

11 Cannabis markets and production

Data sources

The information provided in the following on the trade, origin, prices and seizures of cannabis products and on cannabis plantations stem from the written answers given by the Federal Criminal Police Office (BKA) and some Land Criminal Police Offices (LKÄ) upon request by the DBDD and the Annual Report 2008 (abridged version) – Narcotic Drugs (BKA 2009a). The Survey on cannabis-related disorders (CARED) conducted by Simon and colleagues (2004) and a non-representative survey conducted by the DBDD among patients with cannabis problems in drug aid facilities (DBDD consumer survey 2009, a detailed description can be found under 11.1.1) were tapped for information on cannabis markets seen from the consumers' perspective. The information presented on grow/head shops is the result of an Internet research carried out by the DBDD.

11.1 Markets

11.1.1 Contextual information: brief history of cannabis domestic production

Production

In Germany, cannabis production is categorically subject to authorization. Taking effect as of 16 April 1996, hemp cultivation, which had been generally banned under the Narcotics Act since 1982, has been approved again for limited commercial use in Germany. An exception is formed by some certified industrial hemp varieties (used for fibre production) with a maximum of 0.2% THC, which may be legally cultivated without license. The cultivation is however subject to registration.

Moreover, possession of seeds free of tetrahydrocannabinol (THC) is punishable since 1998 if it can be assumed from the circumstances that the seeds were intended to be used for illicit cultivation. The cultivation of varieties rich in THC for the production of medical preparations is also forbidden.

According to police and other experts, illicit cannabis cultivation and production of hashish and marijuana has been increasing since the nineties. The strongest available indicator for the development of illicit cannabis cultivation in Germany is the number of seizures. The seizures of cultivation sites are presented in the following, the ones of cannabis (11.1.3) and cannabis plants (11.2.2) in later chapters. The Federal Criminal Police Office distinguishes first between indoor and outdoor plantations, then between cultivation capacities – a cultivation site with capacities from 20 to 99 plants is classified as small, from 100 to 999 plants as large and from ≥ 1000 plants as professional. The number of plantations uncovered in 2008 was 20% up on the previous year. In total, two professional outdoor plantations, 15 large outdoor plantations, 85 small outdoor plantations, 18 professional indoor plantations, 112 large indoor plantations and 285 small indoor plantations were impounded. Most of the outdoor plantations were in Bavaria (28%), most of the indoor plantations in North Rhine-Westphalia (19%), followed by Lower Saxony (14%) and Bavaria (12%) (BKA 2009a). Re-

ports on systematic cannabis cultivation beyond police sources are scarce. An interview conducted by Werse (2008) with a cannabis farmer from Frankfurt/M gives an impression of the operation of a small indoor plantation.

From the cannabis plants cultivated in Germany the dried flowering tops and dried leaves are used for consumption or passed on; further processing to gain hashish is an exception. Cannabis in the form of oil does practically not exist on the German market as can also be seen from the seizures (11.1.3).

DBDD consumer survey 2009

The DBDD conducted a non-representative survey among patients with cannabis problems in drug aid facilities (seven outpatient and one inpatient facility as well as the drugcom portal of the BZgA) with a view to gain information on (a possible change of) cannabis markets in Germany seen from the perspective of the user. To this purpose, questions were asked on the preferences of the consumers, the perceived availability of cannabis products, on supply sources and home growing. The questionnaires were filled in and returned by N=178 persons. Since some interviewees did not answer most of the items, the number of the valid answers given respectively is indicated in brackets in the following. Indicated percentages refer only to the available values. 76 questionnaires were handed in from outpatient and 34 questionnaires from inpatient drug aid facilities. 68 questionnaires were filled in online. Data on the age are available for 119 persons: the youngest person is 15 years of age, the oldest 50, the mean is M=23.6 years, the median Med=20.0 years. The major part of the interviewees is male (N=101), only N=19 are female (N=120 valid answers).

