

# **An economic analysis of the potential returns achieved from growing 12 specific horticultural crops in Wales**

## **Production guides**

This document is to be used in conjunction with the Horticulture Wales Gross margin calculator Excel tool. It provides production guides for each of the 12 crops, stating the growing requirements and assumptions used to calculate the gross margins detailed in the calculator. Further detail on the crops and the methodology used can be found in the supporting report.

The margins are split into two cost brackets; direct farm sales (which would be most relevant to smaller businesses e.g. pick your own, farm shop, sales to restaurants and veg box schemes) and wholesale or supermarket sales (suitable for larger scale enterprises and includes a commission set at 8 %).

The gross margins include the variable costs of production for one full cropping year per ha (unless otherwise stated). They do not include any establishment costs for the perennial crops, infrastructure costs for growing structures or additional equipment. Standard figures for these have been detailed in section 1.13 to give an idea of additional costs, all figures are exclusive of VAT.

## 1.1 Apples for juicing

Apple juice, rather than apples for direct sale, was selected as the Welsh climate would not provide the skin finish required for fresh sales and scab would be a significant issue. Juice represents a value added product that has experienced significant growth over the past 10 years with juice seen as a convenient way to 'gain one of your 5 a day'. Creating a brand and selling at farm gate or through local farm shops has been demonstrated in Wales as a highly viable business with juice having the advantage of an 18 month shelf life and a 12 month cash flow. This type of produce can also be sold over the internet with potential for other initiatives such as holding juicing events, paid pressing of other people's fruit and, if some cider varieties are also established, cider production.

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
		Production*	40	20	2	2	2	2	2	2	2	2	2	2
Harvest/ juicing/bottling*	20	-	-	-	-	-	-	-	-	90	30	20	20	180

\*Number of hours/ha



### APPLE JUICE – BOTTLED ON SITE

**Varieties:** Varies according to requirements - suggest a mix of varieties including: Discovery, Bramley, Katy and Red Windsor.

**Soil and Situation:** Deep, well drained medium loam, sandy or clay loam or brick earth, adequately sheltered and frost free.

**Cropping System:** Traditional orchard system staked trees, planting maidens at 606 trees/Ha, Herbicide strip maintained beneath and grass sward established in alleyways

**Establishment costs:** Year 1 - Trees £2,272, Sundries (stakes, grass sward etc.) £600, Labour £127. Crop inputs £775 per year

**Equipment costs:** Juicing equipment. Press and scrapper (pulveriser) plus equipment to pasteurise the juice (sometimes available second hand). Growers have got started with £3,000.

**Spacing:** 5.5 m alleyways, 3 m between trees

**Further Information:** Picking by hand into bulk bins @ 5p/kg is used in this gross margin calculation - Mechanical harvesting costs ~£350/ha  
1 tonne of apples yields approximately 500 litres juice  
Cider is essentially the same process, except the juice is not pasteurised. There are specific cider varieties and a certain proportion of these are required to call a product cider.


**Harvest Period:** September/October

**Marketed Yield:** Established orchard 15 t/ha

**Man Hours Per Ha:** Production, harvesting, juicing and bottling


## 1.2 Asparagus

Asparagus offers niche high value crop which has increased in popularity in recent years. It is a perennial crop with relatively high establishment costs but, once established, will last 10 years with careful management. There are any number of potential retail opportunities however it does require a significant labour input for harvesting and grading so would need to be fitted around other crops carefully. It is often a useful crop to get interest in direct type farm sales.

