

Supplementary information Sup 2. (Average percentage of unoccupied palm trees in four plantations)

UM Plantations Sdn.Bhd Kota Tinggi johor Malaysia on 5/6/2012 (planting date 2007-2008)

Morning time cool weather; afternoon hot, during dry season of the year.

Asian weaver ants Total nest number per palm tree

Survey carried out by Exelis Moise Pierre

3.5.2 Estimation of absolute population density in four 500 ha plantations

Table 1. Absolute population density first plantations

Oil palm trees	Nest/palm	Occupied-Unoccupied palms
1	5	
2	1	
3	1	
4	3	2 nests in same frond
5	1	
6	3	2 nests in same frond
7	5	
8	1 (colony)	1 st colony – 8 occupied - 1 unoccupied (border)
9	3	
10	3	
11	3	
12	3	
13	3	
14	5	
15	3	
16	5	
17	3	
18	1	2 nd colony- 10 occupied palms / 1 unoccupied
19	1	
20	3	
21	3	
22	5	
23	3	
24	7	
25	7	
26	3	
27	1	
28	3	
29	3	
30	1	3 rd colony- 12 occupied- 2 unoccupied
31	3	
32	3	
33	5	
34	1	
35	3	
36	3	
37	1	
38	1	4 th colony – 8 occupied – 1 unoccupied
39	3	
40	3	
41	5	
42	3	
43	5	

44	7	
45	5	
46	1	
47	3	
48	3	
49	3	
50	3	5 th colony – 12 occupied – 1 unoccupied

51	3	
52	3	
53	3	
54	5	
55	7	
56	1	
57	3	
58	3	
59	7	
60	1	
61	7	
62	7	6 th colony – 12 occupied – 1 unoccupied
63	1	
64	1	
65	3	
66	3	
67	5	
68	5	
69	3	
70	5	
71	7	
72	5	
73	3	
74	3	7 th colony – 12 occupied – 1 unoccupied
75	5	
76	7	
77	3	
78	3	
79	3	
80	3	
81	5	
82	5	
83	5	
84	3	
85	3	
86	3	8 th colony – 12 occupied – 1 unoccupied
87	1	
88	1	
89	7	
90	7	
91	5	
92	5	
93	3	
94	3	
95	3	
96	5	

97	3	
98	7	
99	1	
100	1	9 th colony – 14 occupied – 2 unoccupied
Total	350	11% unoccupied palms

Felcra Plantations, on 7/6/2012 Morning sunny day. Planting date 2009

Table 2. Absolute population density second plantations

Oil palm trees	Nest/palm	Colony: Unoccupied palms
1	1	
2	5	
3	3	
4	5	
5	11	
6	1	
7	11	
8	5	
9	3	
10	3	10 th colony – 1 palm
11	7	
12	3	
13	3	
14	3	
15	7	
16	13	
17	1	
18	1	
19	9	
20	11	11 th colony – 1 palm
21	3	
22	5	
23	5	
24	3	
25	3	
26	5	
27	5	
28	7	
29	1	
30	1	12 th colony – 1 palm
31	7	
32	5	
33	3	
34	3	
35	3	
36	1	
37	7	
38	9	
39	3	
40	3	13 th colony – 1 palm
41	3	
42	3	
43	5	
44	5	
45	7	
46	1	
47	1	

48	11	
49	5	
50	7	14 th colony – 1 palm
51	3	
52	7	
53	9	
54	3	
55	3	
56	3	
57	9	
58	5	
59	7	
60	5	15 th colony – 1 palm
61	11	
62	13	
63	3	
64	3	
65	3	
66	1	
67	1	
68	5	
69	7	
70	1	16 th colony – 1 palm
71	11	
72	5	
73	3	
74	3	
75	3	
76	7	
77	9	
78	11	
79	5	
80	7	17 th colony – 2 palms
81	7	
82	5	
83	9	
84	11	
85	13	
86	1	
87	1	
88	3	
89	5	
90	7	18 th colony – 2 palms
91	3	
92	3	
93	5	
94	7	
95	11	
96	1	
97	1	
98	1	
99	5	
100	7	19 th colony – 1 palm
Total	508	10%

Note: This survey is carried out from an undisturbed area at that time. The Felcra plantations with young short palms demonstrated a heavy Asian weaver ants colonies occupation compare to all others surrounding plantations from others estates such as UM plantations and Boustead Berhad.

Boustead Plantations Sdn.Bhd
 Afternoon hot weather on 6/6/2012

Table 3. Absolute population density third plantations

Oil palm trees	Nest/palm	Colony- Unoccupied
1	3	
2	3	
3	3	
4	5	
5	7	
6	1	
7	3	
8	3	
9	7	
10	1	
11	7	
12	7/ 50	20 th colony – 1 palm
13	7	
14	1	
15	3	
16	3	
17	5	
18	5	
19	3	
20	5	
21	1	
22	5	
23	3	
24	3/ 44	21 th colony – 1 palm
25	5	
26	7	
27	3	
28	5	
29	3	
30	5	
31	5	
32	3	
33	5	
34	3	
35	1/ 45	22 th colony – 1 palm
36	1	
37	7	
38	7	
39	5	
40	5	
41	3	
42	3	
43	3	
44	5	
45	3	
46	7	
47	1/ 50	23 th colony – 1 palm
48	1	
49	5	
50	3	
51	3	

52	3	
53	3	
54	3	
55	5	
56	1	
57	7	
58	5	
59	7/ 46	24 th – 1 palm
60	5	
61	9	
62	1	
63	3	
64	4	
65	5	
66	13	
67	1	
68	3	
69	3	
70	5/ 52	25 th – 1 palm
71	3	
72	9	
73	5	
74	1	
75	3	
76	3	
77	3	
78	3	
79	1	
80	5	
81	5	
82	9/ 45	26 th – 1 palm
83	11	
84	1	
85	3	
86	3	
87	5	
88	3	
89	3	
90	3	
91	7	
92	5/ 44	27 th - 1 palm
93	1	
94	3	
95	3	
96	3	
97	5	
98	5	
99	7	
100	9/ 36	28 th colony – 1 palm
Average mean/tree	412	9%

Nota: From palm no1 – 10 = 36 nests (17 barracks nests); no 11-20 = 40 nests (21 barracks); no 21-30 = 44 nests (25 barracks); No 31-40 = 40 nests (17 barracks nests); no 41-50 = 35 nests (11 barracks nests); Palm no 51-60 = 36 nests (11 barracks); no 61-70 = 55 nests (21 barracks); no 71-80 = 30 nests (11 barracks); no 81-90 = 47 nests (27 barracks); no 91-100 = 48 nests (30 barracks).

MPOB plantations research station, Teluk Intan, Perak.

Table 4. Absolute population density – Fourth plantations

Oil palm trees	Total nest	Colonies	Unoccupied palms (%)
11	44	1	1
10	40	2	1
12	45	3	1
10	39	4	1
9	38	5	1
15	67	6	2
12	43	7	1
10	41	8	1
10	41	9	1
Grand Total:100	398	9	10 %

Nota: there are 40 unoccupied palm trees over 400 palm trees; hence, it means only 10% of palm trees were not occupied overall regrouping 37 colonies.