



2. Cannabis

Principal findings

- In 1997–98 cannabis-related offences constituted 76.9 per cent of all illicit drug offences in Australia—a 4.3 per cent decline from 1996–97.
- In 1997–98 the number of large outdoor cannabis crops detected decreased. There was a corresponding increase in the detection of smaller hydroponic cannabis crops and seizures of hydroponically cultivated cannabis.
- Hydroponic cannabis cultivation is increasing because of the difficulty law-enforcement agencies have detecting these crops and because of the increasing consumer demand for hydroponic cannabis.
- Domestic production of hydroponically cultivated cannabis appears to have reduced the demand for imported herbal cannabis.
- In 1997–98 the number and weight of cannabis importations detected by Customs at the border declined from 930 in 1996–97 to 742 and from 24.29 tonnes in 1996–97 to 38.40 kilograms. This decline in the total weight of cannabis detections is believed to be because of the joint investigative efforts of the Australian Federal Police and the Australian Customs Service during 1996–97, when two major international cannabis resin importation syndicates were either dismantled or severely impeded. It is highly likely that as a consequence of this there were no attempts to import cannabis resin into Australia in 1997–98.

Description

The word ‘cannabis’, derived from the Greek *kannabis*, is a generic name for a variety of drug preparations obtained from the plant *Cannabis sativa*. These drug preparations are dried cannabis leaf, the dried flowering and fruiting tops of the female plant, cannabis resin (hashish) and cannabis oil. Cannabis is also known as marijuana.

Cannabis can be propagated from seed or by cloning and may reach maturity in six weeks. There are two major groups of the plant: one used for fibre production and the other for its psychoactive properties.

Cannabis is a complex plant that contains 421 known chemicals. Sixty-one of these are unique to the plant; they are called cannabinoids. Four of them are powerful mind-altering substances (hallucinogens), the most powerful being delta-9-tetrahydrocannabinol, commonly known as THC. The highest concentration of THC is found in the flowers. The leaves also contain THC but to a lesser degree.

Main forms

Cannabis leaf

‘Cannabis leaf’, ‘head’ or ‘herbal cannabis’ refers to the tobacco-like substance produced by drying the leaves and flower tops of the cannabis plant. At present cannabis leaf in Australia averages between 1 and 3 per cent THC, although some hydroponic cannabis strains are reported to have a THC content of up to 30 per cent.

Cannabis resin (hashish)

Hashish is made from the resinous material of the cannabis plant, which is collected, dried and then compressed into a variety of forms such as small blocks, balls, cakes or sheets.

Cannabis (hash) oil

Hash oil is produced by extracting the cannabinoids from plant material using a solvent such as acetone or methanol. It is a viscous liquid ranging in colour from amber to dark brown and varying in odour according to the solvent used.

Synthetic forms

In the United States a drug containing synthetic THC—Dronabinol® (brand name Marinol)—is used to control nausea and vomiting caused by the chemotherapeutic agents used in the treatment of cancer and to stimulate appetite in AIDS patients. Similarly, the synthetic cannabinoid Nabilone® is licensed for use in Britain.

Types

Hybridisation of cannabis plants has resulted in the production of a number of cannabis strains. The most popular strain in Australia is known as ‘skunk’; it is reputed to have a high THC content. The name ‘skunk’ appears to be a generic name given to a large range of cannabis types.

There are a number of popular sub-species of cannabis available in Australia. They are usually of a ‘dwarf’ variety and are ideally suited for use in hydroponic cultivation, where there is limited space to grow large outdoor plants.

Cannabis cultivators are reported to be experimenting with a variety of dwarf sub-species, among them Northern Lights, Early Girls, Super Skunk, Hindu Kush and Shiva. A new subspecies known as Mexican Big Buds has been reported in Tasmania—it is a distinctive dark red colour.

Methods of administration

Cannabis leaf and cannabis resin can be administered by inhalation through a water pipe, or ‘bong’. It can also be smoked mixed with tobacco to assist burning, but this method is more common with cannabis leaf. Hash oil is used in minuscule portions and placed onto a tobacco cigarette, ‘joint’ or water pipe and smoked. The oil can also be heated and the vapours inhaled. Hashish can be mixed with tobacco and smoked, ingested after being incorporated in cookies or made into a ‘butter’ or ‘wine’, or eaten raw.

THC is insoluble in water, so any water-based extracts have little or no THC content. As a result, intravenous injection of cannabis is extremely rare.

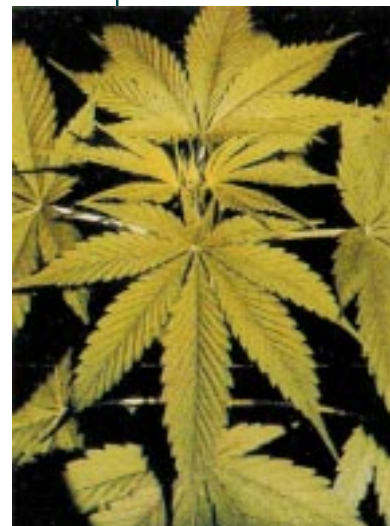


Plate 2.1: Cannabis leaves
Source: Victoria Forensic Science Centre.



Plate 2.2: Leaf type
Source: Victoria Forensic Science Centre.



Plate 2.3: Northern Lights
Source: ABCI.

Effects

Most drugs of abuse belong to one of three pharmacological categories: central nervous system stimulants, central nervous system depressants, and hallucinogens. Cannabis, however, has properties characteristic of all three groups.

The effect of cannabis on a user is unpredictable; it may act as a psychostimulant, psychodepressant or hallucinogen, depending on the strength of the product, the manner in which it is used, and the individual (Moffitt et al. 1998).

THC affects receptors in the brain and produces a 'high'—a sense of well-being or euphoria. Other effects are increased appetite, disorientation, loss of inhibition, impaired motor and cognitive skills, dissociation, shortened attention span, and short-term memory disruption. The short-term effects of larger doses may include a sense of confusion, anxiety or panic, and hallucinations.

The varying methods used to administer cannabis give rise to different absorption and metabolism patterns. When it is smoked, the levels of THC in the blood reach a peak in a relatively short time and then decrease to about 5 to 10 per cent of the initial level within the first hour. With ingestion, absorption is much slower, taking one to three hours for the THC to enter the bloodstream and delaying the onset of psychoactive effects. The 'high' may be lower but the period of intoxication is much longer—up to several hours—because of the digestive process.

The international situation

Cambodia

The International Narcotics Control Board reported that substantial amounts of cannabis originating in Cambodia were seized in that region and in Australia (INCB 1998). The *Australian Illicit Drug Report 1996-97* noted that during that 12 month period there was one 5-tonne shipment of cannabis sent by sea from Cambodia (ABCI 1997). The International Narcotics Control Board claimed that Cambodia was increasingly being used as a transit country and that there had been an increase in the variety of drugs trafficked there. Law-enforcement activities in neighbouring countries have led traffickers to set up operational bases in Cambodia.

International seizure information suggests an increase in illicit cannabis cultivation in Cambodia. Interpol reported, 'Large quantities of cannabis from Cambodia, estimated as totalling more than 48 tonnes, were seized in several countries, including Australia, Belgium, Hong Kong, Malta, Mauritania and the United Kingdom' (1997, p. 4).

In the International Narcotics Control Strategy Report it was claimed, 'Marijuana is produced in the northern, central and south-east provinces, largely for export. There is no accurate estimate of the amount of land committed to marijuana production' (Bureau for International Narcotics and Law Enforcement Affairs 1997, p. 6).

Indonesia

The Australian Federal Police reports that cannabis is grown in the northern Sumatra province of Aceh and is regularly seized in Indonesia. In 1997-98 the Indonesian National Police seized consignments of Sumatran cannabis weighing up to 10 kilograms. It is thought that this cannabis was for local consumption only. The AFP is not aware of Aceh cannabis being exported to Australia, at least not in large quantities. The Indonesian National Police reports that cannabis resin seizures in Indonesia generally originate from the Golden Crescent and that the resin is not produced from Aceh cannabis.

The price of cannabis in Indonesia has increased by 50 per cent from an average of A\$189 a kilogram in 1997 to an average of A\$238 a kilogram in 1998.

Nepal

Cannabis resin produced in Nepal is smuggled mainly into India. The number of seizures of cannabis and cannabis resin and the number of people arrested for drug offences in Nepal have increased since the beginning of the 1990s. With the border between Nepal and India virtually open, the fight against illicit trafficking in the area is difficult (INCB 1998).

Afghanistan

Cannabis is the most widely used drug in West Asia and grows wild in many countries of the region. Illicit cultivation takes place mainly in Afghanistan, which is one of the world's largest producers of cannabis resin. Many countries in the region are used as transshipment points for the export, usually by sea, of large amounts of predominantly Afghani cannabis to different countries, especially in Europe (INCB 1998).

Plate 2.4: Cannabis resin
Source: Victoria Police Department.



Pakistan

Interpol reported,

Significant quantities of cannabis from Pakistan were seized in Canada, Belgium, Bulgaria, Iran and the United Kingdom, and in smaller quantities in Saudi Arabia, the United Arab Emirates, India and Oman. The total quantities seized worldwide were well in excess of 250 tonnes. (1997, p. 3)

The International Narcotics Control Board reported, 'Pakistan is a major producer and an important transit country for opiates and cannabis destined for international markets' (INCB 1998, p. 11).

