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Poisonous and Invasive Plants in Australia:

Enabling consumers to buy safe plants

An Issues Paper by Nicola Thomson

WWF-Australia, July 2007

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Contents

Appendices:

Executive Summary

Gardens are home to an alarming number of plants that are poisonous to humans and animals – small children and pets are especially at risk. A considerable number of toxic and highly toxic plant species are available for sale in Australian plant nurseries – around 104 according to a scoping analysis by WWF. Nearly half of these poisonous plants are also 'weedy' or invasive, hence if they escape from gardens into the environment they are likely to become a weed that will pose a broader threat to human and animal health as well as cause environmental and/or economic damage.

This report examines the threat posed by poisonous garden plants. Hospital admission data indicates that hundreds of people per year are admitted to Australian hospitals due to plant poisonings, and those most affected are children aged 0-4. Most concerning of all is the report's finding that people seem to be largely unaware of the danger that these plants pose to their children, pets and – should they jump the back fence and become weeds – to Australia's environment and rural industries.

Many of these poisonous plants have recently been identified in a report commissioned by Meat and Livestock Australia (MLA) that provides a list of 281 garden plants they refer to as potential *Weeds of the Future*. These species are considered to pose a significant risk to Australia's grazing industries should they escape from Australia's gardens and naturalise (spread without human intervention). Of these 281 potential grazing weeds, over two thirds were found to be available for sale from Australian nurseries and at least one third are toxic to livestock.

This report highlights the lack of action by the garden industry despite legal advice that warns of a civil liability for not warning consumers of a plant's properties. The Nursery and Garden Industry Association (NGIA) itself commissioned a report in 2000 that recommended that they develop an Australian Code of Practice for plant retailers that includes guidelines for labelling of hazardous plants. Seven years later, the NGIA has released voluntary guidelines for plant labelling that, at this stage, do not follow the 2000 report's recommendations.

Information about poisonous plants is generally accessed at the wrong stage of the process i.e. after there has been a poisoning incident. Instead, garden plant retailers and consumers need to be able to identify a plant's properties, at the point of sale, so they can choose the right plant for the right place. A recent national Galaxy poll commissioned by WWF-Australia demonstrated very low consumer awareness of the risk posed by poisonous and invasive garden plants and very high consumer (more than 95 per cent) demand for warnings on labels.

This report recommends a way forward for industry, government and interest groups to work together to find low-cost solutions to the poisonous and weedy garden plant threat, in particular a national mandatory garden plant labelling code that parallels poison and pollutant warnings used for other household products such as cleaning products and medication.

This policy response would enable consumers, pet owners and parents to have access to vital information about garden plant properties at the point of sale, and would need to be complemented by a broader community education program.

Recommendations

Based on the findings of the report WWF-Australia recommends that:

1. That the Nursery and Garden Industry Association (NGIA) and Australian Government develop an Australian Code of Practice for Plant Labelling that specifies minimum information requirements to be included on plant labels, including poison warnings.
2. That NGIA and Australian Government establish a collaborative taskforce to develop the Code which includes representatives of the nursery industry, relevant government departments, poison expertise, botanical expertise, invasive plant expertise and key interest groups including: consumer rights groups, farmers, pet owners, gardeners and conservation groups.
3. That the code is promoted through an awareness-raising campaign that targets the public, doctors and plant retailers.
4. That the taskforce specify how the code will be enforced and reviewed.
5. That the code is voluntary for a grace period set by the taskforce after which the code becomes mandatory to ensure universal adoption and public safety.

Introduction

This paper examines the issue of poisonous plants available through the garden trade as a threat to the health and safety of people and animals (pets, wildlife and livestock).

For the purposes of this report a poisonous plant is a plant that causes:

- poisoning, that is a toxic reaction when put into the mouth or ingested; or
- a skin reaction, that is a rash, swelling, dermatitis, pain or infection when handled or when skin comes into contact with a plant part (definition taken from Adler et al. 2000).

The source of this problem is the unregulated trade of poisonous plants in Australia. Currently plant retailers are under no obligation to inform consumers of the poisonous properties of plants. Consumers tend not to become aware of these properties unless a poisoning occurs, at which point identifying the plant is often problematic as doctors, poison information centres and often the consumer themselves are unable to accurately identify the plant species. There is evidence to suggest that plant nurseries themselves would be unable to correctly identify a plant so as to enable the best medical treatment (Savage and Rondeau 1992).

This paper considers the current obstacles to ensuring that consumers and retailers are aware of which plants are poisonous and considers issues such as legal liability and consumer demand that highlight the need to take proactive action. It profiles measures taken to date by industry and government to tackle the issue and proposes a way forward that reflects international best practice and the recommendations of a report commissioned by the Australian nursery industry's peak body.

Background

Availability of poisonous plants in Australia

A considerable number of toxic and highly toxic plants are on sale in plant nurseries throughout Australia. A scoping survey by WWF identified that 103 poisonous garden plant species were advertised for sale in 2004 (Figure 1). This survey finding was reinforced by an internet search undertaken in June 2007 that found that 104 toxic garden plant species were available for purchase in Australia – most of which were the same species (Refer Appendix 2).

The WWF study compared a list of 143 species and species groups listed as poisonous (excluding mushrooms) with plants listed as available from commercial/retail plant nurseries and suppliers in Australia in 2004. The list of poisonous plants was sourced from the book *Pretty but Poisonous. Plants poisonous to people: an illustrated guide for Australia* (Shepherd 2004). Information about availability of plants from Australian nurseries was sourced from the book *Aussie Plant Finder 2004* (Hibbert 2004). The results of this cross-referencing exercise are presented in Appendix 1. Plant availability was "web-truthed" in 2007 through internet searches of Australian nurseries' webpages, the searches confirmed that 104 of the poisonous plants were still advertised for sale in June 2007 from Australian Nursery websites (Appendix 2).

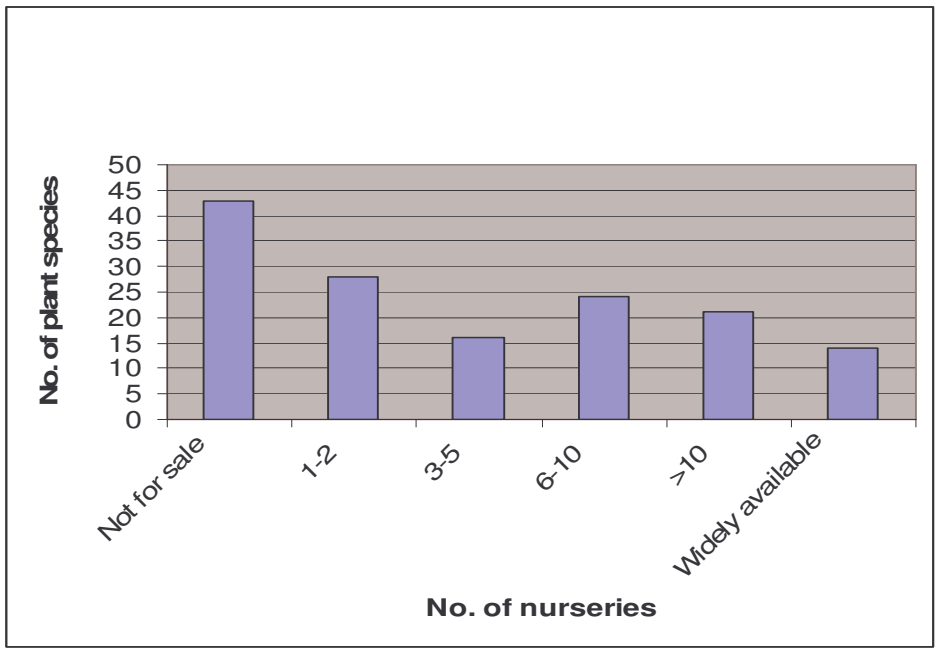

Figure 1 Availability of common poisonous garden plants in Australia in 2004

Poisonous plants that are also invasive

Nearly half (67) of the 143 poisonous garden plants that were identified are also invasive (Shepherd, 2004). Hence if they escape from gardens into the environment, they are likely to become a weed that will cause environmental and/or economic damage as well as posing a broader threat to human and animal health.

The report, *Weeds of Significance to the Grazing Industries of Australia*, published by the CRC for Australian Weed Management and Meat and Livestock Australia Ltd (MLA) identified weeds that are currently of most significance to the grazing industry (Grice 2003). Of the 48 top grazing weeds, 20 (42 per cent) are escaped garden plants or which four were found to still be available for sale (Groves et al. 2005).

A well-known offender on the MLA's list of established weeds is Lantana (*Lantana camara).* Lantana is recognised as a Weed of National Significance because of its impacts on primary industries, conservation and biodiversity:

- lantana has infested more than four million hectares of eastern Australia from Victoria to northern Queensland (van Oosterhout 2004);
- it is toxic to livestock - annual pastoral losses in Queensland in 1985 were estimated to be $7.7 million, as a result of 1500 animal deaths, reductions in productivity, loss of pasture and control costs (van Oosterhout 2004), this figure is likely to have risen (Kym Johnson, National Lantana Coordinator, pers comm., 2007);
- all parts of the plant are also very toxic to domestic pets and humans, especially children. Symptoms of poisoning can include: vomiting, diarrhoea, laboured breathing and coma (Shepherd 2004). It has been recorded as causing deaths in Australia (Adler et. Al, 2000);
- lantana was introduced to Australia as an ornamental plant and until very recently was still available for sale from some Australian nurseries (Groves, 2005); and
- it is widely planted in public and private gardens (van Oosterhout 2004).

Last year, the MLA took this research on step further – it commissioned the Cooperative Research Centre for Australian Weed Management to identify garden plants that are likely to become grazing weeds in the future. The result was a report called *Weeds of the Future? Threats to Australia's Grazing Industries by Garden Plants.* The report identified 281 introduced garden plant species which present a significant risk to Australia's grazing industries should they escape from Australia's gardens and naturalise (reproduce and spread without human intervention). Of these plants, over two thirds (70 per cent) were found to be available from Australian nurseries and at least one third (33 per cent) are poisonous to livestock (Barker et al. 2006).

Impact on public health and safety

The principal hazard is not so much in the plants themselves, but in an ignorance of their properties.

Francis & Southcott (1967)

Poisons Information Centres (PICs) receive thousands of calls each year relating to concerns about exposures to plants (Adamo 2006). A study in 2000 concluded that the Queensland, NSW and Victorian PICs received an average of 15 calls per day about plant exposures – over 5000 a year (Adler et al. 2000). More recently in 2005, the NSW Poisons Information Centre received over 1000 calls in relation to plant poisonings (Adamo 2006).

According to national hospital admissions data approximately 243 people per year were admitted to hospital in Australia due to poisoning and/or toxic reactions to plants between

1996 and 1998 (Adler et al. 2000). Data from the Victorian Hospitals Admission database indicated that 48 per cent of those admitted to hospital in Victoria over that time period were aged 0-4 years. This correlates with data from the American Association of Poison Control Centers which also showed small children to be at greatest risk from exposure to hazardous plants (Adler et al. 2000, Krenzelok at. al. 1996). Adler et al. (2000) also found that plant-related hospital emergency department attendances are under-reported in Australia.

While fatalities are rare, the Victorian Institute of Forensic Pathology reports three accidental[1] deaths due to plant ingestion, including a three-year old child, in Victoria alone between June 1989 and September 1998 (Adler et al. 2000). Plants that are recorded as having caused deaths in Australia include Arum Lily (*Zantedeschia aethiopica*), Lantana (*Lantana camara*), Oleander (*Nerium oleander*), White Cedar (*Melia azedarach*) and Poinsettia (*Euphorbia pulcherrima*) (Adler et. al 2000).

An instructive historical case is the death of a two year old boy, where ingestion of the poisonous fruits of the still popular shrub Aussie Gold (*Duranta erecta*) were inferred from seeds in faeces passed during the course of the illness (Wheeler 1895 cited in Scanlan et al 2006) (refer Box 1).

[1] A further 4 deaths were reported over this time period due to intentional ingestion of *Brugmansia* spp. which is known to have hallucinogenic properties.

Impact on animal health and safety

Poisonous garden plants also pose a significant risk to pets, livestock and wildlife. Many of the plants that are poisonous to humans are also poisonous to animals, along with some plants that do not pose a risk to humans.

Little data is available on the frequency of domestic companion animal poisonings. According to the Queensland Department of Primary Industries, in Queensland there are 15 species of plant that pose a fatal poisoning risk to companion animals and a further 20 species that pose a non-fatal poisoning risk (Appendix 3). A survey of 21 veterinary practices in major Queensland population centres found that over a five year period (2002-2006) the practices encountered 217 cases of animal poisonings by plants, of these 198 were dog poisonings, 15 were of cats and four were of pet birds (Appendix 3). Almost all of the species listed as causing the poisonings are available for sale as garden plants in Hibbert (2004).

Boxes 1 and 2 provide examples of recent pet poisoning incidents. Aussie Gold (*Duranta erecta*), a popular choice for hedges, is responsible for fatal poisonings of dogs, cats and possibly pet birds (Box 1). Box 2 describes an accidental poisoning of pet horses with Black Locust (*Robinia pseudoacacia*) tree leaves.

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Box 1. Case study: Aussie Gold (*Duranta erecta, Duranta repens*) – Six Puppies Dead

Duranta erecta (the same species is also called *Duranta repens*) is a popular shrub widely available from plant centres throughout Australia (Hibbert 2004).

While knowledge of *Duranta erecta*'s toxicity has been available since the late nineteenth century when ingestion of its fruit was inferred to have killed a two-year boy in Queensland (Wheeler 1895), more often than not no warning of its potentially lethal toxicity is included on its label.

Health Departments have advised consumers to not plant it anywhere that children, dementia patients or pet animals have access (West Australian Department of Health website).

It has also been identified as an environmental weed across the North Coast of Australia (www.bellingen.nsw.gov.au/news/pages/1397.html).

In recent years it has been identified as causing the death of six puppies and a cat as well as the known hospitalisation of three additional dogs. Birds may also be at risk, based on evidence of *D. erecta* being the likely cause of death of a number of captive parrots and finches. In the clinical documentation of all of these cases it is clear that the pet owners were not aware of the poisonous properties of the plant (Scanlan et al. 2006).

One case is particularly notable. The owners of a 12-week-old Labrador Retriever and a one-year-old cat found their pets playing with a shrub which the puppy had uprooted. The owners had bought and planted the shrub of *D. erecta* two weeks earlier. That day, the puppy became ill, the next day it was unable to stand and had diarrhoea and seizures and died later that day. On returning home from the vet, the owner found the pet cat semi-conscious. The cat quickly developed the same symptoms as the puppy and also died that day (Scanlan et al. 2006, pp.368-69).

Box 2. Case study: Black Locust (*Robinia pseudoacacia*) – Horses Poisoned

A pretty tree which bears fragrant white flowers, Black Locust is widely available through the Australian garden industry (Hibbert 2004).

What is often not included on the label of these trees is that almost every part of the tree is toxic.

It is also a referenced weed (Global Invasive Species Database, http://www.issg.org/database) and has been prohibited in both the Australian Capital Territory and Western Australia.

In a recent case, a woman gave her horses some *Robinia pseudoacacia* to graze on. Within two hours both horses were in distress, shaking, frothing at the mouth and in much pain. The vet was able to save one of the horses. The older horse was put down after hours of agony. The owner was previously unaware that the plant was poisonous,

"…it was a horrible death for my wonderful horse Sam, who I dearly loved for 17 years. So please let people know how deadly this tree is" (Burke 2007 p.12).

Wildlife are also at risk, a recent example is that of a kangaroo that grazed on a Kalahnchoe pot plant (*Bryophyllum* spp.). The Queensland family that discovered the poisoned kangaroo in their garden saved the animal through expensive emergency veterinary attention. The family were unaware that their plant was poisonous prior to this incident. Kalahnchoe is a perennial herb popular for its bright red, orange and white flowers (Weis 2006).

In terms of livestock, the major impact in Australia of poisonous plants that become weeds of the grazing industry has already been described in the above section titled "Poisonous plants that are also invasive". Of the 500 species of plant found in Queensland that are known to be potentially poisonous to livestock, around 60 species of them frequently cause death or loss of production (data from DPI&F Laboratory on-line information system, Appendix 3). Of those plants most commonly identified as causing cattle poisoning – many are still available for sale as garden plants in Australia according to Hibbert (2004). Examples of poisonous garden plants that have an impact on livestock include *Euphorbia tirucalli* which has been declared an agricultural weed in West Australia due to its fatal toxicity to cattle (Box 3), *Duranta erecta* which poisoned a dairy cow (Sutherland 1953) (Box 1), and the enormous impact of Lantana (*Lantana camara*)(see page 6).

Slow progress on the introduction of a national poisonous plant labelling code

Despite leadership by the United Kingdom demonstrating that labelling of poisonous plants is effective and affordable (HTA 2000 and Appendix 4) and despite the recommendations of a study commissioned by the Nursery and Garden Industry Association of Australia (NGIA) itself, the NGIA has only recently begun to take action.

Australia is already 13 years behind the United Kingdom in adopting a national labelling code for poisonous plants. In 1994, the United Kingdom's peak horticultural industry body, the Horticultural Trades Association (HTA), adopted a national plant retail labelling code and a specific labelling code for hazardous plants. The specific code for "potentially harmful plants" was produced in conjunction with the National Poisons Unit, Royal Botanic Gardens and the Royal Horticultural Society. The Code lists 62 problem plants and how they should be labelled (Appendix 4). The code is voluntary but the industry gave an undertaking for it to be fully operational by late 1997 (Gardening Which 1999).

A review of UK system in 1999 indicated a marked improvement in the labelling of poisonous and irritant plants, 70 per cent of plants inspected had warnings on the labels compared with 30 per cent in 1991 (Ubhi and Skelton 1999). In addition, the review indicated that public awareness about poisonous plants has improved since a survey in 1982; however it is not possible to directly attribute this rise in public awareness to the improvement in plant labelling. Overall, the UK experience has demonstrated that labelling of poisonous plants is affordable, practical and effective.

While the NGIA did undertake a proactive response to the poisonous plants issue soon after the UK's code was proving successful, this initiative appears to have stalled in delivering an outcome. The NGIA and the Horticultural Research and Development Corporation (HRDC) commissioned a study in 2000 that investigated the threat posed by hazardous plants in the Australian nursery and garden industry. This extensive study was carried out by a research team that included a lecturer in horticulture from Melbourne University, a consultant toxicologist and dermatologist and the then CEO of the NGIA. Among other things, the report recommended that NGIA and HRDC:

- Create a Hazardous Plants Policy relevant to Australia as a part of an Australian Code of Practice.

- As a part of the Hazardous Plants Policy:
    - label hazardous plants with a suitable cautionary statement;
    - seek current legal advice on the exact wording for the statement; and
    - use the UK Horticultural Trades Association *Code of Recommended Retail Practice* as a guide to the approach that should be taken in Australia.

- Take steps to inform and educate the public, doctors and horticultural workers of the hazards and the risks associated with plants bought, handled and sold in nurseries and other venues throughout Australia.

- Liaise with other organisations that have an interest and expertise in hazardous plants in the UK and Australia (Adler et al. 2000 p. 1).

