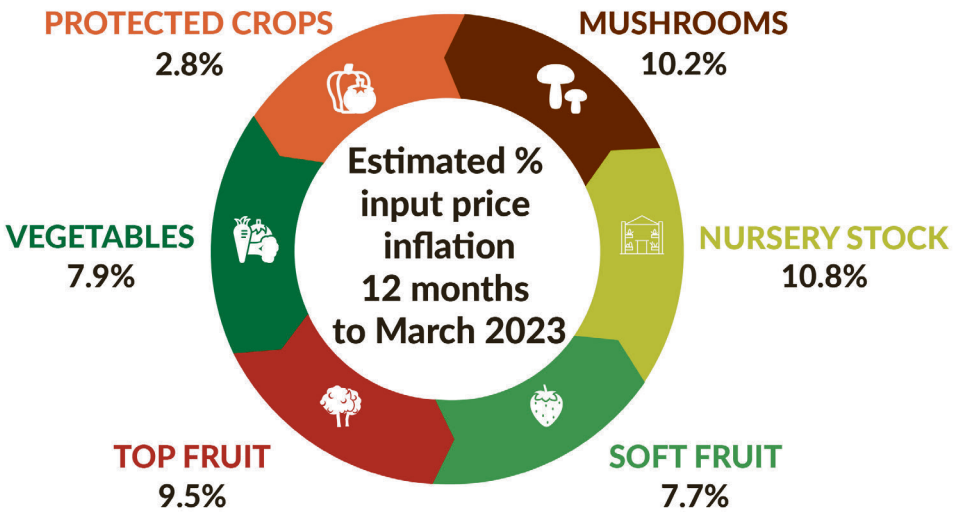
Agriculture and Food Development Authority

Horticulture Development Department

Horticulture Crop Input Price Inflation 2023

- In recent years, input price inflation in the horticulture sector in Ireland has taken a firm hold. It has its roots in Brexit, the pandemic, and more recently the Russian invasion of Ukraine.
- We have taken a snapshot of input prices in March 2023 and compared to March 2022. All sub sectors of horticulture report significant input price inflation across most inputs except energy. Energy is still at least 100% more expensive than in 2021.
- While primary producers for the most part have received some price increases in 2022, the continuing input price inflation means that achieving a margin over costs for many horticultural enterprises continues to be challenging.
- In recent years, a significant number of primary producers in the vegetable sector and other sectors have ceased trading and early indications for 2023 season show this continuing. We estimate that the area of field vegetable production will be down by 7% in 2023 based on direct engagement with growers.
- The importance of underpinning Irish production has never been more in focus following recent shortages of certain product lines and supply chain issues.
- A market response will be required to ensure the viability of an industry that puts local, nutritious, fresh, top quality produce on the supermarket shelf.

12 MONTH INPUT PRICE INFLATION



FACTORS DRIVING RISING COSTS

LABOUR | PACKAGING | ENERGY | FERTILISER | GROWING MEDIA/ CASING | TRANSPORT

Introduction

Key Objective

The key objective of this report, as with previous reports is to surface up to date facts about specific inputs price increases now compared to March 2022. We are taking a snapshot of input prices now in order to assess the increases in costs of production for this season. This is an important exercise, as prices negotiated now for product delivered in 2023 will need to reflect these increases.

