

A study of weed occurrence and crop association of Valsad district of South Gujarat

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Accepted : February, 2009

Key words : Weed, Crop association

In Valsad district mainly wheat, rice, sugarcane, vegetables, fruits etc. are cultivated. Innumerable weeds grow in the fields of cultivated crops which are a serious problem as they compete with neighboring crops or plants of economic importance and reduce their yield. To understand the crop weed relationship present study is carried out on the weeds of Valsad. To make a survey of crops of the area, to identify and describe the weeds growing in the crops and to educate the local farmers.

A weed is the more aggressive, useless plant growing out of place which interferes with the crops especially the utilization of land and water resources and thus adversely affect human welfare. According to Beal (1910) "A weed is a plant out of place", Farmers Bulletin (1915), Development of agriculture, USA defines weed as a wild plant that has habit of intruding. According to Brenchely (1920) weed is a plant that grows so luxuriantly that it chocks out of all other plants that possess more valuable nutritive properties. Oxford English Dictionary (1933) defines weed as a herbaceous plant not valued for use or beauty, growing wild and regarded as cumbering the ground or hindering the growth of superior vegetation. Bailey and Bailey (1941) pointed out that a weed is an unwanted plant and therefore it is to be destroyed. Salisbury (1942), Webster (1948), Muenscher (1949) have given similar definition - "A weed is a plant out of place."

Valsad district is a southern part of the Gujarat state about 194 km. The area consists of hills and plain lands. The present investigation is an attempt to record the available weed plant of Valsad district. The floristic study was conducted in Valsad district during May 2007 to September 2008. 38 villages have been explored for the present study. A total of about 203 weed taxa growing in the different crops of the area. Customary methods were employed for field and laboratory work following Santapau (1955) in Botanical collectors manual. The nomenclature has been brought up to date in accordance with current researches and rules of international code of botanical

nomenclature(1972).

Name of the Weed plants, their Occurrences and Crops association are given below under Table 1.

The paper embodies the results of research work carried out for a period of 1 year (May 2007 to September 2008). During the survey, a total of 203 weed angiosperm plant species were reported. The dicot weeds dominate the crops of the area.

The most common weeds in all crops are: *Blumea eriantha* DC., *Cardiospermum halicacabum* L., *Chrozophora prostrate* Dalz., *Cocculus hirsutus* (L.) Diels., *Cynodon dactylon* (L.) Pess., *Cyperus compressus* L., *Haplanthus tentaculatus* Nees var. *tentaculatus.*, *Physalis minima* L., *Portulaca oleracea* L., *Sida alba* L., *Triumfetta rotundifolia* Lam.

The parasitic weeds which in habit the vegetables are: *Cuscuta chinensis* Lam., *Cuscuta reflexa* Roxb., *Ramphicarpa longiflora* (Arn.) Benth., *Sopubia delphinifolia* (L.) G. Don., *Striga angustifolia* (Don) Sald., *Striga asiatica* (L.) Kuntze.

Weeds are being controlled by different measures viz. hand weeding, tilling, mechanical and chemical i.e. herbicides. The local farmers were made conversant with vernacular names of the weeds, their merits and demerits as well as use of herbicides like 2-4-D, Glycel etc.

Abbreviation :

A : Abundant, C : Common, O : Occasional, R : Rare, - : Absent

Acknowledgement:

The author is thankful to the local farmers of Valsad district for their active collaboration. Also thanks to Dr. R.M.Patel, x-incharge principle, B.K.M. Science college, valsad and Dr. T.G.Gohil, Head, Biology department, B.K.M. Science college, valsad, for their moral support, kind co-operation and help in all ways.

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Table 1: Name of the weed plants, their occurrences and crops association