Out of the 178 interviewees 24 stated to be engaged in home growing. Nine reported to have their technical knowledge from books/journals, eight from friends/acquaintances and seven from the Internet. Home growing equipment (20 valid answers) was purchased by ten interviewees in the Internet (see also Saxon Ministry for Social Affairs 2009), by nine in grow/head shops and by one in a do-it-yourself store. The seeds and slips (21 valid answers) were ordered in the Internet or imported from abroad (7 answers each), purchased from friends/acquaintances (4) or grow/head shops (3). 14 interviewees made statements on the number of flowering plants per year. 9 persons had between one to six flowering plants. One person reported about ten, another about 20-30, one about 90, one about 200 and one about 300-400 flowering plants per year. Proceeding on the unlikely assumption, that all plants flower at the same time, only two plantations of the DBDD consumer survey 2009 would be classified as a small plantation according to the BKA criteria, another two as large plantations and the remaining 10 would not be classified as a plantation at all, but would fall under the category "seized plants" in the BKA statistics.

Ten interviewees reported that the plants were cultivated indoors (basement, attic, balcony) and six that the plants were grown outdoors (16 valid answers).

11.1.2 Grow shops

An Internet research³⁸ conducted by the DBDD on the number and the product range of head and grow shops (status: 15.03.2009) showed that there are 246 head and grow shops operating in Germany. Out of these, 171 have their own website that is mostly also used as a sales platform. Data on the offered products are available from the websites of the head and grow shops (table 11.1). The sale of cannabis products (hashish, marijuana, seeds and slips) is categorically forbidden (see also 11.1.1). Apart from offering application aids (pipes, rolling paper, cooking and baking recipes), the shops also sell various products related to hemp, among others for example instructions for cultivation and consumption. Their product range includes articles for gardening which are not only suitable for cannabis cultivation (lamps, fertilizers, fertile soil etc.) as well as teas and herbal mixtures for smoking and incense burning.

Table 11.1 Product range of head/grow shops

	Growshop	Fertilizer	Irrigation	Lamps	Air & Climate	Measuring gauges	Soil & Substrates	Cultivation instructions	Sale of other psychotropic drugs
Yes	92	88	56	88	73	70	66	55	34 ¹⁾
No	42	48	76	47	61	63	67	72	92
Not obvious from website	37	35	39	36	37	38	38	44	45

1) Among these 21x herbal/smoking mixtures, 7x seeds (among others Dutchman's pipe), 6x Mormon tea and similar products.

11.1.3 Consumer market

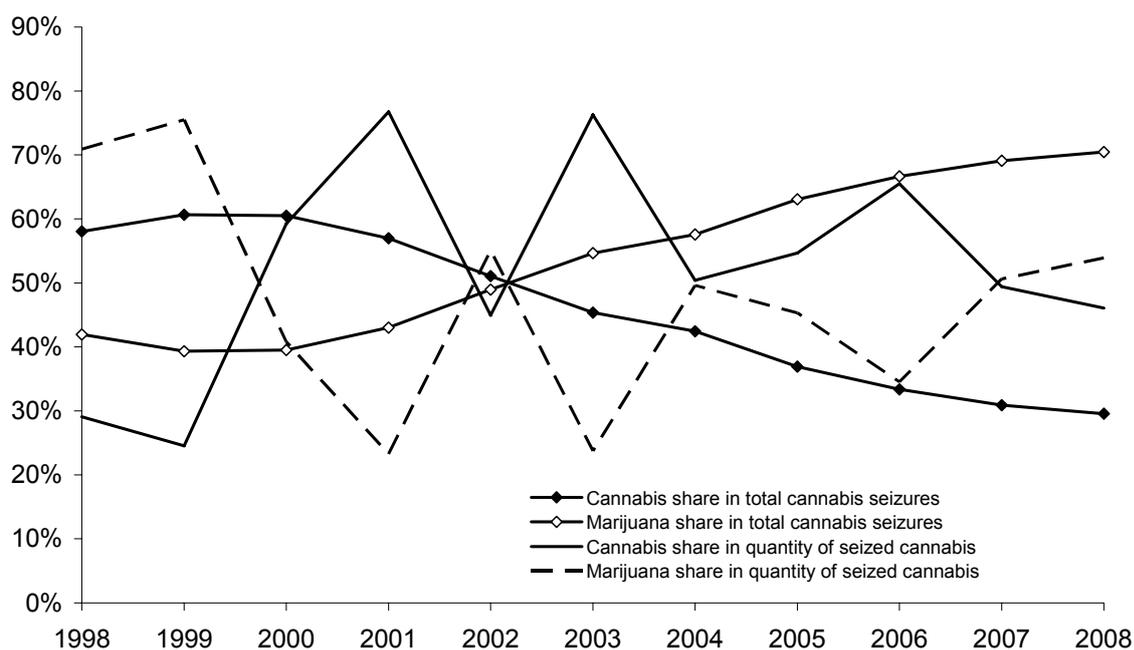
Indicators available for establishing the shares of the different cannabis products – herbal cannabis, sinsemilla, resin and oil - on the German market together with their popularity among consumers are the figures provided by the BKA on the seizures of cannabis products, the data of the Epidemiological Survey on Substance Abuse, the CARED Report (Simon et al. 2004) and the answers given within the framework of the DBDD consumer survey 2009.

