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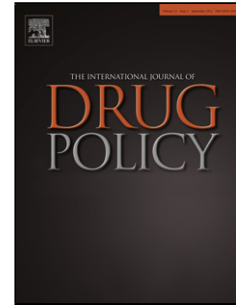
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## Accepted Manuscript

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# Global patterns of domestic cannabis cultivation: sample characteristics and patterns of growing across eleven countries

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## Abstract

**Aims:** To provide an overview of: demographic characteristics; experiences with growing cannabis; methods and scale of growing operations; reasons for growing; personal use of cannabis and other drugs; participation in cannabis and other drug markets; contacts with the criminal justice system for respondents to an online survey about cannabis cultivation drawn from eleven countries (N=6530). Important similarities and differences between the national samples recruited will be discussed.

**Method:** This paper utilizes data from the online web survey of predominantly 'small-scale' cannabis cultivators in eleven countries conducted by the Global Cannabis Cultivation Research Consortium (GCCRC). Here we focus primarily on descriptive statistics to highlight key similarities and differences across the different national samples.

**Findings:** Overall there was a great deal of similarity across countries in terms of: demographic characteristics; experiences with growing cannabis; methods and scale of growing operations; reasons for growing; use of cannabis and other drugs; participation in cannabis and other drug markets, and; contacts with the criminal justice system. In particular, we can recognise that a clear majority of those small-scale cannabis cultivators who responded to our survey are primarily motivated for reasons other than making money from cannabis supply and have minimal involvement in drug dealing or other criminal activities. These growers generally come from 'normal' rather than 'deviant' backgrounds. Some differences do exist between the samples drawn from different countries suggesting that local factors (political, geographical, cultural etc.) may have some influence on how small-scale cultivators operate, although differences in recruitment strategies in different countries may also account for some differences observed.

## Introduction

The traditional view of a global cannabis market consisting of production in developing countries for export to consumers in the developed world is increasingly outdated. Large scale outdoor cultivation has been long established in countries like Australia, Canada, the USA and New Zealand. With the advent of indoor cultivation techniques and the wide dissemination of both technical expertise and growing technologies, cannabis is now produced on a significant level across most of the industrialised world (Potter et al., 2011). With 'traditional' producer countries in the developing world continuing to cultivate, the UN confirms cannabis production to be a truly global phenomenon with 172 countries and territories reporting cultivation in the 2008 World Drug Report (a year where particular attention was given to the phenomenon of cannabis cultivation; UNODC, 2008). This globalisation of cannabis cultivation continues to be a significant feature in global drug markets, and also a particular problem for researchers: "Providing a global picture of levels of cannabis cultivation and production remains a difficult task: although cannabis is produced in practically every country in the world, its cultivation is largely localized and, more often than not, feeds local markets." (UNODC 2013 p. xi)

Research into cannabis cultivation in the developed world to date has largely consisted of nationally focused work generating typologies of cannabis growers (e.g. Nguyen & Bouchard, 2010; Potter & Dann, 2005; Weisheit, 1991), or national studies focusing on specific aspects of cultivation in individual countries (e.g. Bouchard, 2007; Bouchard et al., 2009; Decorte, 2010; Douglas and Sullivan, 2013; Hakkarainen, et al., 2011a; Hakkarainen et al., 2011b; Hammersvik et al., 2012; Malm, 2006; Plecas et al., 2005; Potter, 2010a; Weisheit, 1992). Whilst there is some work that discusses cultivation in neighbouring states (Hakkarainen et al., 2011a on Finland and Denmark; Athey et al. 2013 on Belgium, Finland and Denmark; Jansen, 2002 on Switzerland and the Netherlands), and a compendium that draws on studies from a dozen different countries and regions around the world (Decorte et al., 2011), there has been an absence of any significant internationally comparative research. However, such a global phenomenon would clearly benefit from some coordinated international research, a point also recognised by the United Nations Commission on Narcotic Drugs in a recent report calling specifically for further "research on the different methods of cannabis cultivation and the role of cannabis seeds therein" (INCB, 2013, para. 69).

Internationally comparative approaches to research provide many benefits, particularly around providing insights into how national legal and cultural variations impact on both patterns of (specific types of) crime and on assessing policy responses to (specific) crime(s) (e.g. Heidensohn, 2008). Indeed, Hardie-Bick et al. (2005:1) assert that "[a]ny criminology worthy of the name should contain a comparative dimension. The contents of cultural meanings that are loaded into the subject of criminology are too variable for it to be otherwise. It is fair to say that most of the important points made by leading scholars of criminology are comparative in nature". In the example of cannabis cultivation, we can begin to see how patterns of cultivation, both common and similar in terms of global trends, may or may not differ between different countries and regions. The research reported here aims to explore both similarities and differences in small-scale cannabis cultivation in eleven different countries. The potential to inform future policy responses is obvious.

This paper reports on the preliminary general findings of the (semi-)standardised International Cannabis Cultivation Questionnaire (ICCQ); (Decorte et al. 2012) developed by the Global Cannabis Cultivation Research Consortium (GCCRC) and conducted in eleven countries to date. We begin with

a brief overview of our methodology before outlining some interesting general findings. Although we accept that sampling and other methodological issues necessitate some caution in generalising from these findings (see Barratt et al., and Barratt & Lenton, this volume), we believe we can make a number of interesting and valid comparisons between the national and international patterns of domestic cannabis cultivation in our data set of respondents from this limited number of developed nations, at least for those that we might loosely think of as 'small-scale cannabis growers'. In particular, we provide some comparative commentary on who grows cannabis, reasons for growing, methods of growing, market involvement ('dealing'), and contact with the police and other criminal activities of growers. As well as presenting some findings that are of interest in their own right, a key aim of this paper is also to provide some background for a series of papers (some in this edition, others under preparation) that will explore particular aspects of national and international patterns of cannabis cultivation in greater depth.

## Methods

Our methodology has been described in some detail elsewhere (Barratt et al., 2012; Barratt et al., this volume), so a brief overview will suffice for current purposes. Following on from successful online surveys into cannabis cultivation in Belgium (Decorte, 2010) and Denmark and Finland (Hakkarainen et al., 2011a), the GCCRC sought to develop a standardised online survey to allow for the collection of meaningfully comparative data in all participating countries: the ICCQ (Decorte et al. 2012).

The 35 item core ICCQ includes modules on: experiences with growing cannabis; methods and scale of growing operations; reasons for growing; personal use of cannabis and other drugs; participation in cannabis and other drug markets; contact with the criminal justice system; involvement in other (non-drug related) illegal activities, and; demographic characteristics. Other modules were added by sub-sets of participating countries to reflect the differing research interests of those involved (see e.g. Paoli and Decorte, Hakkarainen et al., Lenton et al. and Nguyen et al., this volume). The ICCQ also includes items to test eligibility and recruitment source.

We implemented a broad-based recruitment strategy and techniques to maximise the breadth of recruitment coverage mindful of the different conditions within each of the countries studied. Promotion strategies included: an international project website and blog hosted at a .nl address to highlight our association with a model of cannabis control supported by many in our target population (i.e. the Dutch 'coffee-shop' model); Twitter recruitment involving following prominent cannabis Twitter accounts and engaging with cannabis users; discussions hosted on cannabis related online forums where the researchers continue to engage with respondents while answering questions about the study; posting to and engaging with Facebook groups associated with cannabis culture; mainstream media coverage (television, radio, newspaper); alternative media coverage through provision of flyers to alternative music shops, head shops, street press, festivals etc.; distribution of flyers to grow shops; online and hard-copy advertising in cannabis-related magazines and websites; providing social media sharing buttons so respondents can easily share the survey with their social networks; and providing a link to printable flyers so respondents who wished to pass details of the survey to their friends could do so more privately. The mix of strategies varied from country to country (see Barratt et al., this volume for a fuller discussion); however many of

these strategies were international, leading people to the project website ([www.worldwideweeder.nl](http://www.worldwideweeder.nl)) where they could then choose the survey associated with their country of residence.