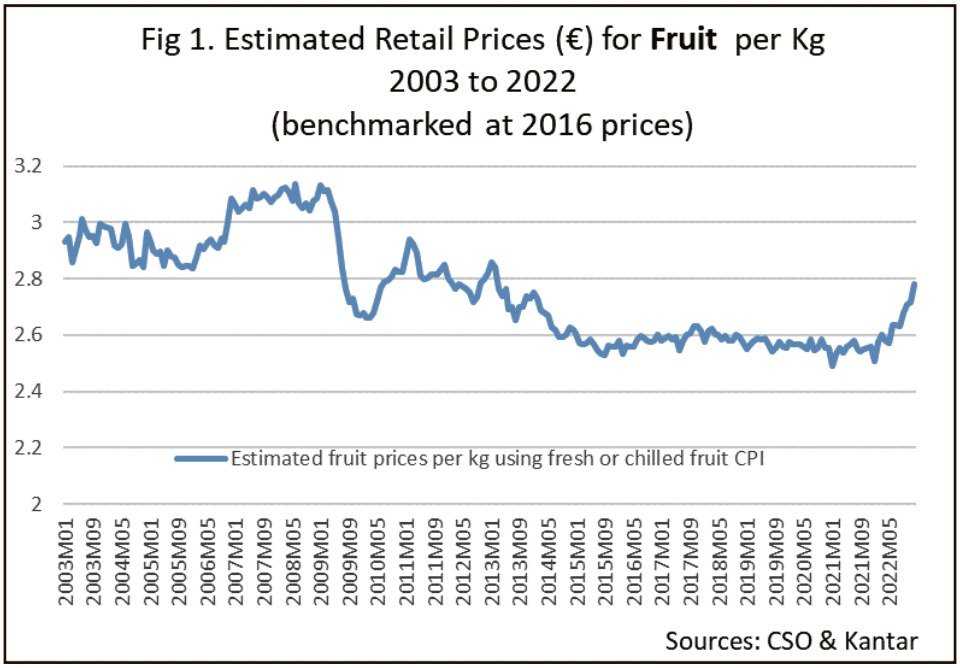
Obviously, certain inputs are specific to enterprise type. The report takes account of the most important and the relative importance of inputs to the different sectors of horticulture production arriving at average increases in input prices in each sector for 2023. Finally, it speaks to the current and potential impacts of very high input prices for primary producers now and for the rest of 2023 season. This is now the third report of this type, first produced in 2021.

Background

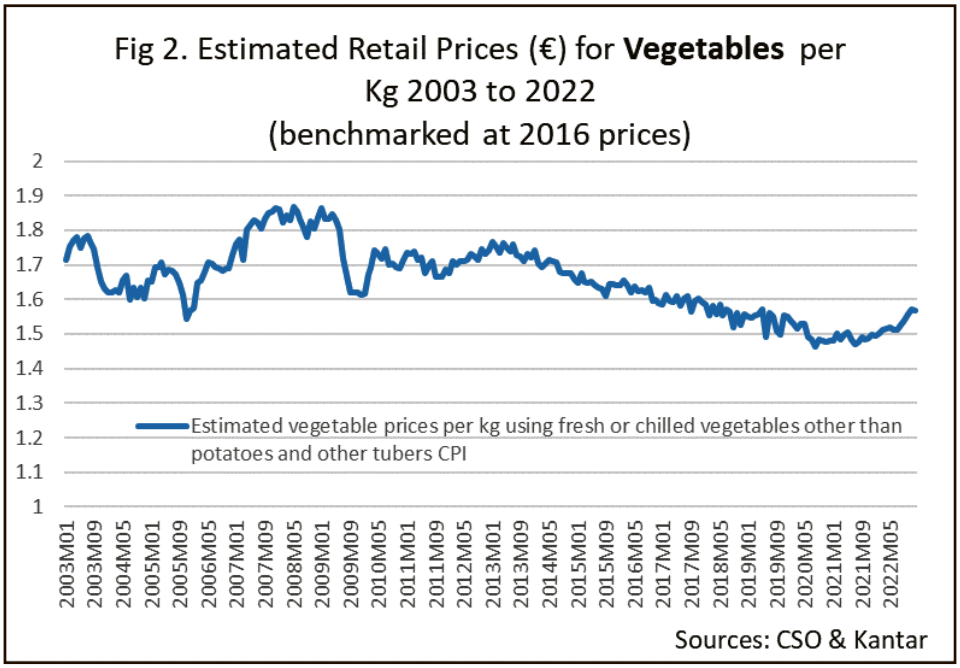
The operating environment for Irish horticulture producers is constantly changing. While Brexit, Covid-19 and the continuing Ukrainian crisis have negatively influenced input prices and supply chains, producers are wrestling with cost management, production planning and profitability. Growers have seen unparalleled increases in key input prices, particularly those inputs linked to energy inflation during 2021 and early 2022, but all inputs have been impacted. We have taken a snapshot of input prices during March 2023 and compared them to March 2022. Considerable volatility remains for primary producers trying to manage the planting season, cash flows and make a return. Growers have been negotiating with their consolidator or supermarket buyer for price increases over recent years with varying degrees of success.