³⁸ In a first step, the terms "grow shop" or respectively "head shop" and "Germany" were entered in the Google search engine. This search yielded lists of head and grow shops (like for example www.Donnergurgler.com, www.hemplinks.net, www.callunapark.nl). In a second step, the up-to-dateness of these lists was tested. In the case of online shops, the websites were visited. Stores with walk-in customers were searched among others with the address search function of google maps or via the yellow pages at www.gelbeseiten.de or www.telefonbuch.de.

Since this search often also led to shops with no or small internet presence, the function "shopping basket" was used in google search and it was verified whether the websites found were really from online head/grow shops.

Online shops exclusively domiciled abroad were excluded from the Internet research.

As can be seen from figure 11.1, the share of hashish in the total number of seizures of cannabis products practically shrunk by half in 2008 (29.5%) compared to 1998 (58.0%). The share of hashish in the overall quantity (in kg) of the seized cannabis, by contrast, fluctuated very strongly since 1998, but seems to have somewhat stabilized ranging below the level of 50% of the overall amount. According to figures provided by the BKA, it seems that hashish was impounded in larger quantities than marijuana in the individual seizures conducted over the last two years. However, since the share of both products in the overall quantity is relatively equal and was subject to substantial fluctuations, this indicator does not allow inferences to be drawn on preferences of the consumers.



BKA KT 34 2009, personal communication.

Figure 11.1 Share of marijuana and cannabis in the overall number of cannabis seizures and quantities seized

In the Epidemiological Survey on Substance Abuse (ESA) 2006 (special evaluation for the REITOX Report 2009) cannabis users who used cannabis in the previous twelve months (367 out of 7,887 interviewees between 18 and 64 years) were asked about their type of cannabis use (table 11.2). From the answers given, it can be seen that marijuana (27.5% “often”) is clearly preferred over hashish (12.0%). Consumption of cannabis oil is negligible.

Table 11.2 Type of cannabis use in the last 12 months - ESA 2006

	Valid answers	never	rarely	sometimes	frequently
Marijuana	330	34 (9.4%)	116 (31.6%)	78 (21.3%)	101 (27.5%)
Hashish	312	97 (26.4%)	115 (31.4%)	56 (15.1%)	44 (12.0%)
Oil	275	259 (94.2%)	11 (4.0%)	4 (1.5%)	1 (0.4%)

ESA 2006, special calculations.

Simon and colleagues (2004) investigated the “access to drugs“, the “consumption prevalences of various types of cannabis“ as well as the “spatial and social context“ of cannabis users based on the data from ESA 2004 and a partial random sample of clients with primary cannabis-related disorders from the German Statistical Report on Treatment Centres for Substance Use Disorders (Deutschen Suchthilfestatistik, DSHS) (CARED Report). It showed that marijuana is somewhat more difficult to procure within 24 hours for both groups than hashish and that – not surprisingly – access to both types is more difficult for the user group from ESA than for the drug-experienced clients of the DSHS partial sample.

Consumption and preference of cannabis oil hardly play a role neither in the partial ESA 2004 random sample nor among clients interviewed within the framework of the DSHS. Use of hashish is slightly higher than the one of marijuana although users of both groups stated to prefer marijuana over hashish. Both groups interviewed prefer to use (water)pipes for consuming cannabis, followed by joints and shillums. The higher the consumption, the more the order of the consumption preferences manifests itself. Oral use (e.g. in cookies, teas and milk) is comparatively less popular and is often avoided especially by the low-risk group³⁹.

The most common location where cannabis consumption takes place is the private environment, e.g. at the place of friends, at home or at private parties. Apart from in the open, consumption relatively seldom takes place in public spaces. More seldom is the consumption in the car or at the work place.

