



## PERSPECTIVES ON DRUGS

# New developments in Europe's cannabis market

Europe has long been one of the world's largest consumer markets for cannabis resin. The European market for cannabis is now increasingly dominated by herbal products. This change in the market shares of the two types of cannabis products is the result of a shift in how the market is supplied, driven by increased access to specialist knowledge and technology. Cultivation of cannabis is spreading across Europe, and as this happens, the distances between producers of herbal cannabis and the consumers of the drug are shortening.

Transnational criminal organisations are involved in the production of cannabis for domestic markets, and are also exporting the drug to other European countries. This POD takes a look at some of the main features of Europe's cannabis market — with a specific focus on herbal material — and at some of the important changes taking place.

It is difficult to estimate with any certainty the extent of cannabis cultivation and the amount of the drug produced in Europe. Most of the available information is the result of law enforcement activities, and thus reflects the priorities of law enforcement agencies and the resources committed to the disruption of cannabis supply. This data can provide, however, useful insights into cultivation settings in Europe and the different criminal groups involved.

### Cannabis production in Europe

The 1970s saw the emergence of serious cultivation and breeding of cannabis plants, with growers in North America and Europe working to develop plants that could grow in a wider range of conditions, produce higher yields and higher-potency products (Decorte, 2010; UNODC, 2006). During the 1980s, the Netherlands emerged as the centre of cannabis production and know-how in Europe. Over time, the export of Dutch knowledge, combined with the spread of technological developments, has led to a trend in several European countries (mostly western) towards 'import substitution' (Jansen, 2002; Potter, 2008). This has involved domestic production of cannabis increasingly supplying domestic consumption, and reducing reliance on imported products.

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Cannabis is a plant that lends itself to a variety of growing conditions, ranging from indoor hydroponic (without soil) settings to growth in natural outdoor settings such as fields and forests. Indoor cannabis cultivation techniques were first developed in the Netherlands during the mid-1980s to avoid detection by the authorities and to overcome climate limitations. Use of controlled growing conditions and genetically selected strains can allow growers to obtain four to six harvests a year, which are of a higher yield and produce material with higher potency than would have been possible in the past (Potter and Duncombe, 2012; Vanhove et al., 2012). Indoor cultivation has become very attractive to cannabis growers across Europe. It is now reported in 26 European countries, and is identified as the dominant mode of cannabis production in 16 of them (EMCDDA, 2012a).

Successful outdoor cultivation of cannabis depends upon a number of factors, including natural daylight cycles, soil, water supply and plant strains. Outdoor-grown crops produce one or two harvests a year. Although outdoor growing is reported in most European countries, it appears to predominate over indoor settings mostly in southern and eastern areas, where the climate is more favourable.

### Scale of cannabis cultivation in Europe

Herbal cannabis production is now widespread in Europe, and plantations have been discovered in all countries. The Netherlands and the United Kingdom are currently reporting the highest number of detected production sites, with several thousand being taken down every year in each of the two countries. The next-highest numbers of sites are reported by Belgium and Poland, where between 1 000 and 1 500 sites were discovered in 2012.

The scale of cannabis cultivation sites commonly varies from a few plants to several hundred, with large sites of over 1 000 plants being reported in seven countries in 2012. An increase in the size of cultivation sites has been reported in France and Finland, possibly indicating a professionalisation of the activity. Four other countries, most of which have detected large sites, have observed a reduction in the size of the sites discovered (Czech Republic, Greece, United Kingdom and Norway).

Although some growers cultivate the plant solely for personal or friends' use, commercial growers, driven by the prospect of financial gain, are now reported across Europe. The use of large-scale production facilities by criminal groups is increasing in many countries, while some of them tend now to run multiple small-scale plantations to mitigate risks of detection. The criminal groups involved in cannabis production in Europe are numerous, and there is evidence of a high degree of organisation and specialisation within the



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trade. Examples of criminal organisations that have been identified as playing an important part in cannabis production are groups of Vietnamese origin, which are active in central, western and northern Europe, motorcycle gangs in Finland and armed groups in Turkey.