ASPARAGUS													
													
Varieties:	Gijnlim is currently the most favoured variety, other varieties such as Geulph Millenium and Mondeo are becoming increasingly popular. Asparagus can be established from field grown crowns or from module raised transplants. Field grown crowns usually produce bigger plants which can save the grower a year in growing time.												
Soil And Situation:	Medium loam pH 6.5, well drained												
Cropping System:	Asparagus is best planted on flat land or in a 50mm furrow and is earthed up in the dormant period. It is recommended that there should be 22,000 plants in a hectare												
Planting:	Early June												
Spacing:	Not considered to be too important. Tractor wheel centres often determine the spacing – row 1.5 m apart, 30 cm between crowns												
Establishment costs:	£4,700/ha – field operations, plants and planting												
Further Information:	It is best to keep perennial weeds away (especially creeping thistle and couch grass) as asparagus can be grown for up to ten years. Maintaining a good soil structure and building up a sufficient amount of soil organic matter before planting is recommended.												
Harvest Period:	End of April until the 21 <sup>st</sup> of June - Harvesting 20 kg/hour, grading 60 kg/hour. 22 months after planting												
Marketed Yield:	600 - 2000 kg/ha												
Man Hours Per Ha:	Production, harvesting and grading/packing												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	4	5	6	1	-	1	20	20	-	-	-	-	57
Harvesting/ packing*	-	-	-	100	200	200	-	-	-	-	-	-	500
*Number of hours/ha													


### 1.3 *Baby leaf salad*

Baby leaf salad is increasingly being chosen over traditional whole head salads by consumers both in supermarkets and direct farm sales. The cut-and-come-again nature of production teamed with successive plantings under protection can allow for all year round production. The margin has been produced for a bagged end product for retailers or sold via a veg box scheme, or to restaurants or farm shops. To allow for production on more marginal soils, substrate was chosen which would suit small micro businesses.

<b>BABY LEAF SALAD – BAGGED</b>													
													
Varieties:		Oriental brassica, rocket. Lettuce, spinach and many others											
Soil And Situation:		Substrate in various containers.											
Cropping System:		Crops sown on a continuity system, many are cut over 3 or more times											
Spacing:		As recommended by seed companies.											
Further Information		Crops of this type are very intensive and the scale of growing can be very small											
Harvest Period:		All year											
Marketed Yield:		9575 tonnes/Ha											
Man Hours Per Ha:		Production, harvesting and grading/packing											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	13	13	13	13	13	13	13	13	13	13	13	13	160
Harvesting/ packing*	329	329	329	329	329	329	329	329	329	329	329	329	3952
*Number of hours/ha													

## 1.4 Cauliflower

Cauliflower is already successfully grown in West Wales and would suit production in other parts of the country particularly in coastal regions. Outlets for small scale production would be to farm shops, veg box schemes, and restaurants wanting to source local products. To achieve profits from wholesale or supermarket sales, production would have to be on a large commercial scale and highly mechanised as cauliflower is very cheaply available from other parts of the UK.

		<b>CAULIFLOWER</b>											
Varieties:	F1 hybrid varieties are industry standards. These combine both vigour with uniformity. The maturity date varies with variety and can be used to aid continuity of harvest.												
Soil And Situation:	Friable well drained well drained soil pH 6.5 – 7.0												
Cropping System:	Soil grown, module raised transplants												
Sowing/planting	Sow March/April, plant May/June												
Spacing:	30 to 50 cm apart giving 37,500 heads/ha												
Further Information:	Gross margin given per crate, 1 crate usually comprising 12 harvested heads ~10kg												
Harvest Period:	July – Mid November												
Marketed Yield:	1800 crates = 18 t/ha												
Man Hours Per Ha:	Production, harvesting and grading/packing												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	5	-	35	2	3	3	2	-	-	-	-	-	50
Harvesting/ packing*	-	-	-	-	-	-	140	140	-	-	-	-	280
*Number of hours/ha													

