



# Measures to support the development of the Irish craft-cider sector

The Irish Apple Growers' Association  
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## Executive Summary

### Profile of Cider Industry in Ireland

The cider-making industry in Ireland is composed of two sectors. There is a large industrial scale sector producing relatively inexpensive product for mass consumption, and a small craft sector producing for a niche market at higher prices. The craft cider sector represents a little over 1% of the total cider market.

Although the craft sector is small, it is very labour intensive, with an employment contribution of about ten times more on a per unit volume basis compared with industrial scale production. It also supports three times more orchard employment per litre produced compared with industrial production, due to the fact that industrial ciders are produced using large quantities of water and sugar (as a cheaper alternative to apple juice), whereas craft ciders utilise juice from Irish-grown apples instead.

In the related drinks category of beer, micro-scale breweries now have about 10% of the total market. With appropriate supports, it is envisaged that craft cider production could emulate this success.

### Priority Issues for Budget 2016

To support the development of the high-value artisan cider production sector, and to remove barriers to sales and distribution of craft cider, the following measures are proposed as a priority for Budget 2016:

- The upper excise band for cider should be removed. The result would be a single rate of duty of €94.46/hectolitre, for all ciders of volume from 2.8%-8.5%; and
- An Artisan Cider Manufacturers License should be established for annual production quantities up to 1,000 hL. Such a license would permit both retail and wholesale sales.

### Measures to Support the Development of the Sector in the Medium Term

Over the medium term, further changes to the excise and licensing regimes to support the development of the craft cider industry should be introduced. These include:

- Similar to the reliefs provided to the micro-brewery sector, it is proposed that a 50% duty rate would be applied to all cider-manufacturers for the first 200 hectolitres of output produced annually;
- The requirement for a bonded warehouse for producers of less than 200hL per annum should be removed; and
- The current wine retailer license for on and off licences should extend to cider sales.

### Economic Benefits of Proposed Changes

Craft cider currently has a little over 1% of the total cider market. If it were to mimic the success of craft beer and achieve market penetration of 10%, this would result in a growth in annual production to 7 million litres annually.

This would result in increased employment of almost 100 extra FTE's in apple production, and 70 in the cider production, with more in marketing and sales.

Encouraging a switch to consumption of craft product would also result in a VAT gain for the state. The typical premium at retail level for craft cider is €2 to €3 per litre. At €2/litre, an additional 7 million litres of craft cider substituting for the same volume of industrial cider, would result in additional sales value of €14m, the VAT content of which would represent an additional €2.6m to the exchequer annually.

In addition, if the higher excise band were amalgamated into the existing main band, Irish Craft Cider has the ability to compete with, and substitute for, imported wine. The placing of premium ciders on the drinks lists of the best restaurants in Ireland would support our image as a country producing top quality food and drinks and enhancing our tourism industry.

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# 1 Profile of the Irish Cider and Perry Industry

## 1.1 Overview of the Sector

The cider-making industry in Ireland comprises two sectors. The more dominant sector is that producing cider at a large or industrial scale. The cider made by this method is manufactured predominantly using sugar, water and flavours, with about 30% apple content. There are a small number of domestic manufacturers in this category, who in 2014 produced about 58 million litres of output, with imports of a similar product of a further 8 million litres.

Employment in the industrial cider manufacturing sector is small, due to the high levels of automation, and lean corporate structures. Employment in apple production as a raw material for this sector in the Republic of Ireland is about 25, and in Northern Ireland about 100.

There are at least 12 smaller-scale craft cider producers, who, in 2015, will produce close to 1 million litres. Seven of these are also commercial growers of apples themselves. These small-scale cider producers have, with one exception, started operations in the past five years. The product they make comprises little or no added sugar and water (over 85% apple content), and is therefore considerably more expensive to manufacture, and sells at a premium price<sup>1</sup>.

In the wider apple production sector, there are 40 commercial producers of apples in Ireland, supporting 58 full-time and 236 part-time employees. All apples used in craft cider production are sourced in the Republic of Ireland, and employment in apple production for this sector is about 8 FTE's. Direct employment in craft cider manufacturing is about 10 Full Time Equivalents (FTE's), with a further 10 in sales and marketing. For cider production, this represents ten times more people employed per unit volume produced than is the case for industrial-scale manufacturers.