Despite the clear recommendations for a way forward provided by this report, no further action was taken by the NGIA until this year when a voluntary guide for plant labelling was introduced. The latest version of the guide includes guidance on labelling for poisonous plants and a list of plants that would qualify for labelling (NGIA 2007).

The guide is a proactive step forward by the NGIA. However at this stage the guide does not follow the 200 advisory report's recommendations. Namely: It is not nested within an overall policy or code of practice; Nor does the guide indicate how or whether it will be disseminated to its target audience; It is also not clear how the list of plants that qualify for poison warnings were selected and whether organisations with expertise in hazardous plants were consulted.

Issues

A fragmented and dispersed industry

The risk posed by poisonous plants is worsened by the dispersed and fragmented nature of the plant retail industry – plants can be bought from a wide range of outlets including over the counter at hardware stores, supermarkets and large discount store chains, as well as via mail order and over the Internet. The *Australian Garden Market Monitor 2005* shows that for retail channels, retail nurseries make up 26.3 per cent of the market share, while the combined market share of hardware, supermarkets and discount department stores is 40.3 per cent (refer Figure 2) (Freshlogic 2006).

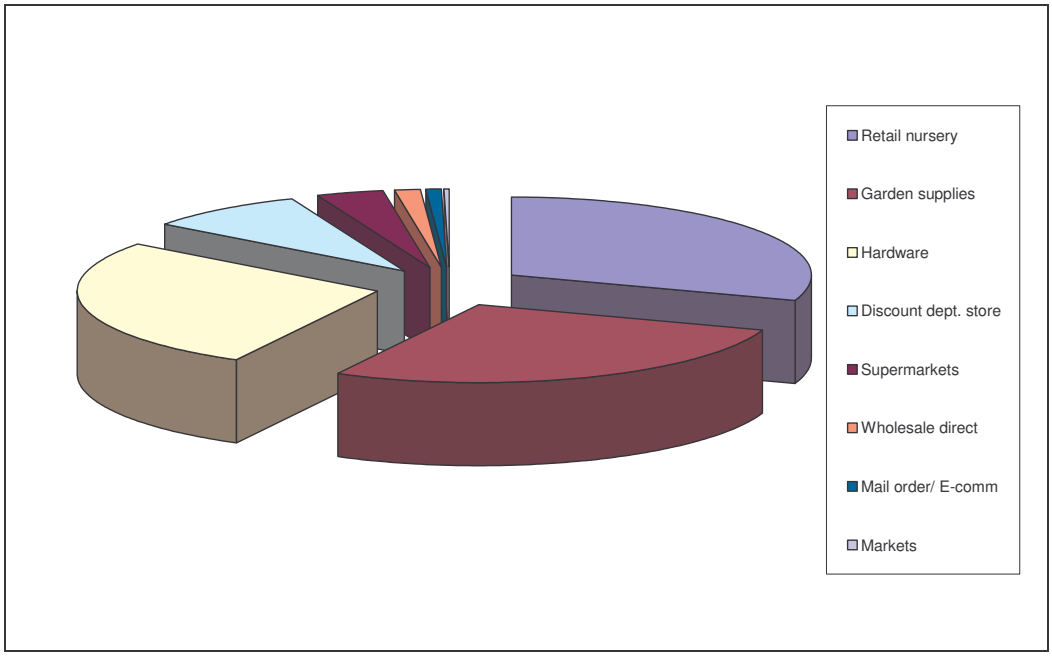

Figure 2. Summary of the Garden Retail Market Share, year ending June 2006 (Freshlogic 2006)

Dependence on retail staff knowledge

The current system relies on attending staff at plant retail outlets to be informed and conscientious in warning customers. However, qualifications are not required for a person to work in the Australian Nursery Industry (Adler et al. 2000). A casual survey by the author of four Sydney garden centres in January this year revealed that even well-informed, conscientious garden centre staff did not mention that any of the 40-odd plants that were requested and, in some cases purchased, were poisonous.

An American study supports this finding. It found that American plant nurseries were not a reliable source for plant identification. In 58 per cent of cases of plant poisoning, nursery staff were unable to correctly identify the plant involved which lead to the "under-treatment" of 24 per cent of poisoning cases (Savage and Rondeau 1992).

Lack of effective public information

> There is considerable concern in the Australian community about the hazardous nature of plants…many people cannot recognise the most hazardous plants (Adler et al. 2000 p.25).

The poisonous properties of plants are often not mentioned in advertisements or labels. It is currently up to the growers and nurseries to decide whether to warn consumers about the plants' dangers before they take them home.

Figure 3. Sample plant labels of *Duranta erecta* (also known as *Duranta repens*)

Poisonous plant warnings were spot-checked at three Sydney nurseries in January 2007 by the author, which confirmed that of 15 poisonous plants found in the stores only three included some level of warning on their labels of the plant's poisonous properties. Figure 3 includes some examples of *Duranta erecta* labels bought during this survey. Considering that the plant's leaves and berries are lethally poisonous to animals and humans, especially small children (Shepherd 2004; Scanlan et al. 2006) (Refer Box 1), it is alarming to note that the labels bare no poison warning and that they recommend use for hedges, pool sides and patios.

Many people cannot recognise the most hazardous plants (Adler et al. 2000, Brownie et al. 1999). Current research shows that around 50 per cent of victims of plant poisonings in Australia are unable to identify what they may have come in contact with. This drastically effects how well doctors can treat victims of plant-poisoning (Adler et al. 2000). Even though the poisonous nature of many plants is well-documented, this information is not readily available in an easily understood form to members of the garden industry or consumers. In the case studies described in Boxes 1 to 3, the victims – or the people responsible for the victims, were not aware that the offending plants were poisonous prior to the incident.

There is a vast amount of anecdotal information available about plants that are hazardous to humans from a range of sources, including: poison information centres in each State/Territory; government health departments; some special interests groups; magazine articles; websites; books, and medical publications. This information is commonly presented as lists of poisonous plants. Adler et al. (2000) note that these information sources vary in quality and accuracy:

> Plant brochures are often based on inaccurate information perpetuated for decades. This has possibly been further perpetuated on the Internet…The need for a 'definitive' list is clear by the number of lists being produced by individuals and organisations (p.30).

Currently information about poisonous plants is provided at the wrong stage of the process i.e. once there is a poisoning. For consumers to be able to make wise choices about which plants to choose and where to plant them they need to be consistently provided with information about the plants properties at the point of sale.

Box 3. Naked lady (*Euphorbia tirucalli*) – Woman hospitalised with temporary blindness and burns unaware of plant's poisonous properties

Mrs Maureen Ritchie with a sample of *Euphorbia tirucalli*

This popular succulent, 'water wise' plant is available from garden centres in Australia (DAFWA, 2006a and b).

What is often not included on its labels at the point of sale is that the sap of this plant is highly caustic. The plant should not be touched. If any contact is made with the sap, medical advice should be sought immediately. Gardeners should not attempt to remove large plants from their gardens without professional help (DAFWA, 2006a and b).

It has also been identified as an agricultural weed in West Australia due to its fatal toxicity to cattle (DAFWA, 2006a and b).

In a recent case, Maureen Ritchie from Mt Helena in Perth was hospitalised after she bumped into an *E. tirucalli* branch plant while gardening, getting sap on the side of her face, ear and neck which caused severe blistering. The sap also ran into her eyes causing excruciating pain, severe swelling and rendering her temporarily blind. Ms Ritchie was not aware of the plant's poisonous properties prior to her accident (Maureen Ritchie, 2007, Pers. comm.). A similar case was reported in Queensland last year; a 34-year old was blinded for 24 hours after sap from an *E. tirucalli* branch splashed into his eyes. The report also noted that deaths have been recorded for ingestion of the plant (Nufer 1996).

Box 4. Castor Oil Plant (*Ricinus communis)* - A close call in a Sydney child care centre

Ricinus communis is a tall, branching perennial shrub which has handsome, giant, fanlike leaves and attractive, bristly, bronze-to-red clusters of fruits.

What is unlikely to be included on the label of a castor oil plant is that the seeds and, to a lesser extent, the leaves are extremely toxic to livestock and humans (Shepherd 2004). It is also a declared weed in New South Wales, Northern Territory and Western Australia (Australian Weeds Committee 2007).

A few years ago it was discovered that a castor oil plant growing in a neighbouring garden had dropped hundreds of castor oil seeds into a child-care centre courtyard. A plant-wise parent pointed out to a child care centre employee that the plant may pose a risk. The employee called the local council's Noxious Weeds Officer who came to inspect the site. The officer immediately advised that the contaminated areas be cordoned off until the seeds and the plant were thoroughly removed. Neither the child care centre employee nor the owners of the plant were aware of the plants poisonous properties (David Croft, 2007, Pers. comm, Noxious Weeds/Pest Species Officer, Sutherland Shire Council).

Consumer demand for warnings at the point of sale

If you're buying a toaster or a kettle, you get some sort of warranty. You're also likely to get a glossy brochure that gives instructions, details on where it was manufactured – everything you need to know…but if you buy a plant, you get very little information that tells you exactly what it is that you're going to take home and plant in your garden

Jerry Coleby-Williams Dip. Hort. (Kew), RHS, MAIH, Presenter on Gardening Australia, *The Canberra Times*, June 26 2006, p.5

A recent national Galaxy poll commissioned by WWF-Australia demonstrated high consumer demand for poison warnings on plant labels. The 2007 Australia-wide phone poll surveyed 1,100 respondents aged over 16. The key findings were:

- a very low level of Australians that have knowingly brought poisonous plants for their gardens (4 per cent); and

- there is very strong consumer demand for poison warnings on plant labels:

  Almost all Australians (97 per cent of respondents) believe that poisonous plants should be clearly labelled with a warning. This belief is consistently held by all types of Australians, regardless of factors such as gender, age, [where they live], or whether they have young children or pets…

  Australians believe the warning label should contain information about what to do if poisoned (95 per cent of respondents), whether the plant is poisonous for animals (94 per cent), what physical reactions could occur (93 per cent) and plant care

information to reduce the risk of being poisoned (89 per cent) (Galaxy Research 2007 p.4).

Plant labels are unusual in the commercial world in not addressing the range of community expectations that apply in most other consumer product categories such as food, clothing, and most household products. As a Senior Horticultural Botanist at the Melbourne Royal Botanic Gardens recently stated:

> Consumers expect to be provided with accurate labelling…we have every right to expect that a plant label faithfully indicates what is in the pot…Accuracy and truthfulness in labelling may not always suit the marketing objectives of plant producers… (Spencer 2007 p.1).

Potential civil liability

Hazardous plants may pose a genuine health and safety issue for workers in the horticulture industry and clients who purchase such plants. Consequently, there could be a potential legal and ethical issue associated with the production and sale of hazardous plants.

An Analysis of Hazardous Plants in the Australian Nursery Industry
Report commissioned by the Nursery and Garden Industry Association of Australia,
Alder et al., 2000

In recent years, many industries have encountered civil liabilities that had long been dormant. Suppliers of goods and services that have or are facing civil actions include: the tobacco industry, suppliers of children's playground equipment, 'fast-food' outlets, liquor companies, asbestos suppliers, local governments, and schools. The common feature in all such claims is the argument that the industry was aware of the harm-causing potential of its product, and chose not to take the responsibility for either warning of the risks and required controls, nor to directly control that risk (Martin et al. 2005).

Under Section 52 of the *Trade Practices Act 1974,* a failure to disclose a relevant fact of which a supplier is aware could be interpreted as a misleading offence. Martin et al (2005) note that, from a legal perspective, adopting a preventative approach may be in the best interests of the suppliers of potentially hazardous plant species.

In 1992, the Nursery Industry Association sought and received legal advice in relation to poisonous plants which advised that "third parties, such as customers, may…have an action if injured as a result of negligence" (Adler et al. 2000, appendices section). In 2000, a report commissioned by the NGIA recommended that the NGIA:

- label hazardous plants with a suitable cautionary statement; and
- seek current legal advice on the exact wording for the statement (Adler et al. 2000 p.1).

Mandatory versus voluntary schemes

Prevention of poisoning would be enhanced by public education and if…plants for sale carried a mandatory warning label such as "Poisoning may occur if fruit (berries) or leaves are eaten by children or pets".

Dr Ross McKenzie, Senior Principal Veterinary Pathologist.
Department of Primary Industries and Fisheries, Queensland.
Australian Veterinary Journal, Scanlan et al, October 2006

There is strong evidence to suggest that a labelling scheme that seeks to enable consumers to compare between products needs to be mandatory. In the case of water efficiency labelling, a voluntary scheme started in 1988. Despite support from water utilities, few manufacturers chose to label. Those that did only labelled their better-performing products. This patchy coverage resulted in information failure. As a consequence, governments adopted a national mandatory water efficiency labelling scheme in 2006 (Wilkenfield and Associates 2003).

Five years after the launch of the voluntary labelling code for hazardous plants in the United Kingdom a market survey of a range of garden centres (from large chains to independent centres) revealed that only 70 per cent of the hazardous plants inspected had warnings on the labels and more than a third of the warnings were not prominent (Ubhi & Skelton 1999). While this was a marked improvement from prior to the launch of the voluntary code (in 1991 only 30 per cent of the best garden centres displayed warnings on labels) it is by no means a comprehensive system.

A University of New England report, *Costs and Benefits of a Proposed Mandatory Invasive Species Labelling Scheme,* looked at the issues associated with a national labelling scheme for garden plants that are invasive species (weeds of the environment or industry). Its findings included:

- A voluntary scheme would create an uneven playing field, unless such a code was mandatory it would not be likely to be universally adopted.
- There would be a range of costs associated with establishing a plant labelling scheme. A voluntary scheme would result in an unfair financial load being borne by the most responsible members of the industry and 'free-riding' by the less concerned.

(Martin et al. 2005).

Each of these studies concluded that while labelling is an effective way to inform and influence consumer decision-making at the point of sale, they are far less effective if they are voluntary and run the risk of failing as a direct result of being voluntary.

The Way Forward

The current method used to warn consumers about poisonous plants is ineffective. The stage at which consumers need to be made aware of a plant's properties is at the point of sale, not during or after a poisoning incident. For example, if made aware at the point of sale that Aussie Gold *(Duranta erecta)* can be fatal to small children and animals (Box 1 and Figure 3), parents and pet-owners are likely to choose an alternative, non-poisonous plant for their hedge or poolside.

The solution – a national code for plant labelling

WWF-Australia recommends that Australia follows the UK's lead in developing and implementing a national code for labelling of poisonous plants as part of a broader labelling code that specifies minimum information requirements to be included on plant labels (Appendix 4).

The general plant labelling code would encompass and pull together recent moves by the Australian government and interest groups to establish 'truth in labelling' for garden plants that relate to additional key concerns such as: correct scientific name (to enable plants to be correctly identified); whether the plant is an invasive weed in certain parts of Australia, plant care information and plant breeders rights (Australian Weeds Committee 2005, Australian Institute of Horticulture 2006, Glanznig and Thomson unpublished). By addressing other basic public information needs that are being called for in relation to plant labels at the same time as poison warnings in one coherent code the Nursery Industry as well as government and interest groups are likely to save resources and avoid confusion.

More specifically, WWF-Australia recommends the implementation of the recommendations of the 2000 national study commissioned by the Nursery and Garden Industry Association and the Horticultural Research and Development Corporation, *An Analysis of Hazardous Plants in the Australian Nursery Industry*, in particular the recommendation that:

NGIA and the Horticultural Research and Development Corporation (HRDC):

- Create a Hazardous Plants Policy relevant to Australia as a part of an Australian Code of Practice.

- As a part of the Hazardous Plants Policy:
    - label hazardous plants with a suitable cautionary statement;
    - seek current legal advice on the exact wording for the statement; and
    - use the UK Horticultural Trades Association *Code of Recommended Retail Practice* as a guide to the approach that should be taken in Australia.

- Take steps to inform and educate the public, doctors and horticultural workers of the hazards and the risks associated with plants bought, handled and sold in nurseries and other venues throughout Australia.

- Liaise with other organisations that have an interest and expertise in hazardous plants in the UK and Australia (Adler et al. 2000 p. 1).

A plant labelling taskforce

WWF-Australia also recommends that, as in the UK, the code is developed by a team of people that have appropriate expertise. This task-force should include representatives of:

- Industry: The Nursery and Garden Industry of Australia (NGIA), Australian Institute of Horticulture, label manufacturers, plant retailers and landscape gardeners/designers.
- Government: Relevant Federal and State regulatory authorities (Departments of Primary Industry, Environment, Health, Fair Trade) and The Australian Weeds Committee (under the Natural Resource Management Ministerial Committee), and the Australian Competition and Consumer Commission.
- Plant expertise: Council of Heads of Botanical Gardens, The Australian National Herbarium, Australian Weeds CRC, CSIRO, Council of Australian Weed Societies.
- Poison expertise: The National Injury Prevention Programme, Department of Health and Ageing, State Poison Information Centres, Government veterinary toxicologists.
- Representation of key interest groups including: farmers, consumer rights groups, pet owners, gardeners and conservation groups.

Key tasks

As was the case in the UK, important steps for the taskforce will include:

- deciding on a list of plants to be labelled;
- developing a label standard that specifies what information must be included on a plant label;
- developing a code of conduct that specifies how industry can comply with the labelling requirement;
- awareness-raising of retailers and consumers about the code; and
- scheduling and conducting compliance measures and periodic reviews.

Each of these steps are discussed in more detail following.

Poisonous Plants List

The UK assessment produced a list of 94 plants or plant groups that posed a potential toxic hazard which were categorised as either minor, moderate or severe (Appendix 4). There is a solid body of information available in Australia about what plants are hazardous to humans and animals. Furthermore the number of plants that are hazardous is relatively small compared to the range of plants available for sale in Australia. According to Adler et al. (2000) hazardous plants represent about 0.09 per cent of all taxa sold in the Australian industry. Of the 35,000 taxa listed as available for sale in the 2004 edition of *Aussie Plant Finder* (Hibbert 2004), less than 146 species or species groups (0.4 per cent) are identified as toxic garden plants by Shepherd (2004).

Labelling Standard

The UK code specifies what plants should include a warning on their label and what the warning should state, examples of warnings specified range from: “CAUTION toxic if eaten” to “Skin and eye irritant”. Beyond specifying the wording of the warning, the code does not place any restrictions on creativity or innovation in the label design. The UK code also states that it will not incur extra costs for the retailers other then redesign of the labels at reprint time (Appendix 4). Appendix 4 includes a copy of the UK code.

Code of Conduct

A code of conduct sets out specific standards of conduct for an industry in relation to the manner in which it deals with its members and customers. In Australia, codes of conduct are developed and implemented to comply with the *Trade Practices Act 1974*.

The UK Code of Conduct for the Labelling and Display of Potentially Harmful Plants is included in Appendix 4. It sets out:

- the criteria by which plants qualify as hazardous;
- the current list;
- the way in which plants need to be labelled depending on the type of plant and the method of sale;

- who has to comply with the code; and
- staff training requirements and guidance.

Awareness-raising

As recommended by Adler et al. (2000) and Martin et.al. (2005) the labelling code will need to be promoted to retailers and the public and supported by education materials such as: a user-friendly booklet and posters and/or a website. The code could also be factored into existing awareness-raising and educational efforts such as horticultural training programmes, nursery industry accreditation schemes and public health campaigns.

Compliance and Reviews

It will be important to plan for the on-going maintenance of the code; In the UK, a review of the list of poisonous plants was carried out four years after its inception which resulted in 52 plant species being added to the list and the removal of six existing plants as well as a number of re-categorisations (Appendix 4).

