



# **Cropping Practices that Influence Weed Management**

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Two goals:

1. Don't let weeds emerge.

2. Don't let escaped weeds produce seeds.

# Crop Rotation

Changing crop sequences to create an unstable and inhospitable environment for weed establishment and survival -

resource availability

allelopathic effects

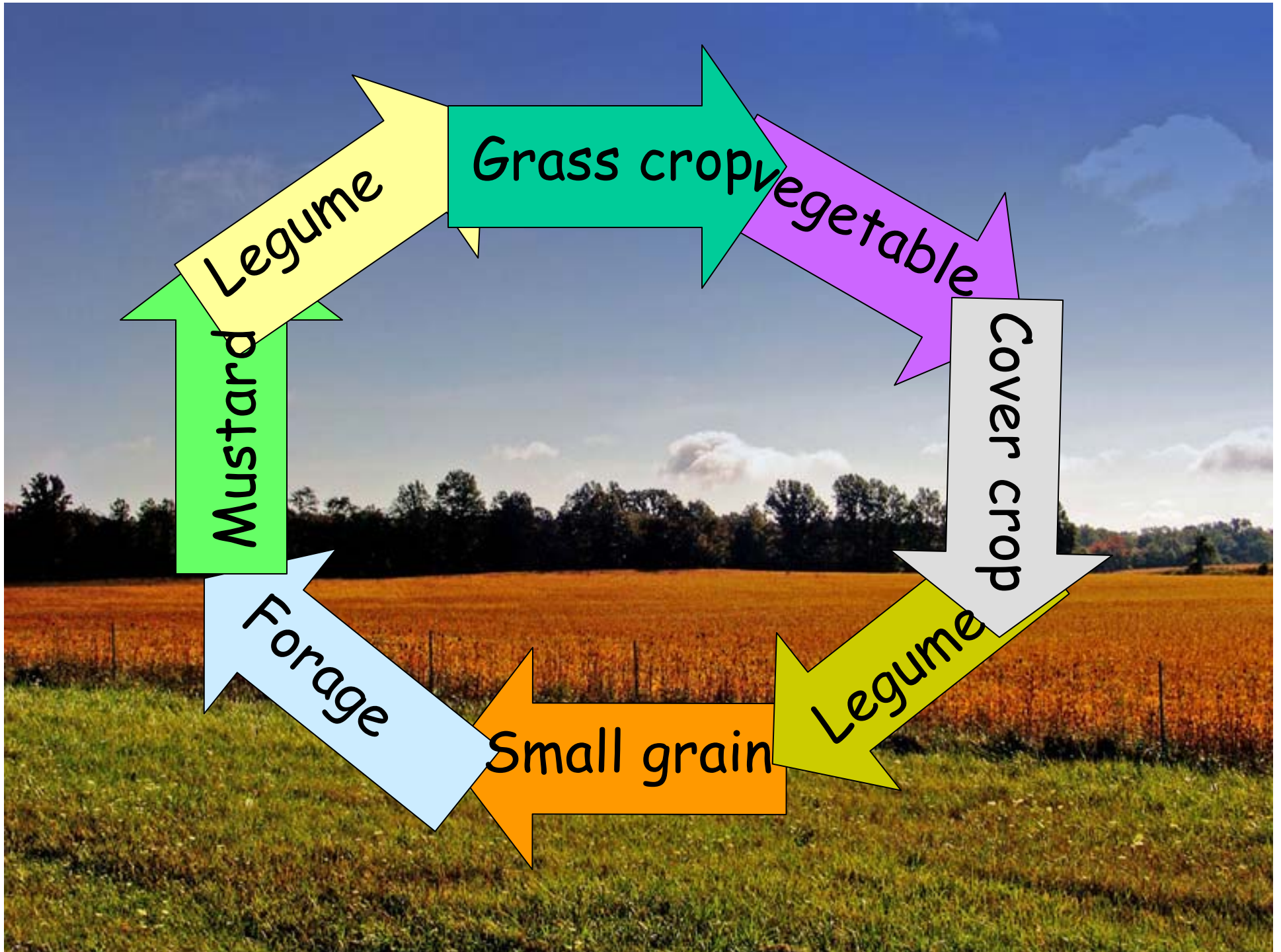
soil disturbance

soil fertility

mechanical damage



X time





**Grass crop**

Legume

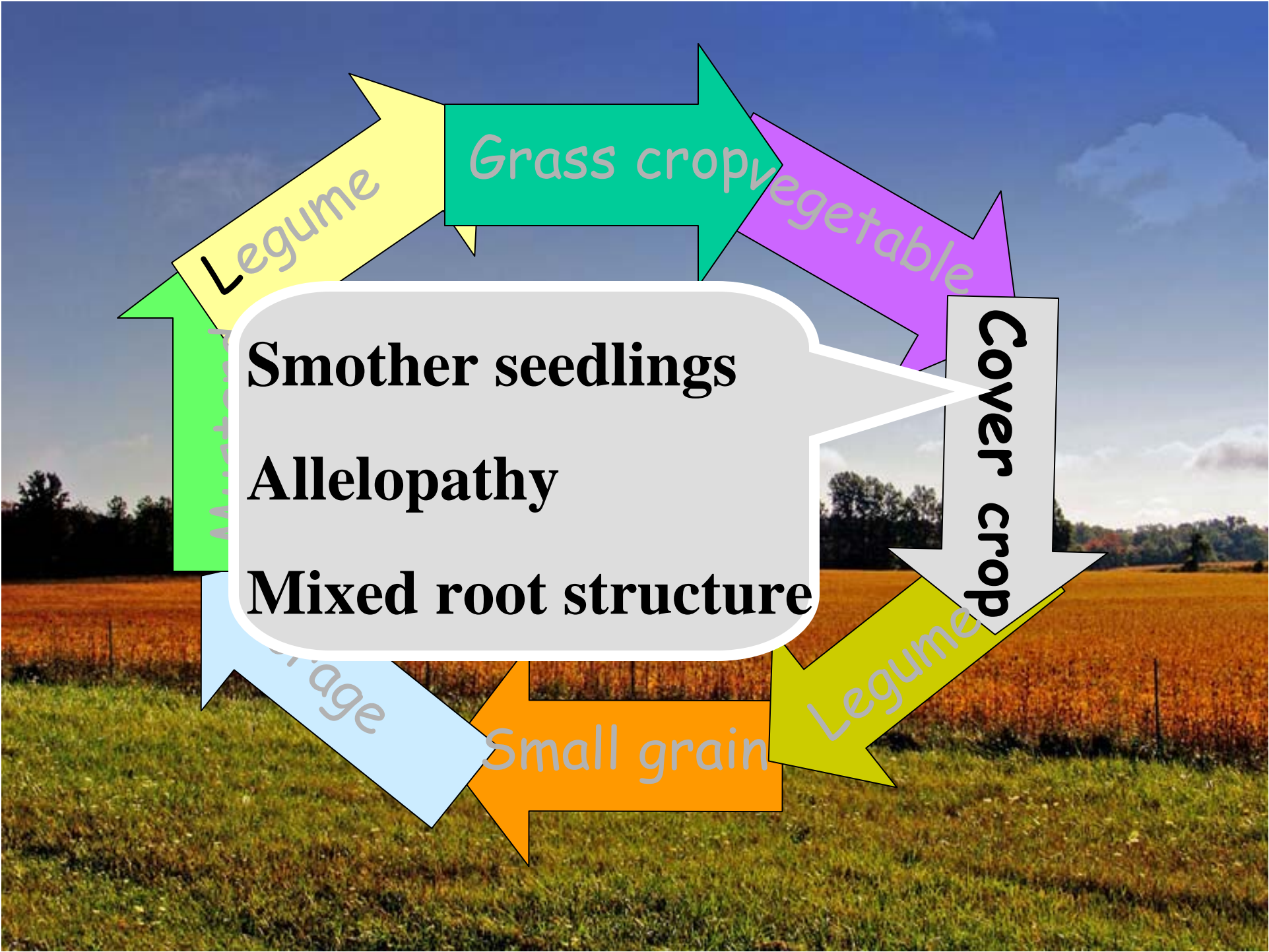
vegetable

Cover crop

**Easy to cultivate**  
**Fibrous roots**  
**Competitive cultivar**  
**Fast seedling growth**  
**Dense canopy**

Small grain

Legume



Legume

Grass crop

Vegetable

Cover crop

Legume

Small grain

Soybean

**Smother seedlings**  
**Allelopathy**  
**Mixed root structure**

## Crop Rotation Impacts:

### UNSTABLE CONDITIONS

Crop type - canopy shape, shading etc

Chemical environment -  
fertility, allelopathy

Physical environment -  
temperature, light, moisture

Timing of all field operations -  
planting, tillage, cultivation, harvest etc.



A photograph of a cornfield with tall green stalks and some yellowing leaves, set against a clear blue sky. The text is overlaid on the image.