The highly competitive domestic retail market has resulted in the decline of the retail prices charged for the fruit and vegetable categories over the last decade in particular. If we look at retail price trends, it is clear from the following retail price charts that the longer-term retail price (adjusted for inflation) is down since peaking in 2008.

Figures 1 & 2: Retail prices for fruit and vegetables



(Bord Bia, 2023, see appendix)



(Bord Bia, 2023, see appendix)

As depicted in both graphs, prices for both fruit and vegetables have declined in real terms over the period 2003 to 2022 (adjusted for inflation). The chart shows that the general downward trend has been consistent and maintained particularly over the last ten years from 2012. Fresh vegetable prices (Fig 2) estimated to have hit their lowest level of €1.46/Kg in August 2020, and peaked at €1.87/Kg, in December 2007. Fresh fruit prices (Fig 1) were estimated to have hit their lowest level of €2.49/Kg in January 2021, peaking at €3.14/kg in June 2008 (Bord Bia, 2023).

It is against this backdrop that margin over costs for primary producers has reduced. Where the speed of input price inflation has accelerated recently, and margins are thin, a market response is required to avoid irreparable damage to the Fresh produce grower base in Ireland. The graphs do show some increases in retail prices during 2022 but prices are still significantly lower than a decade ago.

Methodology

Across the various farm sectors, including horticulture, access to timely official data on input prices, remains a challenge across Ireland and the EU. Official data sources tend to lag behind the actual market situation. It is therefore necessary to reference unofficial data sources, industry expertise and direct contact to form an up to date assessment of input prices. Through direct contact with primary producers, product and service suppliers, producer organisations and other state agencies, we have assessed the real input price increases across a myriad of inputs in the main horticulture sub-sectors, as currently quoted to the sector. We have assessed the relative importance of inputs to sectors, and calculated percentage increases between March 2022 and March 2023. We have also directly engaged with companies supplying products and services to the sector.

Note: While every effort has been made to reflect the reality for a grower in a particular sector, it should be noted that there is significant variation in the shape and size of production facilities, product mix and average price. While averaging has been used to best express the increases in input prices, it may not accurately reflect the actual increases for specific growers or crops. We have limited the exercise to production facilities and primary producer facilities. It has not been possible to cover all enterprise types or sub-sectors in this analysis.

Costs not captured

Growers in similar enterprises have different overheads in their business and require a margin to meet these overheads. This report does not capture these costs, which typically relate to costs like legal or professional fees, accountancy, sundry expenses, repairs and maintenance and loan repayments. **Bank finance** in the form of asset finance, overdrafts and term debt are important financial products for primary producers in managing and expanding their business. Many banks base their interest rate on the Euribor (Euro Interbank Offered Rates) interest rates before adding their own margin. **Euribor interest rates are at their highest since 2008** having been at a negative interest between 2015 and August 2022. In the year since March 2022, Euribor rates have climbed from -0.55% up to 2.56%. While overdraft rates with the main banks have not changed very much (currently around 8%), asset finance has gone up and term debt has increased. The impact on a business will depend on the lender, amount borrowed and loan term.