Cannabis consumption among the group of clients takes mostly place in the presence of friends. At a great distance follows in second place consumption alone, followed again at a great distance by communal consumption with acquaintances, strangers or partners. Communal consumption with brothers and sisters does practically not take place at all.

Each person of the client group reported on average to have 15 friends (in the following multiple mentions were possible), out of whom only 2.34 did not use any cannabis at all. 6.31 used cannabis without having any problems and 4.40 regularly used cannabis having problems which were not further specified.

The DBDD consumer survey 2009 shows even more clearly than the abovementioned surveys that marijuana is clearly preferred by users. Out of 151 users who gave a valid answer, 108 (71.6%) consume “for the most part herbal cannabis/hardly resin“ or “only herbal cannabis/no resin“, while only 23 (15.3%) reported that they mostly or solely used resin.

11.1.4 Consumer market shares of different cannabis products

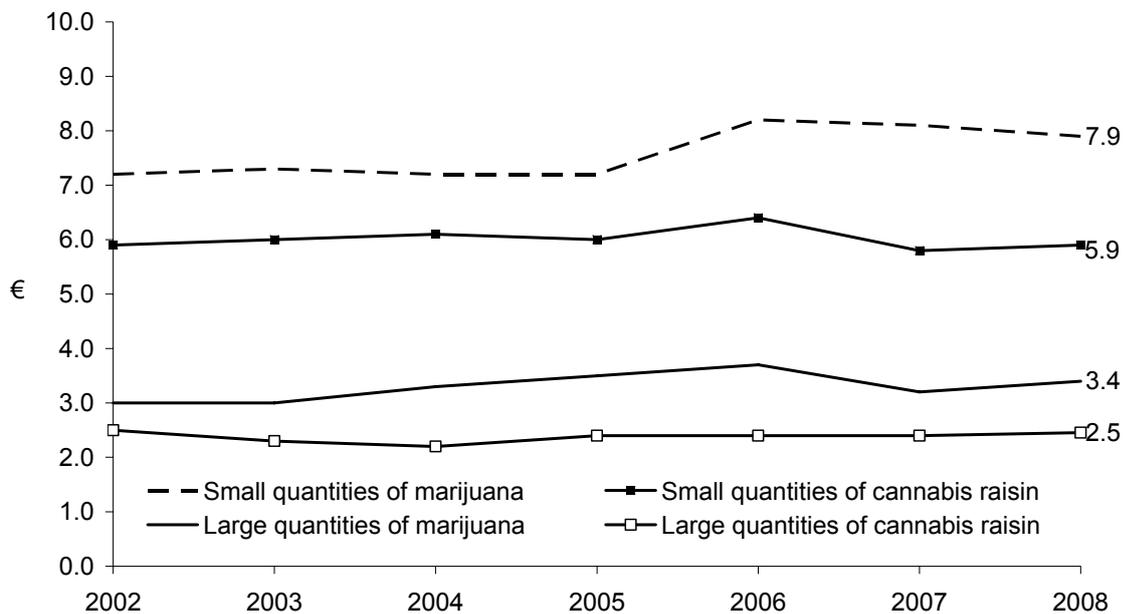
No valid data are available on the shares of different cannabis products on the national market.

11.1.5 Market prices of cannabis

The market prices presented in the following are based on the data provided by the BKA on cannabis seized but cannot be put in direct relation with the purity of the cannabis (for the

methodology and purity see chapter 10). Generally, the BKA differentiates between large quantities (prices in 1,000€/kg) and small quantities (prices in €/g). Since 2002, marijuana has been 30% more expensive than hashish both with regard to large and small quantities (figure 11.2). All in all, the prices of hashish in small and large quantities (approx. 6.0€/g or 2.5€/g respectively) and of marijuana in large quantities (between 3.0€/g and 3.5€/g) remained very stable between 2002 and 2008. An exception is formed by the retail price of marijuana which was at 7.2€/g until 2005, increased to 8.2€/g in 2006 and has stagnated since around 8.0€/g.

The street prices reported from Frankfurt/M. (Werse et al. 2009) for hashish (approx. 6€/g) and marijuana (approx. 8€/g) correspond to the national average figures.



1) The BKA indicates the prices for small quantities in €/g and for large quantities in 1.000 €/kg. In the presentation wholesale prices were divided by 1000.