The Australian Federal Police reports that cannabis resin from crops in both Pakistan and Afghanistan is processed in Pakistan, stored and then transported to various places in that country. The product is then shipped to the Central Asian states and on to Europe. The main markets for South West Asian cannabis resin are Europe, Canada and, to a lesser degree, Australia and the United States. The AFP further reports that in 1997–98 the Pakistan Anti-Narcotics Force seized one shipment of approximately 6 tonnes of high-grade cannabis resin in Islamabad—it was destined for Europe.

Europe

Cannabis is extensively cultivated in many European countries, especially the Netherlands, which is also a major point of entry for cannabis smuggled into Europe. Approximately 75 per cent of all European cannabis seizures are made in the Netherlands and at Belgian ports. In the Netherlands penalties for the commercial production of cannabis have been doubled and cannabis production in greenhouses is to be made illegal (INCB 1998).

Papua New Guinea

The Australian Federal Police reports that the Highlands continues to be the main cannabis-growing area in Papua New Guinea. It also reports that during 1997–98 there were several seizures of PNG cannabis in the Cairns area. The points of entry for the detected cannabis were Torres Strait, Cape York and Cairns. Various craft—small dinghies, large motorised vessels and light aircraft—were used. Trafficking in cannabis and guns in the Torres Strait and Gulf of Carpentaria region is of particular concern to the Australian Federal Police.

McFarlane (1998) claims that the demand for firearms in Papua New Guinea is increasing, particularly in the Highlands, which is also the centre for the production of most of the Nugini Gold (high-quality cannabis). He noted that Daru appears to have emerged as a centre for the trade in illicit firearms. The Australian Federal Police has also stated that the Daru area is becoming a central point of export for PNG cannabis, affording exporters easier access to the Australian market. Customs reports that there is no information to suggest that military-style weapons are being bartered for cannabis and that the trade in other weapons is small scale and sporadic.

In July 1997, 11 people were charged with 73 offences relating to possession of and trafficking in PNG cannabis. In a later operation 40 kilograms of compressed cannabis was recovered from a launch arriving in Cairns from Port Moresby and 100 kilograms was seized in Goroka. One PNG national and two Australians were committed for trial as a result of this operation (McFarlane 1998).

The Australian Federal Police reports that the Kiunga area in Irian Jaya is emerging as a cannabis producer; production is controlled by the Organisasi Papua Merdeka (OPM, Independence Movement). The cannabis is apparently exchanged for both firearms and money, preferably the former. The Kikori area in the Gulf Province has also come to the authorities' attention for cultivation of cannabis by the OPM.

Further, the AFP reports that the price of PNG cannabis remained stable in Papua New Guinea in 1997–98, at about A\$208 a kilogram, although there are also documented cases of PNG dealers asking for as much as A\$694 a kilogram. The price of PNG cannabis in the Cairns region is reported to vary widely, depending on where and from whom the cannabis comes; prices can range from A\$1000 to A\$2000 a kilogram.

The Australian situation

Importation

The number of Customs cannabis detections fell markedly, from 930 in 1996–97 to 742 in 1997–98. The total weight of cannabis detected at the Customs border also fell, from 24.29 tonnes in 1996–97 to just 38.40 kilograms in 1997–98. The 1996–97 figure of 24.29 tonnes was largely as a result of the detection of two multi-tonne cannabis resin shipments, one in Queensland (8 tonnes), the other in northern New South Wales (10.5 tonnes).

Customs reports that multi-tonne cannabis shipments generally occur infrequently (around once a year) as a consequence of the limited demand for imported cannabis products and the sheer bulk of the drug, which makes it difficult to conceal. It should



Plate 2.5: Nepalese Sticky Fingers
Source: Drug and Alcohol Services Council.



Plate 2.6: Young cannabis crop
Source: Queensland Police Service.



Plate 2.7: Drug detector dog
Source: ABCI.

also be noted that with the detection of the cannabis resin shipment in Queensland, in December 1996, the resulting joint investigation by the Australian Federal Police and Customs dismantled an entire international cannabis importing syndicate. There is no doubt that this detection, and the other large detection, would have deterred criminals in their efforts to import cannabis into Australia in 1997–98. It is therefore probable that, because of the efforts of the AFP and Customs in 1996–97, there were no multi-tonne cannabis importations in 1997–98. A review of the cannabis significant seizures for 1997–98 supports this theory: little cannabis resin was seized by State and Territory police.

The largest single Customs border detection was 23.89 kilograms of cannabis leaf from South Africa. Imported cannabis commonly came from the Netherlands (13.9 per cent of the total number of detections) and the United Kingdom (27 per cent of the total number of detections), although small quantities did come through the postal system from other countries. Table 2.1 shows the countries and regions of origin for cannabis detections at the Customs border in 1997–98.

Figure 2.1 shows that during 1997–98 parcel post detections constituted 81 per cent of the total number of Customs detections of cannabis. The parcel post detections were predominantly of cannabis leaf and cannabis resin from the United Kingdom and the Netherlands.

Table 2.1: Countries and regions of origin for cannabis detections at the Customs border, by weight and number, 1997–98

Country/region	Weight (grams)	Number
United Kingdom	1 369.72	197
Unknown	1 249.17	129
Netherlands	211.39	103
Europe (other)	53.54	34
Switzerland	139.18	30
United States	266.30	25
Spain	93.45	24
India	3 530.36	24
New Zealand	141.60	20
Germany	109.08	20
France	53.94	19
South Africa	24 156.60	15
Thailand	1 377.00	13
Canada	29.00	13
South East Asia	193.60	11
Singapore	133.77	10
Ireland	67.60	10
South West Asia	64.50	10
South America	16.10	7
Papua New Guinea	101.60	6
Africa	63.27	6
Hong Kong	292.10	5
Japan	39.70	4
Philippines	1 203.00	2
Persia	940.00	2
Other	7.50	2
Hungary	2 500.00	1
Total	38 403.07	742

Notes: Export and domestic detections are excluded.

Source: Australian Customs Service (1998).

Most of the cannabis resin seized in Australia was imported, generally by parcel post from the United Kingdom. No specific countries are linked to the production of the cannabis resin arriving in Australia, although it appears that the United Kingdom is a central transit point.

Cannabis resin, herbal cannabis and cannabis leaf made up the majority of detections. It is important to note, however, that over 4 kilograms of cannabis seeds from the United Kingdom and the Netherlands was detected.¹ The variety of the seeds was not specified, but it is reasonable to assume that the seeds were of sub-species ordered from cannabis cultivation 'specialists' in Europe.

Exports

During 1997–98 there were 53 Customs export detections of herbal cannabis, cannabis resin and cannabis seeds originating in Australia. As with the importations, the most common method for exporting was by parcel post—50 detections, of which 20 were from New South Wales, 29 from Queensland, and one from South Australia.

Concealment methods

Concealment methods used for importing of cannabis remained consistent with previous years. The Australian Federal Police reports that in October 1997 a 5.4-tonne shipment of cannabis resin from Pakistan or Afghanistan and destined for Melbourne was seized in Lahore and Bawalapur in Punjab Province. The cannabis was to be concealed in a shipping container of cotton cloth consigned to a legitimate dealer in Australia. The large border detection of 23.89 kilograms was secreted in a crate in a shipping container from South Africa.

The Australian Federal Police in Cairns reports that in 1997–98 the standard packaging for PNG cannabis continued to be 1-kilogram plastic rice bags and that there was an increase in the use of heat-sealed packaging for compressed PNG cannabis.

Smaller amounts of cannabis and cannabis products were found in postal articles. One seizure, postmarked Switzerland, uncovered compressed cannabis hidden inside clear plastic discs.

Domestic production

The domestic cannabis-production industry appears to be expanding and there has been a noticeable move away from open-area cultivation to indoor hydroponic cultivation. All jurisdictions reported increases in the number of hydroponic cannabis crops detected.

It is difficult to estimate the total amount of cannabis produced in Australia by either conventional or hydroponic means. Hydroponic production methods allow growers to secrete their crop in a room, building, roof space or virtually any other concealed space. This of course hinders law-enforcement agencies in their efforts to detect cannabis production through conventional means. The ability to effectively conceal hydroponic cannabis production and maintain continuous production, coupled with the reported higher THC levels, contributes to desirability of hydroponic production.

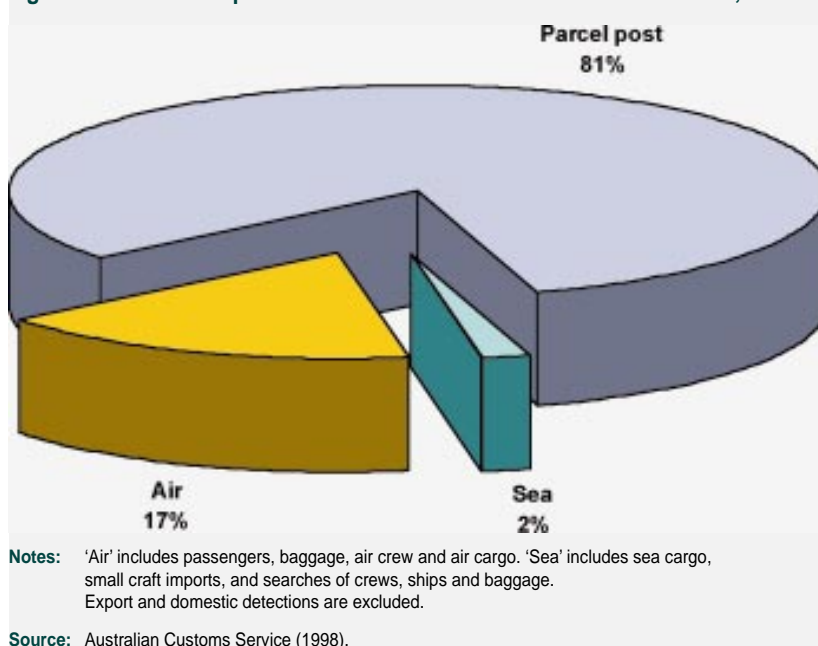
In South Australia, the Northern Territory and the Australian Capital Territory, where cannabis possession has been partially decriminalised, there has been an increase in the number of suppliers of hydroponic equipment. As the Bureau reported in 1997, in South Australia syndicated cannabis-cultivating groups continue to operate. These groups are reported to be growing the legislated maximum amount (10 plants per person) that does not attract criminal sanctions. The cannabis is then distributed to customers in South Australia and elsewhere.