Capital expenditure

This report does not cover the increases in construction and development costs associated with capital expenditure required to remain competitive. Producers continuously invest in equipment, facilities, and infrastructure to survive. Adopting technology or the latest production system requires significant investment over time and return on investment is a prerequisite to making an investment. Margin over costs is the most important factor in underpinning these investments. The costs associated with construction have increased by over 20% during 2022, following increases during 2021.

Key Inputs

Table 1: Relative importance of inputs as a percentage of total input costs

Horticulture Sector	Labour	Packaging	Fertiliser	*CPP	Energy	Compost/ Casing/ Growing Media	Other
Mushrooms	42.0%	7.0%	0.0%	2.0%	7.0%	38.5%	3.5%
Nursery stock	35.0%	8.0%	6.0%	6.0%	8.0%	5.0%	32.0%
Soft Fruit	40.0%	5.0%	5.0%	5.0%	12.5%	10.0%	22.5%
Top Fruit	44.3%	10.0%	3.0%	14.0%	4.0%	0.0%	24.7%
Vegetables	36.0%	6.0%	10.0%	5.0%	6.0%	0.0%	37.0%
High Wire Crops	37.0%	12.0%	3.0%	4.0%	15.0%	**13.0%	16.0%

*(*CPP = crop protection products)*

*(**Includes costs of seed, transplants, and rock-wool)*

Labour

In the context of this report, labour is defined as an input. Labour is a key input in the horticulture sector and represents on average 40% of total input costs for most sectors. As an input, it has increased by between 7% and 11% depending on sector during the reference period. This is due to a combination of factors, which include the national minimum wage increases from €10.50 per hour to €11.30 per hour. The introduction of an additional bank holiday in February and increases in statutory sick pay also contributed to increases.

There has also been increases in costs associated with advertising, recruitment and training over the period reflected in overall labour unit increases. Many growers expend resources on sourcing work permits, visa applications, sourcing staff accommodation, providing transport and other welfare services for staff arriving from overseas. In addition, there is significant competition with other sectors of the economy and primary producers are finding that they need to offer competitive rates to attract the right staff. Labour-use-efficiency reduces when key staff with good skill sets cannot be sourced leading to increased costs.

Packaging

Packaging includes cardboard boxes and trays, polypropylene net bags, LDPE vegetable bags, PET & PP containers (Punnets/Trays), Polyethylene (PE) packaging, labels including metallic elements and foil. It also includes flow wraps, films, strapping, plastic outer crates and wooden pallets and bins.

For 2023 we have found that the myriad of packaging products have all increased, by between 5% and 23%. Increases will depend on the mix and type of packaging required in a sector. While the pulp (cardboard) products are up around 20%, there are still residual price increases playing through the packaging supply chain. Plastic based products in general are up significantly more as they are linked to energy prices. Increases in the cost of raw materials, production and especially transport - all heavily linked to energy prices - are the primary reason for packaging price inflation. Although energy prices have stabilised or reduced in the reference period, this has not had a direct impact on packaging prices yet. There is a time lag with increases in packaging products through the supply chain. Growers last year used up stocks, which had been purchased in 2021, this year price inflation is continuing, It is probable that further price rises will play through before any stabilisation in price occurs.

Our sources of information on packaging prices include growers, producer organisations who buy packaging centrally, and packaging suppliers directly.

Fertiliser

Fertiliser prices are influenced by supply and demand in the market, but also reflect production costs, which are heavily related to energy prices. International fertiliser prices have reached their highest level ever in 2022 with average cost tripling since March 2021. Current 2023 prices for general fertiliser is back about 10% compared to this timer last year but speciality fertilisers used in the sector are up compared to last year by 7-10%. This can be attributed to a lag time in the supply chain of speciality fertilisers. In the horticultural sector, speciality fertiliser is an important input and controlled release fertiliser and liquid feed fertiliser are particularly important inputs. Trade stocks are tight currently and supply and demand dynamics continue to place pressure on price.