The taskforce will need to decide on a clear implementation plan for the labelling code that is informed by the UK and Australian experiences in labelling. The taskforce will need to clarify how the code will be enforced and set dates for the periodic review of the list and code.

Summary of Recommendations

Based on the findings of the report WWF-Australia recommends that:

1. That the Nursery and Garden Industry Association (NGIA) and Australian Government develop an Australian Code of Practice for Plant Labelling that specifies minimum information requirements to be included on plant labels, including poison warnings.
2. That NGIA and Australian Government establish a collaborative taskforce to develop the Code which includes representatives of the nursery industry, relevant government departments, poison expertise, botanical expertise, invasive plant expertise and key interest groups including: consumer rights groups, farmers, pet owners, gardeners and conservation groups.
3. That the code is promoted through an awareness-raising campaign that targets the public, doctors and plant retailers.
4. That the taskforce specify how the code will be enforced and reviewed.
5. That the code is voluntary for a grace period set by the taskforce after which the code becomes mandatory to ensure universal adoption and public safety.

Conclusion

This paper demonstrates the risk posed to the health and safety of people and animals by poisonous plants available through the Australian retail garden trade. There are currently around 104 poisonous garden plants available for sale in Australia. Medical statistics and Poison Information Centre records indicate that plant poisonings are common, particularly among young children. Poisonous garden plants also pose a significant risk to livestock, wildlife and domestic animals. There are also data and case studies to indicate that most people are unaware of a plant's poisonous properties prior to a poisoning incident, even if the plant is in their own garden.

The source of this hazard is lack of information. Consumers often do not know which plants are poisonous and plant retailers are not obliged to warn customers about a plant's properties before they take them home. The problem is made more complicated by the fragmented and dispersed nature of Australia's garden industry which includes internet sales, supermarkets and discount department stores. Garden plant retailers are not required to have any plant-related qualifications or knowledge. A recent national poll demonstrated strong consumer demand for plant labels to include poison warnings.

The Nursery and Garden Industry Association of Australia commissioned a report in 2000 that recommended that the industry develop a hazardous plants code of practice that includes labelling poisonous plants with a warning. The United Kingdom has had an exemplary national plant retail labelling code in place for over 10 years. Under the *Trade Practices Act 1974*, the garden industry faces a potential civil liability for failing to disclose plants poisonous properties.

This paper recommends that the Australian garden industry develop and implement a national plant labelling code that specifies minimum information requirements to be included on plant labels. This process should be undertaken in consultation and collaboration with government, consumers and interest groups. The code would result in consumers being consistently informed of a plant's properties in a way that enables them to choose the right plant for the right purpose.

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Appendix 1

Results of WWF scoping analysis of availability of hazardous plants for sale in Australia

The tables presented below are the result of an analysis of the availability of toxic garden plants from commercial/retail plant nurseries in Australia. These tables have been prepared by cross-referencing the list of poisonous plants in the book *Pretty but Poisonous. Plants poisonous to people: an illustrated guide for Australia* (Shepherd 2004) against information about availability of plants from Australian nurseries according to the book *Aussie Plant Finder* (Hibbert, 2004).

The tables are grouped according to major plant groups; within the tables the plants are listed by alphabetic order of the scientific name (they are grouped by families in Shepherd (2004)). All plants listed in the main sections of the latter are included in this report; plants listed in the two Appendices of Shepherd (2004) are omitted.

Table 1 provides a key to the additional information included in the results of the analysis. A Superscript 'C' denotes a toxic characteristic that is particularly harmful to children: e.g. **P**^{C}: the plant is poisonous and especially toxic to children. The principal concern of this report is the toxicity of plants to humans but toxicity to animals, stock etc in indicated in the body of the Tables as (pets, stock). 'W' indicates a poisonous plant that is known to be invasive (denoted as 'Garden Thug' in Shepherd (2004)). Where similar species are grouped together in a table the toxic indicators apply to all the listed species and subspecies (unless stated otherwise); however, the 'W' indicator is occasionally attached to specific species in a group (in the left hand column). For the purposes of these tables some of the species groups listed in Shepherd (2004) have been further split down to individual entries.

Table 1. Key to codes used in results tables

Code	Meaning	Description
V	**Very Poisonous**	These plants can cause serious illness or death.
P	**Poisonous**	These plants may cause minor illnesses such as vomiting or diarrhoea.
A	**Allergenic**	These plants may cause a host of allergenic reactions such as hay fever, asthma and other breathing difficulties, irritation of the mucous membranes, dermatitis, nausea, vomiting, diarrhoea and gastro-enteritis.
I	**Irritant**	These plants can cause rashes, blisters or dermatitis of the skin or irritate the eyes, nose or mouth.
W	**Invasive**	A poisonous plant species known to be invasive into natural or farming areas.

Table 2. CYCADS

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Cycas revoluta	Dwarf sago palm	**V^{C}**	**17** NSW (4), NT(1), QLD (12)

Table 3. FERNS

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Pteridium esculentum	Bracken	**V** (stock)	**none**

Table 4. BULBS, HERBS & SUCCULENTS

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Aconitum napellus	Monkshood	**V^{C}** (pets, stock)	**7** NSW (3), QLD (1), VIC(2), TAS (3)
Agapanthus praecox subsp. *orientalis*	Agapanthus	**P^{C} I W**	**10** ACT (1), NSW (4), QLD (3), VIC(2)
Agave Americana	Century plant	**I W**	**5** NSW (3), QLD (2)
Agrostemma githago	Corn cockle	**P** (pets, poultry, stock)	**none**
Alocasia macrorrhizos	Giant taro and similar species	**P I**	**10** NSW (7), NT(1), QLD(1), VIC(1)
Alstroemeria aurea	Peruvian lily	**A W**	**6** TAS(1), VIC(5)
Amaryllis belladonna	Belladonna lily	**V W**	**19** NSW (4), NT(1), QLD(1), SA(1), TAS(1), VIC(11)
Anagallis arvensis	Scarlet pimpernel	**P I W** (pets, stock)	**none**
Arum italicum	Italian arum	**V^{C} I W**	**10** NSW (4), SA(1), TAS(3), VIC(2)
Atropa belladonna	Deadly nightshade	**V^{C} I** (pets, stock)	**1** QLD (1)
Caladium bicolor	Caladium	**P I** (pets)	**none**
Cannabis sativa	Indian hemp	**P^{C} W**	**none**
Cicuta virosa	Cowbane	**V^{C}** (pets, stock)	**none**
Clivia miniata	Clivia	**?**	**Widely available**
Colchicum autumnale	Autumn crocus	**V W**	**1** QLD (1)
Colocasia esculenta	Taro	**P I**	**11** NSW (4), NT(1), QLD(3), SA(1), VIC(2)
Conium maculatum	Hemlock	**V W** (pets, stock)	**1** QLD (1)
Consolida ambigua	Larkspur	**V^{C} I W**	**none**

		(pets)	
Convallaria majalis	Lily of the valley	**V^{C} I** (pets, stock)	**14** NSW (2), NT(1), QLD(1), TAS(2), VIC(8)
Crinum angustifolium	Field lily	**P I A**	**none**
Cyclamen persicum	Cyclamen	**P**	**4** TAS(1), VIC(3)
Datura ferox *D. metel* **W** *D. stramonium* **W**	Thornapples	**V** (pets, stock)	**none**
Delphinium × cultorum	Delphinium cultivars	**V^{C} I** (pets, stock)	**17** NSW (2), QLD(2), SA(1), TAS(2), VIC(10)
Dianella species	Flax lilies	**P** (stock)	**Widely available**
Dieffenbachia seguine	Dumb cane	**P^{C} I**	**none**
Digitalis purpurea	Foxglove	**V W** (pets, stock)	**1** TAS(1)
Eschscholzia californica	California poppy	**P W**	**2** NSW(1), TAS(1)
Euphorbia lathyris **W** *E. marginata* *E. peplus* **W**	Caper spurge and similar species	**I P**	**1** NSW(1)
Helleborus species, incl. *H. argutifolius* *H. foetidus* *H. lividus* *H. niger* *H. orientalis*	Hellebores	**V I**	**Widely available**
Heracleum mantegazzianum	Giant hogweed	**I W** (poultry)	**none**
Hippeastrum species	Amaryllis	**P^{C} A I**	**Widely available**
Hyacinthoides non-scripta	English bluebell	**P^{C} I**	**4** VIC(4)
Hyacinthus orientalis (+31 cultivars)	Hyacinth	**P^{C} I** (pets, cattle)	**Widely available**
Iris foetidissima	Stinking iris	**P^{C} I W**	**10** NSW (2), SA(1), TAS(2), VIC(5)
Iris germanica	Bearded iris, German iris	**P^{C} I W**	**7** NSW (2), SA(1), TAS(1), VIC(3)
Iris Pseudocorus	Yellow water iris	**P^{C} I W**	**25** NSW(14), SA(3), VIC(5), TAS(3)
Lupinus species	Lupins	**P^{C} W** (pets, stock)	**6** NSW(1), TAS(1), VIC(4)
Mirabilis jalapa	Four o'clock	**P^{C} I W**	**2** NSW(2)
Moraea flaccida, *M. miniata*	One-leaf cape tulip, Two-leaf cape tulip	**V^{C} W**	**none**
Muscari armeniacum	Grape hyacinth	**P^{C}**	**8** NSW(1), TAS(1), VIC(6)
Narcissus jonquilla	Jonquil	**V^{C} I**	**6** TAS(3), VIC(3)
Narcissus pseudonarcissus	Daffodil	**V^{C} A I W**	**3** TAS(1), VIC(2)
Nicotiana tabacum	Tobacco	**P A I W** (pets, stock)	**2** TAS(1), VIC(1)
Ornithogalum thyrsoides	Chincherinchee	**P I W** (pets, stock)	**2** NSW (1), VIC(1)
Papaver somniferum	Opium poppy	**V I W**	**none**
Papaver nudicaule	Iceland poppy	**P** (stock)	**none**

Papaver rhoes	Field poppy, Flanders poppy	**P W**	**none**
Parietaria judaica	Wall pellitory	**A I W**	**4** QLD(2), TAS(1), VIC(1)
Polygonatum × hybridum	Solomon's seal	**P I**	**11** NSW(2), TAS(1), VIC(8)
Primula species, incl. *P. malacoides* *P. obconica*	Primroses	**A I**	**12** NSW (4), TAS(4), VIC(4)
Pulsatilla vulgaris	Pulsatilla	**P^{C} I**	**6** NSW(1), QLD(1), TAS(2), VIC(2)
Ranunculus sceleratus	Celery-leaf buttercup	**V A I** (pets, stock)	**none**
Solanum rostratum	Buffalo burr	**P^{C}** (stock)	**none**
Tanacetum vulgare	Tansy	**P^{C} A I W**	**6** NSW (3), QLD(2), TAS(1)
Tulipa hybrid cultivars	Tulip	**P A I**	**Widely available**
Urtica species, incl. *U. dioica* *U. incise* *U. urens*	Stinging nettles	**I W**	**3** QLD(2), TAS(1)
Zantedeschia aethiopica	Arum lily	**V^{C} I W**	**19** NSW (9), QLD(3), SA(3), TAS(1), VIC(3)

Table 5. CLIMBERS & CREEPERS

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Abrus precatorius	Crab's eye	**V I** (pets)	**none**
Allamanda cathartica	Yellow allamanda	**I P W**	**none**
Araujia sericifera	Moth plant	**I P W** (poultry, cattle)	**none**
Aristolochia elegans	Dutchman's pipe	**V W**	**none**
Gelsemium sempervirens	Carolina jessamine	**V^{C}** (stock)	**11** NSW (6), QLD(2), VIC(2), WA(1)
Gloriosa superba	Glory lily	**V I W**	**1** QLD (1)
Hedera helix	English ivy Many varieties, not all poisonous	**V I W** (pets)	**5** NSW (1), VIC(3), TAS(1)
Ipomoea indica	Purple morning glory	**P^{C} W**	**none**
Lathyrus odoratus	Sweet pea	**P^{C} W** (stock)	**2** NSW (2)
Lonicera japonica	Japanese honeysuckle	**P^{C} I W**	**9** NSW (2), NT(3), QLD(4)
Parthenocissus quinquefolia	Virginia creeper	**P^{C} I W**	**10** ACT(1), NSW (2), VIC(5), TAS(1), WA(1)
Philodendron scandens	Heart-leaf philodendron	**P^{C} I** (pets)	**none**
Sarcostemma viminale subsp. *Australe*	Caustic vine	**I A** (stock)	**1** NSW(1)
Solandra maxima	Chalice vine	**P I**	**3** QLD(2), WA(1)
Toxicodendron radicans	Poison ivy	**A P I**	**none**
Wisteria floribunda *W. sinensis*	Japanese wisteria and similar species	**P**	**Widely available**

Table 6. SHRUBS

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Acokanthera oblongifolia *A. oppositifolia*	Wintersweet and similar species	**V I**	**1** NSW(1)
Allamanda neriifolia	Allamanda	**I P**	**7** NSW(2), NT(1), QLD(4)
Brugmansia species, incl. *B. arborea* *B. candida* *B. sanguinea* *B. suaveolens*	Angel's trumpets	**V^{C}**	**12** NSW(7), QLD(2), VIC(2), WA(1)
Brunfelsia australis	Yesterday, today and tomorrow	**P^{C}** (pets, stock)	**none**
Caesalpinia gilliesii	Bird of paradise flower	**P^{C}** (stock)	**none**
Cascabela thevetia	Yellow oleander	**V^{C} W**	**none**
Catharanthus roseus	Pink periwinkle	**P^{C} W**	**1** NT(1)
Cestrum diurnum	Day jasmine	**P^{C}** (pets)	**none**
Cestrum nocturnum	Lady of the night, night-scented jasmine	**P^{C} A W**	**12** NSW(5), QLD(3), VIC(2), WA(2)
Cestrum parqui	Green cestrum, Chilean cestrum, green poisonberry	**V^{C} W** (stock, poultry)	**none**
Cotoneaster species, incl. *C. franchetii* *C. glaucophyllus* *C. horizontalis* *C. pannosus*	Cotoneasters	**P^{C} W**	**8** QLD(1), VIC(7)
Cytisus scoparius	Broom	**V W**	**1** NSW(1)
Daphne species	Daphnes		**12** ACT(1), NSW(13), VIC(7)
Euonymus europaeus *E. japonicus*	European spindle tree and similar species	**V^{C}**	**8** ACT(1), NSW(3), NT(1), VIC(3)
Euphorbia characias subsp. *Wulfenii*	Wulfen spurge	**I P**	**15** NSW(7), QLSD(1), SA(1), VIC(5), WA(1)
Euphorbia milii	Crown of thorns, Christ plant	**I P**	**4** NSW(2), NT(1), VIC(1)
Euphorbia pulcherrima	Poinsettia	**I P** (pets)	**3** NSW(1), NT(1), QLD(1)
Euphorbia tirucalli	Naked lady, Finger tree, Pencil plant	**I P^{C} W**	**2** NSW(2)
Fatsia japonica	Fatsia	**P**	**2** NSW(2)
Gomphocarpus fruticosus	Swan plant	**P I W**	**1** NSW(1)
Gomphocarpus physocarpus	Balloon cotton brush	**P I**	**3** NSW(1), VIC(2)
Hydrangea macrophylla	Hydrangea	**P^{C} I** (pets, horses)	**Widely available**
Hypericum androsaemum	Tutsan	**P^{C} W** (stock)	**none**
Jatropha curcas **W** *J. multifada* *J. podagrica*	Physic nut and similar species	**V^{C} I** (pets)	**1** QLD(1)
Kalmia angustifolia	Sheep laurel and similar species	**V^{C}** (stock)	**2** VIC(2)
Lantana camara	Lantana	**V^{C} I W**	**3**

		(pets, cattle)	NT(1), VIC(1), WA(1)
Ligustrum species *L. japonicum* *L. lucidum* **W** *L. ovaliform* *L. sinense* **W** *L. vulgare*	Privets	**V A I** (stock)	**14** NSW(1), QLD(4), VIC(8), WA(1)
Lycium ferocissimum	African boxthorn	**P W**	**none**
Melianthus major *M. comosus*	Cape honey flower and similar species	**V W** (*M. comosus*: pets, pigs, sheep)	**9** NSW(6), SA(1), VIC(1), WA(1)
Nerium oleander	Oleander	**V[C] I W** (pets, stock)	**10** NSW(3), QLD(2), SA(1), VIC(3), WA(1)
Phytolacca Americana *P. octandra*	Pokeweed and similar species	**V[C] I** (pets, stock)	**1** TAS(1)
Ricinus communis	Castor oil plant	**V[C] I W**	**none**
Solanum aviculare	Kangaroo apple	**P[C] W** (cattle)	**9** NSW(5), VIC(4)
Solanum dulcamara	Bittersweet, woody nightshade	**V[C] I W** (pets, stock)	**2** NSW(1), TAS(1)
Solanum linnaeanum	Apple of Sodom	**P[C]**	**none**
Solanum mauritianum	Wild tobacco tree, woolly nightshade	**P I W** (stock)	**none**
Solanum nigrum	Blackberry nightshade	**P[C] W**	**none**
Solanum pseudocapsicum	Madeira winter cherry, Jerusalem cherry	**P[C] W** (pets)	**none**
Spartium junceum	Spanish broom	**V[C] W**	**none**
Swainsona galegifolia	Smooth Darling pea	**P** (stock)	**1** NSW(1)
Wikstroemia indica	Tie bush	**V[C]** (cattle)	**1** NSW(1)

Table 7. TREES

Scientific name	Common name	Toxicity	Advertised for sale numbers of nurseries (2004)
Aesculus hippocastanum	Horse chestnut	**P W** (pets)	**10** NSW(4), VIC(6)
Ailanthus altissima	Tree of heaven	**I A W** (pets)	**none**
Buxus sempervirens	European box	**P** (pets, stock)	**Widely available**
Castanospermum australe	Black bean	**P** (stock)	**19** NSW(10), NT(1), QLD(4), VIC(3), WA(1)
Cinnamomum camphora	Camphor laurel	**A P W**	**2** QLD(1), WA(1)
Corynocarpus laevigatus	New Zealand laurel	**V**	**1** VIC(1)
Dendrocnide excelsa *D. moroides* *D. photinophylla*	Giant stinging tree Gympie stinger Shiny-leaf stinging tree	**A**	**1** NSW(1)
Duranta erecta	Duranta	**P[C] W**	**16** NSW(5), NT(2), QLD(8), VIC(1), WA(1)
Erythrina vespertilio	Bat's wing coral tree	**V[C]** (cattle)	**4** NSW(2), NT(1), QLD(1)
Fagus sylvatica	European beech	**P**	**15** ACT(1), NSW(5), VIC(8), WA(1)

Ficus elastica	Indian rubber plant	**I**	**1** NT(1)
Grevillea pyramidalis	Caustic bush	**A**	**none**
Grevillea robusta **W** *G. 'Robyn Gordon'*	Silky oak and similar species	**A**	**Widely available**
Ilex aquifolium	Holly	**P**[C] (pets)	**7** NSW(1), QLD(2), VIC(4)
Laburnum anagyroides	Golden chain tree	**V**[C] (pets)	**7** TAS(1), VIC(1), WA(1)
Melia azedarach	White cedar	**V**[C] **W** (stock)	**Widely available**
Plumeria rubra	Frangipani	**I**[C] **A**[C]	**4** NSW(1), NT(2), WA(1)
Prunus cerasifera	Cherry plum	**A**[C] **W**	**18** ACT(1), NSW(8), VIC(6), WA(3)
Prunus laurocerasus	Cherry laurel	**V**[C] **I W**	**7** ACT(1), NSW(3), VIC(2), WA(1)
Quercus species	Oaks	**P A W** (pets, stock)	**Widely available**
Rhododendron species	Rhododendrons/ Azaleas	**V I** (pets, stock)	**Widely available**
Rhodomyrtus macrocarpa	Finger cherry	**P**[C]	**none**
Rhodomyrtus psidioides	Native guava	**P**[C]	**5** NSW(4), QLD(1)
Robinia pseudoacacia	Black locust	**V I W** (stock)	**Widely available**
Sambucus nigra	Common elder	**P W** (cattle, pigs)	**14** NSW(6), QLD(1), SA(1), VIC(4), TAS(2)
Schinus molle var. *areira*	Pepper tree	**A**[C] **W** (poultry, pigs, calves)	**13** NSW(12), SA(1)
Semecarpus australiensis	Tar tree	**A P**	**none**
Taxus baccata	Yew	**V**[C] **I** (stock)	**5** NSW(1), VIC(3), TAS(1)
Toxicodendron succedaneum	Rhus (Sumac)	**A P I W**	**none**
Toxicodendron vernicifluum	Varnish tree, Chinese or Japanese lacquer tree	**A**[C] **P**	**none**

Appendix 2

"Web-truthing" of poisonous plant availability, March 2007

The table below presents the results of a 'web-truth' of the results presented in Appendix 1. Appendix 1 uses information about availability of plants from Australian nurseries according to the book *Aussie Plant Finder* (Hibbert, 2004) to scope the availability of a list of poisonous plants provided in the book *Pretty but Poisonous. Plants poisonous to people: an illustrated guide for Australia* (Shepherd 2004). The 'web-truth' updated this data by checking the availability of the poisonous plant list in 2007 from Australian nurseries that advertise their catalogues on the internet.

