

## INTEGRATED WEED MANAGEMENT

### COMMON WEED IN PADDY FIELD AND ITS MANAGEMENT-CONTROL

What is weed?

The common definitions of weed are out of place plants, or undesirable plants, or negative value plants, or plants which compete with main crop for the soil. Common partitioning and classification of Weeds.

The three classification of weed:

1. Grasses: The class of weed with the character as grasses.



2. Sedges: The class of weed with the character as Purple Nutsedge.



3. Broad leaf: The partition of weed with the character as a big leaf and vigorous as a Monochoria.



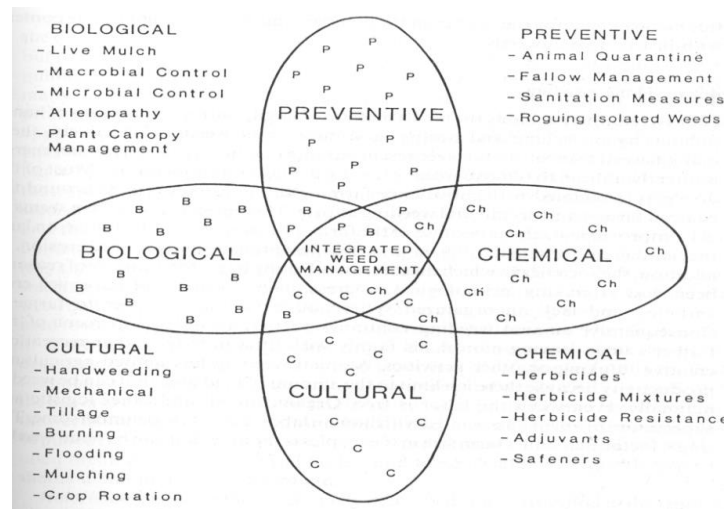


Fig. Integrated Weed Management and Control

## 1. Preventive Control

This control action prevent a given species from contaminating an area. Prevention is often the most practical means of management and control weeds. This is best accomplished by (1) making sure that new weed seeds are not carried onto the farm in contaminated crop seeds, feed, or machinery. (2) preventing weeds from the farm to contaminate seed; and (3), preventing the spread of perennial weeds which reproduce vegetatively. Thus are called quarantine activities.

## 2. Chemical Control

At the most time, chemical weed control by using hebicides provides practical and convenient solution. This technique has rapidly increased since 1944, when 2,4 D was first used as herbicide (weed-killing Chemical):

The time of application may largely determine the effectiveness of herbisides, it is according to the crop or the weed.

### a. Preplanting

Preplanting treatment is any treatment made before the crop is planted. For example, methyl bromide may be used in seed beds to kill most weed seeds and vegetative reproductive parts before planting. It also controls many plant disease organisms, nematodes, and insect pests.

### b. Preemergence.

Preemergence treatment is any treatment made prior to emergence of a particular crop or weed. The treatment can be applied to both the crop and weeds, or just the weeds. Therefore, the statement as to "preemergence to the crop," "preemergence to the weeds," or "preemergence to both the crop and weeds" will clearly establish the timing of the treatment. The treatment is usually applied to the soil surface.

### c. Postemergence.

Postemergence treatment is any treatment made after emergence of a particular crop or weed, for example, 2,4 D gives effective postemergence

control for most broadleaved weeds in corn, sorghum, small grains, and grass pastures.

The chemical may be applied postemergence to the crop, but preemergence application to the weeds will leave the field free of weeds. For example, the application of herbicide on the soil surface between the rows of corn at 24-30 cm tall, may inhibit weed seed germination; thus, the treatment is postemergence to the corn and preemergence to the weeds, also the chemical may be applied and incorporated into the soil between the crop rows.