Energy

We have referenced data from growers on electricity costs and heating costs provided by oil, gas, biomass and the grid. Energy is a significant cost for many horticulture enterprises as crops are grown indoors in glasshouses and protected greenhouse structures. While Electricity and fuel prices soared during 2022, we have seen a reduction in energy prices in the reference period for most sectors except biomass wood pellets. **Electricity** costs have decreased 15% in the reference period as the market rate for a unit of electricity fell to 0.34 €/KWh from 0.40€/kWh. In general, any exposure to energy price inflation is dependent on crop type, whether contracts exist, and the specifics of the energy system in use.

Protected high wire crops are dependent on gas for heat and carbon dioxide supplementation. Wholesale gas prices have reduced significantly in the reference period, it remains at least twice as expensive as March 2021.

Commentary by Sector

Table 2: Input price inflation Mar 2022 v Mar 2023

Horticulture sector	Labour	Packaging	Fertiliser	*CPP	**Energy	Compost/ Casing/ Growing Media	Other	% increase costs of production 2022-2023 (weighted)
Mushrooms	10.8%	23.3%	0.0%	7.0%	35.0%	3.0%	8.0%	10.2%
Nursery stock	7.0%	15.0%	7.0%	20.0%	-5.0%	16.0%	16.0%	10.8%
Soft Fruit	8.0%	5.0%	5.0%	25.0%	0.0%	5.0%	10.0%	7.7%
Top Fruit	8.5%	14.0%	-5.0%	22.0%	-13.0%	0.0%	8.0%	9.6%
Vegetables	11.0%	20.0%	-12.0%	15.0%	-15.0%	0.0%	11.0%	7.9%
Protected Crops	10.0%	10.0%	7.0%	15.0%	-51.0%	23.0%	11.0%	2.8%

*(*CPP = crop protection products)*
*(** Energy includes electricity, oil, natural gas, and biomass where applicable)*

Mushroom Sector

From a **labour** perspective, the mushroom sector is highly intensive. Labour currently accounts for 42% of total cost of production on mushroom farms and has increased by 10.8% in the reference period.

Mushroom **compost** price has remained relatively stable in the reference period although there have been some price movements with some producers. Compost represents 37% of total input costs. Mushroom **packaging** represents 6.8% of all input costs. It has increased sharply (23%) over the reference period. Crop protection products (CPP) have increased 7%.

Energy is a significant cost for mushroom growers as crops are grown indoors year round with heating and cooling systems utilised. While a large number of producers have invested in renewable technologies such as solar PV and biomass boilers, biomass wood pellets and woodchip are the primary fuel source used for **heating** Irish mushroom farms. Pellets have increased from €250 to €400 per ton. **Electricity** costs have decreased in the reference period. This current rate (0.34 €/ KWh) is currently substantially higher than the unit rate back in March 2021 (€0.15/KWh). Heating and Electricity account for 7% of the overall cost of production for mushroom producers.

Multiple years of input price inflation and a weaker UK demand for mushrooms during 2022 resulted in five mushroom farms closing in the Republic of Ireland. Since then, there have been some price increases but further increases will be necessary to maintain viability. Polish mushrooms compete with Irish mushrooms in the UK retail market and food service markets. They too have had input price inflation pressures, a mushroom compost shortage based on straw shortages, and a knock-on reduction in volume output. UK demand for Irish mushrooms has been strong in the first quarter of 2023.

Soft Fruit

The soft fruit industry in Ireland is currently valued at approximately €50 million. The largest of the soft fruit crops grown is strawberries. This crop represents about 90 percent of the total soft fruit crops grown with an annual harvest of 9,000 tonnes of fruit. The largest production takes place in Leinster with counties Wexford, Meath and Dublin being the largest producers.

We estimate that input price inflation for this sector to be 7.7%.

Labour is the biggest production cost. This accounts for at least 40% of the total production cost on each farm. This is mainly for harvesting but also includes labour for plant management, lifting modules and pack house.

