

**DEER INDUSTRY ASSOCIATION of
AUSTRALIA**

**NATIONAL VELVET ACCREDITATION
SCHEME**

**A MANUAL FOR FARMERS AND VETERINARIANS ON THE
VELVETING OF DEER IN AUSTRALIA**

**Revised 1997
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TABLE OF CONTENTS

Subject	Page
Deer Velveting – National Program for Farmer accreditation	4
The Course	7
Major Course Objectives	8
Course Content	9
Definitions	10
Welfare Considerations for Farmed Deer (A Talk to Farmers)	11
Arguments For/Against Velveting	13
Pain, Stress and Distress: Potential Effects of Velvet Antler	
Harvesting on the Welfare of Farmed Deer	15
Minimising Pain and Distress during Deer Velveting	24
Anatomy, Physiology and Diseases of Deer Antler	32
Drugs For Use in Velveting	37
Human Emergency Response Procedures	39
Xylazine	40
Lignocaine Hydrochloride	42
Yohimbine	43
The Velveting Process; Hygienic Environment	44
Minimal Stress Handling	46
Adequate Facilities	47
Adequate Restraint	48
Husbandry of Deer for Velveting	53
Surgical Technique	54
Stag/Buck Management after Velveting	58
Summary of Surgical Procedures	61
Velvet Quality, Grades, Products and, Markets	63
Quality Assurance	71
Xylazine Administration Guide	72

Table of Contents cont.

Subject

References	78
Annex 1: Velveting Checklist	80
Annex 2: Requirements for Farm Accreditation	81
Annex 3: Protocol for Assessment of Farmers to Determine Velveting Competency	82
Annex 4: Case Studies	84
Review Questions	88
Answers	90
Annex 5: High Regional Nerve Block	97
Legal Implications of N.V.A.S. in Australia:	
Appendix A: South Australia	100
Appendix B: New South Wales	104
Appendix C: Western Australia	113
Appendix D: Queensland	122
Appendix E: Victoria	128
Appendix F: Tasmania	135
Appendix G: AVA policy	140

DEER VELVETING - NATIONAL PROGRAM FOR FARMER ACCREDITATION

Background

At the Australian Veterinary Association's Annual General Meeting in Canberra in March 1994, a decision was taken for the AVA to support an accreditation scheme to allow deer farmers to be trained to remove velvet antler from their own deer, after undertaking an approved course of training. The AVA reaffirmed the need for the "use of an effective analgesic technique administered by a veterinary surgeon, or, under the direction of a veterinary surgeon, by operators trained and accredited to perform the procedure on their own stock." The AVA thus also agreed that velvet antler harvest is a legitimate procedure on deer farms, and that the process is humane, as long as accepted procedures to achieve analgesia are used.

The first program to train and accredit deer farmers in Australia was developed in Western Australia in 1992, in parallel with the initiation of a similar program in New Zealand. This first program was put together for the Deer Farmers Association of WA by Dr Sue Joubert, and she must be given full credit for her work, which was carried out with close attention to what was occurring in New Zealand. A similar training course was conducted in South Australia and Victoria a year later. Both the SA and Victorian courses were derivatives of the WA course, and this has now evolved into what can now be considered the National Deer Velvet Accreditation Scheme. After the AVA's decision in March 1994, the Deer Farmers Federation of Australia (DFFA), now the Deer Industry Association of Australia (DIAA) accepted the task of putting together such a scheme, which would be approved by both the AVA and the Veterinary Surgeons' Boards in all States.

A DIAA committee was formed in mid 1994, with Dr Tony English nominated by the AVA as its representative, charged with the responsibility of ensuring that the new National Velvet Accreditation Scheme complied with the spirit of the AVA's decision in March 1994 to permit deer farmers to harvest velvet from their own deer. The two primary concerns expressed during the protracted debate before and during the AVA AGM had concerned the animal welfare implications of such a scheme, and the drug supply issues involved.

A key element in the AVA's approval of any such scheme was the approval of only 2 percent xylazine, yohimbine and local anaesthetic for use by deer farmers. This fact largely restricts the scheme to owners of fallow deer, red deer and wapiti (or hybrids of the latter two), since most rusa and chital stags cannot readily be velveted with these drugs alone.

National Velvet Accreditation Scheme

The National Velvet Accreditation Scheme has been developed from the state-based programs from W.A., Victoria and S.A., with the approval of the Veterinary Surgeons' Board and welfare organisations in each State. The scheme and its' objectives was subjected to close scrutiny by a group of veterinarians very familiar with the deer farming industry in Australia, with the overall aim being to produce a training program which was entirely consistent and acceptable in all States. In particular there was a clear need to ensure that both the training program itself, including the examination/accreditation process, and the details it contained of drugs permitted and so on, were consistent across the country. It was accepted that there may

well be variations in the mechanics by which the scheme was administered in some States, depending on the opinions and attitudes of Veterinary Surgeon's Boards. All Boards have now expressed their support for such an accreditation process, with some variation in how they will oversee the way in which drugs are prescribed. For example, in NSW the Board has decided to accredit deer farmers itself, on successful completion of a training program - a move that will probably not be followed in other States. The removal of velvet antler in NSW by anyone other than a veterinary surgeon, who is not so approved by the Board, will be an offence under the Veterinary Surgeons' Act 1986. In all other States, velveting of stags can be performed, provided that it is done under veterinary supervision. To be in possession of the drugs listed above without the prescription of a veterinarian is an offence in all States, but in NSW such possession will be restricted to deer farmers who have successfully completed an accreditation course.

The key elements of the DIAA National Velvet Accreditation Scheme are as follows:

a. On application on the approved DIAA form a farmer will be sent a self-assessment, which will include guidelines for proper deer handling facilities, to allow farmers to upgrade their own facilities if necessary. It is at this stage that they will also be required to nominate their attending veterinary surgeon, who will eventually carry out the practical evaluation of the farmer concerned, and his or her ability to perform velvet antler harvest effectively on his or her own farm. This veterinarian will be responsible for the supervision of velveting each year by that person. This one to one relationship between the farmer and the veterinarian is central to the effective management of the scheme, and to the proper control of all drugs prescribed to accredited farmers. It should be clearly understood that there is no compulsion for a veterinarian to accept such an arrangement, nor can a deer farmer demand that drugs be made available because a training program has been completed.

The challenge for the veterinary profession is either to provide a competent, cost-effective velveting service to deer farmers, or to accept the responsibility of working closely with an accredited deer farmer to ensure that good quality velvet is harvested humanely. In either case, it is an absolute requirement that the veterinarian be well aware of the issues involved in velvet antler production, and competent in the velveting process. Any veterinarian who is nominated by a deer farmer will be sent details of the training course.

b. The deer farmer will then attend a theoretical training course held over 2 days - the location, timing and administration of such courses to be a DIAA responsibility in each State. The farmer must achieve a mark of at least 75% in an "open book" examination at the end of the two days, which involves material on antler anatomy and physiology, pain control, pharmacology and legal aspects of the possession and use of the approved drugs, the velveting procedure, including restraint and handling and stress reduction, and management of deer before and after velveting. There is also instruction on factors affecting velvet quality, velvet grading and handling of velvet antler after harvest. These same matters should be well understood by any veterinarian involved in the scheme.

c. Having achieved the required mark in the theory examination, the deer farmer will then seek a practical assessment by the nominated veterinarian. The farmer will need to demonstrate skills involving the complete velvet harvesting process, including the yarding and handling of deer, and the post-velveting supervision of velveted animals. If there are any

significant deficiencies in the manner in which any of these are carried out, the deer farmer will not be accredited. The minimum age for accreditation will be 18 years.

Once applicants have passed the theoretical and practical components, they will be issued with a Farmer Operator Accredited Number that will be species specific but can be altered on application. Accreditation Numbers will be issued for a period of (3) three years. Numbered velvet tags will be issued to each farmer in the program, and all velvet antler should be identified with the tags when sent for sale to the Velvet Pool. Tagged velvet will be promoted as quality assured.

Reports

Each year all holders of an Operator Accredited Number will be required to submit by 30 June a report stating: the number of deer velveted, the method of velveting used, the species of deer, the number of deaths within 48 hours of velveting, and details of drugs received and used. All deer that die within 48 hours of velveting must be submitted to necropsy by the nominated veterinarian.

They will be required to attend a refresher course at the end of the 3 years, as a continuing education component that will then automatically renew the Farmer Operator Accredited Number for a further three years.

The accrediting veterinarian must undertake an Annual Supervising visit to the farm at the start of each velveting season, to carry out a check on the facilities, drug storage arrangements and the farmer's practical skills in handling and velveting deer. The veterinarian dispensing drugs for velveting must maintain a register of all drugs so dispensed, and should take appropriate actions if problems arise, including the deaths of deer or an undue level of velvet damage (as reported by the Velvet Pool).

A farmer's accreditation may be suspended at any time by the DIAA Velvet Accreditation Disciplinary Committee.

From the veterinarian's point of view, the emphasis throughout should be on establishing a good level of communication and cooperation with the client, with all charges for time or work carried out by the veterinarian to be a matter of discussion between them. This new Accreditation Scheme reflects both the stated needs of the deer farming industry and the requirements of the AVA for the maintenance of both the welfare of the animals concerned, and the proper control of the restricted drugs which are to be made available to accredited farmers. If goodwill is retained by both parties the scheme will be successful. It will of course be subject to continuous review by both the AVA and the DIAA, working in close cooperation.

AW English

Camden 5 September 1995

THE COURSE

The deer industry wishes to demonstrate its concern for the welfare of its animals and also, a responsible attitude to the administration of drugs for anaesthesia.

This Accreditation Course is important to the industry in view of international animal welfare trends and their possible implication to world trade. It is also important as velveting involves the use of Schedule 4 drugs [ie, potentially dangerous drugs], which by law must be prescribed by a veterinarian.

Accreditation will mean that a farmer has an in-depth knowledge of the procedure of velveting and its implications. Accreditation will encompass both the operator and the facilities.

The procedures for Accreditation are:

- Firstly: A self-assessment which will be sent with each application form (See Annex 2). This will include guidelines for proper facilities and will allow the farmer to assess his/her facilities and up-grade them if necessary before being officially assessed. He/she will be asked to nominate their/a veterinarian within a reasonable distance to cope with supervision and dispensing of drugs, problems associated with velveting and general deer medicine. The nominated veterinarian will then be sent information regarding the course and its contents.
- Secondly: A theoretical component that will be held over two days. The assessment will be an exam, open book style with a 75% pass mark.
- Thirdly: The third step will be a practical assessment. The farmer will need to demonstrate skills involving the complete velveting procedure. A pre-determined set of criteria will apply and a minimum standard of ability will be necessary. The assessment of facilities will occur at the same time. This practical examination is assessed by the supervising veterinarian.

Once the applicant has passed the theoretical and practical components, he/she will be issued with an Accreditation Number allowing that person to remove velvet from his/her animals in the approved facilities.

Velvet will be accompanied to the velvet pool with its Accreditation Number and a statement to the effect that the velvet has been removed under the National Velvet Accreditation Scheme. Each stick of velvet will be tagged with the operator's Accreditation Number.

The scheme will be regulated and controlled by the industry for the industry.

MAJOR COURSE OBJECTIVES

1. Increased awareness of animal welfare issues.
2. To ensure an understanding of all relevant legislation including drug restriction and animal cruelty.
3. To ensure a thorough understanding of the principles involved in velveting.
4. Satisfactory completion of the theoretical examination covering all aspects of the above.
5. Knowledge to allow for the satisfactory completion of a practical examination and passing the inspection of deer velvet facilities.
6. Improve the farmer-veterinarian relationship.
7. To facilitate the concept of quality assurance for the Velvet Industry

COURSE CONTENT

At the end of this Course, the participant will have covered the following main content areas:

- animal welfare issues and legislation relating to velvet antler harvesting
- definitions and requirements with respect to veterinary supervision and the legal responsibilities of deer producers and veterinarians
- stress and pain and their effect during velveting, be able to recognise these factors
- the basic and applied principles of anatomy, physiology involved in velvet antler harvest
- the process of velveting
- the principles of healing and hygiene required to prevent infection
- alternatives for deer restraint
- complications of velveting
- hygienic handling of velvet products
- the farmer-veterinarian relationship.

DEFINITIONS

WELFARE:	state of being well [health and freedom from disease], of happiness or well-being [freedom from stress and ability to exhibit normal behaviour].
HUMANE:	behaviour towards others which benefits man. This is based on the knowledge, education and prejudices of a particular society.
PAIN:	suffering, distress of body or mind.
MUTILATION:	deprivation [persons etc] of limb or organ. Cut off, destroy the use of limb etc.
CRUELTY:	wilful infliction upon the animal of pain or suffering in that its' kind or degree or in its' object or in the circumstances in which it is inflicted is unreasonable or unnecessary. An owner shall be deemed to have permitted cruelty if he shall have failed to exercise reasonable care and supervision in respect of the protection of the animal therefrom, or failed to take reasonable steps to prevent the unnecessary suffering of the animal.
ILL-TREAT:	includes wound, mutilate, overdrive, override, overwork, abuse, worry, torment and torture; also knowingly overload and knowingly overcrowd, and unreasonably, wantonly or maliciously beat.
ANTLERS:	appendages which grow annually from the pedicle formation of the frontal bones of deer.
VELVET ANTLER	growing antler which contains an abundant blood and nerve supply and which has a fully intact skin with a covering of fine soft hair.
HARD ANTLER:	the antler when growth has ceased, calcification has occurred and the nerve and blood supply no longer function. This is recognisable when the animal has begun to rub dried and cracked skin from the antler.

WELFARE CONSIDERATIONS FOR FARMED DEER

A talk given to farmers by
Dr. Susan M. Joubert, B.V.M.S.,B.Sc.
1993

Velveting, from the deerfarmer's perspective is an economic operation. It is also recognised as an essential annual management procedure, for prevention of injury to males and females, and handlers during breeding and husbandry activities.

Velveting, from an ethical viewpoint, is primarily an animal welfare issue.

From the perspective of most other community groups, it is also an animal welfare issue. It is important that you people here are in a position where you can represent the deer industry and argue confidently on issues relating to animal welfare.

The Power of the Media.

SUNDAY TIMES

FARMERS GUILTY OF MUTILATION

The Deer Industry has been criticised for carrying out their annual ritual of bloody acts of shameless profit-driven mutilations on animals which are able to feel the terror and horrific pain associated with the procedure known as velveting. Every year animals are forced to endure this brutal and barbaric butchery from farmers. And for what? To make money from the Asian aphrodisiac market.

This statement could quite conceivably appear in the Sunday Times news. We know how media can twist and sensationalise issues. When it comes to issues relating to animal welfare, descriptions can be graphic and shocking. Power of media is something that anyone who manages and cares for animals needs to be very conscious of.

Usually, in these situations, there is a winner and a loser and invariably the animals are never the losers. It is important that people's level of awareness is increased about animal welfare but there is a right way and a wrong way to do that. The best way to reduce the impact of the

wrong sort of publicity is to be prepared. You need a full understanding of the procedure, which is being criticised, in this case, the degree of pain and stress experienced by the animal and know what measures are taken to minimise stress and prevent pain.

Changing Community Attitudes to Animals.

Community attitudes lead to changes in our own attitudes. Ultimately, this leads to legislation. As a result, we may experience a change in our attitude to certain procedures which we previously have felt comfortable about.

Scientists and even veterinarians have been trained to carry out certain procedures on animals, almost as robots, without really thinking about it very deeply (for years sometimes) until it is pointed out that there may be an alternative way of doing that procedure, which is much less painful or stressful than the initial method. Without being alerted, we tend to continue on the old way, causing pain and stress. There are quite a number of scientists who openly admit that there are things that they routinely did years ago, which would give them the cold shivers to think about doing today. The issue of tail-docking in dogs is an interesting example. Some veterinarians who started in practice never even using local anaesthetic for tail docking, are today questioning the necessity of the whole procedure. Thinking about what we do and why can often have a very big impact on us.

Showing compassion and consideration doesn't mean losing one's image of ruggedness or toughness. In fact, the opposite is often the case. Compassion is seen as a strength and not a weakness. You don't see Clint Eastwood or Arnie Schwarznegger kick the living daylights out of an old dog. They might blow someone's brains out, but be cruel to an animal – no way!

Changes to Farming in General

Today, farming is more than a way of life, it is an agri-business and it must be very commercial in order to survive. Farmers have an increasing responsibility to the environment (eg. tree planting and salt reclamation) and the animals farmed in that environment. A farmer needs to be an efficient and knowledgeable manager.

Quality Assurance is one of the catch words of this decade. People want to know that the venison that they eat is from animals that have not been treated cruelly, that the velvet they take for their arthritis has been humanely harvested.

Accountability is another catch word. You must be able to explain practices that occur in the farm environment and/or relate to animal welfare. You must have sufficient documentation to demonstrate if necessary that the procedures have been carried in the correct manner.

The Animal Itself

You need to think about not just the possible pain of the procedure, but also the stress of restraint and handling, the post-operative pain and the social changes in the group once the procedure has occurred.

Finally, why is the procedure being performed in the first place?

ARGUMENTS FOR / AGAINST VELVETING

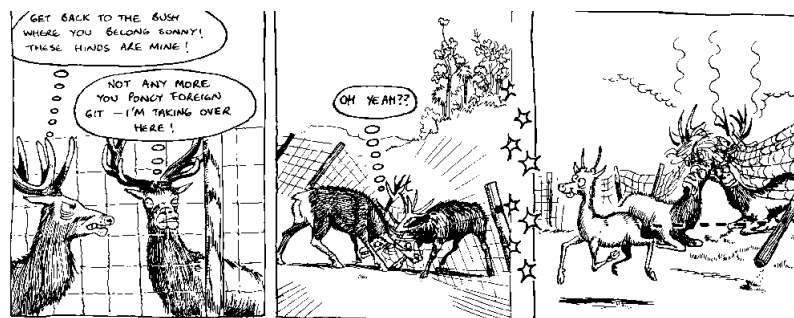
FOR VELVETING:

1. Animals in hard antler, including spikers, can inflict injury to other animals and humans. Bucks and stags become more and more aggressive and difficult to handle as antler becomes hard until during the rut they are likely to inflict a wide range of injuries. This problem is multiplied in a confined environment [farming] compared to the wild situation. Animals in hard antler are more prone to entanglement in fences.
2. Antlers are probably best removed when in velvet for safety reasons to other animals, themselves and humans. When antlers are in velvet, circulating testosterone levels are low and stags are least aggressive.
3. Damage to carcasses at slaughter due to aggression during yarding and transport causing considerable economic loss.
4. Profit-sale of velvet antler is a significant source of income. With fallow and chittal bucks and spikers regrowth, it may not be a profitable venture in which case alternatives may be considered such as removal of hard antler after rubbing, polling, castration and inhibition by immunological means, eg. anti GnRH vaccination.

Removal of hard antler after rubbing: At this time there is no blood or nerve supply present and therefore the removal can be performed without analgesia.

Polling: Surgical polling of young males for use as breeding stock occurs with fallow and chital deer. This permanently prevents antler growth. This procedure requires a full anaesthetic and is a veterinary procedure. It should be done in young deer as soon as the pedicles can be palpated under the skin. Occasionally the procedure fails with fallow bucks, but rarely with chital.

Castration: Castration of weaners is another option, especially if they are due for slaughter during the premium price period ie, the rut. Castration produces animals that can be easily yarded and transported. Bruising of carcasses is most unlikely to occur. The procedure can be carried out at 4-6 months by the farmer with elastrator rings. There is some small increase in fat content and a slight weight deficit compared to an entire male.



AGAINST VELVETING:

1. The removal of antlers in velvet is an unnecessary mutilation.
2. Velveting occurs every year and therefore is unlike dehorning which occurs once in an animal's lifetime.
3. It is done for financial gain and would not otherwise be considered.

WELFARE ISSUES

The removal of velvet antler from stags/bucks has been banned in a number of countries including United Kingdom and European Common Market countries. Lobbying from Animal Welfare groups has resulted in legislation prohibiting velvet removal on humane grounds.

In Australia the deer population is composed of approximately 50% fallow, 50% red and although velveting of red deer can be highly profitable, the same level of profitability cannot generally be expected from fallow deer. However, a considerable amount of fallow velvet is sold in Australia, and fallow deer farmers need to consider the options - including surgical polling.

The general public is not very accepting of farming or veterinary procedures which severely curtail the freedom of an animal to behave normally.

The act of velveting could be seen as inflicting pain and/or stress onto the animals and therefore constitute cruelty. It is of the utmost importance that the procedure be carried out with sufficient analgesia to prevent pain. Without proper supervision of this procedure, Australia and New Zealand face the possibility of velvet harvesting being banned.

The Deer Industry has a responsibility to inform deer farmers of the need for veterinary supervision, and of the possible ramifications to the industry as a whole if the welfare issues are ignored. There is always the possibility of the use of non-tariff trade barriers/embargos on all primary products, if animal welfare issues become of concern to our overseas markets.

It is up to the deer farmers and those associated with the industry, especially veterinarians to insure that the procedures involved with the act of removal of velvet antler will be seen to be performed with the welfare of the animal as a principal consideration and that it be done in a humane manner. This means that the procedure must be clearly documented with every aspect clearly defined.

PAIN, STRESS AND DISTRESS: POTENTIAL EFFECTS OF VELVET ANTLER HARVESTING ON THE WELFARE OF FARMED DEER

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1. ANIMAL WELFARE

Although antlers in velvet have been harvested from captive deer for centuries in Asian countries for use in traditional medicine, commercial production of antler velvet in Western countries as an agricultural trade commodity began less than 25 years ago. Over this same period there has been a marked increase in public awareness and concern about the treatment and well-being of animals, including farm animals, especially in Western countries. When commercial deer farming developed in Europe and Australasia in the 1970's, public attention was therefore focussed on the ethics of cutting antlers from deer as a profit-making enterprise. This led to a total ban on velvet removal in Europe and regulation of the procedure in Australia and New Zealand.

Since the 1960's, improved scientific knowledge and wider public education of animal biology, expanding mass media and the growing gap between dwindling numbers of rural-based food producers and increasingly affluent urban-based consumers have permitted and even supported the rise of new popular philosophies in Western societies concerning the appropriate social relationships between humans and animals. For many people, an animal today is seen as a companion or a component of their environment that is deserving of consideration and not simply as a form of personal property, a unit of production or an insensitive "beast".

This concept of animals as "sentient" beings whose welfare is a proper moral concern for humans is now generally accepted and has even been extrapolated in the view of some people to the notion of "animal rights". Grounded in the same Christian ethic which abolished slavery, philosophical development of the notion of a different social relationship between humans and animals has been going on in Western culture for well over a century and is likely to continue.

It is now accepted that people with a proprietary interest in animals have a "duty of care" towards their animals. In many states, this responsibility is written into law. For example, it is an offence for any person who is responsible for an animal to authorise or cause any pain, suffering or distress to that animal that is *unnecessary, unreasonable or unjustifiable*.

Nowhere has the expression of public concern for animals been louder than in the area of non-therapeutic surgical procedures or so-called surgical "mutilations".

Cosmetic surgery such as ear cropping of dogs or tail docking of horses has long been illegal and there is mounting pressure against tail docking of dogs and dairy cattle.

It is generally accepted that surgical procedures in animals that are conducted without pain relief (analgesia) should not be undertaken in the absence of compelling reasons. Such reasons might include a benefit to the animal itself that justifies the attendant pain and any subsequent interference with its body function.

Although some controversy has arisen about procedures such as mulesing, castration or tail docking which are undertaken without any analgesia, most of these husbandry procedures have a long history in sheep and cattle production and the support of large, well-established animal industries. Imposing any legal requirement for analgesia that might make such procedures more costly or difficult is therefore politically unpalatable. Conversely, there is usually little support nowadays for any new or novel surgical procedure which lacks good evidence of a direct benefit to individual treated animals.

