

1. Abdulla Koya KM, Natarajan P and Kuriakose C (1976) Magnitude of the rat problem and possible solution. Cocon. Bull. 6 (8) : 1-5
2. Agarwal SC (1972) Rodent problem in India. Pesticides 6 (4) : 22-25
3. Anonymous (1966) Controlling rats with warfarin blocks. Farmer J. Ann. Agric. Soc. 71 : 210-212
4. Anonymous (1967) Rat habits incorporating paraffin wax. Papua New Guin. Agric. J. 17 : 88
5. Anonymous (1968) Certain protection from rat damage. (Farmer J. Ann. Agric. Soc.) 71 : 38-39
6. Anonymous (1971) War on rats. Cocon. Bull. 2 (A) : 3-7
7. Bepherenn KR, Sumangil JP and Lipay JL (1973) Rodents of the Philippine crop lands. Philippine

RAT : A MENACE TO COCONUT -

8. Chaturvedi GC (1974) Damages by rats and their control. Pesticides 8 (10) : 33-42
9. Deoras PJ and Prabhan MS (1976) Observations on bandicots rats in Bombay : Part I. Frequency of rat population in Gersonn Malad. Pesticides 10 (10) : 37-39

M. Divakaran Pillai, Librarian

10. Dumpleton LJ (1955) Rat poisoning in French Oceania. J. Wildl. Dis. 1 : 104
11. Gupta GP (1975) Prevention and control of rodents. Pesticides 9 (3) : 33-39

The rat is one of the most serious pests of coconut in India. The extent of damage caused by rats in India is estimated to be about 5 to 10% of the total yield. In the Lakshadweep and Nicobar islands, the loss is amounting to about 10 to 15% of the annual production. The damage done to the crop in other countries is substantial. Rats climb the coconut palm and often build their nests in the tender nut through the husk and shell, into the cavity, where they feed on the water and jelly. Very young nuts and nuts which have developed a hard shell are seldom attacked. Damaged nuts are shed about a week after being attacked and are no longer of value.

Control measures to check the most efficient method of destruction of rodents in plantations. There are many rodenticides available in the market. They are single dose poisons viz. barium carbonate, thallium sulphate, etc. Zinc phosphide is used at 2.5 per cent strength in the different bait carriers. Sodium fluoroacetate is used at 7.5 per cent strength and barium carbonate is used at 20 per cent strength. Thallium sulphate is generally used at 1 to 1.5 per cent strength in baits. Warfarin is an anticoagulant and is widely used. Death usually occurs after the third day. The warfarin is used as blocks having the dose of 5% and the components are : 70% paraffin wax

and wheat bran. The wax is melted and the components are added to it. The hardened material is placed in the crown of the palm. The wax blocks coated with wax can withstand the climatic changes and are not subjected to attack of moulds. After baiting, the remaining residual population may be controlled by fumigation. Aluminium phosphide tablets of 5g. can be used to fumigate the rat burrows. Calcium cyanide dust at 10-20g per burrow can be utilized to fumigate live burrows using a cyanogas pump. This bibliography has 85 entries contributed by 45 authors. The entries are arranged in alphabetical order in the name of the author(s). An author index is appended.

