FEBRUARY 2021

Research report into the nature, contribution, and future of the horticultural sector in West Sussex

UNDERSTANDING THE HORTICULTURAL SECTOR IN WEST SUSSEX

West Sussex Growers' Association

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Table of Contents

ACKNOWLEDGEMENTS

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1. Executive Summary

By Richard Hopkins – WSGA Chair

UK Horticulture is a high productivity industry of high value produce. The industry utilises approximately 2.6% of arable land in the UK, only 1% under protection[1], but generates 20% of farmgate value[2]. Horticulture and agriculture's relative importance is increasing. We see external investors engaging with UK horticulture on large projects and despite Covid-19 throughout 2020, we saw significant growth in infrastructure projects for high-tech glasshouses, upgraded crop lighting and new polytunnels.

The South East of England produces nearly half the country's top fruit and soft fruit. It is home to a quarter of the UK's glasshouses producing protected edibles and ornamentals.[3]

Our survey looks in detail at West Sussex and confirms our region as a powerhouse of high productivity horticulture, which is of strategic importance to the county[4 & 5].

- Approximately £1billion of annual sales
- Direct and indirect GVA of approximately £750m
- Over 10,000 full-time equivalent jobs, comprising 6,500 permanent and 3,500 seasonal

Our survey finds that market demand is growing. Three-quarters of West Sussex growers reported demand rising in their main markets in the last year.

The horticultural growers operate in a competitive and vibrant market and are well positioned to take advantage of the external drivers influencing consumer demand. These same drivers underpin inward investment and should influence local and regional policy makers' willingness to enable sector growth.

FOOD MEGATRENDS

Interest in 'veganism' increased seven-fold in the five years between 2014 and 2019, according to Google trends[6]. The food megatrend towards veganism and animal protein substitution, is both reflected and influenced by companies characterised as "big food". It is a gift for food processors to add value to inexpensive ingredients by packaging them into a meal.

Tesco launched "Plant Chef"[7] in 2019 as an affordable range; it is no longer niche. In 2020 their demand for chilled plant-based meat alternatives increased by almost 50%.[8]

Perhaps never before has so much been invested in vegetable-based food marketing and this is a real opportunity for horticulture and our growers in West Sussex. UBS have forecast through to 2030 and expect that this "food revolution" will see plant-based foods grow 28% annually to $85bn[9] as consumers seek alternative environmentally friendly options.

FOOD (AND FLOWER) MILES

"Home grown" is the message from horticulture, for both ornamentals as well as edibles. Transport is a disproportionally high part of the cost, particularly when part of a cool chain. Socially conscious consumers intuitively know this and seek produce with minimal environmental impact.

[1] DEFRA Horticultural Statistics 2019
[2] Total Income from Farming in the United Kingdom
[3] South East Agricultural Sector Statistics, Strategic Priorities & the Case for Investment, a report for NFU South East by Collison & Associates Ltd.
[4] The future of food 2040
[5] Gatwick 360° The Coast to Capital Strategic Economic Plan 2018-2030
[6] Google Trends - veganism
[7] Affordable' Tesco Plant Chef Vegan Range Wins Major Food Award
[8] Tesco sets ambitious targets for plant-based food sales
[9] UBS The food revolution. The future of food and the challenges we face. July 2019

There is also a short-term opportunity for our growers to capitalise on the new EU import costs and delays at the ports.

FOOD SECURITY

Linked to consumers' desire for local produce is food security. In horticultural terms, food security is not a matter of personal safety or starvation; the risks of an interruption of imported supply for horticultural produce are real but probably temporary. Nonetheless, consumers and media commentators are concerned and frame their argument as a value judgement; why risk importing when it is possible to grow here?

Government statistics indicate that self-sufficiency has declined over the last 30 years. The UK is approximately 61% self-sufficient in all foods and 75% in "indigenous type food"[10]. Much of this is driven by the demands of out-of-season crops. However, this external driver is about capitalising on the consumers' perceived value of home grown, and policy-makers' willingness to satisfy commentators' expectations.

SUSTAINABLE PRODUCTION

Sustainability is a poorly understood concept by consumers (and, it seems, policy makers), but it is a critical value judgement. Sustainability is embraced as a positive consumer influence and an opportunity for West Sussex growers.

There are hard operational and commercial challenges ahead for growers. Defra's target is to phase out peat in commercial horticulture by 2030[11], which might be accelerated. It is imperative that legislators and consumers insist that this prohibition also applies to imported plants. Alternative, responsibly sourced growing media is available, and our local growers have the expertise to excel in producing quality plants.

Plastics form an integral part in growing, handling, packaging and retailing of many plants. There are a multitude of plastic alternatives, recycled and recyclable plastic pots, containers and trays available. The barrier to adoption is cost, rather than suitability. We anticipate consumer pressure will force retailers' hands, but the increased cost must not be passed back to the grower. Most growers have already moved away from the traditional black plastic pots to grey or taupe, but local authorities (including our own) must ensure their recycling depots can accept the new generation of "garden plastics"[12].

WATER

Global warming predictions indicate that the UK may experience longer growing seasons and more suitable conditions for agriculture intensification, whereas in southern Europe productivity will drop[13]. Water will be one of UK horticulture and agriculture's competitive advantages. Sometimes it is in the wrong place, but it is abundant. In West Sussex we have to collect it and store it.

There is no need for horticulture to be in competition for municipal water. Already 88% of our growers practice some sort of rainwater harvesting or use a borehole for some or all of their water. The principal obstacles to improving water sustainability are the bureaucratic burden and restrictions on planning consent for reservoirs and boreholes, even within the Horticultural Development Area[14], and the inconsistent availability of capital grant funding.

[10] Food security: What is it and how is it measured?
[11] A Green Future: Our 25 Year Plan to Improve the Environment
[12] What can I not recycle at home?
[13] European Environment Agency report
[14] Designation of Horticultural Development Area

Our local authorities should seize this as an economic opportunity. The "virtual water trade"[15] will become increasingly important and a competitive advantage for West Sussex. Currently we import huge amounts of produce from countries which are water impoverished. This is iniquitous and inefficient; it takes nearly double the amount of water to grow strawberries in Spain compared to the UK[16].

At the moment, the scarcity of water is not priced into the product. At some point the socially conscious consumer will demand that it is. We should be ready for that.

PHYTOSANITARY CONTROL

This means controlling the risks of importing pests and diseases which could become endemic in UK horticulture, or worse, in the natural environment. This is an area of increasing concern and legislation. At the date of this report, immediately post-Brexit, the operational and compliance burden (for importers and exporters of live plants) has increased significantly and is in urgent need of immediate reform to ensure its effectiveness.

In the medium and long term, the opportunity for West Sussex growers is to scale-up and minimise imports, which also obviates the regulatory burden. This will also satisfy the socially conscious consumer who does not want to be party to importing a devastating disease.

MENTAL HEALTH

This has become a priority concern during the Covid-19 pandemic. The HTA estimate that three million[17] more people became gardeners in 2020, to the benefit of everyone's mental health. All the retailers will work hard to retain as many of these people as possible.

Horticulture is an enduring sector. But it cannot thrive in isolation. The West Sussex horticultural cluster of just over 100 businesses, including many industry leaders, makes a significant economic contribution to the area, particularly in relation to its relatively small size and the land area it occupies.

Over the years, ornamental sales have proven to be recession resistant; consumers will not risk big ticket items but will enjoy improving their homes and gardens inexpensively and without guilt. This is a trend to be exploited by West Sussex growers.

The horticultural sector is technologically advanced, environmentally sustainable, highly innovative and competitive and includes many leading companies. In 2020 some repurposed their pack houses to facilitate online plant sales; such complex handling speaks volumes for their business agility. It supports a large number of jobs, only a third of which are seasonal, and a complex supply chain with strong links to the wider environmental technology and green energy sectors.

Top of our growers' list of concerns are the impact of Brexit, Government policy, skills and labour shortages, and climate change. To thrive, our sector needs to function within an ecosystem which provides local housing for local workers. We need a Home Office which understands that permitting many more seasonal workers is not inimical to its ambitions of controlled immigration. We need planners who actively seek to encourage business growth and sustainability, which will help attract inward investment to the region. Nearly 40% of our members expressed they had difficulty with planning. We need reliable road links, cross county and to the rest of the UK. We need BEIS and Defra to become resolute business enablers, putting our businesses' needs ahead of their administrators'.

The resourceful and resilient growers of West Sussex can handle the rest.

[15] Recognising the value of the water footprint
[16] Irrigation water strategy for UK agriculture and horticulture
[17] HTA Survey Shows Lockdown Created Three Million New Gardeners

2. Introduction

West Sussex Growers' Association (WSGA), a specialist horticultural branch of the NFU, represents the majority of the horticultural industry in the county and provides an effective voice for the local industry, influencing national policy and local economic development together with promoting innovation and good practice.

WSGA relies on robust evidence to carry out its role effectively. In September 2020, WSGA commissioned Simpson Consulting Ltd. to carry out a research and consultation exercise to provide an assessment of the current state of the horticultural industry in West Sussex. The scope of the project is broad and includes the structure, size and characteristics of the industry, its markets and supply chains, the extent of its relationships with stakeholders and field of influence, as well as the challenges and opportunities facing horticultural businesses.

The purpose of the research project and report is to demonstrate the importance of the horticultural industry in West Sussex in terms of its contribution to the local economy and employment, its length of standing and its role in the local community. It is also intended to highlight the key trends and factors driving change both now and in the future. The report will be used to influence policy makers, primarily at local level but also in national government and to reinforce WSGA's position as a source of expert advice. The report summarises the data and information from both primary and secondary research to provide an evidence base for use by WSGA and its partners and may also be used as a prospectus for potential investors seeking opportunities in the area.

3. Methodology and scope

The methodology for the study comprised four main elements:

Stage 1: database development

The first step was to develop a database of local horticultural businesses to provide a broad understanding of the size of the local industry and the extent to which the WSGA membership is representative of it, as well as the percentage of the national industry that is based in West Sussex. Data were drawn from a number of different sources including the Office for National Statistics (ONS), Companies House, one of the main commercial databases and internet searches. None of these sources provides completely accurate information, mainly because the horticultural industry does not align precisely with Standard Industrial Classification (SIC) codes. There are also other issues, for example, head office locations may not be co-located with the site of the main business activity. Nevertheless, there is reason to believe a reasonably accurate mapping has been achieved of around 100 growers in West Sussex, not including vineyards or farms with some horticultural activity.

Stage 2: literature review:

The purpose of the literature review was to gather as much up-to-date information as possible on the horticultural industry and the context in which it operates, how that is likely to change and the opportunities and challenges that it faces. A range of secondary sources was analysed, including WSGA's own reports, industry data, government agricultural, planning and other policy, academic research reports on the horticultural industry and reports on subjects which have a significant impact such as renewable energy, water management and food market trends.

Stage 3: survey and consultation

The aim of the survey and consultation was to gather both quantitative data on the size and value of the horticultural industry in West Sussex and its supply chains as well as to understand the issues facing the industry and the key factors driving change. A total of 29 one-to-one interviews were carried out including 16 interviews with growers and suppliers and 13 interviews with stakeholders in local government, educational institutions and other stakeholder organisations such as Coast to Capital Local Enterprise Partnership and Rural West Sussex Partnership. See Annex B for a list of participating organisations.

This was followed with an on-line survey of businesses which resulted in a further 32 growers and 7 suppliers completing the questionnaire. In total 48 growers responded, representing 47.52% of the estimated 101 growers in our database.

Although this is a very good response rate, because the total number of businesses in our total population is relatively small, this is not a sufficiently large sample to give high statistical confidence levels. For a population of 101 which is our estimate of the West Sussex horticultural industry business population, 92 businesses would have to be included in the sample to give the standard 95% confidence level with a confidence interval of 3. Nevertheless, as we have surveyed nearly half the sector including circa 80% of the major operators, we are confident that the data analysis provides a good representation of the sector, its make-up and the issues and challenges, as well as providing a starting point for estimating key metrics.

For both growers and suppliers, the survey gathered data on turnover and employment, details of supply chains, locations in West Sussex, UK and abroad (if appropriate), water and energy use. The survey also investigated more qualitative areas including respondents' views on trends, issues and challenges, e.g. skills and labour, resources, planning, stakeholder relationships, technology etc. Answers have been anonymised and where information on individual companies is included in the report, it is from publicly available sources e.g. websites and annual reports.

The stakeholder survey was somewhat different in purpose as it was aimed at understanding the *perceptions* of stakeholders in relation to the horticultural industry in West Sussex, rather than trying to gather statistically accurate data. It included stakeholders' views on the horticultural industry's economic and employment contribution, its place in the local community and the issues and challenges facing it, as well as the strength of horticultural industry and stakeholder relationships or cluster embeddedness.

Stage 4: analysis, synthesis and reporting

The results from stages 1 to 3 were analysed and synthesised to produce the results in this report in the following chapters covering:

- A supply side analysis including a detailed description and analysis of the horticultural industry in West Sussex, its structure, size and characteristics
- A market or demand side analysis: the customers and markets for the West Sussex horticultural businesses
- An examination of the degree of cluster effects and the importance of the industry locally including economic and employment contribution and embeddedness with local institutions
- Major change drivers and trends: an examination of future developments, political, environmental, social and technological and the implications for the local industry over the short, medium and long term (20 years)
- Opportunities and challenges for the horticulture industry, barriers to growth and what can be done to address them
- Conclusions and recommendations for the future
- Annexes

4. The horticultural industry in the UK

The national context

Horticulture is defined by the National Farmers' Union (NFU) as: "the growing of vegetables, fruit, flowers, salad crops and nursery stock". The total value of the UK horticultural industry was £3.775bn in 2019 of which field vegetables accounted for £1.146bn, protected vegetables made up £0.335bn while fruit accounted for £0.875bn and ornamentals were the most valuable at £1.4bn[18] according to Defra, although this is likely to be an underestimate, particularly in relation to protected vegetables. The top 20 glasshouse salad producers alone have a combined turnover of £660m according to Horticulture Week. Figure 1

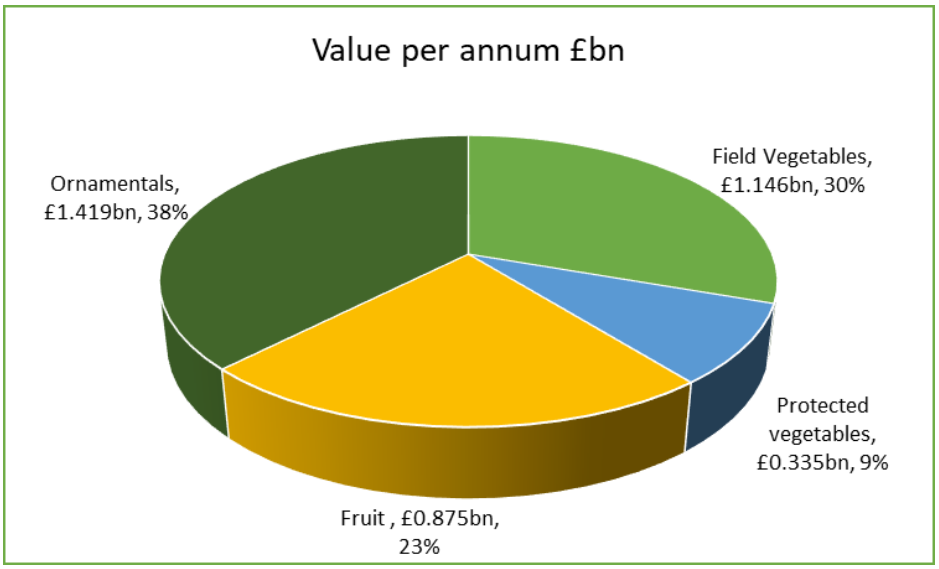

Figure 1: Value of the UK horticultural industry in 2019 £bn
Source: Horticulture statistics Defra 2019

Nationally, values have increased while production has decreased since 2015. Production is subject to the effects of bad weather and more variable climatic conditions as well as the availability of labour and other factors such as for example, wastage due to insect attack, while value is influenced by supply and demand factors. Given the emphasis on national food security, declining production may be an issue. Table 1

Crop category	Production Change 2015-19	Value Change 2015-19
Field vegetables	-1.8%	3.5%
Protected vegetables	-2%	5.1%
Fruit	-6.5%	9.7%
Ornamentals	Not available	2.7%

Table 1: Percentage change by value and production 2015 to 2019
Source: Horticulture Statistics 2019 Defra

National data show a total of 151,322 hectares of fruit and vegetables in the UK under horticultural cultivation in 2019.[19], a decrease of just over 3% since 2010. Within the overall figure, protected fruit and vegetable hectarage has increased by a factor of over 140% from 920 to 2,217 although this is still a relatively small percentage of just under 1.5% of the total.

[18] Horticulture Statistics 2019 Defra
[19] Ibid

Fruit grown in the open has also increased, whereas field vegetables have decreased nationally. (The planted area for ornamentals is not available after 2004 and has not been included.) Figure 2

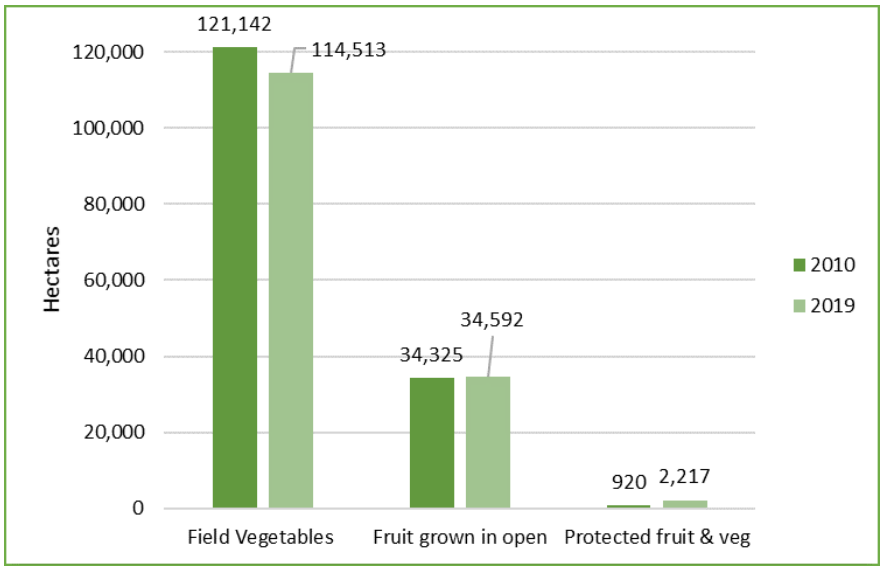

Figure 2: Horticulture planted area in the UK 2010 and 2019
Source: Horticulture statistics 2019 Defra

Trade

The UK operates a sizable trade deficit in fruit and vegetables with imports valued at £6.419bn in 2019 and exports totalled just £0.283bn a difference of over 2,000%. Similarly, in volume terms imports totalled 5,945,000 tonnes while UK exports of fruit and vegetables totalled 303,000 tonnes in 2019, a difference of 1,862%. Spain is by far the largest source of fruit and vegetable imports to the UK and accounted for 31% of the vegetable imports and 19% of the fruit imports by value in 2019. Table 2, Figure 3 and Figure 4

UK vegetable imports		UK fruit imports	
Country	**Percentage of value**	**Country**	**Percentage of value**
Spain	31.0	Spain	19.00
Netherlands	26.0	South Africa	10.00
Irish republic	5.1	Netherlands	6.50
Germany	5.0	Costa Rica	5.80
Poland	4.7	Chile	5.80

Table 2: Fruit and vegetable imports by country to the UK 2019, percentage of total value:
Source: Horticulture statistics 2019 Defra

The three key imported vegetables to the UK in 2019 were onions, tomatoes and sweet peppers. The majority of onion, tomatoes and sweet pepper imports came from Spain and the Netherlands while the Irish Republic accounted for over half the mushroom imports. The three key imported fruit to the UK in 2019 were bananas (Colombia and Costa Rica), grapes (South Africa and Spain) and apples (France and South Africa). The key fruit imported from Spain were raspberries, strawberries and grapes and from South Africa, grapes and apples.