The promotion of new animal industries always attracts public scrutiny. If the production system involves a painful procedure, invariably this scrutiny will now include a questioning of the morality of establishing the new industry. Some people query how an ethical limit can ever be set for the amount of pain which can be justified. Should the allowable pain be determined by potential profit? Such questions are not only at the frontiers of Western philosophy, but are also issues in contemporary popular debate about animal use.

In the minds of many people in our society, keeping large numbers of mature stags for velvet antler production cannot be justified if those stags are subjected to significant pain in the production process. If the stags derive no benefit from velvet removal, the pain cannot be said to be necessary, justifiable or reasonable. Conversely, if the pain can be eliminated, these arguments by people opposed in principle to velvet production are diminished. However, although the ethics of cutting antler as an agricultural commodity remain controversial, the ethics of cutting antlers without analgesia do not. Neither the law nor community opinion will now tolerate the harvesting of antlers in velvet without proper analgesia.

The laws relating to velvet production are not simply the implementation in the deer industry of broader based animal welfare standards for surgical husbandry procedures. Many other surgical procedures undertaken on sheep and cattle are considerably more painful than antler harvesting, but are nonetheless conducted legally without analgesia. What then is the real principle underlying the legal requirement that deer subjected to velvet antler removal must be rendered insensitive to pain?

The fact that significant pain is caused to other farm animals during surgical husbandry procedures is irrelevant. Arguments supporting the need for a particular surgical procedure tend to be specific to that procedure.

Many husbandry procedures such as mulesing have significant and identifiable benefits to the treated animal. Velvet production, on the other hand, has the disadvantage that it is the only surgical procedure in farm animals where sensitive tissue is removed and retained as a tradeable commodity. In other procedures where sensitive tissue is removed, this tissue is discarded because the primary purpose of the surgery is to alter the animal itself for some purpose. In the case of velveting of deer, the primary purpose is not to alter the animal but to obtain the antler tissue as an animal product with value.

Animal welfare laws represent the government response to community concern about animal suffering, laid down within a framework imposed by the economic imperative of all governments to ensure continued viability and international competitiveness in agricultural production.

For the deer industry, the practical implication of this public concern for animal welfare lies in the potential for further legislative restriction or even a total banning of velvet antler harvesting in Australia. Anyone who harvests velvet without effective analgesia is therefore simply adding fuel to the arguments of those who oppose the legitimacy of velvet antler production as an agricultural enterprise.

2. POTENTIAL ADVERSE EFFECTS TO DEER FROM CUTTING VELVET ANTLER

In the procedures leading up to, during and after velvet antler harvesting, deer are subjected to a wide range of potentially adverse challenges to their internal well-being. These effects are often cumulative over time and, if sufficiently severe, can threaten the survival of the animal.

The *potential* adverse effects of velvet antler harvesting include:-

- psychological and/or exertional stress during yarding and handling
- physical trauma during yarding and handling
- normal physiological effects from drugs used for restraint and/or analgesia
- unexpected drug reactions
- acute pain (during or immediately after surgery)
- thermal stress,
- rumenal bloat or peripheral nerve damage during recumbency
- loss of blood
- aggression from other deer
- chronic pain (persistent after surgery)
- wound infection

Although our immediate concern for the welfare of animals subjected to routine surgical procedures rightly tends to be focussed on the alleviation of pain, other factors may also be important. Pain is only one of the many mechanism by which an animal monitors its environment for potential threats to its well-being. The brain is constantly bombarded by many different sensory inputs, all of which (including any painful stimuli) are subjected to an enormous amount of higher level processing to interpret and place the sensory inputs into a situational context.

We tend to assume that animals assign the same relative importance to different sensory inputs as we do ourselves, but this may not be the case. For example, fear resulting from a novel situation such as physical restraint may be assigned a greater relative importance by animals than even moderate pain.

One or more sensory inputs may be dominant in the animal's integrated conscious perception of its current environment, with perception of other less critical sensory inputs suppressed. This has been called *selective sensory attention*.

3. PAIN BIOLOGY

Definition of Pain: The International Association for the Study of Pain (IASP) defines pain as "*....an unpleasant sensory or emotional experience associated with actual or potential tissue damage.*" There are both sensory or discriminative and affective or emotional components of the experience of pain.

The sensory discriminative component of pain. *Nociception* (the sensing of *noxious* or harmful factors) is the process by which any change to the physical or chemical conditions at a particular site within and on the surface of the body, which would immediately damage surrounding tissue if allowed to continue, is detected and signalled to the central nervous system (CNS). Specialised pain receptors at the ends of nerve fibres called *nociceptors* are distributed throughout and over the surface of the body. The terminal receptors of these nociceptors can detect potentially damaging thermal, mechanical (eg. stretch) or chemical changes in the surrounding tissue. The nociceptor fibres then transmit an electrical signal from the site of potential injury to their connections with other nerves in the spinal cord which pass the signal onwards to the brain. In the brain, the signal is eventually perceived as pain if it reaches the brain cortex and intrudes into the consciousness of the animal. The nociceptors can also detect and signal actual tissue injury, even after the harmful factor has been removed, because they can respond to chemicals released from damaged tissue.

(Note that Nociception can occur without producing any conscious perception of pain in the brain. Simple "reflex" reactions such as the withdrawal response of a pain-stimulated limb are generated directly through connections in the spinal cord between nociceptor sensory nerves and motor nerves activating muscle contraction. Reflex responses occur without or prior to any involvement of the brain, whereas more complex behavioural responses such as purposive escape behaviour and vocalisation involve complex integrated signal processing by the brain.) In the case of velvet antler harvesting, pain signals are transmitted to the brain from the site of the tissue injury via branches of the trigeminal nerve, a "cranial" nerve in which nociceptors and other sensory nerves pass directly to the brain through small openings in the skull, without passing through the spinal cord.

Sensations of pain which are the conscious perception of a warning signal to the brain about tissue damage are usually referable to the site of the injury. The animal is thus able to discriminate the site and nature of the harmful stimulus or injury.

The affective emotional component of pain. This is the unpleasant emotional experience of pain that results from complex higher level processing of the nociceptive signal by the brain.

It is believed that the nociceptive signals from pain receptors induce widely distributed changes to brain function and this "altered brain state" is experienced in the conscious perception as an unpleasant feeling unrelated and unreferable to the site or nature of the tissue injury. The unpleasant feeling is generalised.

The function of pain. Pain is a protective physiological mechanism. It serves to alert the animal to potential or actual tissue damage, thereby permitting behavioural responses directed at avoiding or limiting this damage. Where tissue damage has already occurred, pain can act to restrict mobility and thereby to facilitate healing.

Pain also functions to induce learned behaviour. Higher level processing of the nociceptive signal in the brain may induce the development of a learned behavioural response to the particular conditions in which the pain occurred. These conditioned responses are used to avoid injury in the future. However, if the expression of this "conditioned" response is prevented in the future, frustration and stress may result.

Endogenous Pain Control Mechanisms. Where pain is severe and persistent, physical and mental exhaustion can occur, either from repeated attempts to escape the painful situation or from the direct effects of pain on body function. To avoid this, the body has several endogenous (internally produced) mechanisms to protect itself against the effects of uncontrolled, continuous bombardment of the brain by nociceptive stimulation. Under conditions of continuing painful stimulation or tissue damage, these endogenous pain modulation systems are activated to dampen down the signalling or perception of pain and the responses to the ongoing stimulation.

Endogenous pain control involves three protective mechanisms. Firstly, at the site of the injury or noxious insult, *sensory adaptation* leads to a decline in the number of electrical impulses generated by the pain receptors at the ends of the nerve fibres, despite their continued exposure to an unchanging stimulus. Secondly, there is a *sensory gating* mechanism in the spinal cord involving the activation of descending inhibitory nerves from the brain which have connections in the spinal cord with the nerves that transmit the pain signals upwards to the brain. Activation of these descending inhibitory nerves by the brain in response to pain actually blocks or "gates" the transmission of further pain signals upwards to the brain. Finally, also in response to pain, the brain activates the release of a range of opiate-like compounds (endorphins and enkephalins) from the pituitary gland and from within the brain itself. These opioid compounds regulate transmission of nerve impulses in the brain and spinal cord to suppress the transmission of pain signals and thus the conscious perception of pain. (The brain not only produces its own painkillers in response to pain, but also in response to stress! In the absence of pain, endorphin release causes euphoria.)

Types of Pain. In man and probably in animals, the quality and intensity of pain vary and these variations can be subjectively discriminated using labels such as "sharp" and "pricking" as distinct from "dull", "aching" or "throbbing". These two main types of sensation are the conscious experience of two different types of sensory input to the brain which function to elicit different behavioural and possibly different physiological responses. By selective "sensory gating" of the two different inputs in the spinal cord, the brain can separately regulate its *warning system* (the fast, sharp sensations) and its *reminding system* (the slow, aching sensations) to produce different behavioural responses for tissue injury which is

threatened or occurring and tissue injury which has already occurred. (For example, escape behaviour to avoid further injury vs reduced mobility to promote healing.)

Signs of pain. Methods for identification of pain in animals are necessarily indirect and limited to the observation of the behavioural responses and physiological changes which have been previously shown to occur with tissue damage or in situations which are known to cause pain in man. Pain, particularly severe or persistent pain, causes significant change to behaviour and physiological function.

The normal behavioural responses to acute pain are relatively easy to detect. They include arousal, agitation, fear, changes to facial expression such as grimacing, abnormal eye or tongue movements, avoidance behaviour such as the withdrawal of a limb or attempts to escape from physical restraint, vocalisation and aggression. Movements or postural changes to relieve pain at a localised site of injury may also be seen.

Some normal physiological responses to acute pain are also relatively easy to observe and result from the "fright and flight or fight" arousal mechanisms. These include an increase in heart rate and respiratory rate, dilation of the pupils and changes to salivation. Body temperature may rise slightly. Animals in acute pain usually exhibit more rapid breathing, often seen as "panting". Muscle contractions or tremor may also occur. Sweating may be seen in those animals with sweat mechanisms.

In addition to these observable changes, acute pain induces a range of internal physiological changes, including elevated release of the hormone adrenaline from the adrenal gland and changes to blood circulatory patterns to equip the animal for the expected increased demand for muscular activity during the "flight or fight" response. Severe pain can progressively lead to shock and thus indirectly to loss of consciousness in animals, but loss of consciousness as a direct and immediate result of severe, sudden pain, as seen in man, is very unusual in animals.

Detection of persistent or chronic pain is more difficult. Where the pain sensation is localised by the animal, it may show behavioural changes directly involving the injured part of the body which are apparently attempts to relieve the pain. This may involve postural changes, shaking or rubbing of the head or affected limb and even self-mutilation in some species.

Where the ongoing pain is more generalised, however, the *only* sign may be a *reduction* of the normally expected responses to environmental stimuli. Depression, loss of appetite or reduced reactions to potentially threatening situations or an additional painful stimulus may be all that is seen, although progressive weight loss is common with animals with persistent pain.

Factors affecting behavioural responses to painful stimuli. The observable responses to a given painful stimulus can vary significantly between species and even between individual animals of the same species. Animals which show less response to pain may be described as "stoic" in comparison their more responsive mates. However, it must always be remembered that there is no evidence that the expression of pain behaviour is directly proportionate to the severity of the experience of pain. In general terms, animals exposed to potentially painful procedures should always be treated as if they will experience pain, regardless of the severity of the observed pain behaviour in other untreated animals. This gives the individual animal the "benefit of doubt" in regard to the intensity of the pain which it may experience.

Young animals often have a reduced tolerance to ongoing painful stimuli, due to incomplete development of the endogenous pain control mechanisms at birth. Their conscious experience of pain is therefore likely to be more intense and prolonged than in adults. However, young animals will show *less* behavioural signs of pain than adults because they have not yet learned the appropriate behavioural responses to pain. In young animals, the lack of a vigorous behavioural response does not mean that there is no pain!

Analgesia: In animals, analgesia (the absence of sensibility to pain) can only be determined indirectly, by observing the suppression of expected responses to known painful stimuli or tissue damage. As we can never really know the intensity or nature of pain experienced by any animal during or after a surgical intervention, the amount of analgesic treatment provided must always be at least sufficient to suppress the known immediate responses to that intervention, based on the quite reasonable assumption that such treatment will also suppress the animal's conscious experience of pain. *Any person required to perform an analgesic treatment of an animal for a potentially painful procedure must have a good knowledge of all of the behavioural and physiological responses to pain of the species concerned, in order that the effectiveness of the analgesic treatment can be properly and interactively monitored during the procedure and appropriate steps taken if analgesia is found to be inadequate.*

4. THE RELATIONSHIP BETWEEN PAIN, STRESS AND DISTRESS

Pain is just one of the physiological mechanism by which the animal monitors its environment for potential threats to its survival or well-being. A sudden painful stimulus results in immediate behavioural changes, often escape behaviour or aggression.

But painful stimulation also acts as a "stressor" in that the painful stimulation also activates those protective physiological responses which are activated by many other types of sensory input such as inputs involving psychological factors like fear or anxiety and even sexual arousal and inputs involving physical factors such as climatic extremes.

In a normal animal, the internal environment of the body is monitored constantly and the physiological processes of the body are closely regulated to maintain the internal environment within the narrow range of conditions compatible with life.

A good example of this phenomenon is the response of animals to cold exposure. As skin temperature falls, peripheral blood circulation is closed down and the hair is raised to reduce heat loss from the surface of the body, while at the same time body metabolism (energy production from food or fat reserves) is elevated to increase internal heat production. If the thermal challenge is sufficiently severe, shivering is initiated to further elevate heat production. Shelter-seeking behaviour is also elicited to reduce heat loss. In these ways the internal environment of the body is maintained within a narrow temperature range, despite wide variation in external temperature. The single objective of all of these physiological and behavioural changes is to regulate the body's temperature within the range compatible with survival of the animal. If the animal is unable to sufficiently reduce heat loss or elevate its metabolic rate, body temperature falls and the animal loses consciousness and dies.

Whenever there is a significant change to the external environment, this change will act as a "stressor" which provokes a cascade of changes to body functions until a new and stable

equilibrium state is reached at which body function is optimal for the new environmental conditions. Until the animal "adapts" in this way to the new conditions, it is under "stress". Some degree of this "physiological stress" is a normal and essential feature of the survival mechanisms of the animal. Any reduction of the adaptive capacity of the animal, for example by reduced exercising of these physiological mechanisms, can place the animal at risk when challenged by a changing external environment.

Stressors can be physical or psychological. Adverse physical factors produce pain or thermal stress. Adverse psychological factors produce fear or anxiety, in animals as well as man. All these factors activate the same protective physiological mechanisms in the animal and these mechanisms have a finite response capacity. If the severity of a stressor is such that its effects on the body exceed the capacity of the animal to adapt, then the prolonged attempts to achieve a new stable equilibrium in the body can exhaust and damage the body tissues which generate the physiological responses. This is been called "pathological stress". If the stress response tissues are damaged, the capacity of the animal to respond to future challenges is reduced.

The observable behavioural signs of severe stress to which the animal has been unable to adapt are sometimes called "distress".

It is assumed that such "distress" causes "suffering" to the animal. Unrelieved distress can lead to disease and death.

STRESSOR -----> STRESS -----> ADAPTATION or DISTRESS

Multiple stressors, both physical and psychological, have an additive or cumulative effect. The adaptive capacity of an animal which could easily cope with a single stressor or multiple stressors spread over a period of time can easily be exceeded by exposure to several stressors at the same time or as a sequence over a period of time which is too short to allow recovery of the animals's response capacity.

Problems with stress in deer frequently arise when the deer are inadvertently subjected to one or more unrecognised stressors at the same time as a known stressor to which the animal would normally cope. Unexpected distress and even death result. If deer are stressed by poor nutrition, physical exertion, bad weather, fear or anxiety, they may not be able to cope with additional stress from pain during or after velvetting.

Transmissible stress in deer. Deer under any significant stress exhibit changes to their behaviour. These changes are recognised by other animals in the herd. In the deer, the visual observation of behavioural signs of fear or distress in another deer is itself a stressor, producing stress and possibly distress in the observer. When one deer in the herd is exposed to a stressor such as pain, the modifications to its behaviour transmit a warning signal to other deer and in this way the whole herd is aroused as a unit to prepare for a "flight or fight" response, all on the basis of the detection of a potentially harmful influence by one animal. In the farm situation this can be a serious problem. Stress and the behavioural responses from stress can spread rapidly through the herd.

Deer can recognise subtle behavioural signs of fear or distress in other deer that are not readily recognised by deer farmers. Where groups of deer are in direct visual contact, as is the situation on farms, the cumulative effect of the stress from observing other distressed deer

leads to a cascading problem in which stress levels build up incrementally in the herd as all the deer observe one another's behaviour. This can culminate in panic or misdirected aggression. Pheromones (chemical signals) released as a result of fear or distress may also play a role in the transmission of stress between individual animals.

Transmission of stress in the herd can be reduced in a number of ways. Firstly, opportunities for deer in the herd to observe the behavioural signs of distress in other deer should be reduced wherever possible (for example, when deer are undergoing any painful treatment). Secondly, as soon as signs of distress are observed in the herd, any stressors that can be removed should be removed immediately, until the stress level in the herd recovers. That may, for example, involve "resting" the deer for a period by delaying any further handling. Finally, individual deer that frequently exhibit distress behaviour and arouse the herd should be isolated or culled.

5. THE PATHOLOGICAL CONSEQUENCES OF CHRONIC STRESS

Chronic stress has a number of potentially life-threatening indirect effects.

Firstly, ongoing stimulation of the stress response mechanisms (for example, the secretion of hormones from the adrenal gland) can exhaust mechanisms intended for short-term protection and limit or destroy the animal's capacity to respond effectively to future challenges. (Excessive stimulation of the secretory tissues may even permanently damage the tissue.). Secondly, marked or persistent elevation of the blood levels of hormones released in response to stress has a number of undesirable side-effects. For example, the corticosteroid hormones released from the adrenal gland cause suppression of immunity and increased susceptibility to infectious disease, reduced bone density and susceptibility to fractures, changes in body composition and delayed wound healing. As a consequence of these effects, stress is a very important factor in the incidence of disease in stress-susceptible animals such as deer. Where infectious agents (bacteria, viruses) are present in the environment, stress can initiate an outbreak or an increased incidence of disease in the herd.

MINIMISING PAIN AND DISTRESS DURING DEER VELVETING

Dr. Julie Reilly, Animal Welfare Officer, University of Queensland

Before we get too far down the track I think we need to consider whether or not we believe that animals feel pain, do they feel it in the same way that we do and if they do should we be doing something to alleviate it. I'd like to be able to say yes to all of the above and to think that we all felt the same, however I must admit to being disturbed by a comment that I heard a few months ago on the radio when a National Park Ranger was discussing capture of rogue crocodiles. He quite glibly stated

"Oh well crocodiles don't feel pain anyway!"

Having said that, there is in fact a huge debate about pain, pain perception, assessment of pain in both man and animals.

Pain is a complex physiological phenomenon. It is hard to define satisfactorily in human beings and it is extremely difficult to recognise and interpret in man and animals.

In man pain has been defined as:

"what the patient says hurts!"

This immediately brings us to our first problem most of our "clients" don't talk too much.

The International Association for the Study of Pain defines pain as:

“an unpleasant sensory or emotional experience associated with actual or potential damage or described in terms of such damage”

Again it is not as simple as this.

There are two aspects that must be considered when evaluating pain:

(i) the stimulus

(ii) the perception of the pain.

This is not a simple one to one correlation either - the same amount of stimulus will not cause an identical perception of pain by animals of different species, nor will it do so for different animals of the same species.

Let me give you a few more definitions:

A "noxious stimuli" is - "a stimuli which if perceived gives rise to the perception of pain."

Receptors which are sensitive to noxious stimuli are called "nociceptors."

Nociceptive threshold - "Intensity of stimulus which generates a nerve impulse in the peripheral nerve fibres."

This may or may not be sufficient to be perceived.

The strength at which noxious stimulation is perceived is the pain detection threshold.

The Pain tolerance threshold is the strongest stimuli which will be tolerated.

The **Nociceptive threshold** is fairly **constant** in man and animals

The **Pain threshold** tends to be **variable**

The **Pain tolerance threshold** is **even more variable**.

Most people agree that pain is a perception not a physical entity and depends on a functioning cerebral cortex. However it relies on the existence of the nociceptors or receptors at the site of the insult, nerves to transmit the impulses to the brain and the brain is then responsible for the perception on the pain.

Even in humans however we have no idea how another person perceives the same pain - How do you feel when having a tooth drilled or you hit your thumb with a hammer?

In man and probably animals, pain is also linked to the emotions through the functioning of the brain that integrates it with the information from the outside world and results in behavioural responses.

There is a considerable variation in pain thresholds between individuals and it is well known that the expectancy of pain can diminish its impact and that excitement and fear can also diminish the impact.

We've all heard the story of the farmers who have walked home after severing their arm after a tractor accident, apparently at the time, in no pain and the soldiers who have continued to fight despite horrendous injuries! In the animal world what of the racehorse who won the 1980 Epsom Derby after stumbling and fracturing his cannon bone 300 metres from the finish line ?

But one thing we should remember is that in vertebrates at least, the receptors, nerves, transmitters, spinal pathways and brain centres and pathways are the same as in humans. Even the crocs have got the same receptors, transmitters, nerve pathways and the like!

It may also be useful to indicate that we can divide pain into at least two types

1. Acute pain.

Associated with trauma, surgery or infection. It is often abrupt in onset and often short in duration and is generally alleviated by analgesics.

2 Chronic Pain.

Long standing physical disorder or emotional distress - slow in onset and long duration. Seldom alleviated by analgesics but frequently responds to tranquillisers combined with environmental and behavioural conditioning.

Just like humans animals can feel more than just pain however and it is hard to dispute that animals can also show signs of anxiety and suffering.

Anxiety

This term can be used to describe a particular type of behaviour - vertebrates are capable of experiencing anxiety similar to that seen in humans. We've all seen it in our dogs when they are presented at the local vets!

Suffering

This is difficult to define precisely but in general terms: **Suffering means a wide range of unpleasant emotional states.**

Suffering is often paired with pain in an attempt to indicate that the well-being of animals is not simply a matter of freedom from pain. It involves a scale or continuum of unpleasant experiences that vary in intensity. Suffering can be provoked by pain or by pain free non tissue damaging external stimuli such as denial of fulfilment of an animals natural instincts or needs such as maternal deprivation social contacts etc.

Stress/Distress

Stress is a normal healthy reaction to changes in an animal's environment or metabolism eg. injury, disease or exposure to extremes of temperature. If stress is prolonged because the animal is unable to adapt then a stage of exhaustion would be reached, characterised by impairment of body functions involved in growth, reproduction, resistance to disease and general activity. When does "stress" become "distress"?

Distress: is the external expression through emotion or behaviour, of suffering, ie fear, anxiety, hyperactivity, aggression or fractiousness.

Attitudes to pain

The tacit assumption is that stimuli are noxious and strong enough to give rise to the perception of pain in animals if:

the stimuli are detected as pain by human beings,

if they at least approach or exceed tissue damaging proportions and

if they produce escape behaviour in animals.

That animals exhibit signs of distress, learned avoidance behaviour and vocalise in response to noxious stimuli is further evidence of their capacity to suffer pain.

Difficulties in Assessment of Animal Pain and Distress

Pain assessment is done mostly on the basis of indirect evidence.

Criteria for assessment of well-being include:

- (i) **Physical Health**
- (ii) **Behaviour of animals in the wild**
- (iii) **Physiological measurements of heart rate and hormone levels.**
- (iv) **Abnormal behaviour pattern**
- (v) **Animal preferences**
- (vi) **Anthropomorphism**

Comments on the above.

(i) It is possible to find physiological and behavioural disturbances in apparently normal healthy animals therefore physical health alone is not sufficient.

(ii) It is difficult to compare domesticated animals with those in the wild due to genetic and environmental differences.

(iii) Heart rate and hormone levels - it is difficult to decide how much of a physical change can be tolerated before an animal is said to be distressed. Also taking of blood samples can be stressful and this will distort results.