Plant material and growing media is a significant cost for soft fruit production. All of the plants are imported primarily from the Netherlands and prices have increased by approximately 10% when transport is included. Energy in the form of heat, is used in modern **glasshouse production of strawberry** for season extension on the shoulders of the season, which now runs from February to December. Despite deflation in gas price in the reference year, the overall cost of production of heated strawberry has increased significantly since March 2021. While the gas price has stabilised since the high of 2022, it remains twice as expensive as March 2021. Other sector specific costs like **packaging, growing media, fertiliser** and **CPP** are important inputs, which are the backbone of the production system. Crop protection products have increased by 25% in this sector, packaging, growing media and fertiliser each by 5%.

Most soft fruit growers run pack house and distribution operations. In addition to costs already mentioned like labour, these costs include cold storage and transport costs. Transport and associated costs have increased dramatically over last year, estimated at 15%.

Protected Crops

The **high wire crop sector** have endured an extremely difficult and risky season primarily due to major volatility in gas prices since the invasion of Ukraine early in 2022. Despite recent deflation in gas price, the overall cost of production of high wire crops has increased by 2.1% since March 2022. This has resulted in growers exiting the tomato and pepper business with the areas reduced by an estimated

5% and 55% respectively for 2023. **Hydroponic glasshouse producers** of crops such as lettuce or herbs have very high electricity requirements to provide supplementary lighting, heating and running of glasshouse equipment such as pumps for irrigation. Supplementary lighting and heating is required to produce all year round, which helps supply the Irish market and displace imported produce, while also adding to local employment in the 'off-season'.

The high wire crop sector is dependent on gas for heat and carbon dioxide. Supplemental carbon dioxide is critical for optimal plant growth and performance in modern high wire crop production (e.g. Tomatoes, Cucumbers, and Peppers). These crops require heating and supplementary CO_2 as low night temperatures (below 12°C) and carbon dioxide levels falling below ambient can significantly impact on yield (30% decrease approx.). The heat requirement cannot be reduced significantly, as crop failure will result. Since our previous report in March 2022, gas prices have deflated by an estimated 51%, however, extreme peaks occurred during the season where gas price reached up to 1,100% of the price in March 2021. **Current gas price is still at least twice as expensive as March 2021 and five times higher than 2020**. This creates pressure to avoid the expensive 'shoulders of the season' where the most heat is required, meaning that production starts approximately one month later and finishes one month earlier. This has potential to reduce the Irish production of these crops and increase the possibility of becoming more reliant on imports, primarily from Spain and North Africa, who have experienced their own supply issues.

Transplants for high wire crops are imported from the Netherlands and represent (including seed) approximately 9% of the overall cost of production for Irish growers. Since March 2022, the cost of seed has increased by 16% and the cost of transplants by 27%. The cost of raising high wire crop plants has increased significantly as plant propagators struggle with the cost of gas and a range of other inputs inflating greatly. This has led to a primary Dutch plant propagator exiting the business and Irish growers have had to source another propagator. Transport of transplants to Ireland from the Netherlands has also played a significant role in the price rise of this input.

Other key inputs, which have inflated significantly since March 2022, include rockwool, packaging and fertiliser. Rockwool, used as a growing media in high wire crops and makes up approximately 4% of the overall input cost, has increased in price by 34%. This increase is due to the cost of energy required during the production of this material, which coincided with peak energy prices. While mainstream fertilisers have deflated, speciality fertilisers used in the protected crop sector have increased in cost by an estimated 13%. Packaging, which includes a variety of cardboard and plastic punnets, trays and wraps have increased by an average of 10%.