Each plant's scientific name was searched on a website called Australian Nurseries On-line (www.nurseriesonline.com.au) which advertises itself as "Australia's largest specialist nursery and gardening internet directory". The results of each search on the directory provided links (if available) to individual nurseries which listed the plants scientific name on their site. The first 10 results from the search of the nursery website were investigated. Nurseries with webpages updated in 2007 that listed the plant (scientific name) as available were noted as 'hit'. The table below notes the number of 'hits'. The names of the nurseries are noted in the table along with the States or Territories in which the nursery was located.

However, due to time constraints the method was simplified for a portion of the list. The simplified method noted how many links to individual Australian nurseries were generated for each plant's scientific name. Without investigating each link it was not possible to confirm how recently the plant was advertised and where the nursery was located. It is also important to note that in some cases a link to the same nursery may be repeated in a long list of links. However, based on the more detailed method that was used for around half of the plants on the list it is safe to assume that if there is more than three links generated, the plant is available for sale somewhere in Australia. Plants that were searched using the simplified method are indicated by grey shading in the table below.

The investigation found that of the list of 137 poisonous plants, 104 were found to be advertised for sale from at least one nursery in Australia between May and July 2007. This compares with the results of the scoping analysis presented in Appendix 1 that found that 103 of the plants on the same list were advertised for sale in Australian nursery catalogues.

Scientific name	Common name	WWF Scope results from Appendix 1 Advertised for sale in Aussie Plant Finder (2004) States (Number of Nurseries)	2007 Web-truthing results: Listed as available for sale in 2007on Australian Nursery Website (Number of Nurseries) States	Contact details of Nursery	Date Webite advertisement was viewed
Cycas revoluta	Dwarf sago palm	17 NSW (4), NT(1), QLD (12)	 (2) Qld.	Palm Plantations of Australia - 15 Lake St, Cairns QLD Price's Palm Plantation Queensland - PO Box 234 Miriwinni QLD	 24/05/2007
Aconitum napellus	Monkshood	7 NSW (3), QLD (1), VIC(2), TAS (3)	 (3) Tas, Vic	Woodbridge Nursery 2007 Catalouge, TAS Patchwork Nursery - PO Box 50, The Patch 3792 VIC; Misty Downs	 24/05/2007
Agapanthus praecox subsp. *orientalis*	Agapanthus	10 ACT (1), NSW (4), QLD (3), VIC(2)	 (12) Vic, NSW,QLD	Plants International- PO Box 509 Albion QLD 4010 Coomera River Nurseries- 54 Pearsons Rd, Yatala, QLD Fernview Nurseries- PO Box 517 Cockatoo VIC 3781	 24/05/2007
Alocasia macrorrhizos	Giant taro and similar species	10 NSW (7), NT(1), QLD(1), VIC(1)	(1) NSW	The Ragged Blossom Native Nursery- Bangalow, NSW	 24/05/2007
Alstroemeria aurea	Peruvian lily	6 TAS(1), VIC(5)	(2) Vic	Cardoc Nursery- 110 Cradoc Hill Rd, Cradoc TAS 7109	 24/05/2007
Amaryllis belladonna	Peruvian lily	19 NSW (4), NT(1), QLD(1), SA(1), TAS(1), VIC(11)	 (5) Woombye?, Vic, Qld	Tesselaar Bulbs- 357 Monbulk Rd, Silvan VIC 3795 Eplants.com.au - PO Box 276 Pymble NSW 2073 The WaterWise Garden PO Box 47 Torrensville SA 5031	 24/05/2007
Arum italicum	Italian arum	10 NSW (4), SA(1), TAS(3), VIC(2)	 VIC (1), NSW (1), Tas	Wallis Creek Watergardens47 Wallis Creek Lane, Mulbring NSW	 24/05/2007
Atropa belladonna	Deadly nightshade	1 QLD (1)	 (1) NSW	Shaman Australis Botanicals PO Box 1103 Byron Bay, NSW (For botanical study material only)	 24/05/2007
Caladium bicolor	Caladium	**none**	**none**		 24/05/2007
Cannabis sativa	Indian hemp	**none**	**none**		 24/05/2007
Cicuta virosa	Cowbane	**none**	**none**		 24/05/2007
Clivia miniata	Clivia	**Widely available**	SA (1), QLD (2), VIC (1), TAS (1), NSW (1	Heyne's Garden Centre- 283-289 The Parade, Beulah Park, SA Australian Gardner- 55 Old Emerald Rd, Monbulk VIC Vogelvry Bulbs & Flowers- PO Box 369 New Norfolk 7140 TAS Pine Mountain Nursery- PO Box 5016, Brassal QLD	 24/05/2007
Colchicum autumnale	Autumn crocus	1 QLD (1)	 VIC (2)	Bryan H Tonkin 'Sylvan Vale' 375 Olinda Creek Rd Kalorama 3766 GardenExpress- Reply Paid 68541, Monbulk VIC	 24/05/2007
Colocasia esculenta	Taro	11 NSW (4), NT(1), QLD(3), SA(1), VIC(2)	NSW (2)	Dales Nursery Australia- 36 Daleys Lane, Geneva via Kyogle NSW 2474 Wallis Creek Watergardens- 47 Wallis Creek Lane, Mulbring NSW	 24/05/2007
Conium maculatum	Hemlock	1 QLD (1)	 QLD (1)	All Rare Herbs- PO Box 91 Mapleton QLD 4560	 24/05/2007
Consolida ambigua	Larkspur	**none**	**none**		 24/05/2007
Convallaria majalis	Lily of the valley	14 NSW (2), NT(1), QLD(1), TAS(2), VIC(8)	VIC (2), QLD (1), NSW (1)	Frogmore Gardens- Blackwood Rd Newbury VIC 3458 GardenExpress- Reply Paid 68541, Monbulk VIC 9 Sproules Lane, Bowral NSW 2576 All Rare Herbs- PO Box 91 Mapleton QLD 4560	 24/05/2007
Crinum angustifolium	Field lily	**none**	**none**		 24/05/2007
Cyclamen persicum	Cyclamen	4 TAS(1), VIC(3)	NSW(2) SA (1)	Royston Petrie Seeds- 11B Industrial Ave Mudgee NSW 2850 Heynes Garden Centre283-289 The Parade, Beulah Park SA Eplants- PO Box 276 Pymble NSW 2073	 24/05/2007
Datura ferox *D. metel* **W** *D. stramonium* **W**	Thornapples	**none**	QLD (1)	Beantree Nursery- Upper Barron Rd Box 137 Malanda QLD 4885	 25/05/2007
Delphinium × cultorum	Delphinium cultivars	17 NSW (2), QLD(2), SA(1), TAS(2), VIC(10)	NSW(1) VIC (2) TAS (1)	Royston Petrie Seeds- PO Box 1152 Mudgee NSW 2850 GardenExpress- Reply Paid 68541, Monbulk VIC Vogelvry Bulbs & Flowers- PO Box 369 New Norfolk TAS 7140 Larkman Nurseries- PO Box 567 Lildale VIC 3140	 25/05/2007
Dianella species	Flax lilies	**Widely available**	NSW(4) QLD(2) VIC (1)	Organic Matters- Central Coast NSW Abulk Wholesale Nursery- 14 Cupitts Lane Clarendon NSW Greening Australia Nursery- 57 Paten Rd, Paten Park QLD 4061 Gregs Plants- 56 Derby Dve, Epping VIC 3076	 25/05/2007
Dieffenbachia seguine	Dumb cane	**none**	SA (1) NSW (3)	Heynes Garden Centre283-289 The Parade, Beulah Park SA Eplants- PO Box 276 Pymble NSW 2073 Plant Lovers- 37 Barry Rd Kellyville NSW- (sells dieffenbachia spp	 25/05/2007
Digitalis purpurea	Foxglove	1 TAS(1)	TAS (1) VIC (1) SA (1)	Oyster Cove Plants & Flowers- PO Box 72, Sung TAS 7054 Heyne's Garden Centre- 283-289 The Parade, Beulah Park, SA Frogmore Gardens- Blackwood Rd Newbury VIC 3458	 25/05/2007

Eschscholzia californica	California poppy	2 NSW(1), TAS(1)	NSW (3) SA (1)	Shaman Australis Botanicals PO Box 1103 Byron Bay, NSW Heyne's Garden Centre- 283-289 The Parade, Beulah Park, SA Mr Fothergills Seeds & Bulbs- 15B Walker St Sth Windsor NSW 2756 Royston Petrie Seeds- PO Box 1152 Mudgee NSW 2850	25/05/2007
Euphorbia lathyris **W** *E. marginata* *E. peplus* **W**	Caper spurge and	NSW(1)	**none**	Euphorbia Spp are sold in Many garden Centres, However the 3 Listed Species	25/05/2007
Helleborus species, incl. *H. argutifolius* *H. foetidus* *H. lividus* *H. orientalis*	Hellebores	**Widely available**	TAS (2) NSW (2) VIC (3)	Elizabeth Town Hellebores- PO Box 28 Deloraine 7304 Helleborus Downunder- 13 Mountain Lagoon Rd, Bilpin NSW 2758 Woodbridge Nursery 2007 Catalouge, TAS Post Office Farm Nursery- PO Box 744 Woodend, VIC 3442 Eplants- PO Box 276 Pymble NSW 2073 New Gippsland Seeds & Bulbs- PO Box 1 Silvan VIC 3795	25/05/2007
Heracleum mantegazzianum	Giant hogweed	**none**	**none**		25/05/2007
Hippeastrum species	Amaryllis	**Widely available**	VIC (1) QLD (4)	GardenExpress- Reply Paid 68541, Monbulk VIC Larsens Bulbs- 88 Fielding Rd, Fernvale QLD 4306 Maguires Hippeastrum Farm- 409 Kiel Mountain Rd, Woombye Qld 4559 Vogelvry Bulbs & Flowers- PO Box 369 New Norfolk TAS 7140	25/05/2007
Hyacinthoides non-scripta	English bluebell	4 VIC(4)	VIC (1)	Australian Gardner- 55 Old Emerald Rd, Monbulk VIC	25/05/2007
Hyacinthus orientalis (+31 cultivars)	Hyacinth	**Widely available**	NSW (1)	Eplants- PO Box 276 Pymble NSW 2073	25/05/2007
Iris foetidissima	Stinking iris	10 NSW (2), SA(1), TAS(2), VIC(5)	TAS (1) VIC (1)	Cradoc Hill Nursery- 110 Cradoc Hill Rd, Cradoc TAS 7109 Bryan H Tonkin 'Sylvan Vale'- Olinda Creek Rd, Kalorama 3766	25/05/2007
Iris germanica	Bearded iris, German iris	7 NSW (2), SA(1), TAS(1), VIC(3)	NSW (1) TAS (1) VIC (1)	Plant Treasures of Pokolbin- 13 Gillards Rd, Pokolbin, NSW 2320 Frogmore Gardens- Blackwood Rd Newbury VIC 3458 Cradoc Hill Nursery- 110 Cradoc Hill Rd, Cradoc TAS 7109	25/05/2007
Iris Pseudocorus	Yellow water iris	25 NSW(14), SA(3), VIC(5), TAS(3)	TAS (1)	Oyster Cove Plants & Flowers- PO Box 72, Sung TAS 7054	25/05/2007
Lupinus species	Lupins	6 NSW(1), TAS(1), VIC(4)	TAS (1)	Woodbridge Nursery 2007 Catalouge, TAS	
Castanospermum australe	Black bean	19 NSW(10), NT(1), QLD(4), VIC(3), WA(1)	NSW (2) QLD (1)	Alstonville Tree Farm- Teven Rd Alstonville, NSW 2477 The Ragged Blossom Native Nursery- Bangalow NSW Dayleys Nursery Australia- 36 Daleys Lane Geneva 2474	22/06/2007
Cinnamomum camphora	Camphor laurel	2 QLD(1), WA(1)	VIC (1)	Metro Trees Growers- 2 Wingrove St, Alphington VIC 3078	22/06/2007
Corynocarpus laevigatus	New Zealand laurel	1 VIC(1)	VIC (1)	Yamina Rare Plants- 25 Moores Rd, Monbulk VIC 3793	22/06/2007
Dendrocnide excelsa *D. moroides* *D. photinophylla*	Giant stinging tree Gympie stinger Shiny-leaf stinging tree	1 NSW(1)	**none**		
Duranta erecta	Duranta	16 NSW(5), NT(2), QLD(8), VIC(1), WA(1)	NSW (1), QLD (1), VIC (1)	Eplants- PO Box 276, Pymble NSW 2073 Di's Delightful Plants- PO Box 567 Lilydale VIC 3140 Python Paradice Nurseries- PO Box 264 Palmwoods QLD 4555	22/06/2007
Erythrina vespertilio	Bat's wing coral tree	4 NSW(2), NT(1), QLD(1)	NSW (2)	Shaman Australis Botanicals- PO Box 1103 Byron Bay, NSW 2481 Daleys Nursery Australia- 36 Daleys Lane, Geneva NSW 2474	22/06/2007 22/06/2007
Fagus sylvatica	European beech	15 ACT(1), NSW(5), VIC(8), WA(1)	VIC (3), TAS (1), NSW (1)	Conifer Gardens Nursery- 256 Mt Dandenong Tourist Rd, Ferny Creek Yamina Rare Plants- 25 Moores Rd, Monbulk VIC 3793 Winter Hill Tree Farm - Canyonleigh Rd, Canyonleigh NSW 2577 Nationwide Trees- PO Box 2244 Hawthorn VIC 3122 Jubilee Nursery - 73 Hall St, Ridgeway, TAS 7054	22/06/2007
Ficus elastica	Indian rubber plant	1 NT(1)	NSW (2), SA (1)	Eplants- PO Box 276, Pymble NSW 2073 Heyne's Garden Centre- 283-289 The Parade, Beulah Park, SA Mowbray Mobile Plants- 21 Munros Lane, Glenorie, NSW 2157	22/06/2007
Grevillea pyramidalis *Grevillea robusta* **W** *G. 'Robyn Gordon'*	Caustic bush Silky oak and similar species	**none** **Widely available**	**none** NSW (2) QLD (2)	Koala Native Plants- PO Box Branxton NSW Stockade Nursery- 70 Wades Rd, Bellmere QLD 4510 Yuruga Native Plants- PO Box 220 Walkamin QLD 4872 Alstonville Tree Farm- Teven Rd Alstonville, NSW 2477	22/06/2007 22/06/2007
Ilex aquifolium	Holly	7 NSW(1), QLD(2), VIC(4)	VIC (1), NSW (1), QLD (1)	Conifer Gardens Nursery- 256 Mt Dandenong Tourist Rd, Ferny Creek Dancraft Nurseries- Uworra Rd, Wilberforce NSW All Rare Herbs- PO Box 91 Mapleton QLD 4560	22/06/2007
Laburnum anagyroides	Golden chain tree	7 TAS(1), VIC(1), WA(1)	NSW (1)	eplants.com.au- PO Box 276 Pymble, NSW 2073	22/06/2007
Melia azedarach	White cedar	**Widely available**	NSW (2)	Alstonville Tree Farm- Teven Rd Alstonville, NSW 2477 Downes Wholesale Nursery- 111 Stanhope Rd, Theresa Park NSW 2570	22/06/2007
Plumeria rubra	Frangipani	4 NSW(1), NT(2), WA(1)	NSW (1) QLD (2)	Alstonville Tree Farm- Teven Rd Alstonville, NSW 2477 Sunshine Coast Frangipani Farm- PO Box 93, Bli Bli QLD 4560 Bunya Horticulture- PO Box 494, Bunya, QLD 4055	22/06/2007
Prunus cerasifera	Cherry plum	18 ACT(1), NSW(8), VIC(6), WA(3)	NSW (3), WA (1)	Winter Hill Tree Farm - Canyonleigh Rd, Canyonleigh NSW 2577 Riverina Nursery- 160 Mackay Ave, Griffith Arborwest Tree Farm- 77 Rousset Rd, Mariginiup WA 6065 Downes Wholesale Nursery- 111 Stanhope Rd, Theresa Park NSW 2570	22/06/2007

