# Material handling

- After harvesting, the grains are moved, transported or conveyed from place to place. In earlier periods all these operations were manual.
- The grains were threshed and bagged by human labour.
- Grains were transported several times through storage and milling plants, and the milled food products were conveyed manually to consumers.
- Thus, grains were handled too much involving increased costs and human drudgery.
- But in modern times, some mechanical devices have replaced human labour, other supplement it or in some case make possible to handle larger quantities of grains per unit human

# Material Handling

- *Material handling* is the function of moving the right material to the right place in the right time, in the right amount, in sequence, and in the right condition to minimize production cost.

- The cost of MH estimates 20-25 of total manufacturing labor cost

# Goals of Material Handling

- The primary goal is to reduce unit costs of production
- Maintain or improve product quality, reduce damage of materials
- Promote safety and improve working conditions
- Promote productivity
  - material should flow in a straight line
  - use gravity! It is free power
  - move more material at one time
  - mechanize material handling
  - automate material handling

- The most common types of mechanical devices for grain handling are;
    - Belt conveyor
    - Bucket elevator
    - Screw conveyor

# Principles

- The selection of proper conveying system is important for ease in operation and getting desired capacity for a particular product. Before selecting a conveying system, the following principles should be taken into account.

1. The conveying device has to be selected according to the characteristics of the products being conveyed

2. The stability of the conveyor must be ensured under all normal working and climatic conditions.

3. The capacity of conveying and speed rating should be maintained at specified limits.

4. The dead load of the conveyor should be low in relation to the weight of transported product.

5. In a conveying system possibility of use of gravity should be taken into consideration.

6. The capacity of handling/conveying equipment should match with the capacity of processing unit or units.

7. Spillage of conveyed products should be avoided. Pollution of the environment due to noise or dust by the conveying system should also be avoided.