In a summary of cannabis trends in South Australia, Cormack et al. (1998) reported that high-quality cannabis could be bought with some ease for around \$25 per gram. They also noted an increase in the availability of high-potency hydroponically grown cannabis in Adelaide.

It appears that there is little cannabis resin or oil produced in Australia: most of it would seem to be imported. In 1997–98 there were only two significant detections of cannabis oil production, compared with three in 1996–97.

For 1997–98 Tasmania Police reported one instance of the production of hashish oil that had been extracted using methanol and placed in gelatine capsules for consumption. Western Australia Police reported several seizures of locally produced resin and oil using acetone or hydrocarbon-based solvents. In New South Wales a litre of cannabis oil was detected in June and 1 kilogram of cannabis in the refining stage was found in the

Figure 2.1: Cannabis importation methods: detections at the Customs border, 1997–98



...The domestic cannabis-production industry appears to be expanding and there has been a noticeable move away from open-area cultivation to indoor hydroponic cultivation...



Plate 2.8: Hydroponic cannabis
Source: Victoria Forensic Science Centre.

same premises. The Australian Forensic Drug Laboratories reported that the extracted cannabis oil had been converted into a form of cannabis resin by processing with a small commercial essential-oil extractor. Queensland Police reported several seizures of cannabis oil during 1997–98.

Many jurisdictions report that it is common to find advertisements for the sale and use of essential-oil extractors in the media and on the Internet. These systems allow users to extract and produce cannabis oil with minimal equipment and expense. Information about all aspects of cannabis production is readily available to Australian consumers in both printed and electronic formats; for example, publications such as the *Marijuana Growers Guide*. State and Territory governments are responsible for implementing legislation relating to the publishing and sale of information about cannabis cultivation. The International Narcotics Control Board considers that it is possible for governments to limit the availability of this type of information by applying restrictions to the broadcasting media, including the print media, radio, and film and television:

In some countries, it is possible to do this through legislation; in others it can be done through voluntary codes of practice; in still others, however, no restrictions on promoting drug abuse are in place because freedom of information and freedom of speech are considered to be more important than limiting the promotion of illicit drugs. (INCB 1998, p. 3 of 7)

The Board suggested that some governments might need to reconsider whether unrestricted access to and the propagation of such information are detrimental to the social well-being and health of their populations.

Indoor and hydroponic production

Hydroponic cannabis continues to gain popularity with cultivators and users in the Australian domestic market. A number of magazines, both alternative and mainstream, and a number of Internet websites advertise hydroponic components as well as provide horticultural advice. Two distinct methods can be used to cultivate indoor cannabis.

- The first method involves plants that are potted and grown in soil or a growing medium from which the necessary nutrients are obtained. Plants cultivated in this way generally have low THC levels.
- The second method involves hydroponic cultivation—soil is not essential; other inert growing mediums such as perlite and vermiculite are used.

Crops were detected in residential and commercial premises, in trailers and caravans, and in hidden rooms beneath houses. Victoria Police reported that in one case a retailer hydroponically cultivated the cannabis strain known as Super Skunk from its commercial premises.

Queensland Police in Cairns reported an increase in hydroponic and indoor cultivation of cannabis in the area. The plants seized were believed to have high THC levels and were of the smaller, high-yield variety.

In the Northern Territory there was a noticeable increase in the detection of hydroponic cannabis. One such crop was found in a room hidden beneath a garden shed in suburban Alice Springs.

As with the other States and Territories, Western Australia Police reported that hydroponic cannabis cultivation is very prevalent. It also reported that there is evidence that some proprietors of shops supplying hydroponic equipment are involved in organised cannabis cultivation.

Information from the New South Wales Police Illicit Drug Production Unit shows that about 6000 cannabis plants were seized in the State during 1997–98. This includes plants seized during cannabis-eradication operations by police and specific hydroponic cannabis seizures; it does not include seizures made by individual police areas throughout the State. The Illicit Drug Production Unit further stated that hydroponic cannabis cultivation had been detected in many localities throughout New South Wales, with the greatest number of seizures reported in metropolitan Sydney.

The Victorian Forensic Science Centre reported that it attended 18 crop sites in 1997–98. Of those, seven were cultivated using hydroponic means and three were classified as ‘indoor soil’ cultivation. The hydroponic cannabis crops varied in size from six to 410 plants and most were detected in urban areas.

Indicators for indoor and hydroponic production

Hydroponic and other indoor cannabis cultivation is easily hidden from view and relatively easy to secure. Large-scale cultivators can distance themselves from a hydroponics operation by renting houses, sheds or commercial premises. Smaller scale cultivators can use bedrooms, roof spaces, garden sheds or spare rooms in their homes to produce cannabis for their own consumption and to generate a substantial profit. Western Australia Police reported that a commercial flower-cultivation business was used to disguise underground hydroponic cannabis cultivation. The high rate of power consumption was disguised by the legitimate enterprise.

There are a number of potential indicators of indoor or hydroponic cannabis cultivation:

- the purchase of hydroponic equipment and nutrients, minerals and chemicals;
- abnormal electricity consumption;
- the presence of air ventilation systems;

- the installation of security devices in unusual places;
- the disposal of nutrient packaging in household or commercial garbage;
- exhaust fans running constantly or in cycles.

Excessive consumption of electricity in commercial and residential premises is a primary indicator of hydroponic cannabis cultivation. Victoria Police suggested that since the privatisation of the electricity service in the State police have been hampered in conducting cannabis-related investigations: there is no requirement for private electricity corporations to provide information about excessive electricity consumption to police.

Queensland Police reported that suppliers of horticultural irrigation equipment had reported an increase in the demand for their products by people not involved in legitimate horticultural production. It also reported the increased use of small, commercially produced hydroponics units.

New South Wales Police reported that there is no requirement for owners or managers of hydroponics outlets to report suspicious sales of nutrients or equipment. If this type of information were available it could assist police in monitoring suspected cannabis cultivators.

South Australia Police reported that among the indicators of hydroponic cannabis cultivation in that State is a notable increase in the number of hydroponics outlets: it is thought there are now several hundred. According to Boorham (1998), this is a direct result of the escalation in the number of hydroponic crops: in the Adelaide *Yellow Pages* there are currently four pages of advertisements; in the Sydney *Yellow Pages* there is just one page. It should be remembered that in population terms Sydney is about three times larger than Adelaide.

Outdoor production

Outdoor crops continue to be grown mainly on Crown land and in national parks. Various law-enforcement agencies reported that areas of high rainfall—such as the mid-north coast of New South Wales, northern Queensland, the Top End of the Northern Territory, and the north-west of Tasmania—are favoured by outdoor cannabis cultivators. The New South Wales Police Illicit Drug Production Unit reported that nearly all of its outdoor crop seizures in 1997–98 were from the north and mid-north coast of the State.

Most sites that were detected consisted of a number of small plots—say, 50 to 200 plants—in very remote areas. A large number of smaller crop sites helps growers avoid detection and reduces the chance of the entire crop being found. Most of the sites detected were difficult to reach by foot and were fenced, irrigated, and often left unattended.

About 15 years ago the average outdoor cannabis crop in South Australia had around 100 000 plants; in 1997–98 South Australia Police reported that a number of outdoor crops were seized, varying in size from 25 to 10 000 plants. It also reported a decline in the number of large outdoor crops detected and that there has been a change in the method of outdoor production in that State. Historically crops were seed based; the seedlings are now being propagated in jiffy pots before being transplanted. This is believed to be partly due to the popularity of hydroponic cannabis production.

Northern Territory Police reported that in 1997–98 a cannabis crop of 1300 plants was detected at a site south of the Daly River and another crop of about 1800 plants was found near Tennant Creek. There were also seizures of crops of between 200 to 300 plants in other remote locations, as well as crops on small blocks outside Darwin. Most of the plantations used irrigation from nearby rivers or creeks. In the southern part of the Territory all cannabis production is reliant on irrigation. Northern Territory Police reported that there has not been a shortage of cannabis in the Territory and that hydroponic systems are being used occasionally. The ideal growing conditions and vast expanses of isolated land available to growers in the Territory, however, make hydroponic systems rare.

In 1997–98 Queensland Police reported that cannabis crops were mostly grown in bushland and were reliant on irrigation. In northern Queensland the climate allows cultivators to produce two crops a year. As in other jurisdictions, growers in Queensland are cultivating a number of smaller crops to reduce the chances of detection. Queensland Police also reported that cannabis crops were planted among palm trees in an attempt at camouflage.

Tasmania Police reported that during the cooler winter months the wholesale price of cannabis increased: this may mean that outdoor cultivation is still the major source of cannabis in that State.

Western Australia Police reported that detection of large outdoor cannabis crops had declined and that cannabis cultivators appeared to be favouring hydroponic cultivation in metropolitan areas. It further reported that a crop



Plate 2.9: Drying cannabis
Source: New South Wales Police Service.