1. Abdulla Koya KM, Natarajan P and Kurian C (1976) Magnitude of the rat problem and possible solution. *Cocon. Bull.* 6 (6) : 1-5
2. Agarwal SC (1972) Rodent problem in India. *Pesticides* 6 (4) : 23-25
3. Anonymous (1966) Controlling rats with warfarin blocks. *Farmer (J. Jam. Agric. Soc.)* 71 : 210-212
4. Anonymous (1967) Rat habits incorporating paraffin wax. *Papua New Guin. Agric. J.* 19 : 88
5. Anonymous (1968) Certain protection from rat damage. (*Farmer J: Jam. Agric. Soc.*) 71 : 38-39
6. Anonymous (1971) War on rats. *Cocon. Bull.* 2 (4) : 3-7
7. Berbehenn KR, Sumangil JP and Libay JL (1973) Rodents of the Philippine croplands. *Philipp. Agric.* 56 : 217-242
8. Chaturvedi GC (1974) Damages by rats and their control. *Pesticides* 8 [10] : 33-42
9. Deoras PJ and Pradhan MS (1976) Observations on bandicota rats in Bombay : Part I. Frequency of rat population in Goregaon-Mafad. *Pesticides* 10 [10] : 37-39
10. Dumbleton LJ (1955) Rat poisoning in French Oceania. *S. P. C. Bull.* 6 : 15-16
11. Gupta GP (1975) Prevention and control of rodents. *Pesticides* 9 (3) : 38-39
12. Gyuruprasad BK and Srihari K (1976) Rodent damage and its control in coconut groves. *Internat. Symp. Cocon. Res. Dev.* Dec. 28-31, 1976, Kasaragod, India. (Abstr. p 41)
13. Gutteridge NJA (1972) Chemicals in rodent control. *Chem. Soc. Rev.* 1 : 381-410
14. Hoque MM (1973) Notes on rodent pest affecting coconut. *Phillip. Agric.* 56 : 280-289
15. Kidavukoya PIK (1956) Rat hunt in Laccadives. *Bull. (I. C. Coc. C)* 9 : 104
16. Kurian C, Natarajan P and Abdulla Koya KM (1977) Efficacy of two indigenous traps for trapping rodents in a coconut plantation. *J. Plant. Crops* 5 : 71-74
17. Lasselle - Sere R (1955) Rat control scheme for Tahiti planters. *S. P. C. Q. Bull* 5 (2) : 5-6
18. Mariano M P (1970) A contribution to the biology and control of a rodent pest affecting coconut. *UPCA College, Laguna, (Thesis), 39p*
19. Mariau D (1967) Chemical control of the black rat in coconut groves. *Oleagineux* 22 : 160
20. Marshall TJ (1965) Rats and coconuts in Fiji. *S. P. O. Agric Newsl.* 4 : 1-6
21. Mathew PK (1974) Crop losses caused by rat. *Keralakarshakan* 22 (6) : 7-8, 26
22. Montenegro A (1962) How to prevent rodent damage in coconut plantation. *Coffee Cacao J.* 3 (9) : 192, 197
23. Naidu GVB (1960) A note on rat control in coconut nurseries. *Mysore Agric. J.* 35 : 86-88
24. Natarajan P, Abdulla Koya KM and Kurian C (1976) Rodent control. *Cocon. Bull.* 7 [8] : 1-6

- Nirula.KK [1954] War against rats. *Bull. [I. C. Coc. C.]* 6 : 243-247
- Paine RW [1934] Observations on rat damage to coconuts in Fiji. *Fiji Agric J.* 7 : 26-34
- Rajagopalan CK [1962] An indigenous rat trap - a boon to coconut growers. *Cocon Bull* 15 : 476 - 478
- Romney DE, Whitehead RA, Smith RW and Shaw FE [1968] Controlling rats in coconut field. 1. Extent of rat damage. 2. Methods of control. 3. Precautions, necessary with warfarin. "How to grow better coconuts" - A handbook for coconut growers in the Carribean and Central America, FAO, 32-38
- Sethumadhava Menon K [1972] Rat control in Androth. *Cocon Bull.* 3 [4] : 2-3
- Smith FJ [1968] Rat damage to coconuts in the Gilbert and Ellice Islands. *Proc. Asia Pacif. Interchange*, June 17-27, 1968, Honolulu, Hawaii, 231-234
- Smith-FJ [1969] Rodent research in the Gilbert and Ellice Islands colony 1967-1969, Tarawa, 94pp
- Smith FJ [1970] Research on rats on the Atolls. *Oleagineux* 25 : 147-152
- Smith RW [1967] A new method of rat control in coconuts. *Trop. Agric. (Trin)* 44 : 315-324
- Smith RW [1969] Rats, pests of coconuts and their control. *Carribean Fmg. I* [1] : 13-14
- Taylor KD [1972] The rodent problem. *Outlook Agric* 7 [2] : 60-67
- Taylor KD [1972] Rodent problem in tropical agriculture. *PANS* 18 : 81-82
- Taylor THC [1932] The possibilities of controlling rats on coconut estates in Fiji. *Fiji Agric J.* 5 : 22-25
- Thomson RWF [1969] Major pests and their control. Rats and termites. *Oleagineux* 24 133-136
- Townes H and Morales J [1953] Control of field rats in the Philippines with special reference to Cotabato. *Plant Ind Dig* 16 [12] : 3-12
- Turbet CR [1925] Rats and coconuts. *Agric Circular, Fiji Dept. Agric.*, No. 5, pp98
- Uchida TA [1969] Rat control procedures on the Pacific Islands with special reference to the efficiency of biological control agents. 1. Appraised of the monitor lizard, *varanus indicus* [Daudin], as a rat control agent on Ifaluk, Western Carolina Islands, *J Fac Agric Kyushu U*, 15 : 311-330
- Uchida TA [1969] Rat control procedures on the Pacific Islands, with special reference to the efficiency of biological control agents. 2. Efficiency of Japanese weasel, *Mustela sibirica itatsi* Temminck and Schlegel, as a rat control agent in the Ryukyus. *J. Fac Agric Kyushu U* 15 : 355-385
- Williams JM [1971] Assessing the effect of rat damage on coconut yields. *Fiji Agric J.* 33: 55-56
- Williams JM [1972] Rat damage, ecology and control studies. *Record of a Workshop on Cocon. Ind Fiji*, 1st-3rd May, 33-34
- Williams JM [1972] Assessing the effect of rat damage on coconut yields, *Cocon Bull* : 3 (6) : 2-4