## 1.5 Cut flowers, fillers and foliage

Fresh cut UK flowers are growing in popularity with a demand growing for seasonal British flowers such as; cornflowers, stocks, sweet Williams, larkspur, peonies, delphiniums, gladioli along with textural foliage and fillers such as laurel, eucalyptus, pittosporum, willow, sea hollies, dark hazel, dill to name just a few. The system suits small and medium sized outfits and there are many market opportunities and crop options along with a good demand. It is driven by requirement at celebrations e.g. weddings and cottage garden themes, so it is important to keep up to date with fashions and trends. Supplying to a wholesaler who will transport flowers to markets or local florists is one outlet for flowers. Value can also be added by producing your own arrangements, drying flowers and supplying potted plants to sell at local markets, farm shops or at the farm gate. There are also examples of 'cutting gardens' around the country where customers can come and cut their own flowers and tie their own bouquets, a practice very popular in Germany. For the latter examples it is important to have a wide range of flower and plant species available to produce attractive arrangements with some key reliable species grown in larger quantities. To allow for this range, an annual cut flower crop along with a perennial foliage crop were selected for the following gross margins the main costs of production will not vary that greatly between species within these broad categories however the price of planting material and the value of the harvested bunch will and therefore need to be adjusted accordingly. The published gross margin for the cut flowers was calculated for a tenth of a hectare (1000m<sup>2</sup> or ¼ acre) as one hectare would be an exceptionally large area for any one species. For the foliage crop this is calculated on a 1 hectare basis which again would be large enterprise.



### FRESH CUT FLOWERS AND FILLERS – Annual/drilled crop

Species:	Cornflowers, Larkspur, Sweet William, Annual Gypsophila, (Margin relevant to these species), Cosmos, Michaelmas daisies, Antirrhinums Sunflowers, Carnations, Pinks, Stocks, Asters (also good options, often better as module raised plants)
Soil and Situation:	Most soil types are possible, ideally with not too much clay. Need to create a good clod and weed free seed bed prior to sowing
Cropping System:	Direct drilled/sown in rows in soil. A polytunnel or glasshouse will improve quality and security of supply for the more valuable species but is not essential
Spacing:	Rows 25 cm apart, 0.3 g of seed per metre ~1.2 kg seed per 1000m <sup>2</sup> (or ¼ acre) Cornflower as an example
Further Information:	Sow direct from early April until the end of June for continuity. The main pest and disease problems are aphids and downy mildew, disease adds to harvesting costs as diseased leaves will need removing. These species grow naturally in relatively poor soils so keep nitrogen applications low. Weed control is important suitable residual herbicides should be used and some hand weeding may be required
Harvest Period:	12 weeks from sowing and vigorous plantations maybe cut twice.
Marketed Yield:	6 bunches per m <sup>2</sup>
Man Hours Per Ha:	Production, harvesting and grading/packing for one April sown crop

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	-	-	5	10	10	5	10	-	-	-	-	-	40
Harvesting/ packing*	-	-	-	-	-	-	20	80	60	-	-	-	160

\*Number of hours/1000m<sup>2</sup>



## FRESH CUT FLOWERS AND FOLIAGE – Eucalyptus

Other filler foliage crops include: Laurel, Bay, Willow, Hollies, Pittosporum, Euonymus

