SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution
Coimbatore – 35

Accredited by NBA – AICTE and Accredited by NACC – UGC with 'A+ Grade
Approved by AICTE , New Delhi and Affiliated to Anna University , Chennai.

DEPARTMENT OF AGRICULTURE ENGINEERING

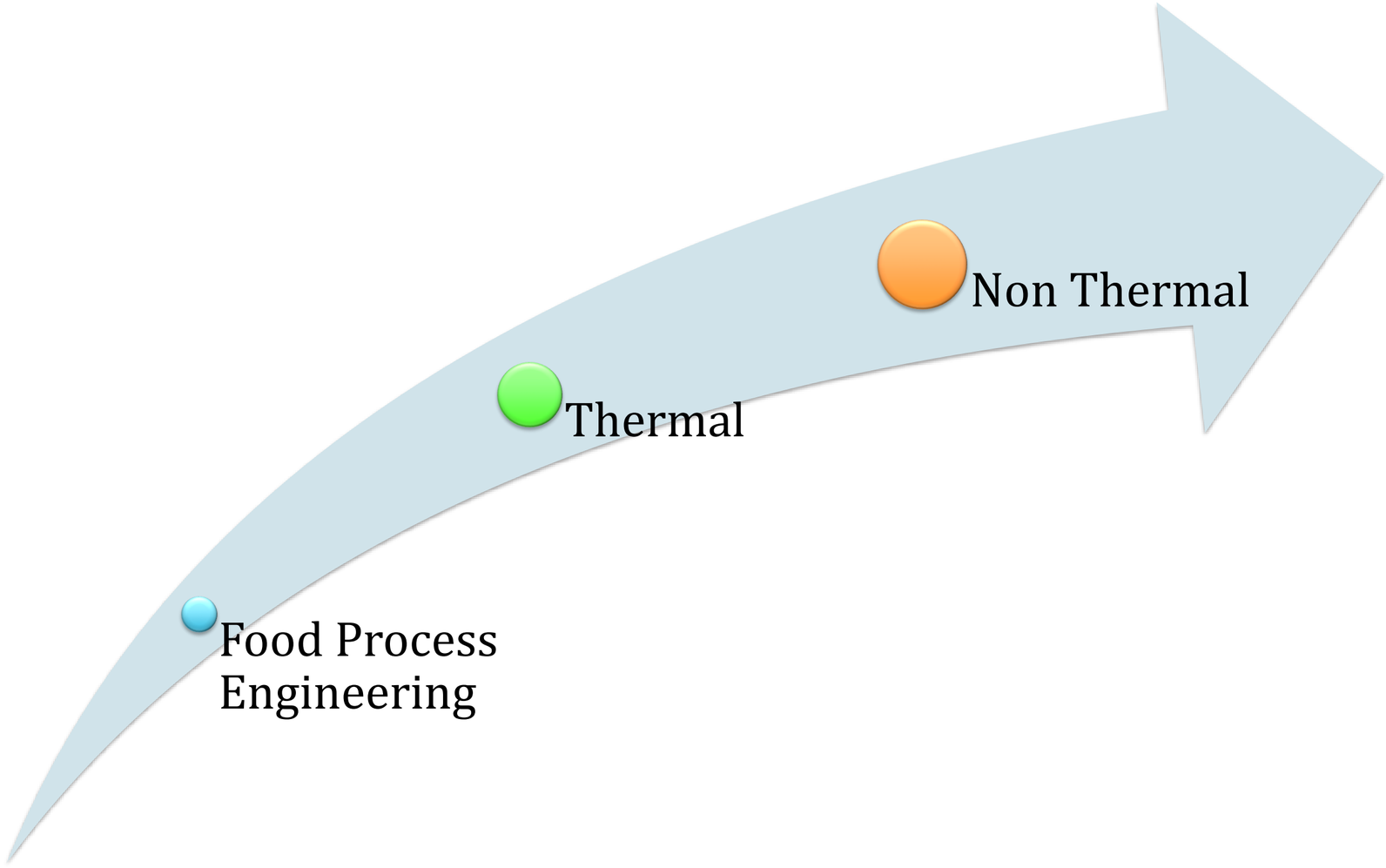
19AGT203 – AUTOMATION TECHNIQUES IN AGRICULTURE ENGINEERING

II – YEAR IV SEMESTER

UNIT 2 – ADVANCED MACHINERY/EQUIPMENT IN AGRICULTURAL ENGINEERING- II

TOPIC 3– EXTRUSION AND FREEZING PROCESSING

Last Class Review

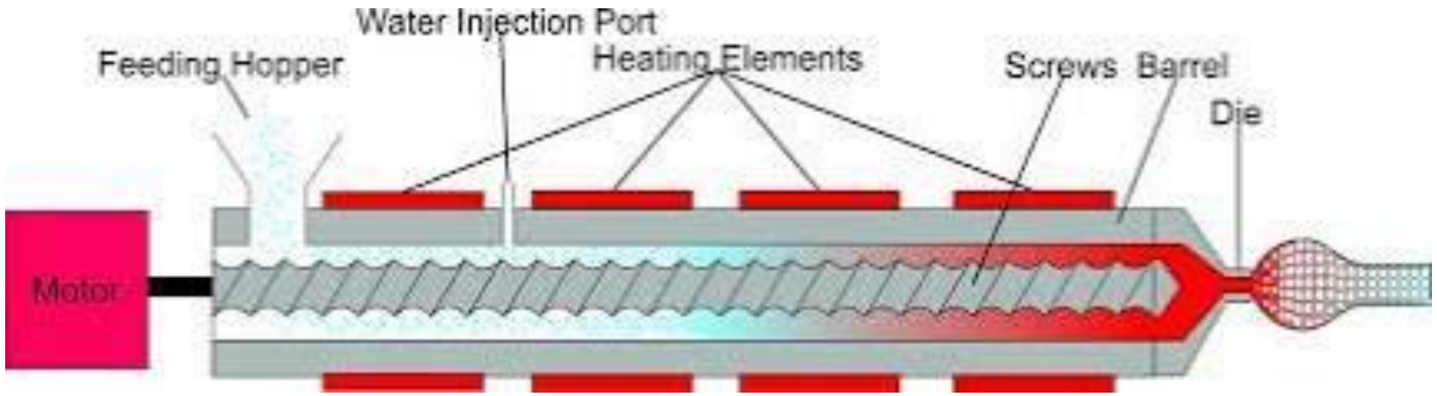


Extrusion

- It is a processing system that utilizes a single screw or a set of screws to force food materials through a small opening.
- While food is being forced through the extruder, foods are cooked by the high pressure, high shear, and high temperature environment created by the screws, encased in the barrel

Importance!!!

- Extrusion cooking is thus one of the preferred food-processing techniques due to its continuous process with high productivity, high temperature and short time cooking period while destroying both harmful microbial organisms and anti-nutrient enzymes, resulting in significant nutrient-retention products with longer shelf



