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## Weeds of crop fields in Satlasana Taluka of district Mehsana, Gujarat, India

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### ABSTRACT

The present study was conducted to explore the weed flora in crop fields of Satlasana taluka, district Mehsana, Gujarat. Satlasana taluka is under cultivation of different rabi, jayad and kharif crops by a natural rain and a network of canal system. Weeds typically produce large numbers of seeds, assisting their spread. Seeds spread into natural environments, including waterways, via wind, people, vehicles, machinery, birds and other animals. Usually weeds grow faster than native plants and successfully compete for the available nutrients, water, space and sunlight. During the present study the authors have reported a total of 99 species of weeds belonging to 74 genera and 32 angiosperm families.

**Keywords:** Weeds, Crop fields, Satlasana, Mehsana

### 1. Introduction

Cutaneous Weeds are undesirable plants growing along with domesticated crops. They reducing the production capacity of agricultural lands. According to Parker and Fryer (1975) estimated that the world was losing annually 11.5% of the total food production due to weeds. Weeds are hard to control, because they grow rapidly produce vast numbers of seeds and spread aggressively by vegetative structures and seeds, which enable them to establish a kingdom of their own within a short period of time (Dhangwal *et al.* 2010) [6]. They cause economic loss to the producers as they loss part of their investments. Due to weeds, hybrid crops require more percentage of water and fertilizer, which increases the invasiveness of weeds. For the control of the weeds, we have to study phenology, flowering and fruiting periods, general dispersal of the weed and change the crop pattern etc. is of paramount importance. The present paper is an attempt in his direction to study the weed flora association with agricultural crops.

### 2. Study Area

Satlasana was the head quarters of a Thana during Agency period. It is situated at the north side of Visnagar taluka and south side of Banaskantha district, as well as the east side of Sabarkantha district of North Gujarat. It is situated within 240 00' North latitude and 720 46' East longitude. It is bordered at south side by Dharoi dam and east side by Luni river. The water is available for agriculture area through Dharoi dam.

### 3. Materials and Methods

An extensive floristic survey was conducted during 2012-2013. The plants specimens were collected at the different reproductive stages to prepare herbarium specimens and authenticate their correct identify. The collected specimens were identified taxonomically with the help of available monographs, taxonomic revisions and floras (Shah, 1978, Cooke, 1901-1908). Collected specimens were cross checked for correct identification at the Herbarium centre of Government Science College, Gandhinagar Gujarat, India.

### 4. Results and Discussion

Present study shows that, 99 species of angiosperms belonging to 32 families and 74 genera were documented. Asteraceae was dominant family with 17 species followed by Poaceae (16), Amaranthaceae (9), Euphorbiaceae (7), Convolvulaceae (5), Commelinaceae (3), Malvaceae (3), Papilionaceae (3), Scrophulariaceae (3), Solanaceae (3). 8 families such as Capparaceae, Caryophyllaceae, Chenopodiaceae, Lamiaceae, Nyctaginaceae, Papaveraceae, Portulacaceae and Rubiaceae were represented by two species each, whereas rest of 14 families were found

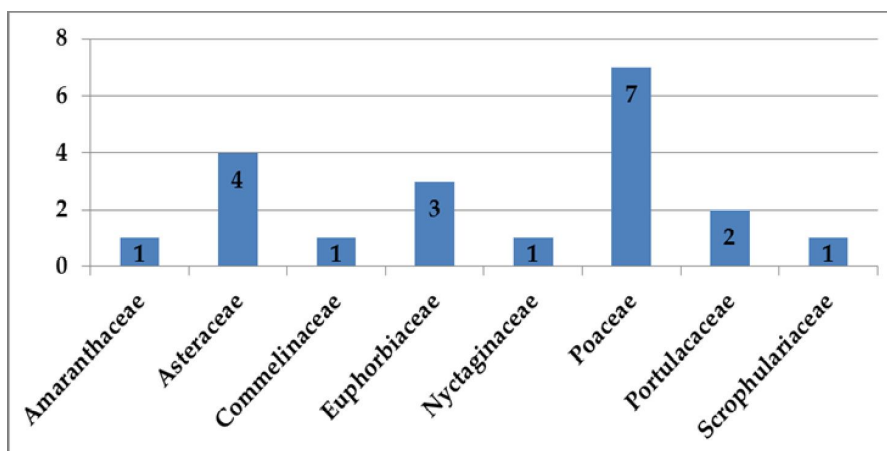
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monospecific. Present study shows that there are 20 species of 8 family which found in all crops [Fig. 1]. Out of 99 species of angiosperms belonging to 32 families and 74 genera were

found to be listed as invasive weeds in agricultural crop fields [Table-1].



