Horticulture and Public Health: the fruit and vegetable requirement of UK and Wales, implications and recommendations

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Diet Related Health Problems

• 58% of adults overweight/obese (Welsh Health Survey, 2015)

• 26% of children overweight/obese (Public Health Wales, 2015)

• Healthy food 3 times more expensive than unhealthy food per calorie (Jones et al, 2014)

• Lower income more likely to be overweight/obese (Dept of Health England, 2005)
Figure 3: Price evolution for fruit and vegetables in the UK (2007=100)(30)
Overview Global Imports into the U.K. (Volume in T)

Out of total 5.6 Million T of trade, 2.9 million T are from EU-27

UK import from EU-27 and third countries

From Freshfel (European Fresh Produce Association) 2016 U.K.’s vote to leave the European Union: Consequences for trade of F&V?

Source: Comtrade
## Imports

From Freshfel (European Fresh Produce Association) 2016 U.K.’s vote to leave the European Union: Consequences for trade of F&V?

<table>
<thead>
<tr>
<th>Suppliers to the U.K. (Volume in T)</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2,852,129.80</td>
</tr>
<tr>
<td>Spain</td>
<td>1,398,340.00</td>
</tr>
<tr>
<td>Netherlands</td>
<td>676,377.70</td>
</tr>
<tr>
<td>France</td>
<td>232,596.10</td>
</tr>
<tr>
<td>Italy</td>
<td>144,203.00</td>
</tr>
<tr>
<td>Belgium</td>
<td>120,466.50</td>
</tr>
<tr>
<td>Poland</td>
<td>88,352.90</td>
</tr>
<tr>
<td>Portugal</td>
<td>54,117.70</td>
</tr>
<tr>
<td>Ireland</td>
<td>52,443.30</td>
</tr>
<tr>
<td>Greece</td>
<td>38,536.60</td>
</tr>
<tr>
<td>Germany</td>
<td>23,655.30</td>
</tr>
</tbody>
</table>
Figure 4: UK trade gap for food groups 2014 (37)

(Shoen and Lang 2016, p.16)
Prices likely to rise Post Brexit

- Wholesale fruit and veg prices increased 10% post brexit referendum vote (Fresh Produce Journal July 4th 2016)

- Fruit and veg prices are likely to rise if pound stays weak.

- Consumption likely to go down (see relationship between price and purchase in Family Food Pocketbook (Defra 2015). Poorer likely to eat even less fruit and veg. Health inequalities deepen.
5 a Day Public Health Campaign

2003  39%

2015  32%

% people eating 5 a day
Welsh Health Survey (2016)

Average Consumption is 3 a day
Trends in Fruit Purchases (Family Food Defra 2015)

- Fresh fruit
- Processed fruit and fruit products

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Trends in Veg Purchases (Family Food Defra 2015)

Chart 2.3: UK purchases of fruit and vegetables, 1974 – 2014

- Other fresh vegetables
- Processed vegetables excluding processed potatoes
- Fresh green vegetables

grams per person per week

Food System

Now

Farm Inputs

Production

Processing

Wholesale Distribution

Retail Distribution

Consumer Demand

Nutrient Management

Sustainable Food

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Food System

How it should be

Farm Inputs

Production

Processing

Wholesale Distribution

Retail Distribution

Consumer Demand

Nutrient Management

Sustainable Food

Education

Research

Advice

WG

Public Health

NGOs

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Evidence shows education alone does not work

- NFU (2016) ‘Enabling UK consumers to increase their consumption of fruit and vegetables’ by Cirencester Royal Agricultural University.

- Produce For Better Health Foundation (2012) Behavioural Economics and the Psychology of Fruit and Vegetable Consumption (US).


‘It is clear from the evidence .. that interventions focused on encouraging individuals to change their behaviour with regard to diet and physical activity need to be underpinned by broader, population-level interventions... which aim to make the healthy choice the default choice.’