Categories!!!

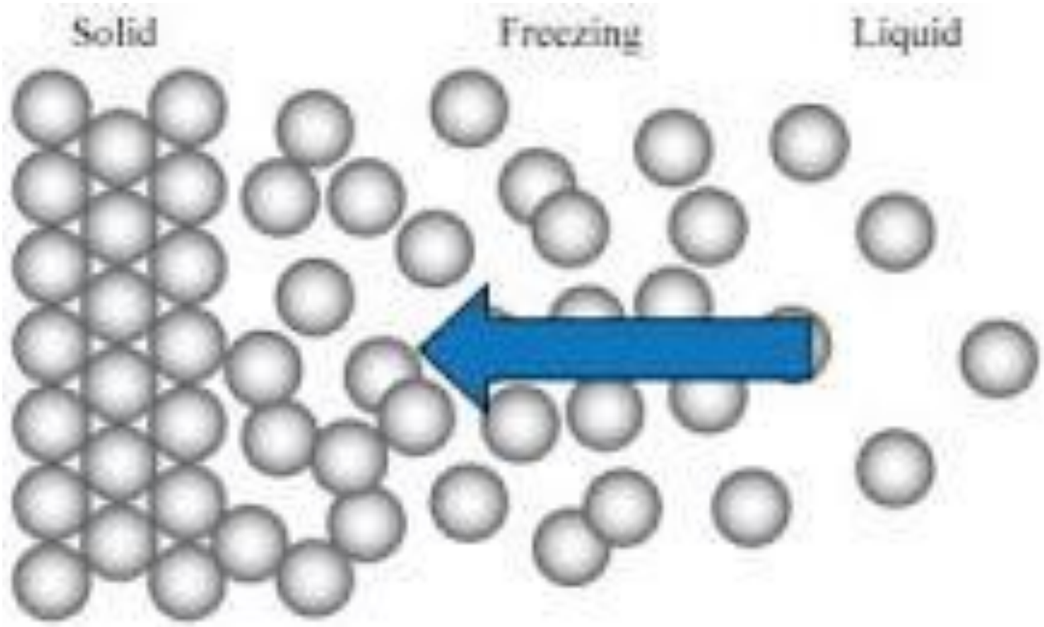
- Cold
- Hot
- Steam Induced
- Co- Extrusion

Freezing….

- Food freezing is a food preservation process based on exposing food to temperatures below its freezing point, a point at which the state of matter changes and the properties of the product are altered, turning it into ice and solidifying all the water or moisture contained in the food

Process

- Freezing is the process in which a liquid changes to a solid.
- It occurs when a liquid cools to a point at which its particles no longer have enough energy to overcome the force of attraction between them.
- The freezing point of a substance is the temperature at which it freezes.
- The freezing point of pure water is 0°C



Methods

- There are two main types of freezing system: mechanical (which use a circulating refrigerant to reduce the temperature of air or a liquid which is passed over the food) and cryogenic (which use the direct application of liquid nitrogen or carbon dioxide onto the food)

Types

- Spiral tunnel freezing method
- Cryogenic refrigerator freezing method
- Liquid nitrogen spray freezing method

See You at Next Class!!!!