

Weed Spectrum Frequency and Density in Wheat (*Triticum aestivum* L.) under Tandojam Conditions

F.C. Oad, S.K. Agha, G.H. Jamro and G.S. Solangi
Sindh Agricultural University, Tandojam, Pakistan

ABSTRACT

The qualitative and quantitative survey of weeds in wheat crop at Student's Experimental Farm, Malir Farm, Latif Farm and the Experimental Field of Wheat Research Institute Tandojam, Pakistan was conducted. The results revealed that twenty six weed species were found infesting the wheat crop. Most dense populated as well as most frequently occurring weed was Jhil (*Chenopodium album*). Its frequency and density were 30 and 13.53% respectively at various experimental fields of Tandojam, Pakistan.

Key words: Wheat, weed, spectrum, frequency, density

INTRODUCTION

Among factors which adversely affect the crop yields, weed infestation is the most harmful for wheat. Weeds comprise the most undesirable, aggressive and troublesome element of world's vegetation. Weeds are plants which grow out of their proper places and whose virtue have not yet been discovered. Nesterove and Chukanova (1981) recorded the reduction in grain yield of wheat caused by different population of weeds and greatest reduction were found by the presence of *Convolvulus arvensis* and *Amaranthus retroflexus*. Jalis (1987) studied the predominating influence of *Phalaris minor* and *Avena fatua* in wheat. Siddiqui and Shad (1991) observed that the grain yield of wheat declined with the increase in weed density both rainfed as well as irrigated conditions. Bhatti and Soomro (1994) reported that *Avena fatua*, *Phalaris minor* and *Chenopodium album* were the major weeds of irrigated areas of wheat in Pakistan. Looking the adverse effects of the weeds, an investigation was made to determine the weed spectrum frequency and density in wheat crop under agro-climatic conditions of Tandojam, Pakistan.

MATERIALS AND METHODS

The qualitative survey of four selected irrigated farms Student's Experimental Farm, Malir farm, Latif Farm and the Experimental Field of Wheat Research Institute, Tandojam, Pakistan was carried out. In all twenty six weed species were collected, pressed, dried, preserved and poisoned with mercuric chloride and mounted on sheets. These weeds were then identified and kept for future reference. The quantitative survey for determination each weed species was performed through quadrat method. The quadrat size taken was 1 m⁻². Ten quadrats were randomly taken from each research farm. The frequency and density of each weed species was calculated by the equation 1 and 2.

RESULTS AND DISCUSSION

The results (Table 1) shows that twenty six weed species, belonging to twenty four genera and fifteen families were found the result of frequency of weeds. It is obvious that *Chenopodium album* was the most frequent weed in the surveyed farms with 30% frequency. The next frequently occurring weed species were *Convolvulus arvensis* L.; *Melilotus indicus* L.; *Melilotus alba*; *Phalaris minor* L.; *Cynodon dactylon* L. and *Avena fatua* L., with 28.33, 20.0, 20.0, 18.33, 11.66 and 10.0 frequency percentages the frequency of remaining species was less than 10.0%. These results are supported by Parker and Jalis (1994), they also listed most of the species during their survey in irrigated wheat of Sindh.

The density percentage of weeds show that *Chenopodium album* L., was recorded to be the most densely populated weed of wheat. It was followed by *Melilotus indicus* L. The other densely populated weeds were *Melilotus*

Table 1: Weeds recorded their frequency and density in wheat crop under agro-climatic conditions of Tandojam, Pakistan

Weed Species	Family	Local name	Frequency (%)	Density (%)
<i>Alhagi pseudalhagi</i>	Fabaceae (Papilionaceae)	Kandero	8.33	2.19
<i>Anagalis arvensis</i> L.	Primlaceae	Neeli buti	10.00	2.28
<i>Asphodelus tenuifolius</i>	Asphodelaceae	Basri	6.66	2.02
<i>Avena fava</i> L.	Poaceae (Graminae)	Jangli javi	10.00	6.67
<i>Carthamus oxyacantha</i>	Asteracea (Compositae)	Pholi	6.66	3.86
<i>Chenopodium murale</i> L.	Chnopodiaceae	Jangli bathu	5.55	1.14
<i>Convolvulus arvensis</i> L.	Convolvulaceae	Naro	28.33	7.73
<i>Coryza bonariensis</i> L.	Asteraceae (Compositae)	Gidaewal	5.00	0.70
<i>Chenopodium album</i> L.	Chenopodiaceae	Jhil	30.00	13.53
<i>Cornopus didymus</i> L.	Brassicaceae	Jangli halon	8.33	5.00
<i>Cressa cretica</i> L.	Convolvulaceae	Oin	5.00	1.05
<i>Cynodon dactylon</i> L.	Poaceae (gramineae)	Chabbar	11.66	5.50
<i>Cyperus rotundus</i> L.	Cyperaceae	Kabah	6.66	2.98
<i>Digera muricata</i> L.	Amaranthaceae	Lulur	3.33	0.96
<i>Euphorbia prostrata</i> L.	Euphorbiaceae	Khirol	6.66	1.23
<i>Euphorbia hirata</i> L.	Euphorbiaceae	Dudhi	5.00	1.32
<i>Heliotropium europacum</i> L.	Boraginaceae	Uthcharo	3.33	0.52
<i>Melilotus indicus</i> L.	Fabaceae (Papilianaceae)	Pilisinhil	20.00	13.18
<i>Melilotus alba</i>	Fabaceae (Papilianaceae)	Sinjhi	20.00	8.87
<i>Phalaris minor</i>	Poaceae (Gramineae)	Dumbi gah	18.33	7.64
<i>Polygononum plebeium</i>	Polygonaceae	Muchachi,	6.66	2.02
<i>Rumex dentatus</i> L.	Polygonaceae	Jangli palak	8.33	1.75
<i>Solanum nigrum</i> L.	Solanaceae	Pat paroon, Mako	8.33	1.05
<i>Sonchus oleracius</i> L.	Compositae	Battar	6.66	1.32
<i>Spergula fallax</i>	Caryophyllaceae	Khandil dal	8.33	4.56
<i>Vicia sativa</i> L.	Fabaceae (Papilionaceae)	Matri	5.00	0.87

$$\text{Frequency\%} = \frac{\text{No. of quadrats in which weed specie occurred}}{\text{Total No. of quadrats laid-out}} \times 100 \quad (1)$$

$$\text{Density\%} = \frac{\text{No. of individual weed specie in a quadrat}}{\text{Total No. of individuals of all weed species in a quadrat}} \times 100 \quad (2)$$

alba; *Phalaris minor* L.; *Cynodon dactylon* L. and *Cornopus didymus* L. while the remaining weeds were not populated to severe extent.

It can be concluded that *Chenopodium album* was the most frequent occurring weed of wheat crop in the irrigated farms of Tandojam. While *Melilotus indicus* L. was the most densely populated weed recorded from the same area. These results are in agreement with the findings of Siddiqui and Shad (1991) and further confirmed with the findings of Bhatti and Soomro (1994); Abbasi and Makhdoom (1994); Cope (1992); Parker and Jalis (1994). They all have found the same weed species infesting irrigated wheat in Sindh which have been also identified during the present study.

Concerning the density and frequency of the weed record, it can be concluded that Jhil (*Chenopodium album*), Sinjhi (*Melilotus indicus* L.), Naro (*Convolvulus arvensis* L.), Dumbi (*phalaris minor*) and Chabar (*Cynodon doctylon* L.) are the most dominant weeds of wheat field of Tandojam experimental farms.

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