The Best Practice Guide to UK Plum Production
Introduction

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This Best Practice Guide arose from a four year (2015-2019) Innovate UK grant on the Sustainable Intensification of UK Plum Production. We are very grateful for this funding and to the AHDB for publishing this guide and supporting post project Knowledge Exchange activities. Thanks are also due to numerous persons who contributed to the project (see Acknowledgements below) and especially to John Stones, Project Monitoring Officer, who guided the project though partner and activity changes during its course.

Objectives of this Guide

This Best Practice Guide for Plum Production in the UK seeks to bring together information on plum production in one place and develop from that information recommendations for Best Practice in the UK. The guide is not comprehensive, but does cover the key areas of production. Recommendations are made to encourage all UK tree fruit producers to adopt the Best Practices currently available for producing this crop. This Guide has been produced by staff of NIAB EMR, FAST LLP and three growers Dr Oliver Doubleday, Tom Hulme and Charles Highwood.

Whilst the Guide can be read through it is intended that readers dip into the Guide to gain the information, which they need at different times during the season. It would be particularly valuable to consider the different parts of the Guide during your planning for the forthcoming season. During this you could create your own check lists which would act as reminders during the season. Within the pest and disease sections the photographs and descriptions of pests and diseases are likely to be especially useful for reference during the growing season.

The authors have made their best efforts to ensure that the suggested practices noted within the Guide are safe and approved. Where there is no current UK approval for the use of a pesticide or other technique this is clearly stated.

Current state of the UK plum industry

The UK plum industry has been in decline for many years, the area of production declining from 2400 ha in 1985 to 800 ha in 2017, in contrast to cherries where the area of production has been rising in recent year (Defra statistics, Figure 1). Total national plum output has sunk to 8000 t (Figure 2) even though the average yield has increased gradually over the years (to 15.7 t/ha in 2017) (Figure 3). The average fruit value of plums has increased gradually to ~£1000/t in 2017 but not kept pace with inflation, whereas the value of cherries is 3.5 times higher at ~£3500/t (Figure 4). 14 % of the ~55,000 t of plums consumed in the UK in 2017 were produced in the UK (Figure 5), 86% being imported (Figure 6).

The primary reason for the weak and declining profitability of the UK plum industry is that the low fruit value of plums (only £700/t back to the grower) and low yields result in low profitability compared to other competing fruit crops (e.g. Gala apples or protected cherries). The gross margin of plum orchards based on current fruit value and national average yield of 15 t/ha is only £250/ha/season (see economic analysis section) whereas the gross margin for an average Gala orchard yielding 35 t/ha of fruit worth £350/t back to the grower is £2,016/ha/annum and for an average protected cherry crop yielding 10 t/ha worth £3,000/t the gross margin is £6,000/ha/annum. Even with good yields of 50, 15 and 22.5 t/ha for Gala apples, protected cherries and plums, respectively, the gross margin for plums (£2,563/ha/annum) remains less than Gala apples (£4,427/ha/annum) and much less than protected cherries (£16,000/ha/annum). A 20% yield increase on the best plum orchard yield (from 22.5 to 27 t/ha) or a 20% increase in fruit value from £700 to £840/t increases the gross margin of plum production from £2,563/ha/annum to £4,475 or

£5,713/ha/annum, respectively. 20% increases in both yield and price increase the gross margin to £8,255/ha/annum. It is clear that substantial increases in yield and/or fruit value are needed to make plum growing competitively profitable with other tree fruit crops in the UK.

SWOT analysis of the UK plum industry

A Strengths, Weaknesses, Opportunities Threats (SWOT) analysis of the current UK plum industry is presented in the figure below.

The four key challenges to restore the UK plum industry

A UK produced plum of a high quality variety properly ripe is a delicious eating experience and our UK industry will have a good future once this is realised by producers and markets. There are there four challenges that need to be addressed to restore the UK plum industry to growth and profitability. These are 1) to increase yields substantially (ideally to >30 t/ha) by more intensive systems using a better less vigorous rootstock (which does not adversely affect fruit size); 2) to improve reliability of cropping through frost protection, crop load management by use of mechanical fruitlet thinning methods and growth control; 3) to extend the season to supply the UK market consistently and steadily between early July and early October by use of a much wider range of productive varieties of high fruit quality; 4) to improve fruit value by increasing fruit quality by later picking and more rapid transfer to market and sale.