Sr. No.	Name of the weed plants	Crops				
		Rice	Sugarcane	Jowar	Wheat	Vegetables
1.	<i>Abutilon indicum</i> (L.) Sweet	R	R	-	-	-
2.	<i>Acalypha ciliata</i> Forsk.	O	O	-	-	O
3.	<i>Acalypha indica</i> L.	C	-	-	-	C
4.	<i>Achyranthes aspera</i> L.	-	-	R	-	R
5.	<i>Aerva lanata</i> (L.) Juss.	-	-	R	-	R
6.	<i>Aerva sanguinolenta</i> (L.) Bl.	R	R	-	R	-
7.	<i>Aeschynomene indica</i> L.	C	C	-	C	-
8.	<i>Ageratum conyzoides</i> L.	C	C	C	-	-
9.	<i>Alternanthera pungens</i> H. B. & K.	O	O	-	-	O
10.	<i>Alysicarpus bupleuifolius</i> (L.) DC	R	-	R	-	R
11.	<i>Alysicarpus longifolius</i> (Rottl. ex Spreng) W. and A.	C	-	-	-	C
12.	<i>Alysicarpus tetragonolobus</i> Edgew.	C	C	-	-	C
13.	<i>Amaranthus blitum</i> L.	-	-	-	-	C
14.	<i>Amaranthus spinosus</i> L.	-	-	-	-	R
15.	<i>Amaranthus tenuiflorus</i> Willd.	C	-	-	-	C
16.	<i>Amaranthus viridis</i> L.	-	-	-	-	O
17.	<i>Ammannia baccifera</i> L.	C	C	-	-	C
18.	<i>Ammannia multiflora</i> Roxb.	O	O	-	O	O
19.	<i>Anagalis arvensis</i> L.	R	-	-	-	R
20.	<i>Anotis foetida</i> Hk.f.	R	-	-	-	R
21.	<i>Argemone mexicana</i> L.	R	R	-	-	R
22.	<i>Asphodelus tenuifolius</i> Cav.	-	R	-	-	R
23.	<i>Bacopa monnieri</i> (L.) Pennell	R	R	-	R	-
24.	<i>Bergia ammannioides</i> Roxb.	A	-	-	A	-
25.	<i>Bidens biternata</i> (Lour.) Merr. and Stapf	-	O	-	-	O
26.	<i>Biophytum sensitivum</i> (L.) DC.	A	-	A	-	A
27.	<i>Blepharis repens</i> (Vahl.) Roth.	O	-	O	-	O
28.	<i>Blumea belangeriana</i> DC.	C	C	-	C	-
29.	<i>Blumea eriantha</i> DC.	-	C	-	-	C
30.	<i>Blumea lacera</i> (Burm. f.) DC.	-	-	-	-	O
31.	<i>Blumea membranacea</i> DC.	-	R	-	R	R
32.	<i>Blumea oblique</i> (L.) Druce.	-	O	O	-	-
33.	<i>Boerhavia diffusa</i> L.	-	C	-	-	C
34.	<i>Borreria articularis</i> (L. f.) F. N. Will.	-	-	R	R	R
35.	<i>Borreria stricta</i> (L. f.) Schum.	-	C	-	-	C
36.	<i>Brachiaria ramosa</i> (L.) Stapf.	C	-	-	C	-
37.	<i>Buchnera hispida</i> Buch.-Ham.	R	-	-	-	R
38.	<i>Caesulia axillaries</i> Roxb.	C	C	-	-	-
39.	<i>Canscora diffusa</i> (Vahl.) R. Br.	-	C	-	C	-
40.	<i>Cardiospermum halicacabum</i> L.	-	C	-	-	C
41.	<i>Cassia absus</i> L.	-	R	-	-	R
42.	<i>Cassia tora</i> L.	-	C	-	-	C
43.	<i>Celosia argentea</i> L.	C	C	-	C	C
44.	<i>Cenchrus biflorus</i> Roxb.	C	C	-	-	-
45.	<i>Centranthera indica</i> (L.) Gamble.	-	O	-	-	O
46.	<i>Chenopodium album</i> L.	-	C	-	-	C
47.	<i>Chenopodium murale</i> L.	-	R	-	-	R
48.	<i>Chloris barbata</i> SW.	C	C	-	-	C

Contd..... Table 1

Table 1 Contd.....

