

MAJOR WEEDS OF RABI CROPS IN BLOCK CHAMBA, DISTRICT TEHRI GARHWAL (UTTARAKHAND), INDIA

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Abstract : The present communication pertains to major weeds of Rabi crops in block Chamba district Tehri Garhwal (Uttarakhand). The study was based on the extensive and intensive field surveys carried out during different months of Rabi season 2009-11. During the course of field study the authors have selected 05 important agrarian villages of block Chamba i.e. Dharsal, Saundkot, Sabli, Jagdhar and Nagani, Three sites were selected in each village for collection of weed species. A total of 66 weeds belonging to 01 monocot and 22 dicot families were reported from the study area. The maximum dominance was shown by family Asteraceae and Fabaceae having 14 and 09 weed species respectively. The monocot family (Poaceae) was represented by 05 weed species.

Keywords : Chamba, Tehri, Weed

INTRODUCTION

Weed is a plant growing where it is not desired. The concept of weed as an unwanted plant was born when man started to grow plants deliberately for their own purposes (Dangwal et.al.2010). Holm et. al. 1979 estimated about 8000 weed species all over the world. Out of these 250 weeds are important for agricultural crops. These are non indigenous plants that can invade or negatively alter native plant communities. Weeds differ from other plants in being more aggressive having peculiar characteristics that make them more competitive (Jim Blackburn, 2008). They have the ability to spread rapidly and reproduce in high numbers which enables them to effectively crowd out native plant population and established a kingdom of their own within a short period of time.

Crop fields are artificial ecosystem where the plants desired by man (crops) are grown but the weeds do come up and compete with crops mainly for space, sunlight, moisture, nutrients and hence reduced the yield of crops (Anderson 1996). Weeds usually absorb mineral nutrients faster than crop plants and accumulate them in their tissues in relatively larger amount thus the crops suffers from nutrient starved conditions and some time leads to complete failure. Weeds transpire more water than crop plants thus the weedy crops exhibit wilting and hence reduced in yield. Moreover, the weeds mature ahead of crops so that their seeds get mixed with crop seeds and distributed to other places. Weeds reduced the yield of wheat crop by 34.3% in India (Tiwari and Parihar, 1993). Weeds acts as a host for bacteria, viruses and nematodes that causes diseases in crop plants (Younkin 1949 and Peters 1955). Some noxious weeds are harmful, they adversely affects crop productivity, causes health hazards in human and animals hence affects the comfort and working efficiency of man. Weeds show allelopathic effects on crop plants by secreting allelochemicals that inhibits

growth and germination of crop plants (Oudhia, P and Tripathi 1998a, b).

The present study area i.e. block Chamba, district Tehri Garhwal is located at an elevation range of 1524 m. asl and lies in between latitude of 30°-21'N and longitude of 78°-30' E. As Barley and Pea are the major Rabi crops sown in block Chamba but Wheat and Onion are also grown on small scale in this block.

MATERIAL AND METHOD

The present communication pertains to major weeds of Rabi crops in block Chamba of district Tehri Garhwal (Uttarakhand). The study is based on intensive and extensive field surveys made during different months of Rabi season 2009-11. During this period the authors have selected five important agrarian villages in block Chamba i.e. Dharsal, Saundkot, Sabli Jagdhar and Nagani. Three sites were selected in each village. Periodic field trips were made twice a month in all the sites to collect the weed species. Important field notes on flowering and fruiting seasons of particular weed species were reported. The interviews were conducted from farmers and agriculturists of each site about seasonal weed species and their available vernacular names. The collected weed plants were dried, pressed, preserved, mount and properly identified with the help of available literature, monographs (Gaur, R. D.1982 &1999, Kaul, M.K.1986) and confirmed from the authentic regional herbaria i.e. Botanical Survey of India, Northern Circle (BSD), Dehradun and Forest Research Institute Herbarium (DD), Dehradun and deposited them in the H.N.B. Garhwal Central University Herbarium, Department of Botany, S.R.T. Campus, Badshahithaul, Tehri Garhwal, Uttarakhand.