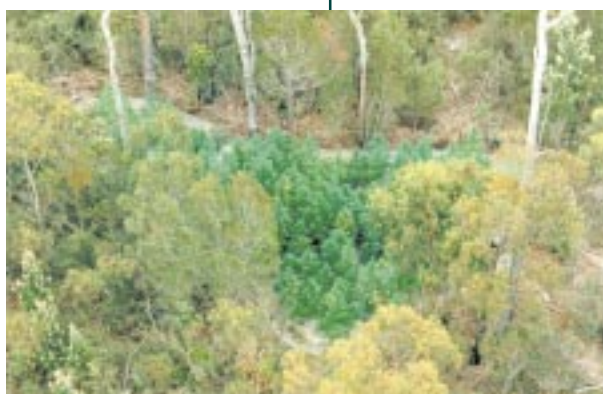


Plate 2.10: Cannabis plantation
Source: Queensland Police Service.



Plate 2.11: Camouflage net
Source: New South Wales Police Service.

of 1200 plants was irrigated by water diverted from a district water pipeline—over 600 metres of high-pressure hose connected the crop to the pipeline, and automatic timers regulated watering.

Crop protection

In 1997–98 a number of measures were used to protect cannabis crops. Most were designed primarily to prevent damage from wildlife and to prevent theft. New South Wales Police reported that in 1997–98 a man was electrocuted after coming into contact with exposed 240-volt wiring while attempting to steal a number of cannabis plants; the owners of the crop had laid an extension cord, with bared wiring, from a residential building to the crop site. A number of other protection measures were used in 1997–98:

- army-style camouflage netting to conceal camp sites and crop sites;
- guard dogs;
- warning devices such as rat traps planted around the perimeter of the crop;
- rabbit traps and razor blades to harm unwanted visitors or police;
- a crossbow used to protect a small cannabis crop in Victoria;
- fishing hooks and ‘punji’ boards (planks of wood with nails embedded in them) in New South Wales;
- spikes set on roadways leading to a cannabis crop in Western Australia.

Methods of concealing hydroponic cannabis crops have become more innovative. Tasmania Police reported an underground bunker beneath a bedroom. Victoria Police reported finding a removal truck fully fitted out with hydroponic gear, a caravan annex with a hidden room, and houses with bedrooms that were sealed off, the only access being through hidden doors and removable walls.

Crop detection

The remoteness of some outdoor cannabis plantations tends to decrease the chance of detection by law-enforcement agencies. On many occasions community members come across these plantations during the course of their work—national park rangers are an example—or while participating in leisure activities such as camping, bushwalking or four-wheel driving.

Western Australia Police reported the use of digital multi-spectral imaging and FLIR (forward-looking infrared radar); Victoria Police reported the use of heat-detection technology to locate outdoor cannabis crops.

Queensland Police reported that, in partnership with researchers from the University of Queensland, it has developed an environmental forensics system for botanical evidence that is admissible in court. This method links specific crops to people or locations.

Cannabis distribution

The most common methods of transporting cannabis in Australia have not changed: all law-enforcement agencies reported that motor vehicles remain the predominant method used by distributors.

New South Wales Police reported that cannabis has been found secreted in the body parts of motor vehicles from South Australia. In Queensland anecdotal information suggests that cannabis is transported from northern Queensland to the southern Queensland fruit and vegetable markets, hidden among the produce. In its 1996–97 report the Bureau noted ‘Another industry that has been identified as being used by organised crime groups to distribute cannabis is the farm produce market’ (ABCI 1997, p. 26).

It is reported that cannabis originating in South Australia is transported to neighbouring jurisdictions. South Australia Police reported that large amounts of cannabis are transported from South Australia by air, truck, hire vehicles, buses and private motor vehicles.

Queensland Police reported that South Australian cannabis is sold on the Gold Coast. New South Wales Police reported South Australian vehicles returning to that State have been found carrying large amounts of cash or amphetamines, or both. It also considers that the decrease in the amount of locally grown cannabis is the result of an increase in the quantity of South Australian cannabis in New South Wales.

The Australian Federal Police in Canberra reported that the majority of cannabis transported to the Australian Capital Territory is from the Murray Bridge area of South Australia. It also reported that there was a significant increase in hydroponic cannabis cultivation in the ACT and that cannabis availability had increased since decriminalisation of possession of minor cannabis amounts.

Market indicators

Price

Most jurisdictions reported that in 1997–98 the price for cannabis ‘head’ remained relatively stable and the price for cannabis leaf declined, although there are differences between jurisdictions. Reports also suggest that the price for hydroponic cannabis and cannabis resin remained stable.

The National Centre for Research into the Prevention of Drug Abuse reported that the average price paid in Western Australia for high-potency cannabis such as 'skunk' and 'hydro' was around A\$335 an ounce. It further reported that both buyers and sellers agree that cannabis leaf (on its own) is of little marketable value—dealers give it away in some instances. Queensland Police reported that cannabis users are willing to pay more for cannabis head than leaf.

All jurisdictions reported that hydroponic cannabis commanded a higher price, with the domestically produced 'skunk' dominating the market. New South Wales Police reported that 'skunk' was selling for \$450–600 an ounce and Victoria Police reported a price range of \$350–400 an ounce or \$25 a gram. South Australia Police reported that hydroponic cannabis could be bought for an average price per pound of \$3000—before transportation to other jurisdictions. No prices for smaller quantities were available from South Australia Police.

Northern Territory Police reported that dealers have ceased using 'foils' (individual amounts of cannabis wrapped in aluminium foil) and now prefer small clip-seal bags, which they sell for between \$40 and \$50. Tasmania Police report that 'skunk' was the preferred cannabis type in that State and that it sold for about \$300 an ounce in the reporting period.

Queensland Police reported that in northern Queensland cannabis leaf was sold for \$100 an ounce. It suspects that this product was of the Papua New Guinea strain, commonly referred to as 'NG Gold' or 'PNG Gold'.

THC (delta-9-tetrahydrocannabinol)

Cannabis is dioecious, meaning the plants are either male or female. Female plants have a higher concentration of THC, which remains high if pollination with a male plant does not occur. If pollination does occur the level of THC decreases as the plant focuses on seed formation rather than THC production. Seedless cannabis is commonly known as 'sinsemilla'.

Anecdotal information from law-enforcement agencies and health professionals suggests that the level of THC in cannabis is the ultimate determinant of demand. The THC concentration varies between the different forms (leaf, resin and oil). The flowering tops and bracts (known as 'heads') are the most concentrated, with levels of potency descending through the upper leaves, lower leaves, stems and seeds (Hall et al. 1994).

Hall et al. state, 'The concentration of THC in a batch of marijuana containing mostly leaves and stems may range from 0.5–5 per cent, while the "sinsemilla" variety with heads may result in concentrations from 7–14 per cent. The concentration of THC in hashish generally ranges from 2–8 per cent, although it can be as high as 10–20 per cent' (1994, p. 31). Whilst there have been some samples of hash oil detected with THC concentration levels as high as 70 per cent, concentration levels generally range between 15 and 50 per cent.

Ali and Christie noted in 1994, 'The National Task Force on Cannabis recommends that the Commonwealth Drugs of Dependence Branch consider the funding or facilitation of further research to monitor possible changes in average cannabis potency and modes of consumption over time' (p. 18). The Commonwealth Department of Health and Aged Care advises that research is currently being planned to test the THC levels of cannabis and it is anticipated that this will occur in late 1999. With the exception of Queensland, jurisdictions do not routinely analyse seizures of cannabis, cannabis resin or oil to determine THC levels.

In 1998 the New South Wales Division of Analytical Laboratories analysed a very high grade hydroponically cultivated South Australian cannabis 'head'. It was found to have a THC content of approximately 16 per cent—for a typical leaf the THC concentration is around 1 to 3 per cent.

There is a need for a national short-term project to analyse the THC content of Australian cannabis and cannabis products. Mechanisms already exist for measuring THC levels; they are primarily used in the licit commercial hemp industry. Protocols could also be established at a central forensic service location to facilitate the analysis of THC levels in cannabis used illicitly.

Seizures

In 1997–98 there were 54 925 seizures, weighing a total of 15 996.63 kilograms, Australia-wide. This figure takes in detections at the Customs border (38.22 kilograms) and all State and Territory police and AFP domestic seizures. Detections at the Customs border constituted 0.24 per cent of all cannabis detected Australia-wide. In 1996–97 there were 54 552 seizures, weighing a total of 29 300.40 kilograms, Australia-wide; of those, detections at the Customs border constituted 82.9 per cent (or 24 290 kilograms). The large decrease in Customs border detections for 1997–98 is primarily due to the fact that no multi-tonne cannabis shipments were detected, whereas in 1996–97 two multi-tonne shipments were detected. The seizure data also make it apparent that there was a large increase in the total weight of domestic cannabis seizures by the various law-enforcement agencies in 1997–98; this is consistent with qualitative information received from most of the police jurisdictions, which suggests that cannabis cultivation, especially hydroponic cannabis cultivation, has greatly increased.



Plate 2.12: Cannabis crop destruction
Source: New South Wales Police Service.

Plate 2.13: THC chemical composition
Source: ABCI.

