

## Association of Weeds with Major Rabi Crops of District Sriganganagar

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Weeds are an important factor in the management of all land and water resources, but their effect is greatest on agriculture. Since both weeds and crops are plants, they have basically same requirement for normal growth and development. With respect to weeds and their adverse effects, knowledge of weeds leads to more effective control through proper and timely control measures for preventing the introduction and spread of weed species in agricultural lands. It has been noticed that certain weeds are found associated with specific crops. This may be due to their life cycle, growth habits and other characteristics necessary for successful competition with the crops.

Sriganganagar having an area of 10,999 sq. km is situated in the north of the Rajasthan state between 28°49' -30°6' North latitude and 72°36' -74°16' East longitude. It is also known as food basket of Rajasthan because of its crop potential. No systematic work of the weeds of district Sriganganagar is available except for general floristic studies (Singh, 1982, 1989; Singh and Brar, 1984; Singh and Dhillon, 1989; Singh and Arora 1994; Singh *et al.*, 2000). In view of this lacuna the present investigation was carried out.

The present work is based on the results of more than five months of study on the weeds flora of district Sriganganagar (N. Rajasthan) with special reference to their association with **rabi** crops. Excursions were undertaken five times during the research period. Field trips were arranged in such way as to cover the fields of **rabi** crops at more or less regular intervals (about 10 Km). The crop fields which were surveyed during the research period included wheat, barley, mustard, roquette, gram, lentil, pea, Egyptian clover and oat. Four observations on frequency of individual weed were recorded from four spots by using quadrat of 1.0 x 1.0 m, about 100 m deep inside the fields to have a uniform and true representative of the area. Per cent occurrence of individual weed was calculated as per method suggested by Mishra (1968).

Based on the data collected, association of weeds with specific crop was recorded. Frequency of the weeds in a particular field was recorded and the

percentage of weed more than 50% was rated as densely present and less than 50% was rated as normally present.

Wheat and barley are the principal **rabi** crops of this area. Cultivation of wheat has relegated the remaining crops to a secondary position. Mustard (*Brassica campestris* L., sarson) and roquette (*Eruca sativa* Mill., Taramira) are frequently grown as oil seed crop. Further, gram (*Cicer arietinum* L., chana), garden pea (*Pisum sativum* L., matar) and lentil (*Lens culinaris* Medic., masur) are the major pulse crops, whereas Egyptian clover (*Trifolium alexandrium* L., berseem) and oat (*Avena sativa* L., Jai ) are frequently grown as fodder crop in this area.

In all, 34 weed species belonging to 15 different families were observed with predominance of family Asteraceae followed by Papilionaceae and Caryophyllaceae represented by 8, 6 and 5 weed species, respectively (Table 1). Major weed species which were present in all the investigated fields were *A. tenuifolius* Cav., *C. album* L., *C. murale* L., *C. didymus* (L.) Sm., *E. hirta* L., *Launaea fallax* L., *Medicago polymorpha* L., *Melilotus alba* L., *Melilotus indica* (L.) All., *R. dentatus* L., *S. arvensis* L. and *Vaccaria pyramidata* Medic. with the predominance of family Papilionaceae. In addition to these major weed species, other widely distributed weeds were *E. alba* L., *S. media* L., *T. corniculata* L. and *V. sativa* L., *C. intybus* L. was least dispersed and reported only in Egyptian clover (*T. alexandrium* L.) field.

As most of area under **rabi** crop is under water irrigated by Gang canal and in light texture soil, so only broadleaf weeds were recovered with the exception of *C. dactylon* (L.) Pers. which was reported in mustard and roquette fields both belonging to family Brassicaceae. Amongst different crop fields investigated 88.23% weeds were reported in mustard field followed by barley fields by 70.58%. Least percentage of weeds occurred in lentil fields (59%). Mustard field was found to be most heavily infested with weeds and densely associated weeds in this field included *A. arvensis* L., *Arenaria serpyllifolia* L., *C. album* L., *C. murale* L., *C. didymus* (L.) Sm., *E. geniculata* Orteg. and *E. hirta* L.