RESULT AND DISCUSSION

A total of 66 weed species belonging to 01 monocot and 22 dicot families were reported from the Rabi

crops of the study area. The maximum dominance was shown by families Asteraceae and Fabaceae having 14 and 09 weed species respectively. The family Amaranthaceae and Poaceae contained 05 weed species each. The families Euphorbiaceae and Polygonaceae were represented by 04 weed species each. The family Chenopodiaceae and Solanaceae contained 03 weed species each. The families Brassicaceae, Malvaceae, Oxalidaceae and Ranunculaceae were represented by 02 weed species. The remaining families i.e. Asclepiadaceae, Cannabiaceae, Caryophyllaceae, Convolvulaceae, Fumariaceae, Lamiaceae, Plantaginaceae, Primulaceae, Rosaceae, Rubiaceae and Urticaceae were represented by 01 weed species each (Fig 1). Out of the 66 weed species mentioned in the communication the weeds like *Avena fatua*, *Anagallis arvensis*, *Chenopodium album*, *Cirsium arvense*, *Fumaria parviflora*, *Lathyrus aphaca*, *Melilotus indica*, *Parthenium hysterophorus*, *Phalaris minor*, *Rumex nepalensis*, *Vicia hirsuta* and *Vicia sativa* are common weeds showing maximum diversity in crop fields. Comparative percentage of weed families of Rabi Crops in block Chamba is shown in Fig 2.

Barley and Pea are the major Rabi crops of the block Chamba but along with Barley and Pea, Wheat and Onion are also grown on small scale by the agriculturists. The per hectare yield of crops in this block is less as compared to other parts of India due to many factors like lack of irrigation system etc. but the menance of weeds is also the major contributor to loss of production. The management of weeds involves costs therefore reduction in net returns makes harvesting and threshing of crops costly, laborious and reduces the value of production. Some of the weeds i.e. *Achyranthes aspera*, *Calotropis procera*, *Cannabis sativa*, *Chenopodium album*, *Cynodon dactylon*, *Datura stramonium*, *Taraxacum officinale* etc. are of medicinal importance. The weeds like *Amaranthus viridis*, *Chenopodium album*, *C. murale*, *Coronopus didymus*, *Lathyrus aphaca*, *Vicia hirsuta* and *Vicia sativa* are used in some cooking racapies of this area.

The present study was conducted as first ever attempt from the study area to explore and identify the major weeds of Rabi crops. It may help the taxonomists, farmers and agriculturists to identify the weeds and thus planning a suitable strategy for their control.

Fig 1. Showing the no. of weed species in each family.