In the related drinks category of beer, micro-scale breweries now account for about 10% of the total market. If the aim of reaching a 10% total cider market penetration with craft ciders were met, assuming a static market size, an extra 70 people would be employed in production, and close to another 100 would be employed to grow the extra apples required.

In addition, many cider makers are planning to launch products that compete directly in the wine category, as lower-alcohol alternatives to wine, to accompany food in wine-style bottles, essentially as the Irish-made alternative to imported wines.

## 1.2 Barriers to Growth of the Craft Cider Sector in Ireland

There are a number of impediments to growth in the craft cider sector. In much of Europe, where cider is a traditional drink, it can only be called cider if it is made using 100% apple juice. As this is not the case in Ireland (or the UK), production costs of the industrial product are much lower. Those producing a pure (close to pure) juice cider are therefore operating in a sector with low-cost competitors.

Another impediment is the punitive duty charged on cider compared with beer here in Ireland. In countries with a cider tradition such as Germany, Spain and France, there is low or no duty on cider, whereas duty on beers is higher to reflect their lower cost of production. In this regard the increasing rate of duty for ciders as ABV increases is a particular barrier to growth of the craft cider sector.

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<sup>1</sup> See Appendix II for list of craft & small-scale cider producers in Ireland

The final impediments relate to the unnecessarily complex and restrictive licensing arrangements for sale of cider, an example of which is that three separate licenses (including a spirits license) are required for a producer to retail their cider.

Given these impediments, it is a testament to the drive and innovation of those involved in producing craft ciders that they are pursuing their ambitions against the odds, producing high-quality products for a premium market, and providing employment opportunities and growth in rural parts of Ireland where other industries are less likely to locate.

## 2 Proposed Changes to the Excise and Licensing Regime – Priorities

### 2.1 Current Excise Regime

The current excise regime for cider and perry is quite complicated, depending on alcohol content, and whether the product is still or sparkling. As the product increases in volume, the duty levied on products increases significantly. This is outlined in the Table 1 below. These rates apply on all production – i.e. there is no distinction between micro-producers and commercial production.

Table 1: Excise Duty Rates on cider and perry products

Goods	Description	Rate of Duty €
(1) Cider and Perry	Still and sparkling, not exceeding 2.8% volume	47.23/hectolitre
	Still and sparkling, exceeding 2.8% volume but not exceeding 6% volume	94.46/hectolitre
	Still and sparkling, exceeding 6% volume but not exceeding 8.5% volume	218.44/hectolitre
	Still, exceeding 8.5% volume	309.84/hectolitre
	Sparkling, exceeding 8.5% volume	619.70/hectolitre

For a cider-maker opting to make a “real” cider, using only apple juice, and not watering down, such a cider is quite likely to exceed the 6% alcohol content, as the sugars naturally present in apple juice, when fermented, are likely to result in ciders with alcohol contents above 6% volume.

#### 2.1.1 Comparison of Duty Payable for Small-Scale Cider vs. Micro-Brewery Beer Producers:

The existing level of duty paid on small-scale cider production in Ireland compares quite unfavourably with the duty paid on micro-brewed beer. Since 2003, relief of 50% of the Alcohol Products Tax paid applies to beer exceeding 2.8% alcohol by volume, which is produced in microbreweries located within the European Union.

Since the Finance Act 2014, the quantity of beer brewed that can qualify for this relief must not exceed 30,000 hectolitres.

Table 2: Comparison of 2015 rates of duty on micro-produced beer and cider in Ireland

Product	Micro-beer	Cider
Strength (ABV)	Duty (Net) per hL	Duty per hL
4 %	45.10	94.46
5 %	56.38	94.46
6 %	67.65	94.46
7 %	78.93	218.44
8 %	90.20	218.44
9 %	101.48	309.84

Over the past decade, the micro-brewing industry has flourished, growing from near zero to about 10% of the beer market.