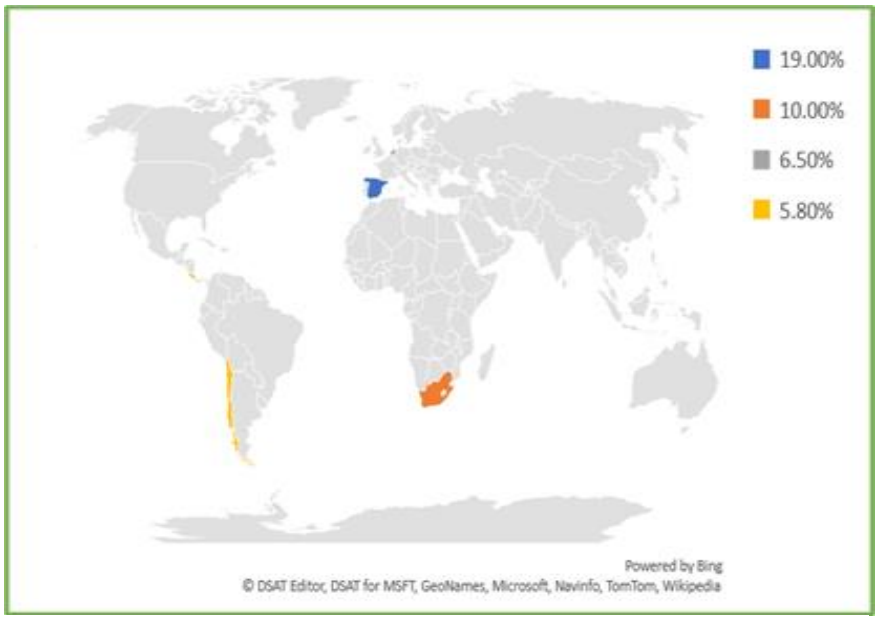

Figure 4: Fruit imports by country to the UK 2019, percentage of total value: Source: Horticulture statistics 2019 Defra

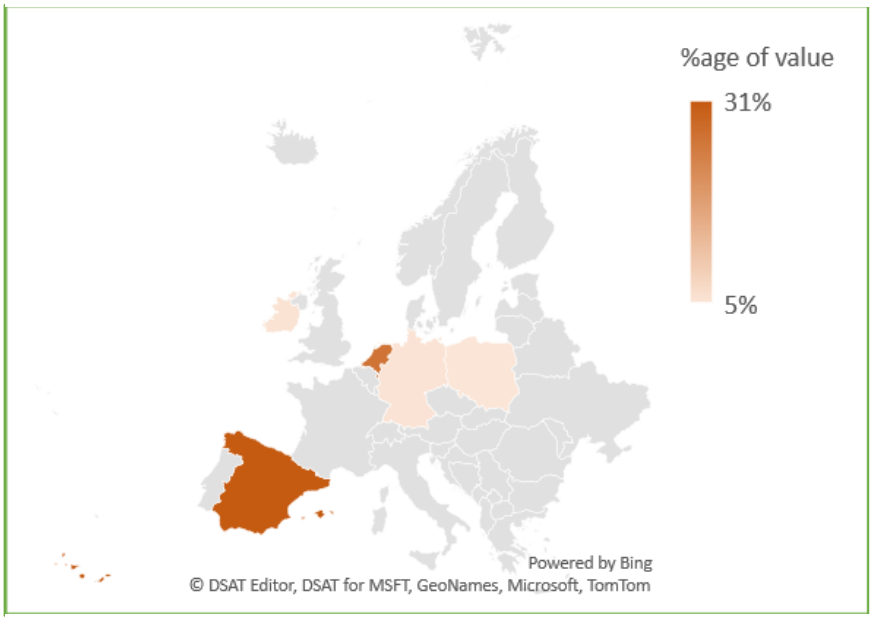

Figure 3: Vegetable imports by country to the UK 2019, percentage of total value: Source: Horticulture statistics 2019 Defra

Value of horticulture to the UK

There is a range of estimates of the national economic contribution of horticulture, depending on the definition of horticulture that is used. The Defra statistic of £3.775bn (farm gate value) in 2019 includes all field vegetables which is broader than our definition (See Appendix A) but probably underestimates the value of protected crops. Oxford Economics[20] estimates that horticulture was worth £24.2bn in 2017 but their sectoral definition is very much broader and includes landscaping, manufacture of garden-focused goods and equipment and household expenditure on garden goods. The Rural Business Research Unit at the University of Reading puts the economic contribution at a more modest £3.525bn in 2018[21], closer to the Defra estimate but which also includes total field vegetable production.

[20] The economic impact of horticulture and landscaping in the UK Oct 18 Oxford Economics
[21] Horticulture production in England 2017/18 RBR University of Reading

5. The West Sussex horticultural industry

This chapter provides an assessment of the horticultural industry in West Sussex (the supply side). The evidence is drawn from the survey and consultation, official statistics and published reports as well as WSGA's own information. This chapter covers:

- History
- Business population
- Turnover
- GVA, direct and indirect
- Employment
- Business locations
- Land area and crops
- Technology and resources
- Supply chains
- Business models

Key points in this chapter

- Horticulture has been an important industry in West Sussex for at least 150 years due to the fertile soil, high light levels, mild maritime climate and access to markets
- The horticultural industry contains approximately 101 growers in West Sussex, not including suppliers or viticulture businesses
- Although business numbers are relatively small, the economic and employment contributions of the horticultural industry are considerable
- West Sussex horticultural businesses have a minimum combined turnover of £0.965bn per annum
- The GVA of the West Sussex horticultural industry is estimated at £328.98m per annum and the total direct and indirect GVA at £721.6m
- The West Sussex horticultural industry's turnover is equivalent to circa 23.01% of UK horticultural industry value although it makes up just 7% of the national horticultural business population
- The West Sussex horticultural industry provides at least 6,573 evidenced, permanent Full Time Equivalent (FTE) jobs and an estimated 10,109 FTEs including seasonal workers of which 3,515 (35%) are seasonal, allowing for the companies who did not take part in the survey
- There are a minimum 3,940 hectares under horticultural cultivation in West Sussex, making up 3.41% of total farmed area, 10% of potential horticultural land and less than 2% of total land area in West Sussex
- In West Sussex, at least 259 hectares of horticultural land are under glass and a further 324 are under polytunnel
- West Sussex horticultural hectarage accounts for approximately 8.3% of national horticultural land

History of the horticultural industry in West Sussex

West Sussex, and particularly the coastal strip from Chichester to Arundel, has been the centre of a vibrant horticultural industry since at least the mid-19th century. By 1865, nursery gardens around Worthing produced flowers and hot-house grapes and sent fruit and vegetables to the London and Brighton markets early in the season[22]. By 1896 there were numerous glasshouses around Worthing which was described in 1899 as a 'town of hot-houses'[23].

[22] A history of the county of Sussex
[23] Journal of the Royal Agricultural Society 3rd Series No 84

Pioneers of large-scale glasshouse production in the area were C.A. Elliott, operating in Broadwater from 1862, who is said to have used glass from the Great Exhibition of 1851 for glasshouses for grape cultivation. Important factors in the area's success included the fertile soil of the coastal plain, the high light levels, particularly in winter, the mild maritime climate which helped produce to be ready earlier than in London and access to fast transport by train.

The growth of the coastal towns, following the coming of the railway, was also a factor in the early success of West Sussex horticulture, providing labour and manure, both vital resources for the industry. Then, as now, new technology was adopted early to build large glass houses, maximise light and grow crops normally associated with produce from abroad.

The same advantages have enabled the horticultural industry to continue to thrive in West Sussex. The NFU highlights the importance of horticulture in the South East and notes the "sophisticated glasshouses of the West Sussex coast". Following in the footsteps of the early pioneers, many of today's horticultural businesses are leaders in adopting and applying new technology and efficient use of resources.

It should be noted that the same population growth, which once propelled growth, now incentivises the sale of horticultural land for housing, often fulfilling local authorities' statutory provision. This highlights the importance of the local Horticultural Development Areas[24] and that appropriate planning applications must be expedited.

The importance of the West Sussex horticultural industry

The main metrics for assessing the economic importance of an industry are:

- Business numbers of total business population in a given area
- Economic contribution: turnover and GVA (Direct and indirect)
- Employment

All three need to be considered together as business numbers may be small but economic contribution and/or employment may be large while the converse may be true. In the case of the West Sussex horticultural industry, although business numbers are small, the economic and employment contributions are considerable as this chapter demonstrates.

West Sussex horticultural business numbers

This section describes the method by which we have arrived at our assessment of business numbers. Accurately assessing the number of horticultural businesses in West Sussex presents a number of challenges. Although it is relatively easy to define horticulture (see Annex A: industry definitions) the main statistical classification system for industries, using Standard Industrial Classification (SIC) codes, does not align precisely with the industry's own definitions. We have used the SIC codes in Annex A in analysing data from the official statistics while interpreting the results with the proviso that these are estimates and not definitive data.

As well as the lack of precise alignment between the SIC codes and the business activities, businesses may not always use the correct SIC codes when filling in official returns or they may record themselves under another activity, for example, mixed farms may have some horticulture but will record themselves as cereal growers if cereals form the larger part of their business. They will therefore not be included in our statistics. Conversely, some of the SIC codes are broader than our categories e.g. *SIC 01130*: *Growing of vegetables and melons, roots and tubers,* includes spinach and shallots, both of which would be included in our definition of horticulture, but SIC 01130 also includes potatoes which would not be included in our definition as it is farming rather than a horticultural crop. Additionally, the official ONS statistics include only VAT and/or PAYE registered businesses so that very small operators will not be included or those businesses that operate under a different legal structure, for example partnerships.

[24] Designation of Horticultural Development Area

With these provisos, the analysis of the ONS UK Business Counts data shows a total of 290 businesses in West Sussex in 2019 using the horticultural industry SIC codes in Annex A: industry definitions. The majority of the horticultural industry is in Chichester local authority district which has 125 Vat and/or PAYE registered businesses followed by Horsham with 60, Mid Sussex with 55 and Arun with 45.

However, these figures are inflated by the inclusion of non-horticultural businesses, particularly in *01130 : Growing of vegetables and melons, roots and tubers* where the figure of 160 businesses in this category is undoubtedly an overestimate. Conversely, this analysis does not include SIC code *01110: Growing of cereals (except rice), leguminous crops and oil seeds* under which ONS UK Business Counts shows a further 210 businesses in West Sussex. Although the majority of these are likely to be arable farms (see Defra statistics below), several WSGA members are recorded under this SIC code in the Companies House data so it will include some horticultural businesses. SIC 01110 may also be likely to include mixed farming and horticultural operations.

Given that the official statistics tending to include a large number of businesses that would be excluded from our stringent definition of the horticultural industry, we have produced a database of companies that is as accurate and specific as possible, combining a search using a commercial database and a search of registered businesses at Companies House. This has then been cross checked with an on-line business directory and the data sorted, cleaned and finally combined with WSGA's database of members. This method shows 112 companies in the horticultural industry in West Sussex. Because these are identified and qualified companies, we have used this figure as our baseline for the industry in West Sussex.

Using this baseline, approximately 59% of the local industry is represented by the WSGA as 66 of the 112 of the companies in the database are WSGA members. WSGA represents the majority of the larger companies, including a number of groups comprising more than one company, so its "market reach" is even higher in terms of value and employment in the industry than its percentage of the business population might suggest. A point to note is that the WSGA membership list includes some suppliers, manufacturers, consultants, vineyards etc. who were not included in our survey of growers so to adjust for this we have used the figure of 101 as our baseline for estimating the size of the growers subsector of the horticultural industry in West Sussex.

Percentage of national business population

A study by the University of Reading's Rural Business Research Unit, based on Defra's Farm Survey data[25] estimates the England horticultural business population at 2,752. However, this includes field vegetable growers of crops such as potatoes, carrots and other roots as well as onions etc. who make up a large percentage of the "other horticulture" sub sector in their study which we have not included in our definition. Therefore, allowing for this we have estimated the UK horticultural business population at 1,554 which means that the West Sussex businesses on our database (101) make up just over 7% of the business population in numerical terms.

[25] Farm Business Survey 2017/18 Horticulture Production in England: Rural Business Research, University of Reading

Turnover

In our survey, growers were asked what annual turnover band the West Sussex part of their business fell into. Those who operated abroad as well as in West Sussex had the greatest numbers of businesses in the highest turnover category of over £10m, whereas West Sussex only businesses were distributed across the turnover brackets with relatively few in the very largest turnover bracket of over £10m. NB Turnover relates to turnover in West Sussex part of the business only in all cases. Figure 5

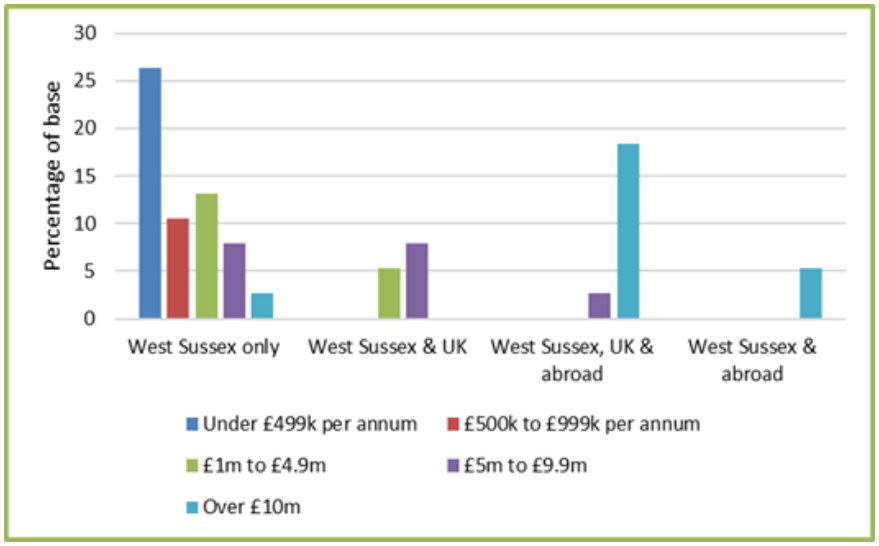

Figure 5: Turnover in West Sussex by business location type and by annual turnover band
Source WSGA Growers Survey November 2020
Base: 38

Our conservative estimates, based on survey data and publicly available figures from company accounts of larger businesses together with an estimate for the 60 smaller businesses where information is not available are that the horticultural businesses generate a minimum annual turnover of £0.965bn in West Sussex. Table 3

Source	£ per annum
Known turnover from survey and company accounts and other public information (41 businesses)	**£814.55m**
Estimate of smaller companies' turnover using median smaller company TO from survey £2.5m multiplied by 60 businesses in database not included in above.	**£150m**
Total	**£964.55m**

Table 3: Annual turnover of the horticultural businesses in West Sussex with estimate for non-survey Participants
Source: WSGA growers' survey, annual accounts and other publicly available information

Percentage of national industry output

The UK horticultural industry was valued at £3.525bn in 2018[26]. The calculation is based on farm gate prices which according to Defra are derived from wholesale market prices with several factors applied to derive an approximate farm-gate value[27]. Our calculations of the value of the West Sussex horticultural industry are based on known turnover figures which are not strictly comparable to farm gate price-based values as they may include other products. However, with this caveat, the combined turnover of the West Sussex industry is equal to 23.1% of the total UK horticultural industry output, not including our estimate of turnover for the smaller companies.

[26] Farm Business Survey 2017/18 Horticulture Production in England: Rural Business Research,University of Reading
[27] Horticultural statistics – metadata Defra

GVA

We have used Gross Value Added (GVA) to estimate the output of the horticultural industry using the production approach i.e. turnover minus intermediate consumption which is the total purchases of energy, goods, materials and services that are consumed as inputs by the process of production.

Good quality data for the larger companies was generally supplied during one-to-one interviews and/or through analysing company accounts and other publicly available information. Intermediate consumption ranged from 42% to 73% of company turnover but total GVA for the large company sector was just over 35%. For smaller companies in the survey, the GVA percentage of turnover was 32%. The agriculture sector as a whole produced £23.85bn in 2017 and generated £8.46bn GVA, 35% of total revenues[28] which seems to support our calculation.

In calculating the GVA contribution of the smaller companies not covered by the survey or who have not supplied financial information we have applied a lower GVA of 30% to allow for the fact that smaller companies are generally less productive than larger ones as they do not benefit from the same economies of scale or purchasing power.

The total direct GVA produced on the West Sussex horticultural industry turnover of £0.965bn is £328.98 million in 2019/20 or 34% according to our calculations. Table 4

Data source	Turnover £mil	Intermediate consumption £mil	GVA £mil	GVA %age of turnover
Large companies in survey	£643.95m	£414.57m	£229.38m	35%
Smaller companies in survey	£170.6m	£116.0m	£54.6m	32%
Estimate of companies on database not included in the survey	£150m	£105.0m	£45.0m	30%
Total	**£964.55m**	**£635.57m**	**£328.98m**	**34%**

Table 4: Direct GVA from the horticultural industry in West Sussex 2019/20 with estimate for non-survey participants
Source: WSGA growers' survey, annual accounts and other publicly available information

The Type 1 multiplier for Agricultural GVA is 2.2. Applying this means that the combined direct and indirect GVA is likely to be in the region in the region of £721.6m per annum.

Employment

Employment is difficult to calculate accurately for the horticultural sector, not only because the workforce includes a high percentage of temporary and contract workers, but also because the official statistics from ONS through the Business Register and Employment Survey (BRES) are available only for 2 digit SIC level and do not allow for analysis of horticulture according to the industry definition in Appendix A. The ONS also makes the point that BRES tends to underreport the agricultural sector as the reference data for the survey is in September and is not seasonally adjusted, so it will tend not to capture seasonal workers. BRES gives a figure of 7,300 West Sussex employees in Agriculture[29] in 2019.

Analysis of the data from our survey sample with additional information from annual accounts and other published information shows that there are a minimum of 4,214 permanent Full Time Employee equivalents (FTEs) and a further 2,359 seasonal FTEs in the horticultural industry in West Sussex giving a total of 6,573 FTE jobs in total. At least a third (36%) of the horticultural workforce in West Sussex is seasonal. Extrapolating from our sample, we apply the same methodology we applied to turnover and an estimate for the smaller companies on the database which did not complete the survey.

This results in a figure of 6,594 permanent FTEs and a further 3,515 seasonal employees in total per annum or 10,109. Table 5

[28] Contributions of UK Agriculture February 2017 Development Economics
[29] SIC 01 : Crop and animal production, hunting and related service activities

Data source	Permanent FTEs	Seasonal FTEs	Total
1. Known employment from survey, company documents and other public information (41 businesses)	4,214	2,359	6,573
2. Estimate of smaller companies' employment applying median smaller company employment no.s from survey 35/17 multiplied by 68 small businesses in database not included in 1.	2,380	1,156	3,536
Total	**6,594**	**3,515**	**10,109**

Table 5: Permanent and seasonal employment in the horticultural workforce in West Sussex per annum with estimate for non-survey participants
Source: WSGA growers' survey, annual accounts and other publicly available information

Our conclusion is that, although horticulture businesses made up just over 8% of the total agricultural business population of 1,340 in 2019[30], the horticultural sector is providing a very significant amount of agricultural employment. Seasonality

There was little commonality among respondents who replied to this question on when their main seasons for taking on seasonal workers started and finished. The most popular starting months were February and March and the month with the most overlap when demand is likely to be highest was June. (It should be noted that the base is small as only 15 on-line respondents answered this question which was not included in the one-to-one interviews.) Table 6

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Table 6: Main seasons when headcount has increased
Source: WSGA Growers' Survey November 2020
Base 16
** Each row represents one respondent's season*

[30] ONS UK Business Counts (Enterprises) 2020

Business locations

According to the database, West Sussex horticultural growers are concentrated in five of the seven local authorities in West Sussex. The majority are in Chichester District (43%), followed by Horsham Borough (24%), and Arun District (18%). There are small percentages in Mid Sussex District (8%) and Worthing Borough (7%). This is based on numbers of businesses, not land area although the larger businesses also tend to concentrate along the coastal plain in Chichester and Arun. Figure 6

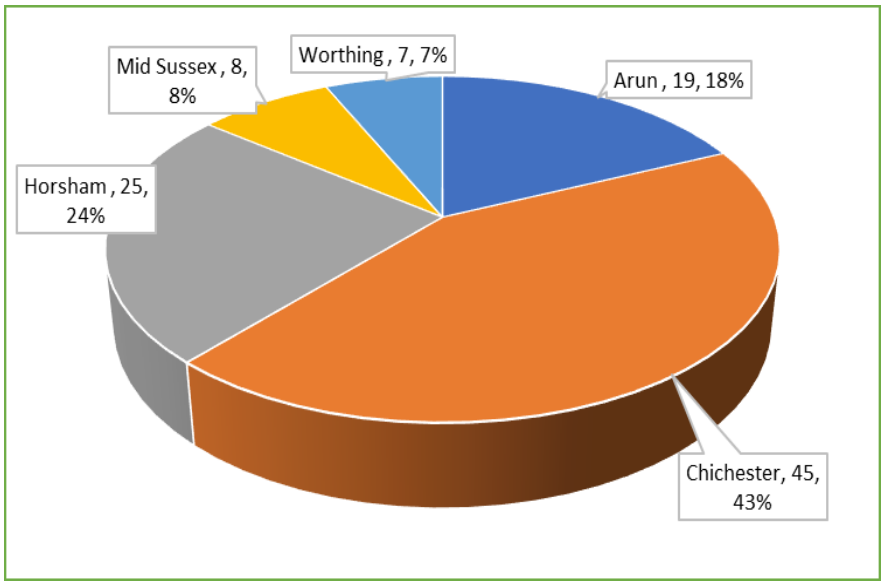

Figure 6: Location of horticultural growers by local authority district
Source: WSGA database (drawn from Companies House, commercial and other sources including membership lists)

The majority of growers responding to our survey operated only in West Sussex (56% of respondents) while just under 20% operated elsewhere in the UK and abroad as well as in West Sussex. A further 13% operated in West Sussex and elsewhere in the UK but not abroad. The remainder (7%) operated in West Sussex and abroad. Figure 7

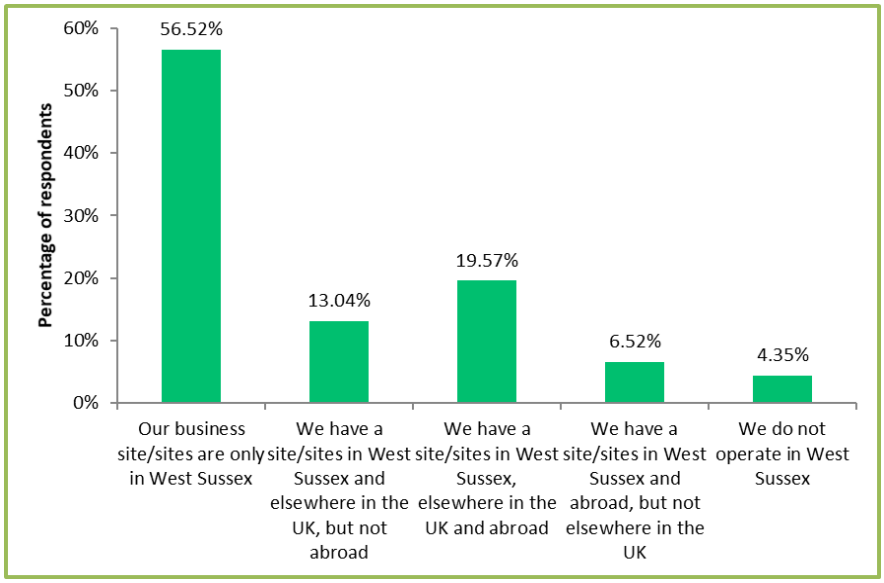

Figure 7: Location of business operations
Source: WSGA Growers survey November 2020
Base 46

Land area

In West Sussex, the total land area under cultivation by our survey respondents and other known areas from larger growers is 3,940 hectares equivalent to 7,360 football fields. To put this into a different context, horticulture takes up just under 2% of West Sussex's total land area of 1,991 square kilometres or 199,100 hectares.

