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Different weed flora in maize: A review

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Abstract
Weeds constitute one of the major financial significant issue for maize producers and they can diminish the yield up to 86 percent. The different weed flora found in different experimental fields of maize are *Commelina benghalensis*, *Ageratum conyzoides*, *Echinochloa colona* (L.), *Panicum dichotomiflorum*, *Cyperus*, *Digitaria sanguinalis*, *Polygonum alatum*, *Commelina benghalensis*, *Dactyloctenium aegyptiacum*, *Ageratum conzoides*, *Acrachne racemosa*, *Eragrostis tenella*, *Digitaria sanguinalis*, *Trianthema portulacastrum*, *Phyllanthus niruri*, *Euphorbia hirta*, *Digera arvensis*, *Amaranthus viridis*, *Cyperus rotundus*, *Cyperus irria*, *Fimbristylis miliacea*, *Cleome viscosa*, *Phyllanthus niruri*, *Euphorbia hirta among dicots* and *Cynodon dactylon*, *Panicum repens* and *Dactyloctenium aegyptium*, *Commelina nudifolia*, *Ageratum conyzoides*, *Trianthema portulacastrum*, *Cleome gynandra*, *Datura stramonium*, *Digera arvensis*, *Corchorus olitorius*, *Physallis minima*, *Brachiaria* spp., *Asphodelus tenuifolius* L. *Cav.*, *Polygonum alatum*, *Portulaca oleracea* etc.

Keywords: Maize, weed flora, sedges weed shift *etc*.

Introduction
Maize (*Zea mays* L.) is also called as "Queen of Cereals". It is a cross pollinated crop and at harvest its grain contain about 4% of oil substance and 8-10% of protein. Maize is one among the principal significant oats inside the world rural economy both as a food and grub crop. It has better return potential than some other oat. It involves a territory of 9.23 mha with creation of 25.66 mt. and normal efficiency of 2.56 t/ha in the nation (Anonymous 2015). There are a few purposes behind lower creation of maize in our nation, among them high weed pervasion and their helpless administration and inappropriate planting techniques are basic issues. Maize crop is exceptionally invaded with weeds both in watered just as rainfed territories. They lessen the harvest yield from 20-40% relying on weed species and thickness. Yield loss because of weed in maize shifts from 28 to 93%, contingent upon the sort of weed greenery and power a length of harvest weed rivalry. In *Kharif* season, weeds are the difficult issue in maize as they view for light, supplement, and water and causes yield misfortunes(loss) up to 30-half. Maize grains are used for human utilization, as a feed for poultry and domesticated animals, for extraction of edible oil and furthermore for starch and glucose industry. It is called as a "wonder crop" with extremely high return potential. In India, maize is developed over a zone of 8.33 million ha with a yearly creation of about 16.68 million tons and a normal efficiency of around 2002 kg/ha. Maize possesses a zone of 1.07 million ha with a yearly creation of about 3.03 million tons as a normal efficiency of 2833 kg/ha. Weeds develop quickly and competing with the yield severely for development assets *viz*., supplements, dampness, day light and space during whole vegetative development and early conceptive phases of maize. They like wise happen to be part of significant distribute reduce and retain enormous amounts of supplements from the soil. Further, wide space given to the maize, permits quick development of assortment of weed species causing an impressive decrease in yield by influencing the development and yield ascribing segments. The presence of weeds decreases the photosynthetic proficiency, dry issue creation and dispersion to practical parts and there by diminishes sink limit of harvest bringing about helpless grain yield. Along these lines, the level of reduction in grain yield of maize has been represented to be in the extent of 33 to 50 percent relying upon kind of weed species in standing harvest. It is entrenched that 30 to 60 DAS is the most basic time frame for crop-weed rivalry in maize. Weed pervasion being the significant imperative in maize creation is extreme in the blustery season because of its more extensive dispersing.

Ranchers embrace diverse area explicit practices to reduce this biotic worry for improving efficiency. Nonetheless, the after effects of this examination showed low to high scope of genuine yield loss (8.6–51%) because of weeds. Wide scope of yield misfortunes demonstrated the high variety among the information revealed by various areas. Beforehand, Mani *et al.,* (1968) [8] revealed 29–70% yield misfortune because of weeds. Weed invasion is one of the significant reasons for low efficiency of maize. The normal yield misfortune because of weed in maize in India is 29.5 - 74.0 %. The uncontrolled weeds at basic time of harvest, weed rivalry decreased the development and improvement and in this manner yield of maize by 30-95% relying on type and force of weed invasion.