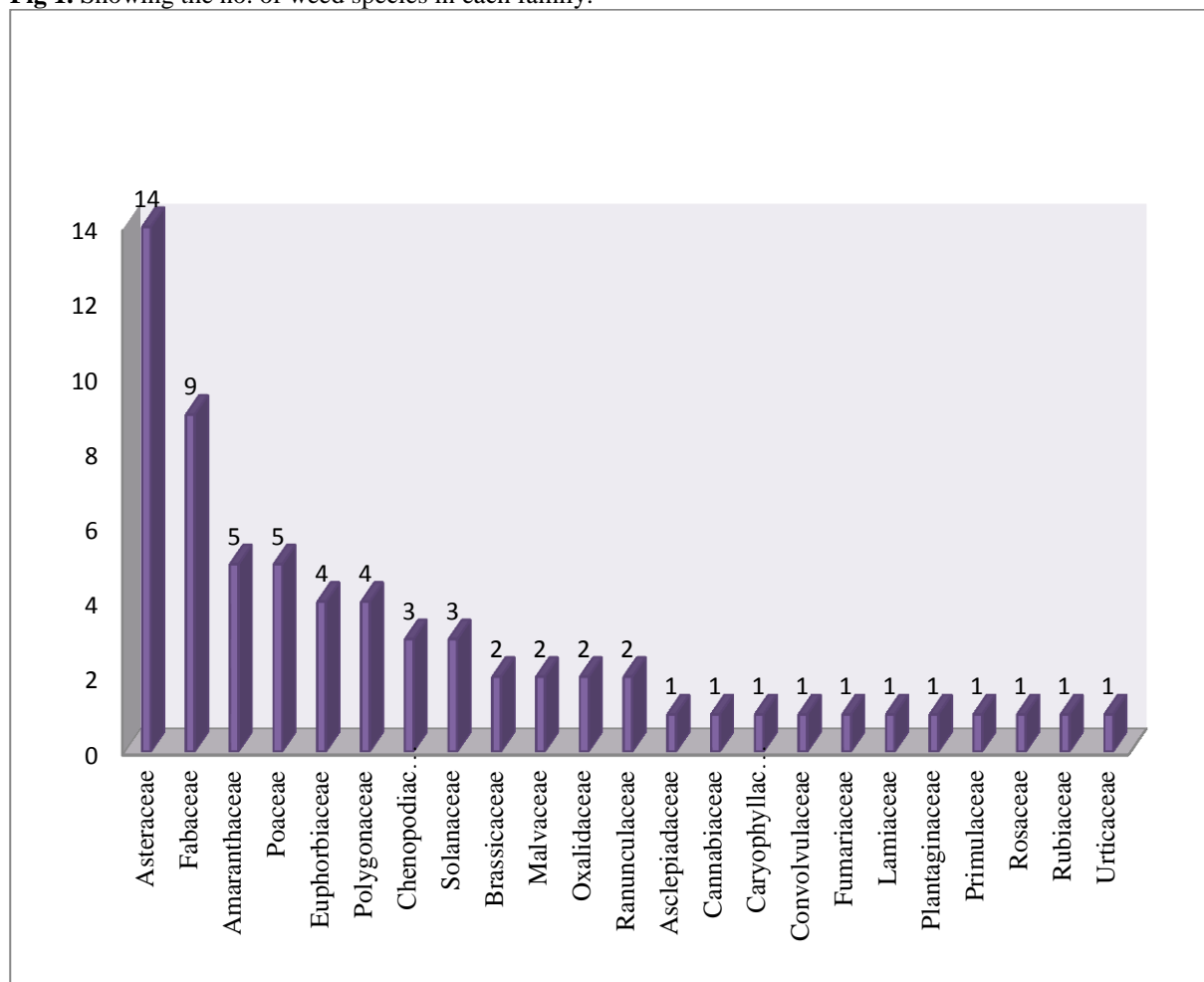
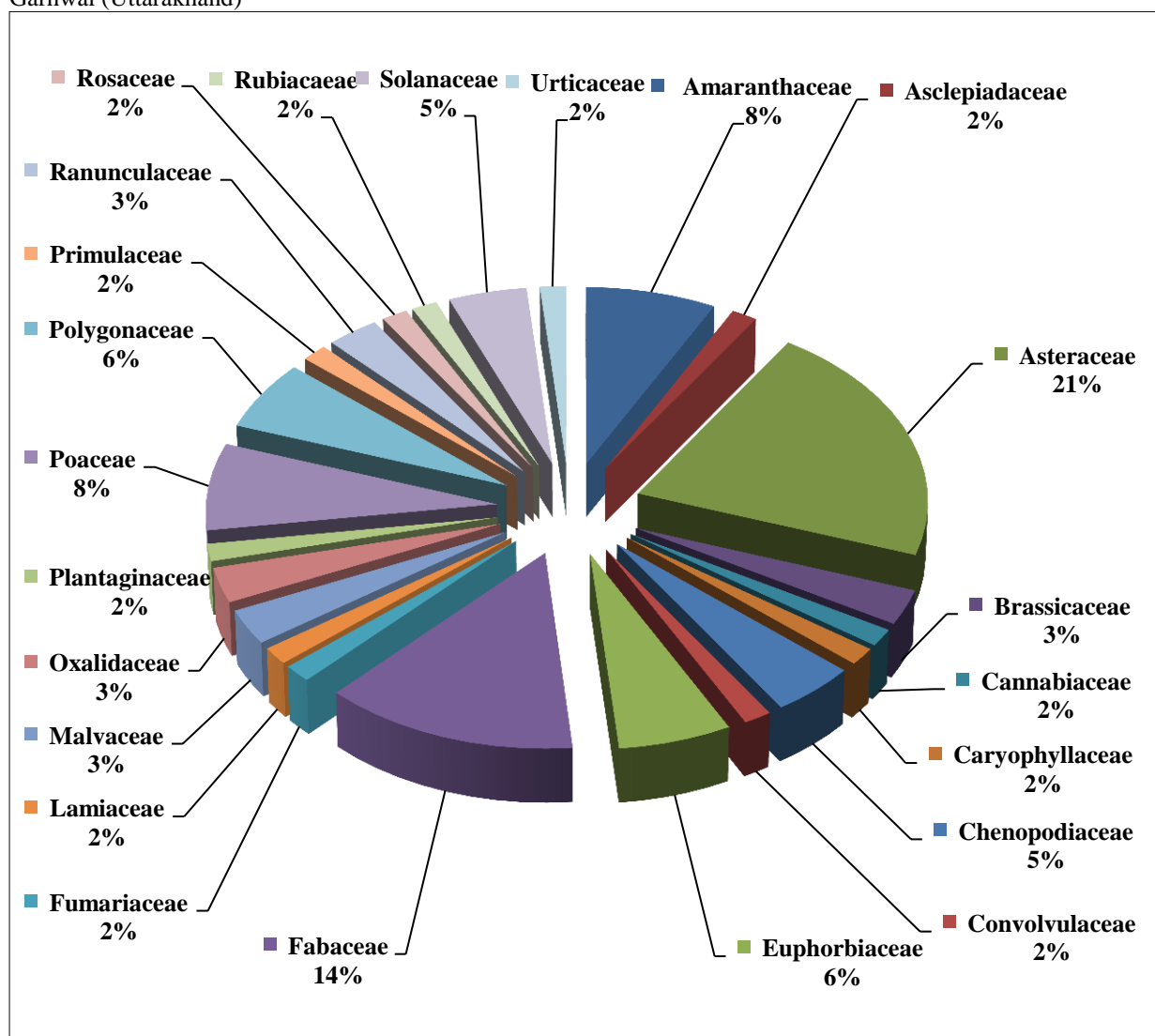