Table 1. Common weeds and their presence or absence in different **rabi** crop fields

S. No.	Name of the weed	Wheat field	Barley field	Mustard field	Roquette field	Gram field	Lentil field	Pea field	Egyptian clover field	Oat field
1.	<i>Ageratum conyzoides</i> L.	-	-	+	+	-	-	-	+	-
2.	<i>Anagallis arvensis</i> L.	+	+	++	-	+	-	-	+	+
3.	<i>Arenaria serpyllifolia</i> L.	+	+	++	-	+	-	-	+	+
4.	<i>Argemone mexicana</i> L.	-	-	+	+	+	-	-	-	-
5.	<i>Asphodelus tenuifolius</i> Cav.	+	+	+	+	+	+	+	+	+
6.	<i>Carthamus oxycantha</i> M. Bieb.	+	+	+	+	-	-	-	-	+
7.	<i>Chenopodium album</i> L.	+	+	++	++	+	+	+	+	+
8.	<i>Chenopodium murale</i> L.	+	+	++	++	+	+	+	+	+
9.	<i>Cichorium intybus</i> L.	-	-	-	-	-	-	-	+	-
10.	<i>Convolvulus arvensis</i> L.	++	+	+	-	+	+	+	-	+
11.	<i>Coronopus didymus</i> (L.) Sm.	+	+	++	++	+	+	+	+	+
12.	<i>Cynodon dactylon</i> (L.) Pers.	-	-	+	+	-	-	-	-	-
13.	<i>Eclipta alba</i> L.	+	+	+	-	+	+	+	+	+
14.	<i>Emex spinosa</i> (L.) Campd.	+	+	-	-	-	-	-	+	+
15.	<i>Euphorbia geniculata</i> Orteg.	-	+	++	-	-	+	+	-	+
16.	<i>Euphorbia hirta</i> L.	+	+	++	++	+	+	+	+	+
17.	<i>Fumaria indica</i> (Hausk.) Pugsley	-	-	+	+	+	+	+	-	-
18.	<i>Gnaphalium luteo- album</i> L.	-	-	+	-	-	+	+	-	-
19.	<i>Lathyrus aphaca</i> L.	-	-	+	-	-	-	+	-	-
20.	<i>Launaea fallax</i> L.	+	+	+	+	+	+	+	+	+
21.	<i>Linum usitatissimum</i> L.	-	-	-	-	+	-	+	-	-
22.	<i>Medicago polymorpha</i> L.	+	+	+	+	+	+	+	+	+
23.	<i>Melilotus alba</i> Medic.	+	+	+	+	+	+	+	+	+
24.	<i>Melilotus indica</i> L.	+	+	+	+	+	+	+	+	+
25.	<i>Parthenium hysterophorus</i> L.	-	-	+	+	+	+	+	-	-
26.	<i>Psammogeton canescens</i> DC.	+	+	-	-	-	-	-	-	-
27.	<i>Rumex dentatus</i> L.	+	+	+	+	+	+	+	+	+
28.	<i>Silene conoidea</i> L.	+	+	+	+	-	+	+	-	-
29.	<i>Sonchus asper</i> Hill.	-	-	+	+	-	-	-	-	-
30.	<i>Spergula arvensis</i> L.	+	+	+	+	+	+	+	+	+
31.	<i>Stellaria media</i> L.	+	+	+	+	+	-	-	+	+
32.	<i>Trigonella corniculata</i> L.	+	+	+	+	-	+	+	+	+
33.	<i>Vaccaria pyramidata</i> Medic	+	+	+	+	+	+	+	+	+
34.	<i>Vicia sativa</i> L.	+	+	+	+	+	-	+	+	+

+ +Densely present (>50%), +Normally present (<50%), -Absent.

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