It is important to acknowledge the limitations of the internet-based research methods used here. Most importantly, samples of cannabis cultivators were volunteers, and not all cultivators had an equal chance of being included in the sample, resulting in coverage error. Our findings, therefore, cannot be said to represent all cannabis growers, and it is difficult to precisely estimate the importance of bias in our samples. Nevertheless there are various strategies we have taken to minimise sampling limitations. For example, we have used a wide variety of recruitment and promotion strategies and by removing any financial incentive to respond to the survey, we have reduced the likelihood of fraudulent responding.

As well as the particular problems of recruiting samples to online surveys we must also concede that different national contexts and different recruitment strategies in each country also lead to the problem of how comparable the samples we recruited from each country are to each other. Straus (2009) notes that it is common for cross-national comparisons to be made using convenience or purposive sampling, and argues that the overall context effects associated with living in a specific nation may still be discernible in comparative analyses, even though the representativeness of the resultant samples from each country is unknown. Further, it is also important to note that many of the limitations faced by online purposive sampling are broadly similar to 'traditional' face-to-face methods of studying hidden populations. Representative sampling methodology, as used in household surveys, is also prohibitively expensive to administer to the general population in ways that would access large numbers of cannabis cultivators. Additionally, most existing national and international data on cannabis cultivation is based on detections and arrests by law enforcement which obviously has its own biases. It is hoped that the results of the current research with self-selected samples of cannabis cultivators completing an online questionnaire will produce a useful counterpoint to the available law enforcement data. Fuller discussions of these issues can be found in Barratt et al., this volume.

Findings presented in the current paper are based on the data acquired through eight of the ICCQ surveys covering eleven countries: North America (covering Canada and the US), Belgium (covering both major language groups found in the country), Denmark, Finland, Germany (covering also Austria and German-speaking Switzerland), the Netherlands, the UK, and Australia. These eight datasets were merged for the ICCQ questions – this involved ensuring different datasets used the same coding structures, e.g. recoding questions from imperial into metric measurements as well as translation into English. Questions with 'other please specify' string variables were recoded where possible into existing categories and some new recoded categories were created.

### Selecting eligible samples

Not all respondents to our surveys have been included in the data presented here. Three rules were used to determine eligible samples for analysis in this paper:

1. Respondents answered 3 eligibility questions at the beginning of the questionnaire. These were: (a) aged 18 years or over, (b) resided in the country of the survey, (c) reported that they had grown cannabis at least once. Respondents who did not meet these criteria were not presented with the remaining questionnaire.

2. Q3 of the ICCQ asked 'how long ago did you last grow cannabis?' In order to reflect only recent trends in growing, we have excluded the participants who reported last growing cannabis more than 5 years ago and those who did not know, refused or skipped this question.
3. The samples reported here completed at least half of the core ICCQ questions. There were 35 questions in the ICCQ (excluding 3 eligibility questions). 27 questions were asked of all participants, 1 was used for criterion 2, so 26 were included in missing data analysis. Dichotomous indicators of completeness were calculated for each question, where 1 = any response recorded including a 'don't know' or 'refused' response, and 0 = 'no response' recorded including missing or skipped. Respondents were retained in the sample if they had completed 14 or more of the 26 core ICCQ questions.

After applying these rules, we were left with a final sample of 6530 across the eleven countries (see Table 1 for a breakdown of the final sample; see Barratt et al., this volume, for a more detailed discussion of eligibility and inclusion criteria).

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Insert Table 1 about here

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## Analysis

Results are presented for a selection of comparable core ICCQ items for the eleven countries included. For this paper, we have concentrated primarily on descriptive statistics to give a general overview of our findings with emphasis on both key commonalities and notable differences across different countries. Categorical or ordinal responses are presented as percentages of valid cases (rounded to the nearest whole number). Medians and interquartile ranges (IQRs) are presented for continuous 'count' variables, such as age, number of plants, yield and surface area, as these are less-biased descriptors than means/standard deviations. A dash (-) in a table indicates the item was not asked in that country. Deeper analysis of the relationships between different variables and across different countries will follow in subsequent papers.

## Findings

### Demographics characteristics

There is some broad commonality across our samples, which suggests this cross-national comparison can give some useful insights into differences and similarities in growing experiences across the different country samples, even if questions remain as to how representative each sample is of its parent (national) population of cannabis growers. Gender ratios (Table 2) are similar across the surveys with male respondents outnumbering female respondents by a ratio of just over 9:1. Ages (Table 2) were similar for most countries with the majority of respondents in their early-20s to mid-30s, but the median age of respondents was notably higher for the Australian, Danish, Dutch and British samples. Patterns of employment status (Table 3) were not dissimilar, although Belgium and the German language survey (Germany, Austria and Switzerland) recruited a notably larger proportion of students, and the US more unemployed people. The UK recruited a higher proportion of people claiming benefits and/or pensions than the other countries. Overall, respondents were far

more likely to report some form of employment: those reporting various forms of non-employment (aside from being students) were small minorities in all countries.

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Insert tables 2 and 3 about here

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Household arrangements (Table 4) varied across the countries. Belgium and Switzerland had a notably higher proportion of respondents living with their parents, and Finland and Denmark had higher rates of respondents living alone – with Belgium and the US having notably lower proportions in this category. Those living alone were a sizable minority in all countries; respondents tended to report some kind of shared living arrangements (most commonly with partners, but also commonly with other family members). Although the surveys also asked about educational level and ethnicity, categories were not comparable between countries and are therefore not reported in this paper.

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Insert table 4 about here

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### **Cannabis and other drug use**

Over two-thirds of respondents across all surveys reported that they first used cannabis (Table 5) before the age of 18, with less than 5% reporting initiation after the age of 25. Americans, followed by Austrians and then British respondents reported the youngest age of first use, on average, with the Finnish respondents notably reporting an older age of first use. The patterns found here are broadly reflective of other research looking at initiation into drug use in these countries. Clearly most respondents in all surveys were regular or heavy users of cannabis (e.g. use today or in last week; Table 5), but those from the US and UK were most likely to have smoked 'today', with Finns the least. For all countries other than Denmark, over half of respondents reported also using cannabis that was not home-grown, and for most countries a majority also reported using hash (resin), with Australians (at 27%) standing out here as the least likely to also have used hash.

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Insert table 5 about here

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For all countries except Switzerland (which was one of the smallest samples), the majority of respondents had not used drugs other than cannabis (in various forms, including synthetic cannabinoids), alcohol and tobacco in the last year (Table 6), although for Finland and Austria, and (to a lesser extent) Canada and Germany, nearly half of respondents did report taking other illicit drugs in the last 12 months. In most other countries (Denmark being the notable exception) around one-third or more respondents reported taking other illicit drugs in the last year. In general, magic mushrooms and ecstasy were those other illicit drugs most likely to have been consumed, and those reporting use of any particular drug were generally a small minority.

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Insert table 6 about here

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### **Growing experiences**

Both the median and range of 'age of first grow' was broadly similar in all samples (Table 7). The vast majority of respondents started growing in their late teens and early twenties, but all countries included respondents who started growing at a much younger age (as young as 10 in seven of the countries) and those who started much later in life (including some in their 60s and 70s).