House of Commons Health Committee 2015
How much fruit and vegetables are available in the UK? (DEFRA 2015)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Tonnes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veg</td>
<td>Home Produce Marketed</td>
<td>2,798,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Imports</td>
<td>2,180,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exports and Re-exports</td>
<td>119,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>4,858,000</td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td>Home Produce Marketed</td>
<td>434,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Imports</td>
<td>3,610,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exports and Re-exports</td>
<td>103,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>3,941,000</td>
<td></td>
</tr>
<tr>
<td>Fresh Fruit and Veg</td>
<td>TOTAL AVAILABLE</td>
<td>8,799,000</td>
<td></td>
</tr>
</tbody>
</table>

![Bar chart showing the availability of fruit and vegetables in the UK, with categories for Home Produce Marketed, Imports, Exports and Re-exports, and Total. The chart shows that the total available is 8,799,000 tonnes.](chart.png)
Home garden/ allotment production

- 60g per week per person (Defra Family Food Pocketbook 2015) (201,542t in total, minus household waste). Compared to the UK F&V requirement of 8.8mt this is a small amount equivalent to less than 3% and so at present does not contribute to overall availability greatly.

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How much F&V is available in the UK?

• Only 58% of the fruit and veg required for health.

There are currently not enough fruit and vegetables available in the UK for the population to meet its requirement. To meet the requirement 11.4mt would need to be purchased given current levels of household waste (22%). There is currently only 8.8mt available post farm and allowing for post farm supply chain losses of 25%, 6.6mt is available.
Wales Fruit and Vegetable Production

Only 1,694 ha out of 1,811,669 ha of agricultural land produces fruit and vegetables = 0.1%

(Welsh Government, 2015)

Enough to supply an Estimated 5% of requirement.
Wales’ Fruit, Vegetables and Potato Production 2007-2014
(Stats from Welsh Agricultural Statistics (Welsh Government 2015))

Hectares

- Potatoes
- Vegetables (other than potatoes) for human consumption
- Orchards and small fruit
- Other horticulture grown in the open
- Area under glass or plastic covered structures
- Total horticulture
- Horticulture plus potatoes

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Wales’ Fruit, Vegetables and Potato Production 1971-2004 (adapted from Welsh Agricultural Statistics and Frost et al (2007))

Note - despite decline in land area yields have increased

Joined EU 1972
Wales’ Fruit, Vegetables and Potato Production (hectares) 1971-2014 (adapted from Welsh Agricultural Statistics and Frost et al (2007))

Thousand Hectares

- Total potatoes
- Total horticulture (excl. mushrooms)
- Vegetables (other than potatoes) for
- Orchards and small fruit
- Total hardy nursery stock plus area under glass or plastic covered structures

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Wales’ Fruit and Veg Requirement

• If a person needs 5 portions of fruit and vegetables a day for health (400g) then their annual requirement is 0.146 tonnes.

• Children over 5 recommended to eat 5 portions though portion sizes are smaller. Currently there is insufficient evidence to support determination of fruit and vegetable portion sizes for children, although The Children’s Food Trust suggests, in their early years setting guide (The School Food Trust 2012), 40g for 1-5 year olds and the England School Food Plan, 2015) suggests 40-60g for primary school ages 6-10 years rising to 80g for 11+ year olds. This can be translated to 40g for 1-7 yr olds 0.074 tonnes, 60g for 8-10 yr olds 0.073 tonnes, 11+ same as adults.
Wales Annual F&V Requirement = 425,691 Tonnes

<table>
<thead>
<tr>
<th></th>
<th>0-1yrs</th>
<th>1-7yrs</th>
<th>8-10yrs</th>
<th>11+yrs</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wales population 2015</td>
<td>33,542</td>
<td>251,719</td>
<td>104,287</td>
<td>2,709,538</td>
<td>3,099,086</td>
</tr>
<tr>
<td>Annual veg recommendation Tonnes (t)</td>
<td>-</td>
<td>0.074</td>
<td>0.110</td>
<td>0.146</td>
<td></td>
</tr>
<tr>
<td>Annual F&amp;V Requirement Tonnes (t)</td>
<td>-</td>
<td>18,627</td>
<td>11,472</td>
<td>395,593</td>
<td>425,691 Tonnes per year</td>
</tr>
</tbody>
</table>
Waste

Average fruit and vegetable wastage (Defra, 2015) is 45%. 20% occurring on farm and 25% in the post farm supply chain.