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SWOT analysis of the UK plum industry

S

- Taste quality of UK plums though variable, can be ***excellent*** and ***greatly superior*** to imports
- Victoria is ***high quality***, ***reliable***, ***recognized*** and liked by consumers
- UK consumers ***prefer*** UK produced plums
- Several ***other excellent varieties*** to span extended season are already available

W

- Plums in ***continuing decline***, many old orchards, little new planting
- Output ***greatly reduced*** in frost years (~1 in 5 years)
- Price of plums ***low***, undermined by poor quality, low cost imports
- Plums ***less profitable*** than other tree fruits, little incentive to plant
- 'Victoria' ***predominates*** & ***floods*** the market for ~3 weeks in August
- Quality ***undermined*** by harvesting practices
- ***No public investment*** in R&D to facilitate necessary intensification of plums

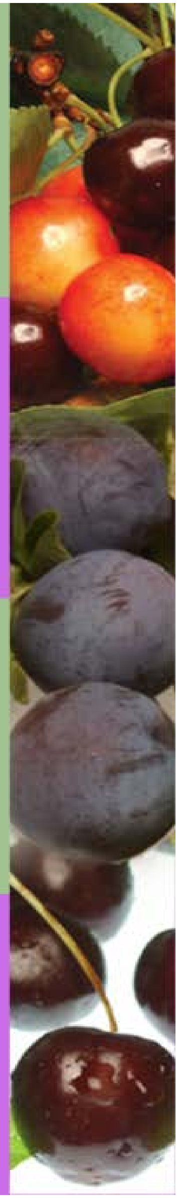
O

- UK market ***undersupplied*** with UK produced plums, even in August
- ***High consumer demand*** for UK produced plums - ***Price increase*** opportunity for higher quality
- Taste quality of some plums poor: ***opportunity to expand*** market with higher quality fruit
- Scope for ***import substitution*** through yield increase, ***season extension*** of high quality varieties
- ***New*** mechanical thinning methods available
- Opportunity to develop ***new sustainable, intensive, high output growing systems*** for high quality varieties harvested nearer to ripe over greatly extended season to out-compete imports

T

- ***Competition*** from other stone fruits and other fruits
- ***Undercutting*** of price by cheap, poor taste quality plum imports
- ***Failure*** to reliably supply UK plum fruit of best eating quality
- ***Failure*** to invest consistently over longer term in R&D
- Innovations and best practices ***not adopted*** by some growers