In general, growers responding to our survey were quite inexperienced (Table 7) with roughly two-thirds (64%) of the whole sample reporting growing 5 crops or fewer. Only three countries (the UK, Australia and Denmark) had a majority of respondents who reported having grown six crops or more – and these were three of the four countries (the Netherlands being the other) where the median age of respondents was in the 30s instead of the mid-20s. Clearly older respondents have had more time to build experience, but it is hard to infer anything more than this: more experienced growers may have been less likely to respond to the survey in the first place, or lack of experience may reflect the fact that domestic cultivation as a wide-spread phenomenon is still relatively new in many countries, for example. In total, 67% of respondents ‘succeeded first time’ and 83% had at most only one failed attempt before their first successful crop (ranging from 70% in the US to 90% in Denmark and 92% in Austria; Table 7).

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Insert table 7 about here

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### Growing method and scale

Respondents from the US, the UK, Canada and Finland were all more likely to grow indoors than out (Table 8) which may reflect climate (especially in Finland), opportunity (outdoor growing being less likely for those who live in densely populated areas) or concerns over detection (with these last two being related to each other). Although these options were not available in the North American survey, a large proportion of respondents in each country reported some kind of combination of indoor and outdoor growing. It is interesting to note that Potter (2010a) previously found in the UK that although most growers grew indoors, many cited a preference for growing outdoors – but often didn’t have access to suitable outdoor growing sites and/or expressed concerns over having their crops detected or stolen.

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Insert table 8 about here

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The number of mature plants grown per crop (Table 8) varied across the countries although in all countries the majority of respondents stuck to relatively low numbers of plants. The median across the whole sample was 5, ranging from 3 in Belgium to 9 in Austria and Switzerland (both of which were particularly small samples). In some countries it seems likely that growers were influenced by official or semi-official policies of tolerance to small-scale cultivation. Exploration of the impact of cannabis cultivation laws on self-reported growing practices in this sample will be the focus of a subsequent paper from the GCCRC. Although the median number of plants grown was in single figures in all countries, and the IQR only reached 20 plants in two countries, all countries included some respondents who reported growing 100 or more plants. The space typically given over to cultivation (Table 8) was broadly similar across all countries, and it was not necessarily the case that those countries where respondents reported higher numbers of plants also reported larger space used for growing.

Yield (in terms of ‘usable dried cannabis’; Table 9) per plant was similar across all samples, although Australian and, to a lesser extent, Dutch respondents reported notably higher results here. Both of these countries have particularly well established traditions of domestic cultivation, which may suggest that expertise (and/or established strains commonly used) developed within national growing communities has contributed to this pattern, alternatively, the result for Australia may be due to climate and geography which are conducive to outdoor growing. In general, outdoor growers

produce larger plants with the median yield per plant being significantly higher for respondents who grew outdoors (median = 1.8 ounces, IQR 0.7–3.5, n = 1431) compared with those who grew indoors (median = 1.2 ounces, IQR 0.7–2.5, n = 2339; Wilcoxon signed-rank test:  $z = -8.46$ ,  $p < .001$ ).

Although the IQR for the sample as a whole was 0.7-3 ounces per plant, peaking to an upper limit of 4.4 ounces in the Netherlands and 5.4 in Australia, a number of countries included respondents reporting very large quantities of cannabis per plant. Although this may partly be a result of respondent error in completing this question (e.g. through mis-understanding weights, or through mis-typing entries) many of us who have conducted empirical work with cannabis growers have seen some very large plants indeed – and a trawl of the internet shows that ‘monster’ plants can and do exist.

Yield per crop (Table 9) varied quite dramatically across the different countries, peaking at 10.6 ounces in Denmark, the Netherlands and Switzerland, but particularly low in Canada (3.5) and Belgium (3.6). It is not necessarily the case that those who grow more plants get higher yields per crop, nor that those utilising a larger growing area necessarily produce more cannabis: this supports observations in previous research that some growers simply prefer to grow a number of small plants while others prefer to grow a smaller number of larger plants (e.g., Potter, 2010a).

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Insert Table 9 about here.

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### Reasons for growing

When respondents reported their reasons for growing cannabis (Table 10) we again find some strong similarities across the different countries but also some striking differences. Cost, provision for personal use, and pleasure were amongst the top reasons for growing across all countries. In the German language survey (reaching Germany, Austria and also German speakers in Switzerland) ‘The cannabis I grow will never contain adulterants’ was also offered as an option which proved to be particularly important (the most cited reason for cultivation in Germany and Austria, and third most cited reason in Switzerland) – clearly it would have been interesting to include this option in the other surveys and future sweeps of the ICCQ will include this as standard. Overall, the top five reasons for growing cannabis were, in order, ‘It provides me with cannabis for personal use’ (84%), ‘I get pleasure from growing cannabis’ (83%), ‘It’s cheaper than buying cannabis’ (75%), ‘To avoid contact with the illegal circuit (e.g. street dealers, criminals)’ (72%) ‘The cannabis I grow is healthier than the cannabis I buy’ (68%). The sixth most popular response altogether was ‘Because the plant is beautiful’ – chosen by 48% of respondents overall, but not available in the Dutch or Belgian surveys. For those countries where this option was available, only Finland (49%) had fewer than half choosing this response.

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Insert table 10 about here.

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Notably, only 11% of respondents overall chose ‘so I can sell it’ as a reason to grow cannabis, although this rose to 28% in the US and 33% in Canada, showing North American respondents to be much more likely to be motivated by the possibility of financial returns than their European or Australian counterparts. Within Europe, the Finns and the Dutch (both at 14%) were more likely to choose this option than any other countries: it may be that for the Dutch this represents the possibility of selling cannabis directly to coffee-shops, whereas for the Finns this may reflect the

relatively under-developed cannabis market in 'remote' Northern Europe compared to the other European countries covered by the survey.

Notable differences between countries include wide variations in those reporting cultivating for their own or somebody else's medical use (much more likely in the US; least likely in Belgium). We might speculate that in the US, where (in some states) there is legal provision for medical cannabis use, claiming medical use reduces some of the stigma associated with being a cannabis user, akin to a sophisticated 'neutralisation' technique (cf. Sykes and Matza, 1957). Similarly, other countries (such as Canada) allow for some legal medical cultivation – however, a full discussion of the different policies relating to medical-use cultivation and how these may relate to our findings is beyond the scope of the current paper (but see Hakkarainen et al., this volume, for further discussion on growing for medical reasons). The desire to grow cannabis that was weaker, rather than stronger, than that available on the black-market was peculiar to Belgium, whereas the desire to grow cannabis that was stronger than available on the market was particularly important in America. At the same time, Belgians, followed by the Dutch, were least concerned with wanting to ensure consistency of product when compared to what they could buy. Both these and other factors may point to the role that features of the domestic market have in motivating growers: in Belgium and the Netherlands, there is easy access to the de-criminalised Dutch 'coffee-shop' market, dominated by a wide selection of generally strong varieties of cannabis (Niesink and Rigter, 2013). More traditional black-markets, however, are not known for consistency of product and, indeed, are often associated (correctly or not, cf. Coomber, 2006) with concerns around adultery and general inconsistency of standards (e.g. strength and purity). North Americans in general seemed less concerned about avoiding 'contact with the illegal circuit' than European respondents, although the Dutch sample were notably less concerned with this than any other group (which may again reflect the coffee-shop system). Curiosity was more important in North America than elsewhere, and more important in the UK than elsewhere in Europe.