5.8: Food wasted at each stage of the supply chain\(^9\) in Europe and Russia, 2010

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Plus waste

617,252 Tonnes

What needs to be available to enable requirement to be met after current waste levels?

How much of this could be produced in Wales?
# Land Needed to Meet Fruit and Vegetable Requirement in Wales at 18t/ha

<table>
<thead>
<tr>
<th>Percentage of Fruit and Veg Requirement met</th>
<th>Tonnes needed for 3.1m Welsh pop (plus 45% waste*)</th>
<th>Area of land required at 18t/ha</th>
<th>Percentage of total agricultural land available, 1,811,669ha</th>
<th>Percentage Grade 1-3 land, 345,839ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>620,000</td>
<td>34,444</td>
<td>1.9</td>
<td>10.0</td>
</tr>
<tr>
<td>90%</td>
<td>558,000</td>
<td>31,000</td>
<td>1.7</td>
<td>9.0</td>
</tr>
<tr>
<td>80%</td>
<td>496,000</td>
<td>27,556</td>
<td>1.5</td>
<td>8.0</td>
</tr>
<tr>
<td>70%</td>
<td>434,000</td>
<td>24,111</td>
<td>1.3</td>
<td>7.0</td>
</tr>
<tr>
<td>60%</td>
<td>372,000</td>
<td>20,667</td>
<td>1.1</td>
<td>6.0</td>
</tr>
<tr>
<td>50%</td>
<td>310,000</td>
<td>17,222</td>
<td>1.0</td>
<td>5.0</td>
</tr>
<tr>
<td>40%</td>
<td>248,000</td>
<td>13,778</td>
<td>0.8</td>
<td>4.0</td>
</tr>
<tr>
<td>30%</td>
<td>186,000</td>
<td>10,333</td>
<td>0.6</td>
<td>3.0</td>
</tr>
<tr>
<td>20%</td>
<td>124,000</td>
<td>6,889</td>
<td>0.4</td>
<td>2.0</td>
</tr>
<tr>
<td>10%</td>
<td>62,000</td>
<td>3,444</td>
<td>0.2</td>
<td>1.0</td>
</tr>
<tr>
<td>5%</td>
<td>31,000</td>
<td>1,722</td>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>3%</td>
<td>15,500</td>
<td>861</td>
<td>0.05</td>
<td>0.2</td>
</tr>
<tr>
<td>Current</td>
<td>1,694</td>
<td>1811669</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Reducing waste obviously reduces land requirement

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Welsh Production and Consumption against Fruit and Vegetable Requirement

- Total horticulture (ha)
- Consumption converted to ha
- Fruit and Veg Requirement converted to ha

Graph showing the comparison of total horticulture hectares, consumption converted to hectares, and fruit and veg requirement converted to hectares from 2007 to 2014.
Labour Intensity of Horticulture

Evidence from CSAs would suggest 0.5 jobs per ha as opposed to 0.23 per ha

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Labour

‘The availability of low-wage, unskilled labour is dependent to some degree on continuing migration from the EU and elsewhere. The continuation of farming activities that are reliant on this type of labour (primarily horticulture) will require accepting migration or making those positions more attractive to domestic workers.’

‘Public perceptions of careers in agriculture are low, the existing stock of farm managers is increasingly old, and numbers enrolling in higher education agricultural courses are stagnant. On the bright side, enrolment in further education agricultural learning seems to be trending upwards and the new cohort of learners are predominantly young and female.’