# Crop Competition

~ 50% of weed control

variety selection

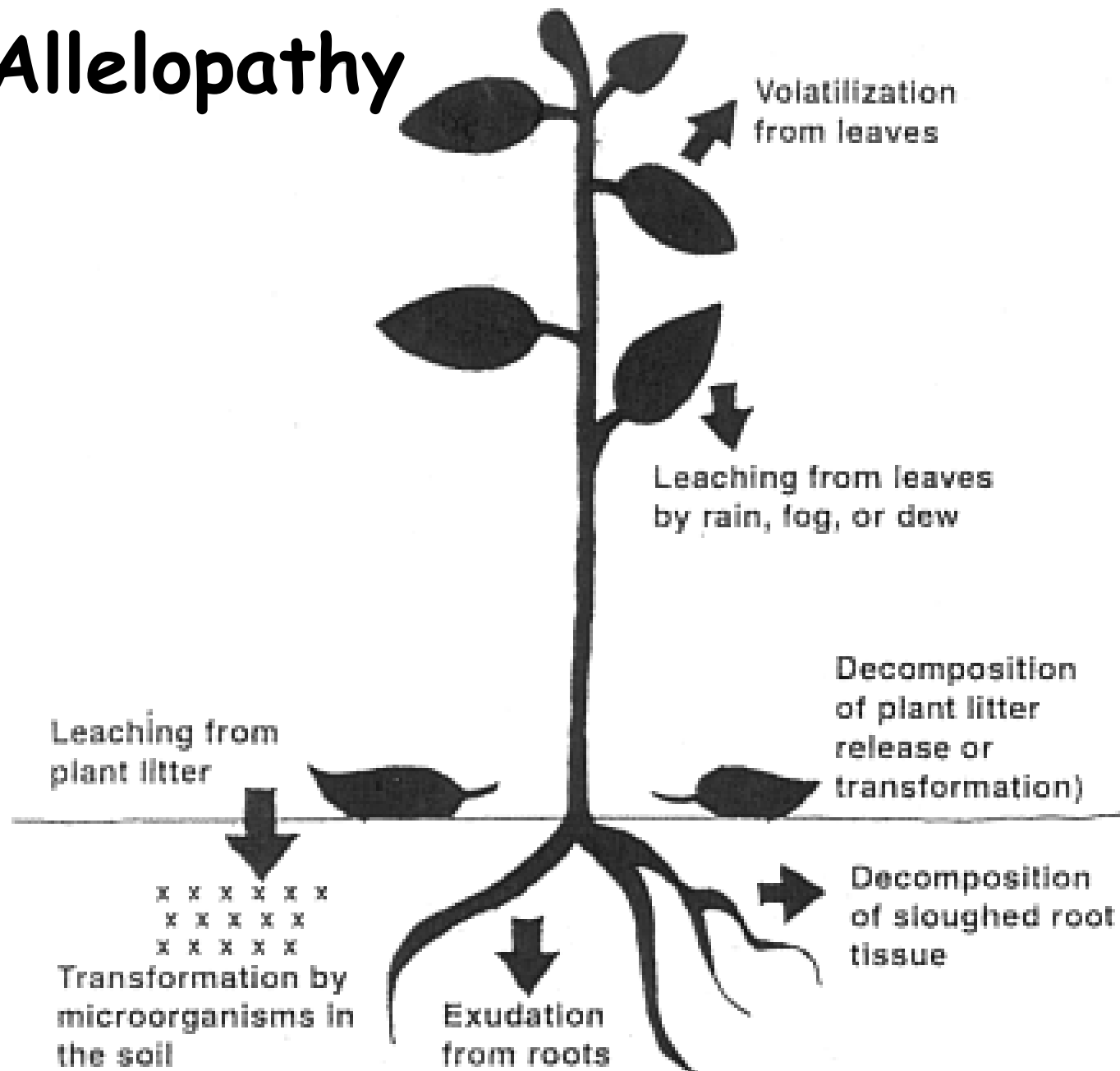
resources - fertility, water

row spacing, seeding rate

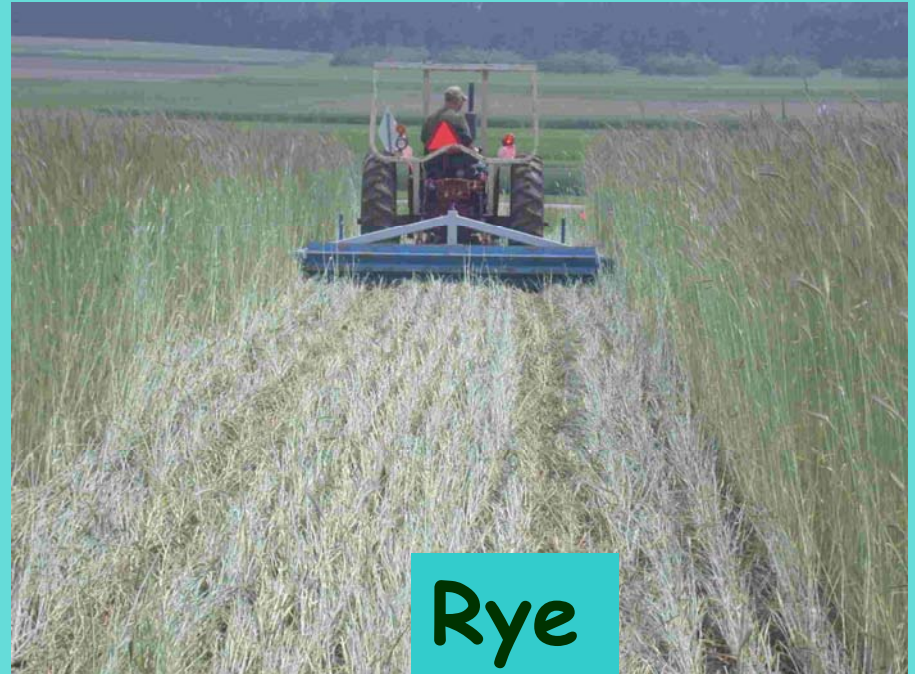
soil management



# Allelopathy



# Cover Crops - physical & chemical suppression



Rye



Hairy vetch



Grass-legume



# Cover Crops -

- killed, mowed
- incorporated
- surface residue



**Buckwheat**



**Mustard**



**Crimson clover**

# Smother Crops



**Sorghum-sudangrass**



**Red clover**



**Oats**



**Winter-pea**



# Mustard smother crops

Corn



Soybean



**Prevent weed emergence:**

**physical suppression**

**shade**

**allelopathy**

**Prevent weed seed production:**

**shade**

**Prevent weed emergence:**

**cover & smother crops**

**crop competition**

**Prevent weed seed production:**

**crop competition**