(iv) *Even with abnormal behaviour - when does this constitute distress - unless visible damage is seen too, but often abnormal behaviour does not go this far. It is worth noting that some animals show no signs of pain and may even feign death to avoid predation. Immediate feeding on return to pasture could indicate that an animal has experienced no pain or distress however many herd animals adopt this as a protective measure so as not to attract the attention of predators - so called "displacement activity". Predators normally target animals which demonstrate abnormal behaviour so the best chance of survival is to act normally hence animals like cattle, sheep, antelope tend to appear stoical and do not overtly demonstrate that they are in pain.*

Remember **animal responses** are nothing like **human responses** to pain.

(v) Opportunity to choose - however often an animal may choose a "familiar" rather than a "better" option if allowed the preference.

(vi) Imparting human feelings onto animals may not be altogether a bad thing.

Even though we can say that animal pain is not the same as human pain (which the UK Brambell committee concluded in 1965) - "although pain, suffering and stress are certainly not identical in animals and men, there are sound reasons for believing that they are substantial in domestic animals and that there is no justification for disregarding them."

Velveting of Deer

Having said all this we are here to discuss velveting. Is this a painful procedure? Are there any other adverse effects associated with velveting.

Velveting involves the removal of developing antler at its' base.

Developing antler consists of soft vascularised and innervated osteoid tissue. As it matures it ossifies losing the nerve and blood supply.

Velveting thus involves the amputation of living tissue from an adult animal.

The UK Farm Animal Welfare Council - concluded "the process does cause pain due to the nature of antler tissue and distress owing to the subjection of naturally flighty animals to handling and restraint.

In **New Zealand** harvesting must be done under direct personal supervision of a veterinarian and legally an analgesic is required.

Model Code of Practice - Australia

Produced by the Standing Committee on Agriculture, Animal Health Committee in 1989. In the Model Code it stipulates the following:

"Section 5.2 Removal of antlers

(ii) Removal of the 'velvet antlers' should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug."

So we've been told it's painful and that we should do something about it for welfare reasons but are there any other reasons?

In fact there are, and they are of significance to you as primary producers.

Pain associated with a procedure can produce the following signs:

- (i) **Restriction of movement**
- (ii) **Reduced food and water intake.**
- (iii) **Prolonged recovery.**

There are also pain induced changes in the animals **metabolism, its' hormone functioning and functioning of the heart and lungs.** These are well recognised and could have serious consequences on the animal.

Stress responses associated with pain

Increased cardiac output, increased cardiac work, and oxygen consumption ie an **increased work load on the heart.**

Significant **reduction in blood supply** to the **viscera** producing **ischaemia** (lack of blood and oxygen to the tissues, (tissue hypoxia) and release of **myocardial toxins**. (toxins which adversely affect the heart).

There may even be **kidney failure** due to the reduced blood supply to the kidney.

A **catabolic state** results where tissues are broken down rather than built up with associated loss of fat and protein if this state persists.

These effects probably occur in association with the stress of handling and restraint and some feel that the latter is even more significant than the stress associated with pain. It has even been proposed that the additional time required to restrain an animal in order to instil local anaesthetic and the stress associated with this actually counteracts any positive benefits derived from the local anaesthetic. In a totally naive animal which has never been in a yard or crush before then this may be so, however in well managed herds where animals are appropriately acclimatised then this should not be the case.

So how can we make velveting a less painful and less stressful experience for all concerned.

Remember it has been long established that invariably what is good for the animal is good for the producer too.

The more that animals are stressed and distressed the less product they will produce per individual. Ideally there should be a harmony between the producer welfare and animal welfare.

Methods to minimise pain.

(i) Habituation/Training

Allow animals to acclimatise to new surroundings or methods of restraint. Specifically get animals used to being run into yards and crushes. Deer are rapid learners and respond to people who handle them frequently.

Habituation occurs when harmless stimuli come to lose their power to arouse animals or provoke fear. Work in pigs has demonstrated that when using different handling techniques - either aversive or friendly patting for a few minutes a day led to differences in the growth rate and behaviour of the pigs.

Well adapted animals cope with all aspects of their environment as well as possible.

Knowledge of animal behaviour can be put to great use in getting them to do what we want without causing them stress or pain.

Restrain for brief periods without necessarily performing any technique if possible. Try to incorporate this into normal husbandry practices, weighing, vaccinations, routine observations etc. so as not to be a "time wasting activity". If animals are unwilling to use

races and yards provide reward incentives e.g. animals obtain a food reward after running through the crush. Positive reinforcement rather than negative reinforcement.

It is important that there are proper facilities for handling and restraint with well designed yards and crushes that are safe for both animal and handler.

- (ii) Ensure that animals are handled skilfully, train yourselves and new staff, pick up ideas from others in the same field. Attend training courses!
- (iii) Ensure that there is a high level of competence in the performance of the technique to be used. In this case watch others, attend courses, practice. Ensure that all equipment used is in good clean condition and in good working order.
- (iv) Use appropriate drugs for sedation and to reduce anxiety, if necessary, for example by the use of xylazine. I will leave the details of its' use to others. However it is worth noting that the drug xylazine may actually be useful as a partial analgesic and it also acts to counteract stress responses we talked about before, as it helps to maintain renal function and counters the catabolic state.

Use local anaesthetics to eliminate pain. An injection of local anaesthetic solution infiltrated close to the nerves supplying the horn works by blocking conduction of pain along the nerve trunk. A single injection of lignocaine will block pain for up to 2 hours. This use of pre-emptive analgesia is probably more useful than post operative analgesia in this case, because of how the pain response is developed.

There are two components in the stimulation of the pain response.

- (i) **Peripheral response** - where there is increased sensitivity at the traumatised area due to local release of sensitising agents.
- (ii) **Central response** - where there is increased sensitivity to pain mediate by an increased barrage of impulses which are sent in response to cutting or damaging sensory nerves. A so-called **hyperalgesic response**'.

Many behavioural responses to pain can be abolished by the use of local anaesthetic. For example workers noted behavioural changes in sheep when local anaesthetic was and was not used for castration. Observations were made of time spent in lateral recumbency, ventral recumbency, restlessness, standing and suckling. It was found that there was a good correlation between the abnormal behaviour score and the plasma cortisol. Plasma cortisol levels have long been used as indicators of pain and stress.

Obviously a person familiar with particular animals is in the best position to detect subtle behavioural changes which may be an early indicator of the presence of pain.

- (iv) Reduce post operative pain:
This can be achieved by:
 - (a) High standard of surgery
 - (b) Avoid unnecessary trauma
 - (c) Prevent infection and sepsis.

My take home message is that it should be remembered that the care and attention given by animal handlers both before and after a procedure are extremely important factors in minimising pain, suffering and distress.

Outside Influences

Despite the feeling that hard antler has no place on a deer farm because of the danger to handlers and other animals nevertheless it should be remembered that many people would consider that "velveting is removal of live vascular and innervated tissue entirely for profit" The options would be to remove valuable velvet or remove hard antler.

In 1980 **an Australian National Farm Poll** produced the following results:

87% of participants recognised that cases of cruelty and mistreatment of animals is still widespread in agriculture.

85% believed that the welfare movement has the capacity to damage farmers standing in the eyes of fellow Australians.

65% were opposed to giving anaesthetics for dehorning, mulesing and castrations.

30% felt that animal welfare interests were discounted for economic reasons.

It is evident that rural producers are aware of problems concerned with animal welfare in their industry. This awareness should mean that reform is easier to promote and that they are likely to be open to suggestion and innovation. But at the same time they need to protect their livelihood.

The community has a large effect on the setting and enforcing of animal welfare standards. However the community is divided into rural and urban sectors and to many it is a matter of "them" and "us".

The community is often not informed on the rural industry or scientific issues and therefore there is quite a lot of misinformation and erroneous information and so the rural industry may tend to be defensive against any mention of animal welfare.

Animal Liberationists should not be seen as on the "lunatic fringe of politics and so unimportant".

Animal Welfare is not the affair of a "small band of intolerant liberationists" or the "fetish of a few vegetarians" but the concern of people "that look upon sentient animals as fellow creatures worthy of respect and the minimisation of suffering". (Kirby 1985)

ANATOMY, PHYSIOLOGY and DISEASES of DEER ANTLER

Anatomy

Antlers are bony projections on the frontal bones that grow and are shed annually by most species of male deer. In all species of deer in Australia, only the males develop antlers.

Antlers are a secondary sex characteristic, which develop to the hardened, mature form just prior to the breeding season each year. Antlers are the only complex structures in the animal kingdom which are capable of annual regeneration.

Growing velvet antler is composed of very simple cell types that grow rapidly. The growing tip initially has simple cells known as mesenchymal cells that quickly change to cartilage. This cartilage becomes mineralised with calcium and converts to bone. This process is called endochondral ossification. The outer "down" or velvet is then shed leaving the hard antler. This is referred to as "fraying".

For the purposes of this course the term "velvet" will only be used to refer to the velvet antler prior to the hard antler stage.

At the time of velveting, the antler is supplied with a highly developed blood and nerve supply. The tissue is an actively growing cartilage-type tissue and is not of uniform composition.

The stages of antler development are estimated as days from casting of buttons (or hard antler).

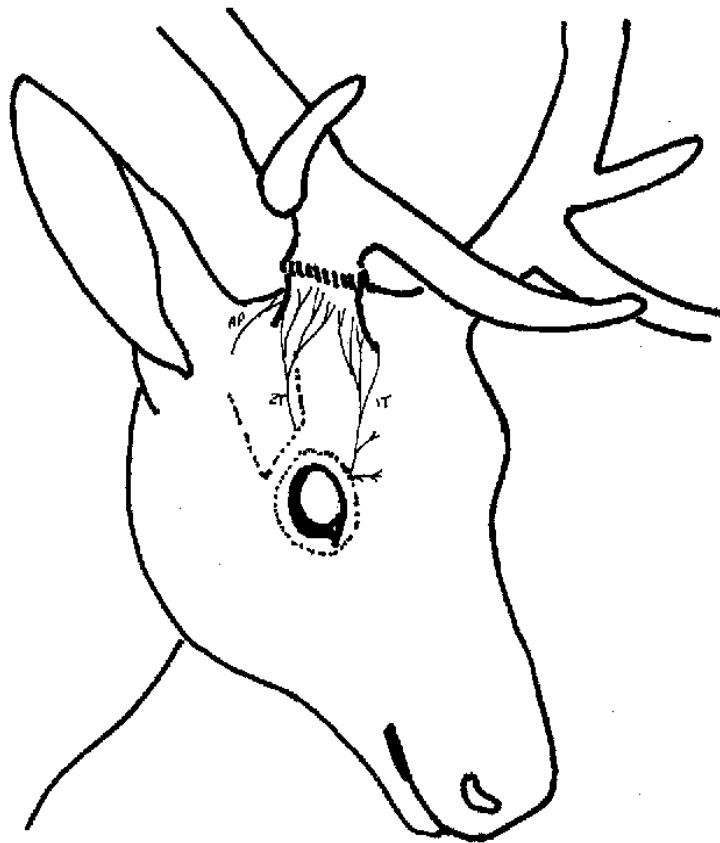
Blood Supply: Blood supply to the pedicles is from the internal blood supply to the frontal bones. The growing antler is supplied by a branch of the superficial temporal artery. Below the pedicle this gives rise to a large lateral (outside) coronet artery and a smaller medial (inside) coronet artery. These arteries branch and grow with the velvet. A single large vein accompanies each artery. See Diagram.

Early in the growth stage of the velvet antler there is good blood supply through the velvet but this diminishes as the hard antler stage is reached.

Nerve Supply: The nerves of the pedicle and velvet antler come from basically one original common source known as the trigeminal nerve. There are two main branches to the pedicle. These are the supraoptic branch of the *supraorbital nerve* and the temporal branch of the *zygomaticotemporal nerve*. These run very close to the medial and lateral coronet arteries and veins. See Diagram. It has been established that 20% of deer have additional enervation from the auriculo-palpedral branch of the *facial nerve*.

The SUPRAOPTIC BRANCH of the SUPRAORBITAL NERVE emerges from inside the eye socket and crosses the rim of the socket 2cm above inside corner of the eye. It can be easily felt under the skin particularly in Fallow Deer. The TEMPORAL BRANCH of the ZYGOMATICOTEMPORAL NERVE runs deep in the tissue between the bony ridge behind the outside corner of the eye and the pedicle. It cannot be felt in any species. The AURICULO-PALPEDRAL BRANCH is caudal to the pedicle, overlying the zygomatic process of the temporal bone.

PEDICLE INNERVATION

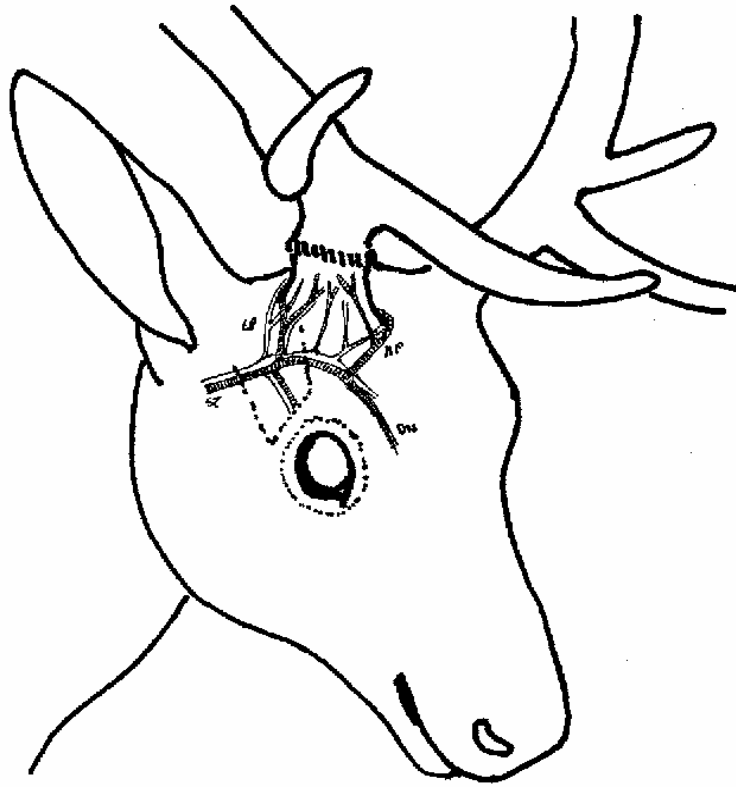


IT – Infrotrochlear (supraorbital) nerve.

ZT – Zygomaticotemporal nerve.

Dotted lines – orbital rim, supraorbital process & zygomatic arch

PEDICLE BLOOD SUPPLY



ST – Superficial temporal artery & vein.

LP – Artery & vein to lateral aspect of pedicle.

MP – Artery & vein to medial aspect of pedicle.

DN – Dorsal nasal artery.

(Arteries – crosshatched; veins – plain)

Physiology of Antler Growth

The annual cycle of growth and shedding of the antler of the temperate species of deer is caused by the rise and fall of testosterone. This is influenced by the effects of changing daylight length (the photoperiod) on a gland in the brain known as the pineal gland.

The antler growth cycle can be simplified as follows:

- 1] The pedicle begins to develop in the young stag/buck in response to low levels of testosterone from the developing testicles. The development of the testicles is directly related to body weight. The pedicle increases in diameter but not length with age.
- 2] The falling testosterone levels during late winter and early spring cause the shedding of the hard antler or the button at the coronet.
- 3] The new velvet antler grows rapidly during the period of low testosterone levels and is influenced by the nutritional status of the stag/buck.
- 4] The high levels of testosterone cause an increase in aggression, the fraying of the velvet and the development of hard antler. The peak testosterone levels coincide with the rut.

SUMMARY

Antler cycles are controlled by yearly fluctuations in testosterone secretion. These fluctuations occur due to the influence of changing photoperiod.

Antler growth may be considered in four phases.

1. The pedicle grows under the control of testosterone when the stag has reached a threshold body weight.
2. When the pedicle has reached about 6cm the velvet antler develops. At the same time testosterone secretion is lowered and levels of insulin-like growth factor increase.
3. The antler is cleaned of velvet while testosterone levels are high at the beginning of the rut.
4. Following the rut, after testosterone levels have fallen the antler is cast.

Diseases of Velvet.

TRAUMA to the pedicle will result in abnormal velvet development. Trauma can be caused from fighting during the rut or from a tourniquet being left in place for too long.

Trauma to the growing velvet will produce fractures that heal leaving a callus. This callus can be seen as a raised area around the tine.

Fractures of velvet are serious for two reasons:

1. Farms with regular velvet fractures almost certainly have problems with management, usually poor handling and often poor facilities.
2. Velvet fractures down-grade velvet and produce a lower return to the farmer.

GROWTHS such as osteomas can occur. These are wart-like growths with a cauliflower appearance. They do not seem to recur each season.

PARAPOX VIRUS has occurred in New Zealand on a number of farms, causing scabby skin lesions, which when lifted leave raw bleeding areas. The animals may stop eating, lose weight and sometimes die. Occasionally swelling of the face and jaw occurs. The lesion on the antlers is a raised fluid filled cyst. This infection can cause considerable financial loss as infected velvet should be cut and destroyed. Outbreaks do not occur often but when they do, there is a considerable zoonotic potential. The operator should wear gloves as a hygiene measure to reduce infectivity. The remainder of animals especially young stock, should be exposed to gain lifetime immunity.

DERMATOPHILOSIS is a skin infection caused by *Dermatophilus congolensis* (a cross between bacteria and fungus). In sheep it is known as "lumpy wool". The disease is most commonly seen in humid warm conditions. It is uncommon but if velvet is affected the product is severely downgraded. There is no cure that will protect the quality of the velvet. Individual animals may be treated with washes and suitable antibiotics. Affected animals MUST be separated from the rest of the mob to reduce the rate of spread.

FLYSTRIKE can occur after velveting, between the skin or velvet and the pedicle. A stag shaking its' head or an unpleasant odour may alert you to this problem. A flystrike treatment or preparation, preferably a solution, will rectify the situation.

Other diseases that can damage velvet include Tick bite wounds and facial eczema. Tetanus has been recorded after velveting, and animals should have received the appropriate vaccine (2 doses 4-6 weeks apart, with annual boosters). If an unvaccinated animal is to be velveted, it should receive 1500 IU tetanus antitoxin at the time of harvest.

DRUGS FOR USE IN VELVETING

DEFINITIONS

The following terms must be fully understood before any discussion of the chemical methods of pain control in velveting is undertaken.

TRANQUILLISER

Any substance that calms an anxious animal.

SEDATIVE

Any substance that calms an animal and may give some pain relief.

MUSCLE RELAXANT

Any substance that causes the muscles to relax.

ANALGESIC

Any substance that relieves pain.

ANAESTHESIA

Anaesthesia is a reversible technique in which the animal's nervous system is depressed to provide freedom from pain and reflex response.

ANTAGONIST

Any substance that reverses the effect of another substance is called an antagonist or reversing agent.

With this in mind we need to examine ways of making the stag insensitive to pain.

The most widely used **SEDATIVE** for velveting is Xylazine. This drug in high doses will cause an animal to lie down and provide some analgesia, but it will still be sensitive to deep pain. It should not be used alone to harvest velvet antler.

Xylazine, because of its ability to relax the muscles of an animal and cause it to lie down, is also an example of a **MUSCLE RELAXANT**.

ANAESTHESIA can be either LOCAL or GENERAL. Local anaesthesia is achieved by injecting around a nerve or a group of nerves, a suitable drug to block pain. An example of a local anaesthetic drug is Lignocaine. General Anaesthesia causes the animal to relax to the point of a deep sleep state where no pain is felt. This state cannot be achieved with xylazine alone.

There are many situations when an **ANTAGONIST** is required to reverse the effects of a drug. The most common situation with regard to velveting of deer, is the reversal of the effect of high doses of xylazine. The reversal agent of choice is yohimbine.

From this it should be clear that xylazine alone IS NOT a suitable drug for velveting since it will not make an animal insensitive to pain. Therefore xylazine and local anaesthetic should be used in conjunction to obtain the required degree of pain control.

Prevention of Cruelty to Animals Acts in all States require the procedure (velvetting) should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug. Failure to use appropriate means of analgesia for velveting will attract penalties under these Acts.

HUMAN EMERGENCY RESPONSE PROCEDURES

It is imperative that in every case where drugs such as those used in velveting are involved, there must be a clear understanding of the potential risks to humans from accidental injection or exposure. There must be a good knowledge of the emergency response procedures (ERP) which are appropriate should such an accident occur. This may well include the need to apply cardiopulmonary resuscitation (CPR). Failure to react promptly and correctly could well endanger a life.

Drugs can enter the circulation by absorption through intact skin, mucous membranes, via cuts and scratches, or by accidental injection. Accidents are most likely to occur during the loading of syringes and during the injection process - especially when deer are in a pen rather than in a crush. At all times be aware of the location of other people, especially when using pole syringes, and be prepared for unexpected reactions or sudden movements from the animal being injected, or other deer in the group.

Prevention is always better than cure - remain totally alert to the possibility of a problem, and always use the drugs and associated equipment with care and concentration. Plan your actions in the event of an emergency - do not assume it can never happen.

Outline of procedures

1. Wash off any spilt drug immediately with water, which will prevent or limit the amount of drug absorbed.
2. Should injection occur into a limb, the application of a tourniquet above the injection site will greatly limit the amount of drug absorbed. However, if a tourniquet is used it must be released in less than 1 hour - it is imperative that the patient reach professional medical care within that time.
3. If the patient collapses or is in respiratory distress, place him/her on the ground lying on his/her side to prevent inhalation of vomit. From this position the patient can be turned on his/her back if resuscitation is required.
4. Apply CPR if required, but it is best to move the patient as quickly as possible to a medical facility.

KNOW THE LOCATION AND TELEPHONE NUMBER OF THE NEAREST MEDICAL FACILITY. TAKE THE BOTTLE OF THE DRUG CONCERNED WITH YOU.

XYLAZINE

Poisons Schedule: S4

Action of the Drug: Xylazine causes progressive depression of the central nervous system. It is a potent sedative and muscle relaxant. Analgesic properties are present but are sometimes inadequate and the use of an additional drug or drugs is required for adequate pain suppression.

Strength of the Drug: Xylazine is available in two common strengths. A 2% solution (20mg of drug per ml.) and a 10% solution (100mg of drug per ml.). There is also available a 5% (50mg of drug per ml.) product.

The safest strength for the operator and from a public health point of view is a 2% solution. This is the only strength for farmers to use for sedation of their own deer, under the terms of the National Velvet Accreditation Scheme.

Properties of the Drug

- a] Cardiovascular depression with a marked fall in blood pressure. The respiration rate slows as does the heart rate.
- b] Analgesia, depending on the dose, to variable degrees.
- c] Sedation - which is unpredictable in deer, but the effect is dose related. Animals appear to be sensitive to external sound, movement and touch at all but the highest dose rates. The quieter and less stressed or excited the animal is, the lower the dose of xylazine required.
- d] Marked hyperthermia - a marked increase in body temperature is possible due to the effects of the drug on thermal control mechanisms. Hypothermia can occur in cold climates.
- e] Loss of the righting reflex. When placed on its side the animal is unable to sit up unaided.
- f] Lateral recumbency. The animal lies on its side.
- g] Regurgitation may occur with the possibility of inhalation leading to pneumonia.
- h] Increased salivation (drooling).
- i] Slowing of the gut with possible bloat.

Human Toxicity

Xylazine was tested as an analgesic and hypnotic agent in humans, but it was rejected because it caused a sudden and dramatic drop in blood pressure. As a result the range of human toxic effects are not fully understood. There have been some cases of accidental dosing with similar effects in humans as in animals.

There is one recorded case of attempted suicide with Rompun. In that case the dose was 1 gram which is two vials of powder or 10ml of the wet solution. The victim survived after 60 hours of intensive care.