Species/Varieties:	Many different types available choose the following are popular choices for th UK as they have attractive foliage colour and form, branch rapidly each year and have some resistance to low winter temperature. <i>Eucalyptus gunnii</i> (The cider gum), <i>Eucalyptus glaucescens</i> (Tingiringi gum), <i>Eucalyptus perriniana</i> (Round leaved snow gum) <i>Eucalyptus pulverulenta</i> (Silver-leaved mountain gum)												
Soil And Situation:	Mild microclimate, well sheltered from wind and salt sprays if near the coast. A south facing aspect is desirable but not essential. A site exposed to full sunlight is best. Soil should be free draining and mineral loam types are best although Eucalyptus will tolerate most soil types. Soil should be cultivated and cleared of perennial weeds prior to planting.												
Cropping System:	Seed is normally sown in February and plants (as liners) should be ready for planting out into the open field by June/July.												
Spacing:	Planted in rows 2 m apart with 2m between plants in the row giving an overall plant density of approximately 2200 trees per ha.												
Further Information:	<p>Weed control particularly through establishment is critical and a plastic ground cover is a useful option with grass alley ways.</p> <p>Some stems are harvested in the second and third years but full economic yield is not reached until the fourth year. The crop continues to yield for a further 12 years if managed correctly. Net return depends on the grower's involvement as most of the cost is labour (maintenance &amp; harvest).</p> <p>Pruning is important for renewal of the desired foliage and plantations are managed as a pollarded or coppiced crop. Such pruning is undertaken at the end of a harvest season, usually late February or March.</p> <p>General compound fertilisers in Spring are sufficient and responses to N and S have been reported</p>												
Harvest Period:	October through to April using a hand held secateurs.												
Marketed Yield:	100,000 stems/ha (Second and third years 15,000 & 50,000 stems/ha respectively). Stems are bunched in 10's and kept in water under cool conditions												
Man Hours Per 1 ha:	For an established crop												
<b>Month</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Production*		30	20	-	2	-	2	-	2	-	2	-	58
Harvesting/ packing*	60	60	60	40	-	-	-	-	-	70	70	60	360
*Number of hours/ha													





\*Number of hours/ha


## 1.7 Kale

Kale has potential in Wales with growing interest in bagged winter greens for their ease of use and nutritional benefits. Kale is available in a range of varieties and has an attractive crinkled leaf to add interest. The crop can be picked several times over removing outer leaves for bagging rather than harvesting whole heads. The crop is also grown for animal fodder so could be dual purpose, meaning less wastage.

													
<b>KALE – PICK OVER</b>													
Varieties:	Traditional varieties: Thousand Head and Pentland Brigg. Newer varieties include: Cavolo Nero, Black Russian and Bolshoi												
Soil And Situation:	Friable, well-drained soil, pH 6.5 – 7.0												
Cropping System:	Sow April – June, transplant May – July. Suggested density 26,000 per hectare												
Spacing:	30 to 50 cm apart												
Further Information:	Kale is particularly susceptible to white fly therefore treatment is essential												
Harvest Period:	October – February												
Marketed Yield:	20 t/ha												
Man Hours Per Ha:	Production, harvesting and grading/packing												
<b>Month</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Total</b>
Production*	-	-	10	20	10	-	-	-	-	-	-	-	40
Harvesting/ packing*	52	52	-	-	-	-	-	-	-	52	52	52	260
*Number of hours/ha													


## 1.8 Leeks

Traditional long season leeks are a renowned Welsh crop already successfully grown on various scales. They are particularly interesting as there is a move to get PDO status on the Welsh Leek as it is used in the traditional Welsh dish “Cawl”. This could offer Welsh leeks a niche opportunity for a premium in supermarkets as well as greater direct farm sales. As with cauliflower, to achieve profits from wholesale or supermarket sales, production would have to be on a large, highly mechanised scale. Without such a premium, highly mechanised leeks are very cheaply available from other parts of the UK. Leeks have a long season of around 10-11 months with storage and, as leeks generally grow to a size and then remain at this size, they are perfect for farmers’ markets or as fillers for box schemes.

<b>LEEKS – TRADITIONAL LONG SEASON</b>													
													
Varieties:	King Richard - early leeks, Musselburgh and Winterreuzen types can cope better with colder weather. F1 hybrids are now available which combine both vigour with uniformity												
Soil And Situation:	Well drained, medium loam. Irrigation maybe required - Leeks require a well-drained soil as access will be needed from October to April.												
Cropping System:	Field grown, planted with module raised transplants from a plant raiser												
Sowing and planting	Sow Jan/Feb, plant March/April												
Spacing:	30 to 50 mm apart, population 110,000-200,000 plants /ha												
Further Information:	Weed control is very important with leeks; some skill is needed in choice of materials used for herbicide use. Rust can be a problem in autumn but by using a combination of fungicides and resistant varieties it can be kept under control												
Harvest Period:	Late July-September												
Marketed Yield:	20 t/ha												
Man Hours Per Ha:	Production, harvesting and grading/packing												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	-	-	5	6	-	-	20	80	15	-	-	-	126
Harvesting/ packing*	90	100	100	110	-	-	-	-	-	50	50	60	560
*Number of hours/ha													

