Observations on Presence of "Viable" Seed in 'Magness' Pear

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Having noticed that some 'Magness' pears did not contain a "full" complement of seed, a count of apparently viable seeds was made on some fruits that were being used in other tests in the fall of 1973. A count of 306 fruits showed the following:

24% had no seed and had an average weight of 133 g.
44% had 1 seed and had an average weight of 132 g.
21% had 2 seeds and had an average weight of 135 g.
11% had 3 or more seeds and an average weight of 95 g.

In 1974, a specific sampling of five boxes of pears taken at random from the 'Magness' block at the Plant Research Farm was picked August 13 and placed in storage. A sample of 600 fruits from these boxes was cut, number of seed and average weight of fruit determined. Fruits were cut at mid-section and number of carpels containing viable seed counted. The presence of twin seed in carpels was also noted.

The results are as follows:

No. of carpels with seed	Percent of pears	Average weight of fruit	% of carpels with twins
0	11.1	87.4	
1	39.0	92.6	22.0
2	28.0	94.1	24.6
3	14.0	94.5	24.2
4	5.5	97.9	35.6
5	2.2	88.4	41.5

Although the percentage of pears with no viable seed was not as high as in 1973, it is evident that a considerable number of 'Magness' pears develop without seed and further that the size of the fruit is little affected by the number of seed present. Adequate pollination conditions existed both years, with presence of other pear cultivars and bees. However, it has been noted that bee activity among 'Magness' blossoms is very light.

The smaller size of the 1974 fruit is due in part to the random sample picked (smaller fruit had been taken out of the 1973 sample) and to the earlier date of harvest in 1974. The question arises whether the 1974 fruit would have had differing rates of late season development in the several seed class categories. The smaller size of the fruit with 3 or more seeded carpels in the 1973 sample can be perhaps attributed to chance. Although the same tendency is shown in 1974 in the group with 5 seeded carpels it seems logical to conclude that there was no clear cut relationship between seed number and fruit size in the samples examined.

There was a distinct tendency for the fruit to be more fully developed in the flesh area exterior to the seeded carpels, producing out-of-round cross sectional areas. However, the lack of development in the non-seeded areas was not sufficient to cause severely off-shaped fruit.

The percentage of twin-seeded carpels tended to be greater in the categories with the higher number of seeded carpels.

Since there was a considerable number of fruit in both 1973 and 1974 with no viable seed and since there was little relationship between the presence of seed and the weight of the fruit, it seems that the 'Magness' cultivar is capable of parthenocarpic development. If this tendency could be enhanced by growth regulator application, a possible solution to the scant fruiting habit of 'Magness' might be obtained.

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