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**SOME ASPECTS OF THE ABNORMAL FRUIT OF
NOVEMBER-FLOWERING BANANAS**

By J. R. BLAKE, B.Sc., and B. C. PEACOCK, B.Sc.

SUMMARY

Carpel numbers are lower in Giant Cavendish fruit in bunches emerging in early November and the fruit is thinner.

During February in south-eastern Queensland some peculiarly shaped bananas, referred to by the trade as "November dumps", are marketed. This fruit owes its name to the blunt and stubby flower end and to the fact that the bunches are thrown (emerge) from the plant in early November. The fruit occurs both in Dwarf Cavendish and in the two varieties of Giant Cavendish, namely, Mons Mari and Williams, grown locally. The occurrence in south-eastern Queensland and a brief description of this fruit have been recorded by Summerville (1944) and Wills and Berrill (1953). Summerville (1944) presented evidence which suggests that the peculiar shape is due to the effect of low temperatures during flower bud initiation.

Although bunches of dump fruit are often smaller than usual, the fruit is generally well regarded by the trade as it is believed to have a longer ripe shelf life than fruit harvested earlier or later. Fahn, Klarman-Kislev, and Ziv (1961) in Israel reported that suppression of stamens and ovary locules occurred in "May-shooting" Dwarf Cavendish. They attributed this suppression to low temperatures and equated "May-shooting" and "November dump" as being the result of a common cause.

In February 1962, while some "November dump" fruit was being examined for another purpose, it was noticed that many of the fruit had a reduced number of carpels. Carpel counts on these fruit, and also on some December-thrown fruit which was available, gave the results shown in Table 1.

TABLE 1
CARPEL COUNTS

Item	Fruit with fewer than 3 Carpels (%)	Fruit with 3 Carpels (%)
November-thrown fruit	42.0	58.0
December-thrown fruit	0.7	99.3

To determine more carefully the amount of carpel abortion occurring in these "November dump" fruit, further samples were collected from the local markets. It was not possible to determine the variety of fruit selected but there was most likely a mixture of the two Giant Cavendish varieties with, perhaps, some Dwarf Cavendish included.

One hand was taken from each of seven November-dump bunches and from each of seven bunches of "long" October-thrown fruit. Weight/length ratios of all fruit were measured by the method of Duellin and Monnet (1960) and the fruit was then cut transversely and carpel counts made. The results are recorded in Table 2.

TABLE 2
PERCENTAGE OF FRUIT WITH A REDUCED NUMBER OF CARPELS, AND WEIGHT-LENGTH RATIOS (W/L) OF FRUIT

Hand No.	'Dump' Fruit					'Long' Fruit				
	Fruit with a Reduced Number of Carpels (%)	W/L			Fruit with a Reduced Number of Carpels (%)	W/L				
		3 Carpels	2 Carpels	1 Carpel		3 Carpels	2 Carpels	1 Carpel		
1	56.0	9.8	8.5	4.7	0.0	10.5	..	..
2	44.0	8.3	7.3	..	17.6	10.6	9.3	..		
3	37.5	9.7	7.8	..	5.0	10.0	8.4	..		
4	50.0	10.4	8.8	..	0.0	10.5	..	..
5	41.2	9.3	7.9	..	5.9	10.8	10.7	..		
6	20.0	9.2	6.9	..	0.0	9.7	..	..
7	38.9	8.6	7.1	4.3	5.6	7.2	5.6	..		
Averages	41.1	..	..	..	4.9	..	..	..

The data indicate that carpel numbers are reduced in November-dump fruit. The figures for fullness show that a reduction in the number of carpels results in thinner than normal fruit. This applies whether fruit comes from either "long" or "dump" fruit.

It was considered desirable to determine to what extent reduced carpel numbers occur in fruit thrown at other times of the year. Observations to determine this were carried out concurrently with maturity studies which were commenced in 1963. These studies involved tagging fruit, when it was thrown, at five different times of the year. This was done in two plantations under somewhat different environmental conditions. Counts of carpel numbers and the number of hands per bunch gave the results shown in Table 3.

These results again illustrate the reduction in carpels and show that the reduction is mainly restricted to fruit thrown about November. It can also be seen, more so in plantation 1 than in plantation 2, that a reduction in the number of hands per bunch also occurs with this type of fruit.

TABLE 3

NUMBER OF FRUIT SHOWING REDUCED NUMBER OF CARPELS, AND NUMBER OF HANDS/BUNCH

Tagging Period	Plantation 1				Plantation 2			
	Average No. of Hands/Bunch	No. of Fruit Examined	Fruit with Reduced Carpels		Average No. of Hands/Bunch	No. of Fruit Examined	Fruit with Reduced Carpels	
			No.	%			No.	%
12.vi.63	9.6	358	3	0.08	9.3	353	2	0.06
20.ix.63	8.9	566	1	0.02	10.4	745	18	2.40
30.x.63	6.5	1,040	239	23.00	8.9	1,513	327	21.60
17.xii.63	10.6	1,539	53	3.40	9.3	695	7	1.00
6.iv.64	11.9	845	0	0.00	11.3	726	2	0.03

During the later stages of this work, 10 bunches of fruit which were severely affected and considered unmarketable because of large variability in finger size, smallness of the bunches and poor appearance due to severe "dumping" of the flower end were supplied from plantation 1. Table 4 shows the percentage of

TABLE 4

PERCENTAGE OF FRUIT HAVING REDUCED CARPELS IN SEVERELY AFFECTED FRUIT, AND NUMBER OF HANDS/BUNCH

Bunch No.	Percentage of Reduced Carpels	No. of Hands
1	9.1	5
2	74.9	6
3	51.5	6
4	62.2	7
5	58.8	6
6	42.5	7
7	52.8	8
8	68.0	6
9	41.8	5
10	73.5	8
Average ..	53.5	..

this fruit with reduced carpels and the number of hands on each bunch. The data show that the percentage of fruit with reduced carpels can be variable and may be as high as 75%. It is obvious that the reduction in carpel numbers reduces fruit size. However, the quality of the bunch is probably more severely affected by the reduction in the number of hands than by reduced fruit size (cf. Table 4 and Table 3).

Queensland fruit seems to be less severely affected than that investigated by Fahn, Klarman-Kislev, and Ziv (1961), since no fruit was observed where all carpels were suppressed and rarely did only one carpel develop. The figures for fullness (Table 2) showed that reduction in the number of carpels resulted in thinner fruit. It follows that if weight/length ratios were used as a measure of maturity it would be necessary to ensure that only normal tricarpellary fruits are used as samples.

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The authors are officers of the Food Preservation Research Branch, Division of Plant Industry, Department of Primary Industries, and are stationed at the Food Preservation Research Laboratory, Hamilton, Brisbane.