The majority of horticultural land in West Sussex (85% or 3,357 hectares) is unprotected, followed by land under polytunnel which makes up 8% of the total land area or 324 hectares. Crops under glass account for the smallest percentage of land area with 259 hectares or 7% of total land under horticultural cultivation in West Sussex. Figure 8

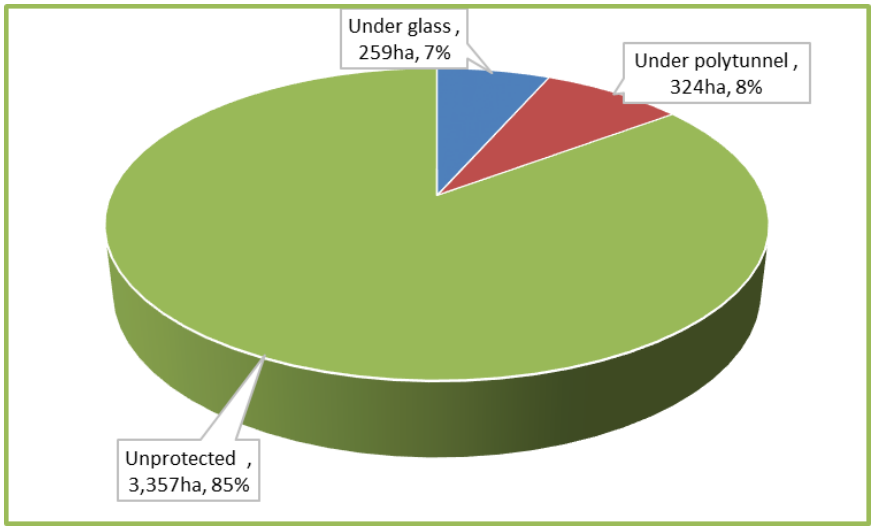

Figure 8: Hectares under horticultural cultivation in West Sussex by type of crop protection
Source: WSGA Growers survey November 2020
Base: 40

The survey assigned grower respondents into one of four categories according to where they had operations:

- West Sussex only; or
- West Sussex and elsewhere in the UK; or
- West Sussex, the UK and abroad; or
- West Sussex and abroad.

In calculating hectarage, we have also researched the hectarage of larger growers who did not take part in our survey and included their results in our figures. Our calculation does not include the smaller growers who are not WSGA members as well as members who did not take part in the survey so this is a conservative estimate.

Among growers who operate in West Sussex only, the majority of their hectarage is under glass. The growers who operate in West Sussex, the UK and abroad have the greatest total hectarage in West Sussex, although not the greatest hectarage under glass or polytunnel. Their high unprotected hectarage is due to the presence of two growers in particular. Table 7.

Business location type	Hectares under glass in West Sussex	Hectares under polytunnel in West Sussex	Hectares unprotected in West Sussex	Total hectarage in West Sussex
West Sussex only	53.4	16.2	40.8	110.3
West Sussex & UK	25.2	1.0	655.0	681.2
West Sussex, UK & abroad	65.5	18.0	2,593	2,676.5
West Sussex & abroad	80.0	120.0	60.0	260.0
Other large growers	35.00	169.0	8.0	212.0
Total hectares	**259.1**	**324.2**	**3,356.8**	**3,940**
Percentage	*6.58%*	*8.23%*	*85.20%*	*100%*

Table 7: Horticultural hectarage in West Sussex by business location type and by protection category
Source WSGA Growers Survey November 2020
Base: 40

Percentage of national land area

The study of UK horticulture carried out by the Rural Business Research Unit at Reading University[31] estimates the total horticultural land area in the UK at 163,151 hectares in 2018. However, this includes all outdoor field vegetables which account for 71% of land area (115,938 hectares) and which includes carrots, potatoes and other roots, onions and brassicas which we have generally excluded from our definition. Therefore, of the remaining 29% or 47,213, the West Sussex horticultural industry occupies just under 8.34% at a conservative estimate. Table 8

Crop Type	Ha	Percentage
Glasshouse fruit	245	0.15
Protected vegetables	803	0.49
Outdoor non-edibles	11,673	7.15
Field vegetables	115,938	71.06
Orchard Fruit	23,930	14.67
Soft Fruit	10,562	6.47
TOTAL	**163,151**	**100**

Table 8: Area of outdoor and protected crops in the UK in 2017
Source: Farm Business Survey 2017/18 Horticulture Production in England: Rural Business Research, University of Reading
** The area of crops refers to total area which for some crops will be for more than one crop due to multiple cropping*

Horticulture as a percentage of farmed area

According to the Defra Farm Survey statistics[32] the total farmed area in West Sussex was 111,549 hectares in 2016, the latest year for which local authority level data is available. Defra's farm survey is compulsory for commercial holdings so provides a fairly complete picture of the whole of agriculture. and means that horticulture accounts for 3.41% of total farmland.

[31] Farm Business Survey 2017/18 Horticulture Production in England: Rural Business Research, University of Reading
[32] Structure of the Agriculture Industry in England Defra

According to the Defra survey analysed by land use, 48% of the hectarage in West Sussex is grassland while just 1% is fruit and vegetables with a further 11% used for arable crops 23% for cereals and 17% for other purposes. Figure 9

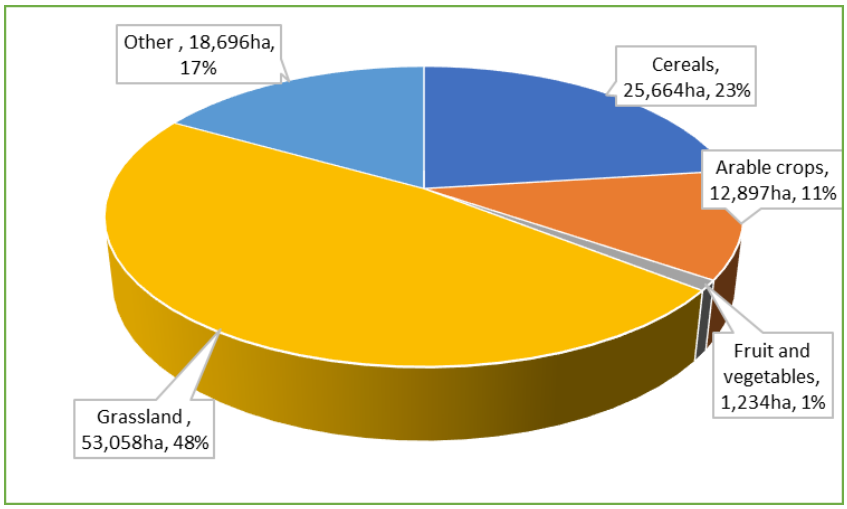

Figure 9: Total land use in West Sussex by type of agricultural holding
Source: Structure of the agricultural industry in England Defra

Together, the fruit and vegetables land area of 1,234 hectares, the arable crops area of 12,897 hectares and the cereals area of 25,664 hectares constitute 39,775 hectares in total of which horticulture will form a percentage. This means that horticulture at 3,940 hectares occupies just under 10% of the potential horticultural land in West Sussex.

The stakeholder survey revealed that a number of stakeholders were concerned about the competition for land from the horticultural sector with, for example, land for housing. However, the perception that it takes up a large amount of land is not altogether fair when it occupies just under 10% of the arable land and under 2% of West Sussex's total land area. The perception may have arisen, at least in part, because of the visibility of the high-tech glasshouses.

Crops

According to the SIC codes under which businesses on our database are registered, the largest number of businesses (38% or 43) are involved in *Plant propagation*. *Growing of vegetables* is second with 17 or just over 15% of businesses, although vegetables are also included under other SIC codes such as *Growing of other non-perennial* crops and *Growing of other perennial crops* which include a further 16 businesses or 14% of the total. Table 9

As highlighted earlier in this report, these SIC codes do not align neatly with the crop categories we have used for our survey analysis. However, there is a broad alignment between the percentage results when SIC codes are grouped together as above. Therefore, we can be reasonably confident that our survey results are representative of the industry as a whole.

According to our database, the horticultural industry in West Sussex is made up as following when analysed by the SIC codes under which businesses are registered at Companies House. Table 9

SIC code	Description	No. of businesses	percentage of total
01300	Plant propagation	43	38.39
01130	Growing of vegetables and melons, roots and tubers	17	15.18
01190	Growing of other non-perennial crops	11	9.82
01110	Growing of cereals (except rice), leguminous crops and oil seeds	5	4.46
02300	Post harvest crop activities	5	4.46
01290	Growing of other perennial crops	4	3.57
01210	Growing of grapes	2	1.80
01240	Growing of pome fruits and stone fruits	2	1.80
43999	Other specialised construction activities not elsewhere classified	2	1.80
82990	Other business support service activities not elsewhere classified	2	1.80
01230	Growing of citrus fruits	1	0.89
01250	Growing of other tree and bush fruits and nuts	1	0.89
01280	Growing of spices, aromatic, drug and pharmaceutical crops	1	0.89
01610	Support activities for crop production	1	0.89
01630	Post-harvest crop activities	1	0.89
10390	Other processing and preserving of fruit and vegetables	1	0.89
32990	Other manufacturing not elsewhere classified	1	0.89
38210	Treatment and disposal of non-hazardous waste	1	0.89
46750	Wholesale of chemical products	1	0.89
64201	Activities of agricultural holding companies	1	0.89
70229	Management consultancy activities other than financial management	1	0.89
81300	Landscape service activities	1	0.89
85590	Other education not elsewhere classified	1	0.89
	Not classified	6	5.35
	Total	**112**	**100**

Table 9: Make up of the horticultural industry in West Sussex by 5 digit SIC code
Source: WSGA updated database combining membership, Companies House and commercial data

Survey respondents were asked which crops they grew. The most frequently selected category of crops grown was *Protected ornamentals* which are grown by nearly 40% followed by *Protected edibles* which are grown by just over 35% of respondents. *Outdoor edibles* are the third most popular and grown by just under 21% of respondents. Figure 10 and Table 10

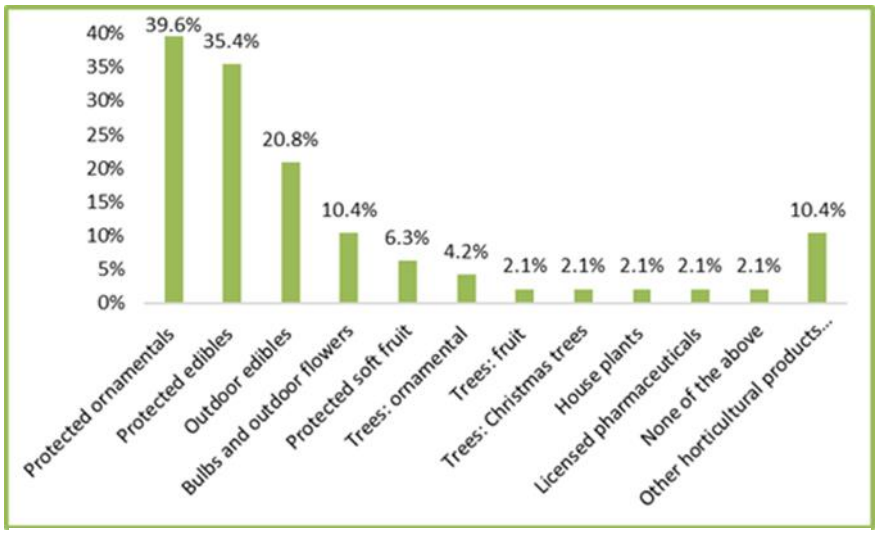

Figure 10: Crops grown in West Sussex by percentage of respondents .
Source: WSGA Growers survey November 2020
Base: 48

Answer choices	percentage of responses
Protected ornamentals (e.g. bedding plants etc.)	39.58
Protected edibles (e.g. herbs, salads, leafy vegetables, other protected vegetables, mushrooms etc	35.42
Outdoor edibles (e.g. outdoor salads, leafy vegetables, other outdoor vegetables. NOT including potatoes or cereals such as wheat, barley or oats)	20.83
Bulbs and outdoor flowers	10.42
Protected soft fruit (e.g. strawberries, cane fruit, berry fruit etc.)	6.25
Trees: ornamental, fruit and specimen trees	4.17
Trees: fruit (e.g. top fruit, apples, pears, cherries etc.)	2.08
Trees: Christmas trees	2.08
House plants (e.g. poinsettias, orchids, pot plants etc.)	2.08
Licensed pharmaceuticals (e.g. medical cannabis, poppies etc.)	2.08
Other alternative crops (e.g. borage, hemp, camelina, echium, calendula, lunaria etc.)	0.00
Viticulture growing and harvesting of grapes	0.00
None of the above	2.08
Other horticultural products (please specify)	10.42

Table 10: Percentage of respondents selecting each horticultural crop category as their main crop
Source: WSGA Growers survey November 2020
Base: 48

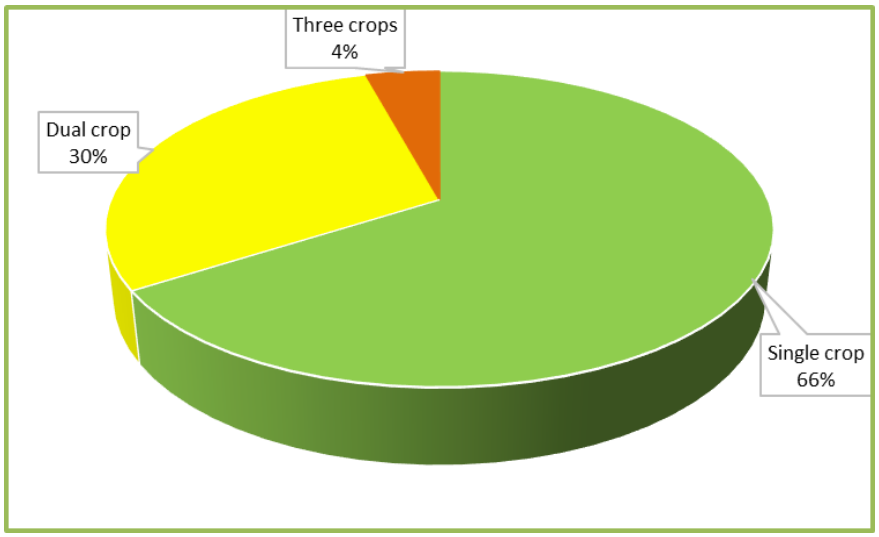

Figure 11: Percentage of growers by number of crops grown in West Sussex
Source: WSGA Growers survey November 2020
Base: 47

Further analysis of the data shows that almost exactly two thirds of growers (65.69%) specialise in a single category of crop, 29.79% grow two categories of crop, while only a small minority, (4.26%), grow three categories of crop. Figure 11

Of the two thirds of growers who specialise in a single crop category the majority, 21.28%, grow *Protected ornamentals*, followed by *Protected edibles* (19.15%) and *Outdoor edibles* (8.51%). Together, growers of these three crop types account for nearly half (49.30%) of all our survey respondents. Table 11

Single crop category	percentage of all growers
Protected ornamentals	21.28
Protected edibles	19.15
Outdoor edibles	8.51
Protected soft fruit	6.38
Bulbs and outdoor flowers	2.13
Trees: ornamental	2.13
Trees: Christmas trees	2.13
Licensed pharmaceuticals	2.13
Other horticultural products	2.13
Total	65.96

Table 11: Single crop growers: Percentage by type of crop
Source: WSGA Growers survey November 2020
Base: 47

Among those who grow more than one category of crop, the largest group is those who grow both *Protected edibles* and *Outdoor edibles*. If these are combined with single growers of *Protected edibles* and Outdoor edibles in Table 11, (27.66% together), growers of edibles make up 36.17% of all growers and 42.56% if growers of *Protected edibles* and *Outdoor edibles* plus one other crop are also included. Table 12

More than one crop category	percentage of all growers
Protected edibles + outdoor edibles	8.51
Protected ornamentals + Bulbs & outdoor flowers	6.38
Protected ornamentals + Trees: ornamental, fruit & specimen	4.26
Protected ornamentals + Other (hardy nursery stock, protected and outdoor)	2.13
Protected ornamentals + Other (hardy nursery stock, perennials + shrubs)	2.13
Protected ornamentals + House plants	2.13
Protected ornamentals + Other (protected nursery stock)	2.13
Protected edibles + Bulbs & outdoor flowers + Other (hardy nursery stock - protected perennials)	2.13
Protected edibles + Outdoor edibles + Trees: fruit	2.13
Protected edibles + Outdoor edibles + Protected ornamentals	2.13
Total	34.04%

Table 12 In which sector or sectors of the horticultural industry does your business operate?
Source: WSGA Growers survey November 2020
Base: 47

In summary, most growers in West Sussex are relatively highly specialised and nearly two thirds specialise in a single crop category. Those who grow *Protected edibles* and *Outdoor edibles*, either singly or in combination make up 42.56% of all growers while those who grow *Protected ornamentals*, either singly or in combination, make up 46.81% of all growers. Growers of *Protected ornamentals* are more likely to combine with other crop categories than growers of edibles.

Business models

Many of the well-known companies in the West Sussex horticultural sector are family businesses of longstanding with strong local connections. For example:

- Barfoots was founded in 1976 by Peter Barfoot, a fifth generation farmer
- Blue Ribbon Plants was founded by Walter Back in 1978 and remains a family-run busines
- The Greenhouse Sussex Limited, started as Eric Wall Ltd, remains a family business that has been growing tomatoes since 1977.
- Hills Plants has been growing ornamental plants for wholesale clients since 1920 and moved to West Sussex in 1974.
- The Langmead Group was founded by David Langmead in 1982
- Madestein UK was established in 1982
- Tangmere Airfield Nurseries was founded by Dirk Houweling in 1989
- Walberton & Binsted Nurseries were founded in 1973 & 1978 by the Tristram family
- Vitacress Herbs started in Hampshire in 1951 and subsequently relocated to West Sussex
- Natures Way Foods was set up by the Langmead brothers in 1994 who are still investors

Recently there have been changes in structure in a number of them and signs of consolidation. For example, Walberton Nursery, Fleurie Nursery and Binsted Nursery have come together under Tristram Plants although retaining operational independence. Together with Toddington Nurseries, they operate as a co-operative, Farplants Sales Ltd, to supply garden centres. Star Nurseries was taken over by Fleurie Nursery in 2017

Other companies have grown and have a number of specialised operations in a group structure. APS Produce Ltd in Chichester, formerly Wight Salads, is part of the APS Group, the leading supplier of tomatoes to the retail market in the UK, while continuing as a family business, now operates as a group of five companies across the UK. The Lettuce Company was set up in 2012 as result of a larger restructure by Langmeads Farms business which is now part of the Langmeads Group. The Lettuce company is also part of G Growers, an independent producer organisation with 17 members. Vitacress, Herbs as well as herb production in West Sussex, has a number of farms in the South East and a bagged salad operation in Andover.

There are also moves to more globalised structures, for example, the Langmeads Group comprises fresh food, farming and property businesses in the UK and Europe. Vitacress Herbs became part of the Portuguese RAR Group in 2008, a major international group with a range of financial and other businesses. For some companies, as well as business growth, this is a way of securing supply all year round by growing crops in Europe or Africa during the winter months in England.

Vertical integration is another way of increasing market share, ensuring quality and continuity of supply. For example, the APS group has growing as well as packing operations. The Langmeads Group promotes its "seeds to packhouse capabilities" on its website. A number also have operations in other parts of the UK and abroad to ensure all year round supplies of particular categories of crop to their customers.

In summary, the West Sussex horticultural industry is responding to market forces such as price competition and globalisation, by adopting more efficient structures through consolidation, group structures and vertical integration. Nevertheless, the industry needs to be continually alert to change, an issue which is highlighted in the next chapter on customers, markets and competition.

6. Market analysis: customers, markets and competition

This chapter provides an analysis of the demand side or market analysis including:

- Customers and markets
- Factors driving market change
- Direct and indirect competition

The evidence is drawn from the growers' and suppliers' surveys as well as the literature review.

Key points in this chapter

- 75% of growers have seen demand rise in their main markets in the last year
- Changes in consumer behaviour are thought to be a factor but so is the Covid-19 pandemic
- Big supermarkets are the most important customer for the majority of growers (57%), particularly growers of protected and outdoor fruit and vegetables
- Only 10% named the supermarkets as a second order priority customer
- Garden centres are important to growers of ornamentals but they are less dominant than the supermarkets are in relation to growers of fruit and vegetables
- Business to business is an important market as a second and third priority outlet for growers and includes a wide variety of customers, for example, local authorities, e-retailers of food such as Hello Fresh, frozen and other food processors etc.
- Direct to the consumer sales are a relatively small part of the market for horticulture businesses, possibly because it is difficult to serve both businesses and consumers
- Competition is strong and businesses have to respond quickly to remain competitive
- There are new business models developing elsewhere that may increase competition for the West Sussex industry
- The advance of technology may also increase the ability of other UK areas to grow in less favourable climatic conditions although West Sussex's favourable light levels and mild climate will continue to be an advantage while energy prices remain high

Customers and markets

In terms of customers and markets, the big supermarkets dominate the scene for the West Sussex horticultural industry. This is not surprising as supermarkets dominate the fresh produce market in the UK with over 85% of the market. They require fresh produce all year round to a consistent standard which in winter can mean that up to 75% of certain products, e.g. salads are imported. .