#### 2.1.2 Comparisons with Other Countries:

In the UK, the first duty band for cider is from 1.2% to 7.5% reflecting the fact that naturally made real ciders will, depending on season and apple variety used, often have an alcohol content above 6%. In Spain and France there are no duty bands applied to cider. All ciders are treated the same.

A comparison of the duty rates for micro-brewed beer and cider in France, Germany and Spain shows that the Irish treatment of cider is completely anomalous.

Table 3: Comparison of 2015 rates of duty on micro-produced beer and cider in France, Spain and Germany

Country	France		Germany		Spain	
Product	Micro-beer	Cider	Micro-beer	Cider	Micro-beer	Cider
Strength (ABV)	Duty (Net) per hL	Duty per hL	Duty (Net) per hL @ 33% rebate	Duty per hL	Duty (Net) per hL (approx.)	Duty per hL
4 %	14.76	3.75	5.25	0	8	0
5 %	18.45	3.75	6.56	0	10	0
6 %	22.14	3.75	7.87	0	12	0
7 %	25.83	3.75	9.18	0	14	0
8 %	29.52	3.75	10.49	0	16	0
9 %	33.21	3.75	11.80	0	18	0

It should be noted that these are the bands for “still” ciders, which in practice are either completely still, or carbonated (fizzy) to less than 3 Bar pressure. The typical ciders sold in Ireland, though carbonated, are classified as “still” by this definition.

## 2.2 Proposed Change to Excise Regime

To support the development of the high-value artisan cider production sector, it is proposed that the duty bands for cider and perry products are changed as a priority.

### 2.2.1 Duty Bands

***To support the development of the high-value artisan cider production sector, it is proposed that the upper excise band for cider should be removed. The result would be a single rate of duty of €94.46/hectolitre, for all ciders of volume from 2.8%-8.5%.***

As already outlined, ciders which are made from 100% apple juice will generally have a higher volume, and are being placed on the market at a significant cost disadvantage to ciders that are produced using large quantities of water and added sugar.

There is already a precedent of a single duty rate in the wine sector, where the same rate applies to all products from 5% to 15% volume. This represents the natural ABV range of wine depending on region of origin, vintage and grape variety.

In terms of revenue foregone, the volume of sales of cider product with an ABV of 6-8.5% is very low. Based on duty collected of €62,112 in 2014 on volume sales of 280 hectolitres, the introduction of a single duty rate would result in a direct revenue loss of less than €36,000.

The reduced duty rate would result in an increase in the competitiveness of artisan cider production, leading to increased production and demand. The expected Revenue gain would, as a result, be far in excess of the direct revenue loss arising from the duty rate reduction.

In particular, at this higher ABV, the cider product is competing with wine, a fully imported product, more so than beer. The potential for import substitution and a greater contribution to economic activity through increased manufacturing of an indigenous product should be taken into account in considering the proposal for a reduced duty rate for higher ABV cider products.

## 2.3 Current Licensing Regime

To make and sell cider wholesale quantities of cider requires the following:

1. A bonded warehouse. (The size of the bond appears to be at the discretion of the C&E official dealing with the particular cider maker, as does the level of security such as fencing, CCTV etc. required).
2. A detailed stock-keeping system to record manufacture and sale of the cider, with monthly returns submitted to C&E.
3. Full duty at €94.46 per hectolitre for typical ciders containing between 2.8% and 6% alcohol.
4. A cider manufacturers licence costing €500/year. This licence also allows for wholesale dealing at the premises where manufactured. Although not legally defined for cider, wholesale quantities of beer are defined as 2.25 gallons (~10 litres) when sold to the trade or 4.5 gallons (~20 litres) to private customers.

In order to sell directly to the consumer for consumption on or off site, a cider maker, in addition to holding a Cider Manufacturers Licence, must purchase a Cider Retailer's On Licence/ Cider Retailer's off Licence from the Revenue Commissioners for €500. However, to activate this (second) cider licence, the cider maker must also hold either a beer or spirit On/Off licence.