Vegetable Sector

For the vegetable sector, input price inflation is running at 7.9% since the last Teagasc Horticulture Input Price Inflation Report in March 2022 and by 35% since March 2021. The increased cost of many key inputs, primarily labour, packaging, land rent and crop protection products puts field vegetable growers under further strain to take a margin after costs. Despite a favourable growing season from a weather perspective, there were shortages throughout the season on several vegetable lines, yet for 2023, the area under field vegetables is predicted to contract by 7%. As predicted in the previous two reports, lack of economic sustainability where reduced margin coupled with capital risk have resulted in some growers exiting the sector.

The vegetable sector is very labour intensive, particularly for crops harvested and graded by hand. Labour is the most significant cost in vegetable crops accounting for an average of 36% of the cost of production. Labour costs have inflated by 11% across general operatives and other skilled labour such as tractor drivers since March 2022. The seasonality of the vegetable sector means that businesses find it increasingly difficult to compete in the labour market, resulting in an increased cost of labour as they attempt to attract staff by offering increased pay.

Cardboard and plastic packaging that is required in the vegetable sector has increased by an average of 20%, although there are larger increases on some plastic packaging such as trays, punnets and pallet wrap which are worst affected. Increases in the cost of raw materials, production and especially transport - all heavily linked to energy prices - are the primary reason for packaging price inflation. Although energy prices have stabilised or reduced, this has not had a direct impact on packaging prices yet due to a lag in the supply chain.

While 'spot' prices for fertiliser and energy have reduced since March 2022 after they peaked later in the year, the overall increase to date since March 2021, (200% on fertiliser, 100% on energy), are significant headwinds. The price of energy and fertiliser remains volatile, while availability of fertiliser is still a major concern among suppliers and risk to growers.

Renting land is important from a rotational perspective. The price of renting land for field vegetable production has increased significantly, as growers compete. The dairy sector in particular is currently paying up to €1,425/Ha over a ten-year lease. Rental land for vegetable production needs to be suitable to vegetable growing, and close to packing facilities to avoid excessive costs. Some vegetable growers have recently paid up to €2,500/hectare to secure suitable land. On average, land rental price has inflated in the region of 11% for brassica crops and 15-20% for root crops and is becoming increasingly difficult to source.

Inflation on crop protection products is variable with some products increasing by up to 45% in exceptional cases. However, the average price increase on crop protection products is 15%. In relation to vegetable seed, an annual inflation of around 2% is usually expected, however this year seed prices have increased by an average of 10%, while plant propagation has increased by approximately 8%.

Nursery Stock & Ornamental Sector

There are a number of distinct subsectors of the ornamental sector: young plant propagation, containerised nursery stock, field production of trees, protected production of hedging, bulbs, cut flower and cut foliage. Each sector has a different profile of input material and labour. Growers may overlap in one or more sub sectors resulting in a spread of prices.

Young plant material

The inputs for producing young plants (labour, pots and growing media) have all increased. Demand for young plant material has eased back to normal levels in the last twelve months.

Whips/hedging plants have increased in cost by between 10% and 20% depending on size and species of lines. Young shrubs have seen a rise of c. 10%. Bedding and protected ornamental plants have seen a 6%-7% rise in plug costs. Plug growers in Netherlands have limited speculative production of high heat demand young plugs to minimise cost.

Demand has eased back for trees in the last 12 months. Maidens have come back from their peak in March 2022; many lines have reduced by 10-30% however, some have seen a slight increase also.

Some Irish tree and bedding growers had responded by taking some lines of propagation in-house to limit their exposure to high import costs. The economic benefit of grafting/budding own trees will not be as advantageous as in 2022.

Labour

Increased costs of labour have been in line with other horticultural sectors of between 6% and 8%, however it varies depending on the work type in the sector. Contracted unskilled field operations have seen labour increase to €20 per hour from €17 in 2022, an 18% increase. Other protected sectors have reported a 5% increase. Labour remains tight and for many is a limiting factor in crop production. These sub sectors have not used the work permit scheme due to the mostly seasonal nature of their sectors.

