TKP3501
Agricultural Mechanization

Topic 7a: Machinery in Rice Production

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Why we need machineries?
Type of machine available
Traditional vs modern

Introduction

Filters, oil, lubrication, parts
Maintenance

Power tiller
Other small equipment
Compact equipment

Tractors’ components & Systems
Main components
Systems;
- Fuel & Intake
- Combustion
- Cooling
- Electric & instruments
- Lubrication
- Hydraulic

Implements
Primary tillage
Secondary tillage

Theoretical Field Capacity
Effective Field Capacity
Field Efficiency
Farm Efficiency**

How to choose the tractor and implement size**
Tractor & power unit
Type of power available

Emerging Technologies
Sensor
Tracking
GPS, GNSS
GIS, Mapping

Cost analysis**
Optimization

Livestock
Feeding system
Milking
Aquaculture

Forestry
Horticulture

Crop Production

Land preparation
Crop type;
- Oil palm
- Rice
- Vegetable

Seedling & Planting
Crop type
Planter**

Fertilization & Irrigation**
Spreader
Pump
Sprinkler

Harvesting
Yield, Baller
Transportation

Farm maintenance
Grass, road, drainage

** = Involves calculations
What are the rice plantation production stages?
1. Land preparation
2. Planting
3. Farm and crop management
4. Input
5. Harvesting
1. Land Preparation

- Land levelling
  - Uniform water and nutrient for rice plant, weed control,
- Land survey
  - To measure the level difference
    - Method: Laser, GPS or Manual
- Bucket or rotovator
Circuitous pattern

One way pattern

http://www.knowledgebank.irri.org/ericeproduction/I.3_Land_levelling.htm
2. Planting

- **Method:** Direct seeding or transplanting
  - **Direct seeding**
    - Manual, broadcasting machine, drill
  - **Transplanting**
    - After 2 weeks on the seed carpet
    - Transferred using transplanter
3. Farm & Crop Management
4. Inputs

- Fertilizer
- Pesticide/herbicide
5. Harvesting

NEXT TOPIC!
Review

- Why controlling and maintaining water level is crucial in paddy cultivation?
- What the step required to get a uniform water level?
Thank you.