

## SOME SUCCESSFUL CROSSES IN PINEAPPLE

Pineapple (*Ananas comosus* [L] Merr.) is one of the commercially important fruits of India. Among the different cultivars, Kew is widely grown because of its adaptability to a range of conditions, high yield and suitability for canning. Though Kew can be considered as acceptable because of its high yield potential, improvement is desirable with regards to internal flesh colour, sugar content, flavour and aroma, which are relatively poor in this variety, compared to Mauritius, Queen and Ripley Queen which on the other hand are poor yielders. Hybridization as per the techniques outlined by Collins (1963) and Samson (1980) was attempted at the Pineapple Research Centre, Vellanikkara of the Kerala Agricultural University, between Kew and the varieties Mauritius, Queen and Ripley Queen.

The time of flower opening in Kew under Trichur conditions is between 04.15 and 05.00 hours and the flowers remain open till 16.00 hours when they start withering. Time of anther dehiscence coincides with the time of flower opening (Gopimony *et al.*, 1976a). The crosses in the present investigations were carried out by hand pollination during the early morning hours of October-November. The fruits when fully ripe, were harvested and opened carefully to extract the seeds. The data on the number of inflorescences used, flowers crossed, total seeds obtained and percentage of well developed seeds in the different crosses are presented in Table 1. There was no seed set in the crosses involving Queen as one of the parents. Among the other crosses, the seed set was the maximum in Mauritius x Kew, in which 755 seeds were obtained from 582 flowers pollinated. Production of a large number of seeds up to 3000 from fruits produced through cross pollination had been reported by Pickersgill (1976). The seeds

obtained were sorted out into dark and light (plumpy ones were classified as 'good' and flat ones as 'poor'). The percentage of good seeds was high (73.4) in the cross of Kew x Mauritius and was between 41.4 and 46.4 in the other three crosses.

The 'good' seeds obtained from different crosses were sown in flat pans filled with sterilized soil, organic manure and sand in equal proportions. Even though the seeds had hard seed coats and were reported to require acid treatment, in the present study, the seeds were sown without any pre-treatment. Acid treatment or scarification was avoided due to unfavourable results noted in previous trials. The pans were kept under open conditions and watered once in two days. Germination commenced on the fourteenth day and was completed by the fourth week. Gopimony *et al.* (1976b) reported that seeds treated with concentrated sulphuric acid for 30 seconds or incubated at 32°C germinated mostly in the second week after sowing. The longer time taken by the seeds for germination in the present case might be due to the absence of any pre-treatments.

The data on germination and establishment of the seedlings are furnished in Table 2. The maximum germination was in the cross Mauritius x Kew (82.4%) whereas, the percentage ranged from 58.5 to 64.2 in the other crosses.

One month old seedlings were carefully transplanted to polythene bags containing sterilized potting mixture. The establishment of the seedlings from the different crosses at bimonthly intervals showed that between the fourth and sixth month, the mortality was very high. The percentage of survival after six months was the minimum (2.5) in seedlings of Kew x Ripley Queen and the maximum

(34.2) in Kew x Mauritius. The survived seedlings after six months were planted in the field in raised beds. The hybrid seedlings in the field were exhibiting considerable variation in vegetative characters and vigour within and among the

crosses, indicating scope for obtaining desirable hybrids. However, to get conclusive results, the hybrid seedlings are to be evaluated thoroughly for vegetative growth as well as for yield and quality characters.

Table 1. Details of crosses and seed set in pineapple

Cross	No. of inflorescences used	No. of flowers crossed	Total No. of seeds obtained	No. of good seeds	Percentage of good seeds
Mauritius x Kew	8	582	755	350	46.4
Kew x Mauritius	7	346	177	130	73.4
Ripley Queen x Kew	5	248	224	100	44.6
Kew x Ripley Queen	8	512	444	184	41.4

Table 2. Hybrid seed germination and seedling establishment in pineapple

Cross	No. of seeds sown	No. of seeds germinated	Germination %	Establishment of seedlings after			Survival after 6 months %
				2 months	4 months	6 months	
Mauritius x Kew	148	122	82.4	77	59	38	31.2
Kew x Mauritius	123	79	64.2	42	32	27	34.2
Ripley Queen x Kew	85	53	62.4	20	12	3	5.7
Kew x Ripley Queen	135	79	58.5	32	24	2	2.5

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