There is no reason to doubt that a reaction to Xylazine such as the sudden death problem that occurs in stags 24hrs post injection, could not occur in humans after accidental injection.

In addition to accidental injection, human toxicity could occur from the drug coming in contact with mucous membranes (mouth, eye). Avoid placing any items such as needles or needle covers in the mouth.

IN CASE OF ANY ACCIDENTAL POISONING OBTAIN HOSPITAL TREATMENT IMMEDIATELY AND TAKE THE BOTTLE WITH YOU. WASH OFF ANY DRUG IMMEDIATELY WHICH COMES IN CONTACT WITH MUCOUS MEMBRANES.

Stability and Storage

The potency of xylazine decreases with age and high environmental temperature. Therefore the drug must be stored in accordance with the instructions on the bottle and not used after the "Use By" date. Use a cool cupboard for short term storage, and the refrigerator in very hot weather (above 30 Degrees C).

Withholding Period for Meat: 28 days.

Drug residues in velvet; Yes.

LIGNOCAINE HYDROCHLORIDE

Poisons Schedule: S4

Special Note: You will see reference to other drugs with similar names such as Lignocaine 2% Plus, Lignodren and Lignomav 2% (Plus). These drugs contain adrenaline in addition to lignocaine hydrochloride, and are NOT SUITABLE for velveting.

Action of the Drug: Lignocaine acts on nerves to prevent the transmission of messages to the brain that indicate pain is present.

Strength of the Drug: All lignocaine injections, in Australia, are a 2% solution.

Properties of the Drug

- a] Excellent analgesia of the regions supplied by the nerve injected.
- b] No muscle relaxation.
- c] No tranquillisation or sedation.
- d] Drowsiness after intravenous injection.
- e] Respiratory depression after intravenous injection.

f] Low blood pressure and convulsions after intravenous injection.

The toxic side effects depend on the concentration of the drug in the blood at any one time. Care should be taken not to administer the drug into the vein as the animal will probably go into convulsions. If this should happen, the important thing is to ensure a clear airway and that the stag is breathing. The effect is usually of short duration as the drug is rapidly redistributed from the brain to other tissues.

It is worth noting that lignocaine preparations with adrenaline have been implicated in post-velvet necrosis leading to clostridial infections. These preparations have been used in New Zealand at times and as mentioned before are not recommended.

Human Toxicity

Lignocaine toxicity can cause dizziness, slowing of the heart, and low blood pressure. In extreme cases breathing may stop. If accidental toxicity should occur, ensure that the patient can breathe and apply external cardiac massage if required.

IN CASE OF ANY ACCIDENTAL POISONING OBTAIN HOSPITAL TREATMENT IMMEDIATELY AND TAKE THE BOTTLE WITH YOU.

Stability and Storage: Lignocaine must be stored below 30°C and in a dark place. It is extremely stable and can be stored for long periods.

Withholding Period for Meat: Nil.

Drug residues; virtually nil as it is rapidly cleared from the body via the liver.

YOHIMBINE

Poisons Schedule: S4

Actions of the Drug: Yohimbine is a specific agent to reverse the effects of xylazine in deer. It is given by intravenous injection for a rapid response (2-3 minutes), but can be used intramuscularly, for an effect in 20-25 minutes. Yohimbine remains active in the animal's body long after the xylazine is no longer effective.

Strength of the Drug: All yohimbine preparations for deer are in a 10mg per ml. strength (eg Parnell's "Reverzine"). It is used at a dose rate of 1 ml. Per 40kg. BW.

Properties of the Drug:

- a] Has no analgesic properties.
- b] Causes an increase in gut activity, which counteracts the stasis effect of xylazine..
- c] Respiratory stimulation.
- d] Causes a rapid drop in blood pressure and severe convulsions (seizures) if accidentally injected into an artery. **AVOID THIS AT ALL COSTS - DRAW BLOOD BACK INTO THE SYRINGE BEFORE INJECTION TO ENSURE IT IS DARK RED, AND NOT THE BRIGHT RED OF ARTERIAL BLOOD.**

Yohimbine is administered by intravenous injection into any suitable vein, using an 18G needle. The most common veins used are the jugular, cephalic or the ear veins. It can also be given by intramuscular injection into the side of the neck. It is not registered for intramuscular use but there are no known adverse effects. It should not be given IV until the tourniquet is ready to be removed, since the deer will get to its feet within 2-3 minutes.

Human Toxicity:

Accidental human injection causes an increase in heart rate, perspiration, tear flow, dilated pupils, salivation and flushing of the face.

DO NOT ATTEMPT TO USE YOHIMBINE AS A REVERSING AGENT FOR HUMANS AFTER ACCIDENTAL HUMAN INJECTION OF XYLAZINE.

IN CASE OF ANY ACCIDENTAL POISONING OBTAIN HOSPITAL TREATMENT IMMEDIATELY AND TAKE THE BOTTLE WITH YOU.

Stability and Storage: Yohimbine must be stored below 30°C and in a dark place.

Withholding Period for Meat: 28 days

THE VELVETING PROCESS

This is the removal of growing velvet antler which contains an abundant blood and nerve supply and which has a skin covering with fine soft hair. The surgical removal of velvet antler without some form of anaesthesia will cause pain and distress to the animal.

Experience with farmed deer has shown that full hard antlers should not be allowed to develop, due to the risks to handlers, other deer and to the animal itself, which may become entangled in wire. There are a number of options which the deer farmer has to deal with this problem :

- a. Velvet antler harvest - to obtain the best price possible for the product,
- b. Removal of hard antler - very common with fallow spikers,
- c. Surgical polling - a veterinary procedure well suited to fallow and chital deer,
- d. Castration - used especially in fallow bucks destined for slaughter.

The option chosen will depend to a large extent of the attitude on the farmer to velvet production, and to the species farmed (eg the fallow farmer with only a small number of breeding bucks).

To satisfactorily velvet a stag/buck in a humane manner and also obtain the highest quality product there are a number of steps that must be undertaken.

The following steps are critical:

- 1] Provision of a hygienic environment
- 2] Minimal stress handling of the deer
- 3] Adequate Facilities
- 4] Adequate Restraint
- 5] Correct timing of the velveting procedure
- 6] Correct surgical technique
- 7] Good stag/buck management after velveting

HYGIENIC ENVIRONMENT

It cannot be emphasised enough that velvet is a product for human consumption and as such requires very careful harvesting and preparation.

In considering a hygienic environment we must take into account the following factors:

- a] weather conditions
- b] instruments to be used
- c] general surroundings

It is essential that velveting only be done in cool conditions. This is to prevent heat stress to the stag/buck and also to reduce bacterial contamination of the velvet after harvest.

Remember that if xylazine is used, one of the side-effects is that the body temperature will rise. A hot sunny day will only make the situation worse. It is therefore preferable to velvet in the late afternoon so that the animals may recover in the cool of the evening. However, some experienced operators prefer velveting in the early morning, giving the farmer the opportunity to observe the stag's full recovery in daylight. The use of yohimbine has greatly reduced the problems of post velveting recovery.

A hot day will keep the velvet warm after collection making bacterial contamination more likely. This will adversely effect the quality of the product. Cut velvet must be placed immediately in a cool, fly and dust free environment and snap frozen within 30 minutes - as soon as blood clotting has taken place.

Cold, wet and windy conditions can also occur early in the velveting season. The operation may have to be delayed to prevent cold stress in recovering animals.

All instruments that are to be used must be kept clean, sharp and disinfected between use on each animal. Keep all cutting instruments in a container of suitable antiseptic between operations. If the antiseptic becomes contaminated with dust or dirt it must be replaced.

Removal of antler can be performed with any suitable saw such as a surgical saw, tenon saw or meat saw.

Hydraulic velveting cutters and pruning shears are another form of velvet harvesting device but **MUST** be used with considerable care and precision. These instruments may damage both the velvet and the remaining pedicle. Consequently the velvet may be downgraded but more importantly, the animal may have permanent deformity of the pedicle. Pruning shears are only used on fallow bucks and young red stags.

The general surroundings of the area to be used for velveting should be clean, dust free and have no gross contamination with faeces, urine, mud or other contaminants. Concrete floors and walls with impervious cladding are desirable and may be mandatory if quality assurance programmes come into force. Plan ahead so that velveting areas can be cleaned with high

pressure hoses and all traces of blood removed. Facilities as well as welfare practices will come under close scrutiny in the time ahead.

Clean, disinfect and dry instruments at the end of each session and store in a clean dust free place.

MINIMAL STRESS HANDLING

Velvet harvesting exposes the stag to a range of potentially stressful practices, including mustering from pasture, yarding, drafting, restraint and removal of sensitive tissue. Research has shown that the administration of analgesia and velvet removal does not create additional stress above the general handling process. The research also showed that velvet harvesting under local anaesthesia is less stressful than the insertion of an ear tag.

Stress reduction starts with basic familiarisation of the deer with the handlers, laneways and the yard facilities. The emphasis here is on familiarisation.

Do not, however make pets of stags or bucks. They become very dangerous and can cause serious and even fatal injuries.



It must be emphasised that it is not good deer husbandry to leave stags/bucks unattended all year and have a round up just for velveting.

Deer are highly sensitive and intelligent animals and must be taught that humans are not a threat. Frequent feeding and contact is essential to reinforce this learned behaviour. Regular non-treatment movement through the yard facilities ensures that the animals know what is expected without any fear being generated ("taming and training"). It is recognised that the presence of strangers can impede the successful mustering, yarding and drafting of deer. These processes should be carried out by people with whom the deer are familiar.

However, for safety reasons farmers must not work alone when handling deer at any time.

Evidence of overt stress includes tongue lolling, heavy panting, excess salivation. There should of course be no damage to velvet antler during any phase of the handling cycle.

Deer not required for velveting on that day should be drafted out and returned to the paddock

as soon as possible. Allow a settling period in the yard before attempting to undertake velveting. Unsettled deer will exhibit flighty behaviour, and may not respond well to xylazine. This may lead to broken velvet, and to stags/bucks not reaching the desired level of sedation.

ADEQUATE FACILITIES

Basic animal behaviour knowledge is essential to allow ease of handling and for yard and shed design. Many an operator can recount stories of hours of frustration due to a lack of animal behaviour knowledge when facilities were built. The general layout of paddocks depends on the farm topography but needs to be centred on a system for yarding deer. Gateways should be sited so that deer passing through them continue straight on and do not turn along the gated fence line taking deer left inside the paddock with them. Gates offset from paddock corners cause less hesitation in deer moving through them. Wing fences towards gateways aid herding from larger paddocks and a flowing system of laneways is an essential feature for control in yarding fractious deer.

Design of handling facilities can have a profound effect on the ease of handling, the amount of stress associated with handling, and the number of physical injuries to stags/bucks. Problems due to poor design such as legs caught behind gates or gaps in the crush area, overcrowding of animals in pressure areas can cause unnecessary stress on deer or damage to velvet.

There are many good yard designs now available that handle animals with a minimum of stress and injury.

All approaches should be indirect. Openings into yards, crush and weighing boxes for example, should be slightly concealed around a corner.

Sheet or corrugated iron must be avoided as it is very noisy and stressful to deer.

Plywood is probably the best and most commonly used material for walls and gates, and should be well supported by framing.

The trend now is to move away from dark sheds towards open yards with mesh or rails that are open from deer eye-level upwards. This allows the deer to watch and anticipate the operator's movements.

A central circular crush or forcing pen is very useful for minor procedures and drafting.

If a crush is to be used, the entry must have no sharp projections that will injure the animals, there must be no gaps between the race and the crush where a leg could get caught, the actual design of the crush must allow the animal IN FULL VELVET, to sit comfortably in the device, there must be no projection overhead or on the sides, easy access for the operator and the release mechanism must work freely.

There are numerous crush designs available with the drop floor type more suited to Fallow Deer and the hydraulic or pneumatic padded style more suited to Red Deer and Elk.

ADEQUATE RESTRAINT

Restraint can be of three types:

- a] Physical.
- b] Chemical.
- c] Combination of Physical and Chemical.

Physical Restraint and Regional Analgesia:

Physical restraint may be achieved by use of any of the various crushes available as appropriate for the species of deer involved. Analgesia is obtained by the use of a local anaesthetic. Provided the crush is safe and the animals have been trained to its use, physical restraint is the most cost effective and drug safe method of velveting. Untrained young fallow deer should not generally be velveted in a crush, due to the almost certain damage to velvet which occurs.

The local anaesthetic is delivered by one of two methods. Both are known as "nerve blocks" but are different in the precise location of the injection. The nerve blocks are known as:

- a] Ring block. The ring block is now the preferred method for analgesia as it is more reliably reproduced. All operators should be trained to this method.
- b] High regional block

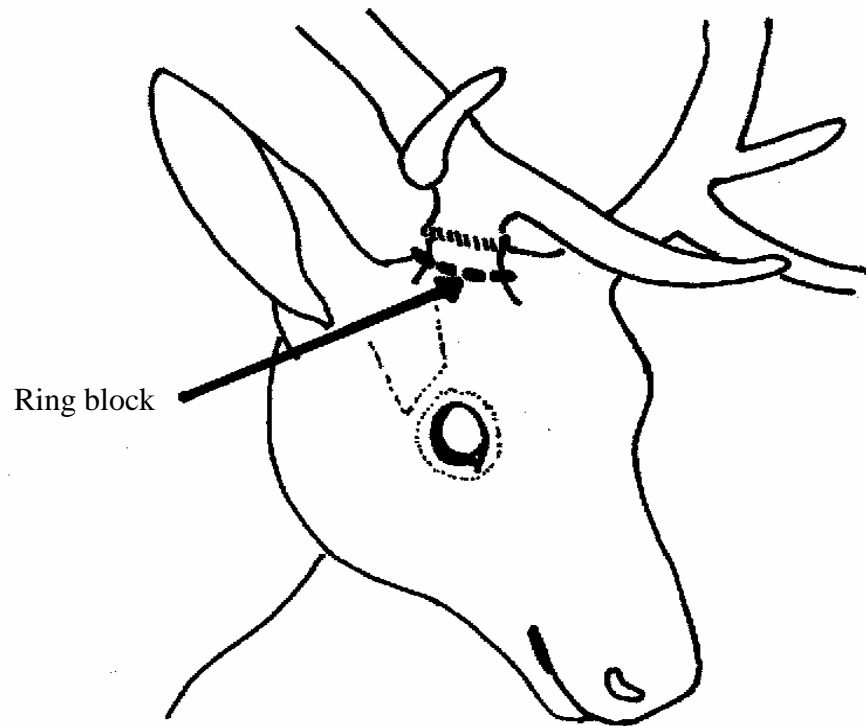
A **ring block** is an injection of local anaesthetic placed around the base of the pedicle between the skull and the coronet. The injection is started on the outside of the pedicle and continued in a circle or ring around the base until the whole area is injected. The dose rate will depend on the thickness of the pedicle but as a guide Fallow Deer will require about 10ml with Red and Elk requiring up to 20ml for each pedicle.

The dose rate is one ml of local anaesthetic to every centimetre of the circumference of the pedicle. Inexperienced operators should measure this circumference to ensure that the correct dose is given.

The advantages of a ring block are:

- 1] Quick to apply.
- 2] More of the fine skin nerves are desensitised.
- 3] More reliable analgesic for most operators.

The skin around the pedicle may be tough and difficult to infiltrate.



RING BLOCK

Ring Block

1ml of local anaesthetic (lignocaine) per cm of pedicle circumference distributed evenly around the base of the pedicle.

A **regional block** is one where the two (sometimes three) main sensory nerves that supply each antler, are specifically targeted for injection. From the section on anatomy of the velvet antler, you will recall that there are two main nerves supplying the antler. These are the supraorbital nerve and the zygomaticotemporal nerve. See the diagram for the location of these nerves. Local anaesthetic of these nerves provides excellent analgesia for velveting, the effect lasting about 2 hours.

The supraoptic branch of the supraorbital nerve is found above the bony rim of the upper eyelid about 2cm (1 inch) from the corner of the eye closest to the nose (medial canthus). It can usually be easily felt under the skin, particularly in fallow bucks. See the diagram (Annex 5) for the correct placement of the injection.

The temporal branch of the zygomaticotemporal nerve cannot be felt under the skin. The injection site is located mid-way between the eye and the pedicle under the bony ridge formed by the supraorbital process. Refer to the diagram in Annex 5

It is known that about 20% of red deer and wapiti have additional enervation to the caudal part of the pedicle. The auriculo-palpedral branch of the facial nerve lies over the zygomatic process of the temporal bone. The correct placement is indicated in Annex 5.

Dose rates of local anaesthetic for regional nerve blocks:

Species	Supraorbital Nerve	Zygomaticotemporal Nerve	Auriculopalpedral Nerve
Fallow	1ml	2ml.	-
Red	5ml.	5 to 10ml.	5mls
Elk	5ml	10 to 15ml.	5mls

The local anaesthetic DOES NOT take effect immediately upon injection. It is necessary to wait a **minimum of 3 minutes** for the full effect of the drug to take place. Use a timer with an alarm to ensure the waiting time is not shortened.

Both types of nerve block can be done with a 21 gauge (0.9 mm) needle of at least 2.5 cm (1 inch) in length.

NO OTHER FORMS OF ANALGESIA ARE APPROVED IN AUSTRALIA

It is advisable to use a blindfold when using physical restraint and a local anaesthetic as this will further restrain the animal.

It is important to remember that a NEW needle must be used for each animal. Dispose of all used needles in a "sharps" container.

Chemical Restraint (Sedation and Local Analgesia)

This is still the most commonly used method of restraint for velveting deer. To calm an untrained stag/buck prior to velveting in a crush it may be necessary to use a suitable sedative first, but this method usually involves the velveting procedure being done in a pen rather than a crush. This is particularly so for Fallow deer. It is the only method used when no suitable crush is available.

The sedative will have a tranquillising effect as well as providing some analgesia. The drug is administered using a hand held syringe, or more commonly a pole syringe eg Paxarms or Westergun, usually to small groups of deer in a pen. A 16G needle ensures rapid injection when using a pole syringe.

The most useful sedative for our purposes is xylazine.

Dosage will depend on the species of deer and on the level of sedation required, and there may also be some variation between individuals.

In Fallow Deer the standard DOSE RATE is between 0.5 and 1.0mg per Kg of body weight.

This is equal to a VOLUME of 1.25 to 2.5ml of 20mg/ml Xylazine per 50Kg of body weight.

This dose provides light standing sedation prior to physical restraint in a pen or crush. The animal should be easily approached 7-10 minutes after the IM injection, and is best left alone in a quiet pen until the effect is apparent. Always approach sedated deer smoothly and quietly, since sudden movements and loud noises may arouse them. If the level of sedation is correct the deer should be easily held without reaction.

In Red Deer a lower dose rate may be used to achieve the same light sedation - the species is more susceptible to the effects of xylazine than are Fallow Deer. A DOSE RATE of 0.3 to 0.5mg per Kg of body weight IM is recommended.

This is equal to a VOLUME of 0.75 to 1.25ml of 20mg/ml xylazine per 50Kg of body weight.

A DOSE RATE of 1.0mg per Kg of body weight (a VOLUME of 2.5ml per 50Kg of body weight) in a Red Deer will cause deep sedation with the animal lying down. It is not generally necessary or even desirable to have a stag this deeply sedated for velveting.

If groups of deer are sedated, care must be taken to avoid animals lying down on, or staggering over other deer. As a guide, no more than 5-6 deer should be sedated at one time, to allow adequate supervision.

Site of injection

The xylazine should be given into the muscle of the anterior part of the neck, using a pole syringe or hand syringe. Injections can also be given into the rump, but this can result in

downgrading of carcasses. If the rump is used there can also be problems with the deposition of drug into subcutaneous fat depots, especially when regrowth is being cut in late summer. The effects of xylazine are much reduced if this occurs. There is minimal fat thickness between skin and muscle in the neck.

PLEASE NOTE

1. When using combined physical and chemical restraint it is essential to use a nerve block as is used in physical restraint alone.
2. Take great care with the use of Xylazine and a crush not to compromise the respiration of the deer. Xylazine will slow the respiration and a crush may further restrict the animal's breathing. It should in fact be unnecessary to sedate most deer for velvetting in a suitable crush.
3. Avoid accidental exposure to xylazine by:
 - a. Preventing the build up of pressure within bottles,
 - b. Removing air from loaded syringes,
 - c. Needles to be capped immediately prior to and after injection,
 - d. Carry loaded syringes in such a way as to prevent accidental pressure on the plunger,
 - e. Take special care with pole syringes in confined spaces, and avoid the close presence of other people when using one on deer in pens.
 - f. Dispose of empty xylazine bottles and used syringes in non-retrievable containers.

The effect of the Xylazine can be reversed by using Yohimbine as described above. If yohimbine is not used, the deer should be closely monitored in pens until they are fully recovered and able to be safely released into the paddock. This will take several hours after light sedation with xylazine. Even after yohimbine administration the deer remain slightly sedated for an hour or so, and should be closely monitored during that period. Do not allow deer to return to paddocks in this state during the heat of the day, since they may lie down in the open and develop severe hyperthermia.

If an efficient reversal agent is available for use in reversing the effects of xylazine, then from a welfare point of view, we should be required to use it, ie. yohimbine to reduce the risk of stag deaths post-velvetting.

So long as an animal has been desensitised to pain, the process of velvetting causes less stress than being physically restrained in a drop floor crush. Data on behavioural studies indicate that velvetted stags have similar behavioural and stress patterns as those not velvetted but handled in the same way.

HUSBANDRY OF DEER FOR VELVETING

Pre-Season Stag Management

Before the velvet season begins the following should be carried out:

- 1) Starting from the period of the rut, have stags spread out as much as possible so that the effects of the more aggressive individuals can be minimised. Move to autumn saved grass paddocks as the rut subsides.
- 2) Increase the quality of the nutrition in late winter and early spring.

During winter stags/bucks naturally reduce the amount of food that they eat and it is not possible to force an increase in that amount. It is important that a balanced supplementary feed be available in late winter when the pasture is in short supply. This is to enable the animals to have a high plane of nutrition as they begin to increase the amount of food they eat prior to the start of the spring flush of pasture growth.

The precise nutritional requirements for velvet growth are not known however a supplement of high quality clover or lucerne hay and grain in the form of lupins, oats or barley, will provide the minimum mineral and protein requirements for velvet growth. Good nutrition prior to button casting is essential.

The amount of supplement to be fed will depend on many factors including the amount of pasture available, the amount of food the stags/bucks are eating and the cost of the additional feed.

Provided there is sufficient pasture available a minimum supplementary rate would be 1.5% of body weight per day of a hay/grain mixture.

- 3) Worm all stags/bucks at or before casting using Cydectin Pour-on or Ivomectin.

Remember that it is necessary to worm the deer before velvetting, in order to comply with drug withholding requirements eg 7 days for Cydectin, to prevent drug residues in the velvet.

- 4) Cull any stags/bucks with bad temperament, and stags which react badly to handling - especially those which climb on others, inflicting velvet damage on others in the group.

The velvetting season is a difficult time by its very nature without adding to it the danger of a dangerous stag or buck. They have no place on any deer farm. Be aware of signs of aggression - bristling of rump hair, clicking of teeth, exposing tongue out of the side of the mouth, dilating the preorbital gland and a frontal stance with direct eye contact. Stressed deer mouth breathe and their tongue protrudes.

- 5) Ensure that the yards and facilities are in good working order.

This may seem obvious, but there is nothing more annoying than a yard full of deer and a door or gate that won't work. Service the crush for smooth operation, grease hinges, check door catches, check for protruding objects or loose cladding.

Provide "aids" for handling such as 1.5 metre paddles or flags, and plywood shield for pushing and protection from kicks.

Don't forget to check that the freezer is working correctly.

6) Educate stags/bucks to the yard system in a non-stressful manner before velvet forms.

It is essential that deer are familiar with the facilities in which they are to be worked. This reduces the likelihood of trauma and also makes the job of handling the stock a lot easier.