Fig. 2. Showing Comparative percentage of weed families of Rabi Crops in block Chamba, District Tehri Garhwal (Uttarakhand)



CONCLUSION

Weeds are the severe competitor of crops. They compete with crops mainly for space, sunlight, moisture and nutrients and hence reduce the value of production. They cause enormous loss to the

producers as they losses a part of their investment and the country suffers reduction in agricultural products. In the study area authors have reported **66** weed species belonging to **01** monocot and **22** dicot families.

The 01 monocot and 22 dicot families are arranged alphabetically with their botanical names, available vernacular names and flowering and fruiting seasons in

Table 1

| S.No. | Family | Botanical name | Available vernacular name | Flowering and fruiting seasons |
|-------|----------------|--|---------------------------|--------------------------------|
| 1) | Amaranthaceae | 1) <i>Ahchyranthes aspera</i> L. | Poothkanda | Aug-Dec |
| | | 2) <i>Alternanthera pungens</i> Kunt. | - | Aug-Oct |
| | | 3) <i>Alternanthera sessilis</i> (L.)Dc. | - | Aug-Sept |
| | | 4) <i>Amaranthus spinosus</i> L. | Goja | Sept-Nov |
| | | 5) <i>Amaranthus viridis</i> L. | Chelari | Aug –Nov |
| 2) | Asclepiadaceae | 1) <i>Calotropis procera</i> (Ait.)F. | Aak | Apr-Jul |
| 3) | Asteraceae | 1) <i>Ageratum conyzoides</i> L. | Gandela | Sept-Oct |
| | | 2) <i>Artemisia vulgaris</i> L. | Chhamur | Jul-Aug |
| | | 3) <i>Bidens pilosa</i> L. | Saryala | Sep-Nov |
| | | 4) <i>Conyza ambigua</i> Dc. | - | Apr-May |