For apple growers and artisan producers, the impact of these licensing requirements is that a producer of cider cannot sell cider in retail quantities to consumers who wish to purchase direct from the establishment/estate/cidery. This restriction impacts at a very practical level where that that cidery is in the business of giving guided tours, catering for tourists, and promoting their product, which may be on sale in other countries to visitors from those countries etc.

Overall, for a small-scale cider-maker to sell cider to a consumer requires three licences; the manufacturers licence (€500), the cider retailers licence (another €500), and a beer or spirit On/Off licence (cost variable). This is uneconomic.

At a wider level, due to the current requirements of the licensing regime, a restaurant holding a wine license only cannot serve cider as a wine alternative, nor can a wine retailer sell cider.

## 2.4 Proposed Change to Licensing Regime

To remove the barriers to sales and distribution of craft cider, a key change is proposed to the licensing regime. This is outlined below:

### 2.4.1 Establishment of a Specific Artisan Cider Manufacturer's Licence:

***In addition to the existing cider manufacturers licence, a new Artisan Cider licence for producers of less than 1,000 hl should be created, with a suggested annual fee of €250 (as per a publican licence).***

This licence would fall under the same terms and conditions as for other artisan food producers and would be policed by the same government bodies as food producers under regulation (EC) 852/2004 or other hygiene criteria set down by DAFF. The terms of this new Artisan Cider licence would permit the sale of cider (up to a 1,000 hl limit) at a wholesale and retail level.

## 3 Additional Measures to Support the Development of the Sector

### 3.1 Reduced Duty Levels for Small-Scale Production

Due to the lack of enabling legislation at EU level, it is recognised that it is not possible to offer a duty rebate to micro-cider producers only, in the same way as is applied to micro-brewed beers.

However, under Article 13 of Council Directive 92/83/EEC<sup>2</sup>, Member States have the option to adjust duty as they see fit on alcoholic beverages, and based on volume produced, as long as it is applied to all manufacturers.

***It is proposed that a 50% duty rate should be applied to all cider-manufacturers (not just micro-manufacturers), for the first 200 hectolitres produced in each year.***

A 50% duty rate on the first 200 hectolitre would put small-scale cider producers on a similar footing (in terms of duty payable) to microbrewers. The establishment of a 200 hectolitre reduced rate duty band would encourage new entrants into cider making, and would support established small-scale ciders in their development, by saving them approximately €9,000 euros per annum in excise duty, assuming that they manufactured at least 200 hectolitres per annum.

The evidence of the micro-brewed beer industry of the last 10 years, which has increased market penetration tenfold, to about 10%, provides a clear indication of the responsiveness of indigenous producers to a more favourable cost environment arising from a 50% reduction in the duty rates.

### 3.2 Additional Proposed Changes to the Cider Licensing Regime

#### 3.2.1 Bonded Warehouse

The bonded warehouse is a considerable barrier in terms of cost to the artisan cider producer because of the level of conditions required by the Revenue Commissioner to protect the value of duty contained in the finished product. Risk to value analysis is not uniformly applied to reflect the much lower volumes of production. The proposed reduced duty applicable on production volumes below 200 hectolitres would have a significant impact here, in that it would reduce the logic to having a bonded warehouse, as the duty at risk would be of a lesser value.

***It is proposed that the requirement to have a bonded warehouse for production volumes below 200hl should be removed.***

#### 3.2.2 Extending the Current Wine Retailer on and Off Licences to Cider

***It is proposed that the current wine retailer on and off licenses should be extended to cider.***

This should permit existing licensed restaurants to also sell ciders; something quite a number of restaurants wish to do in order to support local producers and substitute imported wines with locally Irish-produced cider<sup>3</sup>.

<sup>2</sup> See Appendix I for full text of Article 13 of Council Directive 92/83/EEC

<sup>3</sup> In the Intoxicating Liquor Act of 1927, section 61, both Wine and Cider had the very same standing in both terms and condition applied to them by the Revenue commissioners. Over the intervening years wine has moved to its present position, as a result of a number of repeals and revokes, mainly the Act of 1986 section 4 and Intoxicating liquor Act 2000-PN 1881.