Energy

Energy costs have moved in line with other sectors. Electricity costs have fallen back in the last twelve months by 21%. A small number of growers have heated glass and are using biomass in the form of woodchip or pellets for base heat with top up from gas. In a small number of instances, smaller pot sizes were grown to achieve a higher number of plants per m^2 and to reduce the input cost per plant.

Transport

Costs for dedicated transport in the sector has continued to increase in the last 12 months. The number of providers of plant transport has consolidated further this year with one key company supporting the sector.

International transport; Trolley transport from the Netherlands has increased for many by up to 33% but better rates have been achieved by some. Additional fuel surcharges in the order of 22% are applied separately to trolley transport. Transport of a pallet ranges from €330-500 while also attracting fuel surcharges. The main export of plants from Ireland is to Great Britain, where customs, administration and SPS fees were introduced in 2022. This combination of costs has meant some smaller export shipments are no longer viable.

A small number of exporting Irish nurseries have benefited from low costs of filling backloads in particular to Netherlands.

Transport in Ireland for pallets has risen by 10% (from €45 to €50) and for trolleys up 45% (now €80 up from €55). Additional fuel surcharge is also applied with no reported reduction in the last twelve months in spite of recent reductions in road diesel.

Packaging

Prices for plastic pots, bedding packs, trays and labels varies depending on source material. In general prices are rising. Polypropylene pots and bedding packs have risen by on average 15% and labels increased by 3%-10%. Forestry bags are reported to have increased by 53%. However, some lines have fallen back slightly where supply of raw materials has improved, they remain significantly more costly than 2021 prices. The shortage of recycled plastic in 2021 has eased resulting in reduction in

costs of some lines of pots and trays.

Fertiliser & Growing media

Increased costs in key growing media ingredients; peat, coir, wood fibre, bark and fertiliser, have driven price increases of more than 80% over the last 3 years with very significant increases in late 2021. In the last 12 months increases of between 12% and 20% have been seen in like for like products containing 30% wood fibre. Some growers have been able to mitigate some cost increases by selecting lower cost and quality fertiliser inputs.

In line with the supply challenges of peat, the nursery stock sector has increased the proportion of wood fibre used in their growing media mixes especially in the last 12 months. In some instances, Irish peat based growing media is being supplemented by imported peat and in some mixes there is no Irish peat being used.

Essential speciality fertilisers such as liquid feed and controlled release fertilisers have remained high up to the end of Q1 2023. An average increase in CPP of 20% is reported.

Outdoor Cut Foliage

The export demand for cut foliage to UK and EU has slowed in the past 12 months primarily due to recession in UK and a decreased demand by the multiples because of increases in cost of living.

The main increases have been seen in Logistics where there has been 24% increase in fuel surcharges since March 2022. Labour has increased 11% and packaging materials such as pallets, pallet wrap, rubber bands, plastic containers have increased by 20%.

Acknowledgements

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This report has been produced by the Horticulture Development Department, Teagasc, Ashtown, Dublin 15, Ireland | D15 KN3K.

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Appendix

Bord Bia Charts, 2023. Estimated Retail Prices for Fruit and Vegetables per Kg 2003 to 2022 (benchmarked at 2016 prices).

Basis of charts

- Benchmark used is the 2016 average retail prices for Fruit & vegetables recorded by Kantar
- The Consumer Price Index (CPI) sub-indices for fresh fruit and fresh vegetables sourced from CSO for the period charted
- The prices were extrapolated using the respective CPI sub-indices for each year back to 2003 and forward to 2022 to derive an estimated retail price for fresh fruit and vegetables adjusted for inflation
- Notes on basis of the CPI
  - 84 towns and cities are in the CPI sample locations
  - Retail outlets are chosen by which is deemed to be the most popular (These do not tend to change so price changes are captured)
  - The CPI basket of goods is decided upon by analysis of the Household Business Survey (HBS) in addition to a research process undertaken by the CSO
  - Data checks, field audits, supervised visits and back checks are all conducted.