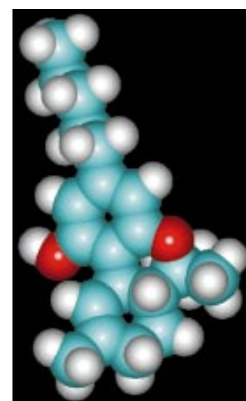
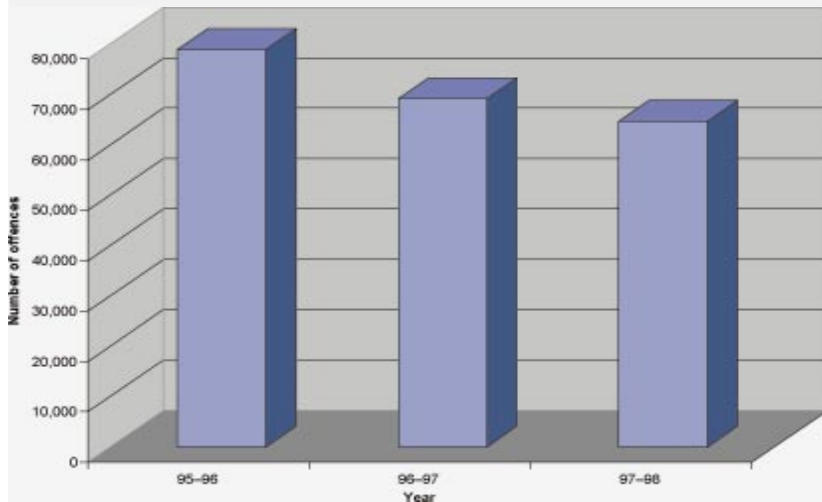


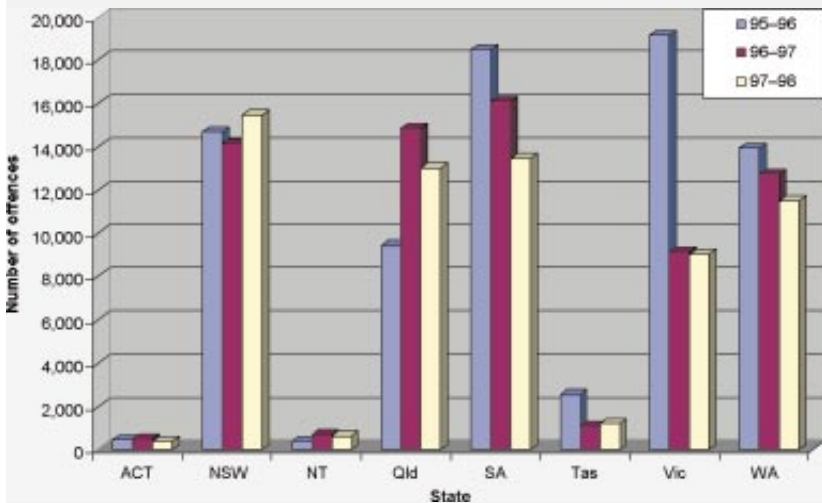
Figure 2.2: Cannabis offences: Australia, 1995-96 to 1997-98



Note: Figures include cannabis-related arrests and offences connected with cannabis expiation notices, drug infringement notices, and simple cannabis offence notices.

Source: ABCI (1998).

Figure 2.3: Cannabis offences, by State and Territory, 1995-96 to 1997-98



Note: Figures include cannabis-related arrests and offences connected with cannabis expiation notices, drug infringement notices, and simple cannabis offence notices.

Source: ABCI (1998).

Cannabis offences

In 1997-98 there were 64 659 cannabis offences recorded, constituting 76.9 per cent of all drug-related arrests in Australia. These figures take in cannabis-related arrests and offences connected with cannabis expiation notices in South Australia, drug infringement notices in the Northern Territory, and simple cannabis offence notices in the Australian Capital Territory.

Compared with 1996-97, this represents a 6.48 per cent decrease in the number of offences. Figure 2.2 shows the number of cannabis offences in Australia from 1995-96 to 1997-98. What is evident is a steady decline in the number of offences.

The decrease in the number of cannabis offences did not occur in all States and Territories. Table 2.2 shows the number of offences detected in each jurisdiction from 1995-96 to 1997-98 and the percentage change from 1996-97 to 1997-98.

With the exception of New South Wales and Tasmania, all States and Territories experienced a decrease in the number of reported cannabis offences in 1997-98. Figure 2.3 shows that the number of reported offences in South Australia, the Australian Capital Territory, Western Australia and Victoria has continued to decline since 1995-96. Since that year Victoria has recorded the biggest decrease in the number of reported cannabis offences—from 19 210 to 9 034, which is a 53.1 per cent decrease. It is believed that a redirection of police resources away from minor cannabis offences contributed to this decline. In July 1997 Victoria Police embarked on a six-month trial in the Broadmeadows area, whereby cannabis caution notices were issued to people (without prior minor drug convictions) committing minor cannabis offences; this may have partially contributed to the slight fall in cannabis offences in 1997-98.

Reported cannabis offences per 100 000 population, as shown in Table 2.3, for each of the States and Territories vary considerably, ranging from 121.04 in

Table 2.2: Comparison of cannabis offences, by State and Territory, 1995-96 to 1997-98

State/Territory	1995-96	1996-97	1997-98	%change 1996-97 to 1997-98
NSW	14 677	14 146	15 460	9.3
Vic	19 120	9 121	9 034	-1.0
Qld	9 436	14 839	13 021	-12.3
WA	13 903	12 704	11 487	-9.6
SA	18 477	16 082	13 452	-16.4
Tas	2 518	1 079	1 196	10.8
ACT	439	485	374	-22.0
NT	378	680	635	-6.6
Total	78 948	69 136	64 659	-34.4

Note: Figures include cannabis-related arrests and offences connected with cannabis expiation notices, drug infringement notices, and simple cannabis offence notices.

Source: ABCI (1998).

Table 2.3: Cannabis offences, per 100 000 population, by State and Territory, 1995–96 to 1997–98

State/Territory	State population	1995–96	1996–97	1997–98
NSW	6 306 334	235.21	226.70	245.15
Vic	4 627 303	417.38	199.10	195.23
Qld	3 430 384	279.67	439.80	379.58
WA	1 811 126	780.19	712.91	634.25
SA	1 482 869	1 251.83	1 088.97	907.16
Tas	471 789	531.22	227.64	253.50
ACT	308 990	142.53	157.47	121.04
NT	189 185	205.43	369.57	335.65

Notes: Population data from the Australian Bureau of Statistics, current at December 1997. Figures include cannabis-related arrests and offences connected with cannabis expiation notices, drug infringement notices, and simple cannabis offence notices.

Source: ABCI (1998).

the Australian Capital Territory to 907.16 in South Australia. Overall, there has been a steady decline in the rate of cannabis offences reported.

Cannabis infringement notices

Law-enforcement agencies in the Northern Territory, the Australian Capital Territory and South Australia issue infringement notices for certain cannabis offences. In 1997–98 in the Northern Territory drug infringement notices constituted 34.2 per cent of cannabis offences reported. In the same period in the Australian Capital Territory simple cannabis offence notices constituted 62.8 per cent of cannabis offences and in South Australia cannabis expiation notices constituted 79.9 per cent of cannabis offences. (See Tables in Chapter 13 for a breakdown of cannabis offences.)

Table 2.4 compares cannabis infringement notices, by consumer and provider, for 1995–96, 1996–97 and 1997–98. In South Australia there has been a decrease in the number of cannabis expiation notices issued since 1995–96, but predominantly for consumer offences. It is difficult to identify any single factor contributing to this trend, although it is most probably a result of the redirection of police resources away from minor cannabis offences.

Patterns of cannabis use

The extent of cannabis use in Australia is difficult to measure accurately, although surveys conducted by various health, drug and research organisations, coupled with police arrest and seizure data, provide indicators of the frequency of cannabis use in Australia.

Makkai and McAllister (1998a) report that the overall rate of frequent cannabis use has decreased since 1988, with older women less frequent users than younger men. They note that the frequency of use increases for men as they age and it appears that those men who continue to use marijuana into middle age are more committed to frequent use. Fourteen per cent of respondents surveyed in the National Drug Strategy 1993 Household Survey had tried cannabis at age 15 years or less; this estimate increased to 18 per cent in 1995 (Makkai & McAllister 1998a). The authors further state, 'The age of initiation into marijuana use has been declining, particularly for those who report weekly use, and the average age of initiation now stands at just under 17 years' (p. viii).

Table 2.4: Cannabis infringement notices, by consumer and provider, 1995–96 to 1997–98

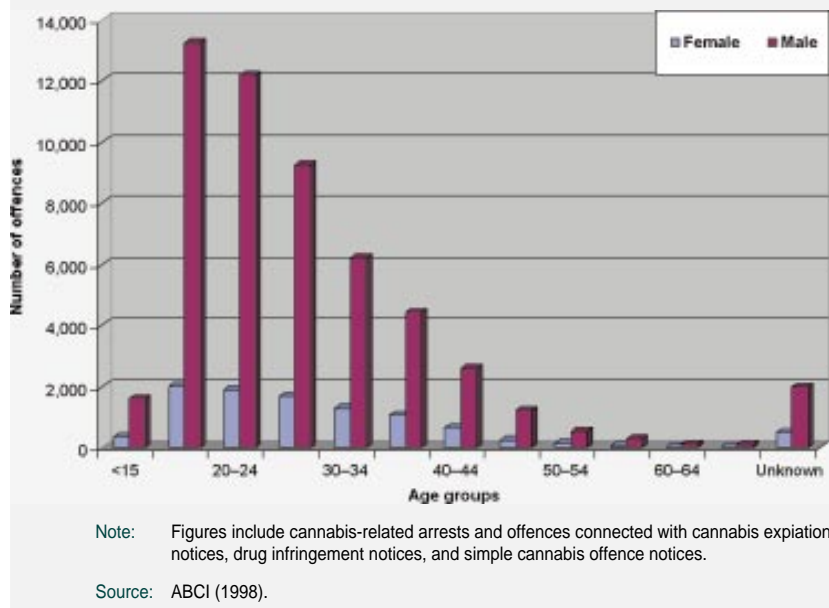
State and Territory	1995-96		1996-97		1997-98	
	Consumer	Provider	Consumer	Provider	Consumer	Provider
South Australia ^a	12 978	3 423	9 336	3 321	7 969	2 783
Northern Territory	^b	^b	205	23	201	17
Australian Capital Territory ^c	223	72	240	78	151	84

a. Cannabis expiation notices. b. Drug infringement notices-not introduced until 1996. c. Simple cannabis offence notices.

