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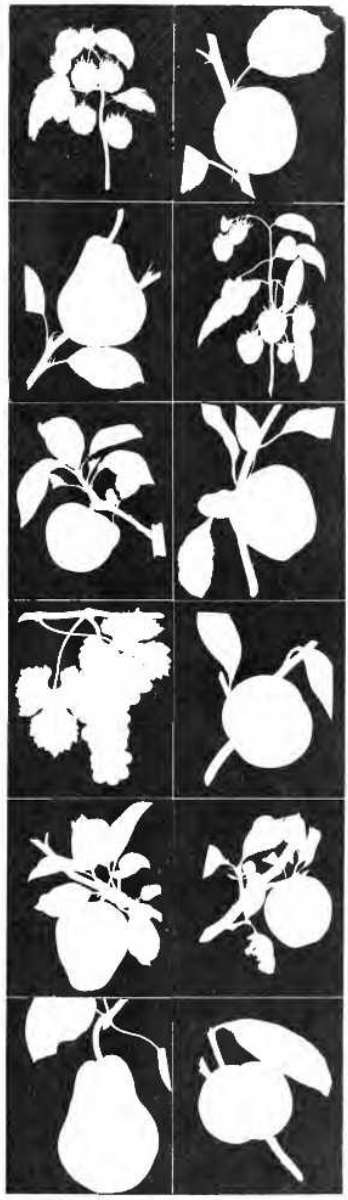

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1985

THE TREE-FRUIT INDUSTRY IN THE UNITED KINGDOM*: CHANGING TO SURVIVE

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To understand the forces that are producing radical changes in the tree-fruit industry in the U.K., it is necessary to recognize England's geographical and political position. Geographically, the industry is located at about the same latitude as Newfoundland, which places it at the northern edge of a climate that will support commercial production. Many common varieties of tree fruits cannot be grown commercially in this climate.

Politically, the U.K. belongs to the European Economic Community (EEC), which allows goods to move into the U.K. duty-free from other EEC countries. Since some of these countries, especially France and Italy, have climates much more suitable for tree-fruit production, European fruits can often be sold on British markets at lower prices than for those grown in the U.K.

The U.K.'s entry into the EEC put its tree-fruit industry in jeopardy and resulted in major changes within the industry. Part of the story can be seen in the industry's statistics. Over the past 10 years, total apple acreage has declined 30%, pear acreage has declined 25%, and cherry acreage has declined 50%. For plums the decline is even more startling if you look back further: acreage in 1982 was only 30% of that in 1957. Approximate acreage for these crops in 1983 was: apples, 62,400 acres; pears, 10,000 acres; plums, 8,750 acres; cherries, 3,050 acres. Peaches are not grown commercially in the U.K.

These figures may imply that this is a failing industry, but the U.K. fruit industry is not dying. It is adapting to new conditions to shedding itself of unwanted fruit or economically nonviable orchards, and adopting new methods to increase productivity and efficiency. These changes have been greatest for apples, which represent the strongest as well as the biggest component of the industry. Total apple production in 1982 was about 22 million bushels, and the ways in which apple production has changed will be emphasized here.

Because of the EEC competition, the U.K. must produce what its market wants and the rest of the EEC cannot produce more efficiently. For apples and pears, this has meant concentrating production on a handful of good-quality varieties, all of which have been grown for more than 100 years.

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*The United Kingdom (U.K.) consists of England, Scotland, Wales, and Northern Ireland, although most of the tree fruits are grown in England.

Cox's Orange Pippin (Cox) now makes up 56% of the U.K. dessert apple production, while Bramley's Seedling (Bramley) represents 80% of the culinary apple production and over 40% of the total apple production. (Note: Bramley's are sold for processing, but there is no major apple processing industry in the U.K. Culinary apples are ones grown specifically for cooking and to a large extent are sold directly to the consumers).

For pears, 73% of the production in 1982 consisted of a single variety, Conference, with most of the remainder being accounted for by Doyenne du Comice. These three varieties -- Cox and Bramley apples and Conference pears -- are ones sought by the U.K. market and not grown in Southern Europe. The industry will likely concentrate still further on the production of these varieties.