Over 57% of survey respondents named big supermarkets and food multiples as their most important customer. Only 10% of those who served more than one customer base or market ranked these as second order customers and no growers operating in three markets named them as third order customers. It seems that the power of the supermarkets and/or the scale of demand is such that they have to be priority customers for growers or not at all. This was also true for growers of ornamentals who supplied to supermarkets as well as those supplying edibles. Figure 12

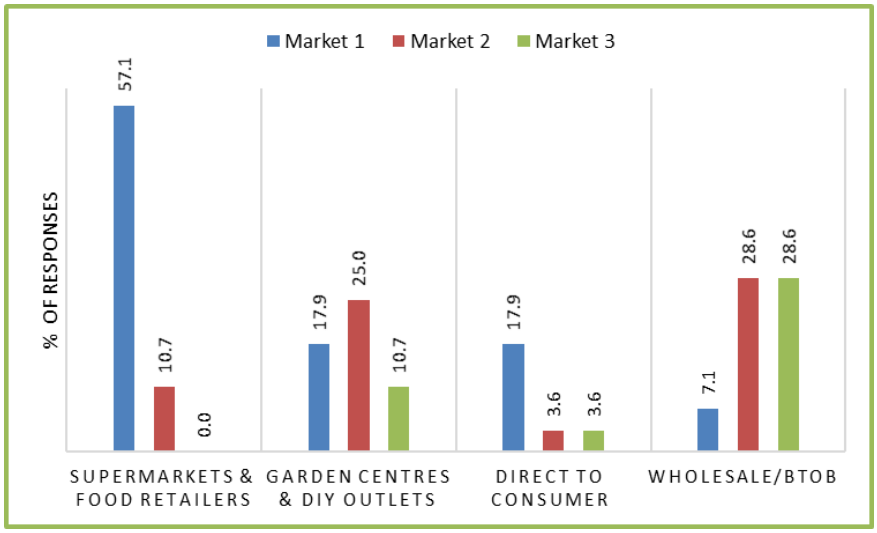

Figure 12: Top 3 Customers/ markets ranked by order of importance by growers
Source: WSGA Growers' survey

Garden centres and DIY outlets are an important outlet for ornamental growers. Although B&Q are probably the largest plant retailer, they do not distort the market in the way supermarkets dominate the food sector. Respondents were more likely to name them as their second most important market than their first, probably because although there are chains of garden centres such as Dobbie's, they tend to be smaller and many garden centres are relatively small independents. Garden centre demand is subject to more seasonal demand than supermarket demand where growers have to take steps, such as growing abroad for part of the year, to even out supply over the year.

Business to business is an important route for growers' second and third markets and includes a wide variety of customers e.g. the hospitality trade, local authorities, e-retailers such as Hello Fresh, frozen and other food processers, seed retailers, the landscape trade, the pharmaceutical industry and wholesalers generally. Some of this diversity seems to have been driven by the Covid-19 pandemic, forcing growers to seek new routes to market during lockdown when hospitality businesses were closed and home deliveries of food surged and while garden centres were shut. Direct to the consumer, including on-line is a relatively small part of the market for respondents, particularly as a second and third choice. It seems it is difficult to serve both business and consumers.

Market demand is going up for the majority of growers and particularly in their main market where 75% have seen a rise recently. Figure 13

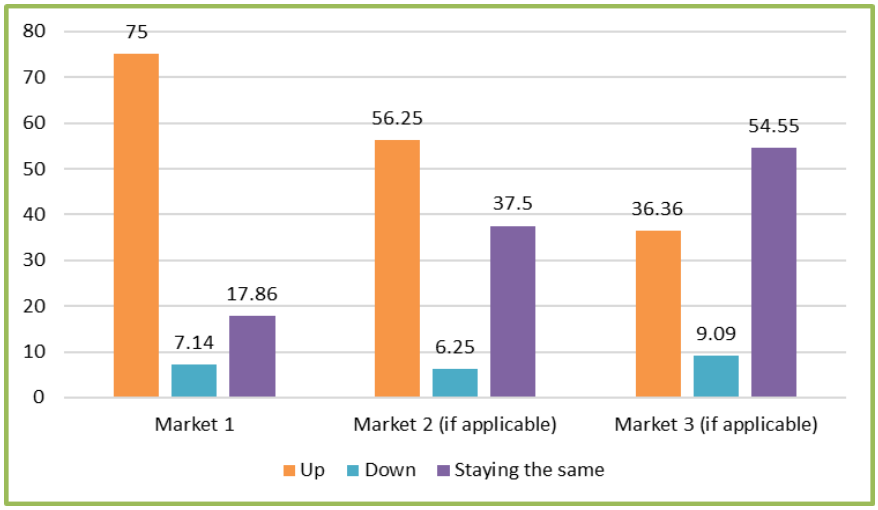

Figure 13: Percentage of respondents reporting increase/decrease in demand according to rank of market/customer base
Source: WSGA growers' survey November 2020

Factors driving market change

Growing demand for fresh produce is a feature of the UK market. Trends such as veganism and healthier eating are on the rise. The number of vegans in Great Britain quadrupled between 2014 and 2019. In 2019 there were 600,000 vegans, or 1.16% of the population and by 2020 all the main supermarkets had their own vegan range[33].

Vegetarianism and flexitarianism are also making an impact as well as healthier eating habits according to research carried out by Nielsen for The Grocer. Consumers are eating more vegetables and volume of vegetable sales is rising while those of meat are falling[34]. Combined with retailers' desire for shorter supply chains and increased emphasis by consumers on sustainability, food security, food safety and provenance[35], these trends are resulting in increased demand for fresh produce.

Restrictions due to the Covid-19 pandemic resulting in increased time at home for many people have led to a surge in garden products which rose by 51% in multichannel outlets and 162% online in May 2019 during the second month of lockdown[36].

The NFU expects these trends to continue. In its report on the future of food, it states: "Personalisation of food choices and the health agenda will grow, along with more diverse diets. While practicality, price and taste will remain key drivers in food choices, health as a reason for choice is set to grow[37].The NFU also predicts that consumers will continue to expect high environmental, safety and welfare standards as the norm. There has been a growing interest from British consumers over recent years in how their food is produced and by whom which is likely to increase over the next two decades, particularly with regard to environmental impact.

These trends are reflected in our survey results. Among survey respondents, the reasons given for changes in demand, just under 29% thought the main factor was changes in their customers' requirements, followed by a quarter 25%, who thought it was due to changes in consumer habits. Figure 14

[33] The Vegan Society
[34] Foodnavigator.com
[35] Food and You Survey 2019 Food Standards Agency
[36] Horticulture Week June 2020
[37] The Future of Food 2040 NFU

Respondents were allowed to expand on their answer if they wished to. Comments often attributed changes in demand to the Covid-19 pandemic, for example:

- Supermarkets wanting local suppliers, sustainable/ reliable supplies and shorter supply chains since the Covid-19 pandemic and due to Brexit
- The Covid-19 pandemic leading to an increase in gardening and people spending more time in their gardens relaxing. A realisation that "gardening is good for the soul"
- The Covid-19 pandemic leading to more home cooking
- Increased trade in local outlets due to Covid-19 pandemic and driving grocery sales generally
- Better/ increased marketing driven by the Covid-19 pandemic

They were also aware of the longer term reasons for changes in demand including:

- A drive to more local and reliable supply from customers, particularly supermarkets
- A greater interest among consumers in ethnic cuisine leading to more demand for herbs
- The rise in veganism and vegetarianism leading to increased demand for vegetables, salads and herbs
- The emphasis on healthy eating leading to increased demand for fruit and vegetables

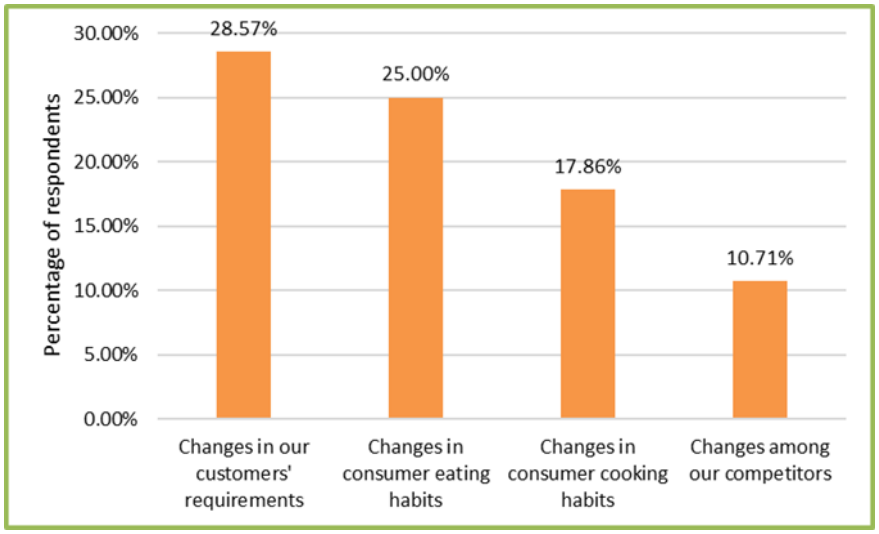

Figure 14: Reasons given for changes in demand, percentage of respondents
Source: WSGA growers' survey November 2020

Although most respondents felt that demand was going up, there were some respondents who felt that it was static or shrinking. The reasons seemed to be mostly that the size of the market and/or consumer demand was not increasing or declining, rather than that their product was less in demand, although one respondent commented that the older age group has less money and, if the weather is poor, people tend to spend their time and money on DIY, not gardening.

Environmental sustainability

Environmental sustainability is inextricably linked with horticultural practices. Globally, concerns about feeding the growing population and the effects of climate change are adding to the urgency of pursuing environmental sustainability, while at home the UK Centre for Ecology and Hydrology states that: "*Meeting the need for increased food production and nutrition, without degrading our environment, is one of the greatest challenges facing society today.*"

The West Sussex horticultural industry is well placed to continue to improve its environmental sustainability and progress towards net zero carbon. There is a strong commitment to increase productivity whilst managing scarce resources and reducing carbon footprint through such developments as, for example:

- Intelligent automation including automated irrigation systems, pH sensors and climate control software to maintain an optimum growing environment and assist with disease prevention and pest management.
- Self-sufficient water systems e.g. rainwater harvesting which can include automatic irrigation systems to redeploy this water, ensuring no water is lost in the growing process by collecting internal condensation and recirculating any water from the irrigated plants. This also means fertiliser costs can be reduced as nothing is lost. Other major developments are on-site reservoirs and bore holes.
- Automated shading screens which could save up to 60% in energy consumption and which are starting to be used as costs come down.
- Combined Heat & Power systems where heat which is generated onsite can be converted into energy to sell off, store or use to power the technology inside the glasshouse.

Food security

Concerns about national food security will continue to increase as currently the UK is heavily reliant on food imports. Additionally, there are concerns about future international trade, and the effects of climate change and conflict. The Agriculture Act 2020, includes a new duty for the Government to report to Parliament on food security in the UK. This is not the same as total food self sufficiency, currently at 64% and down from over 74% in the 1980s[38]. Self sufficiency is regarded as being unattainable for the UK given the size of the population and the fact that 70% of the land is already farmed. However, increasing self sufficiency is clearly desirable given the increasing uncertainties in external supply chains previously highlighted.

The West Sussex horticultural industry is well placed to help with increasing national food security, provided that the labour and skills are available, and has already demonstrated its ability to respond flexibly throughout the Covid19 pandemic.

Competition

The majority of respondents felt that competition was strong (40.74%), fairly strong (25.93%) or very strong (22.22%. Very few, (11.11%) felt it was not very strong and no respondents thought it was weak or non existent. Figure 15

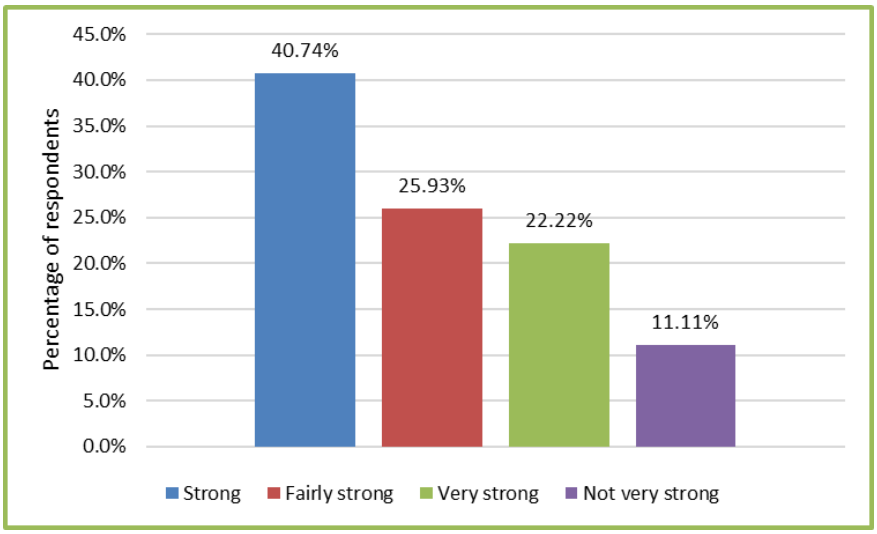

Figure 15: Percentage of respondents rating the competition according to its strength.
Source: West Sussex Growers' Survey November 2020

[38] NFU

In terms of where competition was coming from, Europe was seen as a source but competition in the UK was also recognised as a threat. The North East, the North West, Lincolnshire and Evesham were all mentioned. Consolidation in the industry which meant more competition for smaller growers was also highlighted.

In summary, respondents are aware that they are in an industry where competition is strong, margins are tight and fluctuations in currency leading to import price rises as well as changing customer demand meant that they have to respond quickly to stay competitive. However, awareness of competition seems to be awareness of local competition in the main with only a few respondents citing other areas in the UK.

Competition from elsewhere in the UK may become more of an issue in the future, for example, from recent industry developments in East Anglia where land is much more readily available and cheaper. The local workforce is possibly more willing to work in the industry and is available locally and the road infrastructure is under less pressure than in West Sussex and the South East. New business models are developing under which investors in intermediary companies buy large areas of land and put in state-of-the art infrastructure e.g. controlled environment greenhouses, water management etc. and then rent these facilities out to growers.

Furthermore, as lighting and heating technology continues to advance, this may increase the ability of other UK areas to grow in less favourable climatic conditions. However, the competitive advantages afforded by the south coast's higher light levels and warmer climate will remain while energy prices are high.

7. Supply chains and cluster linkages

This chapter analyses the supply side to the horticultural industries in West Sussex including:

- Supply chain relationships locations
- Numbers and types of suppliers
- Linkages to the wider economy, including the sustainable energy sector
- Cluster embeddedness

The evidence is drawn from the growers' survey, the suppliers' survey, official statistics, on-line searches and the literature review.

Key points in this chapter

- The great majority of horticultural businesses have longstanding relationships with suppliers
- Supply chains are complex but around 18% of respondents buy more than 50% of their supplies locally and 12% buy more than half regionally
- The value of supplies bought locally is at least £37.85m
- Over 30% of horticultural respondents buy more than half their supplies from Europe
- There are signs of a cluster of specialist horticultural suppliers in West Sussex supplying irrigation, lighting, hydroponics, agronomy services etc.
- There is a mutually supportive relationship between the horticultural industry and the sustainable energy sector which is a key sector in the local economy
- The horticultural sector has good relationships with national bodies but at local level, stakeholder relationships could be strengthened e.g. through more dialogue on skills and labour needs
- Stakeholders' views of the industry are largely positive and they are well aware of its importance

Suppliers and supply chains

Supplier relationships

The majority of growers (72.41%) in our survey have relationships with their suppliers that are longstanding i.e. of five years or more while almost none (3.45%) have only relationships that are shorter than this, although 24% have relationships that are a mixture.

Supply chains

Supply chains are a complex picture. Respondents were asked to identify where their supplies came from according to bands of less than 10%, 10-49%, 50-99% and 100%. Just over 18% of growers who answered this question in our survey buy more than half of their supplies (50-99%) for their West Sussex business from West Sussex, 12% buy more than half their supplies regionally, 20% get the majority of their supplies from elsewhere in the UK and over 30% import 50-99% per cent of their supplies from Europe. Figure 16

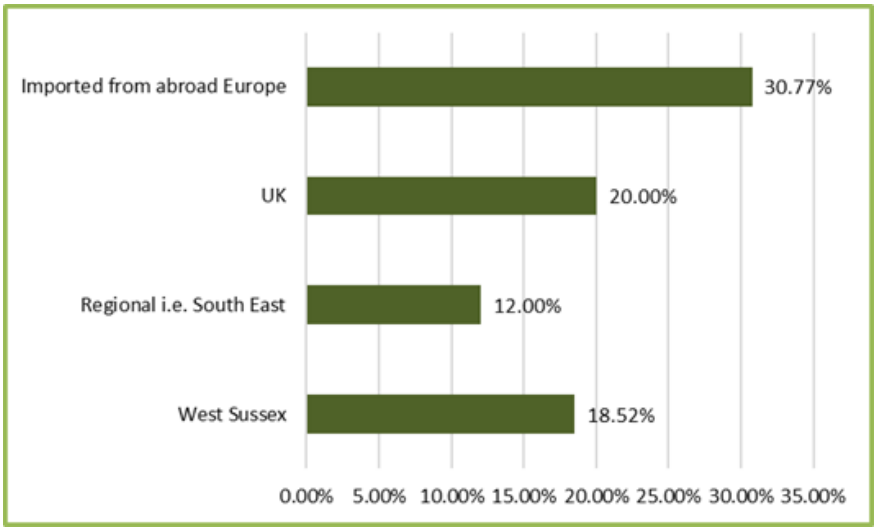

Figure 16: Area from which growers buy more than 50-99% of supplies. (Percentage of respondents)
Source: WSGA Growers' survey 2020
Base 30

More growers buy between 10% and 49% of their supplies from the UK than from anywhere else but West Sussex is second in terms of numbers of growers buying 10 to 49% of their supplies locally. The respondents to the growers' survey put the value of the supplies they buy in West Sussex alone at a minimum of **£37.85m** (based on 21 responses). Figure 17

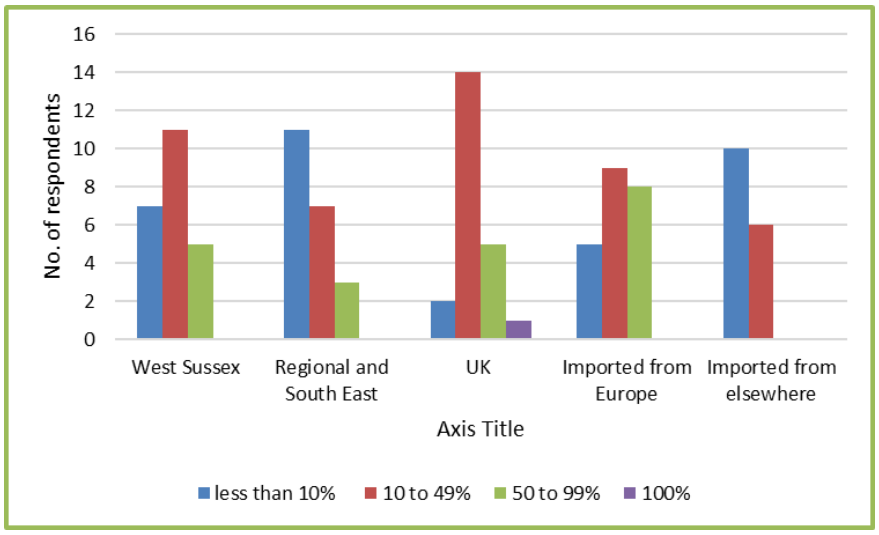

Figure 17: Area from which growers buy supplies for West Sussex by percentage of supplies (Percentage of respondents)
Source: WSGA Growers' survey 2020
Base 30

Supplier numbers in West Sussex

The large suppliers to the horticultural industry based in West Sussex such as Fargro are well known but it is difficult to estimate the wider West Sussex supplier base for the same reasons as it is difficult to be accurate about grower numbers. ONS UK Business Counts puts the number of businesses in *SIC 01610 : Support activities for crop production* at 40 in West Sussex and this includes a range of services. However, the customer base for these companies will not necessarily be in West Sussex, they will supply other agricultural businesses, not just horticulture and this category does not include specialist services e.g. insurance providers, training organisations, specialist construction, irrigation, energy specialists etc. operating under other SIC codes.

The internet and directory search has revealed signs of a cluster of horticultural suppliers, for example, at least seven irrigation suppliers, a range of other horticultural systems suppliers covering irrigation, screening systems, LED lighting, at least 14 hydroponics equipment suppliers, specialist consultants including five agronomists (including one consultancy of 10).

There is also a relatively high number of low carbon/green energy advisers and suppliers including notable companies such as Veolia who provide waste, water and energy management services, including Combined Heat and Power (CHP) designed to build the circular economy and preserve scarce raw materials. and Ceres Power, pioneers of fuel cell technology, both based in Horsham. There are also at least 40 providers of solar power in West Sussex.

While not all of these supply solely to horticultural companies although the horticultural sector is frequently mentioned as a customer on suppliers' websites and the horticultural sector may be a factor in their choice of location. There is clearly overlap between this supplier cluster and the Low Carbon Goods and Services sector (LCGS) sector which has been identified as a cluster by Coast to Capital LEP. It also links to the South2East Local Energy strategy which sets out a vision for sustainable energy production, across the Coast to Capital, Enterprise M3 and South East Local Enterprise Partnership areas.

The number of suppliers who responded to our survey (7) was too small to allow for statistical analysis. They covered a range of types of supplies including materials (growing medium, fertilisers, packaging etc.) as well as specialist infrastructure and services. Only two out of the seven operated solely in West Sussex. The general view from suppliers about the horticultural industry in West Sussex was that demand was going up and that this was largely due to changes in consumer demand due to the Covid-19 pandemic and also changes in customers' requirements. This area would repay further research to map the supply chains in detail and estimate the value to the local economy.

Cluster embeddedness

Clusters of industries, first identified by Michael Porter[39], do well when they are embedded in the local economy and area. The original reason for their location may have been superseded but the linkages between companies, supply chains and education providers encourage innovation, increase productivity and stimulate new business start ups as well as creating agglomeration effects[40].The critical mass that clusters bring gives local area and regions a competitive advantage, hence policy makers' efforts to encourage their development.

WSGA has advanced the idea of the horticultural cluster and its future on the West Sussex coastal plain through its earlier work on the viability of the industry[41] and its strategy for growth[42] "Growing Together" as well as its ongoing work in raising awareness and articulating the needs of the sector. Part of the research underpinning this report has therefore been an examination of the degree to which the horticultural industries are embedded in West Sussex, linked to local institutions and with strong stakeholder relationships.