Prunus laurocerasus	Cherry laurel	7 ACT(1), NSW(3), VIC(2), WA(1)	NSW (1)	Tree Keepers - PO Box 25 Bowral NSW, 2570	22/06/2007
Quercus species	Oaks	**Widely available**	NSW (2), VIC (1)	Tree Keepers - PO Box 25 Bowral NSW, 2570 Nationwide Trees- PO Box 2244, VIC 3122 Winter Hill Tree Farm - Canyonleigh Rd, Canyonleigh NSW 2577	15/06/2007
Rhododendron species	Rhododendrons/ Azaleas	**Widely available**	TAS (2), VIC (1), NSW (1)	Bundara Nursery- 45 Illoura Road, Burnie TAS 7320 Jubilee Nursery - 73 Hall St, Ridgeway, TAS 7054 Garden Express - 470 Monbulk Road Monbulk VIC, 3793	15/06/2007
Rhodomyrtus macrocarpa	Finger cherry	**none**	**none**		15/06/2007
Rhodomyrtus psidioides	Native guava	5 NSW(4), QLD(1)	NSW (3) QLD (1)	Daleys Nursery Australia - 36 Daley's Lane Kyogle NSW 2474 (none Terania Rainforest Nursery- 299 Main Arm Road, Mullumbimby NSW Bush Nuts Native Nursery - 64 Syndicate Rd, Tallebudgera Valley, The Ragged Blossom Native Nursery, Bangalow, NSW	15/06/2007
Robinia pseudoacacia	Black locust	**Widely available**	NSW (1)	Eplants- PO Box 276, Pymble NSW 2073	15/06/2007
Sambucus nigra	Common elder	14 NSW(6), QLD(1), SA(1), VIC(4), TAS(2)	VIC (1) TAS (2)	Yamina Rare Plants- 25 Moores Rd, Monbulk VIC 3793 Cardoc Nursery- 110 Cradoc Hill Road Cradoc TAS 7109 Highview Garden Nursery- 58 West Maurice Rd Ringarooma TAS 7263	15/06/2007
Schinus molle var. *areira*	Pepper tree	13 NSW(12), SA(1)	VIC (2), NSW (1)	Dream Time Wholesale Nursery- 1750 Westernport Rd, Heath Hill, VIC Downes Wholesale Nursery- 111 Stanhope Rd, Theresa Park NSW 2570 Tillage Nursery- 950 Westernport Hwy, Cranbourne VIC 3977	15/06/2007
Semecarpus australiensis	Tar tree	**none**	**none**		15/06/2007
Taxus baccata	Yew	5 NSW(1), VIC(3), TAS(1)	VIC (1), NSW (2), TAS (1)	Conifer Gardens Nursery- 256 Mt Dandenong Tourist Rd, Ferny Creek Andreasens Green- Lot 4, Elizabeth Drive, Kemps Creek, NSW 2171 Jubilee Nursery- 73 Hall St, Ridgeway, 7054 TAS Tree Keepers- PO Box 25 Bowral NSW 2576 (Inground Nursery & Container Nursery)	15/06/2007
Toxicodendron succedaneum	Rhus (Sumac)	**none**	**none**		15/06/2007
Mirabilis jalapa	Four o'clock	2 NSW(2)	VIC(1)	http://www.montburggardens.com.au	23/07/2007
Moraea flaccida, *M. miniata*	One-leaf cape tulip, Two-leaf cape tulip	**none**	VIC(1)	http://www.tonkinsbulbs.com.au/content/summerCatalogueList.htm	23/07/2007
Muscari armeniacum	Grape hyacinth	8 NSW(1), TAS(1), VIC(6)	60 links displayed		23/07/2007
Narcissus jonquilla	Jonquil	6 TAS(3), VIC(3)	50 links displayed		23/07/2007
Narcissus pseudonarcissus	Daffodil	3 TAS(1), VIC(2)	49 links displayed		23/07/2007
Nicotiana tabacum	Tobacco	2 TAS(1), VIC(1)	VIC (1)	http://www.montburggardens.com.au	23/07/2007
Ornithogalum thyrsoides	Chincherinchee	2 NSW (1), VIC(1)	20 links displayed		23/07/2007
Papaver somniferum *Papaver nudicaule*	Opium poppy Iceland poppy	**none** **none**	NSW (1) none	Shaman Australis Botanicals	23/07/2007
Papaver rhoes	Field poppy, Flanders	**none**	none		23/07/2007
Parietaria judaica	Wall pellitory	4 QLD(2), TAS(1), VIC(1)	175 links displayed		23/07/2007
Polygonatum × *hybridum*	Solomon's seal	11 NSW(2), TAS(1), VIC(8)	31 links displayed		23/07/2007
Primula species, incl. *P. malacoides* *P. obconica*	Primroses	12 NSW (4), TAS(4), VIC(4)	240 links displayed		23/07/2007
Pulsatilla vulgaris	Pulsatilla	6 NSW(1), QLD(1), TAS(2), VIC(2)	5 links		23/07/2007
Ranunculus sceleratus	Celery-leaf buttercup	**none**	none		23/07/2007
Solanum rostratum	Buffalo burr	**none**	QLD (1)	http://www.paraplants.com	23/07/2007
Tanacetum vulgare	Tansy	6 NSW (3), QLD(2), TAS(1)	6 links displayed		23/07/2007
Tulipa hybrid cultivars	Tulip	**Widely available**	212 links		23/07/2007
Urtica species, incl. *U. dioica* *U. incise* *U. urens*	Stinging nettles	3 QLD(2), TAS(1)	none		23/07/2007
Zantedeschia aethiopica	Arum lily	19 NSW (9), QLD(3), SA(3), TAS(1), VIC(3)	266 links		23/07/2007
Gelsemium sempervirens	Carolina jessamine	11 NSW (6), QLD(2), VIC(2), WA(1)	22 links		23/07/2007
Gloriosa superba	Glory lily	1 QLD (1)	20 links		23/07/2007

Hedera helix	English ivy Many varieties, not all	5 NSW (1), VIC(3), TAS(1)	none		23/07/2007
Ipomoea indica	Purple morning glory	**none**	none		23/07/2007
Lathyrus odoratus	Sweet pea	2 NSW (2)	VIC(1)	http://www.montburggardens.com.au/perfumedplants.asp	23/07/2007
Lonicera japonica	Japanese honeysuckle	9 NSW (2), NT(3), QLD(4)	45 links		23/07/2007
Parthenocissus quinquefolia	Virginia creeper	10 ACT(1), NSW (2), VIC(5), TAS(1), WA(1)	none		23/07/2007
Philodendron scandens	Heart-leaf	**none**	8 links		23/07/2007
Sarcostemma viminale subsp. *Australe*	Caustic vine	1 NSW(1)	20 links		23/07/2007
Solandra maxima	Chalice vine	3 QLD(2), WA(1)	36 links		23/07/2007
Toxicodendron radicans	Poison ivy	**none**	QLD (1)	http://www.bena-australis.aunz.com	23/07/2007
Wisteria floribunda *W. sinensis*	Japanese wisteria and similar species	**Widely available**	118 links		23/07/2007
Acokanthera oblongifolia *A. oppositifolia*	Wintersweet and similar species	1 NSW(1)	3 links		23/07/2007
Allamanda neriifolia	Allamanda	7 NSW(2), NT(1), QLD(4)	2 links		23/07/2007
Brugmansia species, incl. *B. arborea* *B. candida* *B. sanguinea* *B. suaveolens*	Angel's trumpets	12 NSW(7), QLD(2), VIC(2), WA(1)	330 links		23/07/2007
Brunfelsia australis	Yesterday, today and	**none**	54 links		23/07/2007
Caesalpinia gilliesii	Bird of paradise flower	**none**	9 links		23/07/2007
Cascabela thevetia	Yellow oleander	**none**	2 links		23/07/2007
Catharanthus roseus	Pink periwinkle	1 NT(1)	NSW(1)	http://www.nurseriesonline.com.au/eastcoast/T.html - 20k -	23/07/2007
Cestrum diurnum	Day jasmine	**none**	VIC(1)	http://www.montburggardens.com.au/perfumedplants.asp	23/07/2007
Cestrum nocturnum	Lady of the night, night-scented jasmine	12 NSW(5), QLD(3), VIC(2), WA(2)	VIC(1)	http://www.montburggardens.com.au/perfumedplants.asp	23/07/2007
Cestrum parqui	Green cestrum, Chilean	**none**	VIC(1)	http://www.montburggardens.com.au/perfumedplants.asp	23/07/2007
Cotoneaster species, incl. *C. franchetii* *C. glaucophyllus* *C. horizontalis* *C. pannosus*	Cotoneasters	8 QLD(1), VIC(7)	3 links		23/07/2007 23/07/2007
Cytisus scoparius	Broom	1 NSW(1)	none		23/07/2007
Daphne species	Daphnes	12 ACT(1), NSW(13), VIC(7)	9 links		23/07/2007
Euonymus europaeus *E. japonicus*	European spindle tree and similar species	8 ACT(1), NSW(3), NT(1), VIC(3)	6 links		23/07/2007
Euphorbia characias subsp. *Wulfenii*	Wulfen spurge	15 NSW(7), QLSD(1), SA(1), VIC(5), WA(1)	10 links		23/07/2007
Euphorbia milii	Crown of thorns, Christ plant	4 NSW(2), NT(1), VIC(1)	6 links		23/07/2007
Euphorbia pulcherrima	Poinsettia	3 NSW(1), NT(1), QLD(1)	none		23/07/2007
Euphorbia tirucalli	Naked lady, Finger tree, Pencil plant	2 NSW(2)	1 link	http://www.eplants.com.au/DisplayPlants.asp?CatID=110&PIN=&Orde	23/07/2007
Fatsia japonica	Fatsia	2 NSW(2)	1 link	http://www.eplants.com.au/	23/07/2007
Gomphocarpus fruticosus	Swan plant	1 NSW(1)	none		23/07/2007

Gomphocarpus physocarpus	Balloon cotton brush	**3** NSW(1), VIC(2)	1 link	http://www.yaminarareplants.com.au	23/07/2007
Hydrangea macrophylla	Hydrangea	**Widely available**	333 links		23/07/2007
Hypericum androsaemum	Tutsan	**none**	1 link	http://www.montburggardens.com.au/perfumedplants.asp	23/07/2007
Jatropha curcas **W** *J. multifada* *J. podagrica*	Physic nut and similar species	**1** QLD(1)	none		23/07/2007
Kalmia angustifolia	Sheep laurel and similar species	**2** VIC(2)	1 link	http://www.yaminarareplants.com.au/contents/shrubsAndTr	23/07/2007
Lantana camara	Lantana	**3** NT(1), VIC(1), WA(1)			23/07/2007
Ligustrum species *L. japonicum* *L. lucidum* **W** *L. ovalliform* *L. sinense* **W** *L. vulgare*	Privets	**14** NSW(1), QLD(4), VIC(8), WA(1)	5 links		23/07/2007
Lycium ferocissimum	African boxthorn	**none**	1 Link	http://www.yaminarareplants.com.au/contents/shrubsAndTr	23/07/2007
Melianthus major *M. comosus*	Cape honey flower and similar species	**9** NSW(6), SA(1), VIC(1), WA(1)	4 links		23/07/2007
Nerium oleander	Oleander	**10** NSW(3), QLD(2), SA(1), VIC(3), WA(1)	2 links		23/07/2007
Phytolacca Americana *P. octandra*	Pokeweed and similar species	**1** TAS(1)	none		23/07/2007
Ricinus communis	Castor oil plant	**none**	none		23/07/2007
Solanum aviculare	Kangaroo apple	**9** NSW(5), VIC(4)	5 Links		23/07/2007
Solanum dulcamara	Bittersweet, woody nightshade	**2** NSW(1), TAS(1)	4 links		23/07/2007
Solanum linnaeanum	Apple of Sodom	**none**	none		23/07/2007
Solanum mauritianum	Wild tobacco tree,	**none**	none		23/07/2007
Solanum nigrum	Blackberry nightshade	**none**	none		23/07/2007
Solanum pseudocapsicum	Madeira winter cherry,	**none**	none		23/07/2007
Spartium junceum	Spanish broom	**none**	none		23/07/2007
Swainsona galegifolia	Smooth Darling pea	**1** NSW(1)	1 link	http://www.nativenursery.com.au/catalog	23/07/2007
Wikstroemia indica	Tie bush	**1** NSW(1)	none		23/07/2007
Aesculus hippocastanum	Horse chestnut	**10** NSW(4), VIC(6)	3 links		23/07/2007
Ailanthus altissima	Tree of heaven	**none**	none		23/07/2007
Buxus sempervirens	European box	**Widely available**	45 links		23/07/2007

Appendix 3

Data on animal poisonings provided by Queensland Department of Primary Industries and Fisheries

Roundtable meeting on poisonous plants in Queensland, 23 February 2007

Roundtable Discussion on Plants Poisonous to People and Pets in Queensland

Queensland Health Building, Charlotte Street, Brisbane. 23 February 2007

Chair: Karen Struthers, Parliamentary Secretary to the Minister for Health.
Invited attendees:

- Member for Fitzroy, Jim Pearce
- Member for Keppel, Paul Hoolihan
- Sandra O'Brien, private citizen
- Don Scotts, Nursery & Garden Industry Queensland
- Neil Fisher, Nurseryman
- Ross McKenzie, DPI&F/UQ
- Dave Strachan, Manager Product Safety, Office of Fair Trading
- Anita Champion/Carol Wylie, Queensland Poisons Information Centre
- Dawn Spinks/Richard Hockey, Queensland Injury Surveillance Unit
- Ailsa Holland, Queensland Herbarium
- Michael Tilse/Phil Carswell, Health Promotion Unit, Queensland Health
- John O'Brien, Director, Epidemiological Services, Queensland Health
- Nicola Thomson, Policy Officer Invasive Species, WWF Australia

Specific questions to RA McKenzie [acting as spokesman for DPI&F Queensland].

1a. How many plants in Queensland are (potentially) poisonous to either stock or domestic pets?

Livestock (production animals)

- Significant risks to production (common, frequent poisonings causing death or loss of production): **about 50-60**
- Insignificant risks (rare poisonings or known to be potentially poisonous): **about 500**

Companion animals

- Life-threatening poisoning risks: **about 15**
- Minor non-life-threatening effects: **about 10-20**

Dogs are at risk from secondary poisoning through scavenging the carcases of livestock poisoned by plants. Cases of poisoning by cyanide (from *Sorghum*), fluoroacetate (*Gastrolobium*), indospicine (*Indigofera linnaei*), *Alstonia constricta* and *Senna occidentalis* are on record. These are very rarely reported.

1b. What are the data (in summary form) of plant poisoning of domestic pets and stock animals?

Livestock (production animals)

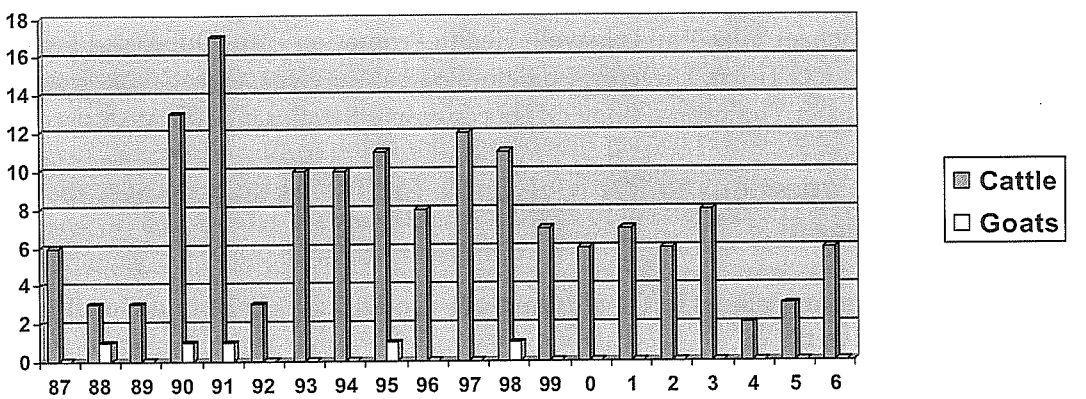
Livestock population of Queensland (Australian Bureau of Statistics 2005 data)

- Beef cattle: 11.4 million
- Sheep: 4.9 million

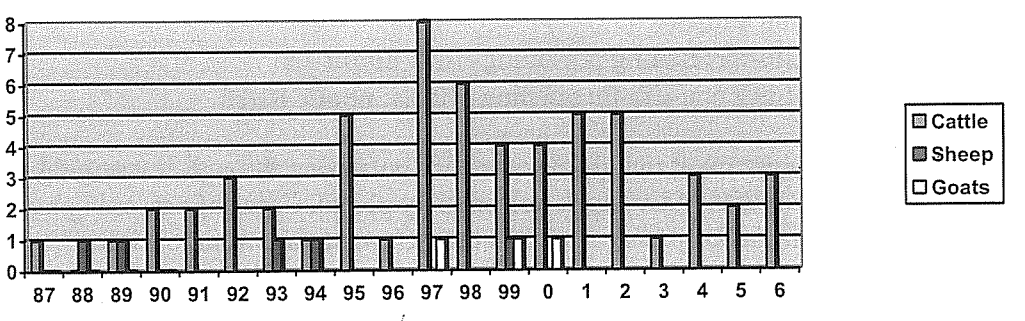
1987-2006 20 year period: Data in DPI&F Laboratory On-line Information System (LOIS) on laboratory diagnoses of plant poisonings

- Plant poisoning diagnoses = 1.22% of total diagnostic accessions to DPI&F Veterinary Laboratories [Total diagnostic accessions = 134,612; Total accessions diagnosed as plant poisoning = 1,640]
- Major plant causes of plant poisoning diagnosed by DPI&F veterinary laboratory network ranked in descending order:

- Photosensitisation [total 244 herds/flocks affected].
  - ➢ *Lantana camara* (lantana) heptogenous photosensitisation [152 cattle herds, 5 goat flocks affected]

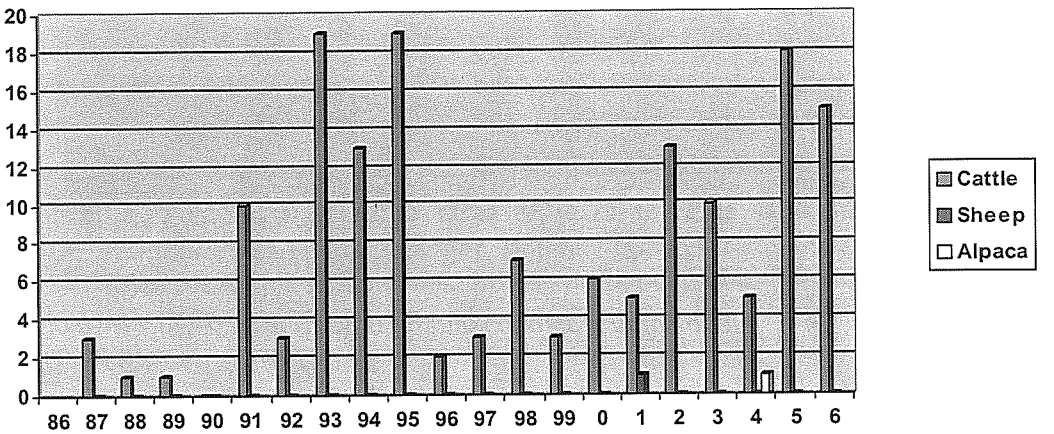


  - ➢ Hepatogenous photosensitisation (cause undetermined) [67 herds/flocks affected]

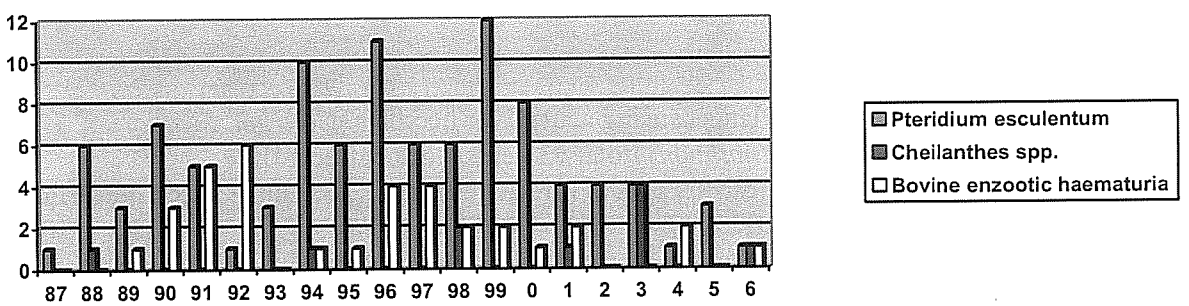


  - ➢ *Panicum* spp. & crystal-associated cholangiohepatopathy hepatogenous photosensitisation [7 flocks affected]
  - ➢ *Avena sativa* (oats) hepatogenous photosensitisation [2 herds affected]
  - ➢ Primary photosensitisation [11 flocks/herds affected]

