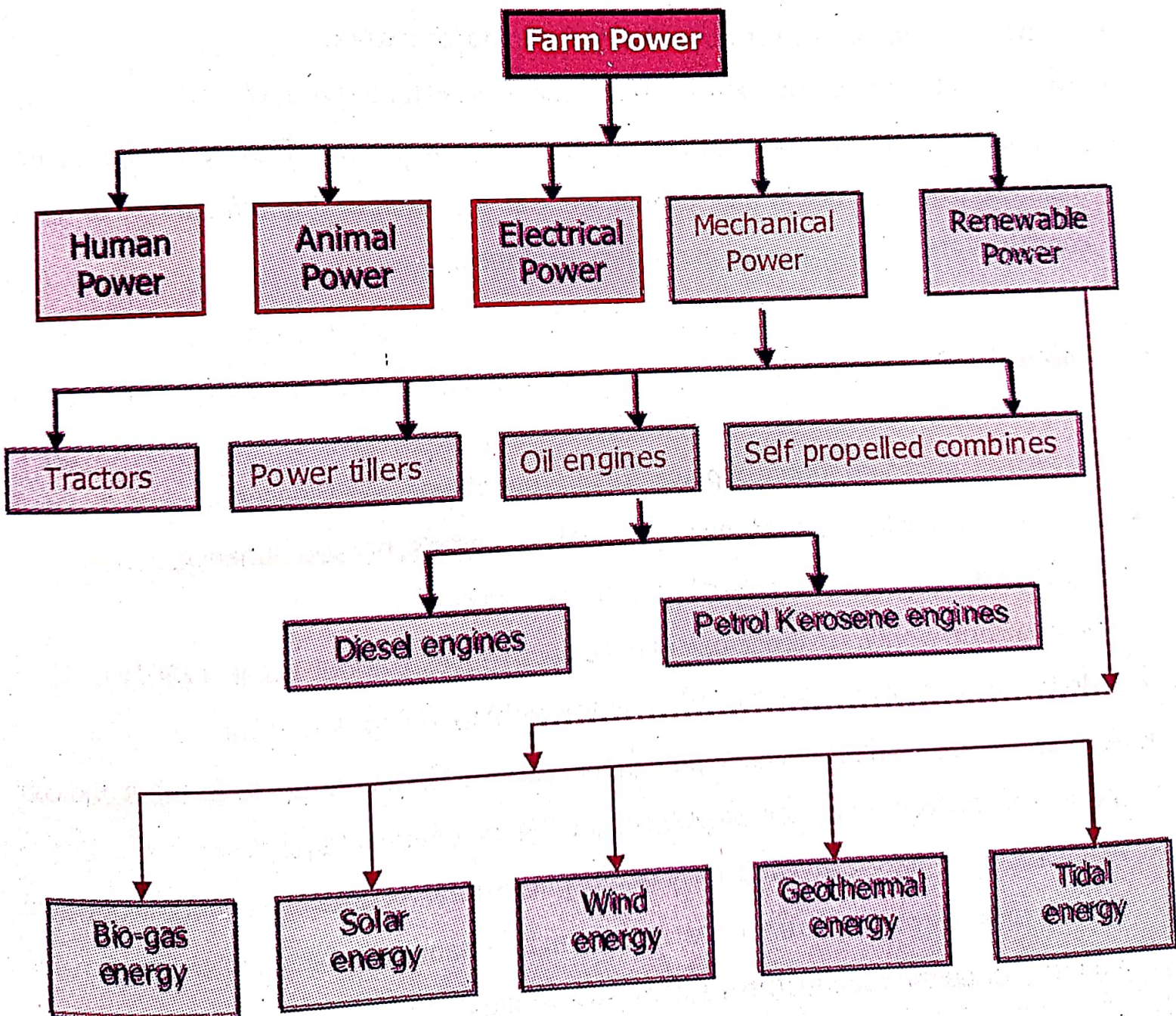


CHAPTER-1

SOURCES OF FARM POWER

There are various types of work to be done on the farms. The entire (tractive as well as stationary) work is completed using various sources of power. The sources of farm power are classified as given in chart 1.1.

Chart-1.1 Classification of sources of farm power



The characteristic of different sources of power

1. Human Power

- It is an important source of power for operating small size implements, equipments and hand tools.
- Much of the work (chaff cutting weeding by hook, planting, fertilizer application, threshing, winnowing, etc.) can be done by human labour.
- An average man can develop about 0.1 hp for doing farm work.
- The most advantage of this power is that it can be used for all types of work.
- It is costly, may not be available in time, has very low efficiency, requires full maintenance when not in use, cannot work at a stretch and is affected by weather conditions and seasons are the major disadvantages.

2. Animal Power

- It is also an important source of power for all types of work in all seasons.
- Besides the bullocks, other animals like buffaloes, camels, horses, donkeys, mules, elephants are also used in different parts of the country.
- For usual farm work an average pair of bullock can develop about 1.0 hp (750 W).
- A draft animal can exert about $1/10^{\text{th}}$ of body weight for doing farm work.
- Animals live on farm products, supply manure to the farm and fuel to farmers and can be used for all types of work in all seasons are the major advantages.
- Animals create unhealthy and dirty atmosphere near residence, cannot work at a stretch, have very low efficiency, requires full maintenance when not in use and require attention round the year are the major disadvantages.

3. Electrical Power

- It is mostly used in the form of electrical motors on the farms.
- It is used for pumping water, threshing, food processing unit, poultry unit, fruit processing unit, cold storage unit and for many more applications on the farm.
- It requires less maintenance, has high efficiency, can work at a stretch & no effect of season on performance are major advantages.
- High initial capital investment, great danger if not handled carefully and requires good technical knowledge are the major disadvantages.

4. Mechanical Power

- It is mostly used in the form of tractors, power tillers, oil engines, self propelled combines etc. on the farms.
- It is used for land preparation, interculturing, spraying, water pumping, harvesting, threshing, farm produce transport and for many more applications on the farm.
- It has less operating and maintenance cost, has high efficiency, can work at a stretch, requires less space & no effect of season on performance are major advantages.
- High initial capital investment, great danger if not handled carefully and requires good technical knowledge for repairs and maintenance are the major disadvantages.

5. Renewable Power

- Renewable power is inexhaustible in nature.
- It can be used for lighting, cooking, water heating water purification and distillation, diesel engine operation and electric generation.
- It is available in abundant but require costly conversion systems and gadgets.
- The important sources of renewable energy are bio mass, wind energy, solar energy, geothermal energy and tidal energy.