[39] The Competitiveness of Nations Michael Porter 1990
[40] Geography and Trade Paul Krugman 1991
[41] The viability of the horticultural glasshouse industry in West Sussex March 2009
[42] Growing together strategic plan 2015 WSGA

All except one respondent in our growers' survey who answered the question were members of one or more industry bodies or trade associations, the most popular being the National Farmers Union followed by the Agriculture and Horticulture Development Board and the Horticultural Trades Association. Figure 18

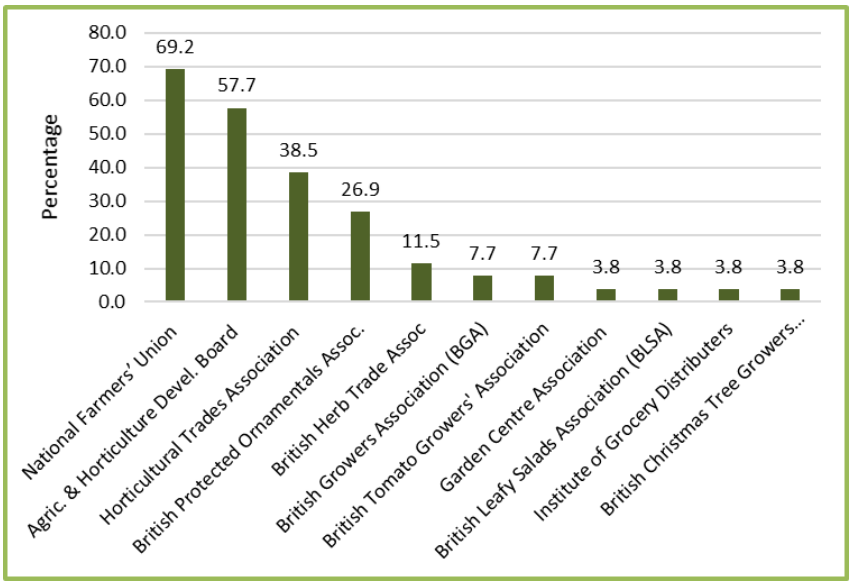

Figure 18: Trades Association Membership. Percentage of respondents
Source: WSGA growers' survey November 2020
Base 26

In relation to local relationships, the results are mixed. West Sussex Growers' Association has the support of 76.9% of respondents but thereafter the local relationships are less well embedded and nearly 35% of respondents who answered this question had no relationships with local bodies. Figure 19

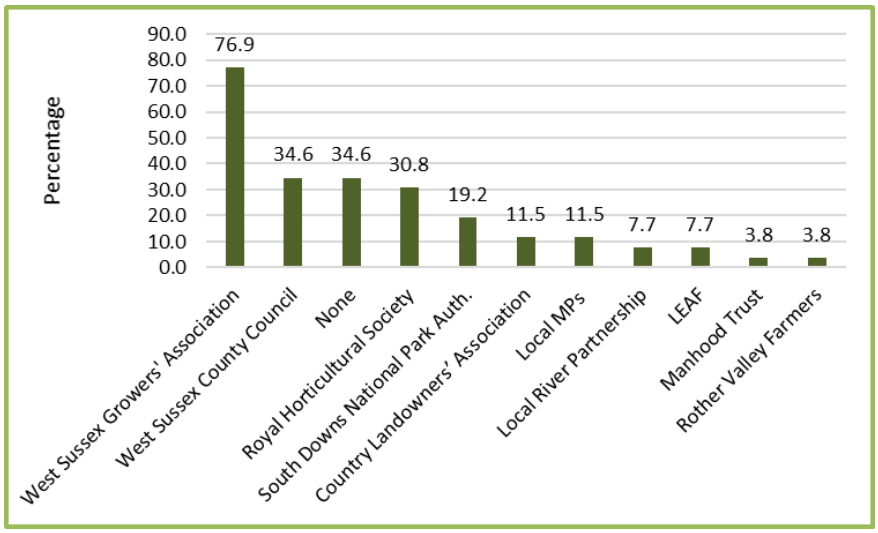

Figure 19: Important relationships with local organisations.
Percentage of respondents
Source: WSGA growers' survey November 2020
Base 26

After West Sussex Growers Association, West Sussex County Council is the most important in terms of local engagement. Respondents were asked specifically about their relationships with local authorities including the Districts and Boroughs, not just the County Council. The majority of engagement is, as might be expected, on planning issues where a range of experiences is in evidence. Table 13

	Easy	Fairly easy	Fairly difficult	Difficult	Very difficult
On planning issues	19.05%	14.29%	9.52%	14.29%	14.29%
On resource management e.g. water, electricity	0.00%	28.57%	21.43%	0.00%	7.14%
On environmental issues	0.00%	33.33%	6.67%	20.00%	0.00%

Table 13: Experiences dealing with local authorities on planning, resources and environmental issues
Source: WSGA growers' survey November 2020
Base: 23

There was a view among some local authority stakeholders' that more dialogue about the industry's issues and concerns at officer level might be productive, in addition to engagement through necessity such as planning applications.

Relationships with local education and training providers vary among horticultural businesses answering this question although it should be noted that there were only 18 respondents. Respondents had the most contact with private training providers, Brinsbury College, Chichester College and other training providers and institutions. Figure 20

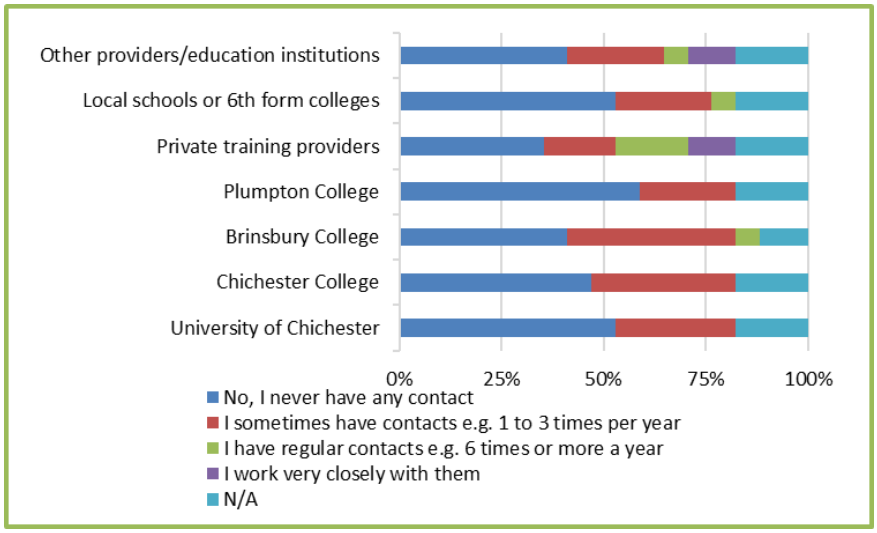

Figure 20: Relationships with local education and training providers
Source: WSGA Growers' survey November 2020
Base 18

The stakeholders' survey of local organisations including education and training providers carried out as part of the research for this report through one-to-one semi structured interviews revealed a view among some stakeholders that the training needs of the horticultural sector were not being met very effectively by local institutions. It was suggested by a number of stakeholders that the local horticultural industry tended to be self-sufficient but that local education and training providers would like to provide more assistance and would welcome greater dialogue and interaction. Given the level of concern about skills and labour within the industry, the time for more active engagement may have come.

Stakeholders' views of the horticultural industry

A good test of the depth of local engagement is to evaluate how the industry is perceived locally and how accurately this reflects reality. When asked to describe the horticultural industry in West Sussex, most respondents were aware of crops such as herbs, lettuce, peppers, sweetcorn and tomatoes and soft fruits, as well as the fact that a significant percentage is grown under glass. Ornamentals were mentioned by only one respondent, although a small number included vineyards/wineries in their description. The general perception was that horticultural activity is mainly centred in Chichester and Arun districts.

Opinions on the size of the local industry varied with figures of 30, 40, 50 and over 100 businesses mentioned by different individuals. Two respondents were aware of some consolidation having taken place and the co-operative working arrangements between some organisations.

Some respondents were able to put a value on the economic contribution and this again varied between £0.5bn, £1bn, £1.5bn. Respondents' views on the employment contribution varied quite markedly with some saying that horticulture provided very few jobs, while others thought it was a major employer e.g. the second most important after tourism, and a figure of 10,000 FTEs was cited by one respondent. One respondent thought there had been significant growth in the last year in both employment and economic contribution. Many were aware that much horticulture is technology-intensive and a leading-edge industry in this respect. Several mentioned food security and the likelihood that the horticultural industry's contribution will become more important in the near future.

A small minority of stakeholders held the view that the industry was land-intensive for the low number of people it employs and that the employment offered is generally low skilled and largely casual labour. As the previous chapters have conclusively shown, this is very far from being the case.

When asked to rate the sector's importance to the local economy and employment on a scale of 1 -10 with 10 being the most important, no-one scored it less than five and the majority scored it 6 or 7. The scores were as follows. Figure 21

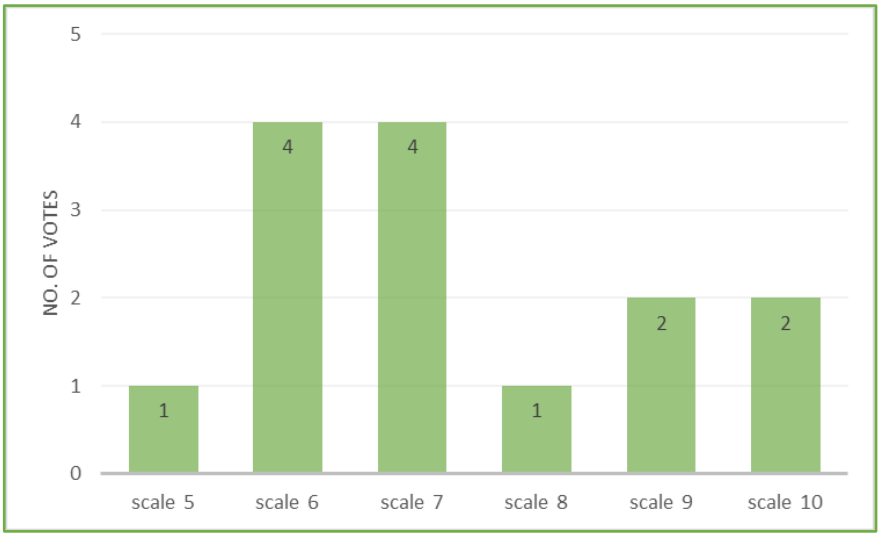

Figure 21: Horticultural sector importance rated by stakeholders on a scale of 1-10 (No of votes for each ranking)
Source: Stakeholder survey
Base: 14

When asked why they had given the ratings they had to the horticultural sector, the positive attributes that were cited by stakeholders were the output and employment created, the investment in infrastructure e.g. irrigation, the high technology and environmentally sustainable credentials of the industry, the supply chain interactions and the significant specialist expertise. There was a sense of pride that the sector was located in West Sussex and that it is a defining factor in the identity of West Sussex, particularly coastal West Sussex. The greater reliance on home grown food due to the UK's departure from the EU was also a factor for some respondents.

Less positive factors that were cited by respondents were the view held by some that the employment opportunities were not accessed by local people to a sufficient extent, as well as the questioning by some about the level of employment compared to land use. Two respondents felt that the output generated did not really benefit or feed into the local economy. However, these are very much minority views and don't correlate with the evidence cited in previous chapters which show that the economic and employment contributions of the West Sussex horticultural industry are high and particularly in relation to land use. The horticultural businesses in our survey recognised the need to employ greater numbers of local people but that this is not always easy for a variety of reasons. Further work between stakeholders and companies to overcome the barriers to more local employment is indicated.

Stakeholder respondents were asked to name important companies without being prompted. The companies and number of mentions were as follows. Table 14

Company	No. of mentions
Tangmere Airfield Nurseries	8
Barfoots	6
Fargro Ltd.	5
Langmead Herbs	5
Farplants Ltd.	4
Nature's Way Foods	4
Tinwood Vineyard	4
Vitacress Herbs	4
Hall Hunter/The Summer Berry Company	3
Barnsfold	2
Binsted Nursery	2
Cobbins Nursery	1
Fleurie Nursery	1
Hills Plants	1
Madestein UK	1
Newey	1
Nyetimber	1
W D Smith	1
Wight salads	1

Table 14: Important local horticultural companies named by respondents (unprompted)
Source: Stakeholder survey
Base 14

Tangmere Airfields Nurseries, Barfoots, Fargro Ltd. and Langmead Herbs lead with the most unprompted mentions. It is interesting that viticulture has spontaneously been included in the horticulture sector by some respondents and one vineyard in particular, Tinwood Vineyard scores quite highly. This may be because viticulture is thought to benefit the visitor economy and is being promoted by Coast to Capital as a priority sector.

Stakeholders were asked where they thought the supply chains were located. There was no common view on the location of supply chains in evidence, although the tendency was to say they were regional, national or international rather than local. One respondent named Fargro as an important local supplier.Stakeholders were much clearer about who the customers and markets of the horticultural industry were and nearly all cited the major supermarkets and were clear that this was a national market. Garden centres were also frequently mentioned. A few thought that there were some producers selling to local outlets. Only two thought that there might be some exporting to Europe taking place but they were less certain about this.

Stakeholders were asked what more could be done locally to support the horticultural sector in West Sussex. In general, the horticultural industry was viewed as coping well with the effects of the Covid-19 pandemic after the initial disruption but that Brexit presented a greater threat and that perhaps some help might be needed. There were no specific suggestions as to what form this support might take but the point was made a number of times that because the industry is seen as operating in a relatively self sufficient way, the stakeholders are aware that they do not understand its support needs well enough and more dialogue is to be encouraged as the first step.

Apart from more interaction on skills and local employment as highlighted in previous paragraphs, land requirements seemed to be a most important issue. Respondents understood that the horticultural businesses needed more land to expand but that they were competing with other needs such as housing. A small minority of stakeholders believe that the number of jobs that would be supported through industry expansion, and, specifically, jobs for local people would be small, because of technologisation and the seasonal labour. This perception needs counteracting with the evidence of the true extent of horticulture employment, and particularly permanent employment, set out in earlier chapters.

This is an area where the success of the horticultural industry in applying advanced technologies is to some extent at least, acting against its perceived benefit to the local economy and community. Unfortunately, there is a tendency among some stakeholders to equate technology adoption with job losses rather than looking at the benefits in terms of more highly skilled jobs being created and higher demand for different skills being created. Arguments need to be made strongly to refute this notion that the industry is not benefiting the local economy and that its use of land is disproportionate to the benefit provided. For example, the arguments about land-hungry businesses with low skilled employment and jobs being lost to technology could be made, probably with more justification, in respect of the larger supermarkets.

As noted previously, on the positive side, the environmentally sustainable nature of the horticultural industry is highly valued among stakeholders, along with the good work done by the industry to mitigate the effects of transport and light pollution. The long history of horticulture in the area also stands it in good stead as it is seen to be part of the area's identity.

In terms of the main issues affecting the industry, there were some common themes among stakeholders ranked in order of the number of mentions

- Resources/environmental sustainability
- Climate change
- Brexit and the EU
- Productivity
- Employment issues: opportunities for local people/women. Career paths. Flexible hours. Working conditions.
- Skills and particularly higher level and specialist skills
- Biosecurity

- Land availability and use/planning policy e.g. permitted development rights (PDR) making it harder to safeguard employment land
- Climate change
- Resources: water and energy in times of growing pressure through population growth and climate change. Environmental sustainable management of resources is key
- Mechanisation and the need to invest in new technology to stay ahead

Stakeholders were asked to cite the main issues that they thought would be affecting the horticulture industry in West Sussex over the next 20 years. Brexit/EU relations received the most votes along with climate, although if resources (3) and sustainability (3) were to be combined this would be the lead issue (6). On the whole, stakeholders appear to be highly aware of the challenges facing the horticultural industry. Figure 22

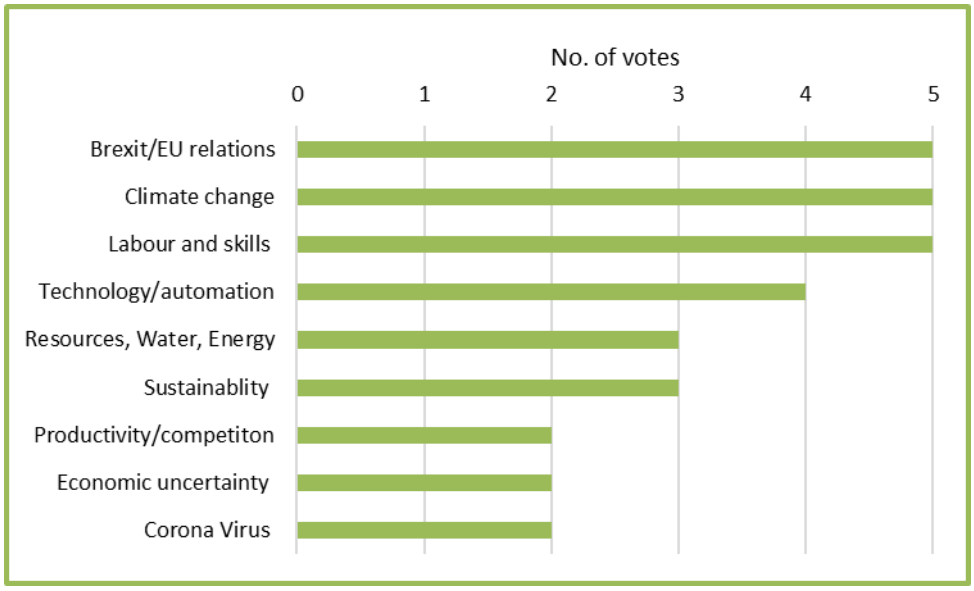

Figure 22: Stakeholder's ranking of the top three issues affecting the horticultural industry in West Sussex over the next 20 years
Source: Stakeholder survey

In summary, stakeholders are well informed about the nature and importance of the horticultural industry in West Sussex although a greater understanding of its economic and employment benefits would be desirable as well as its linkages to the wider economy and sectors such as low carbon. In particular, the idea that the employment to land use ratio is low should be challenged. Understanding of local supply chains and their importance is also an area for improvement. There is a willingness to work together on areas such as skills, local employment and business support needs of the industry, as well as on areas of mutual interest such as energy management.

The stakeholders who were interviewed are generally supportive of the horticultural industry in West Sussex and value its presence. They recognise the efforts made to mitigate the adverse impacts such as transport movements and they value the commitment to environmental sustainability. They appear to have a good grasp of the issues and challenges facing the horticultural industry in West Sussex, with the possible exception of competition from elsewhere in the UK which was raised by only one respondent.

In terms of overall cluster embeddedness, the horticultural industry tends not to have very strong or deep linkages with organisations at local level and is sometimes seen as operating in a self sufficient, almost detached way. As a result of this, although levels of awareness among local stakeholders is generally high and on the whole positive due in large part to the efforts of WSGA, there are also some misperceptions, particularly about the ratio of land use to labour and the economic contribution of the industry which the findings of this report should help to correct.

8. Major change drivers: resources and policy

This chapter covers:

- Resources and factors driving resource availability and change:
- Energy
- Water
- Skills and the labour market
- Government policy, national and local

Key points in this chapter

- Good energy management is a key issue for horticultural companies, particularly growers, and includes both energy efficiency and low carbon energy production. A range of technologies are being adopted by horticultural companies, particularly growers, who are well aware of the need to keep energy use under constant review and to consider the options
- Effective energy management strategies are complex, the technology and the way in which energy is produced and used change constantly and it is challenging for businesses to keep up. Investment is costly and there may be scope for more collaboration, building on the earlier work on energy hubs
- It is a similar picture in relation to water where horticultural are in the vanguard of applying water management technologies and adopting innovative approaches
- Skills and labour are also complex areas where businesses find getting the skilled people and the numbers of workers challenging. It is not just the lower skilled jobs that are difficult to find
- Trade and imports including non tariff barriers continue to be areas of great uncertainty as the UK emerges from the Brexit transition period. The recently announced increase in migrant labour numbers has been welcomed. However, food standards and phytosanitary standards are a matter of concern
- Local policy, strategy and plans provide a helpful operating context for horticultural businesses on the whole, particularly at Coast to Capital LEP level. More recognition of the industry's needs at local level would be beneficial in terms of planning and other forms of support

One of the most important determinants of the future success of the industry is the availably and effective use of resources including land, energy and water as well as skills and labour. The drive to resource efficiency also comes from the need for horticultural businesses to maintain price competitiveness as UK enters a period when household incomes are likely to fall and input costs to rise due to the Covid-19 pandemic and the UK's departure from the EU. Additionally, the support of local stakeholders, particularly local authorities, will depend on the industry being able to continue to show sustainable growth and to be committed to constantly reducing its environmental impact and improving its "green" credentials. This chapter examines current and future developments and challenges in the use of resources with a particular emphasis on sustainability.

Resources: Energy

Energy efficiency is of primary importance to the horticultural industry, particularly for protected crops but food production and energy consumption are interlinked. Lowering energy costs, reducing dependence on traditional fossil fuels and improving environmental performance will help profitability and support the survival and growth, not only decreasing carbon emissions but potentially giving the horticultural industry a competitive advantage over imports in future. Investing in energy efficient glasshouses also increases land values.

As well as commercial drivers towards energy efficiency, pressure comes from Government policy to reduce the UK's carbon footprint. This was enshrined in law in 2019 with the target to bring all greenhouse gas emissions to net zero by 2050[43]. Pressure from consumers and supermarkets will continue the drive to reduce food miles and progress towards net zero carbon. Improving sustainability at all stages of food system is a growing concern.

[43] Net zero emissions law DBEIS 2019

For all these reasons, as well as because of the fundamental ethos of respect for nature and the land which is a feature of the West Sussex horticultural industry, energy use is a top priority.