### **Market participation**

Although there were some clear differences in growers' involvement in the distribution of cannabis (Table 11), overall profiles were broadly similar in this area. Unsurprisingly, the vast majority of growers reported consuming at least part of their crops for personal cannabis use (although very small minorities in each sample did not report using any of their crop for personal consumption). Roughly a quarter of the entire sample reported swapping some of their harvest with other growers, varying from 15% in the UK and Denmark to 30% or more in Belgium, Switzerland and Austria, and 73% in the Netherlands. In all countries except the Netherlands over half of all respondents reported giving away some of the cannabis they produced. Although the precise reasons for the variation in responses here is unclear, the overall picture supports the idea of cannabis use – and even cannabis growing – as a social experience (cf. Weisheit, 1991, 1992; Potter, 2010a, 2010b) and are involved in what is often termed in the literature as 'social supply', a key element of non-commercial cannabis cultivation noted by both Potter, 2010a and Hough et al., 2003 in the UK context and also observed in studies of growers in Finland and Denmark, for example (Hakkarainen et al. 2011a, Frank et al. 2011). Perhaps more significantly from a criminal justice perspective, a sizable minority (around one-third of all respondents) reported selling cannabis to others. Although the distinction was not made in the North American survey, in nearly all countries selling to cover the cost of growing was more common than selling for profit, although well over 10% of respondents did report the latter. It is

interesting to note that the proportions reporting actually selling cannabis (for profit or otherwise) were higher than the proportions reporting 'so I can sell it' as a reason why they grow cannabis (Table 10) in the first place – this supports the observation made by Potter (2010a) that getting a financial return on cannabis cultivation may be something that develops after growers discover there is a market for their produce (often, in Potter's work, among friends and acquaintances along the model of social supply). It is also interesting to note that the North American respondents were much more likely to cite 'so I can sell it' as a reason to grow cannabis, but only slightly more likely to actually sell some of their cannabis than most of the European samples.

Selling (either for profit or to cover costs) was associated with higher total crop yield (Wilcoxon signed-rank test:  $z = -12.64$ ,  $p < .001$ ). Sellers reported a median crop yield of 10.6 ounces (IQR 5.3–24.7;  $n = 1014$ ) while non-sellers reported a median crop yield of 6.3 ounces (IQR 2.6–114.1;  $n = 2142$ ). For those respondents who did report selling some of their last crop, the majority in all countries reported that their income from cannabis cultivation contributed to less than 10% of their total income (Table 11), but with sizeable minorities reporting much higher proportions of their income coming through selling cannabis, particularly in the US, Canada and the UK. The North American respondents were also the most likely to report selling drugs other than cannabis, although this activity was reported only by a small minority (less than 10% of respondents in most countries other than the US and Canada; 7% in the sample as a whole).

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Insert table 11 about here

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### **Police contact and other illegal activity**

Generally respondents thought that 'the risk of getting caught by police for growing cannabis' (Table 12) was 'low' or 'very low' compared to 'high' or 'very high' by a ratio of nearly 4:1, but this varied quite widely across the samples. Germans (42%), followed by Austrians (36%) and Canadians (30%) were most likely to see the risk as 'high' or 'very high' compared to 21% of the whole sample. Conversely, Belgians (52%), Americans (51%) and the Dutch (45%) were most likely to report the risk as 'very low': this may reflect (perceived or actual) official tolerance to small-scale cultivation in these countries (although in America this varies considerably by state). However, these perceptions of risk were not always matched by experience (Table 13): Finns (25%), Austrians (21%) and Australians (20%) were the most likely, with Americans (6%) and Belgians (9%) the least likely, to report that they had actually come into contact with the police through their cultivation activity. In total, only 15% of our respondents across all surveys had had such police contact.

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Insert table 12 about here

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About three-quarters of respondents overall (ranging from 62% in Finland to 87% in Belgium and 95% in Canada – although the Canadian sample for this question was small) reported that they had never been convicted of a criminal offence (Table 13), and minor violations aside, only very small proportions of respondents reported involvement in any criminal activity (other than drug-related) in the last 12 months (this peaked in Finland where 5% reported involvement in property crimes and 2% in violent crimes). The picture here is of a largely law-abiding sample, aside from participation in cannabis cultivation and other drug-related crimes. (Although 15% - peaking at 29% in Belgium and dropping to 0% for both North American countries – reported lesser 'violations' such as fare evasion or traffic violations; those citing non-criminal violations varied widely across the different cohorts

although this is probably as much a reflection on the different legal codes in each country as actual participation in particular activities.)

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Insert table 13 about here

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## Discussion

We must remind the reader of some important caveats to our results. We cannot claim that our samples are representative of broader populations of cannabis growers in any of the participating countries. At the very least, we expect a bias towards smaller-scale cannabis growers who are less involved in drug markets and/or other types of crime: those with greater criminal involvement would probably be less likely to respond to our survey as they are likely to have greater concerns about possible criminal justice repercussions resulting from reporting their activities. The fact the survey is online also suggests a bias to those demographic groups more likely to both have access to and regularly use the internet – particularly for those countries where recruitment strategies were predominantly online (see Barratt et al., this volume). As such we are keen to emphasise that results discussed are for our samples and not necessarily generalisable to broader growing populations. Nevertheless, we feel that the patterns identified point us towards some useful conclusions and have something to say about our understanding of cannabis-growing populations in the countries researched, with implications for both future policy and future research considerations.

Firstly, small-scale cannabis cultivation (at least) is clearly quite wide-spread across Europe, North America and Australia, with large numbers of those involved willing to participate in research of the kind reported on here. Although growers responding to our survey were predominantly male and younger adults, our findings suggest some involvement in cultivation across both genders and all age groups. Most of our respondents had jobs (or were students) and a majority had shared living arrangements. Likewise, the majority of our respondents were largely law-abiding (aside, of course, from their cannabis cultivation and other drug-related activities): these are people who live more-or-less normal lives rather than some deviant or anti-social sub-group.

Somewhat unsurprisingly, our growers tended to be frequent users of cannabis. Although a key reason for growing cannabis was to supply their own consumption, they also reported getting cannabis from sources other than their own cultivation: personal cultivation does not usually satisfy an individual's consumption requirements (although this may be as much through users' desires to consume a variety of cannabis products as any inability to produce as much as they consume). Although many did use other drugs, the majority did not, and very few suggested what might be seen as particularly problematic patterns of drug use (e.g. use of heroin, or extreme poly-drug use).

Our growers tended to start cultivating in their late teens and early twenties (i.e. young adulthood) although some started much younger and others much later in life. Growing was something that respondents turned to later in life than they started using cannabis: they seem to have become regular users before they turned to cultivation. Generally they hadn't grown cannabis that often, although significant numbers reported high levels of experience. Mostly they found cannabis cultivation easy (in that they reported success after one or two attempts): clearly this criminal activity is not one that is difficult to become either involved or successful in, at least for those motivated to participate (and at least for those who have access to the internet – a necessary

feature for those who responded to our online survey, and a key source of information about cannabis growing noted in other research; Potter, 2010a; Bouchard et al. 2011; Decorte 2010).

Across our developed-world samples, indoor cultivation is more common than outdoor cultivation, although this varied quite dramatically across the participating countries. It seems likely that method of cultivation chosen is influenced by a number of factors that are likely to include physical-geographical (climatic and agronomic conditions), social-geographical (e.g. access to outdoor growing opportunities and population densities), political (law and policy) and also cultural (national and local traditions of cannabis use and cultivation as well as broader cultural mores around, for example, rural/urban lifestyles) aspects. This is an area where further analysis of our data – and further research – should shed more light.

