LEAF NUTRIENT CONTENT OF CASHEW (*Anacardium Occidentale-L*) AS INFLUENCED BY DIFFERENT METHODS OF FERTILISER APPLICATION

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ABSTRACT

Among the three methods of soil application tested, double ring method seems to enable quicker absorption of NPK, closely followed by the pocket method than the traditional method. The leaf tissue concentration for the three major nutrients was also maintained in the two methods at a higher level and for a longer period.

INTRODUCTION

Cashew plantations are generally raised on marginal lands and rarely receive any attention. However, economic yields can be expected only when scientific management practices are adopted. It has been demonstrated that cashew responds favourably to fertiliser application[1]. The undulating topography of lands in which cashew is largely grown offers difficulties in the adoption of standard techniques of fertiliser application and other cultural practices. The present system of broadcasting the fertiliser and incorporating into the soil by forking does not appear to be efficient as the applied fertiliser is likely to be washed away with rain water and eroded soil. In order to find out whether other suitable and convenient methods of soil application such as double ring or pocket method can enable the quick absorption and effective utilisation of fertiliser nutrients, this study was taken up at CPCRI, Regional Station, Vittal during 1979

MATERIALS AND METHODS

The studies were carried out on eight year old cashew trees at Vittal. Three methods of fertiliser application were evaluated.

1. Scything for removal of weeds followed by broadcasting the fertiliser around each tree and forking into the soil (traditional method).
2. Trenches of 30 cm depth and 30 cm width dug at 1.5m and 3.0 m radii from the base of each tree and the fertiliser dose applied in equal halves into the circular trenches (double ring method), and
3. Small pits of 30 cm × 30 cm size dug at four pockets around each tree at a radius of 2.0 m, the fertiliser dose applied in equal parts into each pocket and covered with soil. (Pocket method)

There were three trees in each treatment. The per tree fertiliser dose consisted of 500 g N as urea, 250 g

P_2O_5 as single super phosphate, and 250 g K_2O as muriate of potash. Both, immediately prior to application and at successive stages after application of fertilisers as indicated in Table 1, the mature randomly selected 100 leaves from each treatment were collected, washed after removing the petioles and dried at 50°C to a constant weight. The N, P and K contents in leaf tissues were estimated by the standard procedures[2].

RESULTS AND DISCUSSION

The data on leaf nutrient composition as influenced by the three methods of fertiliser application are presented in Table 1.

The following observations are made from the results:

1. The changes in leaf nitrogen content were reflected in the double ring method within 24 hours after

TABLE 1

CASHEW LEAF NUTRIENT AS INFLUENCED BY DIFFERENT METHODS OF FERTILISER APPLICATION

Leaf Sample (days after application)	*Broad cast method of fertiliser*			*Double ring method of fertiliser*			*Pocket method*		
	N(%)	*P*(%)	*K*(%)	*N*(%)	*P*(%)	*K*(%)	*N*(%)	*P*(%)	*K*(%)
1	1.444	0.075	0.34	1.344	0.100	0.37	1.596	0.085	0.33
2	1.456	0.070	0.35	1.680	0.090	0.38	1.596	0.085	0.32
4	1.428	0.070	0.36	1.932	0.080	0.35	1.624	0.085	0.33
6	1.512	0.065	0.35	1.972	0.095	0.36	1.904	0.095	0.36
8	1.484	0.070	0.34	1.904	0.090	0.33	1.932	0.090	0.32
10	1.428	0.055	0.32	1.988	0.085	0.32	1.932	0.095	0.34
14	1.512	0.080	0.29	1.848	0.080	0.35	1.680	0.080	0.33
18	1.512	0.072	0.30	1.652	0.090	0.29	1.736	0.090	0.31
24	1.512	0.070	0.30	2.016	0.090	0.32	1.736	0.095	0.33
28	1.456	0.057	0.31	1.960	0.080	0.32	1.820	0.080	0.33

application, whereas in the pocket method, the effects were noted only after four days.

In both the methods the peak nitrogen content was noticed on the 10th day with a slow decline subsequently. Though the broadcast method induced high nitrogen content in leaf at fourth day, it was not sustained in later periods.

2. The phosphorus content of leaves increased only at 4th day reaching the peak at 6th day in the double ring as well as pocket methods. Though, there was a decline between 6th and 14th day there was gradual increase again reaching a second peak at 24th day after application in both methods. In the broadcast method only the first peak in P content of leaf was observed.

3. The K content increased linearly upto 4 days and declined thereafter in broad cast method. In the pocket method, the peak was reached on 6th day only with a progressive decline in subsequent period. The double ring method also exhibited a similar trend. A clear cut quantitative variation was not, however, seen for K in any of the methods.

4. Among the three methods tested, the double ring method seems to enable quicker absorption and maximum accumulation of all the three nutrients, NPK, closely followed by the pocket method. This also indicated the advantage of proper placement of the fertiliser nutrient in the two new methods for facilitating more efficient absorption by roots than in broad cast method.

5. The leaf tissue accumulation for the three major nutrients was also maintained in the two methods at a higher level and for a longer period than in the traditional method indicating the poor availability and loss of nutrients by some means or other in the latter. On the contrary, conservation of applied nutrients and their gradual release in the double ring and pocket methods have probably made them more efficient than broadcasting.

Based on these observations it is suggested that large scale field trials in cashew with these three methods and also other techniques, if any, have to be carried out to assess the effect on the nutrient absorption and production attributes before recommending the most explicit method of fertiliser application to the cashew growers for securing increased monetary returns.

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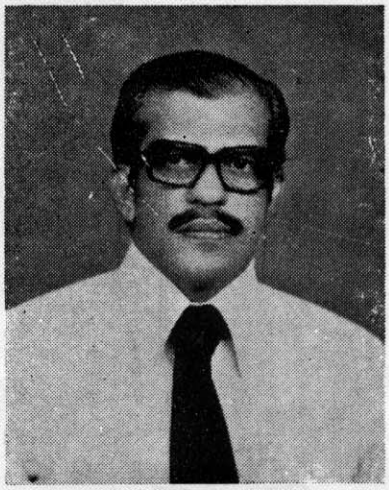

Mr. P. Gangadharan Pillai of M/s. Kerala Nut Food Co., Quilon has been elected President of the Federation of Indian Export Organisations New Delhi—an apex body of Export Promotion Councils and other institutions engaged in promotion of exports—at its meeting held on 30-12-80. He is the Cashew Export Promotion Council's nominee in that organisation and was its Vice-President for the last two years.

Mr. Pillai is a leading exporter of cashew kernels and cashewnut shell liquid and belongs to the famous K.P.P. Group of exporting house of cashews. Besides a member of the Committee of Administration of the Cashew Export Promotion Council, he is Director of the following bodies too:

(1) Poyilakada Fisheries Pvt. Ltd.
(2) Hills and Marine Products (Exports) Pvt. Ltd.
(3) Superior Oxygen Ltd.
(4) Kerala Shipping Corporation Ltd.
(5) Southern Magnetics Pvt. Ltd.
(6) Marine Products Export Development Authority.

Mr. K. Gangadharan, Branch Manager, State Trading Corporation of India Ltd., Cochin and Chief Marketing Manager, The Cashew Corporation of India Ltd., Cochin, has been appointed Vice-Chairman of the Cashew Export Promotion Council, by the Union Government.