

VARIETY TESTING OF WINTER OILSEED RAPE

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Successful winter oilseed rape trials are notoriously difficult to achieve because the long growing season provides ample opportunities for attack by predators of one kind or another. Variety trials are particularly difficult because the action of predators is rarely uniformly distributed and varieties may be at different stages of growth when attack occurs.

The most recent series of winter oilseed variety trials carried out by the National Institute of Agricultural Botany was started in 1967-78: the precise purpose being to provide growers with advice to assist them in their choice of variety. Since 1973, these trials have incorporated the trials grown for the National List authorities to meet the statutory requirement for value for cultivation and utilization.

At the outset most of the trials were grown in small plots to facilitate control of predators. In particular, the plots were netted to protect from birds: a large meshed net during the winter to keep pigeons off, replaced by a smaller meshed net in the spring to keep small birds away during the ripening period, since it was at this stage that most losses occurred.

Experience showed that, although the large meshed net was successful, finches were able to peck their way through the small meshed net near harvest time and bird damage often occurred. Furthermore, plants tended to become etiolated under the net resulting invariably in severe lodging. The plot size had to be kept small because of the high cost of netting and was usually about 10 sq metres. The cumulative effect of these various factors was a tendency to high coefficients of variation (Table 1).

TABLE 1

HARVESTED TRIALS GROWN UNDER NETTING 1967-76

<u>Year</u>	<u>Centre</u>	<u>Plot size (sq m)</u>	<u>Coefficient of variation</u>
1967-68	Cambridge	20	10.9
	Sutton Bonington (Notts)	5	18.5
1972-73	Cambridge	10	9.1
1974-75	Cambridge	10	15.6
1975-76	Cambridge	10	18.7
		Mean of 5 trials	14.6

Over the 9 years when 11 such trials were attempted, 6 failed or were abandoned, 3 had coefficients above the level of 15.0 regarded as maximum for acceptance and, of the 5 trials that were harvested the CVs ranged from 9.1 to 18.7 with a mean of 14.6.

An important principle of NIAB crop variety testing is that trials should, so far as possible, receive similar husbandry treatments to crops grown by progressive farmers in the locality. Clearly the netted small plots were dissimilar to farm crops; the net itself provided a physical obstruction, and harvesting in particular was impeded. Moreover, it modified the

crop environment and made it more difficult to assess, for example, winter hardiness as it afforded some protection against the elements.

From the beginning some trials have been grown on farms in commercial crops. As these have proved highly successful the number of trials has been increased to 8 a year and netted trials have now been discontinued. Of 34 farm trials, grown over the past 9 years, only 5 have failed and the coefficient of variation of those harvested has ranged from 4.0 to 14.8 with a mean of 9.2 (Table 2).

TABLE 2  
HARVESTED TRIALS GROWN IN FARM CROPS 1967-76

Year	Nearest NIAB centre	Plot size (sq m)	Coefficient of variation
1967-68	Rosemaund	90	12.0
1968-69	Sparsholt	90	13.3
1970-71	Sparsholt	180	9.7
1971-72	Sparsholt	90	13.3
1972-73	Rosemaund	110	8.9
	Sparsholt	100	7.9
1973-74	Cambridge (Bedford)	110	7.3
	Cambridge (Bucks)	40	12.5
	Cambridge (Northants)	15	8.3
	Sparsholt (Hinton)	110	10.9
	Sparsholt (Romsey)	90	8.9
	Morley	70	9.9
	Rosemaund	120	7.8
1974-75	Cambridge (Bedford)	100	7.1
	Sparsholt (Bridgets)	100	9.6
	Sparsholt (Overton)	100	6.0
	Sparsholt (W Tisted)	100	11.8
1975-76	Cambridge (Bedford)	140	5.9
	Cambridge (Newmarket)	110	5.9
	Morley	90	10.3
	Rosemaund	60	14.8
	Sparsholt	70	6.4
	Sutton Bonington	40	12.2
	1976-77	Cambridge	150
Morley		90	10.7
Rosemaund		80	7.1
Sparsholt (Bridgets)		100	9.3
Sparsholt (S Scotney)		70	8.6
Sutton Bonington		40	6.9
		Mean of 29 trials	

The essential features of the farm trials are that a natural crop environment is involved, normal farm management is possible, including the use of farm equipment and practical expertise, and birds are rarely a problem. Plot size varies from site to site because it must relate to the equipment used and this normally involves the utilization of equipment already on the farm, notably drill, swather and combine harvester. These must be synchronized with each other so that operations on each plot can be carried out with the minimum of difficulty. In practice plot size varied from 40 to 150 sq metres but was usually about 100 sq metres.

The main problem presented by this procedure is that all plots must normally be harvested at the same time. This is of minor practical significance given the narrow range of maturity differences in varieties currently available and, in any case, such differences as exist are of less consequence when the crop is allowed to mature in the swathe. The main obstacles to harvesting the plots as they mature is the invariable use of a side-delivery swather, which makes it essential to harvest plot by plot progressively from the end of the trial. The Institute is investigating the use of a through-swather to facilitate the harvesting of individual plots.

So far the main advantage of the farm trials, other than the reduction in the coefficient of variation already referred to, is that control of predators has been highly effective. Bird damage is minimal as the surrounding crop provides a buffer and, as the trials receive the same husbandry treatments as the surrounding crop, pesticides are applied as appropriate with minimum trouble.