

## **COVER CROPS and GREEN MANURERE**

### **Learning Objectives**

*The learner will:*

- Be introduced to various types of cover crops and their specific applications.
- Be able to identify various benefits of cover crop application.

*This lesson will focus on perennial cover crops, self-seeding annual cover crops, and green manures.*

### **Perennial Cover Crops**

- Perennial cover crops are most often planted in pastures and orchards.
- Often perennial cover crops require irrigation.
- Perennial cover crops have multiple purposes and benefits.
  - Providing forage
  - Holding soil/preventing runoff and erosion
  - Retaining moisture in soil/drought tolerance
  - Fixing nutrients through root system
  - Preventing leaching of nutrients from runoff
  - Smothering weeds
  - Cycling nutrients up from subsoil
  - Penetrating hard subsoil
  - Improving soil structure.

### **Self-Seeding Annual Cover Crops**

- Self-seeding annual cover crops are most often planted in fallow fields and in orchards.
- Often annual cover crops do not need to be irrigated.
- Annual cover crops have similar purposes and benefits as the list above. But the seed cycle makes it an ideal option for western climates with a dry summer.

### **Green Manure**

- Green manure is a term for an annual crop sown for the purpose of incorporating the back into the soil. The green manure crop can be fall, spring, or summer sown, and irrigated or not.
- Green manure has benefits similar to those of other cover crops, but when the crop is incorporated into the soil the following additional benefits are realized:
  - Trapping nutrients (nitrogen, phosphorus) in the soil that were fixed from atmosphere via root systems
  - Adding tons of carbon (organic matter) to the soil. This builds humus, a biological soil network that is the key to unlocking nutrients in the soil. (Addition of organic matter is also beneficial to soil structure, water holding capacity, air circulation, and friability.)



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### Examples – field activity

Tour various cover crops, identify components (nutrient fixing plants, scaffold plants, carbon source plants), dig holes to expose soil profile.

- A. Perennial – alfalfa, some clovers, rye, fescue, orchard grass, birdsfoot trefoil
- B. Self-seeding annual – rose clovers, sub-clovers, medic, rye
- C. Green manure
  1. Cold weather – peas, oats, fava beans, vetch (vulnerable at seedling below 20 F), rye, triticale
  2. Warm weather – buckwheat, black-eyed peas, cow peas, sudan grass



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### Assessment/Review

- What are the three basic types of cover crops?
- What are the specific benefits of each type of cover crop application?

