

### Seasonal Incidence of Mite Population in Arecanut

Arecanut (*Areca catechu* L.) is an important cash crop in India which is attacked by many insect and non insect pests, out of which mites viz; *Oligonychus indicus* Hirst and *Raoiella indica* Hirst attack heavily on nursery and younger palms causing yellowing of leaves later coalesce to form brownish patches. Young palms show stunted growth and withering of leaves (Puttarudraiah and Channabasavanna, 1956). Considering the severity of mite problem on areca the present investigation on the seasonal incidence was undertaken and information gathered is presented here.

An investigation was carried out at Abbalagere, Shimoga on six to seven years old areca palm inseparate gardens for individual mites. In each garden, ten palms were selected randomly of which five leaf lets were selected each from top, middle and basal fronds. Mites were counted in a square cm area using hand lens (10 x) at fortnightly intervals. The incidence of natural enemies were also recorded and correlated with weather parameters viz ; rainfall, relative humidity and temperature.

The studies revealed that the incidence of mite *O.indicus* was found to build up from March and this trend continued up to last week of April. The peak population was associated with rise in temperature. The mite incidence was almost same on basal, middle and top frond (16.70, 14.30, 12.13 per square cm) respectively during first week of April. The mite population reduced in top and middle frond gradually from May and continued up to July with subsequent decline in population. The lowest population was recorded during August, September, December and January (Table 1). Weather parameters like rainfall ( $Y = 0.008x + 3.51, r = -0.046$ ) and relative humidity ( $Y = 0.076x + 8.672, r = -0.16$ ) were negatively correlated, where as temperature was positively correlated ( $Y = 35.03 = 1.39X, r = 0.0670$ ) with mite population. During the study natural enemies like predatory thrips *Scolothrips sexmaculatus* pergande found abundantly on mite infested leaves along with coccinellids (*Stethorus* sp.) and predatory mite (*Amblyseius longispinosus* Evans).

The population of *R. indica* was high during first week of March and continued up to May first week and reached peak

Table 1. Seasonal incidence of *Oligonychus indicus* and *Raoiella indica* on areca nut in Abbalagere, Shimoga

Sl. No.	Date of sampling	Mean number of <i>O.indicus</i> mites/cm <sup>2</sup> leaf let			Average No.	Mean number of <i>R.indica</i> mites/cm <sup>2</sup> leaf let			Average	Temperature (°C)		Average RH(%)	Rain fall (mm)	
		Bottom frond	Middle frond	Top frond		Bottom frond	Middle frond	Top frond		Max.	Min.			
1	1.03.03	9.46	10.12	12.31	10.63	10.00	17.00	22.40	16.46	35.70	21.20	28.20	70.50	36.60
2	15.03.03	15.00	15.13	14.40	14.83	12.40	18.00	26.13	18.84	38.20	22.10	30.15	63.50	20.60
3	1.04.03	16.70	14.30	12.13	14.30	38.13	30.12	28.12	32.11	38.00	22.80	30.14	68.00	15.80
4	15.04.03	16.80	12.18	14.40	14.46	46.14	44.20	42.00	44.20	39.90	22.90	31.40	61.50	0.00
5	1.05.03	12.30	8.12	3.20	7.87	29.31	27.20	11.30	29.27	38.14	24.34	31.24	63.50	0.00
6	15.05.03	9.20	4.30	1.00	4.83	12.20	14.20	16.30	14.23	38.37	24.82	31.59	60.50	5.20
7	1.06.03	6.10	3.10	0.00	3.06	4.10	8.20	10.02	7.44	38.20	25.65	31.90	64.50	47.60
8	15.06.03	2.20	2.00	0.00	1.40	5.20	8.00	19.03	7.41	29.12	20.60	24.86	73.00	69.60
9	1.07.03	1.80	2.10	0.00	1.30	1.40	0.00	0.00	0.46	29.60	21.50	25.37	77.50	48.80
10	15.07.03	1.60	1.40	0.00	1.00	1.00	0.00	0.00	0.33	30.12	21.71	25.65	83.00	21.60
11	1.08.03	1.90	1.20	0.00	1.03	2.80	1.20	0.00	1.13	29.60	22.30	26.21	76.63	56.20
12	15.08.03	2.00	0.00	0.00	0.96	2.00	1.60	0.00	1.20	29.62	22.08	25.84	81.21	17.60
13	1.09.03	2.10	0.00	0.00	0.70	1.73	1.10	0.00	0.94	30.10	21.40	25.51	80.67	0.00
14	15.09.03	1.20	0.00	0.00	0.40	1.82	1.23	0.00	1.06	31.70	22.20	26.15	76.50	105.9
15	1.10.03	2.00	0.00	0.00	0.66	2.00	2.10	0.00	1.41	33.23	22.35	27.00	84.33	0.00
16	15.10.03	0.82	0.00	0.00	0.27	2.10	0.00	0.00	0.70	32.82	23.42	28.30	80.24	0.00
17	1.11.03	2.80	2.40	0.00	1.02	1.20	0.00	0.00	0.40	34.00	23.12	27.96	77.50	0.00
18	15.11.03	3.00	1.00	0.00	1.33	1.00	0.00	0.00	0.33	34.62	23.60	28.80	72.50	0.00
19	1.12.03	2.00	2.20	0.00	0.66	0.86	0.00	0.00	0.28	34.65	14.97	24.79	58.72	0.00
20	15.12.03	1.80	2.00	0.00	0.60	0.74	0.00	0.00	0.24	35.00	15.05	24.85	53.50	0.00
21	1.01.04	1.40	1.00	0.00	0.46	0.52	0.82	0.00	0.44	35.25	16.18	25.64	54.16	0.00
22	15.01.04	1.20	0.80	0.00	0.40	0.43	1.04	0.00	0.49	35.25	16.42	25.83	54.41	0.00
23	1.02.04	1.20	1.40	0.00	0.86	8.20	6.20	1.80	5.40	35.62	17.00	26.31	51.81	0.00
24	15.02.04	2.10	1.20	1.10	1.40	9.80	7.20	1.83	6.26	35.72	18.23	26.90	50.21	0.00

during April, May. Population declined from June onwards. It is evident from the data (Table 2) that the population build up of mite *R. indica* was associated with the increase in temperature. The population was equal in all the three fronds( 44.44, 44.20, 42.00 per square cm) (Table 2). Natural enemies like *stethorus pauperculus* and staphylinid beetle *Oligota* sp were associated with peak population of mites. Correlation with weather parameters revealed that relative humidity ( $Y = -0.04x + 8.84$ ,  $r = -0.11$ ) and rainfall ( $Y = -0.24 + 24.88x$ ,  $r = -2.19$ ) were negatively correlated and temperature was positively correlated ( $Y = -93.56$

+ 3:70 x,  $r = 0.736$ ). The results were in agreement with Patel and Rao (1958) who reported higher population during March and May but declined in *O. indicus* population during June due to onset of monsoon and increase in relative humidity are in conformity with Anil (1990). The lowest population of mite *R.indica* during November to January is in line with reports of Nageshchandra (1980). Somchoudary and Sarkar (1987) reported association of natural enemies like coccinellids and staphylinids with peak population of *R. indica* in West Bengal are in conformity with present findings.

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