Different types of weed flora in maize

Chopra and Angiras, (2007) [6] recorded that in the experimental field were *Panicum dichotomiflorum (13.84%), Digitaria sanguinalis (38.08%), Commelina benghalensis (11.54%), Echinochloa colona (25.37%), Cyperus iria (4.96%) Oxalis latifolia, Brachiaria ramosa (3.56%) and others (5.70%) including Ageratum conyzoides, Cynodon dactylon, and Polygonum alatum, Ipomoea purpurea* found in maize field. Walia *et al*., (2007) [19] reported that experimental field had enough weed population especially of *Acrachne racemosa* (Gha) and *Commelina benghalensis* (Kaon Makki), apart from these, few other weeds i.e., *Trianthema portulacastrum* (It-sit), *Digera arvensis* (Tandla), *Amaranthis viridis* (Chulai), *Eleusine* spp. (Madhana) and *Eragrostris* spp. (Chirian da dana) in maize. Tahir *et al.,* (2009) [17] reported that in experimental field *Cyperus rotundus* (Deela), *Tribulus terrestris* (Bakhra), *Dactyloctenium aegyptium* (Madhana grass), *Cynodon dactylon* (Khabal grass), *Fumaria indica* (Shahtara), *Chenopodium album* (Bathu), *Convolvulus arvensis* (lehli), *Rumex dentatus* (Jangli Palak) and *Portulaca oleracea* (Kulfa) in maize crop. Kumar *et al.,* (2012) [2] observed that weed flora experimental field *Ageratum conyzoides* (45.1 and 56.1%), *Commelina benghalensis* (25.6 and 12.3% at 60), *Panicum dichotomiflorum* (8.4 and 7.7%), *Echinochloa colona* (L.) (17.6% and 8.7%), *Digitaria sanguinalis* (0.0 and 8.2%), *Cyperus iria* (2.8 and7.2%) and *Polygonum alatum* (0.5 and 8.0%) also showed its sporadic occurrence especially in the treated plots in maize. Arvadiya *et al.,* (2012) [13] recorded that weed flora in the experimental field *Commelina benghalensis, Dactyloctenium aegyptiacum, Ageratum conzoides, Acrachne racemosa, Eragrostis tenella, Digitaria sanguinalis, Trianthema portulacastrum, Phyllanthus niruri, Euphorbia hirta, Digera arvensis, Amaranthus viridis, Cyperus rotundus, Cyperus irria* and *Fimbristylis miliacea* in maize.Kannan and Chinna gounder, **(**2014) [9] reported that dominant among broad leaved weeds were *Trianthema portulacastrum, Cleome gynandra, Datura stramonium, Digera arvensis, Corchorus olitorius* and *Physallis minima* in maize crop field. RK *et al.,* (2014) [14] observed that monocot weeds *viz., Indigofera glandulosa* L. (8.8%), *Brachiaria* spp. (19.0%), *Panicum coloratum* L. (2.4%), *Asphodelus tenuifolius* Cav. (9.5%), and *Dactyloctenium aegyptium* (L.) *Willd* (1.3%) and dicot weeds *viz., Amaranthus viridis* L. (6.0%), *Digera arvensis Forsk* (21.0*%), Acanthospermum hispidum DC*. (3.7%), *Euphorbia hirta* L. (2.0%), *Launaea nudicaulis* L. (2.3%), *Portulaca oleracea* L. (1.4%), *Chenopodium album* L. (1.6%), and *Celosia argentea* L. (1.0%) and sedge weed *Cyperus rotundus* L. (20.0%) in maize (sweet corn) field. Samant *et al.,* (2015) [15] identified the major weeds in maize field *Cynodon dactylon, Echinochloa colona, Commelina communis, Alternenthara sessilis, Digera arvensis, Parthenium hysterophorus, Argemone Mexicana, Cyperus rotundus* during both the years found in maize field. Barad *et al.,* (2016) [3] observed that weed flora in maize experimental field *Indigofera glandulosa* L. (1.40%), *Brachiaria* spp. (17.67%), *Echinochloa colona* L. (1.23%), *Asphodelus tenuifolius* L. Cav. (1.79%), and *Dactyloctenium aegyptium* Beauv (4.79%), dicot weeds *viz., Digera arvensis Forsk* (19.21%), Physalis minima L. (2.77%), Amaranthus viridis L. (2.28%), *Launaea nudicaulis* L. (1.79%), *Chenopodium album* L. (19.70%), *Euphorbia hirta* L. (7.77%), *Phyllanthus niruri* (2.02%),*Portulaca oleracea* L. (3.52%) and sedge weed *Cyperus rotundus* L. (21.29%) in *Rabi* maize (pop-corn). Kaur *et al.,* (2016) [10] recorded that experimental field had enough population of *Acrachne racemosa, Dactyloctenium aegyptiacum, Commelina benghalensis, Eragrostis tenella, Digitaria sanguinalis, Echinochloa colona, Trianthema portulacastrum, Phyllanthus niruri, Euphorbia hirta, Euphorbia microphylla, Digera arvensis, Amaranthus viridis, Cyperus rotundus, Cyperus compressus* in maize**.** Barla *et al.,* (2016) [4] that reported experimental field was infested with broad leaved weeds like *Alternenthara sessilis, Commelina benghalensis, Commelina nudifolia, Ageratum conyzoides, Phyllanthus niruri; among grassy weeds Echinochloa colona, Echinochloa crusgalli, Digitaria sanguinalis, Paspalam distichum, Dactyloctenium aegyptium* and among sedges *Cyperus rotundus, Cyperus irria* and *Fimbristylis milliaceae* found in maize. Hargilas, (2016) [7] observed uniform infestation of the grassy weeds *Echinochloa crusgalli, Dactyloctenium aegypticum Eleusine indica, Panicum repense, Eragrostis sp. Digitaria ramose, Dinebra retroxa, Cynodon dactylon, Cyperus rotundus, Sorghum halepense* were dominant grassy species while *Trianthema portulacastrum, Commelina benghalensis, Amaranthus viridis, Cleome viscosa, Alternenthera echinata, Euphorbia genicullata, Euphorbia hirta, Phylanthus niruri, Digera arvensis, Abutilon indicum, Eclipta alba, Acalypha indica, Parthenium hysterophorus, Xanthium strumarium, Tribulus terrestris, Acaranthus aspera* were dominated broad leaved weeds in maize. Rao *et al.,* (2016) [5] observed that weed flora was composed of *Cleome viscose* among sedges, *Trianthema portulacastrum, Cyperus rotundus*, *Phyllanthus niruri* and *Euphorbia hirta* dicots and *Panicum repens, Cynodon dactylon,* and *Dactyloctenium aegyptium* weed species in maize.