Seizures of whole cannabis plants are generally thought to be an indicator of domestic cultivation — that is, the plants are assumed to have been grown in the country where they were seized. A number of facts support this assumption: whole cannabis plants are bulky and difficult to hide; the plants are usually dried and non-consumable parts are removed before being trafficked for retail distribution and sale. With over 30 000 cases in 2012, the number of seizures of cannabis plants in Europe has doubled in five years. Millions of cannabis plants are confiscated every year in Europe; with just under 7 million seized in 2012, this was nearly triple the quantity reported five years earlier. Some countries only report seizures of plants in weight; in 2012, interceptions in these countries totalled 45 tonnes, a 50 % increase compared to 2007.

Cultivation is reported to be increasing in several countries including Ireland, Slovenia, Slovakia and the United Kingdom. Greece and Poland report increasing indoor cultivation. The number of cannabis plantations dismantled is increasing in Belgium, the Czech Republic, Croatia, Poland and Romania. This could be indicative of an increase in domestic production. However, the sizes and settings of plantations vary considerably, and as law enforcement agencies become more aware of the phenomenon, they are getting better at detecting such sites.

Developments in cannabis supply have been accompanied by a shift from resin to herbal cannabis consumption in Europe. Consumption of herbal cannabis has been increasing in the last 10 years and has now overtaken that of resin in Europe overall (EMCDDA, 2012a). Of the estimated 2 050 tonnes

of cannabis consumed every year in the European Union and Norway, about 60 % (1 280 tonnes) is herbal cannabis and the remainder is resin. While consumption of resin is concentrated in a few countries, the use of herbal cannabis is more evenly spread across Europe. The United Kingdom is estimated to be the largest market, accounting for 24 % of all herbal cannabis consumed in Europe, followed by Germany (16 %), Spain (15 %) and France (11 %).

There has always been a large variation in the content of THC — the main psychoactive ingredient — in cannabis across Europe, with highly potent material being reported on occasion. There are current concerns about the public health implications of increased consumption of highly potent herbal products that are low in CBD — a cannabinoid with antipsychotic properties (see video).

### Production and trafficking areas in Europe

Cannabis production in Europe is a major challenge for drug law enforcement: it is difficult to detect, especially when occurring indoors, and trafficking — often within countries or within the Schengen open borders area, and requiring little crossing of the external borders of the European Union — is more difficult to interdict compared with imports of resin. This is reflected in the tentative interdiction rates of around 40 % for resin and less than 10 % for herb in the European Union.

In most countries, the produce of cannabis plantations is destined for local drug markets. In a few countries, however, cannabis is also produced for export. Some geographical patterns can be observed in herbal cannabis supply in Europe by looking at seizures and their relative proportion of the market.

#### South/South-East Europe

The Western Balkans countries are a source of herbal cannabis consumed in the European Union, with cultivation occurring in Albania, in particular, but also in Bosnia-Herzegovina, Kosovo <sup>(1)</sup>, Montenegro, Serbia and the former Yugoslav Republic of Macedonia. Herbal cannabis originating in these countries is trafficked into the European Union through Greece, Croatia or Italy. This product, however, grown outdoors, is of comparatively poor quality. After exportation, it is sometimes mixed with domestic products, and then sold for a higher price. This practice is reported in Greece. Evidence points to Greece being a growing trafficking hub for herbal cannabis. In 2012, Greece reported an annual increase of two-thirds in the amount of herbal cannabis confiscated (22 tonnes). Average seizures, over 2010–12, were around 2.5 kg,

## Facts and figures

**457 000** the total number of herbal cannabis seizures reported in Europe, 2012

**230 tonnes** the total quantity of herbal cannabis intercepted in Europe, 2012

**2 050 tonnes** the total quantity of cannabis estimated to be consumed in Europe

**1 280 tonnes** the total quantity of herbal cannabis estimated to be consumed in Europe

**875 000** the total number of offences reported by the police in relation to cannabis in Europe, 2012

**78 %** the proportion of cannabis-related offences in Europe linked to use or possession for use, 2012

**5–25 EUR/g** the average price of herbal cannabis at retail level in Europe, 2012 (range)

**3–14 % THC** the average THC content in herbal cannabis in Europe, 2012 (range)

**46 % THC (MAX)** the maximum THC content in herbal cannabis in Europe, 2012

and the amount of herbal cannabis intercepted was 109 % of the estimated national consumption — an exceptionally high rate. These data point to intense cross-border trafficking with neighbouring countries, likely of products both of domestic origin and from the Balkans.