Regardless of preferred cultivation methods, most of our respondents operate on a small scale preferring low numbers of plants and small areas given over to cultivation, although this did vary between countries (and may in part be due to growers' recognition of national or local policy around some lenience towards growing a certain number of plants, as well as individual preferences). Of course, our methodology was geared more towards small-scale growers than large commercial operations. Nevertheless, some growers in our survey reported much larger growing operations: growing more than 100 plants at a time was reported by at least some respondents from all countries.

Yield, both per-plant and per-crop, also varies across countries. This is undoubtedly partly related to growing methods, particularly the choice to grow indoors or outside, but also growers' preferences. Importantly, it is not always the case that greater numbers of plants led to greater yields. Very large yields were claimed by some respondents in most countries: limited number of plants does not necessarily effectively limit yields. A key policy related point here is that a small number of plants can produce a large quantity of cannabis and growers who choose to cultivate only small numbers of plants, possibly in response to national law or policy factors, can still generate very large yields. Restrictions on number of plants, such as has been the case in Australia, the Netherlands or Belgium (for example) (Room et al., 2010), and will be the case under the new proposed models in Colorado and Uruguay (Room, 2014), may prove to be a relatively blunt instrument if the idea is to reduce individual growers' productivity. However, one regulatory option is to give police discretion to put evidence before the court if, in their view, the yield from a small number of plants seems greater than a personal use amount (see Lenton, 2011).

One of our most important findings is that most of the small-scale growers in our sample are motivated more by practical and ideological concerns than a desire to make money. Taken together, these and other features of the data support the repeated observation in the literature that cannabis cultivation is often a rational choice for some cannabis users who wish to minimise the harm associated with buying cannabis (cost, criminal involvement associated with buying cannabis, uncertainty or undesirability of quality of cannabis available on the black-market), whilst also being an aesthetic and/or 'ideological' choice (Potter, 2010a; Decorte, 2010). Cultivating for medical purposes is also important to a number of growers (see Hakkarainen et al., this volume, for further discussion here).

While only one-third of our respondents reported actually selling (with more reported selling to cover costs than selling to make money, and with most of those who did sell reporting that this was

not a major part of their income), most of our respondents did report some level of involvement in cannabis supply. Interestingly, North American respondents were most likely to sell cannabis, most likely to cite selling as a reason for growing, and most likely to get involved in selling other drugs. A key point to take here is that while a majority of our cannabis growers are involved in the supply of cannabis, they are not generally drug dealers. Instead, a vast majority of the respondents give away some part of their product for free, by sharing, swapping and gift giving. These observations show the importance of 'social supply' among cannabis-using networks with its blurred lines between selling and sharing drugs. Intent to make money is, notably, not a major driver for many of the cultivators who participated in our surveys (although it is, of course, very likely that those who are driven by profits were also less likely to participate in an online survey), but higher proportions of growers reported that they did sell some of their cannabis than reported being able to sell cannabis as a reason for growing: for some (a small minority), cultivation may act as a way into drug dealing even if this wasn't the original intention. Potter (2010a) has previously described this phenomenon as the 'slippery slope', and this pattern fits the concept of 'drift' reported both in those who escalate from 'social supply' to 'real dealing' (Taylor and Potter, 2013) and in escalation of criminality more generally (Matza, 1964).

Finally, cannabis cultivation was generally not seen as risky, although higher numbers reported police contact than perceived the likelihood of getting caught as high or very high. Some quite major intra-country differences in both perceptions of risk and actual experiences with the police (although these didn't correlate: countries with high perceived risk were not the ones with the highest levels of police contact). This is another area where further analysis of our data will be important.

## Conclusions

This paper reports some initial findings from work that is very much on-going. In particular, we intend future papers that develop analyses of the relationship between variables in the ICCQ and political and cultural contexts of different countries, and multivariate analyses to tease out the relationships between growers' methods, motives and market participation. In particular we wish to explore the differences between 'small' and 'large' scale, or 'commercial' and 'non-commercial' cultivation. We also intend, in collaboration with local researchers, to launch the survey in a number of other countries in both the developed and developing world (current plans to run the survey in Uruguay are especially interesting given the recent developments effectively legalising small-scale cultivation in that country) and to repeat the survey in the near future (with more rigorous standardisation of both the survey questions and recruitment and promotion methods). A repeat sweep will be particularly interesting in countries like the US and Belgium where significant policy changes are taking place.

Future research aside, we can draw attention to some key points that can be made from the findings presented here, and that have clear relevance not just to our academic understanding of cannabis cultivation in developed-world countries but also to policy considerations. Significantly, there should be no assumption that most small-scale cannabis growers are criminally or socially deviant: instead, most tend to come from more-or-less normal socio-economic backgrounds with minimal involvement in drug dealing (as opposed to social supply) or other types of crime. Indeed, a commonly-cited reason for growing cannabis is actually to avoid involvement with criminals (in the form of traditional dealers and the black-market). Equally, it should not be assumed that

involvement in cannabis cultivation comes about from a desire to make money (although saving money may be an important factor). Having said this, the observation that involvement in cultivation may lead a small minority of individuals to drift into dealing, albeit usually on a small scale, is important.

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Title: Global patterns of domestic cannabis cultivation: sample characteristics and patterns of growing across eleven countries

Highlights:

- Online survey of small-scale cannabis cultivators in eleven countries (N=6530)
- Broad similarities but some notable differences across different country samples
- Most respondents neither socially nor criminally deviant
- Intent to profit by selling cannabis not a motivational factor for most respondents
- Involvement in 'social supply' of cannabis very common

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## Tables

Table 1: Final sample size per country

	Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>Sample size</b>	1065	645	63	491	1179	814	277	1348	129	101	418	<b>6530</b>

Table 2: Gender and age

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>Gender (%)</b>	Male	91	88	93	88	90	91	90	95	91	93	95	<b>92</b>
	Female	9	12	7	12	10	9	10	5	9	7	5	<b>8</b>
	<b>Total N</b>	<b>988</b>	<b>572</b>	<b>58</b>	<b>489</b>	<b>1147</b>	<b>810</b>	<b>261</b>	<b>1266</b>	<b>117</b>	<b>95</b>	<b>397</b>	<b>6200</b>
<b>Age</b>	Median	26	26	25	35	26	31	32	26	25	25	33	<b>27</b>
	IQR	22-34	21-36	21-36	27-47	23-31	23-43	23.25-44	22-33	22-31	21-33	25-41	<b>22-36</b>
	Range	18-81	18-86	18-65	18-71	18-71	18-70	18-70	18-74	18-55	18-53	18-63	<b>18-86</b>
	<b>Total N</b>	<b>986</b>	<b>645</b>	<b>63</b>	<b>485</b>	<b>1152</b>	<b>810</b>	<b>252</b>	<b>1243</b>	<b>117</b>	<b>94</b>	<b>381</b>	<b>6228</b>

Table 3: Employment status

		Belgium	US	Canada	Australia	Finland <sup>1</sup>	Denmark	Netherlands <sup>1</sup>	Germany	Austria	Switzerland	UK	Total
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<b>Employment status (%<sup>2</sup>)</b>	Full-time work <sup>3</sup>	40	33	51	44	-	38	-	43 <sup>3</sup>	39 <sup>3</sup>	47 <sup>3</sup>	41	<b>41</b>
	Part-time or casual work	10	20	16	13	-	11	-	12	13	18	8	<b>12</b>
	Self-employed	8	21	18	17	-	9	-	10	13	14	17	<b>12</b>
	Student (any type)	38	17	22	12	-	27	-	33	35	33	12	<b>27</b>
	Unemployed – looking for work	7	13	9	5	-	8	-	6	9	4	9	<b>7</b>
	Benefits/ pension/ disability	3	5	2	9	-	9	-	3	3	1	16	<b>6</b>
	Home duties	1	5	0	2	-	2	-	2	0	1	8	<b>2</b>
	Retired	1	4	4	4	-	8	-	0	0	0	1	<b>3</b>
	Not seeking work	1	2	4	9	-	3	-	2	3	1	1	<b>3</b>
	<b>Total N</b>	<b>989</b>	<b>451</b>	<b>45</b>	<b>488</b>	-	<b>811</b>	-	<b>1282</b>	<b>118</b>	<b>97</b>	<b>398</b>	<b>4679</b>

<sup>1</sup> Question not asked in a comparable way in Finland and the Netherlands.

