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# Incidence of safflower aphid *Uroleucon compositae* in relation to different dates of sowing

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**Abstract**
A field experiment was conducted in Randomized Block Design to study the seasonal incidence of safflower aphid in relation to different five dates of sowing during *Rabi* season of 2020-21. The safflower variety Manjeera was sown to record the observations. The population of aphids /5 cm apical shoot length per plant ranged from 2.00 to 89.07,1.20 to 97.25, 1.75 to 110.30, 2.15 to 114.02 and 1.10 to 132.40 on 19th Oct., 29th Oct., 9th Nov., 19th Nov., and 29th Nov.2020 sown safflower respectively. The early sown safflower crop evidently escaped the incidence of aphids during early vulnerable stages of the crop growth and further the mean aphid activity over a period of 18 weeks after sowing was significantly low as compared to other four sowing dates.

**Keywords:** Aphid, safflower, incidence, population

## Introduction
Safflower (*Carthamus tinctorius* L.) is one of the important winter season oilseed crop of the country. It is member of family Compositae cultivated mainly for its edible oil which is having nutritional value. In India, Maharashtra is the highest producer of safflower (63%) followed by Karnataka with (32%) in production and 275 lakh ha in area (Jadhav *et al*., 2012) [2].
Safflower aphid (*Uroleucon compositae*) is one of the most destructive pests infesting the crop particularly from its vegetative growth stage to flowering period and causes 37 to 74 per cent loss in yield. Chemical insecticides causes serious environmental pollution bio- products in different forms and concentration for aphid control are considered beneficial.

## Material and Methods
The trial was carried out at Safflower Research Station, V.N.M.K.V, Parbhani in Randomized block design (RBD) with five dates of sowing as treatments and four replications during *Rabi* 2020-21. At each date of sowing, seeds of safflower cultivar Manjeera were sown in eight rows with aspacing of 45cm X 20 cm in 10m X 10 m plots.
The aphid incidence was recorded from 5cm apical twig per plant at an interval of seven days till the 50% foliage drying of the crop on the randomly selected five plants.

## Results and Discussion
The results (Table 1) revealed that there were significant differences among the different dates of sowing on the incidence and population of safflower aphid. The incidence of aphids on 19th October 2020 sown safflower ranged from 2.00-89.07 aphids/5cm apical shoot length and the highest incidence of aphids (89.07) was recorded during 8th SMW.
The population of aphids on 29th October sown safflower ranged from 1.20-97.25 aphids/5cm apical shoot length and the highest population of aphids (97.25) was recorded during 6th SMW.
The incidence of aphids on 9thNovember sown safflower ranged from 1.75 to 110.30 aphids/5cm apical shoot length and the highest incidence of aphids (110.30) was observed during 7th SMW.
However, the maximum population of aphids (114.02 and 132.40 per 5 cm apical shoot length) were recorded during 4 thand 5th SMWson safflower sown on 19th November and 29th November respectively.
The crop sown early recorded low aphid incidence, as compared to the remaining four sowings. In case of crop sown on second fortnight of November, aphid population appeared one week earlier than the October sown crop and the population build-up was slightly higher than October sown crop.

The crop sown in the month of October remained in the field till harvest and recorded low aphid incidence compared to November sown crop.

The early sown safflower crop evidently escaped the incidence of the aphid during early vulnerable stages of the crop growth (no infestation upto 4 weeks after sowing) and further the mean aphid activity over a period of 18 weeks after sowing was significantly low as compared to other four sowing dates.

Pawar *et al.* (2011) [4] was recorded that October sown safflower showed the incidence of aphid comparatively lower than November sown crop. Similar results were also reported by Rathore and Pathak (1983), Akashe *et al.* (2009) [1] & Kumbhar *et al.* (2018) [3] on incidence of safflower aphid.

**Table 1:** Population density of safflower aphid in realtion to different dates of sowing

| Number of Aphid/5 cm twig/ plant on different sowing dates | | | | | | |
|---|---|---|---|---|---|---|
| **SMW** | **Duration** | **19-10-2020** | **29-10-2020** | **09-11-2020** | **19-11-2020** | **29-11-2020** |
| 47 | 19Nov-25Nov | 22.00 | 4.87 | -- | -- | -- |
| 48 | 26Nov-02Dec | 4.25 | 9.12 | -- | -- | -- |
| 49 | 03Dec-09Dec | 19.20 | 20.53 | -- | -- | -- |
| 50 | 10Dec-16Dec | 28.12 | 26.32 | -- | -- | -- |
| 51 | 17Dec-23 Dec | 32.06 | 27.05 | 11.37 | -- | -- |
| 52 | 24Dec-31Dec | 44.57 | 46.28 | 29.12 | 14.20 | -- |
| 1 | 01Jan-07Jan | 49.30 | 48.12 | 45.83 | 48.05 | 21.47 |
| 2 | 08Jan-14Jan | 51.01 | 62.40 | 54.32 | 56.10 | 58.70 |
| 3 | 15Jan-21Jan | 59.45 | 55.50 | 67.71 | 69.25 | 65.15 |
| 4 | 22Jan-28Jan | 65.50 | 78.17 | 68.40 | 114.02 | 117.25 |
| 5 | 29Jan-04Feb | 69.48 | 83.15 | 110.30 | 79.14 | 132.40 |
| 6 | 05Feb-11Feb | 41.87 | 97.25 | 89.44 | 75.60 | 104.10 |
| 7 | 12Feb-18Feb | 45.04 | 53.22 | 75.21 | 95.07 | 88.13 |
| 8 | 19Feb-25Feb | 89.07 | 43.80 | 59.21 | 92.88 | 78.20 |
| 9 | 26FEb-04Mar | 45.04 | 33.20 | 47.17 | 69.80 | 92.01 |
| 10 | 05Mar-11Mar | 29.13 | 21.08 | 30.04 | 52.20 | 69.44 |
| 11 | 12Mar-18 Mar | 7.60 | 14.90 | 24.82 | 47.55 | 62.30 |
| 12 | 19Mar-25Mar | 6.17 | 11.50 | 16.70 | 15.60 | 13.75 |
| 13 | 26Mar-01Apr | 2.32 | 2.15 | 13.26 | 12.85 | 19.50 |
| 14 | 02Apr-08Apr | -- | 1.20 | 3.60 | 4.40 | 5.09 |
| 15 | 09Apr-.15Apr | -- | | 1.75 | 2.90 | 3.17 |
| 16 | 16Apr-22Apr | -- | -- | -- | 2.60 | 2.55 |
| 17 | 22Apr-28Apr | -- | -- | -- | 2.15 | 1.10 |
| 18 | 28Apr-4May | -- | -- | -- | -- | -- |
| | S.Em.± | 0.28 | 0.71 | 0.12 | 0.11 | 0.10 |
| | C.D. at 5% | 0.09 | 0.24 | 0.35 | 0.33 | 0.31 |

*SMW: Standard Metrological Week

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