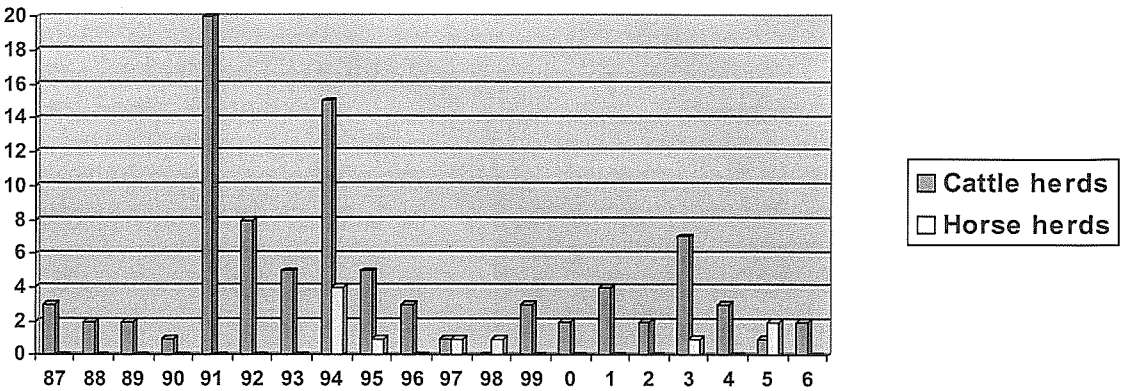
- Nitrate-nitrite poisoning (various plant species) [156 herds/flocks affected]



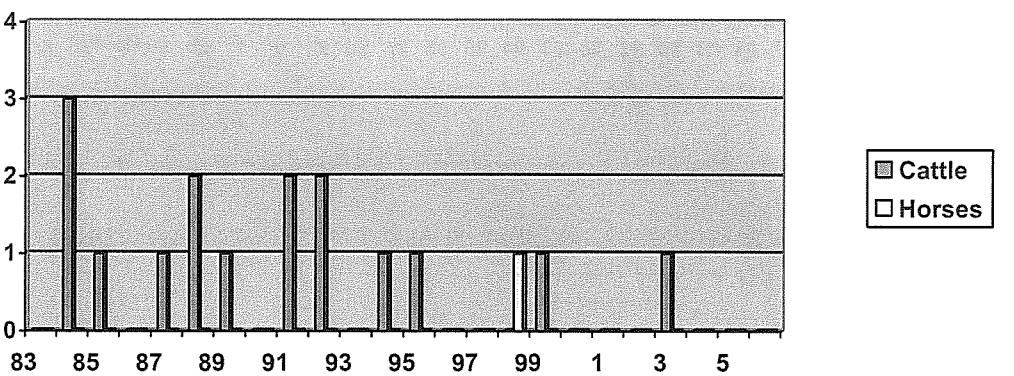
- Ptaquiloside poisonings [total 148 herds/flocks affected]:
  - *Cheilanthes sieberi* (mulga fern) [11 herds/flocks affected]
  - *Pteridium esculentum* (austral bracken) [102 herds affected by bracken poisoning; 35 herds affected by enzootic haematuria]



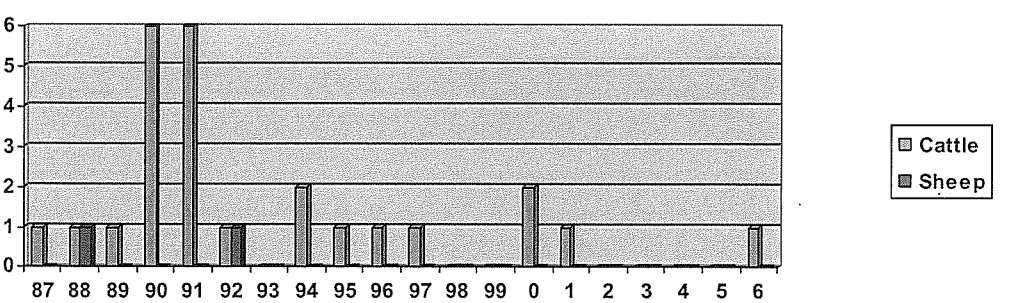
- Pyrrolizidine alkaloidosis (chronic liver damage) (*Crotalaria, Heliotropium, Senecio* species involved; direct associations with particular plants are normally not made) [total 89 cattle herds; 10 horse herds affected]:



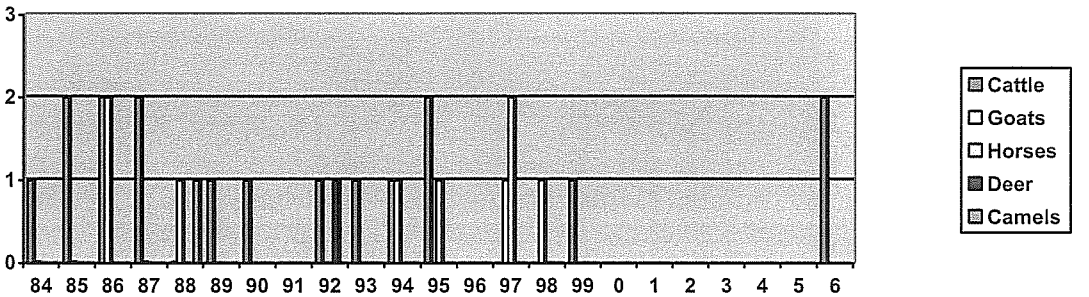
- *Heliotropium amplexicaule* [16 herds affected since 1984]



- Plants causing acute liver necrosis (*Cestrum, Myoporum, Trema, Xanthium*) [total 63 herds/flocks affected]:
- *Cestrum parqui* (green cestrum) [25 cattle, 2 sheep herds/flocks affected]

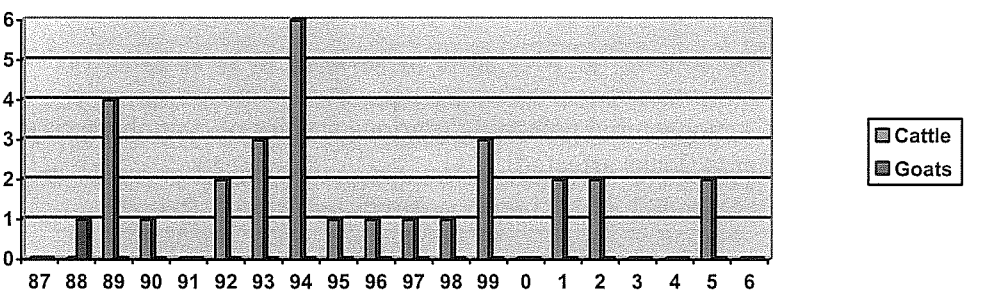


- *Trema tomentosa* (poison peach) [28 herds/flocks affected 1984-2006].

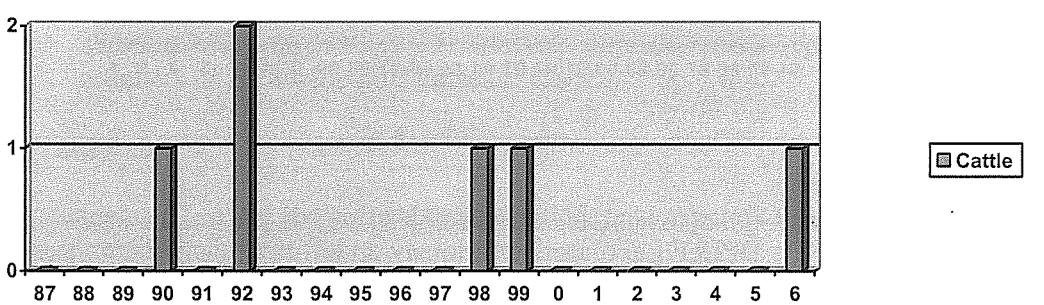


- *Xanthium* spp. (Noogoora burr, Bathurst burr) [4 herds/flocks affected]
- *Myoporum* spp. (Ellangowan poison bush, boobialla) [4 herds/flocks affected]

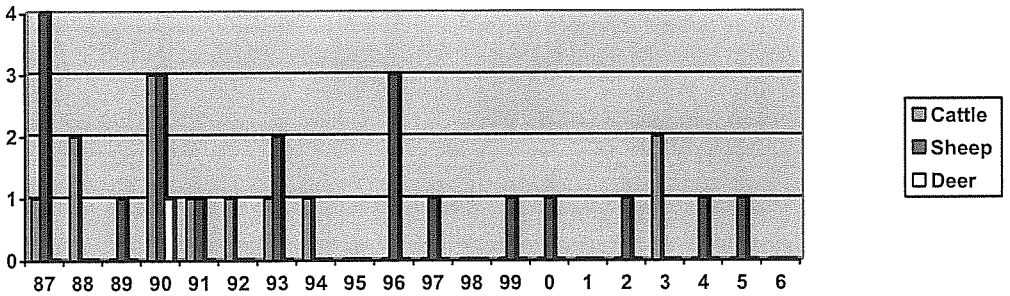
- Cardiac glycoside poisonings [total 40 herds/flocks affected]:
  - *Nerium oleander* (oleander) [4 herds affected]
  - *Bryophyllum* spp. (mother-of-millions) [30 herds/flocks affected; 35 accessions]



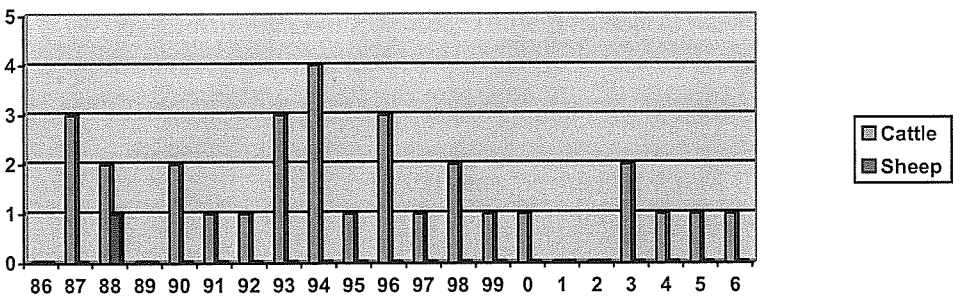
- *Corchorus olitorius* (jute) seed [6 cattle herds affected]



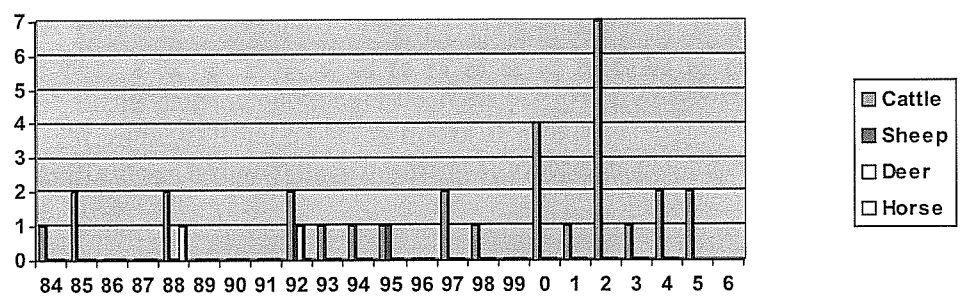
- Oxalate poisoning (various plant species) [33 flocks/herds affected]



- Cyanide poisoning (various plant species, mostly *Sorghum* spp.) [30 herds/flocks affected]

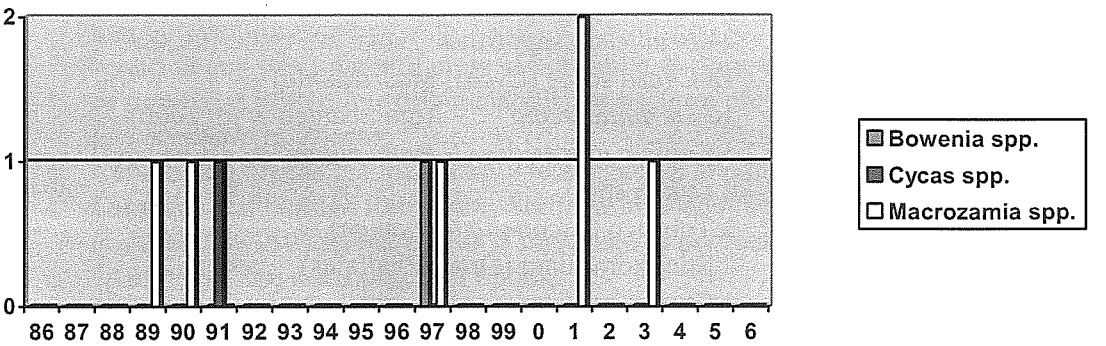


- Cyanobacterial poisoning (various species of cyanobacteria) [29 herds/flocks affected]

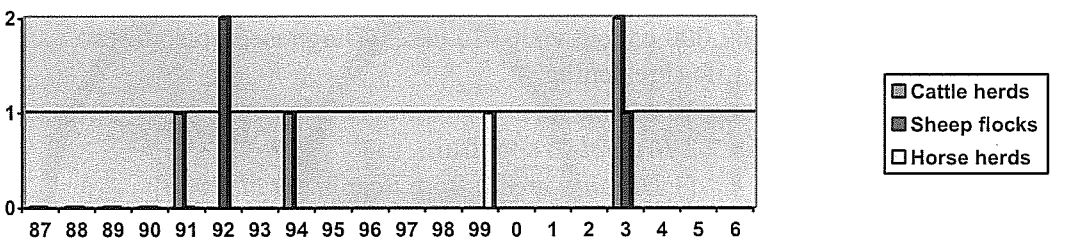


- *Pimelea* spp. [27 cattle herds affected] **Note:** The statistics from DPI&F Laboratories seriously under-report actual numbers of *Pimelea* poisoning cases.

- Cycads [8 accessions] **Note:** The statistics from DPI&F Laboratories seriously under-report actual numbers of cycad poisoning cases.



- *Swainsona* spp. (Darling pea) [8 flocks/herds affected]. **Note:** The statistics from DPI&F Laboratories seriously under-report actual numbers of swainsonine poisoning cases.



- *Terminalia oblongata* ssp. *oblongata* (yellow-wood) [7 cattle herds affected]. **Note:** The statistics from DPI&F Laboratories seriously under-report actual numbers of yellow-wood poisoning cases.
- *Xanthorrhoea* spp. (grass-trees) [7 cattle herds affected]
- *Persea americana* (avocado) [6 herds/flocks affected]
- *Verbesina encelioides* (crownbeard) [5 herds/flocks affected]
- *Leiocarpa brevicompta* (flat billy-buttons) [5 sheep flocks affected]
- *Indigofera linnaei* (Birdsville indigo) [3 horse herds affected]. **Note:** The statistics from DPI&F Laboratories seriously under-report actual numbers of Birdsville horse disease cases.

Companion animals

Companion animal population of Queensland (estimated using Australian Bureau of Statistics 2001 data):

- Dogs: 500,000
- Cats: 400,000
- Pet Birds: 200,000

2002-2006 5 year period: Survey of 52 larger veterinary practices in major population centres of Queensland (of the *ca.* 460 existing practices in Qld) (R.A.McKenzie, unpublished data, February 2007); 21 responses (40%)

Dogs: 440,000 patient visits; 198 cases. Diagnosed poisonings:

Life-threatening

- 25 Onions (*Allium cepa*)
- 24 *Brunfelsia* spp. fruits
- 13 Cycad seeds (*Cycas, Macrozamia*)
- 10 *Duranta erecta* (+ 9 from Scanlan *et al.* 2006)
- 5 Cardiac glycosides (*Nerium oleander*, *Allamanda*)
- 2 *Lilium* spp.
- 2 Tobacco (*Nicotiana tabbacum*)
- 2 Stinkhorn fungi (Order Phallales)
- 1 Grapes, raisins
- 1 *Melia azedarach* fruits

Minor; very small or no threat to life

- 56 *Macadamia* kernels
- 47 *Cannabis sativa*
- 4 Aroids (*Dieffenbachia* and others)
- 4 Other plants

Cats: 162,000 patient visits; 15 cases. Diagnosed poisonings:

Life-threatening

- 10 *Lilium* spp.
- 2 *Brunfelsia* spp. fruits
- [1 *Duranta erecta* from Scanlan *et al.* 2006]
- 1 Cycad seeds

Minor; very small or no threat to life

- 2 Aroids (*Dieffenbachia* and others)

Birds: 23,000 patient visits; 4 cases. Diagnosed poisonings:

Life-threatening

- 3 Avocado (*Persea americana*)
- [3 *Duranta erecta* from Scanlan *et al.* 2006]
- 1 Cardiac glycosides (*Nerium oleander*, *Allamanda*)

Appendix 4

United Kingdom Horticultural Trade Association code of practice for recommended retail practice relating to the labelling and display of potentially harmful plants, 2000 review and update (information brochure included)

The HTA is indebted to the following who all gave freely of their time in representing their particular sectors of the horticultural industry whilst serving on the working party that developed and tested this code of practice.

Retailers

Sue Allen - Millbrook Garden Co
Ian Rankin - Homebase

Growers

Geoff Caesar - Bransford Plants
Neil Robertson - Farplants Sales Ltd

Gardening Media / Consumer Representatives

Adam Pasco - BBC Gardeners' World
Peter Seabrook - Journalist and broadcaster
Rosemary Ward - Gardening Which?

Label Producers

Brian Pinker - Burall Floraprint

Industry Bodies

John Adlam - Horticultural Trades Association / Dove Associates
Malcolm Berry - Royal Horticultural Society

Working Party Chairman

Graham Barley - Industrial Marketing

The resultant drafts were also tested amongst a far wider audience of growers, retailers and label producers too numerous to mention but whose comments and support were invaluable.

The HTA Code of Practice for Plant Labels

This code of practice has been developed at the request of the horticultural industry in recognition of the variability that currently exists in plant identification, description and information. This variability is not in the interests of the consumer as it can engender uncertainty, confusion and irritation and can impact upon plant sales and the image of the industry.

The aim of the code is to improve the consistency and effectiveness of communication of information to the consumer. The adoption of the code is not obligatory. It will only be adopted if it delivers an improvement over the existing situation. Implementation of the code will neither incur extra costs, apart from redesign at the reprint time, nor restrict creativity or innovation in design.

The code is not overly prescriptive. This would be impractical given the widely differing views of the various elements of the supply chain. A common sense approach has been applied where this is in the greater interest of consumers and therefore the wider industry.

It is recognised that labels take widely differing forms, shapes and sizes, so it is impossible to prescribe what information must appear on all plant labels. Size apart, there is the issue of vastly different types of information that will be deemed necessary for the variety of plant types or groups - and indeed horticulturalists often disagree on something as basic as the name of a plant. The code therefore has adopted a matrix approach, prioritising the data that needs to be portrayed for the various groups of plants.