7) Record the button casting dates of each animal and sort the mob into similar casting date groups. Casting dates can be readily recorded each day by checking deer eating on grain trails.

This sorting and drafting serves two purposes. First it enables the deer to become more familiar with the yards and second, it allows easier management of stags/bucks that will be velveted at the same time.

On the day of velveting you should:

- 1] Yard the deer with a minimum of fuss. Damp down dusty yards with a suitable spray.
- 2] Have all equipment such as saws, tourniquets, tags, recording systems, freezer bags etc handy and tidy. See Annex 1 for a suggested check list.

Ensure that the freezer is clean with plenty of room available. Velvet squashed into a freezer will cause deformities and/or freezer burn which will down-grade the product.

SURGICAL TECHNIQUE

Good surgical technique has the following requirements:

1. Asepsis
2. Analgesia
3. Haemostasis
4. Competence

Asepsis

The term **aseptic technique** means to render the surgical field free from pathogenic micro-organisms. The aim of asepsis in velvet removal is to minimise the number of pathogenic micro-organisms and thereby minimise the risk of post-operative infection of the pedicle and contamination of the harvested velvet.

As part of the aseptic technique, the area being used for velveting must be clean, dust and contamination free.

All equipment must be clean and placed in a container of antiseptic solution between operations.

There are a number of antiseptics available. The antiseptic used must not have any harmful effect on tissue and be able to destroy a wide range of micro-organisms. The most suitable for velveting are:

- a) Iodophors - such as "Iovone Scrub" or "Betadine",
- b) Chlorhexidine - such as "Hibitane",
- c) Quaternary Ammonium Compounds (QUATS) - such as "Pine-O-Clean",
- d) 70% Alcohol,
- e) Chlorine containing compounds - such as "Halamid".

Do Not Apply Any Antiseptic To The Velvet.

If the operator needs to wash and dry his/her hands between each operation, use paper towel rather than cloth towels which can become very soiled. It is probably best for the operator to keep his/her hands dry, and only wash them if they become contaminated.

Cutting instruments should be placed back in antiseptic between animals - blood debris from previous velveting should not be present.

All instruments must be cleaned and dried each day and stored in a clean dust free dry place.

Analgesia

The type of pain control required will depend on the species of deer and the facilities available. Prior to the commencement of removal of the velvet and after the administration of the analgesic, it is essential to determine that the analgesic is effective. This is called the **nick test**. This is easily achieved by pricking the velvet with an 18-21G hypodermic needle, or by using a scalpel blade to make a small cut in the velvet. The best place to test for sensitivity is the outside base of the velvet, due to the greater nerve supply in that area. There will be no reaction from the stag/buck if the analgesic has been correctly administered.

The ring block is now the recommended method for achieving analgesia in New Zealand and Australia. Analgesia should take three minutes to be effective and then be tested. If the velvet is not sufficiently desensitised, ie. the animal flinches, further local anaesthetic should

be applied. This applies for spikers as well.

No Other Methods Of Analgesia At Present Have Approval.

Compression analgesia is approved in New Zealand for spikers but not in Australia. However it requires 60 minutes waiting period and is therefore not very practical.

Electroanalgesia has been proved to provide **inadequate** analgesia for velveting

Insufficient scientific research into non-chemical velvet removal such as electroimmobilisation and other methods, at present inhibits the use of alternative methods. Electroimmobilisation is banned in the E.C.M. countries including the U.K. and also in New Zealand due to consumer perceptions. The risk of trade barriers is too great to ignore these welfare attitudes.

If analgesia is inadequate the animal may react at the end of the cut by jerking his head in pain, resulting in tearing of the soft skin and reduction in the value of the velvet.

Haemostasis

The control of bleeding is known as haemostasis. It is essential to have good haemostasis in any surgical procedure to prevent excessive blood loss that could result in shock and death.

The major artery to the antler is the lateral coronal, which lies just beneath the skin on the outside of the coronet.

Bleeding is controlled by the use of a tourniquet. It is necessary in Red Deer and desirable in Fallow Deer. The tourniquet is applied in a figure-of-eight pattern around the pedicle **BELOW** the coronet. In large males it may be preferable to circle each pedicle fully with the tourniquet, but in either case finish with a quick release bow. The injection of the local anaesthetic is usually carried out before tourniquet application. It is now suggested that the tourniquet be applied first, followed by the local anaesthetic. This method will reduce the amount of lignocaine entering the velvet and remaining as a potential drug residue.

The best tourniquets are 2 cm strips of rubber inner tube, or rubber "milk fever" tubing. Baling twine and string must not be used since they put too much pressure on the blood vessels with the potential for permanent damage to the pedicle. This will produce deformed velvet in the following seasons.

The tourniquet should be left in place for 15 minutes and no longer than 20 minutes. It **MUST** be removed before the animal is released from the yards.

The cutting of tissue during velvet removal, formation of blood clots and contraction of muscle tissue in blood vessel walls leads to haemostasis continuing after tourniquet removal. On removal of the tourniquet blood flow should not exceed minor oozing.

Tourniquets should be disinfected between animals.

Surgical Competence

Surgical competence is gained by experience. Velvet removal involves the cutting of living tissue and all of the above aspects of surgery must be followed.

Removal of the velvet antler will vary depending on whether the animal is sitting or lying down, standing in a pen, or restrained in a crush. A second person must be present to hold the animal's head, and for safety in the event of an accident.

The velvet antler is cut with an appropriate saw starting on the **OUTSIDE** of the velvet at least 20 mm **ABOVE** the coronet. The operator holds the antler to be cut in one hand and the saw in the other hand.

Saws most commonly used are surgical saws (20-25 cm in length), meat saws or tenon saws with 1 mm teeth. If the teeth are too coarse the velvet will tear, and if too fine the teeth clog with tissue.

Cutting from the outside of the velvet allows accurate assessment of the degree of analgesia of the region. This is because the major nerve supply to the velvet is on the outside of the stem. The deer's head is held firmly by the assistant, with the saw strokes made evenly and firmly. The last two or three strokes are made very carefully to ensure that the velvet is not stripped away from the antler as it is removed.

If the brow tine is close to the head, it may be necessary to make two saw cuts, the first starting in front and cutting upwards, the second cutting forward to meet it.

Spikers have minimal development of the coronet and an ill-defined pedicle-antler junction. Ensure velvet removal occurs well above this.

Do not apply any antiseptic to the antler stump after velvet removal. There appears to be no benefit from applying any form of powder or spray dressing to the cut surface, since a clot forms rapidly and seals the surface. Bone wax is used by some operators to reduce blood loss and to protect the cut stump.

Maximum retention of blood in the velvet is desirable for a high quality product. This is assisted by turning the animal's head slightly before cutting.

After cutting, leave the tourniquet on for 15-20 minutes, then remove and reverse the effects of the xylazine with IV or IM yohimbine at a dose rate of 1.0 ml. per 40 kg. bodyweight. If given into the jugular vein care must be taken to avoid injection into the carotid artery.

The cephalic vein is found crossing the forearm. Ear veins can be hard to find early in the season when some animals have not completely shed their winter coat and the ears are still very hairy. In later weeks the veins are obvious and easily injected with a 21G needle.

Syringe and Needle Use

Any discussion of surgical competence must include some rules and guidelines regarding the safe and correct use of hypodermic syringes and needles.

Today syringes and needles are designed to be disposable. A new syringe and needle for each animal is cheap insurance.

The reasons for these recommendations are:

- * drug residues can remain in syringes and needles and interact with other substances used in the syringe/needle.
- * Drug residues may react with the water used for washing syringes and needles forming mineral deposits which can cause a chemical reaction at the injection site.
- * Some bacteria are able to survive boiling to cause either an abscess at the injection site or a generalised toxæmia resulting in death of the animal.
- * A dropped needle or syringe must never be used as contamination is highly likely. Use of contaminated needles and syringes can cause a range of problems including abscesses at the site of injection, carcase damage through to death from Clostridial infections.
- * Never use a syringe or needle that has blood in it (ie a syringe that has been used for an intravenous injection) on another animal since this may spread disease or cause an anaphylactic reaction.
- * Syringes may be reused a number of times for intramuscular injection provided they are clean and contain no blood.

A Practical Note: While the above recommendations represent the ideal situation, most good quality disposable syringes may be reused. They should be rinsed with distilled water several times prior to boiling for 30 minutes. Nylon syringes used in Westerguns should also be rinsed with distilled water and boiled for 30 minutes. Always use new needles for each animal however.

All disposable syringes should be destroyed by burning. Needles and scalpel blades must be disposed using approved disposal systems ("sharps" containers). Your veterinarian will assist you with the disposal of used needles and syringes.

STAG/BUCK MANAGEMENT AFTER VELVETING

Following the successful removal of the velvet from the deer the following steps **MUST** be taken:

1. Check to ensure that all tourniquets have been removed from pedicles before the animal leaves the holding yards. It is usual to remove the tourniquet at the time of IV yohimbine administration.

2. Return the deer to a recovery paddock as soon as possible. This paddock must be free of obstacles such as creeks, dams, irrigation channels or anything that will cause harm to the animal if it is recovering from sedation or anaesthesia.
3. Observe the animal to ensure that if it sits down it is sitting on its brisket and NOT lying on its side.
4. Quietly make any animals that remain sitting for longer than 15 minutes get up and walk around until they remain standing.
5. **Do Not Mix Unsedated Animals In The Recovery Paddock With Those Recovering From Sedation Or Anaesthesia.** The unsedated animals will always dominate sedated animals with the potential for injury to the recovering animal.

It is the responsibility of the operator to keep the stags/bucks under continuous surveillance until they have fully recovered from sedation or anaesthesia. Factors which indicate the animal is still under the effects of the sedation or anaesthetic include:

1. Unsteadiness on their feet and uncoordinated gait,
2. Lolling of the tongue from the side of the mouth,
3. Excessive periods of lying down,
4. Excessive saliva coming from the mouth,
5. Swelling, particularly of the left side, of the abdomen between the hip and the last rib. This is a sign of bloat.

The stag/buck has recovered from sedation or anaesthesia when he is grazing normally, has a normal gait and his head is above his shoulder when he is sitting or standing.

Keep records of any animal which has an adverse reaction to xylazine for future reference eg becomes very deeply sedated with a dose which should produce only light sedation.

IF FARMERS HAVE ANY DOUBT ABOUT A STAG/BUCK DURING THE RECOVERY PERIOD, THEY MUST CONTACT THEIR VETERINARY SURGEON IMMEDIATELY.

While waiting for the Veterinarian to arrive move the stag into a dry shaded area (or provide shade if he cannot be moved), sit him up on his brisket and ensure that his airways are clear.

IF AN ANIMAL DIES WITHIN 48 HOURS OF VELVETING IT MUST BE REPORTED TO THE FARMERS'S NOMINATED VETERINARIAN RESPONSIBLE FOR THAT FARM, SO THAT A NECROPSY CAN BE PERFORMED.

Removal of regrowth

The same procedures must be followed for removal of regrowth as for first cut velvet, up to the stage of fraying of velvet. Because of the cost of removing the lower value regrowth antler, some fallow deer farmers with only a small number of breeding males defer velveting until palmation has occurred, after which no regrowth occurs. Surgical polling of these bucks when young is another option.

Hard Antler Removal

There is no requirement to use pain reduction techniques when removing hard antler since at this stage the antler has no nerve supply. The major problem may be the aggression that occurs in male deer at this time of year. Chemical restraint may be required.

The point at which hard antler may be removed without analgesia is after the start of fraying.

Any sharp hand saw or an air knife is suitable for removal of hard antler. Embryotomy wire is also very suitable.

Spiker & Inferior Grade Velvet Removal

If spiker or inferior grade velvet is removed PRIOR to fraying then suitable analgesia must be used.

The experienced operator will find that hydraulic cutting tools, secateurs or pruning shears are suitable cutting tools in these situations.

Care MUST be taken not to damage the pedicle on deer of any age since this will produce deformed velvet in the following seasons.

SUMMARY OF SURGICAL PROCEDURES

Physical restraint

1. Restrain stag/buck in suitable crush. Apply tie down straps if fitted.
2. Apply blindfold.
3. Administer local anaesthetic - ring block.
4. Set timer for 3 minutes.
5. Record tag number, write tags for velvet, describe velvet in record book.
(Rather than holding the animal in the crush for 3 minutes, he can be released after the nerve block so that others can be nerve blocked, then brought back into the crush when the local anaesthetic is effective.)
6. Apply tourniquet.
7. Nick test
8. Remove velvet.
9. Release stag into yard.
10. Remove tourniquet after 15 minutes (may hold in crush if only a small number to be done).
11. Observe stag in the yard for 20 minutes - watch for excessive bleeding, and re-apply tourniquet if necessary.
12. Release stags into well shaded, sheltered paddock and observe for several hours.

Physical restraint with sedation

1. Place stag/buck to be velveted in a small yard and estimate bodyweight (or use recorded weights if scales available).
2. Administer low dose of xylazine for mild sedation.
3. Restrain in a crush. Monitor respiration and ease of breathing. Apply tie down straps if fitted.
4. Apply blindfold.
5. Administer local anaesthetic - regional or ring block.
6. Set timer for 3 minutes.
7. Record stag tag number, write tags for velvet, describe velvet in record book. Fill out anaesthetic log.
8. Apply tourniquet.
9. Nick test
10. Remove velvet.
11. Release stag into yard.
12. Remove tourniquet 15 minutes after velveting.
13. Observe stag in yard for 20 minutes. Re-apply tourniquet if bleeding excessive.
14. Administer yohimbine if stag unable to stand.
15. Release into shaded, sheltered paddock free from dams and watercourses and non-sedated stags. Observe for several hours.

Chemical restraint

Using this technique, groups of stags/bucks can be handled in batches.

1. Place stag(s) to be velveted in small yard. Single deer can be very difficult to inject.
2. Estimate or retrieve body weight from records, calculate dose of xylazine.
3. Administer xylazine by intramuscular injection.
4. Record tag numbers, write velvet tags, describe velvet in record book.
5. When xylazine has had the desired effect (7-10 minutes), approach stags and restrain for injection of local anaesthetic.
6. Wait for 3 minutes.
7. Apply tourniquet.
8. Nick test
9. Remove velvet.
10. Ensure stags remain in sternal recumbency or standing, with free breathing.
11. Remove tourniquet 15 minutes after velveting.
12. Administer correct dose of yohimbine by IV or IM injection.
13. Observe stag in yard for 20 minutes, re-apply tourniquet if bleeding is excessive.
14. Release into shaded, sheltered paddock free from dams or watercourses, and non-sedated stags. Observe for several hours.

VELVET QUALITY, GRADES, PRODUCTS and, MARKETS.

PRODUCTION of QUALITY VELVET

Velvet production and quality is affected by the animal's genetic potential for velvet production, by nutrition and management.

The growth of a velvet stag in the first two years is critical to its' life long production. Therefore birth weights, weaning weights, weaner growth rates and two year old growth rates must be maximised in order to achieve the animal's true potential as a velvet stag. The other important consequence is that if an animal is not well fed during its' first two years, it will never reach its' full velvet potential no matter how well it is fed in later years. Production and hence income will be lost throughout the animal's entire lifetime. Maximum velvet production starts with a well-fed hind.

In New Zealand, researchers have been investigating strategic feeding systems and specific diets to improve velvet production and quality. It has been shown that under feeding during winter reduced velvet production in the following spring and also that under feeding in autumn post rut affected velvet production very markedly, with up to 13% less velvet antler yield. It seemed to affect the lower producing stags most.

Strategic feeding can improve quality, quantity and also possibly alter or improve the composition of velvet. It is known that simply increasing protein content and adding supplements and additives over winter (luxury feeding) does not increase velvet production. Feeding specific nutrients such as protected proteins and fats and specific minerals at specific times in the antler growth cycle does however affect velvet production. Research work is at present focused in this area.

The Chinese deer farmers vary levels of protein and energy concentrates according to the antler cycle. The feeding levels are lower during the rut and are increased gradually from post-rut autumn to a maximum during the antler growth period in spring. Up to 25% of the feed intake can be protein at this time. They feed roughages based on availability but also feed feeds that are known to be preferred by stags at particular times of the year. These feeds are thought to be preferred because of physiological changes.

The Russians feed maize silage during velvet production, which can contain greater than 30% D.C.P.(digestible crude protein). These countries have developed over many years, the concept of strategic feeding, ie. feeding to specific targets. We westerners, at present don't have the answers.

In the quest to improve velvet quality, we should be attempting to produce “ **more thick, heavy velvet from fewer stags**” as opposed to “ more thin velvet from more stags”.

There is no point in feeding an inferior animal when you can feed a genetically superior one.

If a stag has been fed to achieve his genetic velvet potential, meaningful selection and culling of poor production animals can occur as a 2 year old. This is based on velvet weight and grade and weight. Some culling of poorer animals can occur at as spikers but selection is most accurate at 2 years of age.

Velvet production is linked to growth rates, so that selecting for improved weight gain will also improve velvet production. Winter lean bodyweight shows a strong correlation with velvet weight.

Genetic improvement can be obtained by introducing a high velvet producing stag as a breeding sire and also by identifying hinds which produce good velveting stags. To obtain this information, progeny need to be identified (with records of pedigree) and production parameters must be recorded on individual animals. As the industry develops a better and more comprehensive data base, animals targeted as sire stags and breeding females can be allotted breeding values, progeny testing may be used to identify superior animals and the use of reference sires would allow cross referencing between herds. Estimated Breeding Values allow more objective selection of elite animals (male and female).

Trace element deficiencies and internal parasite burdens can lower productivity and need to be corrected to maximise yields.

Stag age has an effect on velvet production, increasing to a maximum at 5 years and levelling at 8-9 years, then generally falling thereafter. However, good stags that are well fed will cut acceptable velvet antler up to 10-12 years of age.

Timing of Velveting

Velvet antler production is a very specialised farming system, with returns being maximised by a careful professional approach with attention to detail.

The following discussion is offered as a guide only. The precise timing of harvesting will depend on your target market.

The time of velvet harvesting will depend on:

- 1] date of button casting
- 2] specific market requirements (eg Taiwanese or Korean)

Velveting charts are available from the DIAA and State branches, which have detailed guides for harvest timing. Most superior grade velvet is removed between days 45 and 50 after casting for fallow deer, and at 55-65 days for red deer.

The approximate sequence of events in the growth of antler in an adult red deer stag in relation to casting is:

Casting	day 0
pedicle begins to swell	day 7
brow bud	day 6
bez bud	day 30
trez bud	day 44
harvest (maximum bulging)	day 60

The cue for initiation of velvet growth is controlled by increasing daylength, ie. in response to changes in season and nutrition.

The growth rate is directly associated with hours of daylight or photoperiod. However, if you attempt to artificially increase the rate of change of the photoperiod, the result is smaller antler weights.

Increased secretion of factors which stimulate growth, such as Growth Hormone and Insulin-like Growth Factors (IGF 1 & 2) occurs in response to photoperiod. Rapid cell division occurs at the so-called growth plate and antler then develops by a process called endochondral ossification. Velvet is rapidly changing bone cartilage.

Cutting For Quality

The most important point to remember is that no two stags are the same. To obtain high quality velvet that will provide the maximum return, it is essential to know what each stag is capable of producing and at what stage of growth. Use grading charts to determine when velvet is the right shape: when both the tip of the trez tine and the main beam are rounded, and before bulbing and splitting of the main beam occurs, indicating development of the royals. Fining and kinking of the brow tines is indicative of early calcification.

The Golden Rule of Cutting Velvet.

Velvet should be grown to the point where it is no thinner above the trez tine than it is in the main beam. If the stick is thinner above the trez tine than in the main beam, it is starting to calcify.

Each farmer is well advised to put the time and effort into observing and recording the production of each stag. The result will be increased returns at the end of the season.

One of the major problems with the timing of cutting is the avoidance of calcification. **It is better to cut a few days too early than a few days too late.**

The timing of harvesting is definitely an acquired art and not a science. Velvet is a very rapidly growing tissue that must be closely monitored for the correct time of harvesting. As little as 24 hours may make the difference between one grade and the next with a corresponding fall in the value of your product.

Handling of animals

The deer should be accustomed to the facility to ensure that antlers are not damaged during the yarding and drafting process. Aggressive or nervous animals must be culled.

Damaged velvet often indicates poor velveting techniques, and possible animal welfare problems. Traceback will occur with the DIAA tags that are to be attached to velvet submitted to the pools. Problems can then be identified and rectified.

Any damage to velvet antler will downgrade its value.

Velvet Handling

It must always be remembered that velvet is a product destined for human consumption and must therefore be handled hygienically. The velvet should be inverted to retain the blood after

collection and held on a rack at a 15° angle while cooling for about 30 minutes.
Weigh and tag individual pieces of velvet for recording purposes.

It should then be snap frozen, with this process allowing correct blood clotting in the velvet, reducing the risk of damage, reducing bacterial contamination and improving the manufacturing quality.

The velvet must be deep frozen at -18°C in a suitable deep freeze. It **MUST NOT** be removed from the deep freeze until ready to be sold. The temptation to show off your velvet must be resisted since removal from the deep freeze will allow partial thawing and bacterial contamination.

Most people use chest freezers that are designed to receive and hold food that is already frozen. These are suitable for quickly freezing small amounts of fresh velvet at a time, but not for large quantities.

The velvet must be shipped in pre-frozen containers at -18°C.

Remember that velvet is a highly perishable product and any damage to the velvet prior to or during freezing will seriously reduce its' quality and value. Frozen velvet can be transported for short periods in pre-frozen containers such as new foam broccoli boxes containing dry ice and sealed with packing tape. Heavy cardboard boxes, plus dry ice, are also acceptable.

Identification for Sale

Velvet harvested for sale should be accompanied by the Operator Accreditation Number. For this scheme to be a success, promotion of quality control is essential. Identification of velvet produced and harvested under approved and accredited conditions will add financial benefits to accredited producers.

The majority of velvet is now being sold through the national velvet pool - Australian Deer Horn Pty.Ltd. There are usually two or three sales annually. Some velvet is also sold privately.

Compulsory Tagging of velvet

It is compulsory for all velvet to be tagged whether for sale through any velvet pool or for export.

AQIS, Australian Deer Horn and all velvet pools & processors have been instructed that only tagged velvet which has been removed by a **currently** accredited operator or veterinarian will be marketed and/or exported. All velvet (green or processed) whether from the pools or elsewhere, will require an NVAS tag in order to obtain an AQIS permit for export.

Tagging enables NVAS to gather data for quality assurance and drug residue issues. It allows for feedback and advice on cutting and post-velvet handling of the velvet product, as well as any welfare issues.

There are two differently coloured tags available. Velvet removed with physical restraint and local anaesthetic should have a **WHITE** tag applied to each stick. All other velvet should carry the **ORANGE** tag.

All sticks of velvet must carry a tag. Only small bits, less than 5 cms in length may be grouped ten to a bag and the tag applied to the bag.

Grading of velvet

Grading of velvet occurs at the national pool and is done by trained velvet graders. All grading of product for quality conforms with the standards published for Red and Fallow Deer.

There are a wide variety of grades into which velvet may be assigned. The Grades for Red Velvet start at Super A1 (SA1) through to Hard Antler 2 (HA2). Fallow Deer velvet is graded from Fallow A 1 (F.A.1) through to Fallow Hard Antler (F.H.A).

Measuring tapes are available to assist you to estimate the grade of your own velvet but the final decision is up to the professional, impartial grader.

Current grading systems are based on size, conformation and stage of growth. Measurements such as beam circumference and distance between bez and trez tines are important as is texture and colour.

Colour is considered an important indicator of quality by the traditional market. New Zealand and Australian velvet must compete with Russian and Chinese product which is considered to be of better quality and therefore commands a much higher price. When dried (processed), New Zealand velvet is darker red than Russian velvet but supposedly has less blood content.