The past 10 years have seen drastic changes in the way English apples are produced. The traditional orchard of large, widely spaced trees growing on a carpet of grass has virtually disappeared as a viable commercial entity. The framework of the trees was first drastically lowered with a chain saw, and strips of grass under the trees were killed with herbicides. Later, these trees were replaced by small, staked trees planted more intensively and often grown on bare soil. A driving force in these changes has been the inherently low productivity of Cox trees, which makes increased productivity per acre critical to economic survival. It is estimated that the average Cox orchard produces 225-250 bushels per acre (but this includes nonbearing trees), that 500 bushels per acre are needed for economic viability, and that this figure will soon rise to 750 bushels per acre. (Most-efficient producers are already obtaining these yields).

To achieve such yields intensive production is required. It is easy to look across the English Channel to the Dutch apple industry and try to adopt their techniques. However, 65 to 70% of Dutch fruit farms have less than 10 acres of trees, while 80% of the U.K. fruit farms exceed 25 acres of trees. Thus, most English growers cannot afford the detailed attention to tree development that is given by Dutch growers and U.K. orchards are developing differently from better-known Dutch orchards.

The most common rootstock for English Cox apples is MM106, although M9 is being used increasingly. For Bramley, MM106 was also widely used but its use is now declining and M26 and M9 are becoming increasingly popular. Single-row planting at a density of about 300-400 trees per acre is most common, with trees trained to a central leader but restricted to no more than 10 to 15 feet (or preferably less) in height.

There is considerable interest in 3-row bed plantings, trained to the North Holland spindle-bush system. However, there are some clear limitations to its successful adoption. (1) The size of most English orchards limits attention to development of individual trees. (2) Many orchards are frost-susceptible, and if a crop is lost or severely reduced by frost, the high vigor produced that year makes the growth much harder to control.

(3) Many orchards will requiree irrigation because their soils are too shallow and susceptible to drought. Therefore, for the forseeable future most English orchards will probably continue to employ single-row central leader production systems, while only the very specialized producers will adopt the more intensive bed systems.

Most U.K. planting stock is certified virus-free, true-to-name, and true-to-clone. It is produced under the "Plant Health Protection Scheme" in which virus-free "nuclear stock", or mother trees, are produced at government laboratories and provided at nominal cost to "Special Stock" nurserymen who mass-propagate them for commercial sale. Growers can buy different grades of trees, the grade and price representing how far removed the trees are from the original nuclear stock. These virus-free trees are up to 30% more productive than virus-infected stock.

Orchard restructuring was boosted in 1982 when the British Government introduced its "Orchard Replant Scheme" under which growers can be subsidized for orchard replanting. The plan is linked to an EEC prohibition against expanding the area devoted to apple production, since apples are overproduced in EEC countries. (Each year EEC countries dump under subsidy twice as many apples as are produced in the U.K.).

Under the plan a grower can be subsidized for 22.5% of his capital investment in a new orchard if (1) he can provide evidence that he has first grubbed an area of equal size, (2) he uses only certified-virus-free trees, and (3) he plants only eligible varieties: Cox, Bramley, and Spartan apples, and Conference and Comice pears. (However, 25% of the planting can be of other varieties inserted as pollenizers.) This replanting subsidy can increase the 32.5% of the total capital investment if the entire farm has a development plan acceptable under EEC policies. This plan has provided a big boost to changeover of unprofitable orchards.

The appropriate soil management system for U.K. orchards has become a matter of controversy. The standard system over the past 20 years has been the use of herbicide strips under the trees, leaving grass alleyways. In recent years pomologists have been advocating application of herbicides to the entire orchard floor, and many orchardists now employ this "overall herbicide" soil management system. Overall herbicide usage can increase soil acidity, lower soil nitrogen level, and produce phosphorus deficiency in apples, which increases storage losses of fruit. It can also cause soil erosion, although this is not a serious problem in most relatively-flat English orchards. The biggest concern is still another effect -- loss of soil structure. Soil compaction from rain and machinery can cause soil structure to collapse and cause a soil cap to form, which reduces water infiltration. Failure to return fresh organic matter can deplete soil organic matter, and reduction of the earthworm population can reduce water infiltration. On the other hand, overall herbicide usage increases yield 10 to 20%, and the increase in fruit size is especially welcome for Cox, which are often small. Therefore, considerable effort is being applied to deal with the problems created by overall herbicide usage, rather than abandoning it.