## 1.9 Pumpkins and squashes

Pumpkins and squashes have increased in popularity with UK consumers in recent years and can successfully be grown on various scales. They are a useful summer crop with an outdoor harvest from September till the first frosts. Pumpkins and squashes have a long shelf life post-harvest of around 3 months, they are perfect for farmers' markets or as fillers for box schemes through late summer and into autumn/early winter. Many pick your own and farm shop enterprises find pumpkins a valuable addition in autumn with many holding Halloween themed events.

	<h3>Pumpkins and squashes</h3>
<p>Varieties:</p>	<p>Huge number of available usually good to grow a selection - Squashes: (Butternut squash trial only), acorn, buttercup, Hungarian blue, Hokkaido, Crown Prince</p> <p>Pumpkins Munchkin (small), Ghost rider, Howden, Jack O'lantern, Mars, Magical, Rocket, Racer.</p>
<p>Soil And Situation:</p>	<p>Well drained soil with high organic matter</p>
<p>Cropping System:</p>	<p>Field grown, planted with either module raised transplants from a plant raiser or self-propagated or they can be directly sown in the south</p>
<p>Sowing and planting</p>	<p>A germination cabinet is ideal for self-propagation. Set it at 23°C. If growing on benches in tunnels or under glass watch out for mice as they will clear out all of the seeds in one night and store them underground.</p> <p>Plant out if possible in a spell of mild weather as they can be damaged by cold winds until they get going. Pumpkins and squashes are not frost hardy so must go out after the frost risk has passed fleece protection is good insurance especially on sites where late frost is common. One night of -1°C is enough to kill.</p> <p>To save time and bring the ripening forward grow seedlings on to three true leaves indoors before planting out when frost risk is past.</p>
<p>Spacing:</p>	<p>Plant at 1 plant per m<sup>2</sup>, for example 1 m by 1 m carefully squared so they can be cultivated each way.</p> <p>This gives 10,000 per Ha or approx. 4000 per acre</p>
<p>Further Information:</p>	<p>Planting through black polythene or mypex is another option and this boosts the crop by providing warmer conditions.</p> <p>Use residual herbicides straight after planting for weed control.</p> <p>Slugs must be controlled at or before planting using slug bait, particularly if you are following a brassica crop.</p> <p>Rabbits can damage new plants but usually established plants are left alone.</p> <p>Fleece the crop if it turns cold after planting</p>

		<p>Keep N low, say 100 kg/ha, P,K,Mg on analysis, excess N will encourage too much leaf and powdery mildew.</p> <p>Powdery mildew appears in summer and fungicides are available for its control. Irrigation will benefit the crop in a drought year.</p> <p>Pumpkin sales normally decline after Halloween. So the last two weeks of October are for intensive marketing. The crops generally ripen in September, these can be stored in a dry barn or tunnel. If it's dry they can be left in the field.</p> <p>Do not wash before storage, storing in the wet or under too cold conditions will cause pumpkins and squashes to rot.</p>											
Harvest Period:		September till the first frosts, some limited culinary sales for pumpkins, Butternuts squash very speculative crop.											
Marketed Yield:		20 t/ha, ~ 8000 pumpkins or squashes in a good season											
Man Hours Per Ha:		Production, harvesting and grading/packing											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	2	-	-	3	40	40	40	5	2	-	-	-	127
Harvesting/ packing*	-	-	-	-	-	-	-	-	-	300	-	-	300
*Number of hours/ha													

## 1.10 Raspberries

Cane fruits are increasing in popularity with consumers as they are versatile and need minimal preparation before eating. They are also a healthy option as they are high in antioxidants and vitamins. Multiples are the main buyers but other markets include PYO, Farm Shop and Farmers Markets. Surplus product can also be frozen down for future value-added production such as jams and coulis or simply sold as a frozen ready-to-use product.