For further information on the code of practice please contact the Information Centre at:

The Horticultural Trades Association
19 High Street
Theale
Reading
Berkshire
RG7 5AH

Tel: 0118 930 8940
Fax: 0118 932 3453
Email: info@the-hta.org.uk
www.the-hta.org.uk

labelling?

The retailers code of practice for plant label identification

Key:
1 = Required
2 = Recommended

	Aquatics	Alpines	Bamboos	Bedding and Patio Plants	Bonsai - houseplant	Bonsai - garden plant	Dry Bulbs	Bulbs in pots	Cacti & Succulents	Citrus -houseplants	Climbers	Christmas Trees	Conifers	Conservatory plants	Ferns	"Fruit, soft"	"Fruit, top"	Grasses - ornamental	Hardy palms	Heathers	Hedging	Herbaceous	Herbs	Houseplants	Houseplants plantable outside after use in house	Indoor planted arrangements	Orchids	Outdoor planted arrangements	Roses	Shrubs	Trees	Vegetables	Wall plants
KEY ELEMENTS - ALL PLANTS WITHIN A GROUP																																	
Plant name	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1
English name	2	2	2	2		2	1	2		1	2	2	2	2	2	1	1	2	2	2	2	2	1	2	2		2		2	2	2	1	2
Latin name	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1			1	1	1	1	1	1	1	2		1		1d	1	1		1
Size/Age			1								1		1				1		1		1									1	1		1
Height and spread (at maturity)	1	1	1	1			1	1			1		1	1	1		1	1	1	1	1	1	2						1	1	1		1
KEY ELEMENTS - VARIETIES WHERE RELEVANT																																	
Plant Breeders Rights	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hazardous plant warning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Drawbacks	1		1								1		1			1	1				1	2							1	1	2		
OTHER HELPFUL PLANT INFORMATION																																	
Awards	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Colour photo	2	2	2	2			2	2	2	2	2		2	2	2	2	2	2	2	2	2	2	2	2	2		2		2	2	2	2	2
Plant category (eg trailing/bush; HT/floribunda)				2									2			2	2												2				
Period of flowering (season rather than month)	2	2		2			2	2			2			2				2		2		2							2	2	2		2
Flower colour	2	2		2			2	2			2			2						2		2		2	2				2	2	2		2
Scent		2		2			2	2		2	2			2								2	2	2	2				2	2			2
Deciduous or evergreen/semi evergreen	2				2	2					1		2	2	2						1	2	2							1	1		2
OTHER HELPFUL CARE INFORMATION																																	
Position requirements: sun/shade/shelter		2	2	2			2				2										2	2	2							2			2
Protect from frost (for varieties where relevant)	2			2			2			2				2											2			2				2	
Hardiness rating											2		2		2	2	2				2									2	2		2
Specific soil requirements	2	2									2				2					2							2			2	2		2
Plant spacing																2	2				2											2	
The need/frequency to lift /divide																																	
The requirement to stake																	2					2											
The need/time to prune					2	2				2	2			2		2	2			2	2		2						2	2			2
Other specific plant care issue (see notes)					1c	1c						2a					2b													2b			

Notes
a = after care in the home
b = pollinator requirements
c = must specify indoor or outdoor
d = for species roses

The retailers code of practice
for plant label identification

Category C *continued*

Papaver somniferum	Poppy	Harmful if eaten
Passiflora caerulea	Passion Flower	Harmful if eaten
Pedilanthus	Slipper Cactus	Skin and eye irritant/harmful if eaten
Philodendron	Philodendron	Harmful if eaten/skin and eye irritant
Podophyllum	May Apple	Harmful if eaten
Polygonatum	Solomon's Seal	Harmful if eaten
Polyscias	Dinner Plate Aralia	Harmful if eaten/skin eye irritant
Prunus laurocerasus and lusitanica	Cherry	Seed kernels harmful if eaten
Rhamnus	Buckthorn	Harmful if eaten
Rhaphidophora	Shingle Plant	Harmful if eaten/skin and eye irritant
Robinia psuedoacacia	Acacia	Harmful if eaten
Sambucus (except S nigra)	Elder	Harmful if eaten
Schefflera	Umbrella Plant	May cause skin allergy
Scilla	Scilla	Harmful if eaten
Solanum (cultivated ornamental species except S.dulcamara)	Solanum	Harmful if eaten
Solanum pseudocapsicum	Christmas Cherry	Harmful if eaten
Spartium junceum	Spanish Broom	Harmful if eaten
Spathiphyllum	Peace Lily	Harmful if eaten/skin and eye irritant
Symphoricarpos	Snowberry	Harmful if eaten
Symphytum	Comfrey	Harmful if eaten
Syngonium	Arrowhead Vine	Harmful if eaten/skin and eye irritant
Tabernaemontana	Cape Jasmine	Harmful if eaten
Tulipa	Tulip	Harmful if eaten/may cause skin allergy
Vitex	Chaste Tree	Skin irritant
Wisteria	Wisteria	Harmful if eaten
Xanthosoma	Blue Taro	Harmful if eaten/skin and eye irritant
Zantedeschia	Arum Lily	Harmful if eaten/skin and eye irritant

POTENTIALLY HARMFUL PLANTS

The British public is fortunate to have access to a wealth of plant species. Most of these are harmless. However, there is a risk associated with a small number of plants used in the house and garden.

The Horticultural Trades Association, working with the Poisons Unit at Guy's Hospital and The Royal Botanic Gardens at Kew have reviewed the toxicology of all the major genera sold through Nurseries and Garden Centres in the UK and have recommended labelling those plants which fulfil the following five conditions:

- They have been identified as being a significant hazard
- The toxic parts of the plant are available or produced in the UK
- The medical symptoms of ingestion and/or contact are serious
- Reported cases are widespread (allergies are not included)
- They pose a threat to human health (not pets or livestock)

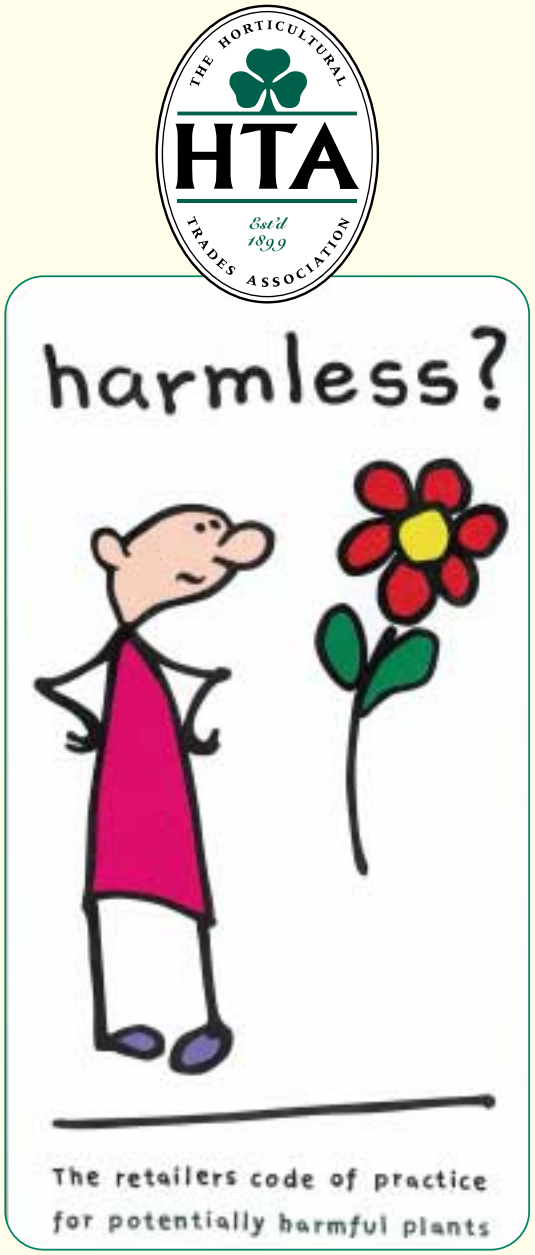
Plants are labelled in three categories – A, B and C – according to the severity of the hazard. Not all parts of a plant will necessarily be a hazard but particular attention has been given to those which produce toxic foliage and/or berries which may be particularly attractive to children. Most plants labelled under the code are perfectly safe to purchase (excepting those in Category A) as long as the warnings are heeded. However, they should not be placed or planted where small children are likely to have access to brush against or ingest them.

For further information on the code please contact the Information Centre at

The Horticultural Trades Association
19 High Street
Theale
Reading RG7 5AH

Tel: 0118 930 8940

or visit our website at www.the-hta.co.uk



POTENTIALLY HARMFUL PLANTS

Latin Name	Common Name	Warning
Category A		
Rhus diversiloba, radicans, rydbergii striata, succedanea, toxicarum, verniciflua and vernix	Poison Oak	CAUTION poisonous if eaten. Skin contact commonly causes severe blistering dermatitis
Category B		
Aconitum	Monkshood	CAUTION toxic if eaten/harmful via skin
Arum	Cuckoo Pint	CAUTION toxic if eaten/skin and eye irritant
Atropa	Belladonna	CAUTION toxic if eaten
Brugmansia	Angel's Trumpets	CAUTION toxic if eaten
Colchicum	Autumn Crocus	CAUTION toxic if eaten
Convallaria	Lily of the Valley	CAUTION toxic if eaten
Coriaria	Coriaria	CAUTION toxic if eaten
Daphne	Mezereon	CAUTION toxic if eaten/skin irritant
Datura	Stinkweed	CAUTION toxic if eaten
Dieffenbachia	Dumb Cane	CAUTION toxic if eaten/skin and eye irritant
Digitalis	Foxglove	CAUTION toxic if eaten
Euphorbia (except E.pulcherrima)	Spurge	CAUTION skin and eye irritant/toxic if eaten
Gloriosa superba	Flame Lily	CAUTION toxic if eaten
Heracleum	Hogweed	CAUTION severely toxic to skin with sunlight
Hyoscyamus	Henbane	CAUTION toxic if eaten
Laburnocytisus adamii	Laburnocytisus	CAUTION toxic if eaten
Laburnum	Golden Chain	CAUTION toxic if eaten
Lantana	Shrub Verbena	CAUTION toxic if eaten
Mandragora	Mandrake	CAUTION toxic if eaten
Nerium oleander	Oleander	CAUTION toxic if eaten
Oenanthe crocata, aquatica and phellandrium	Dead Man's Fingers	CAUTION toxic if eaten
Phytolacca	Inkberry	CAUTION toxic if eaten
Primula obconica	Primula	CAUTION may cause skin allergy
Ricinus communis	Castor Oil Plant	CAUTION toxic if eaten
Ruta	Rue	CAUTION severely toxic to skin with sunlight
Scopolia	Scopolia	CAUTION toxic if eaten
Solandra	Chalice Vine	CAUTION toxic if eaten
Solanum dulcamara	Woody Nightshade	CAUTION toxic if eaten
Sophora	Pagoda Tree	CAUTION toxic if eaten
Taxus	Yew	CAUTION toxic if eaten
Thevetia	Yellow Oleander	CAUTION toxic if eaten/skin irritant
Veratrum	Hellebore	CAUTION toxic if eaten
Zigadenus	Death Camas	CAUTION toxic if eaten
Category C		
Acalypha	Cat's Tail	Skin and eye irritant/harmful if eaten
Acokanthera	Poison Bush	Harmful if eaten
Actaea section Actaea	Bane Berry	Harmful if eaten/skin irritant
Adenium	Desert Rose	Harmful if eaten
Aesculus	Horse Chestnut	Harmful if eaten
Aglaonema	Chinese Evergreens	Harmful if eaten/skin and eye irritant
Agrostemma githago	Corn Cockle	Harmful if eaten
Allamanda	Golden Trumpet	Harmful if eaten/skin and eye irritant
Alocasia	Giant Elephant's Ear	Harmful if eaten/skin and eye irritant
Aloe	Aloe	Harmful if eaten
Alstromeria	Alstromeria	May cause skin allergy
Amaryllis belladonna	Belladonna	Harmful if eaten
Anthurium	Flamingo Flower	Harmful if eaten/skin and eye irritant
Apocynum	Dogbane	Harmful if eaten
Arisaema	Cobra Lily	Harmful if eaten/skin and eye irritant
Asparagus except A.officinalis	Asparagus Fern	May cause skin allergy/fruits harmful if eaten
Brunfelsia	Lady of the Night	Harmful if eaten
Caladium	Angel's Wings	Harmful if eaten/skin and eye irritant
Calla palustris	Water Arum	Harmful if eaten/skin and eye irritant
Capsicum annuum (ornamental cultivars)	Chilli Pepper	Skin and eye irritant/harmful if eaten
Chelidonium majus	Greater Celandine	Harmful if eaten/skin and eye irritant
Chrysanthemum	Chrysanthemum	May cause skin allergy
Colocasia esculenta	Cocoyam	Harmful if eaten/skin and eye irritant
Cupressocyparis leylandii	Leyland Cypress	May cause skin allergy
Delphinium	Larkspur	Harmful if eaten
Dictamnus albus	Burning Bush	Skin irritant with sunlight
Dracunculus	Dragon Arum	Harmful if eaten/skin and eye irritant
Echium	Viper's Bugloss	Skin irritant
Epipremnum	Devil's Ivy	Harmful if eaten/skin and eye irritant
Euonymus	Spindle Tree	Harmful if eaten
Ficus benjamina	Weeping Fig	May cause skin allergy
Ficus carica	Common Fig	Skin irritant with sunlight
Fremontodendron	California Beauty	Skin and eye irritant
Gaultheria section Pernettya	Prickly Heath	Harmful if eaten
Gelsemium	False Jasmine	Harmful if eaten
Hedera	Ivy	Harmful if eaten/may cause skin allergy
Helleborus	Christmas Rose	Harmful if eaten/skin irritant
Hippeastrum	Amaryllis	Harmful if eaten
Homeria	Homeria	Harmful if eaten
Hyacinthoides	Bluebell	Harmful if eaten
Hyacinthus	Common Hyacinth	Harmful if eaten/skin irritant
Hypericum perforatum	St John's Wort	Harmful if eaten
Ipomoea	Morning Glory	Harmful if eaten
Iris	Yellow Iris	Harmful if eaten
Kalmia	Calico Bush	Harmful if eaten
Lagenaria	Bottle Gourd	Harmful if eaten
Ligustrum	Garden Privet	Harmful if eaten
Lobelia (except L. erinus)	Lobelia	Harmful if eaten
Lupinus	Lupin	Harmful if eaten
Lysichiton	Skunk Cabbage	Harmful if eaten/skin and eye irritant
Mirabilis	Marvel of Peru	Harmful if eaten/skin irritant
Monstera deliciosa	Cheese Plant	Harmful if eaten/skin and eye irritant
Narcissus	Daffodil	Harmful if eaten/skin irritant
Nicotiana	Tobacco	Harmful if eaten
Opuntia microdasys	Bunny Ears	Skin irritant
Ornithogalum	Star of Bethlehem	Harmful if eaten

continued overleaf

HTA Guidance Note

Code of Recommended Retail Practice Relating to the Labelling and Display of Potentially Harmful Plants

Published for its members by

The Horticultural Trades Association

Potentially Harmful Plants

2000 Review & Update

Reprinted December 2005

Horticultural Trades Association, 19 High Street, Theale, Reading, RG7 5AH
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Code of Recommended Retail Practice Relating to the Labelling of Potentially Harmful Plants

Contents

Horticultural Trades Association, 19 High Street, Theale, Reading, RG7 5AH
Tel: 0118 930 8940 Email: info@the-hta.org.uk Fax: 0118 930 4989

1. INTRODUCTION

The British public is fortunate in having access to a wealth of plant species. Most of these are harmless. However, there is a level of public concern regarding the potential harm from some plants in the house and garden. This voluntary Code has been produced to address that concern. It sets out guidelines for the retailing of plants and bulbs which will ensure that the public is informed of potentially harmful plants at the point of purchase.

The information upon which the Code is based indicates that even where plants are known to be potentially harmful, the risk is sufficiently small and the plants are of sufficient ornamental value to merit continued sale to the public, albeit with a warning label. Only one taxon is so toxic that the Code recommends controlling sale to the general public.

Plants pose a risk in mature gardens, parks and in the wild. Therefore the Code, while necessarily concentrating upon plant labelling at the point of sale, recognises the broader issue of informing and educating the public.

Leaflets are available which give basic information on the potentially harmful plants included in this Code. These may be purchased from the HTA for distribution to the public.

2. ACKNOWLEDGEMENTS

An assessment of potentially harmful plants was initially jointly commissioned and funded in 1994, by:

The Royal Horticultural Society
The Horticultural Trades Association
The National Farmers' Union
J Sainsbury plc and Sainsbury's Homebase

with additional grants from the Land Settlement Association Charitable Trust, Horticultural Development Council and from Marks and Spencer plc.

The research was carried out by a project group consisting of representatives of:

The National Poisons Unit, Guy's and St Thomas' Hospital Trust
The Royal Botanic Gardens, Kew
The Royal Horticultural Society

The research was based on:

Data on cases and enquiries at the National Poisons Unit
Bibliographical references in medical, botanical and horticultural literature
Consultations with specialist dermatologists
Comments from the general public

The resultant Report was produced in 1994 and contained toxicological reviews for 109 plants/plant groups. Of these, 94 indicated the presence of a potential toxic hazard either minor, moderate or severe.

2000 Edition

In 1998 work began on a review of the Code, which was completed in February 2000. A much larger group of plants was researched during this review and as a result 52 additional plant groups have been added to the code, whilst 6 others have been removed. In addition a number of plant groups have either been re-categorised or have been given amended wording. Planted bulbs are no longer excluded from the code. The HTA would like to thank the many individuals and organisations who took part in the consultation process and in particular the National Poisons Unit, and the Royal Botanic Gardens, Kew who undertook the review.

3. METHODOLOGY

3.1 THE SCOPE OF THE CODE

The Code relates to the retail sale of plants and bulbs by Garden Retailers, Mail Order and via the Internet.

Occupational exposure to plants, including the sale of cut flowers and their use in floristry, is outside the scope of this Code.

3.2 THE CRITERIA FOR LISTING PLANTS

Using the Report as a basis, plants were assessed for their degree of hazard and the risk they pose in the house and garden. Anticipated abuse by children through eating parts of the plant, and mistaken identification by adults leading to their eating parts of the plant were also considered.

It was considered necessary to label plants which fulfil the following five conditions:

i the Report identifies a significant hazard

ii toxic parts of the plant are produced or are available in the UK

iii the medical symptoms are serious

iv cases are widespread and not uncommon (i.e. exceptional allergies are not included)

v they pose a threat to human health (as opposed to livestock/pets)

4. LABELLING OF POTENTIALLY HARMFUL PLANTS

4.1 THE CONTENT AND STYLE OF WARNING TEXT

Plants requiring labels are listed in a later section along with the required warning text. The warning text may be in the same colour print as the rest of the labelling and a symbol is not required. Where there is more than one label on a plant, the warning should appear on each label (other than a price tag).

4.1.1 C**omputer pot and self-tie labels** The appropriate warning text is to appear on a single line, this normally being the bottom line of the descriptive text. Where possible the entire warning text should appear in capital letters.