Source: ABCI (1998).

...Makkai and McAllister (1998a) report that the overall rate of frequent cannabis use has decreased since 1988, with older women less frequent users than younger men. They note that the frequency of use increases for men as they age and it appears that those men who continue to use marijuana into middle age are more committed to frequent use...

Figure 2.4: Cannabis offences, by age and gender, 1997–98



A recent survey of secondary school students found that cannabis was the most commonly used illicit substance, with 36 per cent of all secondary students aged between 12 and 17 years reporting that they had used cannabis at some time in their life. Use also increased with age, from 13 per cent of 12-year-olds who had ever used cannabis to 55 per cent of 17-year-olds (Anti-Cancer Council of Victoria 1998). Figure 2.4 shows cannabis offences, by age and gender, for 1997–98.

A disproportionate number of males are detected. Figure 2.5 shows that this is particularly noticeable in relation to offences for consumers. The primary age groups for male consumer offences are 15–19 to 40–44 years. The number of male providers is also high, and the primary age groups are similar to those for male consumers. According to Makkai and McAllister, ‘Those who start using a drug at a young age usually report heavier and more extended use later in life’ (1998a, p. 37). The age at which people start using a drug has implications for drug education.

Most law-enforcement agencies reported that all demographic groups used cannabis and that use was particularly prevalent among the younger age groups and the unemployed. Police in Queensland stated that there was a high level of use across all ages and for both genders. Regional areas such as Townsville reported an increase in use by juveniles. Western Australia, Tasmania and New South Wales Police reported an increase in the frequency of cannabis use in some Indigenous communities.

Licit production

The number of plants grown by the licit hemp industry in Australia remained static during 1997–98. At the end of 1997–98 New South Wales, Victoria, South Australia, Western Australia and Tasmania were all conducting trials of industrial hemp production. Commercially produced crops of hemp have predetermined levels of THC and are not psychoactive. All jurisdictions reported that the relevant authorities destroy any crops that exceed the predetermined levels: testing is done regularly.

In New South Wales, six hemp-production licences were issued in 1997–98 to private enterprise and government agencies for research projects in various parts of the State. In this case, the levels of THC are not set by regulation since the projects are approved under the provisions of the New South Wales Drug Misuse and Trafficking Act. Licence holders are advised to use only cultivars generally known to have a demonstrated THC level of less than 0.3 per cent. Testing of levels has been done by the Victorian Forensic Science Centre in Melbourne and the Australian Government Analytical Laboratory in Sydney.

In South Australia a licence was issued in 1997 to an enterprise called Yorke Regional Development Company, which proposed to assess the financial feasibility of producing hemp for fibre at three sites. The conditions of the licence required plants to have THC levels of 0.3 per cent or less to comply with the legislation. Later, in December 1997, the licence was cancelled because the project was seen to be not financially feasible. Two sites were moisture deficient and the remaining site, which was irrigated, returned 10 tonnes a hectare of hemp stem. A total of 486 kilograms of hemp stems was baled and secured.

Western Australian government hemp cultivators have conducted six trials to assess growing conditions, productivity levels and crop feasibility. In one trial the Denmark Agricultural College, under government licence, planted a half-hectare plot from which 4 tonnes of hemp were harvested.

In 1997–98 Victoria had four licit crop sites. Three permits were issued to various government and private groups, including the Department of Natural Resources and Environment, which was issued with one permit covering two sites. One crop had to be ploughed in after flooding.

One licence was issued in Tasmania during 1997–98—to the Tasmanian Hemp Company, which had also been licensed in the previous year. This licence was issued to study the feasibility of producing hemp seed oil to be used in cosmetics. Two kilograms of hemp seed were produced from the 1997–98 crop but the product was considered to be of poor quality. The crop was a ‘dry’ crop because it was not irrigated, and its area was 20 square metres. Tasmanian legislation in 1997–98 required a zero THC level and that after harvesting the product be forwarded to the Government Analytical Laboratory for analysis. If the levels of THC exceed the agreed level the product is retained for disposal. In May 1998 the National Drug and Poisons Schedule Committee amended the acceptable level of THC to 50 parts per million.

...The age at which people start using a drug has implications for drug education...

Cannabis and current legislation

As noted in Chapter 1, primary responsibility for general law-enforcement activities, including drug-related crime, rests with the States and Territories. The Australian Constitution provides for the Commonwealth Parliament to make laws only in connection with specific subject matters. The States and Territories have the power to legislate on any area, subject to the Constitution.

In 1997 the International Narcotics Control Board stated, ‘The Board notes with concern the ongoing discussion on the legalisation of cannabis consumption in Australia, where already, in some States, possession of cannabis for personal use is not prosecuted’ (INCB 1998, p. 24). This appears to be a misunderstanding or misinterpretation of the current decriminalisation policies adopted by South Australia, the Australian Capital Territory and Northern Territory. Decriminalisation does not equate to legalisation. In essence, decriminalisation removes the possibility of receiving a criminal conviction for minor cannabis offences. If, however, a person is issued with a cannabis infringement notice in South Australia, the Australian Capital Territory or the Northern Territory and they do not pay the fine they will eventually be summonsed with a possible conviction recorded.

South Australia

In South Australia prohibited drugs come within the *Controlled Substances Act No. 52 of 1984*, s. 45A(8)(a) of which prescribes the offences for which cannabis expiation notices can be issued. The Act allows for the issue of an expiation notice for the possession of less than 100 grams of cannabis for personal use or for the cultivation of up to and including 10 cannabis plants for personal use. Case law in South Australia has deemed that the 10-plant limit is per adult per household—each adult in a household can cultivate up to 10 plants without receiving a criminal conviction. The South Australian Government is currently considering reducing the number of cannabis plants for personal use.

The Australian Capital Territory

In the Australian Capital Territory s. 162 of the *Drugs of Dependence Act 1989* proscribes the cultivation of prohibited plants. Under this section an offender receives a fine of \$100 for cultivating up to and including five plants. Section 171A of the Act allows for the issue of simple cannabis offence notices where a simple offence of possession of less than 25 grams of cannabis is committed.

The Northern Territory

Northern Territory Police reported that the relevant legislation is the *Misuse of Drugs Act 1997*, enacted on 1 July 1997. Under this Act a s. 20B drug infringement notice may be issued for cultivation of up to two plants for personal use or for possession of 50 grams or more of cannabis. Upon acknowledgment of the notice the offender is fined \$200.

Victoria

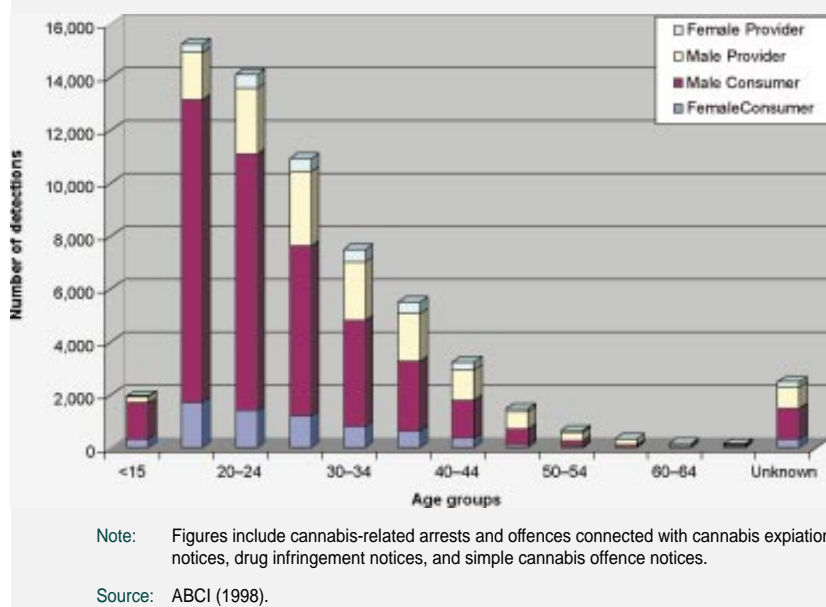
In July 1997 Victoria Police undertook in the Broadmeadows area a six-month trial system for issuing caution notices for people committing minor cannabis offences. The trial was limited to adults who had in their possession less than 50 grams of dried cannabis—it did not apply to the possession of cannabis resin or the cultivation of cannabis plants. First-time drug offenders dealt with under this system had to admit to the offence and consent to the caution and could not be cautioned more than once.

Victoria Police Drug and Alcohol Policy Coordination reported that people under the age of 17 years were dealt with under current cautioning legislation for juveniles. This initiative was not a ‘decriminalisation’ step but rather an alternative method of policing minor cannabis offences. The transition to this caution notice system was achieved with some ease because the Victorian criminal code allows police to use discretion. As a result of the trial and pilot period it was deemed to be a success and was reported to have strong police and community support. Statewide implementation of the caution system began on the 1 August 1998.