In recent years, Turkey has emerged as the largest seizing country in Europe for herbal cannabis, reaching a new record of 125 tonnes in 2012. Although the average size of the seizures has declined over the years, it is now around 1.5 kg, which remains large compared with other countries, and points to bulk trafficking, probably of material of domestic origin.

In that part of Europe, Bulgaria may also be a place of bulk trafficking of herbal cannabis. Although the quantity seized — and it is increasing — remains comparatively small (1.3 tonnes in 2012), the average size of the intercepted shipments (5 kg) is very large. In a context in which criminal organisations are tightening their hold on the distribution of domestically produced herbal cannabis traditionally grown outdoors, these data may reflect intensification both of the activity of such groups and of their targeting by the police.

<sup>(1)</sup> This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

## South-West Europe

In South-West Europe, Italy and Spain may be developing into important production countries for cannabis. They both reported the largest increases in seizures of cannabis plants in 2012, intercepting 4 million plants in Italy and 40 tonnes in Spain.

Italy remains one of the largest seizing countries in Europe for herbal cannabis, with 21 tonnes intercepted in 2012. On average, the seizures are very large, around 3.3 kg, and the total amount seized is estimated to represent 25 % of the local market. As well as pointing to increasing production and distribution of domestic material, these data may also suggest the importation and possible transit of herbal material, for instance from the Balkans.

In common with many other European countries, Spain has reported a major increase in the quantities of herbal cannabis seized in the last two years (reaching 10 tonnes in 2012). However, seizures are very small, at about 80 g on average, and the total amount recovered amounts to only 5 % of estimated domestic demand. These data point to local trafficking of small quantities, probably of domestic origin. Some of the herbal cannabis produced, however, is intended for exportation further north; for example in 2013, 15 sites, growing 13 000 plants, near Malaga, were dismantled in an operation targeting a network of criminals operating between Spain and the Netherlands.

## North/North-West Europe

Belgium and the Netherlands have long been identified as a trafficking hub for both herbal cannabis and cannabis resin. In recent years, changes in enforcement in the Netherlands have led Dutch commercial growers to transfer some of their operations to Belgium, with the produce being exported back to the Netherlands for sale in coffee shops. The result is a blurring of the boundaries between the two countries with respect to cannabis production and supply. Herbal cannabis produced in these countries is destined for both domestic and export markets, with a large number of countries in Europe reporting 'the Netherlands' as the source of the drug. On a European scale, however, Belgium and the Netherlands have been overtaken by other countries for herbal cannabis seizures (6 and 13 tonnes respectively seized in 2012). These amounts are equivalent to about 15 % of the estimated national market in Belgium and 12 % in the Netherlands.

Denmark also appears to be a centre of cannabis production, with 1.4 tonnes of cannabis plants seized in 2012. Cannabis consumption in Denmark, however, continues to be dominated by resin, and some of the herbal cannabis

produced there is reported to be exported to countries such as the Netherlands and Sweden.

The United Kingdom and Germany are estimated to be the largest markets for herbal cannabis in the European Union. The relatively small average size of seizures (100–200 g) in both countries is likely to reflect the large proportion of seizures at user level. The amounts intercepted are equivalent to 6 % of estimated national demand in the United Kingdom and 2 % in Germany. These data suggest a predominance of small-scale trafficking, mostly of domestic products.

Herbal cannabis consumed in Germany may also originate from the Czech Republic. The Czech Republic and Slovakia have become important cannabis producers, supplying both their domestic markets and exporting to neighbouring countries.

## Conclusion

The past decade has seen major strides in the application of advanced plant breeding, cultivation and processing techniques to cannabis production. At the same time, Europe's markets for cannabis products have changed fundamentally. Today, more herbal cannabis than resin is consumed in the European Union. Increasingly, herbal products are being produced in the same countries where they are sold and consumed. As production of herbal cannabis has increased, signs have appeared that it is also being exported to neighbouring countries.