‘Most importantly, the environmental and public health challenges we face in the UK and globally are likely to require more labour-intensive types and methods of farming, at least in the short term. In the long term, even these requirements may be dominated by labour-saving technological progress. There may be additional reasons to create jobs in agriculture, including social policy objectives such as reducing unemployment and rehabilitating people suffering from mental illness.’

Devlin (2016) Agricultural Labour in the UK, FRC Briefing paper
Do increases in production automatically lead to higher consumption?

No
The automatic system guides most of our food decisions

Defaults - we are more likely to passively accept a default, rather than actively choose an alternative.

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Decision making is often non-rational

Consumer behaviour theory now recognises that decision-making is often systematically non-rational. E.g.

1. People are susceptible to persuasion, social pressure, and desires to conform, and often use feelings and intuitions to make decisions

2. People’s ideas about their future, or other people’s, are very much influenced by their current situation

3. Preference for immediate gratification often over ride
Evidence shows
Increased availability can increase intake

NFU Report (2016) ‘Enabling UK consumers to increase their consumption of fruit and vegetables’

Recommendations for Government, Retail, Food Service and Farming and processing sector around 3 main themes—choice architecture, reformulation and information.
Choice Architecture

‘The informational or physical structure of the environment that influences the way in which choices are made.’

Thaler and Sunstein (2008)
Evidence showing what works

Choice Architecture: Food service layout changes

- Increased shelf space for F&V and re-positioning of F&V

Healthy Convenience Shops/ mobile F&V carts

- More vegetable snacking options

Multi component interventions

- Increasing relative availability of fruit and vegetable snacks to unhealthy snacks

- Choice Architecture

Sustained, focused multi-media campaigns

- Variety

Nudging and reinforcing of social norms

- Subsidized fruit and veg

School based interventions work in school but not out of

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‘We need to forget about telling people what to eat and adopt a new narrative of pleasure in relation to healthy food’
Bee Wilson
Production for income or well-being or both?

• NFU Cymru press release 4 July:-

‘While we are currently in a period of uncertainty, the EU Referendum result presents us with a great opportunity to reshape trade and environmental policies and develop an overall Welsh agricultural policy that is fit for purpose, forward thinking and enables us to develop, grow and realise NFU Cymru’s ambition for a productive, progressive and profitable industry that will result in jobs, growth and investment for Wales.’

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Horticulture is too important to public health for it to be for income generation alone
Recommendations

1. Government to adopt new benchmark of production to fruit and vegetable requirement and to commit to increase proportion supplied from home production from 5% to at least 40% (enough to push people up to requirement through a variety of choice architecture changes)
Recommendations

2. Food Industry board (or a new sub horticulture board) to appoint a public health nutritionist.
Recommendations

3. Public health to adopt the language of food pleasure, eat the rainbow etc., and to help drive change in the food environment.
Recommendations

4. Ensure a strong public health and sustainability voice in new horticulture policy development
Recommendations

5. The sustainable food sector to unify into a ‘Wales Sustainable Food Network’. This body to be represented on Food Industry Board/Horticulture Board etc.
6. Develop the ‘Growers of Wales’ brand for small to medium scale producers which would link to Wales Sustainable Food Network and be represented on Food Industry Board/Horticulture Board etc.
Recommendations

7. All work together to deliver the food environment changes needed to actually increase consumption of fruit and vegetables at the same time as growing the industry and contributing to the well-being of future generations.
Cardiff

Growing ‘2 a day’ Together for Future Generations

Multi-stakeholder approach

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References

- DEFRA (2015) Family Food Pocketbook. DEFRA
- Freshfel (European Fresh Produce Association) 2016 UK’s vote to leave and consequences for trade of fruit and veg? Available at http://upload.evocdn.co.uk/fruitnet/uploads/asset_file/2_0_uk-fresh-produce-trade-and-brexit-scenarios.pdf