Low carbon energy generation and efficient energy use are equally important. Efficient energy consumption remains a major factor in competitiveness, particularly for protected crops. An AHDB report notes that energy costs in the protected edibles and ornamentals sector can be as high as 30% of variable costs with a conventional gas boiler and that although some growers have gone down the route of renewables and self generation of electricity, many others continue to rely on fossil fuel technology[44]. The 2012 report notes that "*glasshouse technology has combined the co-generation of electricity and heat with the sequestration (i.e. removal and storage) of carbon dioxide emissions for increasing crop yield within greenhouse atmospheres for many years, viewing all three outputs (electricity, heat and CO2) as valuable*".

The ADHB report also points out, however, that the points of energy generation and points of use may not be in balance and energy may need to be stored and transported. For example, a summer surplus in heat generation might be used in absorption cooling for packhouse processing but glasshouses have to be designed with the technology to provide this included in the design. The capital cost of absorption coolers is high but a 10% increase in yield on an 80 hectare site with glasshouse and packhouse facilities would justify the investment in reduced running costs, based on RHI payments at the time of the report.

Sustainable technologies have therefore existed for at least a decade and since the report was written they have continued to advance. Glasshouse technology now routinely offers sophisticated control of climatic conditions through ventilation with fresh air from outdoors or indoor air (or a combination of the two) and significantly higher CO_2 levels, optimising photosynthesis, mitigating climate change impacts and minimising energy running requirements. The growing environment will increasingly be controlled through a centralised, integrated computing facility managing temperature, humidity, CO_2 and light levels.

A variety of measures are used such as managing heat loss, reducing air leakage and temperature integration, TI, to save energy. Thermal screens have been one of the biggest contributors to reducing heat loss in glass houses and depending on their construction, can reduce heat loss through leakage, infrared radiation and convection. Where a uniform environment can be achieved, growing at a higher relative humidity with less risk of condensation and therefore reduced energy consumption is possible[45].

Next Generation Growing is a Dutch initiative which aims to achieve ambitious energy saving by focusing on "good plant balance" through tight control of the growing environment. Achieving good plant balance is a sophisticated and complex undertaking comprising three main elements:

- energy balance: input energy to the plants (radiation, heating, lighting) and output energy, the energy leaving the plants through convection and evaporation
- water balance: to maintain water balance in equilibrium, the uptake of water from the root zone must be at least equal to the rate of evaporation. Therefore, the irrigation provision must be aligned with the evaporation rate
- assimilates balance: in the process of photosynthesis, CO_2 and water are photochemically transformed into "assimilates" i.e. sugars and oxygen in the plant. The optimal production of assimilates will depend on the right amount of light available from the sun and/or artificial lighting

Use of advanced internal thermal screens is an important part of Next Generation Growing which in turn relies on good measurement information to control the screens.

[44] Energy management in protected cropping ADHB
[45] Ibid

Energy generation

Our survey was not able to include energy saving or management in any depth as it had to cover a wide range of subjects. It did, however, include low carbon energy generation methods and asked respondents about the methods they used as well as their plans for the future.

Just over half are using some form of low carbon or renewable energy of which photo voltaic/ solar and biomass were the most popular (21%) followed by Combined Heat and Power (CHP) with 15% of respondents currently using this form of energy. Figure 24. Some produce enough power to feed back into the national grid.

Unsurprisingly there was a high correlation between those growing protected crops and those using low carbon and renewable energy sources with only one respondent growing outdoor crops using CHP. However, an estimated 17% of respondents growing protected crops used no form of low carbon or renewable energy and presumably still use conventional fossil fuel boilers. Figure 23

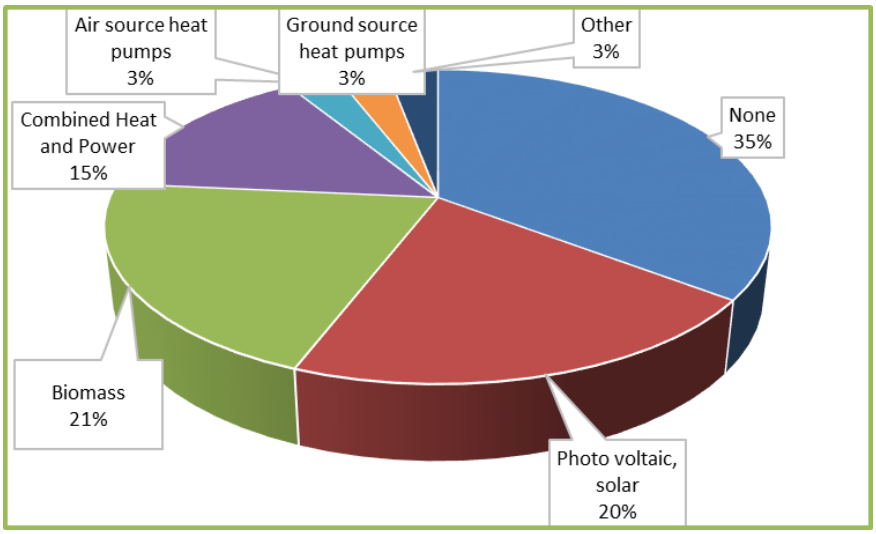

Figure 23: Types of low carbon and renewable energy generation used by respondents
Source: WSGA growers' survey November 2020
Base: 25

In relation to future energy plans, 72% of respondents are considering or will be implementing new or improved energy management options in the future. Table 16

Energy plan for the future	Percentage of responses
The same as now	37.9
We are considering alternative options and/or improvements for the medium or longer term	34.5
We will definitely be instigating new forms of energy management/carbon reduction in the next 1 to 3 years (please specify which ones below)	37.6
Total	100

Table 16: Energy management and investment plans for the future
Source: WSGA growers' survey
Base: 29

Comments on future plans included:

"*We are constantly looking at the technology but CHP is the best for us and we have only installed it recently."*

"We will install LED lighting as it is better for growing and cheaper to run."

"We don't use much electricity as the way we are growing now relies less on heating. We have invested in special materials shading etc to keep heat in/sun out for example."

"We are looking at the use of waste-water heat."

"It depends on the incentives. We are looking at air and ground source heat pumps. We still run on gas which is one of the cheapest sources without incentives."

"We are aiming for carbon net zero."

"We are looking at PV and ground source heat pumps."

"We are waiting for the development of translucent PV but that won't be for at least five years."

CHP, although adopted by only 15% of respondents currently, was seen as the future by a number of larger growers in the one-to-one interviews. Combined heat and power (CHP) is a highly efficient process that captures and utilises the heat that is a by-product of the electricity generation process. By generating heat and power simultaneously, CHP can reduce carbon emissions by up to 30% compared to the separate means of conventional generation via a boiler and power station. CHP plants provide local heat, electricity and sometimes even cooling to various types of users. Trigeneration is the use of a CHP unit in conjunction with an absorption chiller to provide electricity, heat and cooling. Buildings with continuous or seasonal cooling demands such as glasshouses can install trigeneration as a cost effective and low carbon way to achieve their heating and cooling needs..

Because the energy is produced locally, CHP has the added benefit of avoiding efficiency losses incurred through transmission and distribution of electricity through the National Grid and local distribution networks. A number of the larger growers in West Sussex are not only benefiting from the energy efficiency that CHP provides but area also producing significant amounts of surplus electricity to sell back to the National Grid.

This raises the possibility of energy sharing by the horticultural sector and possibly more widely in West Sussex, an area that West Sussex County Council is known to be interested in exploring. In 2012, WSGA commissioned a report on combined production and energy hubs as part of its strategy to support sustainable growth of the sector on the coastal plain. This farsighted report examined the idea of optimising resource use and increasing output through a shared energy hub.

The report noted the complexities involved in the hub approach and examined several existing and unsuccessful hubs where the barriers included the challenges of accurate demand forecasting and management among growers as well as planning and infrastructure issues. Investing in large and complex shared infrastructure projects is difficult to achieve in practice with businesses that have different needs and may tie businesses in to particular approaches that could subsequently be superseded by technological developments, changes in incentives or fuel prices.

Trading power internally between companies seems to have been a sticking point and the most successful hubs appear to have been those in single ownership with a centralised energy hub servicing a number of glasshouses and a packing centre, the "classic hub" approach. A more limited approach which has worked in some Dutch horticultural locations, is connecting companies through a private electrical distribution network, the energy node approach, which is particularly suited to biogas generation, according to the authors.

Although there has not been significant progress on developing a shared hub in West Sussex, there may be a case for updating this report and looking at the latest developments and advances in the hub idea in other areas and countries as the West Sussex horticultural sector is showing signs of consolidation and co-operative working noted earlier in this report in the section on business models.

Effective energy management strategies covering both energy efficiency and generation are complex, particularly in a rapidly changing technological environment. Careful planning and cost benefit analysis are required by growers in the drive to competitiveness.

The stakeholders survey suggests that stakeholders are highly aware of the degree of technology adaption and energy efficiency of the horticultural industry in West Sussex. A positive suggestion was that there could be effective collaboration on innovation and knowledge transfer with local authorities and universities on green technology.

Lighting

Lighting can account for up to 15% of growers' energy consumption. LED lighting is generating increasing interest among growers of protected crops and becoming more popular as costs come down and the controllability increases. Growers require supplementary lighting, not only to compensate for times of year when light levels are lower but also because it can increase growth, yield and product quality. Automatic black out screens can be used to prevent night-time light pollution in surrounding areas. According to Horticulture Week: "Technology is moving on fast with different colour recipes, and new products are coming to market each year specifically aimed at the horticulture market and applicable to ornamental and edible crops".

High pressure sodium lamps, (HPS) are still in common use because they are cheap to buy and run and there are specialised horticultural versions available with good efficiency ratings. Although HPS energy losses are large, this can help to offset heating costs. LED lighting runs at cooler temperatures and can be placed nearer to plants but will not generate much heat within the light beam. LED lights. generate more heat in the semiconductors and large scale arrays have to be installed with heat sinks.

Resources: water

It is estimated that, globally, by 2030 demand for water will outpace supply by nearly 40%[46]. Most crops grown in the UK rely on natural rainfall but some regions are drier than others and, while the UK is generally perceived to be 'wet', drought and the impact of climate change are causing growing concerns about supply. Competition for water and pressures on irrigation sustainability means that supplemental irrigation is essential to increase crops yields and meet quality assurance standards for processors and retailers.

The AHDB states[47] that access to reliable sources of water is critical for most horticultural businesses as the majority are reliant on some form of irrigation, irrespective of the crops produced, to maximise yield and maintain quality.

The latest published figures indicate that over 50,000 ha of land producing horticultural crops was irrigated using around 75 million m^3 of water. This is concentrated in the drier catchment areas in the driest months. Horticulture can be the largest abstractor in some catchment areas during dry summers. Coupled with this, most horticultural businesses are located in catchment areas already defined as 'having no more water available' or in areas which are classified as 'over-licensed' or 'over-abstracted'.

Climate projections suggest that summer rainfall may decrease in key horticultural production areas, while the chance of a summer as hot as the one experienced during 2018 has already increased to 10–20%, from less than 10%.[48]

In its Irrigation Water Strategy for UK Agriculture and Horticulture, the NFU proposes three strategic themes:

- Managing irrigation 'hotspots' and forecasting demand
- Addressing regulatory and environmental challenges linked to a changing climate
- Working together to build resilience to climate and water risks

Nearly three quarters of the water volume licensed for spray irrigation is located within catchments that are experiencing severe levels of water stress. Recent droughts and the longer-term threat of climate change – with hotter, drier summers, reduced water availability and increasing water demand – will only heighten concerns about the reliability of future supplies for irrigated agriculture.

[46] The Renewable Energy Hub UK
[47] Establishing a resilient water supply ADHB 2019
[48] Ibid

The strategy states that in relation to outdoor crops most irrigation is used to supplement rainfall on potatoes (54%) and outdoor field vegetables, such as carrots, onions, parsnips, and salad crops (31%). Some water is used on soft (e.g. strawberries) and orchard (e.g. apples, pears) fruit, sugar beet, and occasionally on cereals and grass. Most irrigation water is abstracted from surface water (52%) and ground water (41%) sources with the remainder from public water supply, ponds, and harvested rainwater (7%). Abstraction is seasonal, with 68% typically occurring between June and August. A third (32%) is abstracted during the winter months and when river flows are high and stored in farm reservoirs ready for use in the summer.[49]

Rainwater harvesting is growing in importance as the prospect of water scarcity increases due to climate change. Glasshouses can become self-sufficient if the right rainwater harvesting system is put in place. Rainwater falling on the roof is collected, stored in a reservoir and instant automatic irrigation systems can then reuse this water when and where it is most required.

Our survey indicates that rainwater harvesting is practised by 60% of respondents, investment in new technology for irrigation and on-site reservoirs account for 36% and 35% respectively, with 28% using on-site boreholes. 'Other' types of water management (24%) include mains water - both as a sole source or to supplement reservoirs, efficient use of mains growing hydroponics, and mains water that is recycled using an ebb and flow system. Recycling water was also mentioned, using a flow system to send out and bring back unused water, and collaboration with a processing plant whereby their water is recycled through a reed bed, aerated water drops through solids and is used to irrigate crops. Figure 24

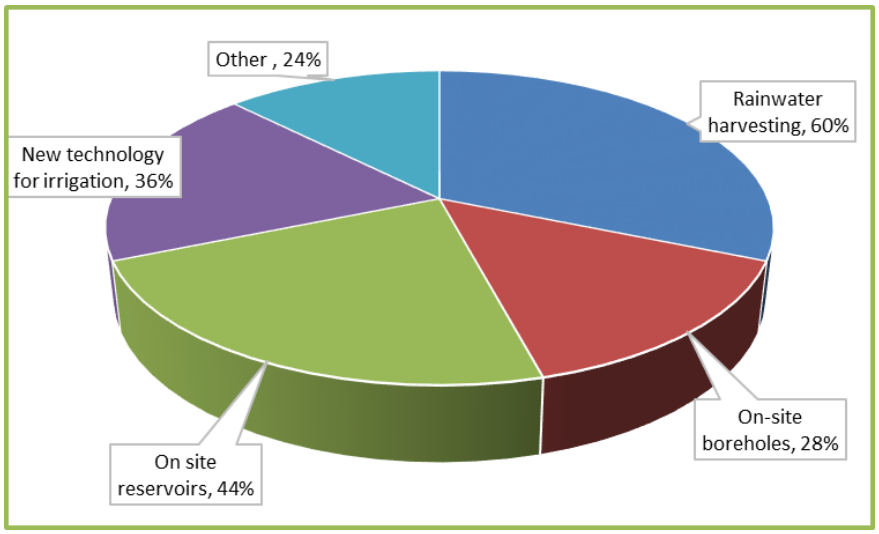

Figure 24 Types of water management currently used by respondents
Source: WSGA growers' survey November 2020
Base: 25

In relation to future plans, 80% of respondents are considering or will be implementing new or improved water management options in the future. Table 17

[49] Irrigation water strategy for UK agriculture and horticulture NFU

Water management plan for the future	Percentage of respondents
The same as now	22.2
We are considering alternative options and/or improvements for the medium or longer term	37.1
We will definitely be instigating new forms of water management in the next 1 to 3 years (please specify which ones below)	40.7
Total	100

Table 17 Water management and investment plans for the future
Source: WSGA growers' survey
Base: 27

Comments on future plans included:

"Enhancing what we already have with additional storage and filtration tanks."

"Investing in water treatment plants and sensors to target moving water more accurately."

"Water recirculation system."

"Rainwater harvesting in potential new unit."

"Rainwater harvesting and capture."

"Use of waste-water heat, using heat form the water treatment plants."

"Installed 4 new reservoirs but considering enlarging one of the reservoirs."

"Water abstraction, storage in reservoirs, water treatment plant to recapture and renew."

Resources: skills

Respondents were asked how easy it was to get the skills they needed. As might be expected given the current migrant labour shortages due to the Covid-19 pandemic and the UK's departure from the EU, the highest percentage of skills reported as being difficult to find were the lower skills levels, for example packers and pickers. This is probably to due, to some extent, to the unavoidable elision of skills and labour among respondents, although comments were received that pickers needed particular manual dexterity skills and packers needed employability skills that were not always easy to find.

Other skills are not always easy to find and intermediate skilled roles were most frequently reported as being "difficult" to fill. Business management skills were not thought by any respondents to be "very difficult" and received the smallest percentage saying they were "difficult". However, business management also received a high rating for "sometimes difficult". Figure 25

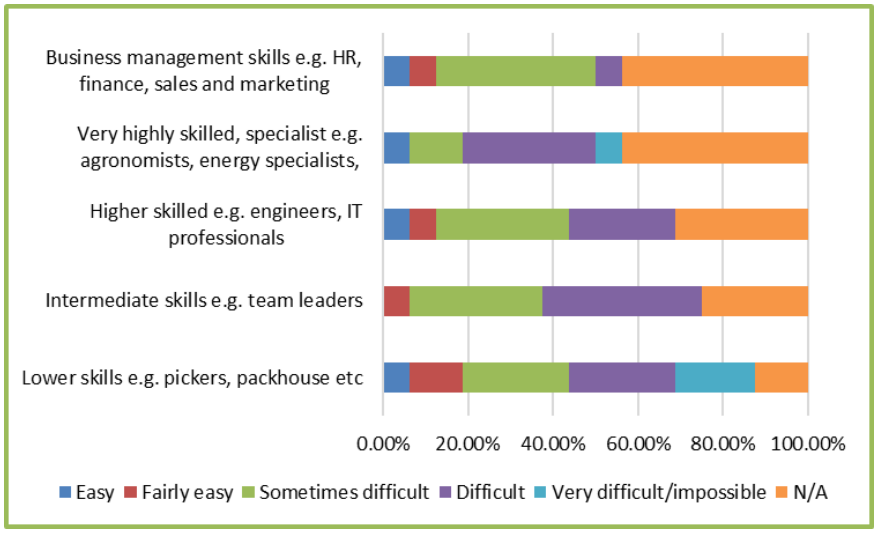

Figure 25: The extent to which horticulture businesses find skills at different levels easy to find
Source: WSGA growers' survey

Referring back to earlier findings in the report, it would seem that West Sussex growers do not tend to see the local education and training providers as the answer to their skills needs. Figure 22 although the stakeholders' survey showed that stakeholders were aware of the skills needs of the local industry and that, as well as pickers and packers, there is a wide range of skills in the horticultural industry with technical skills as well as managerial skills and higher level specialist skills all receiving frequent mentions. Engineering skills were specifically cited by a number of respondents as were logistics skills. One respondent talked about the need for hybrid technical and business skills.

When asked if they were aware of particular skills gaps and shortages, in common with growers, respondents often elided the labour shortage of pickers and packers with skills shortages, probably as there is high awareness of the reliance on migrant workers by horticultural businesses. However, some also noted that pickers and packers needed employability skills which may be an issue in the local labour pool. This also came up during the one-to-one interviews in the growers' survey. Other skills that stakeholders thought were in short supply for the horticultural sector were:

- STEM skills
- Engineering skills
- Leadership and management
- HR and other business skills
- Horticultural skills
- Energy management and green energy
- Supervisory skills
- Technology skills/digital skills
- Business growth, exporting

When asked how well the local education and training providers were meeting the skills needs of the local industry, the consensus was that more needed to be done particularly through greater engagement between the industry and the education and training providers. Plumpton College was mentioned several times as having very high levels of expertise in viticulture but that the same level of specialist expertise was not thought to be available among learning institutions in relation to horticulture. As well as more investment in specialised training facilities with modern technology, greater dialogue between the industry and providers was regarded as a priority if the local education and training sector were to be able to meet the industry's skills needs more effectively.

The need for better careers advice and more engagement with local schools to raise awareness of the career opportunities on offer was also highlighted. Apprenticeships were also mentioned as an area where more intervention to encourage take-up was needed and one respondent suggested this should be along the lines of what is done by the construction industry.

In summary, there is an awareness that more needs to be done locally on this issue, particularly in view of the migrant labour shortage.

The labour shortage

The end of the transition period was raised by the majority of growers in the one-to-one interviews as a matter of concern. Since the survey, this has subsequently been alleviated to some extent by the recent announcement of the extension to the Seasonal Agricultural Labour Scheme (SAWS) from 10,000 to 30,000 workers. Although many had already experienced issues with recruitment of seasonal and lower skilled labour due to the Covid-19 pandemic, it was recognised that this is about to get much more acute. Most respondents were not hopeful about filling the gap with local labour pointing to past problems in getting sufficient local people with the right employability skills and attitudes and very high attrition rates due to the demanding nature of the work. There is also competition for labour at this level from large non horticultural companies in the area. Some stakeholders suggested that more could be done to encourage local workers through flexible hours for example but most acknowledged that there were attitudinal factors among the local workforce.

National and local policy

At the time of writing the Brexit transition period is shortly coming to an end and it is still not known whether the UK will agree a trade deal with the EU or not. The ADHB has published a list of the tariffs that would apply between the EU and the UK in the event of a no deal[50] However, the UK could choose not to apply these tariffs which would keep the price of supplies and imported goods down. If tariffs are applied, there may be opportunities for import substitution among UK horticultural companies, although given the current labour constraints which are likely to get worse after December 31st 2020 at the end of the transition period, it is not clear that the industry could make the most of these opportunities.

The NFU estimates that UK workers currently make up 11% of the seasonal workforce Horticulture Seasonal Worker Survey. After the end of the transition period, there may be an expanded Seasonal Agricultural Workers Scheme (SAWS) for the horticultural sector although this is yet to be announced Phytosanitary standards of food imports remain a matter of concern if agreement is not reached.

The Agriculture Act became law in 2020 after numerous delays and sets out the farm payment system which will replace CAP. Policy: In England, direct payments will be reduced by £150 million but public good type payments will be increased by the same amount. There are concerns that this will not bridge the gap left by the Basic Payment Scheme however for many. More detail is contained in Annex C.