BKA 2009, personal communication.

Figure 11.2 Market prices of cannabis

11.1.6 Typology of retail outlets for cannabis sale

In the DBDD consumer survey 2009 (N=178) carried out among clients of drug aid centres (cf. 11.1.3) it was also asked, where the cannabis was obtained from (multiple answers possible) and whether the cannabis sources also supplied other illicit drugs and if so, which.

“Known dealers” was the most commonly reported supply source (N=82 mentions) followed by “purchased from friends” (N=78) and at a larger distance by “given by friends” (N=42), “purchased from unknown dealer” (N=34), “self-imported from abroad” and “from home cultivation” (N=24 mentions each). These figures show just like the description of the consump-

³⁹ Group of clients who were found by a cluster analysis to represent a low-risk group in terms of extent and type of cannabis consumption

tion behaviour in the CARED Report (Simon et al. 2004) (cf. 11.1.3) that cannabis is used and passed on for the most part in a private environment among friends.

The question as to whether the “cannabis sources also supply other illicit drugs“, was answered 42 times in the affirmative out of 102 valid answers. The most frequently mentioned drugs also available were ecstasy, amphetamines (22.7% each) and cocaine (18.2%). Hallucinogens like LSD, mushrooms and meskalin account together for 16.7%; opioids (4.5%), sedatives and other synthetic drugs (1.5% each) are rather an exception. These figures seem to be an indication of a relatively strict separation between the markets for cannabis, cannabis + club drugs on the one hand and drugs of the open drug scene (opioids, crack, benzodiazepines) on the other.

11.1.7 Cannabis sources and transaction sizes

Information on prices and transaction sizes is presented in chapter 11.1.5.

As was presented in chapter 11.1.6, clients interviewed within the framework of the DBDD consumer survey 2009 prefer to procure their cannabis (especially marijuana) from friends and acquaintances and almost 14% cultivate their cannabis themselves. The main reasons for home growing or purchasing directly from a home grower (n=115 valid data sets; several answers possible) are “less impurities“ (41.7%) and the “lower price“ (41.4%). Further reasons mentioned were the avoidance of “exposure to hard drugs“ (18.3%), “higher potency“ (15.7%), “lower risk of criminal prosecution“ (11.3%) “absence of other sources“ (8.7%). Summarizing, it can be said that the perceived knowledge of the origin of the cannabis product is the most important precondition for the purchase of drugs in this group of regular cannabis users.

11.2 Seizures

11.2.1 Contextual information: supply reduction – organisation and activities

Police organisation

The execution of the Narcotics Act in the sense of supply reduction is the duty of police. German police is based on a federal structure with the organisation of the “substructure“ (i.e. the local police offices) falling under the responsibility of the Federal States. Some of the Land Criminal Police Offices (Landeskriminalämter LKÄ) and local police offices have special departments and units dedicated to the prevention and prosecution of drug-related crime in general but not specifically to cannabis-related offences which are dealt with on a case-by-case basis. An exception is the special department Referat SO22/Sachgebiet Cannabis of the BKA, in which five permanent staff are mainly tasked with the reporting on cannabis-related crime in Germany. Another exception are the Common Investigation Groups – Narcotic Drugs, in which police and customs authorities cooperate on a case-by-case basis especially in the case of cross-border traffic of narcotic drugs. Just like the LKÄ (organized in a different form) the customs authorities also have a special department dedicated to drug-related crime in general, but not specifically to cannabis offences which are also only dealt with by a case-by-case approach (BKA 2009, personal communication).

An example of the prosecution of cannabis-specific crime at *Laender*-level is the project “Cannabis plantations“ initiated by the LKA North Rhine-Westphalia (NRW) in cooperation with all police offices of the Land NRW⁴⁰ to combat cannabis indoor plantations. The project led to an enhanced awareness of the investigation authorities which was probably the reason for the two-digit increase rates of the detection of illicit cultivation sites of narcotic drugs (illicit cultivation of narcotic drugs: +43.8%; cultivation, production and trafficking in a gang: +25.0%) in NRW until 2007 (Landeskriminalamt Nordrhein-Westfalen 2008).