47. Williams JM [1974] The effect of artificial rat damage on coconut yields in Fiji. *PANS* 275-282
48. Williams JM [1975] Rat damage to coconuts in Fiji. Part 2. Efficiency and economics damage reduction methods. *PANS* 21 : 19-26
49. Wodzicki K [1968] Tokelau rat survey. 2. Follow up report. 18 April 15 - June 1968, Wellington Newzealand.
50. Wodzicki K [1968] Rat damage of coconuts and other land vertebrates of Niue Islands South Pacific, Wellington Newzealand 32 pp.
51. Wodzicki K [1968] An ecological survey of rats and other vertebrates of the Tokelau Islands. 19, Nov. 1966 - 25 Feb. 1967, 89 pp.
52. Wodzicki K [1969] Preliminary report on damage to coconuts and the ecology of the Polynesian rat (*Rattus exulans*) in the Tokelau Islands. *Newzealand Ecol. Soc. Proc.* 16 : 7-12
53. Wodzicki K [1970] Reports on results of rat control trials in the Tokelau Islands from 30 July to 20 Sept. 1970 and recommendations for a comprehensive scheme of rat control., 34pp.
54. Wodzicki K [1972] Effect of rat damage on coconut production on Nukunonu atoll, Tokelau Islands. *Oleagineux* 27 : 309-314
55. Wood BJ and Chan KL [1974] Preliminary studies on rat production in Singapore and its control. *PANS* 20 : 283-291
56. Yelf JD [1965] Banding of coconut palms against rats. *Fiji Fmr.* 1 : 18-20
57. Yelf JD [1966] The ringing of coconut palms as a measure protection against rats. *Oleagineux* 21 : 237 - 240
58. Yelf JD [1966] Rat control by banding coconut palms. *Bull. S. P. C.* 2 : 22-24

AUTHOR INDEX

(Reference is given to the serial number of the entry)

Abdulla Koya KM	1, 16, 24	Mariano MP	18	Smith FJ	30-32
Agarwal SC	2	Mariau D	19	Smith RW	28, 33,
Berbehenn KR	7	Marshall TJ	20	Srihari K	12
Chan KL	55	Mathew PK	21	Sumangil JP	7
Chaturvedi GC	8	Montenegro A	22	Taylor THC	37
Deoras PJ	9	Morales J	39	Taylor KD	35, 36
Dumbleton LJ	10	Naidu GVB	23	Thomson RWF	38
Gupta GP	11	Natarajan P	1, 16, 24	Townes H	39
Guruprasad BK	12	Nirula KK	25	Turbet CR	40
Gutteridge NJA	13	Paine RW	26	Uchida TA	41, 42
Hoque MM	14	Pradhan MS	9	Whitehead R A	28
Kidavukoya PIK	15	Rajagopalan CK	27	Williams JM	43-48
Kurian C	1, 16, 24	Romney DE	28	Wodzicki K	49-54
Lassalle-sere R	17	Sethumadhava Menon K	29	Wood BJ	55
Libay JL	7	Shaw FE	28	Yelf KJD	56-58