Strawberry cultivation in the UK expanded in the late 1800s and by 1924 reached 13000 ha. While the area today (5000 ha) is just a third of the 1924 area, strawberry production has more than doubled due to yield per ha increasing 5-6-fold from below 5 tonnes/ha to 25 tonnes/ha. Strawberry production in the UK totals 106,000 tonnes with a value of nearly £300 million. The increase in UK production has made it possible for the UK to regain a major share of its self-sufficiency. Foreign grown strawberries in 1997-98 overtook home production. As of 2009, home grown production outstripped imports by 3:1.

In the early 1900s, fungal diseases were widespread in strawberry cultivation. Strawberry cultivation was risky due to the potential losses to disease. The lack of effective disease control made disease incidence highly susceptible to weather conditions [1].

Botrytis (or grey mould) and powdery mildew are the most important aerial diseases in the UK. Botrytis is caused by a fungus that attacks all above ground parts of the strawberry plant, but is most important as a fruit rot which develops rapidly as the fruit ripens. Botrytis appears in the field when there is a persistent wetness in the crop (as is all too common in the UK at midsummer). Growers have reported that supermarkets turn away a whole lorry-load if they find one mouldy strawberry [3].

All parts of the strawberry plant are attacked by powdery mildew, but it is the damage to the flowers and fruits that can result in heavy losses. Infected flowers are either killed or deformed, and green fruit becomes hard and fail to ripen. Severe mildew infections reduce photosynthesis by giving rise to a thick covering of fungal growth. Powdery mildew has increased in importance in the UK as a large proportion of the crop is grown in polytunnels where the microclimate favors powdery mildew development due to the high humidity levels reached, which are ideal for spread of the disease.

A major factor in increased strawberry yields has been the increased use and variety of fungicides used [1]. Research in the 1970s demonstrated that by controlling botrytis and powdery mildew the percent of healthy strawberry fruit increased from 73% to 99% [4].

The use of polytunnels has led to a lengthening of the crop season. The harvesting season was brought forward into May by two to three weeks and the season was extended from six weeks to six months. The use of polytunnels spread rapidly from less than 5% of the British crop area in 1995 to over 80% in 2009 [1]. The use of polytunnels has led to growing conditions, where the higher temperatures within these structures enhance productivity. The strawberries are shielded from the prevailing weather which reduces the threat of botrytis. The extension of the season means that growers are applying 10-12 fungicide sprays today compared to the 3-4 in the 1980s.

The spray area with fungicides increased from 6058 ha in 1965 to 61305 in 2012. This is higher than the area of land cultivated for strawberries since it accounts for multiple sprays per season [1]. In 2012, 95% of strawberry hectares were treated with fungicides in the UK. The average number of fungicides sprays per ha was 9 [2].

High reliance of UK strawberry production on fungicides has resulted in an industry dependent on the availability of chemical means of combating plant disease. The potential loss of fungicides through the introduction of EC Regulation is seen by a majority of the industry (70%) as a major threat [5].

References