<sup>2</sup> Respondents invited to tick more than one option; columns can total more than 100%.

<sup>3</sup> In the German language version of the survey (Germany, Austria and Switzerland) 'Apprenticeship' was also an option. Full-time work and apprenticeship categories have been merged into 'Full-time work' for this table.

Table 4: Household

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands <sup>1</sup>	Germany	Austria	Switzerland	UK	Total
<b>I live with: (%)</b>	My spouse/ partner/ boyfriend/ girlfriend	37	47	33	59	39	42	-	25	26	21	47	<b>38</b>
	My child/ren <sup>2</sup>	17	20	11	29	12	22	-	11	10	14	24	<b>17</b>
	My parents <sup>2</sup>	31	21	19	10	4	9	-	23	14	32	12	<b>17</b>
	My grandparents	0	3	0	0	0	1	-	2	1	0	1	<b>1</b>
	My siblings or other family members	3	0	0	3	4	2	-	4	4	3	5	<b>3</b>
	My friends	5	7	6	4	5	5	-	11	11	7	5	<b>7</b>
	My housemates	9	11	14	12	7	4	-	13	18	11	9	<b>9</b>
	No-one, I live alone	17	18	31	14	39	32	-	27	29	23	21	<b>27</b>
	<b>Total N</b>	<b>989</b>	<b>348</b>	<b>36</b>	<b>488</b>	<b>1174</b>	<b>811</b>	<b>-</b>	<b>1283</b>	<b>118</b>	<b>97</b>	<b>398</b>	<b>5742</b>

<sup>1</sup> Question not asked in the Netherlands in a comparable way.

<sup>2</sup> Includes step children and step parents.



Table 5: Cannabis use

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>How old were you when you first used cannabis? (%)</b>	I have never used cannabis	2	1	3	0	0	1	0	0	0	2	0	<b>1</b>
	Less than 16 years old	35	50	43	35	22	42	34	37	49	44	46	<b>36</b>
	16-17 years old	40	24	22	35	29	31	32	36	30	37	25	<b>32</b>
	18-25 years old	21	22	22	26	44	23	24	23	18	15	25	<b>27</b>
	More than 25 years old	3	3	10	4	5	3	10	4	2	1	4	<b>4</b>
	<b>Total N</b>	<b>1056</b>	<b>643</b>	<b>63</b>	<b>490</b>	<b>1179</b>	<b>812</b>	<b>269</b>	<b>1312</b>	<b>125</b>	<b>99</b>	<b>404</b>	<b>6452</b>
<b>When was the last time you used cannabis? (%)</b>	Today	43	66	57	57	27	43	46	39	50	42	66	<b>44</b>
	Not today, but in the last week	36	20	28	22	42	34	39	38	32	41	24	<b>34</b>
	Not in the last week, but in the last 30 days	11	5	8	7	17	11	7	13	10	5	4	<b>11</b>
	Not in the last 30 days, but in the last 12 months	7	6	3	11	11	9	6	7	7	7	6	<b>8</b>
	I have not used cannabis in the last 12 months	3	2	0	3	3	3	2	3	2	3	1	<b>3</b>
	Never used cannabis	2	1	3	0	0	1	0	1	0	2	0	<b>1</b>
	<b>Total N</b>	<b>1052</b>	<b>635</b>	<b>60</b>	<b>478</b>	<b>1174</b>	<b>804</b>	<b>270</b>	<b>1305</b>	<b>124</b>	<b>98</b>	<b>397</b>	<b>6397</b>

Table 6: Other drug use

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
In the last 12 months, have you used any of the following drugs? (% <sup>1</sup> )	Alcohol	88	68	76	75	90	74	76	76	83	75	72	79
	Cigarettes	71	53	50	57	80	68	71	71	74	61	67	69
	Cannabis that is not home-grown	78	58	62	58	79	46	64	64	73	68	63	66
	Hash (resin)	60	52	59	27	49	58	57	38	34	50	47	48
	Magic Mushrooms	13	20	26	16	34	10	14	15	24	15	12	18
	Ecstasy (MDMA)	18	11	19	18	15	6	20	15	20	28	16	15
	Amphetamine (speed)	8	6	10	12	15	6	12	14	17	14	5	11
	Cocaine (includes crack cocaine)	13	6	10	7	5	8	11	6	12	13	13	8
	LSD	7	10	14	14	12	3	8	7	12	15	7	8
	Other opioids (e.g. OxyContin <sup>TM</sup> , codeine, buprenorphine)	1	9	10	8	12	2	1	4	5	8	7	6
	Benzodiazepines and sedatives (e.g. Valium <sup>TM</sup> , Stilnox <sup>TM</sup> )	2	7	5	8	15	2	4	3	5	9	8	6
	Synthetic cannabinoids (Spice, Kronic, K2, etc)	1	8	0	13	5	1	1	5	2	1	6	5
	Other pharmaceutical drugs	2	5	5	1	5	1	1	1	0	1	2	3
	Meth- amphetamine (meth, crystal, ice)	1	3	3	7	4	0	1	2	3	2	2	2
	Ketamine	1	0	2	0	0	1	2	0	1	0	6	1
	Heroin	0	2	0	1	1	1	0	0	2	6	1	1
	Illicit drugs other than cannabis <sup>2</sup>	32	34	41	39	48	21	33	41	47	52	34	37
<b>Total N</b>	<b>1049</b>	<b>601</b>	<b>58</b>	<b>488</b>	<b>1178</b>	<b>811</b>	<b>276</b>	<b>1309</b>	<b>125</b>	<b>99</b>	<b>404</b>	<b>6398</b>	

<sup>1</sup> Respondents invited to tick more than one option; columns total more than 100%.

<sup>2</sup> Report of use of any drug other than Cannabis that is not home-grown, Hash (resin), Synthetic Cannabinoids, Alcohol and Cigarettes.