**Fig 1:** Families with no. of plant species which found in all crops.

**Table 1:** List of Weeds with associated agricultural crops

Scientific Name / Family	Fls. & Frs.	Associate Crops
<i>Abutilon indicum</i> (L.) Sw. / Malvaceae	Aug.-Feb	Castor, Cotton
<i>Acalypha ciliata</i> Forsk. / Euphorbiaceae	Aug.-Dec.	Castor, Cotton, Maize
<i>Acalypha indica</i> L. / Euphorbiaceae	Aug.-Dec.	All crops
<i>Acanthospermum hispidum</i> DC. / Asteraceae	Jan.-July	Maize, Juvar, Cotton
<i>Achyranthes aspera</i> L. / Amaranthaceae	Throught Year	Castor, Maize, Bajri, Tuver
<i>Ageratum conyzoides</i> L. / Asteraceae	Aug.-Apr.	Maize, Groundnut
<i>Alternanthera pungens</i> Humb. / Amaranthaceae	July-Nov.	Tuver, Groundnut, Bajra
<i>Alternanthera sessilis</i> (L.) DC. / Amaranthaceae	June-Apr.	Cotton
<i>Amaranthus spinosus</i> L. / Amaranthaceae	July-Dec.	Cotton, Wheat
<i>Amaranthus viridis</i> L. / Amaranthaceae	Aug.-Dec.	All crops
<i>Amberboa ramosa</i> (Roxb.) Jafri / Asteraceae	Throught Year	Cotton, Groundnut
<i>Anagallis arvensis</i> L. / Primulaceae	Oct.-Mar.	Wheat, Mustard
<i>Antirrhinum orontium</i> L. / Scrophulariaceae	Aug.-Feb	Maize, Tuver, Rajko
<i>Argemone mexicana</i> L. / Papaveraceae	Throught Year	Bajra, Tuberose, Tomato
<i>Argemone ochroleuca</i> Sweet. / Papaveraceae	Throught Year	Cotton, Castor
<i>Aristida adscensionis</i> L. / Poaceae	Sep.-Dec.	Bajra, Karela, Brinjal, Tomato
<i>Asphodelus tenuifolius</i> Cav. / Liliaceae	Nov.-March	Groundnut, Wheat, Mustard
<i>Bidens bipinnata</i> L. / Asteraceae	Aug.-Oct.	All crops
<i>Boerhavia diffusa</i> L. / Nyctaginaceae	Throught Year	All crops
<i>Boerhavia erecta</i> L. / Nyctaginaceae	Sep.-Dec.	Cotton, Maize, Wheat
<i>Borreria articularis</i> (L.f.) F.N.Will / Rubiaceae	Aug.-Jan.	Castor, Tuver, Maize, Wheat
<i>Brachiaria eruciformis</i> (Sm.) Griseb. / Poaceae	Throught Year	Bajra, Juvar, Sugarcrane
<i>Brachiaria ramosa</i> (L.) Stapf / Poaceae	Aug.-Oct.	Wheat, Mustard, Karela, Juvar, Bajra, Tomato
<i>Cardiospermum halicacabum</i> L. / Sapindaceae	Jul.-Dec.	Jamfal, Galka, Tuberose, Brinjal, Chili
<i>Celosia argentea</i> L. / Amaranthaceae	Sep.-Mar.	Cotton, Juvar, Bajra, Chili, Bhinda
<i>Chenopodium album</i> L. / Chenopodiaceae	Jan.-Mar.	Wheat, Juvar, Bajra, Maize
<i>Chenopodium murale</i> L. / Chenopodiaceae	Jan.-Mar.	Wheat, Juvar, Bajra, Maize
<i>Chloris barbata</i> Sw. / Poaceae	Aug.-Jan.	Juvar, Bajra, Maize, Wheat, Tameta
<i>Cleome gynandra</i> L. / Capparaceae	Aug.-Feb.	Cotton, Karela, Brinjal, Maize, Soyabean
<i>Cleome viscosa</i> L. / Capparaceae	Aug.-Mar.	Juvar, Bajra, Sugarcrane, Chili, Brinjal
<i>Commelina benghalensis</i> L. / Commelinaceae	June-Dec.	Tuberose, Bajra, Juvar, Wheat
<i>Commelina diffusa</i> Burm. f. / Commelinaceae	July-Feb.	All crops
<i>Convolvulus arvensis</i> L. / Convolvulaceae	July-Mar.	Wheat, Bajra, Karela, Maize, Cotton
<i>Corchorus trilocularis</i> L. / Tiliaceae	Aug.-Feb.	Castor, Wheat, Juvar, Bajra
<i>Crotalaria medicaginea</i> Lam. / Papilionaceae	Apr.-Sep.	Mustard, Cotton, Maize
<i>Cyanotis axillaris</i> (L.) D. Don. / Commelinaceae	June-Dec.	Bajra, Soyabean, Juvar, Maize,
<i>Cyanthillium cinereum</i> (L.) H. Rob. / Asteraceae	Throught Year	Soyabean, Juvar, Castor, Bajra
<i>Cynodon dactylon</i> (L.) Pers. / Poaceae	Throught Year	All crops
<i>Cyperus rotundus</i> L. subsp. <i>rotundus</i> / Poaceae	June-Nov.	All crops
<i>Dactyloctenium aegyptium</i> (L.) P. Beauv. / Poaceae	Aug.-Jan.	Sugarcrane, Juvar, Bajra, Wheat, Groundnut