## 4 Economic Benefits of Proposed Changes

As an industry based in rural Ireland, with strong connections to the agriculture and hospitality/tourism sector, there are significant economic and social benefits that will arise from growth in the artisan cider sector.

In the new 10 year strategy for the agri-food sector, *Foodwise 2025*, a key action set out for the Irish drinks industry to continue to highlight the value to the national economy of the drinks sector and work to reduce the fiscal and regulatory burden. In this context, the proposals set out above for the craft cider industry are particularly appropriate.

Craft cider currently has a very small market foothold. With an appropriate set of policy responses, similar to what was offered to microbrewers, the craft sector has the potential to follow the same trajectory over the next five to ten years.

### 4.1 Employment

Small-scale cider production and apple production are labour intensive sectors. Increases in demand for both the primary product and artisan cider will have a proportionately larger impact on employment than increases in demand and production in other sectors.

#### 4.1.1 Direct Employment in Cider Production

In small-scale production of cider, output can vary considerably. A survey of cider-Ireland members conducted by University of Limerick<sup>4</sup> revealed that manufacturing output per labour unit per day varied considerably between the smallest commercial cider-makers, and those producing slightly larger volumes, though still small scale, akin to beer micro-brewers.

On average, the output of Cider Ireland members, taking into account production operations only (and not any other elements), was less than 100,000 litres per employee year. In industrial-scale production of cider, the output is considerably above one million litres per labour unit per annum. The labour intensity of micro-production of ciders is therefore more than 10 times that in industrial-scale production.

#### 4.1.2 Indirect Employment in Apple Production

##### 4.1.2.1 Craft Cider vs Industrial Cider

In the production of craft cider, large quantities of apples are used. It takes about 1.5 tonnes of apples to produce 1,000 litres of cider. In industrial-scale cider-making, due to the watering-down process, about 1/3 as many apples are used per 1,000 litres produced.

Therefore, to produce 1 million litres of craft cider for example, would require about 27 ha of apples, supporting 13.5 jobs (FTEs)<sup>5</sup> in apple growing, whereas, to produce the same quantity of industrial cider would require about 9 ha, supporting 4.5 FTE's.

##### 4.1.2.2 Craft Cider vs Beers

The employment content in producing apples is much greater when compared with grains (the apple being the raw material in cider versus grain in beer). The typical labour content in producing 500 acres of grain is 1 FTE. This would produce 2,000 tons of Barley and make about 10 million litres of beer.

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<sup>4</sup> See Appendix III

<sup>5</sup> Teagasc Management Data for Farm Planning 2013/2014

The equivalent land area dedicated to apples for cider would generate 100 FTE's (producing 10,000 tons to make 7,500,000 litres) according to Teagasc figures. The labour content in producing the apples for cider is more than 100 times greater than the labour content to produce grain for beer. This is an important difference, as for every one million litres of craft cider produced, 13.5 FTE's are supported in growing the apples, whereas for the same quantity of beer, only 0.1 FTE's are supported in producing the grain.

## 4.2 Additional Tax Returns to Exchequer

The cost of production of craft cider is considerably greater than that of industrially produced cider. Based on production costs alone, a typical 500ml bottle of craft cider costs approximately 52/c more per bottle to produce than a commercially produced equivalent<sup>6</sup>.

Applying typical wholesaler and retailer margins to this cost differential results in a minimum price difference at point of sale of between €1.02 and €1.45 per 500ml bottle. VAT of 23% on this is from €0.23-0.33 per bottle or €0.46-0.66 per litre. Based on this calculation, the expected 1 million litres of craft cider to be sold in 2015 will return the exchequer an additional €460,000 to €660,000 VAT this year than an equivalent volume of commercially produced cider.

Growth in the craft cider market could therefore yield significant gains for the exchequer. Based on the figures outlined above, the typical price premium at retail level for craft cider vs industrial cider is €2 to €3 per litre. At the lower €2/litre premium, an additional 7 million litres of craft cider, substituting for the same volume of industrial cider (potentially including imported products), could result in additional sales value of €14m, the VAT content of which would represent an additional €2.6m to the exchequer annually.