[50] Import tariff rates for selected horticultural products ADHB

A review of local strategies and plans was carried out as part of the literature review. This shows that the raising of the industry profile through the work of WSGA and members has resulted in high levels of recognition and strategic response in local strategies and plans. The detail is in Annex C but to summarise:

- Coast to Capital Local Enterprise Partnership highlights horticulture as an important local industry in the Strategic Economic Plan, Gatwick 360, the Coronavirus Economic Impact Assessment, the recovery plan, Build Back Stronger, Smarter and Greener, and the Local Industrial Strategy (LIS) where collaborative innovation across horticulture and viticulture is proposed in response to a number of challenges including skills shortages, minimal university engagement, lack of space, inability to expand, the cost of land and R&D moving elsewhere. The Skills and Labour Market study identifies the limits on EU immigration as a potential problem. The Innovation Ecosystem Study gives a high score to food chemistry and IT methods for management, likely due to the influence of the Horticulture industries developing new methods of farming produce. The study highlights an abundance of businesses in the Horticulture and Viticulture industries, which rely on collaboration locally, regionally and internationally in order for the sector to grow.
- West Sussex County Council Economic Growth Plan 2018-2023 notes that the horticulture sector makes a significant contribution to the local economy, and there are opportunities to collaborate with the sector, for example around innovation, digital enabling technology, and green energy.
- The Arun Economic Strategy 2020 – 2025 s identifies strengths in horticulture including high-tech horticulture, mostly growing a range of soft fruits, herbs, sweet peppers and plants, is a key feature of the coastal plain in the District along the fertile alluvial plain, with its beneficial climate, long sunshine hours and the high light levels. The strategy identifies the need to work closely with the horticultural sector to overcome workforce recruitment issues.
- Chichester Council's Inward Investment and Growth Strategy highlights an impressive Horticulture and that the agriculture/horticulture sectors are also key features of the District's economy. However, economic growth is expected to be driven by higher value businesses many of which do not require large commercial floor space in the professional, scientific and technical services sector.

In summary, a great deal of work has been done by WSGA and the West Sussex horticultural industry to raise the profile at LEP level and there is some recognition at local authority level. The next step will be to develop positive collaboration and develop practical actions and projects.

9. Opportunities and challenges

Respondents were asked how important a range of factors that might affect their business would be in the next five years. Across all the potential issues, the majority of responses thought that they would be very important over the next five years. Figure 26 and Table 18

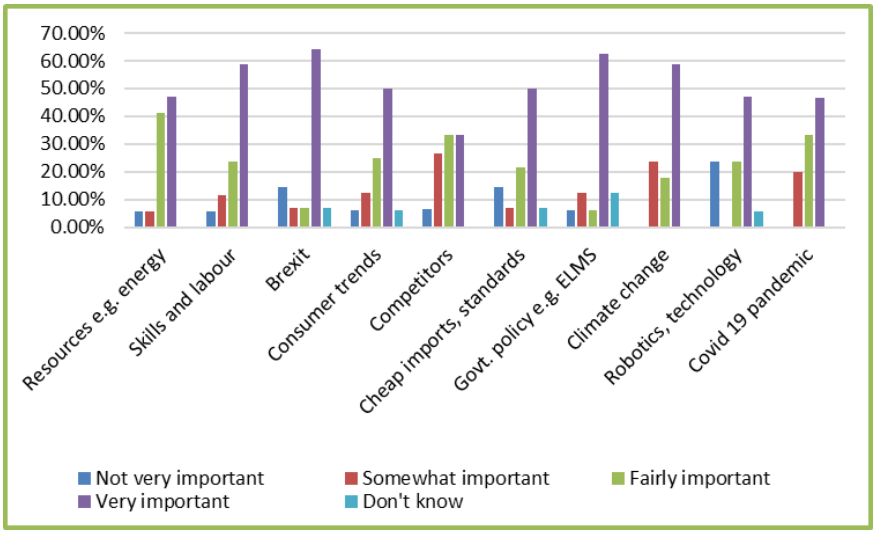

Figure 26: Importance of future trends and change drivers
Source WSGA growers' survey

Change driver	Very important
Brexit	64.29%
Government policy e.g. ELMS, food security	62.50%
Skills and labour	58.82%
Climate change	58.82%
Consumer demand e.g. quality and price, trends in eating, sustainability	50.00%
Competition from cheap imports due to the possible lowering of plant health, bio-security and fresh produce standards	50.00%
-Resources e.g. water, energy	47.06%
Robotics, automation and new technology	47.06%
Covid-19 pandemic	46.67%
Competition e.g. from home or abroad, from multinationals,	33.33%

*Table 18: Importance of future trends and change drivers rated **very important***
Source WSGA growers' survey

Brexit was first in the list of concerns with 64% of respondents thinking this would be very important, followed by the related issues of government policy and skills and labour. Climate change was also rated as very important by more than half of responses. Competition, although clearly an issue of which all our respondents were aware, was thought to be very important by just a third. Table 18

Comments included:

"Immediate shortage of labour is the key issue."

"Frustrated with government policy which is that high unemployment will solve the labour shortage but this won't provide the workers we need."

"Productivity will be half what it is now. We know that from experience. They can't do the work. It is too hard for them."

"Some students can but they won't be here all summer next year."

"Site vulnerability to criminal damage, ~~money laundering~~, and overall security."

"Local roadworks - especially during the Spring."

Respondents were asked to look further ahead and name the top three issues likely to affect the industry over the next 10 to 20 years. The issues were somewhat similar to those affecting their business over the next five years with skills and labour continuing to lead and Brexit related issues continuing to figure quite highly. Environmental issues were a greater area for concern with several respondents raising the need to reduce plastic consumption and eliminate single use plastics, the phasing out of peat compost and other environmental challenges. Figure 27

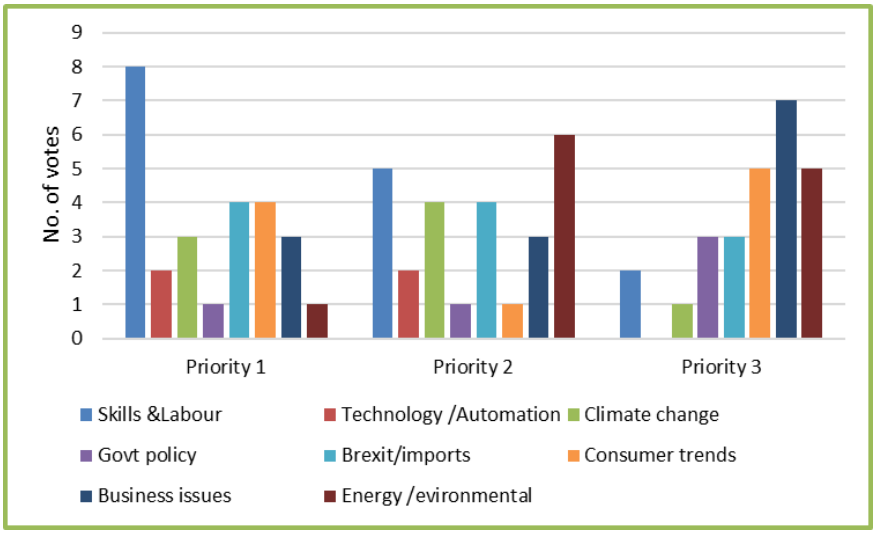

Figure 27: Respondents' views on the top three issues likely to affect the industry in the next 10 to 20 years
Source: WSGA growers' survey November 2020

10. Conclusion

There are many positives to take away from this report. The sector is well positioned to take advantage of the post-Brexit opportunities and socio-economic changes. The WSGA must continue to look outwards and work closely with our stakeholders and the wider community to boost understanding of the sector and its local and national strategic importance.

Strengths (internal):

- West Sussex horticultural businesses make a very important contribution in economic and employment terms to the local economy in West Sussex and to the national horticultural industry, in excess of the size of the business population
- The sector contains multinational companies who are leaders in their fields as well as innovative small and medium enterprises. There is a high degree of specialisation and advanced expertise
- Contrary to some perceptions, the horticultural sector provides significant employment in relation to the area of land it occupies and is significantly more productive than other forms of agriculture
- Horticultural companies are in the vanguard of new technologies and environmental sustainability, applying innovative approaches to energy, water management and growing techniques
- Although there is a sizeable seasonal workforce, it is outnumbered by a factor of 2 to 1 by the permanent workforce
- The industry has a long history in the area, many of the companies are still family businesses and they are committed to the area
- Supply chains are robust and of long-standing. Local and regional purchasing are of significant value. There are signs of specialist suppliers clustering in West Sussex
- The sector is strongly embedded in the West Sussex economy, it is a key part of what defines the local economy – its "USP" - and it also helps to support the wider environmental sector and other industries such as food processing
- The sector's fast and flexible response to the Covid-19 pandemic and ability to find new customers quickly demonstrates its resilience and ability to change quickly to meet unexpected challenges
- West Sussex Growers' Association is an effective industry representative body at the local level, increasing collaboration, industry identity and influence

Weaknesses (internal)

- High dependence on seasonal labour is an area of uncertainty now the UK has exited the EU. The industry's skills needs are complex and specialised
- Skills are required at all levels, not just at the lower skilled end and higher level skills can be difficult to find. The lower skilled jobs also have specific requirements
- Recruiting local labour has proved difficult and does not deliver the same productivity gains
- Local people do not regard the industry as providing attractive career options
- The high degree of specialisation in the West Sussex horticultural industry is a strength but possibly also a weakness as it means that up to two thirds of businesses are dependent on a single crop
- Energy and water resources are major factors for many growers and require significant investment
- Some businesses are still reliant on outdated energy sources e.g. gas boilers

Opportunities (external)

- The industry has benefited from consumer trends towards healthy eating, veganism, vegetarianism, home cooking and gardening and will continue to do so
- Brexit may bring opportunities for import substitution if shortages occur, although finding the labour to respond to these quickly could be an issue
- The trade deficit in fruit and vegetables is an opportunity along with the increased emphasis on national food security
- Following recent moves to consolidation and more co-operative structures, there may be an opportunity to revisit the idea of more collaboration, on energy for example
- Stakeholders are keen to engage in more dialogue and understand how to meet the industry's needs better, for example on skills and business support
- The business population is small but the definition could be extended to include viticulture and membership of WSGA as well as influence would increase as a result
- Similarly, there appear to be some clusters of specialist suppliers e.g. irrigation, agronomy consultants, low carbon, that could be included in the scope of horticulture and WSGA

Threats (external)

- New business models are increasing competition from elsewhere in the UK where land and labour are more readily available
- New technology for protected crops, lighting, heating etc.is helping to increase this competition and, although West Sussex businesses will continue to have an advantage while energy costs remain significant, they need to keep pace with investment in technology
- Brexit brings with it not only labour shortages but concerns about cheap imports with lower environmental and phytosanitary standards
- Crop diseases are on the increase
- The Covid-19 pandemic is continuing to affect markets, particularly the hospitality sector.
- Further pandemics are likely
- A worsening economic climate due to the Covid-19 pandemic and the end of the transition period is likely to increase pressure on household spending
- Supermarket price wars will continue leading to downward price pressure on suppliers
- Land and planning restrictions may threaten future expansion and growth
- Automation, AI and robotics are developing rapidly and require major investment
- Low carbon and environmental issues such as reducing plastic use and the phasing out of peat are becoming more pressing

11. Annexes

Annex A: Horticultural industry definitions

Horticulture is defined as the growing of vegetables, fruit, flowers, salad crops and nursery stock[51]. Below is the list of crops we have included in our definition when deciding which businesses are in scope, both growers and suppliers.

	Growers	
1	**Protected Edibles**	
1.1		Herbs (protected)
1.2		Salads (including tomato, pepper, chilli, cucurbits) (protected)
1.3		Leafy vegetables (lettuce etc.) (protected)
1.4		Vegetable propagation (protected)
1.5		Mushrooms
2	**Outdoor Edibles (excluding potatoes and combinable crops)**	
2.1		Salads (outdoors)
2.2		Leafy vegetables (lettuce, etc) (outdoors)
2.3		Other vegetables (sweetcorn, cucurbits, tender stem, rhubarb etc) (outdoors)
2.4		Herbs (outdoors)
3	**Soft Fruit**	
3.1		Soft fruit (strawberry, cane fruit, berry fruit) (protected)
3.2		Soft fruit (strawberry, cane fruit, berry fruit) (outdoor)
4	**Tree Fruit**	
4.1		Top fruit (apples, pears, cherry etc)
5	**Viniculture**	
5.1		Viniculture
5.2		Winery
6	**Hardy Nursery Stock**	
6.1		Hardy nursery stock (protected)
6.2		Hardy nursery stock (outdoor)
7	**Protected Ornamentals**	
7.1		Ornamentals (bedding etc) (protected)
7.2		House Plants (poinsettias, orchids, pot mums etc) (protected)
8	**Pharmaceutical & Alternative Crops**	
8.1		Licenced Pharmaceutical (cannabis, poppies) (protected)
8.2		Other alternative crops (hemp, borage, camelina, echium, calendula, lunaria etc)
9	**Bulbs & Outdoor Flowers**	
9.1		Bulbs
9.2		Cut Flowers
10	**Trees**	
10.1		Forestry
10.2		Christmas Trees
10.3		Ornamental, fruit and specimen trees

Table 19: Crops included in the definition of horticulture for the research

[51] Farming in the South East NFU

	Suppliers	
11	**Facilities & Processing for the horticultural industry :**	
11.1		Facilities Management
11.2		Transport & Distribution
11.3		Fresh produce processing
11.4		Supply chain
11.5		Supply of infrastructure
11.6		Labour supply
12	**Retailer**	
12.1		Retail of horticultural products
12.2		Retail imported products
13	**Amenity & Landscape**	
13.1		Amenity
13.2		Landscape

Table 20: Suppliers included in our definition of the horticultural industry

The following SIC codes have been used when interrogating official statistics such as ONS and Companies House data although these do not all align precisely to the crops included in our definition.

SIC code:	Description
01130	: Growing of vegetables and melons, roots and tubers
01140	: Growing of sugar cane
01160	: Growing of fibre crops
01190	: Growing of other non-perennial crops
01210	: Growing of grapes
01220	: Growing of tropical and subtropical fruits
01230	: Growing of citrus fruits
01240	: Growing of pome fruits and stone fruits
01250	: Growing of other tree and bush fruits and nuts
01260	: Growing of oleaginous fruits
01270	: Growing of beverage crops
01280	: Growing of spices, aromatic, drug and pharmaceutical crops
01290	: Growing of other perennial crops
01300	: Plant propagation
01610	: Support activities for crop production
01630	: Post-harvest crop activities
01640	: Seed processing for propagation
02300	: Gathering of wild growing non-wood products

Table 21: SIC codes used for analysis of data from official sources

Annex B: List of participating organisations

Businesses interviewed
Barfoots of Botley Ltd.
Binsted Nursery
Blue Ribbon Plants
Downs View Nurseries Ltd.
Eric Wall
Fleurie Nursery Ltd.
Hagelunie
Hall Hunter Partnership
Hills Plants Chichester
Langmead Group
Madestein UK
Need Consulting
Tangmere Airfield Nurseries
The Lettuce Company
Tristram Plants
Walberton Nursery

Stakeholders interviewed
Chichester College Group
Chichester District Council
Coast to Capital Local Enterprise Partnership
Coastal West Sussex Partnership
National Farmers Union
Plumpton College
Rural West Sussex Partnership
South Downs National Park Authority
West Sussex County Council

Annex C: National and local policies, strategies and plans

THE AGRICULTURE ACT 2020

The Agriculture Bill 2019-21 (originally HC Bill 7) was published on 16 January 2020. It received Royal Assent on 11 November 2020, becoming the Agriculture Act 2020. The Bill provides the legislative framework for replacement agricultural support schemes following the UK's departure from the EU and the EU's Common Agricultural Policy (CAP), and a range of powers to implement new approaches to farm payments and land management.

New measures include:

- A requirement for Ministers to consider the need to encourage the production of food in England, in an environmentally sustainable way;
- A requirement for Ministers to set out multi-annual plans about how they will use their financial assistance powers. The first plan will start in 2021 for seven years. Beyond that plans must be of at least five years' duration;
- A requirement to report on food security at least once every five years;

In England, farmers will be paid to produce 'public goods' such as environmental or animal welfare improvements. The Bill also includes wider measures, including on improving fairness in the agricultural supply chain and on the operation of agricultural markets.

Public payments for public goods Part 1 gives the Secretary of State new powers to provide financial assistance to those managing the land and delivering public benefits such as air and water quality, public access and productivity. The list has been expanded from the 2017-19 Agriculture Bill adding in the conserving plants grown or used agriculture, horticulture or forestry, including conserving their wild relatives. Public payments can include support for measures across the forestry and horticulture sectors which reduce the risk of introduction and spread of harmful plant pests and disease.

https://commonslibrary.parliament.uk/research-briefings/cbp-8702/

In its response to the Act, the NFU states that 'The Agriculture Act is a framework providing government with the powers to deliver its future agricultural policies. Included in these policies is the transition from the current system of direct payments to future farm support schemes, such as the Environmental Land Management scheme (ELMs), setting the post -Brexit agenda for farm support across England.

While the BPS is being phased out, Defra will have powers under the Act to change the model of farm support previously delivered under the CAP.

Beginning next year, farmers will have a seven year transition period to adapt to a new agricultural system

COAST TO CAPITAL STRATEGIC ECONOMIC PLAN, GATWICK 360°

Published in 2018, Gatwick 360° and the evidence base accompanying it forms the starting point for the Local Industrial Strategy (LIS). However, work to develop the LIS is paused in order to focus on responding to the COVID-19 pandemic.

Gatwick 360° Strategic Economic Plan (SEP) sector analysis reveals that future economic strengths lie in economic sub-sectors in distinct, localised areas rather than a smaller number of broad sectors across the whole area. Horticulture and Food Manufacturing is identified as a Sector Specialisation in Arun, Chichester, Horsham, Lewes and Mid Sussex. The region is one of the largest horticulture areas in the UK, employing upwards of 9,000 FTE jobs providing in excess of £1 billion production. The SEP plans to carry out more work with partners to understand growth opportunities and what kind of investment is required to unlock potential and boost overall productivity.

https://www.coast2capital.org.uk/strategic-economic-plan-gatwick-360

C2C CORONAVIRUS (COVID-19) ECONOMIC IMPACT ASSESSMENT – FINAL REPORT AUGUST 2020

The 'Places Summary' section explores local and sectoral challenges, including coastal and rural areas citing severe shocks for horticulture companies. The sudden closure of restaurants, festivals, garden centres, schools and workplaces created an oversupply of some perishable products, despite the increase in household food purchases. Sudden reductions in demand at outlets (such as garden centres) led to large surplus of perishable goods and lost income. Taking a sector specific approach to 5G testbed status and building on the areas strengths in advanced manufacturing and horticulture is identified as an infrastructure opportunity where plans could be progressed to advance automation locally.

https://www.coast2capital.org.uk/coronavirus-covid-19

https://www.coast2capital.org.uk/storage/downloads/coronavirus_covid-19_economic_impact_assessment-1603375323.pdf

C2C BUILD BACK STRONGER, SMARTER AND GREENER

This sets out the case for a series of place based transformation infrastructure projects to speed recover and accelerate growth, addressing long-term productivity challenges and significant short-term impacts of the pandemic across West Sussex, Surrey and the major economic centres of Crawley and Brighton & Hove. Coast to Capital will continue to prioritise funding for partners to ensure comprehensive digital infrastructure coverage, such as those made through 5G applications. A series of 'Asks' are proposed, interventions towards economic recovery that could lead to infrastructure investment in the region and other skills development and job opportunities should these be developed following discussion with Government. This includes exploring the potential of the **tourism, wine and horticulture** sectors in order to broaden the base of economic recovery and turbo charge the region's natural strengths.

https://www.coast2capital.org.uk/storage/downloads/build_back_stronger_smarter_and_greener-1600419204.pdf

C2C LOCAL INDUSTRIAL STRATEGY – DRAFT ECONOMIC PROFILE – Revised Version February 2020

Following the UK Government's publication of its Industrial Strategy in 2017, it was announced that all LEPs across the country would be encouraged to develop a Local Industrial Strategy (LIS), to help 'build on local strengths and deliver on economic opportunities' while also identifying 'priorities to improve skills, increase innovation and enhance infrastructure and business growth.'

Coast to Capital is part of the Wave 3 group of LEPs to produce a LIS and set up a Programme Group to oversee development of the LIS. Collaborative Innovation across Horticulture & Viticulture is identified as one of the areas of national quality R&D activity across Coast to Capital but data and engagement across all R&D sectors suggests R&D is not as prevalent as it appears with companies facing difficult challenges including skills shortages, minimal university engagement, lack of space, inability to expand, the cost of land and R&D moving elsewhere.

https://www.coast2capital.org.uk/storage/downloads/coast_to_capital_draft_lis_economic_profile-1583932795.pdf

The Draft Economic Profile is informed by a series of baseline reports and research. The **Skills and Labour Market Study** identifies that potential limits on EU immigration could impact on a number of key sectors in the LEP area economy, including horticulture as well as lower skilled occupations. Limits on EU migration will have a big impact on labour supply for large horticulture businesses compared to other sectors.

https://www.coast2capital.org.uk/storage/downloads/coast_to_capital_skills_and_labour_market_study_-_baseline_report-1582282864.pdf

The **Innovation Ecosystem Study** looks at technological innovation and the number of investors across a variety of science and technology areas, using patents to assess the amount of research and entrepreneurship. The highest score is in food chemistry and IT methods for management, likely due to the influence of the Horticulture industries developing new methods of farming produce. The R&D ranges from smaller businesses developing products together to much bigger enterprises like Tesco's and Sainsburys investing research. The study highlights an abundance of businesses in the Horticulture and Viticulture industries, which rely on collaboration locally, regionally and internationally in order for the sector to grow, with the sparkling wine industry and the Growers Association all sharing

ideas, innovation, research and expertise with what would traditionally be considered as 'competitors', benefiting the industry as a whole.

https://www.coast2capital.org.uk/storage/downloads/coast_to_capital_innovation_ecosystem_study_-_part_2-1575301429.pdf

Rural economy at local level is examined in the **Rural Economy Study**. The sectoral makeup of the rural economy varies with Chichester having the biggest percentage of Agriculture, Forestry and Fishing (10.18%), probably due to the presence of horticulture.

https://www.coast2capital.org.uk/storage/downloads/coast_to_capital_rural_economy_study-1582283317.pdf

A set of 'logic chains' were submitted to Government in January 2020 for review, which will further inform the development of the LIS and its interventions. Intervention 2.1 proposes securing resource to expand the Growth Hub business support offer with the long term benefit being an increase in business and/or employment growth (allowing for the impact of automation to increase productivity while reducing numbers in some sectors e.g. horticulture). More UK and overseas inward investment will be secured through increased investor confidence in the area.

https://www.coast2capital.org.uk/LIS-Development

Coast to Capital Growth Hub: Viticulture & Horticulture - Business Support

Support for the industry is available through long term free and impartial support provided by a Growth Relationship Manager responsible for the West Sussex – Arun, Chichester Horsham and Mid Sussex area.

https://www.c2cbusiness.org.uk/business-sector/viticulture-horticulture

WEST SUSSEX COUNTY COUNCIL ECONOMIC GROWTH PLAN 2018-2023

This sets out the County Council's priorities for driving economic growth and the supporting action plan prioritises activity and investment including identifying new opportunities for growth.

