



# **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 AGRICULTURAL ENGINEERING**

**19AGT203 – AUTOMATION TECHNIQUES IN AGRICULTURE ENGINEERING**

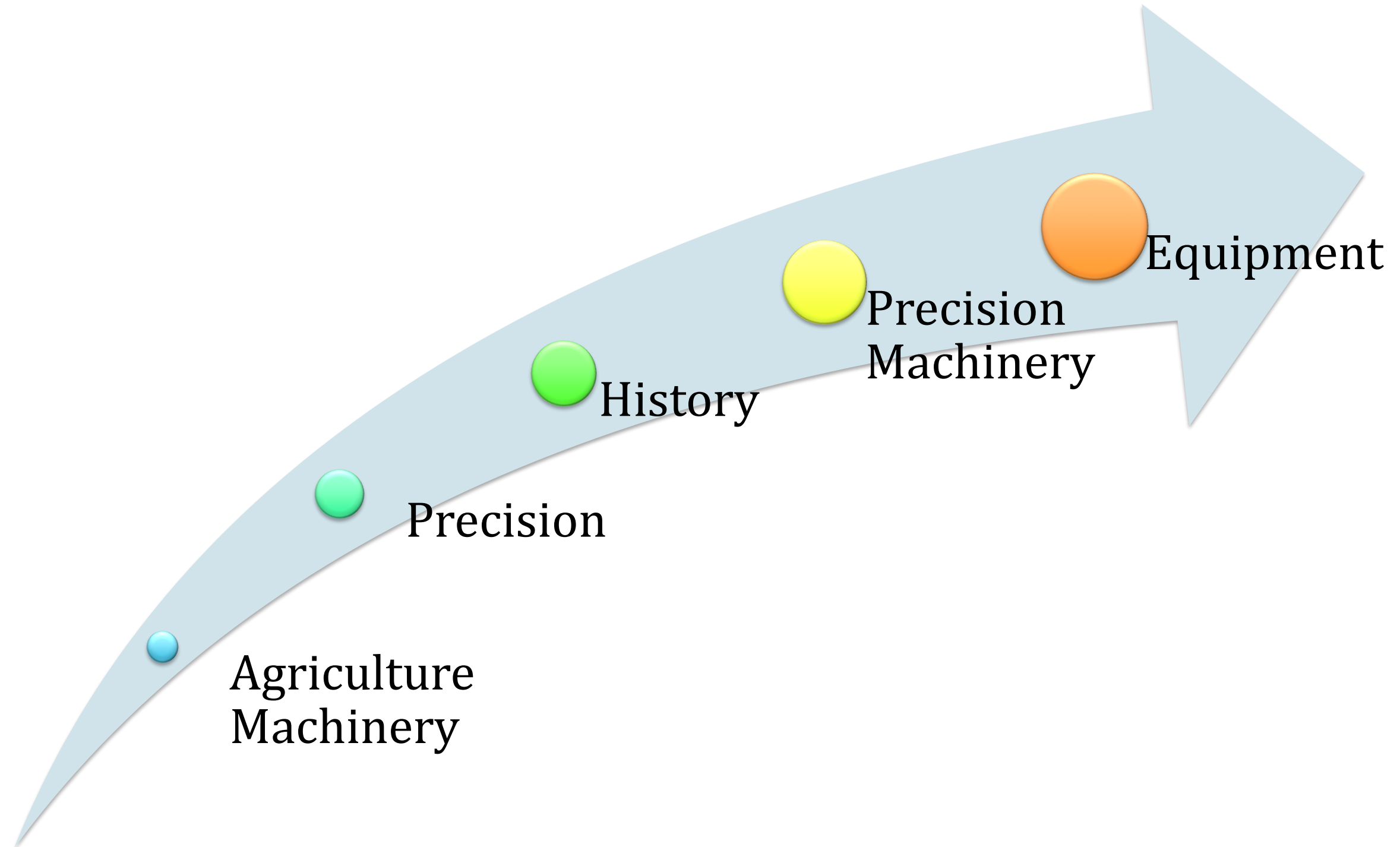
**II – YEAR IV SEMESTER**

**UNIT 1 – ADVANCED MACHINERY/EQUIPMENT IN AGRICULTURAL ENGINEERING- I**

**TOPIC 3 – LASER GUIDED LEVELER**



# Last Class Review





# Leveller

- ❖ It is used to break hardpan of the soil, loosening of the soil and helps the water to seep into the soil for improving drainage.





# Functions of Leveller

- ❖ Leveler helps in distributing the water of irrigation in an organized way.
- ❖ Leveler is helpful in freeing the soil from big crumps.





# Types of Leveller



- ❖ Tractor Drawn Leveller
- ❖ Laser Guided Land Leveller
- ❖ Sub-soiler





# Tractor Drawn Leveller

- ❖ It is used to break hardpan of the soil, loosening of the soil and helps the water to seep into the soil for improving drainage.





# Tractor Drawn Leveller

## Features

- ❖ The leveler consists of frame, 3-point linkage, cutting or scraping blade, and thick curved sheet closed from sides to form a bucket.
- ❖ The scraping blade is made from medium carbon steel or low alloy steel, hardened and tempered to about 42 HRC.
- ❖ The blade is joined to the curved sheet with fasteners and can be replaced after being worn out or becoming dull.
- ❖ The working depth of the implement is controlled by hydraulic system of the tractor.



# Laser Guided Leveller

- ❖ Laser Land Leveler is a more advanced technique for smoothing the land surface from its average height with a certain degree of the desired slope using a guided laser beam throughout the field.







# Laser Guided Leveller

## Features:

- ❖ The laser land leveler consists of a laser transmitter, a laser receiver, an electrical control panel, a twin solenoid hydraulic control valve, two wheels and a leveling bucket.
- ❖ The laser transmitter transmits a laser beam, which is intercepted by the laser receiver mounted on the leveling bucket.
- ❖ The control panel mounted on the tractor interprets the signal from the receiver and opens or closes the hydraulic control valve, which raises or lowers the bucket. Some laser transmitters have the ability to operate over graded slopes ranging from 0.01% to 15% and apply dual controlled slope in the field.
- ❖ The leveling bucket can be either 3-point linkage mounted or pulled by the tractor's drawbar.
- ❖ Bucket dimensions, number of wheels and capacity will vary according to the available power source and field conditions



# Specifications: Laser Guided Leveller



- ❖ Laser Source : < 5mw 635nm
- ❖ Operating diameter( m) : (Above) 800
- ❖ Grade range ( % ) : -10 to +15 Dual Axes
- ❖ Grade accuracy ( % ) : 0.015, 3 mm@30 m
- ❖ Remote control type : Full 2-way communication
- ❖ Power requirement ( hp/KW) : 60/45



**See You at Next Class!!!!**