49.	<i>Chloris quinquesetica</i> Bhide.	R	R	-	R	R
50.	<i>Chrozophora prostrate</i> Dalz.	C	C	-	-	C
51.	<i>Chrozophora rottleri</i> (Gels) Juss.	-	C	-	-	C
52.	<i>Cleome viscosa</i> L.	C	C	-	-	C
53.	<i>Cocculus hirsutus</i> (L.) Diels.	-	C	C	-	C
54.	<i>Coix lachryma-jobi</i> L.	O	O	-	O	-
55.	<i>Coldenia procumbens</i> L.	-	-	-	C	-
56.	<i>Commelina benghalensis</i> L.	-	C	-	-	C
57.	<i>Commelina diffusa</i> Burm.	C	C	-	-	C
58.	<i>Corchorus aestuans</i> L.	C	C	-	-	C
59.	<i>Corchorus capsularis</i> L.	-	R	-	R	-
60.	<i>Corchorus fascicularis</i> Lam.	C	-	-	-	C
61.	<i>Corchorus olitorius</i> L.	C	C	-	-	C
62.	<i>Crotolaria albida</i> Heyne.	C	-	-	-	C
63.	<i>Crotolaria calycina</i> Schrank.	-	R	-	-	R
64.	<i>Crotolaria filipes</i> Bth. var. filipes	-	C	-	-	C
65.	<i>Crotolaria linifolia</i> L.	-	R	-	-	R
66.	<i>Crotolaria triquetra</i> Dalz.	-	O	-	O	O
67.	<i>Cuscuta chinensis</i> Lam.	-	R	-	-	-
68.	<i>Cuscuta reflexa</i> Roxb.	-	R	R	-	-
69.	<i>Cyathocline purpurea</i> (D. Don.) O. Ktze.	C	-	C	-	-
70.	<i>Cynodon dactylon</i> (L.) Pess.	C	C	C	C	C
71.	<i>Cyperus brevifolius</i> (Rottb.) Hassk.	C	-	-	-	C
72.	<i>Cyperus compressus</i> L.	C	C	-	-	C
73.	<i>Cyperus difformis</i> L.	R	R	-	-	-
74.	<i>Cyperus haspan</i> L.	C	C	-	-	-
75.	<i>Cyperus iria</i> L.	R	R	-	-	-
76.	<i>Cyperus rotundus</i> L.	R	R	-	-	-
77.	<i>Desmodium dichotomum</i> (klein ex Willd.) DC.	C	C	-	-	-
78.	<i>Desmodium gangeticum</i> (L.) DC. var. gangeticum.	C	-	-	-	C
79.	<i>Desmostachya bipinnata</i>	C	-	-	-	C
80.	<i>Digera muricata</i> (L.) Mart.	-	C	-	-	C
81.	<i>Dinebra retroflexa</i> (Vahl.) Panz.	-	-	R	-	R
82.	<i>Dopatrium junceum</i> (Roxb.) Buch.-Ham.	R	-	-	O	R
83.	<i>Echinochloa colonum</i> (L.) Link.	R	R	-	-	-
84.	<i>Eclipta prostrata</i> (L.) L. Mant.	-	-	R	-	-
85.	<i>Enicostema hyssopifolium</i> (Willd.) Verd.	-	R	-	R	R
86.	<i>Eragrostis diarrhena</i> (Schult.) Steud.	-	O	-	-	O
87.	<i>Eragrostis tenella</i> (L.) P.Beauv. ex Roem and Schult.	-	C	-	C	-
88.	<i>Eriocaulon eleanorae</i> Fyson.	R	R	-	-	R
89.	<i>Eriocaulon quinquangularis</i> L.	C	C	-	-	C
90.	<i>Euphorbia geniculata</i> Orteg.	C	C	-	-	C
91.	<i>Euphorbia hirta</i> L.	-	C	-	-	C
92.	<i>Euphorbia parviflora</i> L.	-	-	-	-	R
93.	<i>Euphorbia rothiana</i> Spreng.	R	-	-	-	R
94.	<i>Euphorbia thymifolia</i> L.	A	-	-	-	A
95.	<i>Exacum pedunculatum</i> L.	-	R	-	-	R
96.	<i>Fimbristylis microcarpa</i> F. N. Muller.	R	-	-	R	-
97.	<i>Fimbristylis miliacea</i> (L.) Vahl.	C	-	-	C	C

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Table 1 Contd....