4.1.2 **Colour printed stick-in or tie-on labels and prepacks.**
The appropriate warning text is to appear on the back and should be prominently displayed. Capital letters are to be used where they are used in this Code of Practice. Font and point size should be appropriate to that already used in the printing design.

4.1.3 **8" x 6" display labels.** Appropriate warning text is required for Category A and B plants. It should be prominently displayed. Capital letters are to be used where they are used in this Code of Practice. Font and point size should be appropriate to that already used in the printing design.

4.1.4 R**etail catalogue entries.** The appropriate warning text should either

(a) follow the descriptive text for each entry; or
(b) appear in the index of symbols and abbreviations. The symbol or abbreviation should then appear against each relevant entry in accordance with the system used in the catalogue.

Where, for example, several species are listed under a single generic heading, the warning text, symbol or abbreviation may appear once, against the generic heading. On a page featuring a single genus or species, e.g. *Delphinium,* the warning text, symbol or abbreviation should appear at an appropriately prominent place. Capital letters are to be used where they are used in this Code of Practice. Font and point size should be appropriate to that already used in the printing design.

4.2 BULBS AND CORMS

Because bulbs may be mistaken for onions and therefore eaten, all bulbs and corms sold loose or as prepacks should be labelled.

4.2.1. P**repacks.** The warning text – CAUTION do not eat ornamental bulbs - is to appear on the back and should be prominently displayed. Capital letters are to be used where they are used in this Code of Practice. Font and point size should be appropriate to that already employed in the printing design.

4.2.2. **Loose bulb sales.** A sign displaying the same warning text – CAUTION do not eat ornamental bulbs – should be prominently displayed in the sales area.

4.2.3. **Where hyacinths are sold loose,** disposable gloves should be made available in the display area, and the following sign should be displayed:

Handling hyacinths may cause temporary skin irritation.
***Gloves are provided for your comfort*.**

4.3 PLANTS DISPATCHED BY POST

If the warning is not included on the plant label it is to appear alongside the plant name on the advice note.

4.4 PLANTS SOLD WITH HANDWRITTEN LABELS OR WITHOUT LABELS

Where it is not practicable to write the warning text on the label, the retailer should provide the customer with the required warning by whatever alternative means is suitable in the circumstances.

SECTION 4.5

THE PLANT CATEGORIES

PLANT CATEGORIES AND LABEL REQUIREMENTS

The following lists include the labelling recommendations for each plant/plant group. The plants are divided into categories A, B and C according to the potential harm that the plant could cause.

Where only the genus is listed, all species should be labelled.

Where genus and species is listed, all cultivars and subspecies should be labelled unless they are proven to be less toxic than the type.

CATEGORY A

The sale of these plants should be restricted and sales to the public should be discouraged. Display in retail areas should be supervised so that children do not have access. Individual plants should be labelled and customers should be informed of the potentially harmful nature of the plants by sales staff.

Rhus diversiloba, radicans,rydbergii striata, succedanea, toxicarium,verniciflua & vernix	CAUTION Poisonous if eaten. Skin contact commonly causes severe blistering dermatitis

CATEGORY B

These plants require a warning on the plant label and on any bed label or any other point of sale material. The required warning text is indicated

Aconitum	CAUTION toxic if eaten/harmful via skin
Arum	CAUTION toxic if eaten/skin & eye irritant
Atropa	CAUTION toxic if eaten
Brugmansia	CAUTION toxic if eaten
Colchicum	CAUTION toxic if eaten
Convallaria	CAUTION toxic if eaten
Coriaria	CAUTION toxic if eaten
Daphne	CAUTION toxic if eaten/skin irritant
Datura	CAUTION toxic if eaten
Dieffenbachia	CAUTION toxic if eaten/skin & eye irritant
Digitalis	CAUTION toxic if eaten
Euphorbia (except E.pulcherrima)	CAUTION skin & eye irritant/toxic if eaten
Gloriosa superba	CAUTION toxic if eaten
Heracleum	CAUTION severly toxic to skin with sunlight
Hyoscyamus	CAUTION toxic if eaten
Laburnocytisus adamii	CAUTION toxic if eaten
Laburnum	CAUTION toxic if eaten
Lantana	CAUTION toxic if eaten
Mandragora	CAUTION toxic if eaten
Nerium	CAUTION toxic if eaten
Oenanthe crocata, aquatica & phellandrium)	CAUTION toxic if eaten
Phytolacca	CAUTION toxic if eaten
Primula obconica	CAUTION may cause skin allergy
Ricinus communis	CAUTION toxic if eaten
Ruta	CAUTION severely toxic to skin with sunlight
Scopolia	CAUTION toxic if eaten
Solandra	CAUTION toxic if eaten
Solanum dulcamara	CAUTION toxic if eaten
Sophora	CAUTION toxic if eaten
Taxus	CAUTION toxic if eaten
Thevetia	CAUTION toxic if eaten/skin irritant
Veratrum	CAUTION toxic if eaten
Zigadenus	CAUTION toxic if eaten

CATEGORY C

These plants require a warning on the plant label.
The required warning text is indicated.

Acalypha	Skin & eye irritant/harmful if eaten
Acokanthera	Harmful if eaten
Actaea section Actaea	Harmful if eaten/skin irritant
Adenium	Harmful if eaten
Aesculus	Harmful if eaten
Aglaonema	Harmful if eaten/skin & eye irritant
Agrostemma githago	Harmful if eaten
Allamanda	Harmful if eaten/skin & eye irritant
Alocasia	Harmful if eaten/skin & eye irritant
Aloe	Harmful if eaten
Alstromeria	May cause skin allergy
Amaryllis belladonna	Harmful if eaten
Anthurium	Harmful if eaten/skin & eye irritant
Apocynum	Harmful if eaten
Arisaema	Harmful if eaten/skin & eye irritant
Asparagus except A.officinalis	May cause skin allergy/fruits harmful if eaten
Brunfelsia	Harmful if eaten
Caladium	Harmful if eaten/skin & eye irritant
Calla palustris	Harmful if eaten/skin & eye irritant
Capsicum annum (ornamental cultivars)	Skin & eye irritant/harmful if eaten
Chelidonium majus	Harmful if eaten/skin & eye irritant
Chrysanthemum	May cause skin allergy
Colocasia esculenta	Harmful if eaten/skin & eye irritant
Cupressocyparis leylandii	May cause skin allergy
Delphinium	Harmful if eaten
Dictamnus albus	Skin irritant with sunlight
Dracunculus	Harmful if eaten/skin & eye irritant
Echium	Skin irritant
Epipremnum	Harmful if eaten/skin & eye irritant
Euonymus	Harmful if eaten
Ficus benjamina	May cause skin allergy
Ficus carica	Skin irritant with sunlight

Fremontodendron	Skin & eye irritant
Gaultheria section Pernettya	Harmful if eaten
Gelsemium	Harmful if eaten
Hedera	Harmful if eaten/may cause skin allergy
Helleborus	Harmful if eaten/skin irritant
Hippeastrum	Harmful if eaten
Homeria	Harmful if eaten
Hyacinthoides	Harmful if eaten
Hyacinthus	Harmful if eaten/skin irritant
Hypericum perforatum	Harmful if eaten
Ipomoea	Harmful if eaten
Iris	Harmful if eaten
Kalmia	Harmful if eaten
Lagenaria	Harmful if eaten
Ligustrum	Harmful if eaten
Lobelia (except L.erinus)	Harmful If eaten
Lupinus	Harmful if eaten
Lysichiton	Harmful if eaten/skin & eye irritant
Mirabilis	Harmful if eaten/skin irritant
Monstera deliciosa	Harmful if eaten/skin & eye irritant
Narcissus	Harmful if eaten/skin irritant
Nicotiana	Harmful if eaten
Opuntia microdasys	Skin irritant
Ornithogalum	Harmful if eaten
Papaver somniferum	Harmful if eaten
Passiflora caerulea	Harmful if eaten
Pedilanthus	Skin & eye irritant/ harmful if eaten
Philodendron	Harmful if eaten/skin & eye irritant
Podophyllum	Harmful if eaten
Polygonatum	Harmful if eaten
Polyscias	Harmful if eaten/skin irritant
Prunus laurocerasus & lusitanica	Seed kernels harmful if eaten
Rhamnus	Harmful if eaten
Rhaphidophora	Harmful if eaten/skin & eye irritant
Robinia psuedoacacia	Harmful if eaten
Sambucus (except S nigra)	Harmful if eaten
Schefflera	May cause skin allergy
Scilla	Harmful if eaten

Solanum (cultivated ornamental species except S.dulcamara)	Harmful if eaten
Solanum pseudocapsicum	Harmful if eaten
Spartium junceum	Harmful if eaten
Spathiphyllum	Harmful if eaten/skin & eye irritant
Symphoricarpos	Harmful if eaten
Symphytum	Harmful if eaten
Syngonium	Harmful if eaten/skin & eye irritant
Tabernaemontana	Harmful if eaten
Tulipa	Harmful if eaten/may cause skin allergy
Vitex	Skin irritant
Wisteria	Harmful if eaten
Xanthosoma	Harmful if eaten/skin & eye irritant
Zantedeschia	Harmful if eaten/skin & eye irritant

SECTION 5: STAFF TRAINING

INFORMING THE TRADE

Retailers should train their staff on the following:

- What the warning texts mean
- What practical advice to give to customers
- What practical steps can be taken in the retail area to reduce the risks posed by potentially harmful plants.

The notes in this section deal with these three issues. The following pages are printed so that they can be photocopied and used as staff handouts.

The suggested training programme introduces staff to the concept of potentially harmful plants.

Section 5.1

Staff Training Session No.1

Staff can be involved by asking questions and noting their answers on a flip chart. The suggested answers given are suitable for writing up on a flip chart.

1. Why have a Code of Practice?

   to inform the public
   to protect the retailer
   to ensure uniformity in the trade

2. The information upon which the Code is based came from a Hazard Analysis Report produced jointly by the National Poisons Unit, Guy's and St Thomas' Hospital Trust, the Royal Botanic Gardens, Kew, and the Royal Horticultural Society. All known data was summarised.

3. How can plants harm people?

   through eating
   skin contact – rashes
   skin contact – allergies
   inhalation (hay fever)

   An allergic reaction is one which affects only certain people, and is often triggered by repeated contact.

   Primula obconica is thought to cause an allergic contact through inhalation, and Ficus benjamina is suspected of causing problems in offices, especially when handled. However, there is insufficient evidence for the Code to address the question of inhalation. The Code deals with ingestion and skin contact only.

4. Features of the Code

   voluntary
   lists which plants to label
   suggest warning text for descriptive labels
   bed labels are needed for more harmful plants

5. What do the warning texts mean?

Section 5.2

Assignment for planteria manager/supervisor

1. Read through the plant names in Categories A, B and C in the Code of Practice. List those plants which you sell.

2. Check to see if these plants are labelled with a warning text. If not, what action is needed?

   For example:

   - request plant suppliers to add the warning text to their labels
   - add the warning text to your in-house computer-generated labels
   - add hazard texts to loose bulb display
   - obtain gloves for loose hyacinth sales

3. For each plant on your list, read the information given in section 4.5 of this guidance note. These are the conclusions from the Hazard Assessment Report.

Section 5.3

Assignment for all planteria staff

1. Read through the plant names in Categories A, B and C in the Code of Practice. List those plants which you sell.

2. For each plant on your list, read the information given in section 4.5 of this guidance note. These are the conclusion from the Hazard Assessment Report.

Section 5.4

Staff Training Session No 2

1. How can risk from plants be reduced in the sales area?
    - write up ideas

2. What advice can we give to customers to help them reduce the risk from plants?
    - read the label
    - seek medical advice
    - teach children
    - garden layout
    - wear gloves
    - wash hands

Section 5.5

POTENTIALLY HARMFUL PLANTS INFORMATION SHEET
THE MEANING OF THE WARNING TEXTS

The texts contain a number of set phrases. These are interpreted below.

CAUTION

This warning is given for the plants with a relatively high hazard rating. Where bed labels or other promotional material is used, the warning text should appear on the bed label or other promotional material as well as on the label.

Toxic if eaten

These plants are poisonous. Even quite small quantities can be harmful. Often the whole plant is poisonous, although it is usually berries or seeds which are eaten. Children are most at risk from accidental poisoning, especially the under five age group, who may find berries and other plant parts attractive to eat. However, a remarkable number of adults also are poisoned through mistakenly identifying the plant as something edible. Daffodil bulbs are often mistaken for onions.

Houseplants which are toxic are not recommended for households with children under five. If part of such a plant is eaten, immediate medical advice should be sought.

Harmful if eaten

These plants contain poison but pose less risk. If part of such a plant is eaten, it is advisable to seek medical advice.

Skin irritant

These plants may cause skin reactions on handling. Symptoms often include dermatitis-type reactions, local inflammation, itching and blistering. Sometimes this is only temporary and of no lasting importance, such as the well-known ‘hyacinth itch’, but in some cases reactions can be very severe. Skin irritation from daffodils and tulips is usually associated with extensive handling of the cut flowers.

Skin irritation, if severe or persistent, should be referred to a doctor or casualty unit.

Eye irritant

Eye irritation is caused by sap getting into the eye, by splash, or through wiping the eye with a contaminated finger. However, in the case of *Fremontodendron* the irritation is caused by minute hairs brushed off the plant surface.

May cause skin allergy (skin allergen)

Skin allergies affect only certain people. Repeated exposure to a plant may cause a skin allergy to develop. Once a person becomes allergic to a substance, they usually remain sensitive to it. The substance causing the allergy may be found in several plant groups. The person may then become sensitive to all the plants simultaneously.

For example, people who are allergic to sticking plasters are often allergic to a wide range of conifers. This is because the allergy is caused by an ingredient of the pine resin used in the manufacture of the adhesive used in sticking plasters. That substance naturally occurs not only in pines, but many other conifers.

People allergic to sticking plasters react to a *Cupressocyparis leylandii*. The resulting dermatitis can be serious. It is usually caused when carrying out severe pruning, which is often required because of the rapid growth of this tree. Other conifers may give the same reaction, but pose less risk because they less often require such drastic pruning.

The irritation from *Alstroemeria* and *Chrysanthemum* is usually associated with extensive handling of the cut flowers. Chrysanthemums can cause irritation to the skin of amateur *Chrysanthemum* enthusiasts.

Severely toxic to skin with sunlight

A small number of plants have sap which renders the skin excessively sensitive to strong sunlight. Contact with the plant followed by exposure to sunlight results in very severe localised sunburn with blistering and may cause long-lasting skin discolouration.

Harmful via skin

The toxins in such plants do not cause skin problems but can pass though the skin to organs such as the heart where they can cause disorders.

Section 5.6

POTENTIALLY HARMFUL PLANTS INFORMATION SHEET
PRACTICAL ADVICE FOR CUSTOMERS

If seeking medical attention because of suspected poisoning or severe skin reaction, always take the name of the plant with you (the label if possible), or if you don't know the name, take an identifiable piece of plant. Do not try to make the patient vomit.

Avoid handling plants labelled *skin irritant* or *may cause skin allergy*. Skin reaction is usually caused by intentional handling of the plant; when trimming or pruning, for example. It is wise to wear gloves for these jobs. Wash hands after handling plants and before eating or handling food.

Children should be taught not to eat any seeds, berries or other parts of ornamental plants.

Very young children need supervision.

Where there are young children in the garden, the risk can be considerably reduced by planting potentially harmful plants away from the edges of borders, and planning the garden so that fruit and vegetable plants are segregated from ornamental plants.

X CUPRESSOCYPARIS LEYLANDII

Dermatitis is most likely to be caused when drastic pruning is carried out. If kept under control, severe pruning, sawing and burning will not be necessary. The risk is thereby reduced. Note that even the smoke from burning branches can induce the allergic reaction.

DIEFFENBACHIA

Not suitable for households where there are children under five years old.

FREMONTODENDRON

Irritation to skin and eye is caused by minute hairs brushed from the surface. Do not plant where people will brush past.

LIGUSTRUM

It is usually the berries that are eaten. A neatly trimmed hedge rarely produces berries.

PRIMULA OBCONICA

If skin irritation is experienced, wear gloves to remove dead flower heads. Some sensitive people cannot be in the same room as the plant. In this case the plant should be removed from the house.

RUTA

Avoid handling in bright sunlight. Wash hands after handling.

Section 5.7

POTENTIALLY HARMFUL PLANTS INFORMATION SHEET
PRACTICAL WAYS TO REDUCE RISK IN THE RETAIL AREA

GENERAL

Berries or seed pods which are of no ornamental value should be removed from plants in the sales area, e.g., *Laburnum.* Plants sold for their ornamental fruits should not be treated this way! *Cotoneaster, Crataegus, Mahonia, Malus, Prunus* (except *P.laurocerasus),Pyracantha, Skimmia, Sorbus* and *Symphoricarpos* are all relatively harmless.

Staff who are sensitive to particular plants should be issued with gloves, barrier cream, or given work which avoids contact with the plants to which they are sensitive.

DIEFFENBACHIA

This is the one houseplant to be kept away from very young children. There are plenty of alternative houseplants which are equally attractive.

Customers can be encouraged to purchase alternatives by reducing stock levels of *Dieffenbachia* and positively promoting alternative plants. Risk to children in the planteria can be reduced by positioning *Dieffenbachia* away from the edge of the display bench.

Trials of low-toxicity cultivars of *Dieffenbachia* are under way in Australia.

LABURNUM

This plant is well known to be poisonous. Although all parts of the tree are poisonous, it is usually the seeds that are eaten. The cultivar *L. x watereri 'Vossii'* is the one to sell, because it is a superior plant and very few seeds are set.

PRIMULA OBCONICA

Allergen-free cultivars of *Primula obconica* are being developed. When available they should be sold in preference to other cultivars.

HYACINTH

The irritation resulting from contact with hyacinths is caused by minute crystals lodging in the skin. The crystals are natural, although the problem is worse with prepared hyacinths. The itching causes the sufferer to scratch the irritated skin parts, pushing the crystals deeper into the skin and spreading the crystals to other parts of the body. It is therefore important to avoid scratching any itch. The symptoms disappear naturally after a short time. The crystals can be effectively removed by washing in warm water.

Cold or draughty sales areas cause the skin pores to close and increase the irritation.

Dust from hyacinths includes these irritant crystals. Dust control measures are therefore necessary:-

- wiping dusty surfaces with damp cloth before brushing the floor
- using a vacuum cleaner in preference to brushes and dusters
- vacuuming over the bulb displays to remove loose scales and dust

Staff who are sensitive will find that barrier cream helps prevent the irritation. Alternatively, gloves may be worn.

The Code recommends that gloves be provided for customers purchasing hyacinth bulbs.

HTA GUIDANCE NOTES

These additional Guidance Notes are available from the HTA Information Centre:

Consumer Law – Implementation and Enforcement

Development Plans

Employing People

Epos Explained

Security – Keep Crime Out

Health and Safety for Garden Centres

Operating Concessions

Potentially Harmful Plants: A Code of Retail Practice

Successful Garden Centre Coffee Shops

Sunday Trading

Town and Country Planning Procedures

The HTA website: www.the-hta.org.uk contains many of these publication which can be downloaded from the Members section. Log in to the Members' section and search under Information Centre – Publications.

The titles mentioned above are subject to occasional revision and may be withdrawn at any time.

Please contact the information Centre for further details of all publications
Tel: 0118 9308940 or info@the-hta.org.uk