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# Phenology (Lifespan) of Crop Weeds of Haroti Region, South-East Rajasthan

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**ABSTRACT:** Due to wide adaptability of the weeds to eco-climatic deviations, different weeds occur in diverse habitats. The plants have been classified according to their lifespan into annuals, biennials and perennials, which live one, two, or many years. Phenology of diverse weed flora of agriculture land of Haroti region have been communicated in present paper. Phenology is the study of life cycle events of plants. Lifespan of weed plant is now a days continuously affected due to climate change.

**KEYWORDS:** Haroti region, Lifespan, Phenology, Physiographic diversity, Weeds

## I. INTRODUCTION

A wide range of wild flora occurs in diverse situations like lawns, grasslands, waste lands, crop fields, marshy places, aquatic, forests, hills and hillocks and dry areas. Some weeds prefer to grow along the road sides and railway tracts. The weeds of wastelands are different based on moist or dry wastelands. Some groups of weeds are classed under special habitat types like paddy fields.

Most of the wild plants possess attributes initiating effective dispersal of seeds like by hairy pappus, winged seeds, by agencies like man and animals, etc. The seeds of many wild plants remain dormant for longer durations. Some weeds have long root system, this is especially helpful in drier areas with low water availability. Root system with many fibrous roots near the soil surface help in penetrating the soil. Total seed output of many prominent wild plants is very high. Some weeds have capacity to grow vegetatively through the tubers, root suckers and runners. Many weeds have capacity of germination of seeds under adverse environmental conditions.

Phenology is the life history of plants in the calendar of events. It is influenced by seasonal and local variations in climate, as well as habitat factors. Flowering and fruiting time of many weeds is often governed by rainfall intensity. Lifespan is an important part of phenology of plants. The present paper deals with study of lifespan of common crop weeds of Haroti region, a part of south-east Rajasthan. Haroti region covers Kota division of Rajasthan and includes Kota, Bundi, Jhalawar and Baran districts respectively. Haroti plateau is situated at the edge of the Malwa plateau at 23°45' to 25°53' N latitude and 75°9' to 77°26' E longitude in the south eastern corner of Rajasthan. The Haroti plateau has dense floristic diversity suggests various wild plant species includes agriculture field weeds.

## II. RELATED WORKS

Literature survey of related ecological and taxonomical work done in India was done by various researchers (Das and Bhimaya, 1964, Meher-Homji, 1970, Agarwal, 1971, Dadhich, 1974, Majumdar, 1981, Shetty and Pandey, 1983, Hegde and Bhat, 2012, Meena, 2012, Barooah and Ahmed, 2014, Sharma, 2019, 2020, 2021 and 2022). In the present work lifespan of crop weeds of Haroti region have been observed.



### III. METHODOLOGY

The studies are based on field survey and collection tours. Extensive surveys were conducted of whole area specially the agriculture fields in Kharif and Rabi crop seasons to assess the lifespan of common weeds of different families. The paper is based on general field observations of weeds during January 2019 to December 2022. Herbarium specimen were collected and preserved in herbarium chamber, Government College Bundi by author.

### IV. EXPERIMENTAL RESULTS

Plants like *Tridax procumbens* L., *Solanum virginianum* L., *Solanum nigrum* L., *Cleome gynandra* L., *Cleome viscosa* L., *Chrozophora rotleri* (Geiseler) Spreng., *Polygonum plebeium* R. Br. and *Cyanthillium cinereum* (L.) H. Rob. occurring often in abandoned fallow fields. *Crotalaria burhia* Buch.-Ham. ex Benth., *Scoparia dulcis* L., *Celosia argentea* L. and *Calotropis procera* (Ait.) W. T. Ait. are another weed more often seen along field borders and fallow lands. Amongst others *Senna tora* (L.) Roxb., *Senna occidentalis* (L.) Link., *Tephrosia villosa* (L.) Pers., *Tephrosia purpurea* (L.) Pers., *Trianthem portulacastrum* L., *Croton bonplandianus* Baill., *Artemisia parviflora* Roxb. ex D. Don. may also be mentioned, as some of these do invade fallow lands and agricultural fields.

The weed crop association differs for the Kharif, summer and Rabi types though within each of these, at different sites, similar weeds may occur. *Amaranthus viridis* L., *Amaranthus spinosus* L., *Portulaca oleracea* L., *Lathyrus aphaca* L., *Lathyrus sativus* L., *Vicia faba* L., *Vicia hirsuta* (L.) Gray, *Trianthem portulacastrum* L., *Chenopodium album* L., *Chenopodium murale* L., *Convolvulus arvensis* L., *Melilotus albus* Medik., *Melilotus indicus* (L.) All., *Lathyrus aphaca* L., *Anagallis arvensis* L. and *Argemone mexicana* L. are much widely distributed crop weeds.

A wide range of physiographic diversity occurs in different areas of Haroti region. Cultivated land weeds occur in different crops like Kharif weed and Rabi weeds. Many crop weeds are common in area, which are rapidly invading the wheat, maize, rice and other crops. The wild plants have been classified according to their lifespan into annuals, biennials and perennials which are, respectively, those which live one, two, or many years. Based on lifespan, classification of Rabi and Kharif weeds has been proposed and categorised with examples:

1. The annuals live and produce their seeds in a single growing season like *Eragrostis minor* Host., *Eragrostis pilosa* (L.) P. Beauv. and *Asphodelus tenuifolius* Cav., *Chenopodium album* L., *Chenopodium murale* L., *Amaranthus viridis* L., *Amaranthus spinosus* L. and *Portulaca oleracea* L.