Jadhav, (2017) [1] reported that broad leaved weeds *Euphorbia genicullata, Acalypha indica, Parthenium hysterophorus, Digera arvensis, Mereimia emerginata, Ipomea maxima,Alternanthera sessilis,* were found to be dominant species, grassy weeds were *Cynodon dactylon, Brachiaria eruciformis, Cyperus rotundus* and *Amischophacelus cuculata* were dominant found in maize. Singh *et al.,* (2017) observed in the experimental field were *Commelina benghalensis, Dactyloctenium aegyptiacum, Ageratum conizoides, Acrachne racemosa, Eragrostis tenella, Digitaria sanguinalis, Trianthema portulacastrum, Phyllanthus niruri, Euphorbia hirta, Digera arvensis, Amaranthus viridis, Cyperus rotundus, Cyperus irria* and *Fimbristylis miliacea* found in maize field. Kumar *et al.,* (2017) [2] observed that dominant weeds are present in maize experimental field *Cyperus rotundus L., Cynodon dactylon L., Argemone mexicana L., Amaranthus viridis L., Anagalis arvensis L., Melilotus indica L., Chenopodium album L., Convolvulus arvensis L., Oxalis corniculata L., Parthenium hysterophorus* L. and *Rumex retroflex L.* in maize. Tomar *et al.,* (2017) [18] recorded that seven major weeds species three grassy weeds, *Dactyloctenium aegyptium* (L.) *Achrachne racemosa* and *Setaria glauca* (L.) one sedges (*Cyperus rotundus* L.) and three broad leaved weeds [*Trianthema portulacastrum* L., *Digera arvensis* (L), *Commelina benghalensis* L.] found in maize field.Akhtar *et al.,* (2017) observed that broad leaved weeds *Phyllanthus niruri* (5.88-6.92%) and *Solanum nigrum*

(3.76-4.24%), while the grassy weeds includes *Cynodon dactylon* (8.67-17.92%), *Digitaria sanguinalis* (5.32-6.13%) and *Sorghum halpense* (3.62-4.24%), *Cyperus rotundus* (57.41-66.41%) found in maize. Yadav *et al.*, (2018) [20] reported that different weed species *Dactyloctenium aegyptium*, *Brachiaria reptans*, *Digitaria sanguinalis*, *Leptochloa chinensis*, *Echinochloa colona* among grasses and *Euphorbia hirta* and *Amaranthus viridis* among broad-leaf weeds, and *Cyperus rotundus* found in maize field. Satheesh *et al.*, (2018) [8] observed that important weed floras in the experimental field were *Cyperus rotundus*, *Trianthema portulacastrum*, *Cynodon dactylon*, *Echinochloa crusgalli*, *Commelina benghalensis*, *Phyllanthus niruri* and *Cleome viscosa*. Among the weed species, recorded four weed species namely *Cyperus rotundus*, *Trianthema portulacastrum*, *Cynodon dactylon* and *Echinochloa crusgalli* were occurring in the major proportion in maize.

Conclusion

The size of misfortunes generally relies on the piece of weed venture, time of harvest, weed rivalry and their capacity to compete for the essential components with crop plants. Different weeds that are present commonly in maize crop are *Amaranthus viridis* L., *Cynodon dactylon* L., *Anagalis arvensis* L., *Cyperus rotundus* L., *Argemone mexicana* L., *Melilotus indica* L., *Chenopodium album* L., *Oxalis corniculata* L., *Rumex retroflex* L., *Convolvulus arvensis* L. *and Parthenium hysterophorus* L, *Echinochloa crusgalli*, *Dactyloctenium aegypticum Eleusine indica*, *Panicum repense*, *Eragrostis sp. Digitaria ramose*, *Dinebra retroxa*, *Commelina benghalensis*, *Trianthema portulacastrum*, *Physallis minima*, *Datura stramonium*, *Digera arvensis*, *Cleome gynandra*, and *Corchorus olitorius*.

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