Table 7: Age of first grow, no. of crops grown, attempts before first successful grow

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>Age of first grow</b>	Median age in years	20	20	20	20	21	21	21	20	19	18	22	<b>20</b>
	IQR	18-25	17-24	18-24	17-25	19-24	18-26	18-30	17-24	17-23	16-20	18-30	<b>18-25</b>
	Range	12-71	10-65	12-52	10-65	10-64	10-66	10-66	10-74	14-53	12-46	10-59	<b>10-74</b>
	<b>Total N</b>	<b>993</b>	<b>602</b>	<b>59</b>	<b>456</b>	<b>1175</b>	<b>661</b>	<b>277</b>	<b>1346</b>	<b>129</b>	<b>101</b>	<b>408</b>	<b>6207</b>
<b>How many crops ever grown? (%<sup>1</sup>)</b>	I have not yet harvested my first crop	10	13	11	3	7	1	8	6	2	2	2	<b>7</b>
	1 crop	20	12	16	12	14	11	15	18	18	14	10	<b>15</b>
	2 to 5 crops	46	36	33	33	45	37	42	47	41	52	36	<b>42</b>
	6 to 10 crops	14	14	16	19	18	21	15	14	25	16	20	<b>17</b>
	11 to 20 crops	5	11	6	17	9	14	9	8	9	8	13	<b>10</b>
	21 to 50 crops	4	8	13	11	5	11	6	4	4	6	8	<b>6</b>
	More than 50 crops	2	6	5	5	2	5	6	3	2	2	10	<b>4</b>
	<b>Total N</b>	<b>1038</b>	<b>640</b>	<b>63</b>	<b>478</b>	<b>1124</b>	<b>796</b>	<b>256</b>	<b>1260</b>	<b>122</b>	<b>96</b>	<b>398</b>	<b>6271</b>
<b>How many times did you fail before you succeeded in getting a crop? (%<sup>1</sup>)</b>	Succeeded first time	60	65	68	59	66	77	70	69	74	69	66	<b>67</b>
	1 attempt	19	5	5	18	19	13	13	18	18	18	20	<b>16</b>
	2 attempts	7	10	13	11	6	7	5	5	4	7	6	<b>7</b>
	3 attempts	3	4	2	4	1	1	3	2	1	3	4	<b>2</b>
	4 attempts	1	2	2	2	0	0	2	1	0	1	1	<b>1</b>
	5 or more attempts	1	2	0	3	1	1	1	0	1	0	1	<b>1</b>
	I have not yet harvested my first crop	10	13	11	3	7	1	7	7	2	2	2	<b>7</b>
<b>Total N</b>	<b>1042</b>	<b>639</b>	<b>63</b>	<b>473</b>	<b>1155</b>	<b>788</b>	<b>271</b>	<b>1248</b>	<b>121</b>	<b>96</b>	<b>407</b>	<b>6303</b>	

<sup>1</sup> Columns can total more than 100% due to rounding.

Table 8: Location and size of set-up

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>Do you typically grow indoors or outdoors?( %<sup>1</sup>)</b>	Indoors	34	80	68	27	62	39	33	47	44	32	76	<b>49</b>
	Outdoors	36	20	32	41	3	29	34	10	11	25	5	<b>20</b>
	Both indoor and outdoor in the same growing period	12	-	-	26	32	20	22	27	35	29	15	<b>21</b>
	Seedling grown indoors, then planted outdoors	18	-	-	6	4	13	11	16	10	14	4	<b>10</b>
<b>Total N</b>		<b>929</b>	<b>558</b>	<b>56</b>	<b>462</b>	<b>1041</b>	<b>764</b>	<b>232</b>	<b>1170</b>	<b>120</b>	<b>93</b>	<b>386</b>	<b>5811</b>
<b>Number of mature plants per crop<sup>2</sup></b>	Median	3	6	5.5	4	4	6	5	6	9	9	4	<b>5</b>
	IQR	2-6	3-12	4-21.5	2-6	2-6	4-12	3-5	4-12	5-12	5-20	2-6	<b>3-9</b>
	Range	1-100+	1-100+	1-100+	1-100+	1-100+	1-100+	1-100+	1-100+	1-100+	2-100+	1-100+	<b>1-100+</b>
	<b>Total N</b>	<b>814</b>	<b>535</b>	<b>52</b>	<b>426</b>	<b>1000</b>	<b>702</b>	<b>211</b>	<b>1004</b>	<b>91</b>	<b>82</b>	<b>358</b>	<b>5275</b>
<b>Space typically used to cultivate cannabis (in square metres)<sup>2</sup></b>	Median	2	1.9	3.15	3.3	2	4	2	2	2	3	2	<b>2</b>
	IQR	1-5	0.9-9.3	0.7-9.075	1-8	1-3	1-9	1-5	1-5	1-5	1-7.5	1-4	<b>1-5</b>
	Range	1-100+	<0.1-100+	0.2-100+	0.1-100+	0.5-21	1-100+	1-21	1-100+	1-81	1-100	0.2-100+	<b>&lt;0.1-100+</b>
	<b>Total N</b>	<b>802</b>	<b>519</b>	<b>52</b>	<b>399</b>	<b>978</b>	<b>676</b>	<b>205</b>	<b>676</b>	<b>66</b>	<b>65</b>	<b>337</b>	<b>4775</b>

Note: This table only shows those respondents who have harvested at least one crop

<sup>1</sup> %s may not total 100 due to rounding.

<sup>2</sup> Only respondents who have harvested at least one crop and reported growing one or more mature plants per crop were included in this analysis.

Table 9: Yield

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>Typical yield (i.e. usable dried cannabis) per plant (ounces<sup>1</sup>)</b>	Median	1.4	1.1	1.1	3	1.6	1.3	2.1	0.9	1.0	1.2	2	<b>1.4</b>
	IQR	0.6-3.5	0.4-2.6	0.5-3.2	1.4-5.4	0.8-3.1	0.7-2.6	0.9-4.4	0.6-1.8	0.7-1.8	0.7-3.2	1-3.9	<b>0.7-3</b>
	Range	<0.1-92.59	<0.1-58.8	<0.1-7.1	<0.1-70.6	<0.1-52.9	<0.1-24.7	<0.1-52.9	<0.1-69.9	<0.1-10.6	<0.1-28.2	<0.1-36	<b>&lt;0.1-92.59</b>
	<b>Total N</b>	<b>638</b>	<b>326</b>	<b>34</b>	<b>389</b>	<b>526</b>	<b>649</b>	<b>179</b>	<b>982</b>	<b>89</b>	<b>81</b>	<b>281</b>	<b>4174</b>
<b>Typical yield (i.e. usable dried cannabis) per crop (ounces<sup>1</sup>)</b>	Median	3.6	7.1	3.5	10	7.1	10.6	10.6	7.1	8.8	10.6	8	<b>7.1</b>
	IQR	1.8-10.6	2.1-19.8	1.5-23.5	4-25	2.5-12.3	3.5-21.2	3.5-28.2	3.5-14.1	4.4-16.8	7.1-27.3	4-18	<b>3.2-17.6</b>
	Range	0.1-740.8	<0.1-3527.4	0.6-705.5	<0.1-352.7	<0.1-352.7	0.9-1763.7	<0.1-740.8	<0.1-7054.8	0.2-225.8	0.4-811.3	0.1-360	<b>&lt;0.1-7054.8</b>
	<b>Total N</b>	<b>731</b>	<b>339</b>	<b>36</b>	<b>415</b>	<b>540</b>	<b>700</b>	<b>201</b>	<b>1114</b>	<b>113</b>	<b>89</b>	<b>294</b>	<b>4572</b>

Note: only those who had completed at least one crop were included in the analyses for this table.

<sup>1</sup>All figures rounded to 1 decimal place.