## 4.3 Additional Benefits

The growth and development of the craft cider and apple growing industry in Ireland has the potential to contribute additional social and economic benefits, including agri-tourism and contributing to increased biodiversity in primary agricultural production.

The production of apples makes a significant contribution towards reducing Ireland's national greenhouse gas emissions, through carbon sequestration, almost on a par with forestry on a per hectare basis<sup>7</sup>. Increases in orchard area for the production of apples will contribute to the overall contribution of the agriculture sector to meeting its climate change commitments.

The development of the sector is being supported through Bord Bia initiatives, with many producers in the plan submission phase of the *Origin Green* sustainability initiative. This initiative, while increasing resource efficiency, also provides a distinct selling and marketing point for the products.

The building of scale among domestic producers is an important step in the further development of export markets for Irish artisan cider products, which are already being exported on a small-scale. At a broader level, increased apple production will have a positive knock-on effect for related, complementary products, such as the processing and dessert apple sectors, which have a high import volume.

## Appendices

### Appendix I - Article 13 of Council Directive 92/83/EEC

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<sup>6</sup> See Appendix IV for further detail

<sup>7</sup> See Appendix V for further detail

1. The exercise duty levied by Member States on other fermented beverages shall be fixed by reference to the number of hectolitres of finished product.
2. Except as provided in paragraph 3, Member States shall levy the same rate of excise duty on all products chargeable with the duty on other still fermented beverages. Similarly they shall levy the same rate of excise duty on all products chargeable with the duty on other sparkling fermented beverages. They may apply the same rate of excise duty to both other still fermented beverages and other sparkling fermented beverages.
3. Member States may apply reduced rates of excise duty to any type of other still and sparkling fermented beverages of an actual alcoholic strength by volume not exceeding 8.5 % vol.

## Appendix II – Craft and Small-Scale Cider Producers in Ireland

Ballyhoura Apple Farm, Limerick  
Boyne Valley Cider, Meath  
The Cider Mill, Meath  
Con's Cider, Tipperary  
Craigies Cider, Wicklow  
Dan Kelly's Cider, Louth  
Highbank Cider, Kilkenny  
Llewellyn's Cider, Dublin  
Longueville Cider, Cork  
Longways Cider, Tipperary  
Orpens Cider, Tipperary/Dublin  
Stonewell Cider, Cork

## Appendix III – Labour Input of Craft Cider - Survey of Producers

The following provides an assessment of the labour input in the manufacture of cider in Ireland.

The survey was undertaken by Dr. Audrey O'Grady, Life Science Department, University of Limerick, Ireland.

### Introduction

In May 2015, Cider Ireland, an industry group representing small and medium-scale craft cider makers in Ireland made an approach seeking to identify the labour component in the manufacturing of the cider. In order to assess this, a survey was designed, and circulated to members of Cider Ireland anonymously.

### The Survey

The survey was concerned only with the labour component of the cider making process, and asked five key questions:

1. The number of litres pressed per 8 hour pressing day
2. The time spent on racking per '000 litres
3. Time spent filtering and blending, per '000 litres
4. Time spent carbonating, bottling, and pasteurising, per '000 litres
5. Time to label and pack 1000 litres

These questions were asked on a per person output basis.

Although there would be other processes involved in the making of cider, these were not considered, either because the time component would be relatively small (for example servicing of equipment), or was not directly related to the manufacturing itself (for example paperwork involved in keeping track of duty paid).

The survey was conducted using an online survey methodology, with multiple choice answers covering all possible numerical answers, plus an option to choose if the work was contracted out to another source.

### Analysis of Responses

12 responses were received, which represented 80% of the total membership of the Cider Ireland group. Within ranges for each of the five listed tasks, the responses were analysed by choosing the midpoint figure within that particular range, and multiplying it by the % of respondents selecting that range, and totalling the resulting figures, to give a weighted average across all respondents, representing the survey average for that particular task. Totalling the times for each task then gave the total time component to manufacture 1000 litres of cider to the point it is ready to leave the manufacturers warehouse. This then allowed for a calculation of the annual equivalent output for a single operator within the craft cider manufacturing sector.