98.	<i>Gantelbua urens</i> (Heyne ex Roth) Bremek.	C	C	-	-	C
99.	<i>Glinus lotoides</i> L.	-	R	-	-	R
100.	<i>Glinus oppositifolius</i> (L.) A. DC.	R	-	-	-	R
101.	<i>Glossocardia bosvallea</i> (L. f.) DC.	-	-	R	-	R
102.	<i>Gnaphalium indicum</i> L.	C	C	-	-	C
103.	<i>Goniocaulon indicum</i> (Klein ex Willd.) Cl.	R	R	-	-	R
104.	<i>Goniogyna hirta</i> (Willd.) Ali.	-	C	-	-	C
105.	<i>Grangea maderaspatana</i> (L.) Poir.	C	-	-	-	C
106.	<i>Haplanthus tentaculatus</i> Nees var. <i>tentaculatus</i>	-	C	C	-	C
107.	<i>Heliotropium indicum</i> L.	-	R	-	-	R
108.	<i>Heliotropium supinum</i> L.	-	C	-	-	C
109.	<i>Heteropogon contortus</i> (L.) P. Beauv.	R	R	-	-	-
110.	<i>Hibiscus panduriformis</i> Burm.	-	C	-	C	C
111.	<i>Hibiscus sabdariffa</i> L.	O	O	-	O	O
112.	<i>Hoppea dichotoma</i> Willd.	R	R	R	R	R
113.	<i>Hydrolea zeylanica</i> (L.) Vahl.	R	R	-	-	-
114.	<i>Hygrophila auriculata</i> (Schum.) Heine.	R	-	-	-	R
115.	<i>Indigofera astragalina</i> DC.	-	R	-	-	R
116.	<i>Indigofera cordifolia</i> Heyne.	R	-	-	R	-
117.	<i>Indigofera oblongifolia</i> Forsk.	O	O	O	O	-
118.	<i>Indigofera tinctoria</i> L.	-	O	-	-	C
119.	<i>Indigofera trita</i> L.	-	O	-	-	R
120.	<i>Ipomoea fistulosa</i> Mart.	-	R	-	-	R
121.	<i>Ipomoea indica</i> Stapf.	-	C	-	-	-
122.	<i>Ischaemum indicum</i> (Houtt.) Merrill.	-	R	-	R	-
123.	<i>Launaea procumbens</i> (Roxb.) Ramayya and Rajgopal	-	-	-	-	O
124.	<i>Leea edgeworthii</i> Santapau.	-	-	-	-	R
125.	<i>Leea indica</i> (Burm. f.) Merrill.	-	-	-	-	R
126.	<i>Leea macrophylla</i> Roxb.	-	C	-	-	C
127.	<i>Lepidium sativum</i> L.	R	R	-	R	-
128.	<i>Leucas aspera</i> (Willd.) Spr.	-	-	O	-	-
129.	<i>Leucas biflora</i> R. Br.	R	-	-	-	R
130.	<i>Leucas martinicensis</i> (Jacq.) R.Br.	R	-	-	-	R
131.	<i>Lindernia antipoda</i> (L.) Alst.	R	R	-	-	R
132.	<i>Lindernia ciliata</i> (Colsm.) Pennell.	-	R	-	-	R
133.	<i>Lindernia crustacean</i> (L.) F. Muell.	R	-	-	R	R
134.	<i>Lindernia multiflora</i> (Roxb.) Mukerjee.	-	-	-	R	R
135.	<i>Lindernia oppositifolia</i> (Retz.) Mukerjee.	C	C	-	-	C
136.	<i>Lindernia parviflora</i> (Roxb.) Haines.	-	O	-	-	C
137.	<i>Ludwigia perennis</i> L.	O	O	-	O	O
138.	<i>Malachra capitata</i> L.	R	R	R	-	-
139.	<i>Martynia annua</i> L.	R	R	-	-	R
140.	<i>Medicago sativa</i> L.	-	R	-	R	R
141.	<i>Melilotus alba</i> Lam.	R	-	-	-	R
142.	<i>Melilotus indica</i> Ali.	O	O	-	-	O
143.	<i>Melochia corchorifolia</i> L.	C	C	-	-	C
144.	<i>Merremia gangetica</i> (L.) Cufod.	-	C	-	-	-
145.	<i>Merremia tridentate</i> (L.) Hall. f	-	-	R	-	-
146.	<i>Merremia vitifolia</i> (Burm. f.) Hall.	-	R	-	-	-

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Table 1 contd.....

