

## **Market limitations to the adoption of new crops - a case history from north-west Europe**

R.K.M. Hay

Plant Sciences, West of Scotland College, Ayr KA6 5HW, Scotland

Several of the agricultural commodities of the European Community (EC) are in surplus, and there is a need for new arable crops, especially as alternatives to cereals (spring barley in Scotland). Apart from producing products which are not in surplus (e.g. oilseeds, protein grains, biomass, fine chemicals), new crops must fit into the available growing season. Research in the UK (1) and elsewhere in north-west Europe has emphasized the difficulty of timely sowing and harvesting of new cereals, legumes and oilseeds in variable environments, where the first soil moisture deficit can occur late in spring and return of field capacity at the end of August. Thus the interception of available solar radiation can be seriously reduced because of soil-water relations.

In response to these environmental restraints, work in this Department has focussed on perennial crops (discussed elsewhere) and high-value chemical/pharmaceutical crops which can be harvested early in the growing season. Research over five years (2, 3) has demonstrated the potential of several volatile oil species (mainly culinary herbs such as tarragon, summer savory) for this role; their 'essential oils' (imported into the EC for food flavouring and preservation) accumulate in leaf glands rather than seeds, and their maximum oil yield tends to coincide with flowering, late in summer before crop senescence. The crops can be harvested green and either dried at low temperature or steam distilled to release the oils. Even though these crops are traditionally grown in Mediterranean regions, they yield well in south-west Scotland, producing oils of the highest quality.

However, even though a market survey at the start of this work showed an import bill of the order of millions of pounds, there has, as yet, been little commercial development of these crops in the UK because of poorly developed markets. Elsewhere in the EC, the associated problems (seasonality of production, quality control, mechanization, processing, competition with bulk imports of low quality) have been overcome by the development of farmers' co-operatives. Individual farmers in Scotland have grown selected species successfully at the hectare level but have now given up in the face of marketing problems. Much of the scientific work is done and the market opportunity is present; as crop physiologists and agronomists we await developments.

1. Hay, R.K.M. and Walker, A.J. (Eds) (1988). Crop Res. 28 (1).
2. Hay, R.K.M., Svoboda, K.P. and Barr, D. (1988). Crop Res. 28, 35-45.
3. Svoboda, K.P. and Deans, S.D. (1988). Chron. Hort. 28, 39.