Innovation and Digital Technologies are expected to create a broad range of opportunities, and disruption to a wide range of sectors beyond the manufacturing sectors typically affected by technological change. Digital infrastructure is a vital requirement, while meeting future workforce needs is essential for West Sussex to position itself strongly in a highly competitive South East market.

The strategic issues which reflect opportunities and challenges to economic growth include Productivity and business competitiveness; Employment sectors and technological innovation; A skilled, adaptable and enterprising workforce; and West Sussex as a place to live, visit and work.

The horticulture sector, which includes the glasshouseindustry located predominately in coastal West Sussex, makes a significant contribution to the local economy, and there are opportunities to collaborate with the sector, for example around innovation, digital enabling technology, and green energy.

https://www.westsussex.gov.uk/media/11971/economic_growth_plan.pdf

ARUN GROWTH DEAL 2018 TO 2023

This sets out a joint commitment between Arun District Council and West Sussex County Council to delivery sustainable growth and unlock opportunities for new homes, infrastructure, employment floor space in the priority areas of Bognor Regis, Littlehampton and Strategic Growth - delivering key infrastructure projects and supporting delivery of strategic housing sites identified in the Local Plan. The horticultural industry is not specifically addressed in the Growth Deal.

https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n13665.pdf&ver=13898

ARUN ECONOMIC STRATEGY 2020 – 2025

This sets out the economic priorities of Arun District Council and the opportunities to support the prosperity of the district. The strategy identifies strengths in advanced manufacturing, horticulture and a growing creative sector. The horticulture industry, including high-tech horticulture, mostly growing a range of soft fruits, herbs, sweet peppers and plants, is a key feature of the coastal plain in the District along the fertile alluvial plain, with its beneficial climate, long

sunshine hours and the high light levels. The strategy identifies the need to work closely with the horticultural sector to overcome workforce recruitment issues.

https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n15485.pdf&ver=15913

ECONOMIC DEVELOPMENT STRATEGY FOR CHICHESTER DISTRICT 2019 – 2024

This builds on the 2016-2019 strategy, retaining specific aspects and adding additional aims that sets out the future direction. It recommends a targeted approach to supporting high growth potential businesses and is supported by an Inward Investment Strategy. The priorities of the strategy are Inward Investment; Supporting the 'high street'; Create the Conditions to Support Growth-Oriented Businesses; Make Best Use of the District's Natural and Cultural Assets; and Match Skills to Business Needs and Attract and Retain working age talent.

The **Inward Investment and Growth Strategy** highlights that Chichester District already has a number of important economic strengths on which to build with a long history of successful business start-ups, an impressive Horticulture sector as well as the world renowned brands of Rolls Royce Motor Cars and Goodwood. In terms of employment, wholesale and retail, accommodation and food service, health & social work and education account for under half of jobs. However, the agriculture/horticulture sectors are also key features of the District's economy. Economic growth is expected to be driven by higher value businesses many of which do not require large commercial floor space in the professional, scientific and technical services sector.

https://chichester.moderngov.co.uk/documents/b4400/Cabinet%20appendices%20pack%20for%205%20November%202019%20Tuesday%2005-Nov-2019%2009.30%20Cabinet.pdf?T=9

HORSHAM DISTRICT ECONOMIC STRATEGY 2017-2027

Enterprise is a key priority, supporting businesses to become more productive and resilient to support long-term growth, providing a range of business premises and identifying further employment sites. Over two thirds of businesses are rurally based, with growth in specialist industries such as fresh produce, food production and viticulture. Both employment and number

of businesses have grown in the last three years and there is scope for further development through supporting business growth.

https://www.horsham.gov.uk/__data/assets/pdf_file/0011/69986/Horsham-District-Economic-Development-Strategy-2027.pdf

MID SUSSEX ECONOMIC DEVELOPMENT STRATEGY 2018-2031

No reference to horticulture, farming, food growth or food processing.

ADUR AND WORTHING ECONOMIC STRATEGY 2018 TO 2023

No reference to horticulture, farming (other than identified sites for development), food growth or food processing.

Annex D: Planning policy

The South Downs Local Plan (2014 – 33) covers the entire National Park and sets the vision, objectives and policies that provide a framework for assessing planning applications and development. Outside of the National Park, the policies within the local plan of each district determine the planning framework. In relation to the horticultural industry these sets of policies are summarised below, with relevant extracts following.

SOUTH DOWNS LOCAL PLAN 2014 - 33

Development Management Policy SD32 covers New Agricultural and Forestry Workers' Dwellings. Policy SD39 deals with development proposals for new buildings or structures for the purposes of agriculture or forestry, and for new or improved access tracks for forestry or agriculture. There is no specific reference to horticulture.

ARUN LOCAL PLAN 2018 (2011-2031)

Strategic and Development Management Policies under the theme of 'Prosperous Place' include Soils and Horticulture and the plan seeks to support and encourage further development in this sector. Horticultural activities include protected cropping (glasshouses and polytunnels), open field production and horticultural-produce packing facilities. In addition to growing horticultural products, the industry is evolving to meet customer demand and is importing, processing, packing and distributing produce all year round. The Council adopted a Horticultural Local Development Order, to assist the horticulture sector in September 2016 to be applied to identified area(s) of the LDO for a period of 10 years. The Housing Delivery section of the local plan relates to the demands to house transient and/or migrant workers due to the demands of seasonal employment.

Policy HOR DM1: Horticulture sets out the criteria that will apply for new glasshouse, polytunnel and associated packhouse development, the replacement or renewal of existing glasshouse structures, and the redevelopment of under-used, redundant or derelict glasshouses, polytunnels or packhouses.

CHICHESTER LOCAL PLAN 2015 – 2019

The plan identifies the establishment of large scale glasshouse sites by major growers concentrated on the Manhood Peninsula and along the East-West Corridor. The District's horticultural industry is amongst the largest producer of salad crops in the country and supplies much of the South East region and it is important that sufficient suitable sites are available to ensure the District's horticultural industry remains nationally and internationally competitive.

The Council has designated four Horticultural Development Areas (HDAs) in the countryside, where glasshouses and related facilities, including packhouses, may be allowed at Tangmere, Runcton, Sidlesham and Highleigh, and Almodington.

Policy 32 Horticultural Development is divided into development within HDAs and outside HDAs. The preferred approach for horticultural development is for land within existing HDAs to be used first and if not possible, land adjacent to an HDA. When it can be demonstrated that no suitable land within HDAs is available land outside HDAs may be considered. Smaller scale horticultural glasshouses will be focused within the existing HDAs at Sidlesham and Almodington. The Local Plan also encourages the provision of education facilities including in local food production (horticulture and food processing).

ADUR LOCAL PLAN 2017

Policy 13 covers Adur's Countryside and Coast Outside of the Built Up Area Boundary where development will only be permitted where the need for a countryside location is essential, including the essential needs of agriculture or horticulture.

OTHERS

The Mid Sussex District Local Plan 2014-2031 states that land which is most flexible, productive and efficient and can best deliver future crops for food and non-food uses should be protected from development due to its economic importance and geological value.

No reference specifically to the horticultural industry is made within the Horsham District Planning Framework 2015 and the final Submission Draft of the Local Plan is expected during February 2021.

SOUTH DOWNS LOCAL PLAN: ADOPTED 2 JULY 2019 (2014–33)

The South Downs Local Plan covers the entire National Park and includes a vision, objectives and sets of policies which together provide a policy framework for assessing planning applications and guiding development in the National Park.

Development Management Policy SD32: New Agricultural and Forestry Workers' Dwellings

1. Development proposals for agricultural and forestry workers' dwellings will be permitted where it has been demonstrated that the nature and demand of the work concerned make it essential for one or more people engaged in agricultural and forestry enterprises to live at, or very close to, the site of their work.
2. Applications for new agricultural and forestry workers' dwellings will need to demonstrate that:
    a) The agricultural or forestry enterprise is established, extensive, viable and contributes to the special qualities of the National Park;
    b) There is an essential functional need for the agricultural and forestry dwelling that could not be fulfilled either by another residential dwelling on the enterprise or existing residential accommodation in the local area which is suitable and available for occupation by the workers concerned;
    c) No other residential dwellings either on or closely connected to the enterprise have been sold off separately or alienated from it in the past five years unless the reason for separation is justified through robust evidence;
    d) Full consideration has first been given to the conversion of an existing building within the enterprise; and
    e) The proposed agricultural or forestry dwelling should be well-related in terms of siting to existing buildings or dwellings within the enterprise, result in and remain as a total habitable floor space not exceeding 120m² (gross internal area) and be sensitively designed.
3. Applications for the removal of occupancy conditions will not be permitted unless it can be demonstrated through robust evidence that there is no longer a current or possible renewed need for the dwelling for the authorised use for the foreseeable future, and will only be made available on the open market when it has been robustly demonstrated that its use as an affordable dwelling would be unviable or unsuitable or unnecessary.
4. Temporary dwellings for agricultural and forestry workers will be permitted where they are essential to support the agricultural or forestry enterprise, whether new or established, provided that it is demonstrated that:

    a) There is a firm intention and ability to develop the enterprise;

    b) There is a clear functional need to support the enterprise;

    c) The enterprise has been planned on a sound financial basis;

    d) The location would be suitable for a permanent agricultural or forestry

    workers' dwelling; and

    e) It is easily dismantled and/or taken away.

5. Where permission is granted for new dwellings under this policy, future extensions may be controlled by the removal of permitted development rights.

Development Management Policy SD39: Agriculture and Forestry

1. Development proposals for new buildings or structures for the purposes of agriculture or forestry will be permitted where:

a) There is an agricultural or forestry need for the development within the National Park and its scale is commensurate with that need;

b) The development occupies the site best suited to conserving and enhancing the natural beauty, wildlife and cultural heritage of the National Park.

Wherever possible, development should re-use or be on the footprint of an existing agricultural building, otherwise it should be related physically and functionally to existing buildings associated with the enterprise, unless there are exceptional circumstances relating to agricultural or forestry necessity for a more isolated location;

c) The buildings are in keeping with local character and of a design that reflects the proposed agricultural or forestry use;

d) The proposals include structure planting to integrate the development into the existing local landscape framework;

e) A building has not been disposed of or converted to an alternative use at the holding in the past three years, which could have met the need of the development proposed; and

f) Existing redundant buildings within the application site which have a negative impact on landscape character are removed where appropriate.

2. Development proposals for new or improved access tracks for forestry or agriculture will be permitted where:

a) The proposal is essential for the sustainable management of the land;

b) It has been demonstrated that it is not feasible to accommodate the proposed traffic using existing accesses;

c) The layout and design conserves and enhances local landscape character and the special qualities; and

d) Where appropriate, the track is opened as a path for permissive public usage.

https://www.southdowns.gov.uk/wp-content/uploads/2019/07/SD_LocalPlan_2019_17Wb.pdf

ARUN LOCAL PLAN 2018 (2011-2031)

The Arun Local Plan and the policies within it only apply to the local planning authority area of the District. The area of Arun that falls within the South Downs National Park is the responsibility of the South Downs Planning Authority.

Arun wants to enable residents of working age to be able to work within Arun, so job creation is its top priority. The Local Plan will help to achieve this by diversifying the range of employment sites available to investors; protecting existing viable employment land from other forms of development; encouraging employment growth in manufacturing, cultural, office, leisure, retail, horticulture and marine based activities and; freeing up commercial enterprise through the use of Local Development Orders.

Strategic and Development Management Policies under the theme of 'Prosperous Place' include Soils, Horticulture and Equine developments. The commercial horticultural industry is a major employer in the Barnham and Angmering areas. Horticulture is one of four key sectors identified in the Arun Economic Strategy and this plan seeks to support and encourage further development in this sector by providing the framework for supporting development.

Horticultural activities include protected cropping (glasshouses and polytunnels), open field production and horticultural-produce packing facilities. In addition to growing horticultural products, the industry is evolving to meet customer demand and is importing, processing, packing and distributing produce all year round. The Council adopted a Horticultural Local Development Order, to assist the horticulture sector, on 14th September 2016 to be applied to identified area(s) of the LDO for a period of 10 years.

Employment is particularly seasonal and the 'Housing Delivery' section relates to the demands to house transient and/or migrant workers.

Policy HOR DM1: Horticulture

1. New glasshouse, polytunnel and associated packhouse development will be permitted provided that:
    a) It is of a height and bulk which would not significantly damage the character or appearance of the surrounding landscape, unless it can be demonstrated that the need for a larger scale development is outweighed by the economic benefit of the scheme to the rural economy;
    b) It relates sympathetically to the natural, built and historic environment;
    c) Pollution to soil, water or air generated from the development into the surrounding environment, including the cumulative effects, is within regulated acceptable limits;
    d) Long public views across substantially open land are retained where the landscape value is defined as major or substantial for the corresponding Landscape Character Area in the Arun Landscape Study
    e) Adequate water resources are available or can be provided (ie. above ground reservoirs);
    f) Adequate surface water drainage capacity exists or can be provided as part of the development;
    g) Vehicular access from the site to the road network is adequate and uses roads capable of accommodating the vehicle movements likely to be generated by the development without detriment to highway safety and the residual cumulative impact to residential amenity is not severe; h. There is minimal impact on health or general amenity resulting from internal artificial lighting after 6.00 pm on the occupants of nearby residential properties and minimal impact on the appearance of the site in the landscape by the minimisation of light spillage and glare to keep the natural environment intrinsically dark at night; 32 Combined Horticultural Production & Energy Hubs: A Review, October 2012, West Sussex Growers Association. 108 Arun District Council Adoption Arun Local Plan 2011-2031 (July 2018) 11 Soils, horticultural and equine developments
    h) Noise levels resulting from machinery usage, vehicle movement, or other activity on the site, which when measured against the existing ambient noise levels in the locality would not be likely to unacceptably disturb occupants of nearby residential properties or would not be likely to adversely affect enjoyment of the countryside;
    i) Any glasshouse structure(s) and/or polytunnel(s) and or/packhouse(s) deemed redundant to the horticultural or agricultural industry on the development site, are removed and the land is remediated from any contaminated material(s) and the land is used only for the direct diversification of horticulture or other productive green environment or a countryside-based enterprise activity which supports the rural economy. Council will impose this through planning conditions and/or use planning obligation agreements;
    j) Proposals include full details of new landscaping, screening and of any trees or vegetation to be retained on the site; and
    k) The applicant has submitted sustainability and options appraisals, mitigation measures, and a soil resources plan for the development site.
2. Replacement or renewal of an existing glasshouse structure will be permitted where:
    a) It is in the same position on the site as the existing structure; and
    b) It is broadly of the same height and bulk as the existing structure; where the criteria for new glasshouse structure shall apply.

3. Redevelopment of under-used, redundant or derelict glasshouses, polytunnels or packhouses will be supported provided that:

   a) The redundancy of the structure or building to the owner and the horticultural or agricultural industry is proven by the applicant to the satisfaction of the Council; and

   b) The land is remediated from any contaminated material(s) and the land is used for the direct diversification of horticulture or other productive green environment or is a countryside-based enterprise activity which supports the rural economy; and

   c) All proposed works include full details of new landscaping, screening and of any trees or vegetation or structures to be retained on the site Proposals for redevelopment of horticultural sites for non-horticultural purposes will be considered on a case by case basis against Policy C SP1. To reduce the impact on the sector, applicants/landowners shall be required to work with the Council and any existing horticultural businesses on the site to enable and facilitate relocation within the Arun district of the existing horticultural business in order to protect employment and to allow the existing horticultural business to continue to contribute to the local economy.

https://www.arun.gov.uk/download.cfm?doc=docm93jijm4n12844.pdf&ver=12984

CHICHESTER LOCAL PLAN 2014-2019

The plan provides the vision and framework that will shape the future of Chichester District outside the South Downs National Park area. Policy 32 relates to Horticultural Development.

Due to the combination of climate, soil quality and high light levels which prolong the growing season, the District's horticultural industry is amongst the largest producer of salad crops in the country and supplies much of the South East region. Major growers have established large scale glasshouse sites, which are mainly concentrated on the Manhood Peninsula and along the East - West Corridor. In the Chichester and Arun coastal plain, horticultural production has a retail value of £500 million per annum and employs around 4,300 permanent and 7,000 seasonal workers. The East-West highly accessible transit corridor will be the focus for major new employment development, including large-scale horticulture.

The plan encourages the provision of suitable education facilities to attract and retain young people and offer relevant training and skills including in local food production (horticulture and food processing).

Chichester District has a good growing climate and both the agricultural and horticultural industries are important. Domestic food production is of strategic national importance. Emphasis is not just on increasing self-sufficiency but also taking advantage of the UK climate to produce more food for home and export markets.

Consequently, it is important to protect the best and most versatile agricultural land and to minimise its loss to development in order to safeguard this resource. It is recognised therefore that while the protection of the best and most versatile land is a priority there may sometimes be occasions when its loss may be necessary as there may be instances where there are no suitable, sustainable alternatives to development.

To ensure that the District's horticultural industry remains nationally and internationally competitive, it is important that sufficient suitable sites are available. To support this activity, the Council has designated Horticultural Development Areas (HDAs) in the countryside, where glasshouses and related facilities, including packhouses, may be allowed and the impact of their large size and bulk is minimised. The four HDAs are at Tangmere, Runcton, Sidlesham and Highleigh, and Almondington. The Council considers that the HDAs should remain available for growing and packing horticultural products and other process directly related to the preparation of vegetable and salad products, such as washing and shredding. Smaller scale horticultural glasshouses will be focused within the existing HDAs at Sidlesham and Almodington. The preferred approach for horticultural development is for land within existing HDAs to be used first and if not possible, land adjacent to an HDA. When it can be demonstrated that no suitable land within HDAs is available land outside HDAs may be considered.

Policy 32 Horticultural Development

Within HDAs

Large scale horticultural glasshouses will continue to be focused within the existing Horticultural Development Areas at Tangmere and Runcton. The Sidlesham and Almodington Horticultural Development Areas will continue to be the focus for smaller scale horticultural glasshouses. Within designated Horticultural Development Areas, as shown on the Policies Map, planning permission will be granted for new glasshouse, packhouse and polytunnel development where it can be demonstrated that the following criteria (1-7) have been met:

1. There is no significant adverse increase in noise levels resulting from machinery usage, vehicle movement, or other activity on the site, which would be likely to unacceptably disturb occupants of nearby noise sensitive properties or be likely to cause unacceptable harm to the enjoyment of the countryside;
2. The proposal does not generate unacceptable levels of soil, water, odour or air pollution and there is no significant adverse impact resulting from artificial lighting on the occupants of nearby sensitive properties or on the appearance of the site in the landscape;
3. New planting is sufficient to benefit an improvement to the landscape and increases the potential for screening;
4. Adequate vehicular access arrangements exist or will be provided from the site to the road network to safely accommodate vehicle movements without detriment to highway safety or result in unacceptable harm to residential amenity;
5. The height and bulk of development, either individually or cumulatively, does not damage the character or appearance of the surrounding countryside, and mitigation measures are included to address any detrimental effects e.g. in order to mitigate the height and bulk of new horticultural structures;
6. It can be demonstrated that adequate water resources are available or can be provided and appropriate water efficiency measures are included; and
7. Acceptable surface water drainage capacity exists or can be provided as part of the development including sustainable drainage systems or water retention areas.

Outside HDAs

Planning permission will be granted for new horticultural development proposals including

the extension to existing Horticultural Development Areas where the above (1-7) and

following criteria (8-11) have been met:

8. There is a horticultural justification for the development and it can be demonstrated that the proposal cannot be accommodated within existing HDAs;
9. The land is sufficiently well drained, level and of a quality to be suitable for horticultural development;
10. Necessary infrastructure and services are available or will be provided; and
11. The proposal is not located within open countryside and ensures that long views across substantially open land are retained.

https://www.chichester.gov.uk/newlocalplan

ADUR LOCAL PLAN 2017

The new Local Plan sets the strategic development and land-use priorities for Adur (outside of the South Downs National Park) up to 2032, and contains the policies against which development management decisions within that area will be made.

Policy 13 (extract): Adur's Countryside and Coast Outside of the Built Up Area Boundary, development will only be permitted where the need for a countryside location is essential; it is for quiet informal recreation or the essential needs of agriculture or horticulture, flood management, or is otherwise consistent with this Local Plan (or subsequent DPDs).

Any development in the countryside should not result in a level of activity which has an adverse impact on the character of the area.

https://www.adur-worthing.gov.uk/adur-local-plan/

HORSHAM DISTRICT PLANNING FRAMEWORK (excluding South Downs National Park)

The authority aims to consult on the final Submission Draft of the Local Plan from February 2021. In the meantime, the current local plan is the overarching planning document for the district outside the South Downs National Park.

https://www.horsham.gov.uk/__data/assets/pdf_file/0016/60190/Horsham-District-Planning-Framework-November-2015.pdf

MID SUSSEX DISTRICT LOCAL PLAN 2014 - 2031

The District Plan does not apply to that part of the District within the South Downs National Park. Where identified, Grade 1, 2 and 3a agricultural land should be protected from development due to its economic importance and geological value. This is the land which is most flexible, productive and efficient and can best deliver future crops for food and non-food uses.

https://www.midsussex.gov.uk/media/3406/mid-sussex-district-plan.pdf

end