

Population Dynamics of Safflower Aphid,
***Uroleucon compositae* (Theobald) as**
Influenced by Weather Parameters

By

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Introduction

- **Safflower (*C. tinctorius* L.)-Major oilseed.**
- **Recent importance-Value adding products.**
- **Medicinal importance.**
- **Oil-30%, Unsaturated FA-Linoleic 78%.**
- **Flower petals-Herbal tea.**
- **Leafy vegetables.**
- **Colour dyes-Local textiles.**
- **Area and Production: India- 54% Area (World)**
- **MS- 70% Area and 81% Production (Country)**

Area and Production

<u>State</u>	<u>Area('000h)</u>	<u>Prod('000h)</u>	<u>Yield (kg/h)</u>
M. S.	231.0	154.0	667
Karnataka	70.0	57.0	814
A. P.	16.0	12.0	750
Orissa	1.3	0.8	615
Chattisghar	0.9	0.2	222
Jarkhand	0.5	0.2	400
M. P.	0.4	0.1	250
Bihar	0.2	0.2	1000
India	320.3	224.5	701

Reasons for low productivity

- **Rain fed crop / scanty rainfall verti-sols.**
- **60-70 % area in scarcity zone.**
- **Grown on marginal & sub-marginal soils.**
- **Traditional systems- inter/strip/mixed crop.**
- **Inadequate seed of improved variety.**
- **Non adoption of improved technology.**
- **No/minimum plant protection.**
- **Un-availability of aphid/wilt resistant varieties.**



Sorghum+Safflower

Biotic Stresses

- Aphid, wilt, Alternaria / Cercospora.
- Aphid- *Uroleucon compositae* (T.), Major constraint for late sown safflower.
- Losses- 20-80 %.
- Life cycle- High reproduction potential- parthenogenesis, Fast development rate, Male:Female ratio.
- Survival & perpetuation-Alternate/collateral hosts viz., Niger (*Guizotia abyssinia*), Groundnut (*Arachis hypogea*), Sunflower (*Helianthus annuus*), Mungbean (*Vigna radiata* L.), Dudhani (*Euphorbia geniculata*), Parthenium weed (*Parthenium hysterophorus*), White jaswand (*Hibiscus rosa chinensis*), Glyricidia(*Glyricidia maculata*), Rui (*Calotropis gigantean*), Kurdu/Kombada/Murga (*Celosea argentia*).



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LBB



Normal sown CO-1



Protected CO-1

<u>MW. No.</u>	<u>Aphids/pl.</u>	<u>Temperature ° C</u>		<u>Relative Humidity %</u>	
		<u>Max</u>	<u>Min</u>	<u>Morning</u>	<u>Afternoon</u>
44	5	33.5	14.8	62	23
45	5	32.8	15.7	64	32
46	11.5	31.3	17.4	73	43
47	19	31.5	18.7	80	48
48	24	30.2	16.4	77	55
49	29	31.7	14.4	75	35
50	42.5	31.6	16.3	79	44
51	62.5	31.4	13.1	77	33
52	147.5	31.6	11.4	71	28
1	110	30.4	13.2	75	35
2	45	30.7	15.4	79	37
3	30	31.0	13.9	69	33
4	10	34.2	14.5	61	23
5	0	34.9	15.6	49	26
	r value	-0.366	-0.380	0.178	-0.222

Conclusion:-

Pest activity- December to 3rd week of January.

Prebranching- Crop stage, but its appearance on crop is totally depends upon prevailing climatic conditions.

Low temperature and high relative humidity with cloudy weather are conducive for the multiplication of this pest.

With further increase in temperature and fall in relative humidity the pest population declined at the end of January and almost abruptly reached to a minimum level in the following weeks and finally disappeared with the crop gaining physiological maturity.

Control Model-

Sowing Time- 2nd fortnight of september

**Improved varieties- Girna, Bhima, P. Kusuma (Spiny)
SSF-658(Non spiny)**

ETL base use of insecticide (30-40 aphids/5 cm apical twig) viz., dimethoate 30 EC @ 0.03 %

Recommendation- (2007-08)

Two sprayings of recommended 0.005 % thiamethxam 25 WG or 0.004 % Acetamiprid 20 SP at ETL i. e. 40-45 DAS (46th -47th MW, min. temp. below 20° C) and second spray at 55-60 DAS (48th -49th MW, min. temp. around 15°C) are recommended particularly in the safflower growing scarcity zone of Maharashtra (India).



**Thank
You**