SMARTAGRI
CAMBODIA

PRECISION AGRICULTURE

PRECISION AGRICULTURE

- Precision Agriculture (កសិកម្មផ្នែកលើទិន្នន័យ)

➢Precision agriculture uses data and technology to optimize farming operations

➢It helps apply inputs more efficiently and only where needed

➢Common applications include soil preparation, seeding, fertilizing, and spraying ការប្រើប្រាស់វិធីសាស្ត្រកសិកម្មផ្នែកលើទិន្នន័យមាននៅក្នុង ការរៀបចំដី.....

PRECISION AGRICULTURE

- **Benefits**

➢Reduces input costs (fuel, fertilizer, chemicals)

- Improves crop yield and uniformity (របាយស្មើគ្នា)

➢Minimizes environmental impact កាត់បន្ថយហានិភ័យចំពោះបរិស្ថាន

SOIL PREPARATION MACHINES

- **Soil Preparation**

➢Soil preparation machines improve soil structure before planting

➢Proper preparation ensures better seed placement and crop growth អាចធានាថាគ្រាប់ត្រូវបានព្រោះបានល្អ ហើយលូតលាស់ល្អ

SOIL PREPARATION MACHINES

- **Types of Machines**

➢Plows, cultivators, harrows រាស់ដី, and rollers ពង្រៀបដី are commonly used

➢Each machine has a specific function depending on soil conditions

SOIL PREPARATION MACHINES

- **Precision Approach**
- Working depth and speed should be adjusted based on soil variability ភាពខុសគ្នានៃសណ្ឋានដី

➢Uneven soil conditions require different treatment across the field

SEEDING MACHINES

- **Seeding**
- Seeding machines place seeds into the soil at the correct depth and spacing ចន្លោះត្រឹមត្រូវ

➢Accurate seeding is essential for uniform crop emergence ការលូតលាស់ស្មើគ្នានៃដំណាំ

SEEDING MACHINES

- **Precision Seeding**

➢Precision seeders control seed spacing and planting depth

➢GPS guidance ensures straight lines and minimal overlap កាត់បន្តយជាន់លើគ្នា

SEEDING MACHINES

- **Key Factors**
- Seed spacing, depth, and soil contact affect germination (ដំណុះគ្រាប់)

➢Incorrect settings can reduce yield

SPRAYING MACHINES ម៉ាស៊ីន

- Sprayers

➢Sprayers apply pesticides, herbicides, and liquid fertilizers

➢Uniform application ការប្រើជាតុចូលតាមតម្រូវការជាក់ស្តែងរបស់ដំណាំ ឬដី is important for effective treatment

SPRAYING MACHINES

- **Precision Spraying**

➢Modern sprayers use sensors and control systems

➢They adjust application rate based on field conditions

SPRAYING MACHINES

- **Nozzles and Pressure**

➢Nozzle type ន្ទេបញ្ចេញ and pressure សំពាធ influence droplet size and coverage

➢Incorrect settings can cause drift (សាចចោល) or poor application

FERTILIZING MACHINES

- **Fertilizing**

➢Fertilizers supply nutrients necessary for plant growth

➢Machines distribute fertilizer across the field

FERTILIZING MACHINES

- **Precision Fertilizing**
- Variable rate application adjusts fertilizer amount based on soil needs ពេលយើងមានទិន្នន័យវិភាគសណ្ឋានដីជាតិដី យើងអាចសារ៉េបរិមាណជីត្រូវបាញ់យោងតាមតម្រូវការរបស់ដី

➢Helps avoid over-fertilization and reduces costs

FERTILIZING MACHINES

- **Calibration** (សារ៉ៃប្រព័ន្ធបាញ់អោយត្រូវកម្រិតស្តង់ដារ)

➢Proper calibration ensures (ធានាការផ្តល់ជាតុចូលត្រឹមត្រូវ) correct application rate

➢Incorrect calibration leads to uneven nutrient distribution

SPRING-TINE HARROW

- **Spring-Tine Harrow** (ជ្រាយដីដោយប្រើដាលតូចៗ)

➢A spring-tine harrow is used for light soil cultivation and weed control (ដីធូរ)

➢It loosens the top layer (ដួយបំផុសដីស្រទាប់លើ) of soil and improves surface structure (កែលំអលក្ខណៈដី)

SPRING-TINE HARROW

- **Function**

➢Breaks soil crust (ដីស្រទាប់លើ) and removes small weeds

➢Helps retain soil moisture and improves aeration (ជួយខ្យល់ចូលក្នុងស្រទាប់ដី)

SPRING-TINE HARROW

- **Adjustment**

➢Working depth and tine angle must be properly adjusted (ជម្រៅ និង ផាល ត្រូវសារ៉េអោយបានត្រឹមត្រូវ)

➢Incorrect settings can damage crops or reduce effectiveness

SPRING-TINE HARROW

- **Use in Practice**

➢Often used after seeding or during early crop growth

➢Suitable for light soils and surface treatment (កែលម្អគុណភាពដី)