



EFFECT OF WEED FLORA ON WHEAT CROP

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ABSTRACT

The effect of different weeds were assessed in field of wheat crop. The growth parameters such as plant height, number of spikelet's, grain weight are studied. The weeds noted in the field were from different plant families. They mainly constitutes of grasses and herbs. The field experiments was conducted in presence and absence of weeds in the wheat field. About 13 different weeds were recorded. The maximum average height of wheat in presence of weeds was noted (90.84cm) at 60 DAS and minimum (47.59cm) at 15 DAS. The weeds were sprayed with weedicide Perfekt Metsulfuron Methyl and then removed by hand manually to test the effect. The removal of weeds affected on growth parameters. The average minimum height (60.86cm) was recorded at 15 DAS in control and test plants. The maximum height (102.10cm) was noted at 60 DAS. It is observed that weed control in the field is essential at an early stage of growth. The removal of weeds gives better results before 50 DAS. The minimum number of spikelets (10 to 18) were recorded at 15 DAS. The maximum spikelets and grain yield was noted at 60 DAS of wheat.

KEY WORDS: Wheat, Weeds, weedicide, Height, Grain, Yield.

INTRODUCTION

In India about 75 to 80% peoples are dependent on agriculture. They are engaged in cultivation of different agricultural crops. India is rich in crop diversity. The crops are grown may be various purpose such as for fodder, grains, pulses, oil, fibre etc. The agricultural crops are sown in Kharip season as well as Rabi season. The onset of Kharip season or crops starts in the monsoon especially around the month of June. The crop is harvested in the month of September or October. The Rabi crops are also known as winter crop which is grown in the month of October or November. The Rabi crop is harvested in summer season. The wheat is an important crop grown for fodder and grains. The fodder is used as cattle feed. The elongated stem and leaves of wheat are used for thatching purpose. The wheat crop is sown by farmers for economic gain and food value in different parts of the world. The weeds are unwanted and harmful herbaceous plants affect on yield of many agricultural crops. It interfere with crops and affect growth and yield. The weeds are harmful because it compete with agricultural crops for space, water, soil, nutrients, light etc. They also harbour many insects and microorganisms which function as vectors or carriers of different crop diseases. The existing system of farming is failed to reduce or remove undesirable weeds. The emergence time, density, type of weed are responsible for loss of yield. If weeds are left uncontrolled in the field then it

certainly affect on growth parameters. The crop growing season, ecological conditions and management practices are responsible for reduction in yield. The weeds may be categorised as annuals, biennials and perennials depending on the life span.

Considering the importance of wheat as valuable agricultural crop and its yield loss due to weeds, attempts are made to investigate its effect of on growth and yield parameters of wheat in field condition.

MATERIALS AND METHODS

Study Site

The experiments was conducted in irrigated agricultural field of village Talegaon Bhari in Yavatmal district of Vidarbha region in Maharsashtra state of India. The site is situated between 20.3634 ° N and 78.2128 °E The climate of region is hot and dry in summers and cold in winter season.

Selection of wheat variety

The Wheat is identified with botanical name *Triticum aestivum*. It belongs to the family Poaceae of monocotyledon group. It is a cereal crop consumed all over the world. The wheat variety Ajit- 11 were selected for experimental purpose.

Experimental design

The four plots measured 100 sq.ft. were made. The 100 wheat seeds were sown in each plot. The seeds were planted at 9 × 2 " distance in each plot. Two plots were kept for the treatment in presence of weeds. The rest two were kept for treatment without weeds. The experimental plots were uniformly irrigated with water for proper growth and yield.

Removal of weeds

The weeds from the wheat field were removed at 45 days after sowing. The weedicides such as Perfekt Metsulfuron Methyl was sprayed at the interval of 30 days. The Perfect Met was sprayed 0.4g / ft. The first weeding or hand removal of weeds was done at interval of 15 - 20 days after spraying.

Harvesting of crop

The crop was harvested manually in the month of March to April.

Assessment of growth and yield

The growth and yield parameters of wheat like height, grain weight, number of spikelets was measured manually. The average of height, spikeletes and grain weight was measured in each row crop and tabulated.

RESULTS AND DISCUSSION

The weeds are useless and harmful plants for agricultural crops in terms of growth and yield. There were many weeds were recorded in the field. These weeds affected the growth and yield of wheat. About thirteen different weeds were noted in the field. The weeds are identified with different names by local peoples. (Table 1).

Table 1: Weed flora recorded in the field of wheat crop.