The increased availability of cultivation equipment and technical know-how has facilitated an expansion in the number of indoor production sites. This technology has allowed organised crime groups involved in cannabis production to manage both large-scale plantations and multiple smaller sites. Cannabis produced in Europe poses a challenge to law enforcement, as it is harder to detect and seize than cannabis products shipped into Europe through its external borders. This underlines the need for advanced detection techniques to support interdiction efforts.



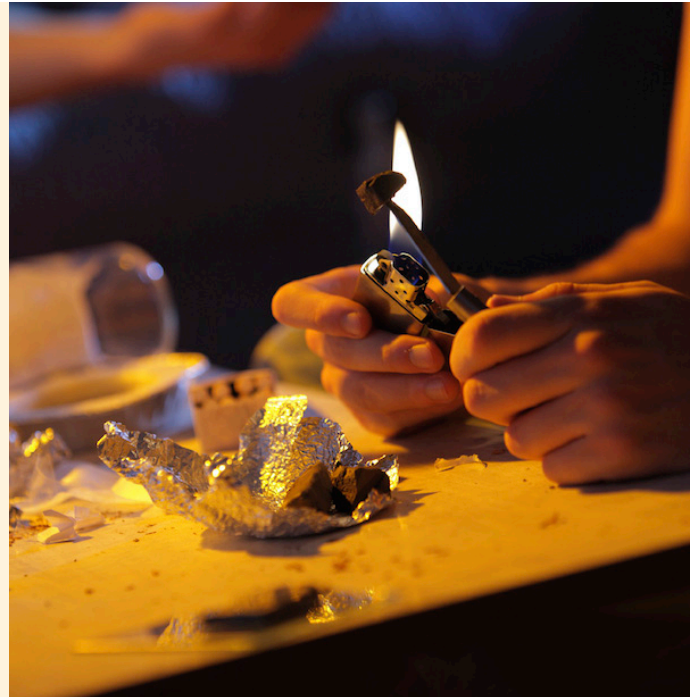
## Origin of cannabis resin consumed in Europe and production estimates

In spite of the recent expansion of the European herbal cannabis market, Europe is likely to remain one of the world's major consumer markets for cannabis resin. The supply of cannabis resin to Europe relies to a large extent upon foreign producers, predominantly Morocco, and to a lesser extent Afghanistan (EMCDDA, 2012). Recent global data suggest that resin from Morocco is consumed mainly in western and northern European countries, whereas the main consumer markets for Afghan resin are Asian and Middle-Eastern countries as well as Russia and Turkey (UNODC, 2013a).

According to the latest estimates of global cannabis resin production, Afghanistan is the world's leading producer, with 1 300 tonnes in 2011 (1 400 tonnes in 2012), followed by Morocco, with 760 tonnes in 2011. The current figures for Morocco, however, imply a 75 % reduction in resin production between 2003 and 2011, which is not supported by seizure data (EMCDDA, 2012; UNODC, 2012, 2013a, 2013b).

Developments in cannabis cultivation in Morocco may have altered the parameters for estimating resin production in that country. Recent research in the Rif region, where Morocco's cannabis resin is produced, suggests that the farmers now cultivate imported hybrid cannabis plants instead of the local kif plant, on which regional resin production had traditionally been based. The new hybrids are reported to yield three to five times more resin per plant, and the resin is said to contain much greater amounts of THC than kif plants (Chouvy and Afsahi, in press).

As a result, it is likely that Morocco now produces much more cannabis resin than available estimates would suggest, and that the resin produced is of higher potency than was previously the case. This could explain the anomalies found when comparing seizure data in key countries such as Algeria, Morocco and Spain with estimates of Moroccan resin production and European consumption (EMCDDA and Europol, 2013). These developments in Morocco may also explain the marked increase in cannabis resin potency reported in Europe since 2009.



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## Interactive element: video



Video on new developments in Europe's cannabis market, available on the EMCDDA website: [emcdda.europa.eu/topics/pods/cannabis-markets-developments](http://emcdda.europa.eu/topics/pods/cannabis-markets-developments)