Table 10: Reasons for growing cannabis

	Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
It provides me with cannabis for personal use	79	76	76	89	90	86	76	84	90	87	93	84
I get pleasure from growing cannabis	84	76	78	78	84	80	85	86	87	94	82	83
Cheaper than buying cannabis	79	90	92	72	73	60	64	74	80	71	84	75
To avoid contact with criminals	66	57	54	66	81	80	36	77	85	63	83	72
The cannabis I grow is healthier than the cannabis I buy	67	60	56	67	62	68	63	82	76	77	75	68
Because the plant is beautiful	-	70	68	56	49	58	-	64	68	70	65	48
To provide myself with cannabis for medical reasons	19	81	56	54	53	43	42	35	41	26	53	44
I wanted to see whether I could grow it	39	64	67	35	37	39	43	44	34	43	55	43
The cannabis I grow is a more consistent product than the cannabis I can buy	15	60	56	45	49	29	24	45	41	42	66	41
So I can share it / give it to my friends and acquaintances	41	59	70	37	41	44	44	30	35	37	26	40
For activist reasons (e.g. ecological ideology, fair trade)	40	35	29	28	44	34	32	43	41	41	31	38
I can flush the cannabis I grow to remove chemical residue	21	57	64	41	-	26	25	50	56	49	61	33
Because the plant is easy to take care of	37	45	54	26	31	32	27	26	28	30	37	32
Growing your own cannabis is not as risky as buying it	36	41	44	35	23	30	8	26	28	22	40	30
Because it is easier to grow than to buy	45	35	38	26	46	12	14	15	23	8	27	29
The cannabis I can grow is stronger than the cannabis I can buy	10	55	49	20	17	26	12	21	15	18	28	23
To provide others with cannabis for medical reasons	8	49	38	20	17	18	15	13	14	16	18	18
The cannabis I can grow is milder than the cannabis I can buy	24	9	10	12	5	11	16	10	8	16	12	12
So I can sell it	8	28	33	9	14	5	14	7	7	8	9	11
The cannabis I grow will never contain adulterants	-	-	-	-	-	-	-	94	91	85	-	-
The cannabis I can grow tastes better than the cannabis I can buy	35	-	-	-	-	-	44	-	-	-	-	-
Legally cultivating medical marijuana	-	12	3	-	-	-	-	-	-	-	-	-

Note: Values cited are % of respondents choosing each reason. The question asked respondents to tick all options that applied to them.

Table 11: Market participation

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>What did you do with the cannabis you grew in the last 12 months? (%)</b>	Consume for personal use	96	98	94	97	98	97	92	97	96	96	99	<b>97</b>
	Swap with other growers	30	28	25	18	28	15	73	20	35	32	15	<b>26</b>
	Give away (or share)	81	69	75	65	84	64	15	78	76	79	54	<b>71</b>
	Sell (includes both to cover costs and for profit)	33	38	34	24	32	17	23	34	32	39	22	<b>29</b>
	Sell to cover costs of growing	25	-	-	19	26	15	15	30	25	33	20	<b>23</b>
	Sell for profit	18	-	-	12	14	6	15	14	17	18	11	<b>13</b>
	Keep in your possession	59	-	-	18	26	23	46	46	49	53	17	<b>36</b>
	<b>Total N</b>	<b>634</b>	<b>364</b>	<b>32</b>	<b>314</b>	<b>681</b>	<b>614</b>	<b>199</b>	<b>781</b>	<b>72</b>	<b>66</b>	<b>257</b>	<b>4014</b>
<b>What percentage of total income came from cultivation activities? (%)<sup>1</sup></b>	0-10%	77	54	70	68	70	77	61	64	78	77	58	<b>68</b>
	11-50%	11	26	0	18	23	18	26	25	17	19	23	<b>21</b>
	51-100%	12	20	30	14	7	5	13	11	4	4	19	<b>12</b>
	<b>Total N</b>	<b>152</b>	<b>131</b>	<b>10</b>	<b>56</b>	<b>175</b>	<b>94</b>	<b>31</b>	<b>264</b>	<b>23</b>	<b>26</b>	<b>43</b>	<b>1005</b>
<b>Have you sold any drugs other than cannabis or cannabis products in the last 12 months? (%)</b>	No	96	82	72	93	92	99	94	96	97	91	96	<b>93</b>
	Yes	4	18	28	7	8	1	6	4	3	10	4	<b>7</b>
	<b>Total N</b>	<b>735</b>	<b>489</b>	<b>43</b>	<b>338</b>	<b>799</b>	<b>141</b>	<b>206</b>	<b>932</b>	<b>78</b>	<b>74</b>	<b>270</b>	<b>4105</b>

<sup>1</sup> Only those respondents reporting selling 1% or more of their crop (whether for profit or for covering costs) were included in this analysis.

Table 12: Police contact related to cannabis cultivation

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>What do you estimate is the risk of you getting caught by police for growing cannabis? (%<sup>1</sup>)</b>	Very high	1	1	2	4	2	2	4	8	1	0	4	<b>3</b>
	High	8	15	28	17	12	13	12	34	35	23	24	<b>18</b>
	Low	39	33	42	53	57	49	38	49	51	57	47	<b>47</b>
	Very low	52	51	28	26	30	36	45	10	13	20	25	<b>32</b>
	<b>Total N</b>	<b>925</b>	<b>616</b>	<b>60</b>	<b>447</b>	<b>1094</b>	<b>735</b>	<b>229</b>	<b>1171</b>	<b>106</b>	<b>93</b>	<b>346</b>	<b>5822</b>
<b>Have you ever come into contact with the police because of your cannabis growing? (%<sup>1</sup>)</b>	No	92	94	90	80	75	91	89	86	79	85	82	<b>86</b>
	Yes	9	6	10	20	25	10	12	14	21	15	18	<b>15</b>
	<b>Total N</b>	<b>1004</b>	<b>620</b>	<b>60</b>	<b>481</b>	<b>1169</b>	<b>803</b>	<b>260</b>	<b>1289</b>	<b>119</b>	<b>96</b>	<b>396</b>	<b>6297</b>

<sup>1</sup> %s may not total 100 due to rounding.



Table 13: Criminal convictions and criminality beyond cultivation

		Belgium	US	Canada	Australia	Finland	Denmark	Netherlands	Germany	Austria	Switzerland	UK	Total
<b>As an adult, have you ever been convicted of a crime other than minor traffic violations? (%)</b>	No	87	83	95	74	62	71	85	73	64	71	71	<b>74</b>
	Yes	13	17	5	26	38	29	15	27	36	29	29	<b>26</b>
	<b>Total N</b>	<b>999</b>	<b>618</b>	<b>60</b>	<b>490</b>	<b>1172</b>	<b>806</b>	<b>264</b>	<b>1282</b>	<b>120</b>	<b>97</b>	<b>398</b>	<b>6306</b>
<b>Have you engaged in any illegal activity in the last 12 months, excluding all cannabis and illicit drug use, cultivation, selling? (%)</b>	Violation (e.g. fare evasion, traffic violation) [non-criminal offence]	29	<sup>1</sup>	<sup>1</sup>	6	10	15	20	22	25	26	6	<b>15</b>
	Property offences (e.g. burglary, fraud, theft, robbery, blackmail)	3	2	0	1	5	2	2	2	1	2	2	<b>3</b>
	Violent offences (e.g. assault, stabbing, shooting, rape)	1	1	0	0	2	1	1	1	0	1	1	<b>1</b>
	None	69	97	100	91	84	82	77	75	75	71	91	<b>81</b>
	<b>Total N</b>	<b>956</b>	<b>617</b>	<b>60</b>	<b>483</b>	<b>970</b>	<b>796</b>	<b>249</b>	<b>1290</b>	<b>118</b>	<b>97</b>	<b>398</b>	<b>6034</b>

<sup>1</sup>Question asked in a different format in North American survey.