147.	<i>Mollugo pentaphylla</i> L.	R	-	-	-	R
148.	<i>Moschosma polystachyum</i> (L.) Bth.	R	-	-	-	R
149.	<i>Murdannia nudiflora</i> (L.) Brenan.	R	-	-	-	R
150.	<i>Neptunia triquetra</i> Bth.	-	O	-	-	-
151.	<i>Nothosaerva brachiata</i> (L.) Wt.	C	C	-	-	C
152.	<i>Oryza rufipogon</i> Criff.	C	C	-	-	C
153.	<i>Oxalis corniculata</i> L.	C	C	C	-	-
154.	<i>Phyla nodiflora</i> (L.) Greene.	C	-	-	-	C
155.	<i>Phyllanthus maderaspatensis</i> L.	-	C	-	-	C
156.	<i>Physalis minima</i> L.	-	C	-	C	C
157.	<i>Polygala chinensis</i> L.	C	C	-	-	-
158.	<i>Polygala erioptera</i> DC.	R	R	-	-	R
159.	<i>Portulaca oleracea</i> L.	-	C	-	C	C
160.	<i>Portulaca quadrifida</i> L.	C	C	-	-	C
161.	<i>Pouzolzia zeylanica</i> (L.) Brenan.	-	O	-	-	O
162.	<i>Psoralea corylifolia</i> L.	O	-	-	-	O
163.	<i>Ramphicarpa longiflora</i> (Arn.) Benth.	-	-	R	R	-
164.	<i>Rorripa indica</i> (L.) Hiern.	C	-	-	C	C
165.	<i>Rungia pectinata</i> (L.) Nees.	C	C	-	-	C
166.	<i>Rungia repens</i> (L.) Nees.	-	O	-	-	O
167.	<i>Salvia plebeia</i> R. Br.	R	R	-	-	R
168.	<i>Scirpus lateriflorus</i> Gmel.	O	-	-	-	O
169.	<i>Sclerocarpus africanus</i> Jacq.	O	O	-	-	O
170.	<i>Setaria glauca</i> (L.) Beauv.	C	C	-	-	C
171.	<i>Setaria tomentosa</i> (Roxb.) Kunth.	R	R	-	-	R
172.	<i>Sida acuta</i> Burm.	-	R	-	-	R
173.	<i>Sida alba</i> L.	C	-	C	C	C
174.	<i>Smithia conferta</i> Sm.	R	R	-	R	-
175.	<i>Smithia sensitiva</i> Ait.	-	-	-	-	O
176.	<i>Solanum nigrum</i> L.	-	R	-	-	R
177.	<i>Solanum surattense</i> Burm. f.	-	R	-	-	R
178.	<i>Sopubia delphinifolia</i> (L.) G. Don.	R	R	-	R	R
179.	<i>Sphaeranthus indicus</i> L.	-	C	-	-	C
180.	<i>Stemodia serrata</i> Benth.	-	C	-	-	C
181.	<i>Stemodia viscosa</i> Roxb.	-	C	-	-	-
182.	<i>Striga angustifolia</i> (Don) Sald.	-	-	R	R	R
183.	<i>Striga asiatica</i> (L.) Kuntze.	-	-	R	-	R
184.	<i>Sutera dissecta</i> (Del.) Walp.	R	R	R	-	-
185.	<i>Tacca leontopetaloides</i> (L.) O. Ktze.	-	-	-	R	-
186.	<i>Tephrosia pumila</i> (Lam.) Pers.	-	O	-	-	O
187.	<i>Tephrosia purpurea</i> (L.) Pers.	-	R	-	-	R
188.	<i>Tephrosia strigosa</i> (Dalz.) Santa. and Mahesh.	R	-	-	-	R
189.	<i>Themeda quadrivalvis</i> (L.) O. Kuntze.	R	-	-	-	R
190.	<i>Trianthema portulacastrum</i> L.	C	C	C	-	-
191.	<i>Tribulus terrestris</i> L.	-	R	-	-	R
192.	<i>Trichodesma amplexicaule</i> Roth.	-	-	O	-	O
193.	<i>Trichodesma zeylanicum</i> (Burm. f.) R. Br.	-	C	-	-	-
194.	<i>Tridax procumbens</i> L.	C	-	C	-	-
195.	<i>Triumfetta rhomboidea</i> Jacq.	C	C	-	-	C
196.	<i>Triumfetta rotundifolia</i> Lam.	C	C	C	C	-

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Table 1 contd.....

197.	<i>Typha angustata</i> Bory and Chaub.	R	-	-	-	-
198.	<i>Urena lobata</i> L.	R	-	-	-	R
199.	<i>Vaccaria pyramidata</i> Medic.	C	-	-	-	-
200.	<i>Vahlia digyna</i> (Retz.) O. Ktze.	-	C	C	-	-
201.	<i>Vernonia cinerea</i> (L.) Less.	C	-	-	-	C
202.	<i>Vicoa indica</i> (L.) DC.	C	-	-	-	C
203.	<i>Zornia gibbosa</i> Span.	A	-	-	-	A

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