2. Biennials flower and seed survive second year of their growth and then die. Many times, vacant fields, roadsides and waste lands covered by annual or biennial weeds.

3. The third category is of perennials and includes the worst of the weeds. Perennial weeds usually have roots or underground stems which keep them alive from year to year. These live indefinitely and are capable of propagating their kind not only by seeds but also by underground stem, root suckers or rhizomes, bulbs or tubers i.e., *Cyperus rotundus* L., *Cyperus alopecuroides* Rottb., *Saccharum spontaneum* L., *Bulbostylis barbata* (Rottb.) C. B. Clarke., *Pluchea lanceolata* (DC.) C. B. Clarke., *Trianthem portulacastrum* L., *Glinus lotoides* L. etc.

Many weeds are spreading fast like *Cyperus rotundus* L., *Echinochloa colonum* (L.) Link., *Saccharum spontaneum* L., *Cynodon dactylon* (L.) Pers., *Asphodelus tenuifolius* Cav., *Cenchrus biflorus* Roxb., *Cenchrus ciliaris* L., *Chloris barbata* Swartz. and *Chloris virgata* Swartz. These weeds are more prominent in most part of the region and considered as obnoxious weeds. Many weeds have spreading roots and root stocks which propagate the plants very rapidly like *Ipomoea cairica* (L.) Sweet., *Ipomoea carnea* subsp. *fistulosa* (Mart. ex Choisy) D. F. Austin., *Persicaria barbata* (L.) H. Hara and *Persicaria glabra* (Willd.) M. Gomez. In *Portulaca oleracea* L., *Trianthem portulacastrum* L. cut portion of shoots or rhizome regenerate quickly.

In perennial weed roots reach very far below to the soil surface in drier region of area. In fallow lands weeds deplete the soil of moisture and fertility. Seeds of many weeds remain dormant for longer time like *Mucuna pruriens* (L.) DC.,



*Amaranthus viridis* L., *Amaranthus spinous* L., *Tribulus terrestris* L., *Convolvulus arvensis* L., *Martynia annua* L. Perennial weeds like *Pluchea lanceolata* (DC.) C. B. Clarke. and *Ziziphus nummularia* (Burm. f.) Wight & Arn. make agricultural operations difficult of their stout rhizomatous stocks and deep root systems. Occasionally some weeds make harvesting difficult, especially the twining plant species of *Ipomoea* and *Convolvulus*.

## V. CONCLUSION

Phenology in area is mainly dominated by rainfall-related events, moisture availability, edaphic complex and seasonal variations. The climate of the Haroti region favours the growth of dry deciduous forests vegetation. Weed flora is widespread in different ecological habitats of whole region. Climatic, edaphic and biotic factors affect the local vegetation. Lifespan study of common crop weed of Haroti region have been taken into current consideration.

## REFERENCES

1. Agarwal, S. K. (1971). Floristic and Ecological studies on the deciduous forests of Gogunda and Parsad. (South-east Rajasthan). Ph. D. Thesis, Univ. of Udaipur.
2. Barooah, C. & Ahmed, I. (2014). Plant diversity of Assam. A checklist of Angiosperms and Gymnosperms: 1-599. Assam science technology and environment council, India.
3. Dadhich, L.K. (1974). Studies on vegetation of Jhamarkotra hills and its neighbourhood, Ph.D. Thesis, University of Udaipur.
4. Das, R. B. and Bhimaya, C.P. (1964). Ecology of grasslands of Western Rajasthan. Proc. Symp. Prob. Indian Arid Zone. pp. 222-226. Jodhpur.
5. Hegde, G.T. and Bhat, D. M. (2012). Wild plant species used in Hindu festivals- A case Study from Uttara Kannada district, Western Ghats, South India. Life Sciences Leaflets, 3: 1-6.
6. Majumdar, R.B. (1981). Synoptic flora of the Kota division (S.E. Rajasthan), III Bull. Bot. Surv. India 22: 24-41.
7. Meena, S. L. (2012). A checklist of the vascular plants of Banaskantha district, Gujarat, India Nelumbo. 54: 39-91.
8. Meher-Homji, V. M. (1970). Some phytogeographic aspects of Rajasthan, India. Vegetation Acta Geo Botanica. 21: 299-320.
9. Sharma, O.P. (2019). Kaththa: Rural small-scale industry of India. Accent Journal of Economics Ecology & Engineering. Vol. 04 special issue 04, (ICIRSTM).
10. Sharma, O.P. (2020). Medicinal plant lore of the ethnic societies of Hindoli tehsil, district Bundi, Rajasthan. IJRAR. Vol. 7 (4): 63-67.
11. Sharma, O. P. (2021). *Striga* Lour, Root parasite angiosperm: A case study in Rajasthan state. Ad. Plant Sci. 34: (I - II) 119-120.
12. Sharma, O. P. (2022). Common weeds of Kharif crops of Bundi district, Rajasthan, India. IJIRSET. Vol. 11. Issue 05: 6098-6100.
13. Sharma, O. P. (2022). *Crotalaria* L. in Haroti region, South-east Rajasthan. IJGSR. Int. J. Glob. Sci. Res. Vol. 9, Issue 02. 1862-1865.
14. Sharma, O. P. (2022). Invasive plant species of Rajasthan and their impact on natural habitat. IJSR. Vol. 11, Issue 12, 678-680.
15. Shetty, B.V. and Pandey, R.P. (1983). Flora of Tonk district. BSI, Howrah.



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