

Note on the shedding of immature fruits in cashew

P. K. THANKAMMA PILLAI¹ and G. B. PILLAI²

Central Plantation Crops Research Institute, Kasaragod 670 124

Received : 27 December 1974

Though *Anacardium occidentale* L. produces innumerable flowers, all are not carried to maturity. The staminate and perfect flowers in an inflorescence have generally a ratio of 10 : 1. There is a high percentage of immature fruit drop in cashew caused by insects or other factors. Damodaran *et al.* (1966) observed 4 to 6% fruit set in cashew. Northwood (1966) attributed fruit drop in cashew during the early stages of development to physiological reasons. Dasarathi (1971) reported 55% fruit drop at the 'mustard' stage and 22% at the 'peanut' stage. However, there is very little information on the factors responsible for fruit shed at various stages. Here we present the results of a study on immature fruit drop in cashew.

Six cashew trees grown at the campus of the Central Plantation Crops Research Institute, Kasaragod, were selected for this study. The observations were recorded from December 1971 to March 1972. No unusual weather phenomenon was reported during the course of this study. The shed fruits were collected every day by fixing specially prepared bags at 10 different points in the canopy of each of the trees during the entire flowering season and the shed nuts thus collected were examined in the laboratory. The fruits were dissected and examined for ovule development as well as insect attack, if any. The ratio of staminate and perfect flowers as well as final setting were also noted.

Nearly 85% of the fruits were fertilized and under different stages of development (Table 1). The remaining 15% were

unfertilized. Out of the 84.8% fertilized fruits, only 4.2% reached maturity, the remaining 80.6% being shed away at various stages of development. The maximum shedding of 40.3% took place during the 'mustard' stage followed by 19.9% at the 'peanut' stage and the remaining 20.4% at later stages. Of this, 20.2% was caused by insect attack and the remaining 60.4% could be attributed to any factor ranging from nutritional imbalance to defective metabolism. These observations are in partial agreement with those made by Northwood (1966). Our data reveal that insect attack also is an important factor in the shedding of immature fruits, accounting for 1.9% shedding at the 'mustard' stage, 6.4% at the 'peanut' stage and 11.9% at the later stages. The occurrence of the nymphs and adults of tea mosquito, *Helopeltis antonii* Sign. (Heteroptera : Miridae), in great numbers during this season is also significant. These mirid-bugs suck up sap from tender nuts. The points of infestation develop necrotic lesions, and finally the nuts dry up. Besides the tea mosquito, the coreid bug, *Paradasynus* sp. (near *rostratus* Distant?) also sucks up sap from tender nuts. The infested nuts shrivel and dry up eventually (Nair and Remamony, 1964). Infestation by flower thrips, *Rhynchothrips raoensis* Girad., results in the development of scabs on tender nuts, which shrivel and fall off. The apple- and nut-borer, *Thylocoptila panrosema* Meyr., also causes damage to tender fruits and cashew apples.

Since immature fruit drop is high at the 'peanut' and later stages, timely adoption of suitable plant-protection schedules would control the tea mosquito and other insect pests damaging tender nuts. Based

¹Senior Research Assistant, ²Entomologist.

Table 1. Immature fruit drop in cashew (percentage)

Flowers					Fruit drop					
Sex ratio		Rate of fertilization		Fruits carried to maturity	'Mustard' stage		'Peanut' stage		Later stages	
Staminate	Perfect	Fertilized	Unfertilized		Insect attack	Other factors	Insect attack	Other factors	Insect attack	Other factors
90.93	9.07	84.8	15.2	4.2	1.9	38.4	6.4	13.5	11.9	8.5

on these results, trials on foliar application of nutrients in combination with suitable plant-protection chemicals are in progress.

ACKNOWLEDGEMENTS

Thanks are due to Mr M. C. Nambiar for suggestions and guidance and to Dr K. V. Ahmad Bavappa for encouragement.

REFERENCES

- DAMODARAN, V. K., ABRAHAM, J. and ALEXANDER, K. M. 1966. The morphology and biology of the cashew flower, *Anacardium occidentale* L. *Agric. Res. J. Kerala* 4 (2) : 78-84.
- DASARATHI, T. B. 1971. A review of work done on the genetic improvement and agronomy of cashew in Andhra Pradesh. Paper presented at the First Workshop of All-India Co-ordinated Spices and Cashewnut Improvement Project, held at Kasaragod in October 1971.
- NAIR, M. R. G. K. and REMAMONY, K. S. 1964. *Paradasynus* sp. (Hemiptera : Coreidae) as a pest of cashewnut in Kerala. *Indian J. Ent.* 26 (4) : 461-2.
- NORTHWOOD, P. J. 1966. Some observations on flowering and fruit setting in cashew, *Anacardium occidentale* L. *Trop. Agric., Trin.* 43: 35-42.