<i>Digera muricata</i> L. / Amaranthaceae	Aug.-Oct.	Rajko, Wheat, Cotton, Mustard
<i>Dinebra retroflexa</i> (Vahl) Panz. / Poaceae	Aug.-Feb.	Castor, Cotton, Juvar, Wheat, Jiru, Tuberoses
<i>Echinochloa colona</i> (L.) Link. / Poaceae	July-Feb.	All crops
<i>Eclipta alba</i> L. / Asteraceae	Jan.-Dec.	Tuver, Groundnut, Wheat
<i>Eleusine indica</i> (L.) Gaertn. / Poaceae	July-Jan.	All crops
<i>Eragrostis ciliaris</i> (All.) Link. / Poaceae	Oct.-Jan.	Tomato, Juvar, Sugarcrane, Chili
<i>Eragrostis ciliaris</i> (L.) R. Br. var. <i>ciliaris</i> / Poaceae	Oct.-Jan.	All crops
<i>Eragrostis japonica</i> (Thunb.) Trin. / Poaceae	Thought Year	Bajra, Cotton, Juvar, Chili, Wheat
<i>Eragrostis tenella</i> (L.) P. Beauv. / Poaceae	Thought Year	All crops
<i>Eragrostis unioides</i> (Retz.) Nees / Poaceae	July-Dec.	Juvar, Maize, Wheat, Tomato, Beinjil, Karela
<i>Euphorbia dracunculoides</i> Lam. / Euphorbiaceae	Oct.-Jan.	All crops
<i>Euphorbia heterophylla</i> L. / Euphorbiaceae	Sep.-Mar.	Cotton
<i>Euphorbia hirta</i> L. / Euphorbiaceae	Thought Year	All crops
<i>Fumaria indica</i> L. / Fumariaceae	Oct.-Feb.	Bajra, Castor
<i>Gnaphalium indicum</i> L. / Asteraceae	Thought Year	All crops
<i>Gnaphalium luteo-album</i> L. / Asteraceae	Thought Year	All crops
<i>Gomphrena celosioides</i> Mart. / Amaranthaceae	June-Jan.	Soyabean, Castor, Cotton
<i>Heliotropium subulatum</i> Hochst. / Boraginaceae	Dec.-Apr.	Castor, Cotton
<i>Ipomoea coptica</i> (L.) Roth. ex R. & S. / Convolvulaceae	Sep.-Feb.	Juvar
<i>Ipomoea obscura</i> (L.) Ker-Gawl. / Convolvulaceae	Dec.-Apr.	Castor, Tuver, Sugarcrane, Cotton, Soyabean
<i>Ipomoea pes-tigridis</i> L. / Convolvulaceae	Thought Year	Maize, Bajra
<i>Justicia procumbens</i> L. / Acanthaceae	Aug.-Feb.	Maize, Cotton
<i>Lagascea mollis</i> Cav. / Asteraceae	Thought Year	Juvar, Bajra, Sugarcrane
<i>Launaea capitata</i> (Spreng.) Dandy / Asteraceae	Oct.-Feb.	Cotton, Bajra, Maize, Brinjal, Karela, Tomato
<i>Launaea procumbens</i> (Roxb.) R. & R. / Asteraceae	Oct.-Feb.	Juvar, Bajra, Cotton, Maize
<i>Leucas aspera</i> (Willd.) Spr. / Lamiaceae	July-Nov.	Maize, Cotton, Wheat, Tuver
<i>Leucas cephalotes</i> L. / Lamiaceae	July-Nov.	Maize, Cotton, Wheat, Tuver
<i>Malvastrum coromandelianum</i> L. / Malvaceae	Thought Year	Maize, Cotton, Rajko, Tuver
<i>Melilotus alba</i> Lam. / Papilionaceae	Thought Year	Cotton, Castor, Soyabean, Wheat
<i>Melilotus indica</i> All. / Papilionaceae	Thought Year	Maize, Cotton, Wheat, Tuver