Technology

North Rhine-Westphalia was the first Land in 2003/2004 to use helicopters with infrared cameras to track down sites suspected of being indoor plantations. Meanwhile, this method is established countrywide. In 2005/2006, Lower Saxony arbitrarily monitored larger areas close to the Dutch border with infrared cameras. Due to the high expense of resources associated with this method, this measure has however been stopped again.

Accidents in the form of short circuits or water damages as well as reports by the population help investigators in tracking down cannabis cultivation sites. Therefore, police in North Rhine-Westphalia organizes information events with model plantations to enhance public awareness for cannabis cultivation (BKA 2009, personal communication).

11.2.2 Seizures of cannabis plantations

Table 11.3 shows the seizures of cannabis plants from 1998 to 2008. In the year 2008, seizures totalled 1,526 cases with 121,663 hemp plants impounded (BKA 2009a). Between 2002 and 2006, the number of seizures grew continually. The total number of yearly seized plants, by contrast, is subject to substantial fluctuations. This is for example illustrated by the figure recorded for the year 2006, which comprises 75,000 plants which were grown from 5kg hemp seed which was probably intended for licit commercial use. In comparison with the year 2007, the number of seized plants declined by 10% in 2008.

Table 11.3 Seizures of cannabis plants

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Quantity ¹⁾	81,097	168,833	25,277	68,698	29,352	35,863	68,133	93,936	190,241	135,252	121,663
Cases	1,661	1,254	1,048	785	887	750	1,008	1,035	1,121	1,463	1,526

1) In plants

BKA 2009a.

Upon request by the DBDD, the Land Criminal Police Office (LKA) in North Rhine-Westphalia (NRW) provided the information that it has been monitoring cannabis cultivation, especially indoor cultivation, in NRW and in other *Laender*. The LKA estimates that cannabis cultivation has continually increased in NRW and countrywide since 2004. While in the first years the plantations in NRW were exclusively located close with the border to the Netherlands and were very often run together Dutch nationals (especially the professional farms), cultivations

⁴⁰ Information at: <http://pol.duesseldorf-lka.polizei.nrw.de/cannabis.htm>.

sites have started to move east in 2007 into the Eastern *Laender*. According to the investigative data gathered by the LKA, plantations in NRW are increasingly run by German individuals or groups with mixed nationalities which before were involved in trafficking with other narcotic drugs (heroin, cocaine, amphetamines). There are moreover concrete indications of Dutch cannabis farmers moving their plantations away from the border into the German hinterland as a result of the increased seizures of plantations close to the Dutch border. The increased number of seizures may be attributed to the investigation and prosecution concept developed by the Land Criminal Police Office NRW in 2006/2007 and implemented in all police offices in North Rhine-Westphalia (see also chapter 11.2.1). According to the information provided by the special reporting service for drug-related crime, it is to be expected that cannabis cultivation in NRW is to increase both in terms of quantity and quality in 2009.

11.2.3 Origin of the cannabis products

As in previous years, the Netherlands was also in 2008 by far the most important country of origin and departure for cannabis products seized in Germany. Larger quantities of hashish entered Germany also via Belgium and France. Moreover, marijuana was smuggled mostly in smaller quantities but at a high frequency from Austria and Switzerland into Germany (BKA 2009a). Especially hashish has been smuggled in large quantities from Morocco to Western Europe for many years. In the recent past, individual large deliveries of hashish from South-West Asia have been seized by which also Germany has been affected.

According to the information provided by the Bavarian LKA upon request of the DBDD, the main cultivation area for cannabis is still Morocco. It is estimated that approx. 70% to 80% of the European market is supplied with cannabis from Morocco. Within the framework of a current investigation in Würzburg it was made known that at least 100kg hashish were smuggled from Nepal to Bavaria to cover regional demand.

According to the information provided by the BKA upon request by the DBDD, the cannabis products traded on the German illicit market are for the most part imported from abroad. Especially the Netherlands is the destination of numerous drugs runs made by users and small traders from Germany. Apart from being frequently smuggled into the country from abroad, cannabis is also extensively cultivated outdoors and to an increasing extent also indoors in Germany, as has already been described in chapters 11.1.1 and 11.2.2. These indoor plantations are located for example in greenhouses, warehouses, barns or residential objects that are professionally equipped for cultivating plants with relatively high contents of tetrahydrocannabinol (THC). Although operators of indoor plantations have increasingly moved their business further to the east, many of the detected professional and large plantations were relatively closely situated to the Dutch border. The cannabis plants cultivated in these plantations are not seldom destined as end products for distribution to Dutch coffee shops. Generally, the phenomenon of cannabis cultivation in indoor plantations has however gained in importance in nearly all regions of Germany. Furthermore, there were several cases detected in 2008 in which the yields of plantations in NRW were delivered to bulk buyers in Southern Germany.