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
		Production*	-	2	2	24	20	2	-	-	100	100	-	-
Harvesting/ packing*	-	-	-	-	-	-	-	1000	500	-	-	-	-	1500

\*Number of hours/ha



### RASPBERRIES

**Varieties:** Glen Ample early-mid followed by Tulameen as a late-mid with Octavia finishing as a late. Marketing groups such as Berry Gardens have their own varieties not available to other growers.

Autumn fruited or primocane varieties include Polka, Autumn Treasure, Himbo Top and Joan Squire.

**Soil And Situation:** A deep, well drained medium loam - sandy loam or lighter texture but heavier soils can be successful with special care

**Cropping System:** Soil-grown with a simple post and wire trellis system – Canes planted in a single row

**Spacing:** 3.5 m between rows and 0.45 m down row giving 6350 plants per Ha

**Planting:** Any time between November and March under suitable soil conditions

**Establishment costs/ha (not included in GM):** Year 1 - Canes £3,500, Sundries (posts and wire, grass sward etc.) £2,200, £1000 for irrigation equipment and hook up, Labour £424, Spanish tunnel £28,000. Crop inputs £750 per year. 3 years to full crop

**Infrastructure costs (not included in GM):** Raspberries require rapid chilling post-harvest to avoid rots and to maintain quality therefore adequate cold storage is required

**Further Information:** Good drainage is essential, best results are from March plantings. It is important to test soils prior to planting for soil-borne diseases

**Harvest Period:** June – November with a range of varieties

**Marketed Yield:** 2.5 – 15 t/ha, 8 t/ha used in gross margin

**Man Hours Per Ha:** Production, harvesting and grading/packing  
Picking (4kg/hr)

### 1.11 Garden or green-pull Rhubarb

Garden or green-pulled rhubarb can be grown with very low inputs and has good retail potential both through direct farm sales and to supermarket retailers. The crop has few pests and diseases and own stock can be used for propagation. With suitable management it will harvest from March to October and has the added option for indoor forcing from December to March.




#### RHUBARB GARDEN OR GREEN-PULLED

Varieties:	The Sutton, Timperley Delight, Stockbridge Arrow and Reed's Early Superb												
Soil And Situation:	Good moisture retention with freedom from waterlogging												
Cropping System:	Single harvest												
Spacing:	92 cm x 76 cm giving 14.300 plants/ha												
Further Information:	Perennial weeds are a problem in rhubarb and every effort has to be made to clear up the weed prior to planting, ideally follow an arable crop. Herbicides are applied in the autumn and winter to control weeds in dormant crops												
Establishment costs (not included in GM):	Establishment costs - £7000 - £14000/ha for plants and £1600 for production labour. You should be able to take a crop in year 2 and a plantation can last for 5 to 6 years												
Harvest Period:	Normally late May-early June												
Marketed Yield:	30 tonne/ha (range 25-40 tonne/ha)												
Man Hours Per Ha:	Production, harvesting and grading/packing												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	-	3	-	-	-	-	-	-	-	-	3	-	6
Harvesting/ packing*	-	-	-	-	173	173	-	-	-	-	-	-	346
*Number of hours/ha													

## 1.12 Strawberries

Protected table-top strawberry production under Spanish polytunnels is a high value crop with potential for both the retail and the direct farm sales market. The table-top polytunnel system removes any difficulty with soil type or quality and ensures even production and ease of picking. It also provides a contrast to the low input raspberry system. Again this technique has potential for direct retail with possible expansion into supermarket supply.