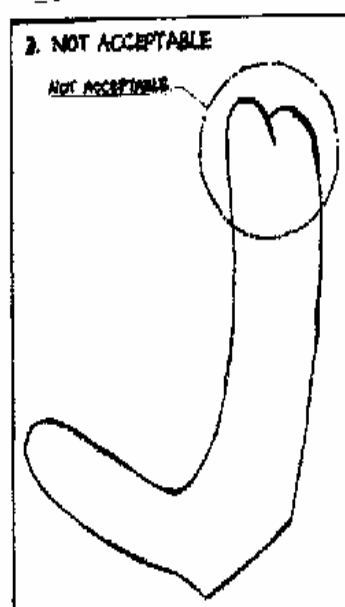
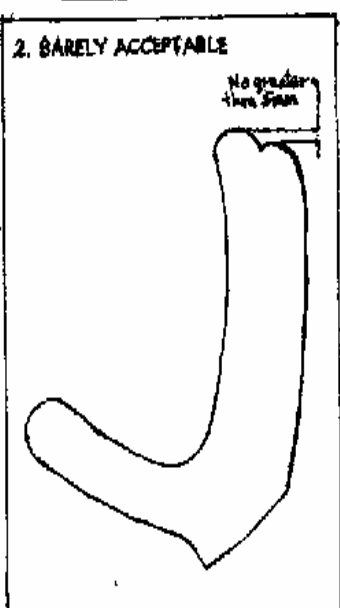
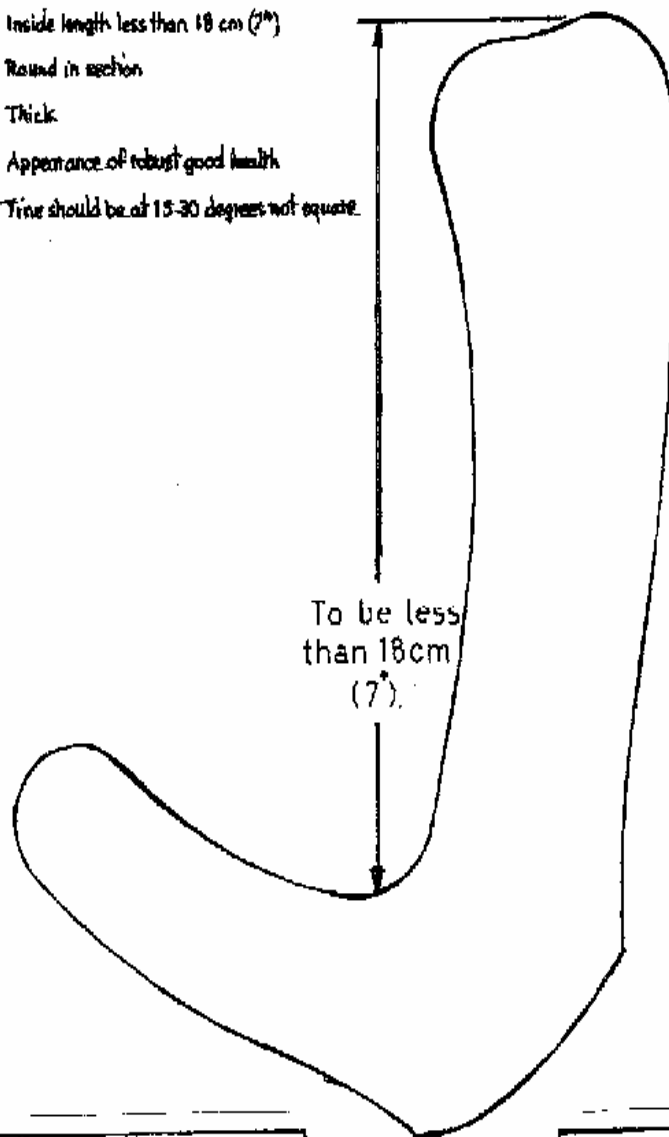
Processing temperatures affect colour, as do different types of anaesthetic used for velvet harvesting. Research in New Zealand has focused in this area in an attempt to improve the quality of dried product by changing harvesting and handling techniques

FALLOW VELVET – TAIWAN MARKET

1. MOST ACCEPTABLE STYLE AND SIZE

DRAWING IS SAME SIZE

- Inside length less than 18 cm (7")
- Round in section
- Thick
- Appearance of robust good health
- Tine should be at 15-30 degrees not equate



PRODUCTS

The earliest recorded (about 2100 years ago) use of deer products in human medicine is found in a silk scroll recently recovered from a Han tomb in Hunan province in China. The oldest pents'ao (pharmacology texts) that include references to deer velvet, hard antler and various antler glues are from about 200AD. The historical use of antler products extends through most of Asia but particularly in China, Korea, Tibet and Japan.

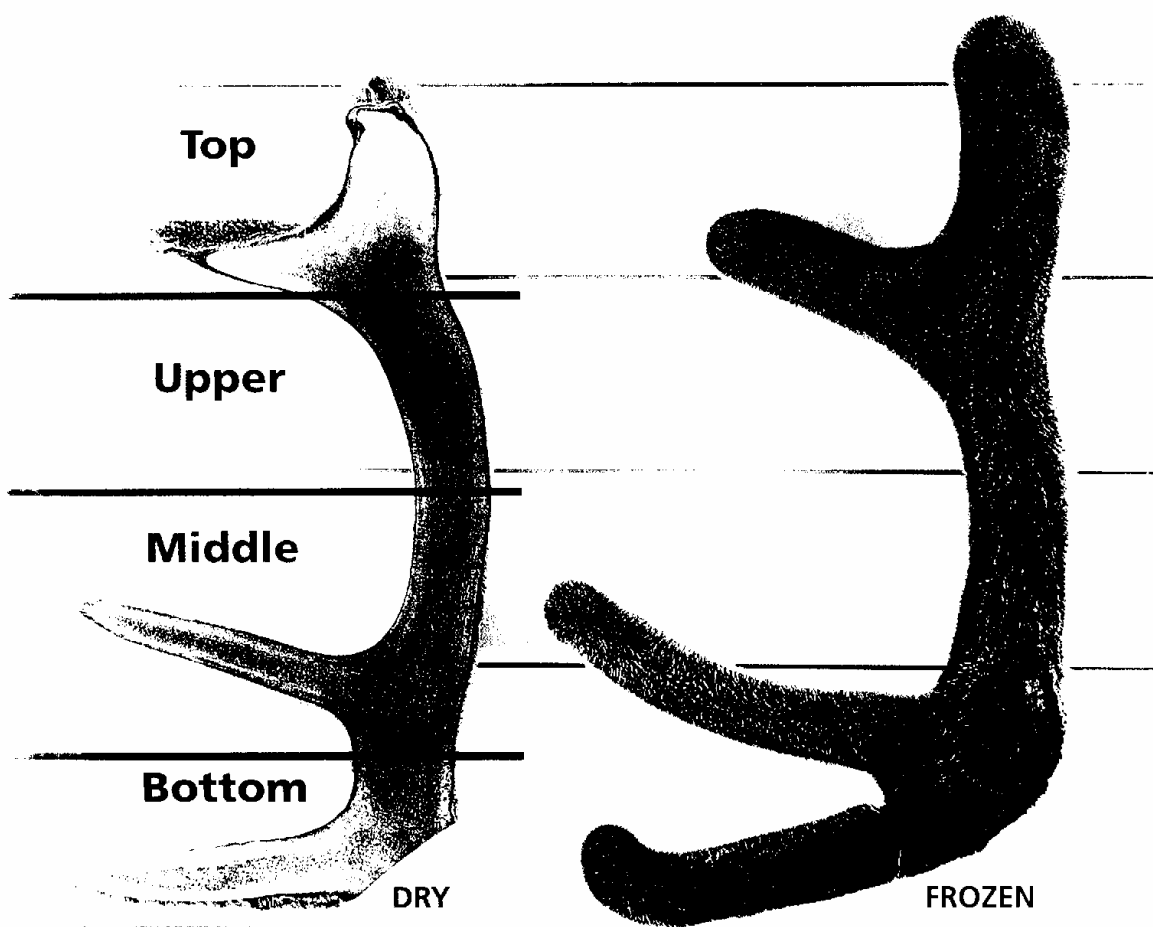
The majority of products derived from processed velvet are still used in traditional eastern medicine for the treatment and prevention of a wide range of human disorder, either alone or with other medicinal herbs and plants such as ginseng. Velvet in China is used more commonly in treatments for women and children, whereas in Korea, the main focus is on masculine ailments.

The sections of a velvet stick vary markedly in composition, with the tip containing a comparatively higher lipid content and higher nitrogen, selenium and iron concentrations than the base which has comparatively higher ash, calcium and zinc concentrations.

Consequently, each section is put to different medicinal uses. The upper section is used mainly as preventative medicines or tonics for children and young people, the middle section is used in the treatment of arthritis and osteomyelitis (joint and bone related ailments), and the lower portion is useful in treating geriatric diseases such as osteoporosis.

Velvet is known to have general performance enhancing effects, to accelerate recovery from injury, to increase body resistance to potential infection and to lower blood cholesterol levels. It also has a haemopoietic effect by stimulating red blood cell production and consequently increasing O₂ carrying capacity and is useful in the treatment of stress related conditions such as gastric ulcers.

Clinical research carried out by groups in New Zealand, Korea and China are looking at the effects of velvet on osteoporosis, growth generally, immune stimulation, reducing the side-effects of anti-cancer treatment and improving athletic performance, strength and endurance. Scientifically proven attributes can be used in advertising to promote velvet products.



Section of Velvet Stick Indicating Different Valved Parts. Early Cut Velvet has Proportionally More Higher Value Sections.

Uses in Research

Velvet is actively growing cartilage and can be used as a model for bone growth and mineralisation. Antler cells are cultured in vitro and used for studies of endocrine influences and for chondroitin studies (chondroitin reduces pain in osteoarthritis). Geneticists can use velvet antler to study the regulation of gene expression for bone growth.

Research into the effects of velvet is important to the future of velvet sales. As Western nations tend towards more “natural” medical products (nutraceuticals), velvet may be the raw material from which to extract these therapeutic agents. Diagnostic tests are being developed in New Zealand to enable the identification of velvet in mixtures. This will assist with access requirements for new products into new markets and improve the marketability of velvet products. If this is not done, a substance may be identified from velvet but produced synthetically, resulting in lost markets for velvet.

QUALITY ASSURANCE

Quality means producing a clean, damage-free product from clean animals, free from stress, removed in clean hygienic facilities.

As the Australian Deer Industry develops a Quality Assurance Program (Deer Farming Best Practice Program), the Velvet Accreditation Scheme must be able to align with this program and be included as an integral part.

The key element of a Q.A. programme is documentation of processes and procedures which enable effective auditing if required. There should be demonstration of a level of competency with each procedure undertaken (eg. Accreditation – certificate of competency for velvetting of deer).

As the consumer of the end product, the public's perception of the industry is of utmost importance. A poor image will lead to questions of ethics and animal welfare, and result in international trade barriers on associated products and the destruction of the velvet industry.

To review a velvetting operation, there are three major factors involved.

Firstly the animal from its' genetic, nutritional and health status to the timing of cut, anaesthetic, welfare and hygiene considerations.

The second factor under consideration is the facilities and whether they are adequate to enable the operation to be carried out in a clean, hygienic and safe surroundings with least stress to the animals and minimal damage to the product.

Thirdly, handling of product post removal to ensure that product arrives at the sale point with maximum quality. This includes post velvetting handling, bagging, identification, freezing, transport to sale and grading for sale.

The Velvet Accreditation Scheme is addressing these issues.

Velvet pools provide quality assurance information to farmers when reporting grading and prices. With this information farmers can benefit by producing a better quality product themselves and also benefit from an industry reputation gained from quality assured velvet production. Processors and buyers will be prepared to pay for the assurance of a known quality product.

Low grade, damaged and contaminated product presented at velvet pools has the potential to down grade prices over the entire range of product for sale and ruin a hard won national reputation very quickly.

Quality control is therefore so important. A quality assurance program for velvet production based around the National Velvet Accreditation Scheme is recommended.

XYLAZINE ADMINISTRATION GUIDE

2% Solution = 20mg/ml

RED DEER & ELK

Sedation Only

Dose Rate = From 0.3mg/Kg. to 0.5mg/Kg.

Body Weight (Kg.)	Volume at a Dose Rate of 0.3mg/Kg	Volume at a Dose Rate of 0.5mg/Kg
50	0.80ml.	1.30ml.
55	0.90ml.	1.40ml.
60	0.90ml.	1.50ml.
65	1.00ml.	1.70ml.
70	1.10ml.	1.80ml.
75	1.20ml.	1.90ml.
80	1.20ml.	2.00ml.
85	1.30ml.	2.20ml.
90	1.40ml.	2.30ml.
95	1.50ml.	2.40ml.
100	1.50ml.	2.50ml.
105	1.60ml.	2.70ml.
110	1.70ml.	2.80ml.
115	1.80ml.	2.90ml.
120	1.80ml.	3.00ml.
125	1.90ml.	3.20ml.
130	2.00ml.	3.30ml.
135	2.00ml.	3.40ml.
140	2.10ml.	3.50ml.
145	2.20ml.	3.70ml.
150	2.30ml.	3.80ml.
155	2.40ml.	3.90ml.
160	2.40ml.	4.00ml.
165	2.50ml.	4.20ml.
170	2.60ml.	4.30ml.
175	2.70ml.	4.40ml.
180	2.70ml.	4.50ml.
185	2.80ml.	4.70ml.
190	2.90ml.	4.80ml.
195	3.00ml.	4.90ml.
200	3.00ml.	5.00ml.
205	3.10ml.	5.20ml.
210	3.20ml.	5.30ml.

215	3.30ml.	5.40ml.
220	3.30ml.	5.50ml.
225	3.40ml.	5.70ml.
230	3.50ml.	5.80ml.
235	3.60ml.	5.90ml.
240	3.60ml.	6.00ml.
245	3.70ml.	6.20ml.
250	3.80ml.	6.30ml.

XYLAZINE ADMINISTRATION GUIDE

2% Solution = 20mg/ml

RED DEER & ELK

Sedation Only

Dose Rate = From 0.3mg/Kg. to 0.5mg/Kg.

Body Weight (Kg.)	Volume at a Dose Rate of 0.3mg/Kg	Volume at a Dose Rate of 0.5mg/Kg
255	3.90ml.	6.40ml.
260	3.90ml.	6.50ml.
265	4.00ml.	6.60ml.
270	4.10ml.	6.80ml.
275	4.20ml.	6.90ml.
280	4.20ml.	7.00ml.
285	4.30ml.	7.00ml.
290	4.40ml.	7.30ml.
295	4.50ml.	7.40ml.
300	4.50ml.	7.50ml.
305	4.60ml.	7.60ml.
310	4.70ml.	7.80ml.
315	4.80ml.	7.90ml.
320	4.80ml.	8.00ml.
325	4.90ml.	8.00ml.
330	5.00ml.	8.30ml.
335	5.00ml.	8.40ml.
340	5.10ml.	8.50ml.
345	5.20ml.	8.60ml.
350	5.30ml.	8.80ml.
355	5.30ml.	8.90ml.
360	5.40ml.	9.00ml.
365	5.50ml.	9.10ml.

370	5.60ml.	9.30ml.
375	5.60ml.	9.30ml.
380	5.70ml.	9.50ml.
385	5.80ml.	9.60ml.
390	5.90ml.	9.80ml.
395	5.90ml.	9.90ml.
400	6.00ml.	10.00ml.
405	6.10ml.	10.10ml.
410	6.20ml.	10.30ml.
415	6.30ml.	10.30ml.
420	6.30ml.	10.50ml.
425	6.40ml.	10.60ml.

SYRINGE SELECTION:

For VOLUMES up to 2.5ml use a 2.5ml. Syringe; from 2.5 to 5ml use a 5ml. Syringe and from 5 to 10 ml. a 10ml. Syringe is required. This allows for accurate measurement of small volumes of solution.

XYLAZINE ADMINISTRATION GUIDE

2% Solution = 20mg/ml

RED DEER & ELK

Recumbency

Dose Rate = 1.0mg/Kg.

Body Weight (Kg.)

Volume Required

50	2.50ml.
55	2.70ml.
60	3.00ml.
65	3.20ml.
70	3.50ml.
75	3.70ml.
80	4.00ml.
85	4.20ml.
90	4.50ml.
95	4.70ml.
100	5.00ml.
105	5.20ml.

110	5.50ml.
115	5.70ml.
120	6.00ml.
125	6.20ml.
130	6.50ml.
135	6.70ml.
140	7.00ml.
145	7.20ml.
150	7.50ml.
155	7.70ml.
160	8.00ml.
165	8.20ml.
170	8.50ml.
175	8.70ml.
180	9.00ml.
185	9.20ml.
190	9.50ml.
195	9.70ml.
200	10.00ml.
205	10.20ml.
210	10.50ml.
215	10.70ml.
220	11.00ml.
225	11.20ml.
230	11.50ml.
235	11.70ml.
240	12.00ml.
245	12.20ml.
250	12.50ml.

XYLAZINE ADMINISTRATION GUIDE

2% Solution = 20mg/ml

RED DEER & ELK

Recumbency

Dose Rate = 1.00mg/Kg.

Body Weight (Kg.)

Volume Required

255	12.70ml.
260	13.00ml.
265	13.20ml.

270	13.50ml.
275	13.70ml
280	14.00ml.
285	14.20ml.
290	14.50ml.
295	14.70ml.
300	15.00ml.
305	15.20ml.
310	15.50ml.
315	15.70ml.
320	16.00ml.
325	16.20ml.
330	16.50ml
335	16.70ml
340	17.00ml.
345	17.20ml
350	17.50ml.
355	17.70ml.
360	18.00ml.
365	18.20ml.
370	18.50ml.
375	18.70ml.
380	19.00ml.
385	19.20ml.
390	19.50ml.
395	19.70ml.
400	20.00ml.
405	20.20ml.
410	20.50ml.
415	20.70ml.
420	21.00ml.
425	21.20ml.

SYRINGE SELECTION:

For VOLUMES up to 5.00 use a 5.00ml. Syringe; from 5.00 to 10ml. use a 10ml. Syringe and from 10 ml. to 20ml a 20ml. Syringe is required. This allows for accurate measurement of small volumes of solution.

XYLAZINE ADMINISTRATION GUIDE

2% Solution = 20mg/ml

FALLOW DEER

Sedation Only

Dose Rate = From 0.5mg/Kg. to 1.0mg/Kg.

Body Weight (Kg.)	Volume at a Dose Rate of 0.5mg/Kg	Volume at a Dose Rate of 1.0mg/Kg
40	1.00ml.	2.00ml.
42	1.10ml.	2.10ml.
44	1.10ml.	2.20ml.
46	1.20ml.	2.30ml.
48	1.20ml.	2.40ml.
50	1.30ml.	2.50ml.
52	1.30ml.	2.60ml.
54	1.40ml.	2.70ml.
56	1.40ml.	2.80ml.
58	1.50ml.	2.90ml.
60	1.50ml.	3.00ml.
62	1.60ml.	3.10ml.
64	1.60ml.	3.20ml.
66	1.70ml.	3.30ml.
68	1.70ml.	3.40ml.
70	1.80ml.	3.50ml.
72	1.80ml.	3.60ml.
74	1.90ml.	3.70ml.
76	1.90ml.	3.80ml.
78	2.00ml.	3.90ml.
80	2.00ml.	4.00ml.
82	2.10ml.	4.10ml.
84	2.10ml.	4.20ml.
86	2.20ml.	4.30ml.
88	2.20ml.	4.40ml.
90	2.30ml.	4.50ml.
92	2.30ml.	4.60ml.
94	2.40ml.	4.70ml.
96	2.40ml.	4.80ml.
98	2.50ml.	4.90ml.
100	2.50ml.	5.00ml.
105	2.60ml.	5.20ml.
110	2.80ml.	5.50ml.

115	2.90ml.	5.80ml.
120	3.00ml.	6.00ml.
125	3.20ml.	6.30ml.

SYRINGE SELECTION:

For VOLUMES up to 1.00ml use a 1.00ml. Syringe; from 1.00 to 2.5ml use a 2.5ml. Syringe and from 2.5 to 5.00 ml. a 5ml. Syringe is required. This allows for accurate measurement of small volumes of solution.

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ANNEX 1

VELVETING CHECKLIST

Xylazine 2%

Local anaesthetic 2% eg xylocaine

Reversal agent eg Reverzine (yohimbine)

Buckets x 2

Antiseptic eg Hibitane

Tourniquets

Cutting saws/cutters

Syringes 2 ml and 5 ml (for xylazine and yohimbine)
 10 ml (for local anaesthetic)

Needles 21G X 1" (for local anaesthetic)
 18G X 1.5" (for IM and IV injections)

Pole syringe (with 16G X 1" needles)

Alcohol (methylated spirits) - to clean tops of bottles
Cotton wool

Velvet measuring tape

DIAA tags for velvet identification

Marker pen

Rack to hold velvet at 15 degree angle

Container for "sharps" - used needles and syringes

Record book

ANNEX 2

REQUIREMENTS FOR FARM ACCREDITATION

GUIDELINES FOR PRELIMINARY FARM INSPECTION

The following points are the areas that will be taken into consideration when your farm is inspected.

Please note that the minimum requirements **MUST** be present to gain your Facilities Accreditation Number.

MINIMUM REQUIREMENTS:

- 1] Childproof lockable medicine cabinet.
- 2] Facilities for disposal of needles and syringes.
- 3] Yards and/or sheds as appropriate for the species of deer to be handled. Tranquilliser guns are not an acceptable alternative.
- 4] All handling facilities to be in accordance with the Model Code of Practice for the Welfare of Animals - The Farming of Deer.
- 5] If no scales be able to demonstrate accurate knowledge of deer weights.
- 6] Cold water supply.
- 7] First Aid Kit complete with instructions for artificial resuscitation.
- 8] If harvesting velvet for sale then suitable cooling facilities and a deep freeze together with a thermometer for the deep freeze must be available.

DESIRABLE REQUIREMENTS

- 1] Scales.
- 2] Crush of suitable design.
- 3] Enclosed, dust free shed.
- 4] Hot & cold water supply.
- 5] Freezer capacity sufficient for amount of velvet expected.
- 6] Deep freeze close to handling facility.

ANNEX 3

PROTOCOL FOR ASSESSMENT OF FARMERS TO DETERMINE VELVETING COMPETENCY

Preamble:

Each candidate has undertaken an intensive two day theoretical course in the Legal Requirements, Animal Welfare, Drug Pharmacology, Anatomy, Surgical Principles and Diseases of Velvet. The pass mark for this examination was set at 75%.

To complete the course and demonstrate their practical competence, each candidate must be examined by their own Veterinary Surgeon.

The pass mark for this practical examination is subjective in that the criteria required is based on whether or not the practitioner considers that the candidate is of sufficient standard to be supplied the medications necessary to humanely velvet deer and whether or not the candidate has the necessary skills to carry out the procedure.

The following protocol is issued as a guide for the examining veterinarian.

The candidate must at all times demonstrate a high degree of animal welfare consciousness, stockmanship, drug responsibility and surgical skill.

It is required that a minimum of three stags or bucks be velveted in the presence of the examining veterinarian and that the examining veterinarian observe the procedure without participation.

Veterinary Examination:

1. The candidate is to nominate the method of restraint - either physical only in a crush, chemical only with xylazine sedation, or a combination of physical and chemical restraint.
2. The candidate must have the equipment ready to perform the velveting. This must consist of at least rubber tourniquets, a saw and/or pruning shears, a bucket of clean water, a bucket of suitable disinfectant, paper towel for drying hands and for cleaning the saw.
3. The candidate must have the necessary drugs and syringes and needles available in close proximity to the surgical area.
4. The candidate must demonstrate an accurate knowledge of the weights of stock particularly if xylazine is to be used.
5. The animals must be yarded in a non-stressful manner.
6. The selected animals must be drafted into the restraining area in a non-stressful manner.

If xylazine is to be used the appropriate volume of drug must be calculated.

