Types of oilseed rape

Swede and turnip rapes
W inter swede rape (Brassica napus) varieties account for most of the UK’s 500,000 ha rape crop. Spring varieties yield less and are cheaper to grow as fertiliser and pesticide inputs are lower.

In recent years spring and winter turnip rape (Brassica rapa - formerly B. campestris) varieties have attracted some interest due to their early maturity. The winter crop is not currently grown in the UK, although development work is continuing elsewhere.

Uses of oil and meal
Most rapeseed oil is used in cooking fats, spreads and margarines. The protein-rich meal is used in animal feed. Some whole seed is used in poultry rations.

All ‘double low’ varieties currently recommended for food use contain less than 2% erucic acid and 25 micromoles/g of seed glucosinolate. Sulphur-containing glucosinolates are anti-nutritional and still limit amounts of meal fed to non-ruminants.

High erucic acid (HEAR) non-food types are often grown on set-aside land. The oil has high temperature stability as a lubricant and so suits industrial uses.

The primary use of HEAR varieties exploits their anti-slip properties in products such as cling film and polythene.

Other oil types have been bred, but are not yet grown commercially in Europe. High oleic acid oil is thought to be particularly healthy in the human diet. Low linolenic acid has very good stability for high temperature frying.

Variety types
Only approved varieties can be grown if arable aid subsidies are to be claimed.

Traditional varieties are bred over 8-10 years by selection and purification. They are maintained by self-pollination.

Hybrids, first introduced in 1996, depend on crossing differing male and female parents at the seed production stage. F1 hybrids are more vigorous and higher yielding than their parents. Hybrid vigour declines rapidly in successive generations, as plants self-pollinate and segregate into parental types.

Re-sowing is not advised, and special permission to do so must be obtained from the relevant breeder. Re-sowing seed of varietal associations, consisting, as they do, of a mixture of varieties, contravenes seeds regulations and is prohibited.

Plant breeders have developed methods for introducing male
Sterility to prevent self-pollination of the female line. Such plants are unable to produce pollen or to accept their own pollen. Male and female plants are grown in adjacent strips. The hybrid seed is harvested from the female parents while male plants are destroyed after flowering to prevent contamination of the hybrid seed lot at harvest. This significantly reduces production from a given area which partly accounts for high seed costs.

**Hybrid types**

**Restored hybrids**, eg Pronto, Royal, Disco. Although the female parent is male-sterile (ie does not produce pollen), the pollen from the male parent over-rides this effect. Therefore, the F1 hybrid plants are fully fertile.

**Variatel associations**, eg Synergy. These comprise a mixture of male sterile hybrid and one or more male fertile varieties, usually in an 80:20 mix, which pollinate the hybrid plants. HGCA-funded trials, as part of a European project, have shown that varietal associations carry some risk of poor pollination and reduced yield in adverse conditions. At populations of over 60-70 seeds/m², the more vigorous hybrids tend to crowd out the less vigorous pollinators.

'Super' varietal associations, eg Gemini, Complex, Agenda. In this system, a restored hybrid is used as the pollinator. Both components should be equally competitive and pollination assured.

**3-way hybrids**, eg Cohort, Comodor. The most recent system uses two successive hybrid crosses to overcome high glucosinolate content. The commercial crop is usually 100% fertile, or segregates into a 50:50 mixture of male fertile: male sterile plants. Pollination of the sterile plants should be very effective.

**Isolation distances**

The only current restrictions on commercial growing are for high erucic rape crops, which must not be grown within 50 metres of standard, double low crops.

**GM varieties**

Genetically modified varieties are widely grown in many countries. They offer potential agronomic benefits, such as herbicide resistance. Varieties can be produced with fatty acid profiles to suit many end uses, including industrial uses. GM varieties cannot currently be grown commercially in the UK although many trials are in progress, including detailed environmental studies.