## Results of Survey

The results of the survey are shown in the table below:

*Table A1: Time (in hours) taken to complete tasks in the manufacture of cider*

Time taken for:	Lowest	Highest	Weighted average
Pressing	1.1	13.3	2.7
Racking	1	7.5	3.2
Blending & filtering	1	3.5	2.2
Bottling & carbonating	1	14	4.4
Labelling & packing	1	35	8.2
		Total:	20.7

Across all manufacturers of craft cider in Ireland responding to the survey, the mean annual total output, assuming all their time was dedicated to the five tasks listed, would be about 96,000 litres per employee. I understand from speaking with a Cider Ireland representative that the total output of most members is much less than this, because the members also dedicate time to other tasks such as production of the apples, marketing of the product, making other products such as juices etc.

Nonetheless, the figure calculated represents a very reasonable estimate, and it would be valid to use this as a figure for comparison with large-scale operators within the marketplace.

## Appendix IV –Cost of Production Differences between Industrial and Craft Cider Production

### Comparison of key input/output costs per 500ml bottle of cider made on industrial and small-scale

Post factory costs, distribution, marketing etc. not taken into account.

No allowance made for indirect manufacturing costs: electricity & fuel, insurance, office admin etc.

No contribution to capital costs, depreciation etc made. This would also favour large scale manufacturers.

	Industrial-scale	Small-scale
Apples (kg):	0.25	0.8
Apples (€ price/kg):	0.17	0.24
Price of apple content: €	€0.043	€0.192
Bottle & cap :	€0.160	€0.240
CO2:	€0.001	See above
Label:	€0.020	See above
Case:	€0.020	See above: Also a different style of case used (Small tray plus over-wrap)
Direct manufacturing labour:	€0.020	€0.200
Total:	€0.264	€0.782

The purpose of this table is to demonstrate that small-scale cider production, on a typical 500ml bottle basis, is at least €0.519 more than for industrially-produced product.

Assuming that the same wholesaler/distributor margin is applied to both products, and the same retailer/publican margin is also applied, the final ex vat price to the consumer will differ as follows:

Difference in ex factory price	€0.519
Distributor margin at 40%	<u>€0.21</u>
Off-licence margin at 40%	€0.73
Publican margin at 100%	€0.29
	€0.73
	Vat benefit (extra vat) to the exchequer due to consumer choosing a 500ml craft cider
	23% Vat
Price premium in off licence (pre-vat)	€1.02
Price premium in publican (pre-vat)	€0.23
	€1.45
	€0.33

## Appendix V – Carbon Sequestration in Orchards

### Carbon Sequestration in Irish Orchards and Potential for Offsetting CO<sub>2</sub> Emissions

(Summary of report by Cornelius Traas and Ken Byrne, Life Science Dept., University of Limerick, Ireland)

Carbon sequestration in orchards has significant potential to mitigate Ireland's greenhouse gas emissions.

Long-term sequestration in orchards is due to increments in the mass of plant structural wood each year, and due to increases in soil organic carbon (SOC) in the orchard soils.

There is also short-term sequestration, principally the carbon sequestered in the fruits produced in a particular year. Short-term sequestration is not generally considered as useful from the perspective of emissions mitigation.

Allowing for carbon inputs such as fuel and fertiliser in the growing cycle, an orchard studied in Ireland had a net annual sequestration of 3.1t C/ha/yr, equivalent to 11.4t CO<sub>2</sub> per ha per year. In comparison with international research, this is less than reported in some countries, and more than in others. Because many factors contribute to net sequestration, figures will vary internationally, and even within a particular country.

Research conducted on orchard soils in Ireland shows that they have significant capacity to sequester carbon, and compare favourably in this regard with, for instance, permanent pasture.

**If Ireland were to become self-sufficient in apple production for eating apples and cider apples, this would require about 3,500 ha to be converted from other farm enterprises to orchards, and if this land conversion were from dairy grassland, it would result in a 1% reduction in total annual CO<sub>2</sub> equivalent emissions for Ireland.**