• UK PLUM PRODUCTION **SWOT** •



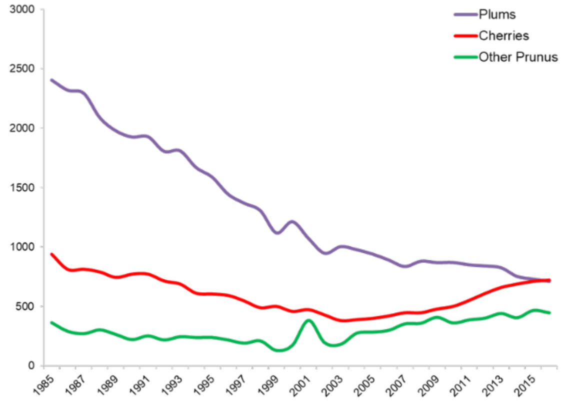


Figure a. Annual UK crop area (ha) of Prunus fruit 1985-2017

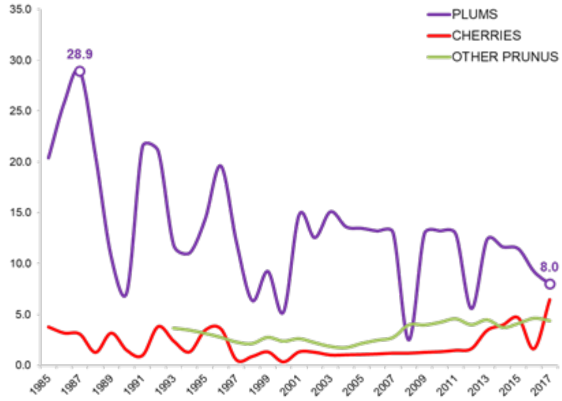


Figure b. Annual UK production ('000 t) of Prunus fruit between 1985 and 2017

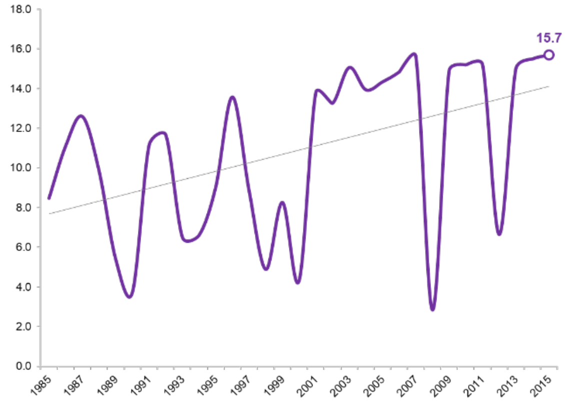


Figure c. Average yield (t/ha) of total annual UK plum production 1985 - 2015

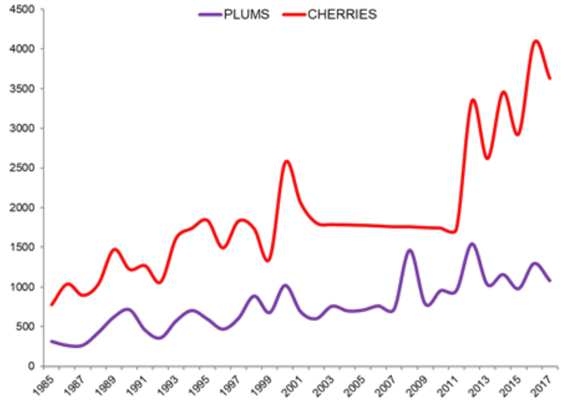


Figure d. Annual fruit value (£/t) of UK Prunus production 1985 - 2017

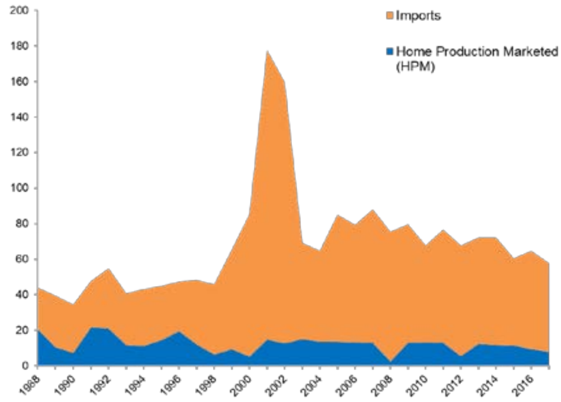


Figure e. Total annual supply ('000 tonnes) of UK marketed plums 1988 - 2017 (excl. exports)

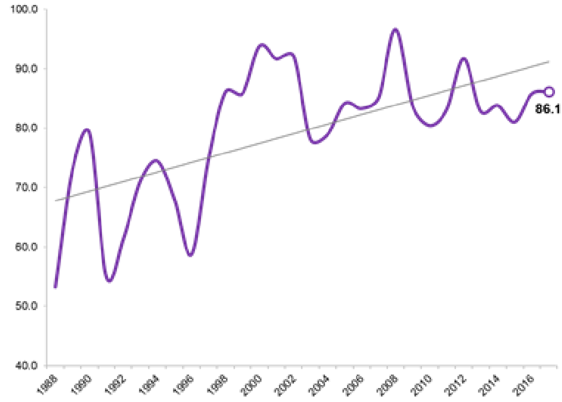


Figure f. Percentage (%) of annual UK Plum fruit market that was imported between 1988 and 2017

Figures a-f. DEFRA statistics for the UK plum industry (purple) compared to the UK cherry industry (red)