Sr.N	Botanical Name	Family	Type of weed	Local Name
1	<i>Cynodon dactylon</i>	Poaceae	Grass	Durva
2	<i>Euphorbia hirta</i>	Euphorbiaceae	Herb	Doodhi
3	<i>Parthenium hysterophorus</i>	Asteraceae	Herb	Gajargawat
4	<i>Ageratum conzoides</i>	Asteraceae	Herb	Ghanera Osandi
5	<i>Cyperus rotundus</i>	Cyperaceae	Grass	Nagarmotha
6	<i>Convolvulus arvensis</i>	Convolvulaceae	Herb	Chandwel or Hiranpadi
7	<i>Oxalis corniculata</i>	Oxalidaceae	Herb	Amrul
8	<i>Vernonia spp.</i>	Asteraceae	Herb	Sadodi
9	<i>Digitaria ciliaris</i>	Poaceae	Grass	Kekda gawat
10	<i>Celosia argentea</i>	Amaranthaceae	Herb	Komdigawat or komda
11	<i>Boerhavia diffusa</i>	Nyctaginaceae	Herb	Punarnava or Khapar kuti
12	<i>Chenopodium album</i>	Amaranthaceae	Herb	Chakvat
13	<i>Digera arvensis</i>	Amaranthaceae	Herb	Kunjar

The weed flora constitute of grasses and other herbs. The grasses noted were *Cynodon dactylon*, *Cyperus rotundus* and *Digitaria ciliaris*. There found 10 weed herb grow profusely in the wheat field

Table 2: Effect of different weeds on height of wheat.

S.N.	Duration (DAS)	Average height of wheat plant in presence of weeds	Average height of wheat plant without weeds
1	15	47.59cm	60.86cm
2	30	78.35cm	97.2cm
3	45	89.76cm	102.25cm
4	60	90.84cm	102.10cm

The maximum plant height (90.84cm) in presence of weeds was noted at 60 DAS.(Table 2) and minimum height(47.59cm) at 15 DAS. It is observed that as duration of growth increased the height of wheat increased. After the removal of weeds from the field minimum height (60.86cm) was recorded at 15 DAS. The maximum height (102.10cm) was recored at 60DAS. The weed control is essential for growth of wheat plant. The delay in removal of weeds affect growth and grain yield. The weeds represent a great barrier to the productivity of several agricultural crops.^[1] The dense growth of weeds blocks the drainage and impede the flow of water reaching to the root system of wheat plant

which affect growth parameters.

Table 3: Effect of weeds on grain weight of wheat.

S.N.	Duration in DAS (Days After Sowing)	Average weight of wheat grains in presence of weeds	Average number of spikelets in wheat plants	Average weight of wheat grains in absence of weeds	Average number of spikeletes in wheat plants
1	15	27.96 gm	10	38.88gm	18
2	30	82.45 gm	22	97.2 gm	25
3	45	87.55 gm	24	99.76gm	33
4	60	89.10 gm	32	108.2gm	42

The minimum number of spikelets(10 and 18) were recorded at 15 DAS in both test and controlled plants (Table 3). The maximum spikeletes (32 and 42) were noted at 60 DAS. In presence of weeds the average weight of grain was recorded at 15 and 60 DAS. As the age of plant increases then the total number of spikelets and grains were increased in test and controlled wheat plants. The duration of weed eradication affects on growth and yield of wheat. The main reason of low yield is the interference of weeds. The loss of crop yield also caused by the phenomena of weed competition, allelopathy and parasitism.^[2] The weed shares water, light, nutrients and space of wheat plants which in turn affect on growth and yield.^[3] The yield loss due to weeds were 36% in *Arachis hypogea*, 31 % in *Glycine max* and 19% in wheat.^[4] The yield also gets reduced due to diseases, insects, pests, rodents, predatory animals, weeds.^[5] The stunting of plant is observed in presence of weeds. The weed affected the onion crop 40 - 80%.^[6] The reduction in yield was found due to uncontrolled growth of weeds soybean, it reduced up to 30-80%.^[7] The yield loss is observed in Maize as weeds harboure pest which served as vector for disease development reduced quality.^[8]

CONCLUSION

The weeds poses severe competition with the agricultural crops in terms of,space ,mineral nutrition , sunlight etc. The weeds reduces quantity and quality of produce .They acts as an alternate host for spread of different plant diseases .The weed control is necessary during the growth of plant to achieve higher yield and economic benefits. The weed control can be made by adopting preventive, cultural, biological, chemical and integrated management .To enhance crop production a good farm sanitation and weed eradication is required.

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