

## **Experiment No. 3**

### **Weed Loss Studies**

#### **3.1 Objectives**

To estimate the yield losses due to competition of weeds with crop due to various growth factors like nutrient, moisture, light and space.

To study the losses caused by weeds in agriculture.

#### **3.2 Introduction**

Competition occurs between crop and weeds for a growth factor which becomes in short supply. Weeds compete with crop plants for water, light, nutrients, space, air and the ultimate effect is reduction in yield. In general weeds cause 5% loss in agricultural production in developed countries, 10% loss in less developed countries and 25% loss in least developed countries. In India, yield losses due to weeds are more than those from insect and diseases. Generally, weeds deprive the crops by 47% N, 42% P, 50% K, 39% Ca and 24% Mg of their nutrient uptake.

#### **3.3 Effects on crop growth and yield**

1. Crop growth and yield is affected
2. Leaf area is reduced
3. Reduce the water use by the crop
4. Lowers the input response
5. Crop suffers from nutritional deficiency
6. Yield attributes will be lowered
7. Causes yield reduction
8. More occurrence of pest attack

##### **3.3.1 Computation of yield losses due to weeds**

Yield losses in percentage due to weeds in a particular treatment from best treatment is calculated as follows.

**Percentage reduction in yield:** It is a measure of the efficacy of particular treatment when compared with weed free treatment and is expressed as percentage reduction in yield. Higher in % yield reduction means greater loss due to weeds:

**Formula**

$$\text{Percent yield reduction} = \frac{X - Y}{X} \times 100$$

**Where, X is yield from weed free plot and Y is yield from treated plot**

### Problems:

1. A weed free plot of Sorghum has given yield of 1500 kg ha<sup>-1</sup> whereas atrazine have given yields of 1400 kg. Calculate the % yield reduction?
  
2. A weed free plot of maize has given yield of 2100 kg ha<sup>-1</sup> whereas, simazine treated plot had given the yield of 1450 kg ha<sup>-1</sup>. Calculate the % yield reduction?

### 3.4 Observation

Table 3.1 Write the critical periods of crops

Crop	Reduction in Yield (%)	Critical period	Crop	Reduction in Yield (%)	Critical period
Direct seeded rice	15-90		Red gram	20-40	
Transplanted rice	15-45		Chickpea	15-25	
Wheat	20-40		Jute	50-80	
Maize	40-60		Potato	30-60	
Bajra	15-60		Groundnut	40-45	
Jowar	15-40		Sun flower	30-60	
Sugar cane	20-30		Soyabean	40-60	
Cotton	20-40		Castor	30-35	
Greengram & black gram	25-50		Seasamum	15-40	

### 3.4 Conclusion

Signature of faculty