

Introduction

All farm power operations require a specific amount of energy. The time required will vary according to the size and type of power source used. Power can be supplied by humans, animals, or machines. Explore the information for each of the five power sources given below.

1. Human Labor

In some cases, manual labor is more cost efficient than machines. One person can

- shift 23 cubic meters of soil/day
- cultivate 60-68 square meters/day
- cultivate 1 hectare in 150-160 days
- hand weed 1 hectare in 30-35 days

2. Animals

Animals are still widely used as a major power source. A pair of animals will take 8-10 days to plough 1 hectare.

Advantages: Cheap to maintain, multipurpose, self replacement.

Disadvantages: Limited daily working hours, slow, high person/power ratio.

3. Two Wheel Tractor

Two wheel tractors are normally powered by 6-12 kw gasoline or diesel engines and are fitted with either rubber tires or steel cage wheels. A two wheel tractor can plough 1 ha/day.

Advantages: Multipurpose vehicle, operate in harder conditions than animals or humans, operate in both wet and dry conditions, fairly simple mechanical design.

Disadvantages: Cost of owning and operating, operator fatigue, although rideon versions are now available.

4. Four wheel tractor

Four wheel tractors can be divided into 2 categories: 2wheel drive and 4wheel drive.

2-Wheel Drive



Advantages

- . Smaller turning circle
- . Simplicity of design
- . Fewer mechanical parts
- . Lower purchase price

Disadvantages

- . Inability to work in wet and muddy conditions

4-Wheel Drive



Advantages

- . Ability to work in wet condition
- . More efficient

Disadvantages

- . Higher purchase cost
- . Higher maintenance cost

5. Track laying Tractor

Used mainly for civil work but can be used for tillage.

Advantages: Good traction, high power availability at draw bar, lower operating cost.

Disadvantages: High cost, poor maneuverability, high purchase cost.

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