<i>Merremia gangetica</i> (L.) Cufod. / Convolvulaceae	Aug.-Feb.	Cotton, Castor, Soyabean, Wheat
<i>Mollugo pentaphylla</i> L. / Molluginaceae	Aug.-Nov.	Cotton, Bajra, Maize, Brinjal, Karela, Tomato
<i>Mukia maderaspatana</i> (L.) M. Roem. / Cucurbitaceae	Sep.-Dec.	Karela, Pandola, Tuberoses
<i>Oldenlandia corymbosa</i> L. / Rubiaceae	July.-Nov.	Maize, Juvar, Cotton, Bajra, Tuver
<i>Oxalis corniculata</i> L. / Oxalidaceae	Sep.-Apr.	Maize, Cotton, Wheat, Tuver
<i>Parthenium hysterophorus</i> L. / Asteraceae	Thought Year	All crops
<i>Pedaliium murex</i> L. / Pedaliaceae	Thought Year	Cotton, Maize, Wheat, Castor
<i>Phyllanthus fraternus</i> Web. / Euphorbiaceae	June-Dec.	Cotton, Makai, Tuver, Juvar, Bajra, Mung
<i>Phyllanthus maderaspatensis</i> L. / Euphorbiaceae	June-Dec.	Cotton, Makai, Tuver, Juvar, Mung, Adad
<i>Physalis angulata</i> L. / Solanaceae	Oct.-Mar.	Wheat, Soyabean, Karela, Tuberoses
<i>Physalis pruinosa</i> L. / Solanaceae	Oct.-Mar.	Wheat, Tomato, Brinjal
<i>Polycarpha corymbosa</i> (L.) Lam. / Caryophyllaceae	Dec.-Apr.	Castor, Cotton, Tuver, Wheat
<i>Portulaca oleracea</i> L. / Portulacaceae	Sep.-Mar.	All crops
<i>Portulaca quadrifida</i> L. / Portulacaceae	Aug.-Dec.	All crops
<i>Pupalia lappacea</i> (L.) Juss. / Amaranthaceae		Castor, Maize, Cotton
<i>Setaria intermedia</i> (Roth) Roem & Schult. / Poaceae	Aug.-Jan.	All crops
<i>Sida acuta</i> L. / Malvaceae	Aug.-Nov.	Castor, Cotton, Tuver
<i>Solanum nigrum</i> L. / Solanaceae	June-Oct.	Juvar, Sugarcrane, Tomato, Chili
<i>Sonchus asper</i> (L.) Hill. / Asteraceae	June-Oct.	Juvar, Bajra, Wheat, Soyabean, Karela, Brinjal
<i>Sonchus oleraceus</i> L. / Asteraceae	Sep.-Feb.	Juvar, Bajra, Wheat, Soyabean, Karela, Brinjal
<i>Spergula arvensis</i> L. / Caryophyllaceae		Castor, Cotton, Maize, Wheat
<i>Striga angustifolia</i> (D. Don) Saldhana / Scrophulariaceae	Sep.-Dec.	All crops
<i>Striga gesneroides</i> (Willd.) Vatke / Scrophulariaceae	Sep.-Dec.	Tamaku, Mustard
<i>Trianthema portulacastrum</i> L. / Aizoaceae	June-Dec.	Wheat, Maize, Bajra, Cotton, Groundnut
<i>Tribulus terrestris</i> L. / Zygophyllaceae	Apr.-Nov.	Maize, Cotton, Jiru, Variyali, Bajra
<i>Tridax procumbens</i> L. / Asteraceae	Thought Year	Juvar, Groundnut, Mung, Sesamum,
<i>Vicoa indica</i> (L.) DC. / Asteraceae	Thought Year	Bajra, Mustard, Cotton, Castor
<i>Waltheria indica</i> L. / Sterculiaceae	Aug.-Feb.	Bajra, Wheat, Groundnut, Maize
<i>Xanthium strumarium</i> L. / Asteraceae	Sep.-Dec.	Cotton, Tuver, Castor, Sugarcrane

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