Tasmania

Tasmania Police reported that although cannabis use has not been decriminalised minor possession and use receive very small penalties. In July 1998 Tasmania Police started a trial in which an adult in possession of 50 grams or less of dried cannabis received a caution.

Figure 2.5: Cannabis consumers and providers, by age and gender, 1997–98



...Decriminalisation does not equate to legalisation...

...The primary concerns raised by law-enforcement agencies in relation to cannabis decriminalisation are that there may be an increase in the number of people driving motor vehicles while under the influence of cannabis...

...The main difficulty in enforcing restrictions on cannabis use, in relation to driving motor vehicles, is the lack of a simple relationship between blood levels of THC and the degree of impairment or intoxication...

Western Australia

Western Australia Police reported that cannabis has not been decriminalised in any form. The Western Australian Government is, however, researching the possibility of introducing a caution system for first offenders in possession of small amounts of cannabis.

Queensland and New South Wales

In Queensland and New South Wales there are no cannabis infringement notices and offenders are processed through the court system, either by summons or arrest and charge. In the *Australian Illicit Drug Report 1996-97* the Bureau reported that the New South Wales Government had passed legislation that would remove prison sentences for people convicted of using or possessing small amounts of cannabis. This was not correct: the New South Wales Parliament rejected the proposed legislation.

Social and law-enforcement concerns

Cannabis intoxication

The primary concerns raised by law-enforcement agencies in relation to cannabis decriminalisation are that there may be an increase in the number of people driving motor vehicles while under the influence of cannabis and that there is a absence of roadside equipment capable of measuring cannabis intoxication.

In 1997 the Monash University Accident Research Centre conducted a study of the involvement of cannabis-intoxicated people in motor vehicle collisions. The results revealed that when alcohol and cannabis are consumed together, the chance of a motor vehicle accident is approximately 120 times greater than when neither drug is involved. The study focused on 127 fatal single-vehicle crashes in Victoria between November 1995 and November 1996. It found that the chance of a driver crashing when under the influence of cannabis was almost 10 times greater than without cannabis. Cannabis was found in the bloodstream of 49 per cent of drivers with a blood alcohol level over 0.05 and in 52 per cent of drivers with a blood alcohol level over 0.15 (Haworth et al. 1997). The use of alcohol in combination with cannabis appears to increase the risk of being involved in a motor vehicle accident.

Ali and Christie (1994) claim that the principal health risk from cannabis use arises from the effects on psychomotor performance. They suggested that cannabis intoxication produces dose-related impairments in a range of cognitive and behavioural functions that are involved in skilled tasks such as driving motor vehicles and operating machinery.

Ali and Christie also report that it is difficult to estimate the magnitude of the risk of being involved in a motor vehicle accident because of cannabis intoxication. It would be useful to have a measure of cannabis-related impairment comparable to the breath test for alcohol intoxication. The main difficulty in enforcing restrictions on cannabis use, in relation to driving motor vehicles, is the lack of a simple relationship between blood levels of THC and the degree of impairment or intoxication. With alcohol, there is a clear relationship between blood alcohol level and the degree of alcohol-induced impairment.

The development and introduction of methods of measuring cannabis intoxication by roadside testing, coupled with a legal definition of an accepted threshold blood content level for THC, would go some way to allaying police concern about the number of people driving under the influence of cannabis. At present in most jurisdictions there is only roadside alcohol-testing equipment available, with further provision for blood testing for drugs and alcohol under certain conditions, such as when motor vehicle collisions result in people being injured. Research into developing roadside drug tests for motorists is still in its infancy—so far there is a drug test based on saliva and another, more recent, test based on sweat. It is not known if or when this type of roadside testing will be available in Australia.

Legislation anomalies

South Australia Police reported anomalies in current legislation, which limits officers' ability to reduce the amount of cannabis in that State. Possession of 10 or fewer plants is considered to be for personal use: it results in a maximum of a \$150 cannabis expiation notice plus a \$7 Victims Compensation Levy payment. But the yield from 10 plants would be far in excess of the 100 grams of dried cannabis that is permissible for personal use. If during a search more than 100 grams of dried cannabis is located the possessor is arrested and charged. If a single cannabis plant averages, say, 500 grams, it is feasible that 10 plants will average about 5 kilograms, which is considered excessive for personal use.

This view is echoed by Moffitt et al.—'100 grams of typical cannabis leaf could produce up to 200 joints, enough to last a one-a-day chronic user over six months or a heavier user (five times a day) up to six weeks' (1998, p. 10). They add that the number of plants allowed in some States can produce up to 5 kilograms (5000-10 000 joints). This is more than enough for personal use.

Education

Health professionals report an increase in the number of requests received for cannabis education programs, in particular school-based programs.

Australian Drug Foundation questionnaire respondents stated,

As a provider of school-based drug education and training programs for teachers we are receiving increased requests for curriculum materials that address cannabis. More significant are the increasing requests for professional development to assist schools to address problematic cannabis use among students. More schools are seeking to retain the students and address the problem in-house.

Public opinion on decriminalisation

Perhaps the biggest social concern in relation to the use of cannabis is the question of decriminalisation. Makkai and McAllister write,

The results from the [National Drug Strategy] surveys suggest that there is a large and stable majority opposed to the legalisation of marijuana. Although the trends in opinions over the past decade suggest that there has been a gradual increase in support for reform, the surveys also show that the majority who oppose such a change hold their opinion more strongly than the minority who support such change. (1998b, p. 30)

They note further,

... public policy towards marijuana is shaped more closely by public opinion than perhaps any of the other licit or illicit drugs in society. The survey results suggest that while there is a stable majority opposed to ending prohibition, there is greater support for an educational approach to reducing use rather than for policies which rely primarily on law enforcement. (p. 34)

Health

It is difficult to determine the actual levels of harm that can be attributed to cannabis use. Various factors are used to determine whether cannabis, or any drug, has an adverse effect on the physical or psychological health of the user.

The New South Wales Centre for Education and Information on Drugs and Alcohol reported that there is currently no evidence that occasional use of small doses of cannabis causes any permanent health damage. The main long-term physical and psychological effects of regular cannabis use include respiratory problems (similar to those experienced after tobacco smoking) and decreased concentration, memory and learning ability. Some, but not all, heavy users of cannabis develop a cannabis psychosis with symptoms similar to those of schizophrenia; this can lead to a change in motivation and to social withdrawal, which decreases gradually when cannabis use stops (CEIDA 1989).

According to Ali and Christie,

In addition to the desired immediate effects of the cannabis 'high', which include mild euphoria, relaxation and perceptual alterations, cannabis can sometimes produce anxiety, panic or unpleasant feelings, most often in naïve users. Among the numerous immediate physical effects of cannabis is a consistent increase in heart rate occurring soon after a dose is taken, and blood pressure changes, such that it may increase while sitting and decrease on standing. These cardiovascular effects are unlikely to be of clinical significance, particularly for younger users. The acute toxicity of cannabis is very low, and there are no confirmed cases of deaths from cannabis overdose in the world literature. (1994, p. 13)

The Commonwealth Department of Health and Family Services noted, 'Cannabis has a higher tar content than tobacco. Smoking cannabis can therefore cause bronchitis, lung cancer and other smoke-related diseases' (1997, p. 10).

Wood (1998) reported that although research into dependence was limited, existing studies showed that about 9 per cent of all users and about 33 to 50 per cent of daily users had criteria for dependence at some point. This dependency syndrome is associated with developing a craving for cannabis, tolerance to its effects and mild physical withdrawal symptoms consisting of insomnia, agitation, irritability, depression, headaches and anxiety. Once use ceases, the withdrawal symptoms last from three to seven days. Wood noted that although dependence may exist it does not necessarily mean the user will experience problems. Dependence on cannabis is often associated with a person's lifestyle.

...It is difficult to determine the actual levels of harm that can be attributed to cannabis use...

Conclusions

The number of Customs border cannabis detections decreased substantially in 1997–98, to 38.22 kilograms, from 24.29 tonnes in 1996–97. The figure of 24.29 tonnes was largely as a result of the detection of two multi-tonne cannabis resin shipments, one in Queensland (8 tonnes), the other in northern New South Wales (10.5 tonnes). There were no multi-tonne cannabis resin importations detected by Customs in 1997–98. Because of the joint investigative efforts of the both the Australian Federal Police and Customs during 1996–97 two major international cannabis resin importation syndicates were either dismantled or severely impeded. It is probable that as a consequence of this there were no attempts to import cannabis resin into Australia in 1997–98 by criminals. A review of the cannabis significant seizures for 1997–98 supports this theory: little cannabis resin was seized by State and Territory police.

In 1997–98 detection of hydroponic cannabis production increased in the majority of States and Territories; hydroponic cannabis now appears to have an increased share of the market. The consumer perception that Australian hydroponic cannabis is higher in THC has helped to increase demand for the product. Outdoor cannabis production decreased in the reporting period, partly because of the increase in hydroponic cultivation and partly because of the perception that it is easier for law-enforcement agencies to detect outdoor crops.

The decriminalisation of possession of minor cannabis amounts in South Australia has resulted in an increase in cannabis exports to jurisdictions where decriminalisation has not been implemented. Law-enforcement agencies reported that South Australian cannabis has been detected in major cities, regional centres and remote locations in Queensland, New South Wales and Victoria.

In 1997–98 cannabis offences constituted 76.9 per cent of all reported drug-related arrests—including heroin, amphetamine-type substances, cocaine and other drugs (such as steroids and hallucinogens)—in Australia. This represents a decline of 4.3 per cent from 1996–97.