<b>STRAWBERRIES – PROTECTED TABLE TOP PRODUCTION</b>													
													
Varieties:	Elsanta, Vibrant or Sonata												
Soil And Situation:	Coir-based growing media in bags												
Cropping System:	Table top structures, in Spanish polytunnels												
Spacing:	10 plants per 1m bag, 5 rows per tunnel												
Infrastructure costs (Not included in GM):	Estimated at: £37,500 for the table top structures, £9,400 for the grow bags (3 year life), £1000 for irrigation equipment and hook up and an estimated £28,000 for a Spanish tunnel per ha assuming 6250 m of table top. Cold storage and staff accommodation will also be required												
Planting:	Cold stored runners ideally before mid-August for full main season crop in following year												
Further Information:	Much of strawberry pest control is now achieved with biological agents. These have been included in the spray program costs												
Harvest Period:	June – July. Fruit needs picking at least 3 times a week, more frequently under warm conditions												
Marketed Yield:	20 t/ha – 350g per plant												
Man Hours Per Ha:	Production, harvesting and grading/packing												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Production*	-	10	30	30	120	-	-	60	30	30	-	-	310
Harvesting/packing*	-	-	-	-	-	800	200	-	-	-	-	-	1000
*Number of hours/ha													

### 1.13 Fixed costs

The table below details costs which may be useful to growers and farmers when looking into horticultural diversification and which should be considered when looking at crop gross margins. All costs are exclusive of VAT.

Equipment	Cost
Labour minimum wage* <sup>1</sup>	£6.31 /hr
Average labour cost including supervision	£7.00 /hr
Skilled labour (handling machinery/ team leader) *	£8.00 /hr
Spanish Tunnel /ha (structure 10 year life span, polythene 3 year life span)	£28,000 / Ha
Table-top structure/ha (10 year life span)	£37,500 /Ha
Fixed tunnel /M <sup>2</sup> doors and wind up sides	£27.00 m <sup>2</sup>
Juicing equipment	£3000 upwards
Irrigation/ha (drip for soft fruit) excluding fertigation rig and scheduling equipment	£1,000 /Ha
Field veg irrigation system, assumes reservoir in place	£1,200-£2,300 /ha
Tractor 110 horse power initial cost*	£50,500
Tractor yearly cost (inc. depreciation, insurance, repairs and maintenance, fuel and oil)*	£10,119 /yr
Cold storage - could be a second hand refrigerated van	£2000
Precision drill e.g. Stanhay 2 <sup>nd</sup> hand	£500
Staff accommodation costs per person Usually 7 per static caravan paying £20 -25 rent per week	£2,500 for delivered static caravan, plus electric, plumbing and planning
Average land price/ha *	£22,105
Average land rent/ha *	£309
Basic insurance (including public liability) <sup>2</sup>	£1500-£2000 pa
Business rates or Non Domestic Rates (NDR) are charges on non-domestic properties for local services such as refuse collection and sewerage. <sup>3</sup>	Your business rate is calculated by taking the Ratable Value (RV) of your property and multiplying it by the current non domestic rates "multiplier" Currently set at 0.47 (June 2014). Small businesses may

<sup>1</sup> \* Nix J. (2013) John Nix Farm Management Pocket book, 44th edition 2014

<sup>2</sup> Estimate from NFU mutual 17<sup>th</sup> June 2014 very rough estimate of basic insurance requirements to include employer liability, property, machinery and public liability. Please note for farm shops or PYO enterprises public liability is likely to be more due to the presence of public on site, Insurance is calculated on a site by site basis and this figure is only a very rough guide.

<sup>3</sup> <http://business.wales.gov.uk/running-business/tax-corporation-tax-allowances-business-rates-vat/business-rates-relief-in-wales> accesses 17th June 2014



	be eligible for business rates relief. For more information visit <a href="http://business.wales.gov.uk">business.wales.gov.uk</a>
National Insurance (self-employed class 4)*	9% on profits between 7,956 and 41,865 and 2 % on profits over £41,865
Other taxes	See John Nix for further details*