### **3. Cultural Control**

The main reason for cultivation of crops is weed control. Tillage alone or in combination with good cropping methods and chemicals is often the best most economical method of weed control. Many types of plows, harrows, discs, cultivators, blades, etc have roles in cultivation. Which of these tools is used depends upon the number of factors: (1) life cycle of crop and weeds (annual, biennial, or perennial), (2) deep and spread of the root system, (3) age and size of infestation, (4) the kind of crop grown in the area, (5) soil type and topography, and (6) weather condition. Old weed infestations are more difficult to control than new infestations, because, among other factors, they have greater food storage in the root systems. The kind of crop is important because of (1) its life spans, time of seed germination, time of seed maturity, etc, in relation to the weed, and (2) its competitive ability. Soil type and topography determine whether lightweight shallow cultivation equipment or equipment for deep plowing can be used. Weather conditions may determine the success of an operation. If heavy rains come early, the ground may be too wet for cultivation machinery.

#### **a. Mowing**

Mowing is a reasonably effective way of controlling certain annual weeds if done often enough flowering and seeding; however, it is relatively ineffective on perennial weeds. Trimming the lawn induces tiller formation and consequently a denser and better stand of grass which competes well with the weeds. Height of mowing may be a critical factor. It should be low enough to cut off the flowers of the weeds, but not low enough to reduce the competitive ability of the crop. Height of mowing may be important with certain lawn weeds, such as crabgrass (*Digitaria spp.*). Mowing operations time should be match with the stage of maturity in order to remove the flowers before they mature into seeds. This may be very short period of time with some weeds, mowing is widely used practice in orchards in order to encourage a good cover crop.

#### **b. Flooding**

Flooding as a means of weed control was derived from the culture of rice and has been used as a method of emergency weed control. This method is conducted by surrounding weed infestations with dikes and covering the land with 6 to 10 inches of water for 3 to 8 weeks in the summer-time. The area must be completely submerged since even a few leaves projecting above the surface will prevent death of the plant. This method, which is more effective in sandy soils than in heavy soils, apparently works by

inhibiting oxygen to the roots and leaves. On the other hand, the seeds of weeds such as bindweed can withstand immersion in water for many years.

**c. Mulching**

The effect of mulching may be attributed to various physical aspects, especially the preventing of light from reaching the weeds. The cover must be light tight since it is mainly by hindering photosynthesis. The weeds under the material are died and new growth is prevented. Many materials have been used to cover the soil and thus prevent weed growth in the row between the crop, or around trees and shrubs. Among these are straw, hay, manure, and rice hulls. The layer on the soil must be thicker for perennials than for annuals.

**d. Nurse Crops**

Nurse crops are sometimes used to prevent weed growth. These are species which can be controlled fairly easy with chemicals, or are annuals in a perennial crop. They are usually quicker to germinate and are rapid in early growth. Annual rye, for example, is sometimes planted with lawn grasses or in orchards. It restrains the weeds and permits the crop to become established. Since the rye is an annual, it does not usually present much of a weed problem itself, especially if it is mowed to prevent seed production.

**e. Hand Weeding**

Hand weeding is the oldest method of controlling weeds in rice field. Hand weeding may be more effective to control weed especially the weed in the hill of rice plant. The other method can not control the weed when its growth near the rice plant. On the other hand, hand weeding is more cheaper than the other methods. Except, concerning the limitation of human labor.

**4. Biological Control**

Biological control is the "action of parasites, predators or pathogens in maintaining another organism's population density at a lower average". The progeny of any organism, if left to grow unchecked, would soon cover the earth. The natural balance of plant and animal life reflects the natural process of biological control.

Regulation of an organism's abundance below the level of economic injury is the target of applied biological control. The population control of plants by insect and disease is a process that has been going on for centuries, but only recently being used for weed control. The emphasis on biological control has been much less than the emphasis on the chemical control. However, there is more awareness of biological control effort today because of the pesticide residue problem. The example of biological control are undesirable shrubs being eaten by livestock, preferential grazing by cattle, disease or insect attacks on garden plants, trees, and shrubs.