Cannabis offences (including arrests and cannabis infringement notices) declined by 6.48 per cent from 1996–97. Victoria has recorded a significant decline of 53.1 per cent in the number of reported cannabis offences since 1995–96. The number of cannabis infringement notices issued in South Australia, the Australian Capital Territory and the Northern Territory continued to decrease; in particular, there was a marked decline in the number of cannabis expiation notices issued in South Australia. The decrease in cannabis offences is thought to be partly because of a redirection of police resources away from minor cannabis offences.

Researchers have found that the average age of initiation for cannabis use has decreased to 17 years and that the frequency of use among adolescents has increased. The number of males detected for cannabis offences is disproportionate to the number of females. The rise in the number of Australians who use or have tried cannabis in recent years seems to have been maintained.

Prices for cannabis and cannabis resin have remained relatively stable but, because of the improving quality of cannabis ‘head’ and hydroponic cannabis there has been a decrease in demand for, and consequently the price of, cannabis leaf. Consumers are becoming accustomed to more potent cannabis and cultivators are marketing their product accordingly. Cannabis research, improved horticultural techniques and the introduction of cloning have led to the production of ‘super’ strains of cannabis, which has increased crop production.

As more potent cannabis strains become more widely available, research will be necessary to determine both the impact of cannabis use on users’ health and the effect on drivers of motor vehicles. State and Territory governments should consider development of future methods for measuring cannabis intoxication.

Cannabis: significant seizures, 1997–98

[Note: seizures of herbal cannabis only weighing less than 2 kilograms are not reported.]

Date	Quantity	Narrative
9 July 1997	14.43 kilograms cannabis	A controlled purchase by New South Wales Police resulted in the arrest of one man and seizure of a quantity of cannabis.
15 July 1997	10 kilograms cannabis	A man was arrested by Tasmania Police after the search of a residence at Blackwood Creek. Three drums containing cannabis were seized.
25 July 1997	1753 plants 4.4 kilograms cannabis leaf	At Bonney Creek Northern Territory Police found cannabis plants and cannabis leaf at three sites.
11 August 1997	6.4 kilograms cannabis leaf	Two men were arrested at Booral by New South Wales Police. Compressed cannabis and 18 litres of methamphetamine were also seized.
15 August 1997	379 plants 12 kilograms cannabis	Cannabis was seized at Woolgoolga. One man was arrested by New South Wales Police.
20 August 1997	7.5 kilograms cannabis	Six people were arrested and a quantity of ‘skunk’ cannabis seized by Victoria Police after searches of premises in the Gippsland region.

Date	Quantity	Narrative
25 August 1997	821 grams cannabis 40 plants	A man from Carlton Beach was arrested by Tasmania Police after cannabis plants were found growing under lights in a concrete bunker built under the main bedroom of a house. Entry was via a trapdoor in the bedroom floor.
26 September 1997	1200 plants	Four men were arrested and cannabis plants seized by New South Wales Police during the Northern Region Cannabis Eradication Program.
29 October 1997	23.9 kilograms cannabis	A shipping container in Adelaide from South Africa was found by Customs to have cannabis secreted in a crate. Portion of this shipment was later located in Altona North, Victoria, and seven people were arrested by the Australian Federal Police.
6 November 1997	333 plants	Two people were summonsed and cannabis plants were seized by New South Wales Police in the Coffs Harbour region.
14 November 1997	8.5 kilograms cannabis 52 plants 6 cannabis resin capsules	Search warrants were executed at premises at Maddington and Gngangara, where Western Australia Police seized cannabis, cannabis resin capsules, cannabis plants, amphetamine, 525 LSD tabs, and ecstasy tablets.
18 November 1997	156 plants	One person was arrested after a home invasion of residential premises in Rosewater, South Australia. South Australia Police seized cannabis plants and \$50 000 of equipment.
7 December 1997	492 plants	One person was arrested by New South Wales Police for the cultivation of cannabis plants in Bald Knob State Forest via Woodenbong.
22 December 1997	135 plants 1 kilogram dried head	South Australia Police arrested two people and seized cannabis and firearms at Buckaringa Gorge Sanctuary.
28 January 1998	8.27 kilograms cannabis	A man arrived at Sydney Airport from Adelaide and a Customs drug detector dog reacted to his suitcase, which was found to contain 17 plastic bags of cannabis. The man was later arrested and charged by the Australian Federal Police.
10 February 1998	1556 plants 75 000 cannabis seeds	A cannabis plantation was located in the Winngate Mountain area of Daly River, Northern Territory. Cannabis plants, cannabis seeds and a Kawasaki helicopter were seized. Northern Territory Police later arrested three people.
13 February 1998	67 plants 1.11 kilogram cannabis	A man was arrested and cannabis seized by Tasmania Police after a hydroponic cultivation room was located in premises at Lutana.
4 March 1998	44 plants	Tasmania Police arrested two people and seized cannabis plants and a firearm in the Temma area.
5 March 1998	300 plants 12 kilograms cannabis	One man was arrested by Tasmania Police after the search of a residence at Dysart. In addition to plants and cannabis, police also seized cannabis seeds.
6 March 1998	Unknown quantity	Queensland Police charged 15 people with offences relating to three hydroponic cultivation sites in the Rockhampton area.
10 March 1998	10.92 kilograms cannabis 12 plants 11 grams cannabis resin	Thirty people involved in the large-scale distribution of cannabis in New South Wales, Victoria and Western Australia were arrested and a large quantity of cannabis seized.
17 March 1998	200 plants 1 kilogram cannabis	Tasmania Police arrested one man after the search of a house at Longford. Cannabis and plants were seized.
26 March 1998	3485 plants	New South Wales Police arrested seven people after investigating and seizing a commercial cannabis crop on the mid-north coast.
3 April 1998	20 kilograms cannabis 5 grams cannabis resin	Two people were arrested during a joint Northern Territory Police – New South Wales Police investigation. Heat-sealed bags of compressed cannabis, plus cannabis resin and a loaded SKS fully automatic assault rifle with 85 rounds of ammunition were seized.
15 April 1998	4.89 kilograms cannabis 2 plants	Tasmania Police arrested a man at Bridgewater and seized a quantity of cannabis.
15 April 1998	283 plants	Northern Territory Police arrested two people and seized a quantity of cannabis, a pistol and ammunition at a remote crop site in the Daly River area. Both people had travelled from another State to cultivate the cannabis.
17 April 1998	2.20 kilograms cannabis 6 plants	Tasmania Police arrested a man and seized a quantity of cannabis.
17 April 1998	2.4 kilograms cannabis 440 grams seeds	The Australian Federal Police seized a quantity of cannabis and cannabis seeds during an operation in the Canberra region.
24 April 1998	1000 plants	New South Wales Police searched commercial premises in Kingsgrove. They found two rooms converted into a hydroponic cultivation area; more than 1000 healthy plants ranging from seedlings to 1 metre high were seized and one person was arrested.
27 April 1998	1.6 kilograms of cannabis 8 hashish balls	Tasmania Police arrested a woman in Launceston and seized cannabis and hashish balls.
14 May 1998	22.7 kilograms cannabis	The Australian Federal Police found a cannabis plantation in Namadgi National Park and seized further amounts of cannabis at the residence of two people arrested at Isabella Plains in Canberra.
16 May 1998	40 kilograms cannabis 157 plants	Victoria Police searched a property at Korienguboora, Victoria, and seized a large quantity of cannabis.
17 May 1998	4.5 kilograms cannabis 73 plants	Responding to an incident at Greenacre, New South Wales Police searched residential premises and seized a quantity of cannabis, a hydroponic crop of 73 plants in the garage, and a firearm.
20 May 1998	3.9 kilograms cannabis	A Customs drug detector dog detected a package being sent by express post from Victoria to Darwin. A controlled delivery resulted in the arrest of two people and the seizure of cannabis.

Date	Quantity	Narrative
29 May 1998	689 plants 25 kilograms cannabis	New South Wales Police found a cannabis crop in the Orr State Forest at Barradine. The plants were an unusual strain—very healthy but almost devoid of leaf and with heads over 60 centimetres long.
4 June 1998	159 plants 3.9 kilograms cannabis 146 grams hashish 113 capsules hash oil	Tasmania Police arrested a man at residential premises in Burnie. Under the premises a large hydroponic plantation was found. Hash oil and cannabis leaves in various stages of oil production were also found, along with large quantities of methanol. Amphetamine literature and laboratory equipment relating to amphetamine production was also seized.
9 June 1998	490 grams cannabis 16 plants	Two people were arrested after an air freight package from Victoria was delivered to an address in Darwin. The package contained cannabis, amphetamine, three bottles of anabolic steroids and firearms.
24 June 1998	9 kilograms cannabis 29 plants	New South Wales Police arrested three people and seized cannabis plants at Bellingen.
26 June 1998	60 plants 3 kilograms cannabis	South Australia Police seized a quantity of cannabis and arrested two people after the search of a property at Nairne. Further searching revealed stolen property, laboratory equipment and chemicals.
28 June 1998	756 plants	South Australia Police seized cannabis plants being cultivated hydroponically in the basement of a block of units at Tennyson.
28 June 1998	15.2 kg cannabis	The Australian Federal Police searched retail premises in Isabella Plains; a number of cannabis plants were seized from a garbage hopper.
Oct 97 – March 98	187 577 plants	During the National Aerial Cannabis Operation between October 1997 and March 1998 New Zealand Police seized 187 577 cannabis plants.

Notes

¹ This means the country nominated as the point of embarkation for the detected cannabis.

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