8. The selected animal must be restrained as quickly and non-stressfully as possible.
9. All injections are to be administered in accordance with acceptable veterinary standards.
10. The candidate is to identify the pedicle, the coronet and the velvet antler.
11. The candidate is to identify the path of the *supraorbital*, the *zygomaticotemporal* and the *auriculopalpebral* nerves.
12. The candidate is to identify the *jugular vein* and the *cephalic vein*.
13. The candidate is to administer the lignocaine by a ring block around the base of the pedicle.
15. The candidate is to apply a tourniquet using a slip-knot figure-of-eight technique around the pedicle.
16. The candidate is to test the effectiveness of the analgesia after waiting for a minimum of 3 minutes.
17. The candidate is to amputate the velvet ABOVE the coronet.
18. The candidate is to reverse the effects of xylazine if it has been used at recumbency-inducing dosages.
19. The candidate is to remove the tourniquet 15 minutes after application and before the animal is released into the recovery area.
20. The candidate is to monitor recovering animals and indicate what sequelae are possible.
21. The candidate is to dispose of sharps in an acceptable container.

ANNEX 4

CASE STUDIES

CASE STUDY No. 1:

The stag has been sedated and your assistant is holding the stag's head steady for you as you inject 5 mls. of lignocaine into each nerve block. You have just completed the last block being the zygomaticotemporal nerve block. As you stand up, the stag begins to twitch and suddenly convulsing.

What has happened?

What should you do?

CASE STUDY No.2:

You have successfully removed two sticks of possibly A grade velvet from your new European sire stag. The anaesthetic (xylazine) has worked well, the local was adequate to prevent any pain stimulation whilst you removed the velvet. You left the tourniquet on for ten minutes to ensure good control of bleeding. You inject the reversine into the vein in the neck and stand back to wait for the animal to wake up. A minute later the stag stretches out, starts paddling and goes into spasms. it staggers to its feet and falls to one side with its neck stiff and stretched back. It appears to be blind as it crashes around the walls of the pen.

What has happened ?

What would you do ?

CASE STUDY No.3:

You arrange for extra labour to help with removal of velvet from your stags/bucks. In the morning you have made sure that the freezer was working properly and all your equipment was ready. You have had the velveting group through the yards and shed several times to familiarise them. You have weighed them earlier when they were dropping buttons. The day gets hotter and you decide to wait until it is a bit cooler to run the animals into the shed. About 4.00 pm you herd the stags/bucks towards the yards. The new rep. from Coopers comes roaring down the driveway in his bright red car. The animals break and two hours later you finally get them in. Daylight saving has been voted out.

What are your options?

What aspects of the velveting process would you consider so that you could have an accurate assessment of the situation ?

Why?

CASE STUDY No.4:

DAY 1:

You have five animals for velveting. You are unsure of their weights so you take an educated guess. You use xylazine intramuscularly and after the first animal the needle drops off the syringe onto the ground. You wipe it with your shirt (as you haven't got a spare), it looks clean so you draw up more xylazine and continue with the job. Three days later you bring in the stags and there is only one of the velveted stags. You search the paddock - the other four are dead in the gully.

What could have caused the post-velveting deaths ?

DAY 4:

You have to get the velvet off the next lot of stags, so you do so using the same bottle of xylazine but being very careful about dose-rate and recovery observation.

You then ring your vet to investigate these post-velveting deaths. However, the post-mortem doesn't fit the usual findings of xylazine toxicity.

Two days later you have lost some of the stags velveted most recently. You ring your vet in a panic to tell him/her what has happened.

You are told that the results from bacteriology have just come back. A *Clostridium perfringens* infection has caused toxaemia and death.

How has this infection been spread ?

CASE STUDY NO 5

DAY 1

You bring an 8 year-old stag into the hydraulic crush for velveting. Your crush has vertical sides with no adjustment. The stag's head is restrained with a cotton rope around his pedicles. You have injected local anaesthetic in a ring block and put the timer on for four minutes. While you are waiting, you record his weight, ear tag number, vaccinate him with 5in 1, and give him Selenium and Cobalt bullets and also a Permatrace copper capsule 10gm. With a Coopers Applicator gun. He struggles a bit, not much and then settles down when you leave him alone. Close on the three minute mark, he suddenly regurgitates and some of his curd comes out of his nose. You quickly remove the velvet and let him go. You hear him coughing while you velvet the next two stags. After removing the tourniquets, you let the group of velveted stags go back to the paddock.

DAY 2-4

You check the mob over the next few days, and that particular stage seems to be moping at the back of the group but is still feeding.

DAY 20

Three weeks later, you realise that the stag is looking very thin. So you bring him in and he's lost 40kgs. since velveting.

What could be causing the stag's loss of condition?

You ring your veterinarian and are advised that you should have immediately given the animal a course of injectable antibiotics. Unfortunately the stag dies and a post mortem is performed.

The animal had large necrotic lesions in the lower part of the chest. Bits of vegetable matter were found in the lesions which is diagnostic of inhalant pneumonia. He also had a wound in the back of the throat just beside the voice box (or larynx) from which a selenium pellet was extracted.

What caused the stag to regurgitate?

What can be learned from this situation?

REVIEW QUESTIONS

QUESTION 1: A stag/buck is fairly heavily under anaesthetic and is lying on its side. You see that it has started to regurgitate

What do you do ?

ANSWER:

QUESTION 2: You normally have very little trouble getting your stags into the yards and shed. However, you have just bought a new sire and now the entire stag group is reluctant to go into the shed. Once you have got them in, they remain anxious, the new stag keeps trying to jump out of the yard and is very difficult to handle.

Explain what is the problem.

ANSWER:

How can this be rectified ?

ANSWER:

QUESTION 3: You have injected a stag with xylazine into the neck and the needle came loose from the syringe remaining stuck in the animal's neck.

What do you do ?

ANSWER:

QUESTION 4: You need to give a reversing agent "Reversine" into the jugular vein in the neck but the animal's neck is very thick and you can't find the vein.

Where would you look for another vein to use ?

ANSWER:

QUESTION 5: One particular stag is now a four year old and has always had good even antler growth. This year, however, one antler is misshapen.

What could have caused this?

ANSWER:

ANSWERS TO CASE STUDIES & REVIEW QUESTIONS

CASE STUDY No. 1:

The stag has been sedated and your assistant is holding the stag's head steady for you as you inject 5 mls. of lignocaine into each nerve block. You have just completed the last block being the zygomaticotemporal nerve block. As you stand up, the stag begins to twitch and suddenly convulsing.

What has happened?

You have injected lignocaine into the superficial temporal artery or vein which has caused central nervous symptoms (ie, the convulsions) and a precipitous drop in blood pressure. This has caused slowing of the heart beat and respiration rate. Depending on the amount administered, it may cause respiratory failure and cardiac arrest.

What should you do?

Prevent the animal from damaging itself. If possible control excessive movement, cover its eyes to prevent any ocular damage. Try to ensure an airway ie, pull out the tongue and make sure the neck is straight. Lignocaine is rapidly redistributed to other tissues and so the effect will be only of short duration. The animal should be kept under observation until recovered.

CASE STUDY No. 2:

You have successfully removed two sticks of possibly A grade velvet from your new European sire stag. The anaesthetic (xylazine) has worked well, the local was adequate to prevent any pain stimulation whilst you removed the velvet.

You left the tourniquet on for ten minutes to ensure good control of bleeding. You inject the reversine into the vein in the neck and stand back to wait for the animal to wake up. A minute later the stag stretches out, starts paddling and goes into spasms. It staggers to its feet and falls to one side with its neck stiff and stretched back. It appears to be blind as it crashes around the walls of the pen.

What has happened?

You have injected yohimbine into the carotid artery that runs beneath the jugular vein in the neck. This has resulted in a toxic concentration in the brain resulting in seizures.

What would you do?

If possible, prevent the animal from injuring itself. A smaller animal you may be able to hold down until the seizures end. The stag will eventually (about 5-10 minutes) be able to stand and walk reasonably. It will tend to stand in the paddock longer than the other stags before starting to eat.

Note: Sometimes it is easier to find the cephalic vein on the front leg. There is no artery close to this vein.

CASE STUDY No. 3:

You arrange for extra labour to help with removal of velvet from your stags/bucks. In the morning you have made sure that the freezer was working properly and all your equipment was ready. You have had the velveting group through the yards and shed several times to familiarise them. You have weighed them earlier when they were dropping buttons. The day gets hotter and you decide to wait until it is a bit cooler to run the animals into the shed. About 4.00 pm you herd the stags/bucks towards the yards. The new rep. from Coopers comes roaring down the driveway in his bright red car. The animals break and two hours later you finally get them in. Daylight saving has been voted out.

What are your options ?

Should you:

- (a) Start to inject animals straight away with anaesthetic and get the job finished before it gets dark?
- (b) Wait until the animals have settled down and work under lights releasing them into a dark paddock where no observation is possible?
- (c) Release them and try again tomorrow?

What aspects of the velveting process would you consider so that you could have an accurate assessment of the situation?

- (a) Temperature of the day.
- (b) Stress associated with yarding.

Why ?

- (a) the amount of xylazine required for anaesthesia. Excited animals require higher dose concentrations.
- (b) increased environmental temperature AND increased body temperature would increase the risks of xylazine toxicity.

CASE STUDY No. 4:

DAY 1:

You have five animals for velveting. You are unsure of their weights so you take an educated guess. You use xylazine intramuscularly and after the first animal the needle drops off the syringe onto the ground. You wipe it with your shirt (as you haven't got a spare), it looks clean so you draw up more xylazine and continue with the job. Three days later you bring in the stags and there is only one of the velveted stags. You search the paddock - the other four are dead in the gully.

What could have caused the post-velveting deaths?

Xylazine toxicity
Haemorrhage
Infection

DAY 4:

You have to get the velvet off the next lot of stags, so you do so using the same bottle of xylazine but being very careful about dose-rate and recovery observation.

You then ring your vet to investigate these post-velveting deaths. However, the post-mortem doesn't fit the usual findings of xylazine toxicity.

Two days later you have lost some of the stags velveted most recently. You ring your vet in a panic to tell him/her what has happened.

You are told that the results from bacteriology have just come back. A *Clostridium perfringens* infection has caused toxemia and death.

How has this infection been spread ?

A contaminated needle has caused infection to be spread to each animal via the bottle of xylazine. Infection could easily be spread by contaminated saws or cutters. Vaccination may possibly prevent this infection.

CASE STUDY NO 5

DAY 1

You bring a 8 year-old stag into the hydraulic crush for velveting. Your crush has vertical sides with no adjustment. The stag's head is restrained with a cotton rope around his pedicles. You have injected local anaesthetic in a ring block and put the timer on for four minutes. While you are waiting, you record his weight, ear tag number, vaccinate him with 5in 1, and give him Selenium and Cobalt bullets and also a Prematrace copper capsule 10gm with a Coopers Applicator gun. He struggles a bit, not much and then settles down when you leave him alone. Close on the four minute mark, he suddenly regurgitates and some of his curd comes out of his nose. You quickly remove the velvet and let him go. You hear him coughing while you velvet the next two stags. After removing the tourniquets, you let the group of velveted stags go back to the paddock.

DAY 2-4

You check the mob over the next few days, and that particular stage seems to be moping at the back of the group but is still feeding.

DAY 20

Three weeks later, you realise that the stag is looking very thin. So you bring him in and he's lost 40kgs. since velveting.

What could be causing the stag's loss of condition?

Breathing stomach contents into the lungs has caused an inhalation pneumonia
Infection from an injection site.

Damage to the back of the throat from the pellet applicator.

You ring your veterinarian and are advised that you should have immediately given the animal a course of injectable antibiotics. Unfortunately the stag dies and a post mortem is performed.

The animal had large necrotic lesions in the lower part of the chest. Bits of vegetable matter were found in the lesions which is diagnostic of inhalant pneumonia. He also had a wound in the back of the throat just beside the voice box (or larynx) from which a selenium pellet was extracted.

What caused the stag to regurgitate?

Being restrained too firmly – in the crush or by the cotton rope around the pedicles?

An unusual drug reaction.

The shock of the pellet lodging at the back of the throat.

What can be learned from this situation?

Critically assessing the crush mechanism.

Revising the use of a pellet applicator.

Is the cotton rope a possible source of infection?

REVIEW QUESTIONS

QUESTION 1: A stag/buck is fairly heavily under anaesthetic and is lying on its side. You see that it has started to regurgitate

What do you do ?

ANSWER: Sit it up so that it is lying on its chest and stretch out its head and neck. This will prevent further regurgitation and prevent inhalation of stomach contents into the lungs.

QUESTION 2: You normally have very little trouble getting your stags into the yards and shed. However, you have just bought a new sire and now the entire stag group is reluctant to go into the shed. Once you have got them in, they remain anxious, the new stag keeps trying to jump out of the yard and is very difficult to handle.

Explain what is the problem.

ANSWER: The animal is unaccustomed to the handling facilities and the handlers. Stress is expressed by its behaviour.

How can this be rectified?

ANSWER: Accustom this animal to the yards and handlers so that there will be minimal risk of damage to velvet when harvesting occurs.
Cull.

QUESTION 3: You have injected a stag with xylazine into the neck and the needle came loose from the syringe remaining stuck in the animal's neck.

What do you do ?

ANSWER: (a) *Give him another jab (same amount or a little bit less straight away?*

(b) *Wait to see what degree of sedation is achieved and then work out how much more xylazine to use?*

(c) *Chase him around to try to get the needle out ?*

QUESTION 4: You need to give a reversing agent "Reversine" into the jugular vein in the neck but the animal's neck is very thick and you can't find the vein.

Where would you look for another vein to use ?

ANSWER: The cephalic vein on each of the forelegs. You can use a thin bit of rubber stretched around the leg just above the elbow. Tuck the rubber under as with the velveting tourniquet. You will see the cephalic vein coursing across the leg below the elbow. Release the tourniquet before injecting.

QUESTION 5: One particular stag is now a four year old and has always had good even antler growth. This year, however, one antler is misshapen.

What could have caused this ?

ANSWER: Any of the following could have caused this :

- Trauma to the pedicle eg, fighting
- Infection
- Fly-strike
- Tumour
- Leaving the tourniquet on for too long.

ANNEX 5

HIGH REGIONAL BLOCK

(As per DEER BRANCH NZVA Course No 16 - 1999)

There are three nerves to be blocked:

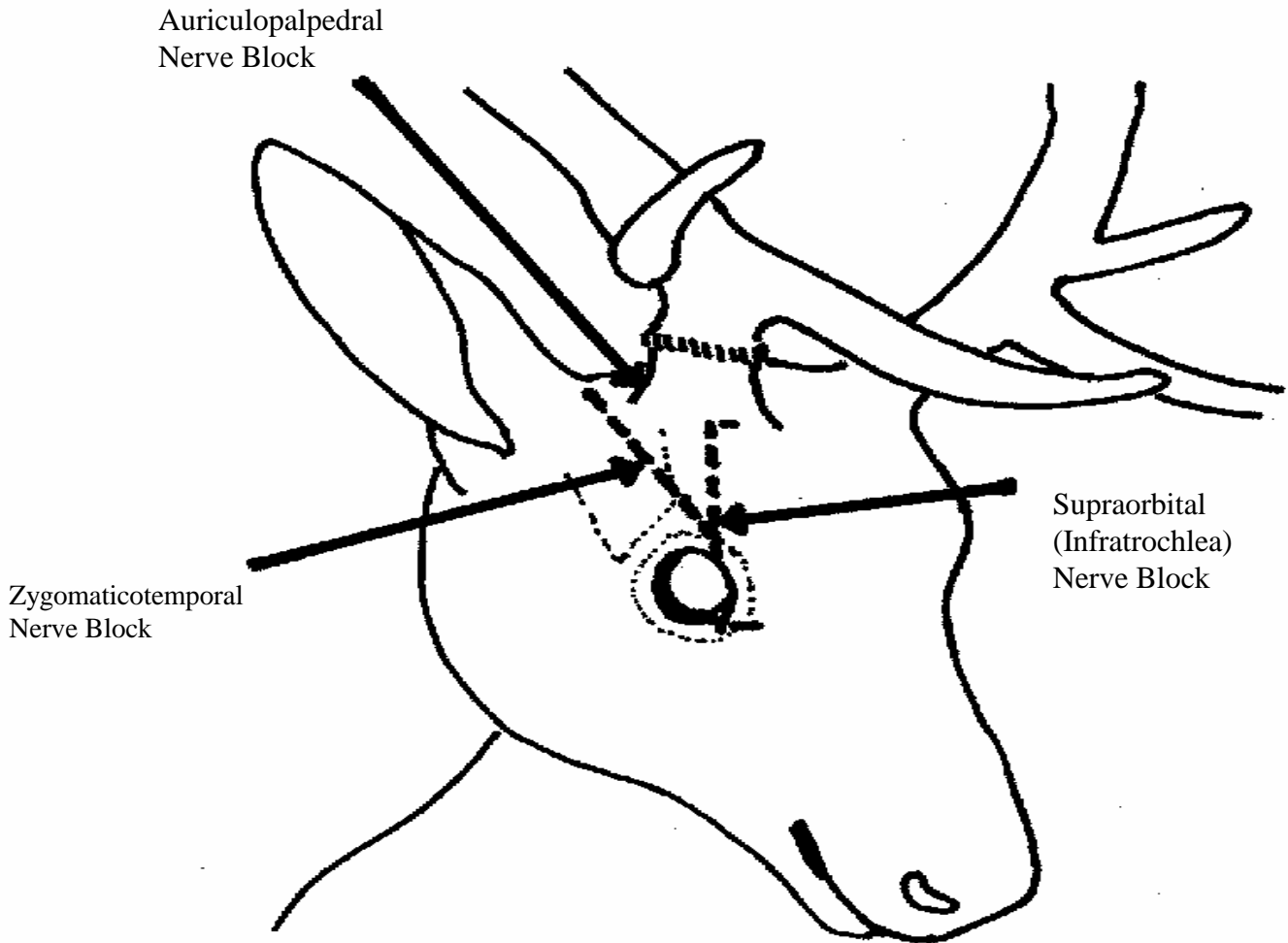
1/ ZYGOMATICOTEMPERAL nerve block – This nerve is blocked by injecting lignocaine into the trough of soft tissue behind the ridge ascending from the orbit (eye socket) to the pedicle. The lignocaine is injected 15mm deep at a site between the top of the orbit and the top of the base of the ear. Fallow 2ml, Reds and Elk 5-10mls.

2/ SUPRAORBITAL (INTRATRACHLEAR) nerve block – This nerve is blocked by injecting lignocaine across the path of the nerve midway between the medial canthus (inside corner) of the eye and the base of the pedicle. The needle should be held horizontal and inserted from lateral (outside) to medial. Fallow 1ml, Reds and Elk 5-10mls.

3/ AURICULOPALPEDRAL & CERVICAL nerve block – Fibres of this sensory nerve are blocked by injecting 5mls of lignocaine under the skin behind and to the outside (caudolateral aspect) of the pedicle.

The following diagrams will help to demonstrate the correct location for the blocks.

HIGH REGIONAL BLOCK



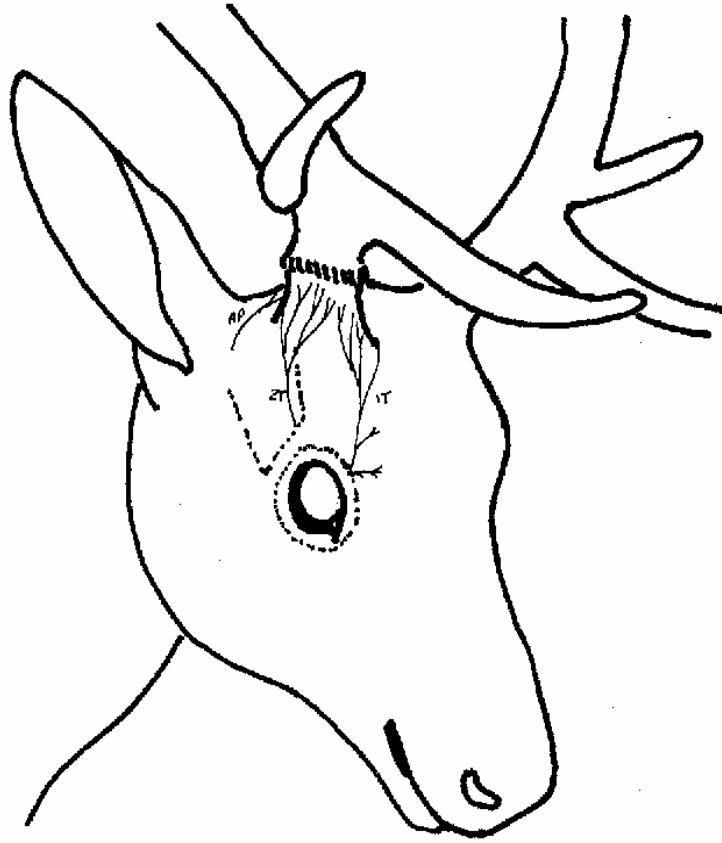
Three injection sites must be used-

1/ The zygomaticotemporal nerve is blocked by injecting lignocaine into the trough of soft tissue behind the ridge ascending from the orbit (eye socket) to the pedicle. The lignocaine is injected 15mm deep at a site between the top of the orbit and the top of the base of the ear. Fallow 2mls, Red & Elk 10mls.

2/ The supraorbital (infratrochlear) is blocked by injecting lignocaine across the path of this nerve midway between the medial canthus (inside corner) of the eye and the base of the pedicle. The needle should be held horizontal and inserted from lateral (outside) to medial. Fallow 1ml, Reds & Elk 5mls.

3/ Fibres of the Auriculopalpebral and subcutaneous cervical sensory nerves are blocked by injecting 5mls of lignocaine under the skin behind and to the outside (caudo-lateral aspect) of the pedicle.

PEDICLE NERVE SUPPLY



IT – Infrotrochlear (sutpraorbital) nerve.

ZT – Zygomaticotemporal nerve.

Dotted lines – orbital rim, supraorbital process & zygomatic arch

APPENDIX A

LEGAL IMPLICATION OF THE NATIONAL VELVET ACCREDITATION SCHEME IN AUSTRALIA

LEGAL ASPECTS OF VELVETING IN SOUTH AUSTRALIA

Dr. Robin Vandergraaff, Dept. Primary Industry, Adelaide, South Australia

1. INTRODUCTION

The South Australian Veterinary Surgeons Board, the A.V.A. (S.A. Division) and the Department of Primary Industries have been involved in considerable debate over the issue of controls on deer velvetting in the early 1990's. The issue has emerged because of the increase in growth and profile in S.A. (and in other States of Australia) over the last ten years, bringing the legal, ethical and animal welfare aspects of the velvetting procedure to the attention of regulatory authorities including Veterinary Surgeons Boards, veterinary drug control authorities and custodians of animal welfare. Recent developments in New Zealand, the major world producer and exporter of deer products, have been under keen observation by both the industry and the regulators.

2. ANIMAL WELFARE LEGISLATION

The Prevention of Cruelty of Animals Act (1985) states:

Section13(1): A person who ill treats an animal shall be guilty of an offence.

Penalty: Ten thousand dollars or imprisonment for 12 months.

13(2)0: "...a person ill-treats an animal if that person –

(a) deliberately or unreasonably causes the animal unnecessary pain;

(b) being the owner of the animal –

- (1) fails to provide it with appropriate, and adequate food, water, shelter and exercise;
- (2) fails to take reasonable steps to alleviate any pain suffered by the animal...;
- (3) neglects the animal so as to cause it pain;

(c) causes the animal to be killed or injured by another animal or;

- (d) kills the animal in a manner that causes unnecessary pain.

The Act makes no direct reference to velveting of deer.

The important feature of this Act is the principle that accepted codes of practice must be applied to any operation on animals irrespective of who carries it out. The South Australian Animal Welfare Committee has made it clear that it is concerned mainly about the *quality of the operation* rather than the qualifications of the operator. The main concern of animal welfare authorities is the standard of treatment despite the principle that the ideal operator is a veterinary surgeon.