| | | | | |
|-----|------------------|---|----------------|---------------------|
| | | 5) <i>Conyza bonariensis</i> L. | - | Aug –Sep |
| | | 6) <i>Cirsium arvense</i> Syn. | Kantili | Jan-Mar |
| | | 7) <i>Eupatorium adenophorum</i> Spreng. | Kala Bansa | Sep-Oct |
| | | 8) <i>Galinsoga parviflora</i> Cav. | Soch | Throughout the year |
| | | 9) <i>Gnaphalium luteo-album</i> L. | - | Mar-Apr |
| | | 10) <i>Parthenium hysterophorus</i> L. | Gajjar Ghass | Jun –Sep |
| | | 11) <i>Sonchus asper</i> L. | Badi Hand | Jun-Oct |
| | | 12) <i>Sonchus oleraceus</i> L. | - | Mar-May |
| | | 13) <i>Taraxacum officinale</i> Weber. | Hand | Mar-Oct |
| | | 14) <i>Tridax procumbens</i> L. | Kumur | Mar-Apr |
| 4) | Brassicaceae | 1) <i>Capsella bursa-pastoris</i> Medik. | Hallo | Jan-Mar |
| | | 2) <i>Cornopus didymus</i> L. | Jungle AJwain | Apr-Oct |
| 5) | Cannabiaceae | 1) <i>Cannabis sativa</i> L. | Bhang | Jul-Sep |
| 6) | Caryophyllaceae | 1) <i>Stellaria media</i> L. | Baarara | Feb-Mar |
| 7) | Chenopodiaceae | 1) <i>Chenopodium album</i> L. | Bathu | Mar-Apr |
| | | 2) <i>Chenopodium murale</i> L. | Lal Bathu | May-Aug |
| | | 3) <i>Chenopodium ambrosioides</i> L. | Booti | Aug-Oct |
| 8) | Convolvulaceae | 1) <i>Convolvulus arvensis</i> L. | Bel | Apr-Sep |
| 9) | Euphorbiaceae | 1) <i>Euphorbia dracunculoides</i> Lamk. | Doodal | Nov-Jan |
| | | 2) <i>Euphorbia geniculata</i> Orteg. | Badi Doodal | May-Jul |
| | | 3) <i>Euphorbia hirta</i> L. | Chota Dhudhiya | Sep-Oct |
| | | 4) <i>Euphorbia prostrata</i> Aiton. | Dhudui | Jul-Sep |
| 10) | Fabaceae | 1) <i>Indigofera dosua</i> Buch. | - | Apr-Jul |
| | | 2) <i>Lathyrus aphaca</i> L. | Jungle Matar | Feb-Mar |
| | | 3) <i>Medicago lupulina</i> L. | Maithi Ghass | Mar-Apr |
| | | 4) <i>Medicago polymorpha</i> L. | Meethu | Aug-Oct |
| | | 5) <i>Melilotus indica</i> L. | Khara Methi | Mar-Apr |
| | | 6) <i>Trifolium repens</i> L. | - | Apr-Jul |
| | | 7) <i>Trifolium tomentosum</i> L. | Stal | Mar –Apr |
| | | 8) <i>Vicia hirsuta</i> L. | Khanu | Mar-Apr |
| | | 9) <i>Vicia sativa</i> L. | Bada gaigla | Mar –Apr |
| 11) | Fumariaceae | 1) <i>Fumaria parviflora</i> Lamk. | Saitra | Sep-Nov |
| 12) | Lamiaceae | 1) <i>Leucas lanata</i> Benth. | Gumma | Jan-Oct. |
| 13) | Malvaceae | 1) <i>Malva parviflora</i> L. | - | May-Aug |
| | | 2) <i>Malvestrum coromendalinium</i> Syn. | Sonchal | Mar-Apr |
| 14) | Oxalidaceae | 1) <i>Oxalis corniculata</i> L. | Khati Methi | Feb-Nov |
| | | 2) <i>Oxalis latifolia</i> H.B.&K. | Teepatia | Jun-Oct |
| 15) | Plantaginaceae | 1) <i>Plantago major</i> L. | Badi Ghass | Apr-Oct |
| 16) | Poaceae(Monocot) | 1) <i>Avena fatua</i> L. | Kali Jae | Mar-Apr |
| | | 2) <i>Cynodon dactylon</i> L. | Doob | Apr-Jul |
| | | 3) <i>Lolium temulentum</i> L. | Tinra | Mar-Apr |
| | | 4) <i>Phalaris minor</i> Retz. | Mandosi | Mar-Apr |
| | | 5) <i>Poa annua</i> L. | Khabal | May-Aug |
| 17) | Polygonaceae | 1) <i>Polygonum barbatum</i> L. | - | Feb-Nov |
| | | 2) <i>Polygonum persicaria</i> L. | Sawak | Feb-Nov |
| | | 3) <i>Rumex dentatus</i> L. | Khansu | Mar-Apr |
| | | 4) <i>Rumex nepalensis</i> Spreng. | Khanas | Aug-Sep |
| 18) | Primulaceae | 1) <i>Anagallis arvensis</i> L. | Krishna Neel | Feb-Apr |
| 19) | Ranunculaceae | 1) <i>Ranunculus arvensis</i> L. | Dhanja Ghass | Mar-Apr |
| | | 2) <i>Ranunculus sceleratus</i> L. | Changeri | Mar-Apr |
| 20) | Rosaceae | 1) <i>Fragaria indica</i> Andrews. | Kai Phal | Mar-May |
| 21) | Rubiaceae | 1) <i>Galium aparine</i> Linn. | Char-Chara | Feb-Mar |
| 22) | Solanaceae | 1) <i>Datura stramonium</i> L. | - | Apr-Jul |
| | | 2) <i>Solanum nigrum</i> L. | Makoi | Aug-Sep |
| | | 3) <i>Solanum xanthocarpum</i> Schrad. | Satyanashi | Jul-Oct |
| 23) | Urticaceae | 1) <i>Urtica dioica</i> L. | Bichhu Ghass | Nov –Feb. |

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