According to the Bavarian LKA, cannabis products with high THC-contents (in parts above 40%) produced in the Netherlands, Germany (mainly in NRW and Lower Saxony) as well as

in Great Britain still make their way to the illicit drug market. So far, no indoor plantation with a cultivation capacity of more than 1,000 plants has been discovered in Bavaria. At the same time however it is to be observed that illicit cannabis cultivation, especially for private consumption, is on the rise. The statistical figures show an increase in illicit cannabis cultivation from 524 cases in 2007 to 602 offences registered in 2008.

The cannabis users interviewed within the framework of the DBDD consumer survey 2009 were also asked about the origin of the cannabis used by them (several answers possible). Most frequently mentioned was the Netherlands (74 times), followed at a large distance by Germany (41 times home growing and 35 times professional plantation). Morocco was mentioned 20 times, Afghanistan and Nepal twice each, eight further countries were mentioned once. 77 interviewees reported that the origin of the cannabis was unknown to them.

11.2.4 Breakdown of cannabis seizures

Table 11.4 shows the seizures of hashish and marijuana made in Germany from 1998 to 2008. The number of cases and quantities seized has fluctuated in part considerably over the years. Changes in the control behaviour of police and customs authorities as well as seizures of larger individual quantities can have a large influence on the development of the situation. Therefore, when interpreting the changes observed between 2007 and 2008, it needs to be taken into account that the largest individual quantity of hashish (approx. 4,000kg) and of marijuana respectively (5,470kg) in eight years were seized in 2008 (BKA 2009a). The number of seizure cases has increased over the last ten years from about 30,000 to around 35,000. An important role in this development was played by the increase in cases in which marijuana was seized while the number of seizures of hashish strongly declined in the same period. Currently, it seems like that the quantities of marijuana detected in the individual seizures are smaller than the ones of hashish impounded in individual seizures (see also 11.1.3).

Table 11.4 Quantities of cannabis seized in Germany from 1998 to 2008

	1998	2002	2006	2007	2008	Change 2007-2008
Hashish (cases)	17,166	13,953	11,764	9,762	10,313	+6%
Marijuana (cases)	12,406	13,380	23,506	21,831	24,594	+13%
Total	29,572	27,333	35,270	31,593	34,907	+10%
Hashish (quant.)	6,110	5,003	5,606	3,678	7,632	+108%
Marijuana (quant.)	14,897	6,130	2,954	3,770	8,932	+137%
Total	21,007	11,133	8,560	7,448	16,564	+122%

BKA 2009a.

11.3 Offences

While for trafficking and consumption-related offences (see chapter 9) it is possible to discriminate between substances, the data available on convictions rendered in respect of

the Narcotics Act (§29 para.1, 29a para.1 no.2 and §30 para.1 no.4) do not allow any discrimination.

The term “consumption-related offences“ is used to designate general offences committed against the Narcotics Act (Betäubungsmittelgesetz, BtMG). These are offences related to the possession, purchase and distribution of narcotic drugs or similar offences falling under § 29 BtMG. With a share of little less than 60%, cannabis ranks first among this type of offence. While the absolute figure of offences continually increased from 27,000 to above 130,000 between 1982 and 2004, it has been on a steady decline since. In the year 2008, 100,652 (2007: 102,931) consumption-related offences involving cannabis were registered (BMI 2009).

The term “trafficking crimes“ is taken as referring to offences of illicit trade with and smuggling of narcotic drugs in respect of § 29 BtMG as well as offences of illicit import of narcotic drugs in respect of §30 para.1 no. 4 BtMG. The development of the trafficking crimes is similar to the one of the consumption-related offences albeit at low overall figures. From 1998 onwards, the number of trafficking crimes continually increased from 25,543 to reach its peak in 2004 at 43,062. From 2004 onwards, the number of trafficking crimes continually declined to 31,868 (2007: 38,460) in 2008, which corresponds to levels observed in the nineties (BMI 2009).