National Animal Welfare Code of Practice

The “Model Code of Practice for the Welfare of Animals – Farming of Deer” (Australian Agricultural Council – Sub-Committee on Animal Welfare, 1991) contains a specific section of removal of antlers:

5.2. Removal of Antlers

- (i) Antlers of male deer should be removed annually, preferably before development of “hard antler” to protect handlers, other deer and the farming facilities. Deer in “hard antler” in most species should not be yarded with other deer and should be penned singly in facilities that limit movement or space.
- (ii) Removal of “velvet antlers” should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug.

Further, in Section 5.1 (General), the Code also states:

- (i) Restraint used on deer should be only that necessary to efficiently carry out a procedure.
- (ii) Practices that cause pain must not be carried out on deer if painless and practical methods of husbandry can be adopted to achieve the same result.

The significance of this Code is that it is used nationally as a reference for animal welfare authorities to determine what is interpreted as “unnecessary pain”, or “unreasonable” action, or “reasonable steps” to alleviate pain, when a charge of cruelty is being considered.

That is, although the Code is not actually incorporated in the cruelty legislation, it is designed to be used in the interpretation of the Act when a complaint is laid or heard

It should be the standard observed by all deer handlers.

It is interesting to note that clause 5.1 (ii) above clearly encourages all owners to install high quality physical facilities with minimum delay.

3. THE CONTROLLED SUBSTANCES ACT (1984)

Under this Act, supply or retail sale of prescription veterinary drugs is limited to a registered veterinary surgeon or pharmacist. Further, drugs dispensed to an animal owner must be in an

appropriate (labelled) container and accompanied by appropriate instructions on use.

This legislation controls the activities of veterinarians dispensing restricted drugs. It does not control the activities of owners – the ultimate use of the drug is the owner's responsibility. In other words, if the veterinarian fulfils the legal requirements of packaging and labelling, the use of the drug by the owner is not regulated.

However under Section 60, if there is evidence of extensive "misuse" of a prescription drug in a particular area, the Health Commission can require a veterinary surgeon to provide details of supplies provided to clients in the area.

4. THE VETERINARY SURGEONS ACT

This Act regulates the professional conduct of registered veterinary surgeons and defines the limits of "veterinary treatment" that can be performed for fee or reward. It does not regulate the activities of animal owners carrying out procedures in their own animals.

The Veterinary Surgeons Act provides for public action against a veterinarian who practices veterinary surgery in an "improper or unethical" manner or who is incompetent or negligent in relation to the practice of veterinary surgery. The Board may lay a complaint of "unprofessional conduct", therefore, on a number of grounds, including failure of a veterinarian to provide adequate instruction or supervision in relation to the treatment of an animal by another person.

Veterinarians, therefore, must ensure their clients are fit and competent to undertake procedures such as administration of restricted drugs and removal of antlers before they give their clients the responsibility of carrying out these activities without supervision. If they fail to do this they may be at risk to prosecution under the Veterinary Surgeons Act.

State and Territory Veterinary Surgeons Boards (including the South Australian Board) have been considering the issue of "prescribed acts of veterinary science" (or similar term) for some years but have not reached agreement, on either which procedures should be defined as acts of veterinary science or whether or not such definitions are rightly placed in veterinary surgeons' regulations. Since the standard of performance of operations on animals (and the use of professional skill and training in performance of such operations) is ultimately an animal welfare issue, there is a logical case for defining such acts under animal welfare legislation. As indicated above, the issue has not yet been considered by animal welfare authorities.

Therefore, while the Prevention of Cruelty to Animals Act (and the Animal Welfare Code of Practice) make clear statements about the standard of operation required and the Veterinary Surgeons Act monitors professional conduct, there is no provision in either animal welfare or veterinary surgeons' regulations to decree any act as the exclusive province of veterinary surgeons.

In relation to velveting deer, the South Australian Board has acknowledged that at the Australasian Veterinary Boards Conference (AVBC) held in May 1993, the following resolution was passed:

“AVBC recommends that because of the requirement for humane removal of velvet from deer, all States recognise that “velveting” is an act of veterinary science and is therefore restricted to being performed by veterinarians or by lay people under veterinary supervision”.

In discussion it was agreed that a well managed annual accreditation scheme would ensure the objective of that resolution is achieved. In principle the Board supports the initiative to develop an appropriate accreditation scheme and commends the current activity by the Australian Veterinary Association and the South Australian Deer Breeders Association in the joint development of a training and accreditation scheme to ensure that the production of deer velvet is consistent with animal welfare standards and kept under veterinary control.

5 AUSTRALIAN VETERINARY ASSOCIATION POLICY

The Australian Veterinary Association supports the certification of all velvet sold to ensure that it has been harvested in an appropriate manner, with due regard for the animal’s welfare. Until recently the AVA was inclined to pursue a rigid policy, strongly opposed to the administration of anaesthetic agents (including sedatives) by anyone but a registered veterinary surgeon. In the light of recent developments in the industry and within the profession both in Australia and New Zealand, the AVA has become an active participant in design and operation of velveting accreditation schemes.

APPENDIX B

LEGAL IMPLICATION OF THE NATIONAL VELVET ACCREDITATION SCHEME IN AUSTRALIA

THE LAW RELATING TO REMOVAL OF ANTLERS IN VELVET FROM DEER IN NEW SOUTH WALES

Dr Laurence Denholm DipAgSc BVSc(Hons) PhD

INTRODUCTION

Removing the antlers from deer in NSW is regulated by state law. Any person who is considering removing the antlers from deer therefore needs to have a good understanding of his/her legal obligations under NSW legislation. Unfortunately, the relevant laws are found in several different Acts of the NSW Parliament and in their subordinate Regulations. These laws interact in a complex way, with liability under one Act arising from compliance with the provisions of another Act as shown in Table 1.

Until 1994 when the Board of Veterinary Surgeons of NSW approved and adopted the Deer Farmers Federation of Australia (DFFA) Velvet Accreditation Scheme, antlers could only be cut from deer legally in NSW by a registered veterinary surgeon. Today, deer farmers who are accredited by the Board can harvest the antlers from their own deer, using the necessary drugs. These drugs are not normally available for use by members of the general community, but may be prescribed/dispensed to accredited deer farmers by their own veterinary practitioners on the condition that they are used only for harvesting antler from the farmer's own deer and are stored according to the legal requirements for all such restricted substances.

Accredited deer farmers must recognise that with any such privilege as this there is always some related responsibility and obligation. For example, some of the legal obligations and liabilities relating to drug possession and use which have always affected registered veterinary surgeons will now also affect those deer farmers using these drugs under the Velvet Accreditation Scheme. Accredited farmers using these drugs must regularly revise and update their knowledge about their responsibilities under NSW legislation.

In addition to NSW state law, there is a national *Model Code of Practice for the Welfare of Animals: The Farming of Deer* which provides a set of minimum standards for farmed deer husbandry. Although this Code has no legal status in NSW, it has been endorsed by the NSW

Deer Farmers Association, the DFFA and NSW Agriculture. In the case of other animals such as sheep and cattle, these codes have been used by the courts in deciding cases involving charges of cruelty to animals. Other states/territories have incorporated these welfare codes, including the deer code, into their legislation and there are proposals for this in NSW. Agreement to comply with this Code of Practice will be a condition for accreditation.

Table 1 NSW LEGISLATION AFFECTING VELVET ANTLER HARVESTING	
LEGISLATION	EFFECT
Prevention of Cruelty to Animals Act 1979	Analgesic/anaesthetic drug/s must be used to prevent pain when antlers in velvet are removed from deer
Poisons Act 1966	Supply and possession of all such drugs is restricted
Veterinary Surgeons Act 1986	Only approved persons may use such drugs in animals. Only approved persons may remove antlers from deer
Stock Medicines Act 1989	Conditions apply to use of drugs in food animals

RELEVANT NEW SOUTH WALES LAW

1. *Prevention of Cruelty to Animals Act 1979 (NSW)*

Section 5 of the Prevention of Cruelty to Animals Act states that:-

“A person shall not -

(a) commit an act of cruelty upon an animal; or

(b) where the person is in charge of an animal - authorise the commission of an act of cruelty upon an animal”

(Penalty: \$1,000 or imprisonment for 6 months or both).

Section 4 states that:-

“For the purposes of this Act, a person commits an act of cruelty upon an animal if he unreasonably, unnecessarily or unjustifiably ...

(d) inflicts pain upon an animal.”

Pain is defined in the Act to include *suffering* and *distress*. If the act of cruelty is *aggravated* (ie. the animal dies or is seriously injured), the penalty is \$2,000 or imprisonment for up to 2 years.

It is an offence to cause pain to an animal in a manner that is unreasonable, unjustifiable or unnecessary, for example, by conducting a painful animal husbandry procedure without using a technique to relieve pain when such a technique is readily available. Although there are exemptions to this offence provided in the Act for some painful husbandry procedures in young animals such as castration of lambs or calves under 6 months, there are no exemptions for procedures such as velvet antler harvesting which are undertaken in older animals.

At law, whether the pain associated with any husbandry procedure is considered serious is usually a matter for expert opinion, normally that of a veterinary surgeon. Since there has never been a prosecution for harvesting antlers in velvet without providing pain relief, the legal situation is unclear. However, any court would be likely to consider relevant published statements by the acknowledged experts in this field. In this regard, it is worth noting that Section 5.2 (ii) of the *Code of Practice for the Welfare of Animals: The Farming of Deer* states that:-

“Removal of the “velvet antlers” should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug”

Furthermore, the National Consultative Committee on Animal Welfare (NCCAW) which advises the Federal Minister for Primary Industries and Energy has a “Position Statement” which states that:-

“the harvesting of antlers in velvet from deer without the use of analgesia (pain relief) is a painful procedure. Cutting the antlers of deer prior to their maturation, without adequate pain relief, is a cruel practice which should be prohibited.”

The *Recommended Code of Practice for Deer Farming* which was developed and adopted by the deer industry itself in 1981 states that:-

“velvet antler harvesting must be conducted with adequate and skilfully administered analgesia and tranquillisation or sedation. This can only be achieved by the use of drugs which are legally available by veterinary prescription”.

Finally, the Australian Veterinary Association, an organisation which speaks for the veterinary profession as a whole, has issued a revised Policy Statement in 1994 which says in part that:-

“the harvesting of velvet must be conducted with the use of an effective analgesic technique administered by a veterinary surgeon or, under the direction of a veterinary surgeon, by operators trained and accredited to perform the procedure on their own stock”.

Amongst persons considered by the courts to be expert in this subject there is general

agreement that velvet antler harvesting without analgesia is a painful procedure and, furthermore, that this pain can be effectively eliminated by use of appropriate drugs. As a result, under the law of NSW, harvesting velvet antler without analgesia or anaesthesia would almost certainly be “an act of cruelty upon an animal” and an offence under the Prevention of Cruelty to Animals Act.

Electroimmobilisation is not an alternative to the use of analgesic drugs for harvesting velvet antler. Electroimmobilisation of deer (eg. with the “STOCKSTILL”® device) is illegal in NSW under Section 16 of the Act. (Penalty \$1,000 or imprisonment for 6 months or both). Although the NSW Executive Council recently approved an amendment to the Regulations to this Act to permit the use of electroimmobilisation in cattle, this use is restricted to procedures for which pain relief is normally not provided. These devices have not been shown to produce effective analgesia.

In effect, velvet antler cannot be legally harvested in NSW unless the deer concerned has been rendered insensitive to pain by the use of an analgesic or anaesthetic drug. In the past, such drugs have only been legally available to medical practitioners, dentists and veterinary surgeons.

2. *The Poisons Act 1966 (NSW)*

This Act regulates manufacture, merchandising, supply and use of dangerous chemicals and drugs in the NSW community, in the interests of public health and safety. Drugs and other poisonous substances are classified into “Schedules” in the Act, which sets down certain procedures to be followed and restrictions specific to the poisons or drugs grouped in each Schedule, limiting their distribution and availability to those persons who have a legitimate requirement for the substances in their work and are professionally trained in their safe handling and appropriate use.

All of the drugs necessary to harvest velvet antler in a humane manner are classified as “restricted substances” in Schedule 4 of the Act. (Hence they are called S4 drugs.) Section 8(2) of the Poisons Act defines Schedule 4 (restricted substances) as “*Substances which in the public interest should be supplied only upon the written prescription of a medical practitioner, dentist or veterinary surgeon.*” Section 9(1) creates an offence for any person other than a medical practitioner, dentist, veterinary surgeon, pharmacist or person licensed under the Act to supply another person with any S4 (restricted substance). Section 9A creates an offence for any person to obtain or attempt to obtain by false representation any S4 drug from a pharmacist, dentist, medical practitioner or veterinary surgeon. More importantly, Section 16 of the Act states that:-

“A person shall not have in his possession or attempt to obtain possession of a restricted substance unless -

- (a) he is a medical practitioner, pharmacist, dentist or veterinary surgeon, and he obtains possession or attempts to obtain possession of it in the lawful practice of his profession as such;*
- (b) he obtains possession or attempts to obtain possession*

of it on and in accordance with the prescription of a medical practitioner, dentist or veterinary surgeon for its supply to him;

The penalties for these offences are up to \$2,000 or 2 years imprisonment or both.

This Act thus makes it illegal to possess any restricted substance (S4 drug) for use in a domestic animal, unless that drug was legally dispensed (ie. supplied directly to the animal's owner) or prescribed (ie supplied by a pharmacist on an order or "prescription" of a veterinary surgeon).

The Poisons Act and Regulations also set down the legal requirements for storage of drugs and poisons and the records required to document the quantity of and persons to whom drugs or poisons are supplied. The Act places restrictions on the circumstances in which veterinary surgeons are permitted to prescribe or dispense S4 drugs to their clients. All S4 drugs must be stored in a secure, locked facility at any time when not actually in use or being transported.

In effect, this Act means that deer farmers (and other farmers) can only legally acquire S4 drugs for use in their animals from or on the prescription of a registered veterinary surgeon. Any other source of supply is illegal. The conditions under which such drugs may be supplied or prescribed by veterinary surgeons are regulated by several Acts, including the Poisons Act, the Veterinary Surgeon's Act and the Trade Practices Act 1975. Any deer farmer who legally obtains an S4 drug from a veterinary surgeon and then supplies that S4 drug to another person commits a serious offence under the Poisons Act 1966 which is punishable by fine and/or imprisonment.

3. *Veterinary Surgeons Act 1986 (NSW)*

This Act provides for registration of veterinary surgeons in NSW and establishment of the Board of Veterinary Surgeons of NSW, giving the Board legal powers in relation to setting rules and standards for the professional conduct of veterinarians. The Act also establishes an Investigating Committee and a Disciplinary Tribunal with powers to apply penalties, including deregistration, for serious unprofessional conduct. Section 37 of the Act states that:-

"A person, other than a veterinary surgeon, shall not -

(a) do or perform any act, matter or thing the doing or performance of which forms part of the practice of veterinary science;

(b)

Penalty \$2,000"

The Act also states that *"'veterinary science' includes any branch of the science or art of veterinary medicine or veterinary surgery and, without limiting the generality of the forgoing, includes -*

(a)

(b) the giving of any anaesthetic to, the performance of any

- operation on,any animal;*
- (d) (i)
(ii) *the de-antlering of deer; and*
- (e) *the doing or performing of any act, matter or thing that is prescribed as forming part of the practice of veterinary science“.*

The Board has advised all veterinary surgeons in NSW that the prescription or supply to a client of any of the potent S4 drugs used for anaesthesia in animals is not an acceptable practice. This effectively puts all veterinary surgeons who dispense or prescribe such drugs on notice that they could face disciplinary action for this practice and it also increases their responsibility (and hence their legal liability) for any adverse consequences of the use or misuse of such drugs by a client.

However, Section 44 of this Act states that:-

- “(1) *A person, other than a registered veterinary surgeon, may -*
 - (a)
.....
 - (j) *under the immediate and direct supervision of a registered veterinary surgeon, administer an anaesthetic to an animal;*
.....
 - (m) *do or perform any other act, matter or thing prescribed for purposes of this paragraph.*
- (2) *A person other than a registered veterinary surgeon may, with approval in writing of the Board, do or perform any act, matter or thing, the doing or performance of which -*
 - (a) *forms part of the practice of veterinary science; and*
 - (b) *is not authorised by subsection (1)*
- (3) *Application for an approval shall -*
 - (a) *be made in such manner as the Board may require*
 - (b) *be supported by such evidence as the Board may require; and*
 - (c) *be accompanied by the prescribed fee.”*

In effect, the Parliament of NSW has made the law of NSW such that only a registered veterinary surgeon or a person working under the immediate and direct supervision of a veterinary surgeon may use an S4 anaesthetic drug in any animal, and furthermore, only a registered veterinary surgeon may remove antlers from deer. It is therefore an offence, with a penalty of \$2,000, for any other person in NSW to remove the antlers of a deer, even with use of appropriate analgesia.

However, under Section 44(2) the Act gives the Board a power to grant approval to (unregistered) persons who are not veterinary surgeons, to conduct any particular “act

of veterinary science” (such as removing the antlers from deer) under conditions determined by the Board.

It is under this power that the Board in 1994 agreed to approve, firstly, accredited deer farmers undertaking the surgical procedure of removal of antlers from deer, and secondly, accredited deer farmers using S4 anaesthetic drugs for removal of antlers from deer. The Board has determined that deer farmers applying for accreditation with the Board must support their application with evidence that they have satisfactorily completed a course of theoretical training (such as the DFFA Velvet Accreditation Course) and a test of practical competency approved by the Board. Accreditation will be granted for a set period of time, under conditions specified by the Board.

The Board charges the deer farmer a fee of \$10 for registration of accreditation, after receiving a recommendation from the DIAA that the deer farmer has completed an approved training course. About 40 deer farmers are currently accredited in NSW.

In NSW, the *Veterinary Surgeons Act 1986* thus gives the Board responsibility for and virtually unlimited discretion in the regulation of antler harvesting. The Board will administer the accreditation of deer farmers itself, unlike other states where it is proposed that accreditation will be administered by the state Deer Farmers Association and the DIAA. In NSW, the Board can therefore determine such matters as the drugs to be used, the dose rates, how drugs are to be stored, how drug use is to be recorded, where velvet removal may be conducted, methods of harvesting antlers, the training required, the level of proficiency required for accreditation, any fees to be charged and the inspection procedures for premises and records.

The Board has the statutory power to refuse to grant, to revoke or to refuse to renew the accreditation of any farmer. The Board also retains complete power to determine whether the Velvet Accreditation Scheme continues and under what conditions. The Board will supervise the important relationship between the accredited deer farmer and his or her supervising veterinary surgeon to ensure the scheme operates effectively. However, in practice the Board is working closely with the NSW Velvet Accreditation Scheme Committee and industry veterinarians to ensure the success of the scheme.

In effect, the law of NSW sees the removal of antlers from deer as a “privilege”, not as a “right”. Deer farmers seeking or holding accreditation from the Board need to realise that the access to restricted S4 anaesthetic drugs which they are given for the purpose of removing velvet antler from their own deer is a legal “privilege” which has not been granted to any other group of animal owners in the NSW community.

4. *Stock Medicines Act 1989 (NSW)*

Section 37(2) of this Act states that:-

“A person must not have in his or her possession or custody a stock medicine (whether registered or not) consisting of or containing a restricted substance within the meaning of the Poisons Act 1966 that has been supplied to a person in contravention of that Act.

Maximum penalty: 200 penalty points, or, for an offence by a Corporation, 400 penalty points.”

(One penalty point is currently equal to \$100.)

Section 38(1) of this Act prohibits the use of unregistered stock medicines in any “food producing animal” (which is defined in the Act to include deer), with the same penalty as Section 37(2).

Section 39(2) then states:-

“A person must not use a registered stock medicine in a manner contrary to any other instructions that the package of the stock medicine (or the label on the package) is required or permitted by or under Section 44 to have on it unless:

- (a)*
- (b) the person uses the stock medicine in that manner in accordance with the written instructions given by a veterinary surgeon;*

Maximum penalty: 200 penalty points.”

Section 40 of the Act requires any veterinary surgeon who prescribes or supplies a registered stock medicine (including any restricted S4 substance) to give written instructions to the person to whom the stock medicine is prescribed or supplied about the following matters: (a) animal species for which the stock medicine is intended; (b) withholding period; (c) dose rate; (d) frequency of treatment; (e) length of treatment; (f) manner of administration.

In effect, these provisions of the *Stock Medicines Act 1989* mean that it is illegal for any person to use any stock medicine or S4 restricted substance in a food animal, except in accordance with instructions on the label of the container or according to the written instructions of the veterinary surgeon who supplied or prescribed the medicine. With a penalty involving a fine of up to \$20,000, it is clear that the Parliament of NSW regards this as a serious offence indeed, relating to potential chemical contamination of food products.

SUMMARY

1. Under NSW law, “de-antlering” of deer is an act of veterinary science. It is illegal for any person other than a registered veterinary surgeon to remove the antlers from deer in NSW.

(Veterinary Surgeons Act 1986)

2. Causing pain to a deer by removing its antlers in velvet without making the deer insensitive to the pain with an S4 (restricted substance) analgesic or anaesthetic drug would almost certainly be considered an "act of cruelty to an animal" by any court in NSW. Hence removal of antlers from deer without proper analgesia is effectively illegal in NSW.

(Prevention of Cruelty to Animals Act 1979)

3. It is illegal for any farmer to obtain S4 drugs for use in animals other than on prescription or by direct supply from a registered veterinary surgeon.

(Poisons Act 1966)

4. In general terms, a veterinary surgeon is not allowed to supply any S4 anaesthetic drug to a client for use by that client in his or her own animals at a later time when the veterinary surgeon is not present.

(Board decision, 1992).

5. Notwithstanding points (1) and (4) above, under certain conditions the Board of Veterinary Surgeons of NSW will grant approval for a competent person other than a registered veterinary surgeon to remove the antlers from his or her own deer and the Board will also approve the supply of specified S4 anaesthetic drugs by a registered veterinary surgeon to and for direct use by that person for the removal of antlers from his or her own deer.

(Board decision, 1994)

6. The Board will only grant such approval to a deer farmer who has (a) satisfactorily completed a theoretical course of training and a practical competency test approved by the Board, (b) who is over the age of 18 years and (c) who agrees to be bound by whatever conditions the Board may place from time to time on such approval.

(Board decision, 1994.)

7. S4 drugs supplied by a registered veterinary surgeon to an accredited deer farmer under a written approval from the Board may only be used by that deer farmer for the purpose and according to the written instructions which must be given to the deer farmer by that veterinary surgeon.

(Stock Medicines Act 1989)

8. The Board has full power to grant or refuse to grant any approval and to revoke or refuse to renew any approval already granted to a particular deer farmer, or for all deer farmers, to use S4 anaesthetic drugs and to remove antlers from deer, for any reason which the Board considers to be a fit reason.

(Veterinary Surgeons Act 1986)

9. From time to time, the Board will review and may modify the conditions and procedures under which it grants approval to deer farmers for the removal of antlers in velvet from deer.

APPENDIX C

LEGAL IMPLICATION OF THE NATIONAL VELVET ACCREDITATION SCHEME IN AUSTRALIA

THE LEGAL ASPECTS OF VELVETING IN WESTERN AUSTRALIA

(Adapted from Dr. Laurie Denholm's notes for N.S.W. farmers)

INTRODUCTION

Removing the antlers from deer in Western Australia is regulated by state law. Any person who is considering removing the antler from deer therefore needs to have a good understanding of his/her legal obligations under W.A. Legislation. The relevant laws are found in several different Acts of Parliament and their Regulations and Amendments. These laws interact in a complex manner.

Deer farmers who are accredited can harvest the antler from their own deer, using the necessary drugs required for the task. These drugs are not normally available for use by members of the general community, but may be prescribed/dispensed to accredited deer farmers by their own veterinary practitioners on the condition that they are used for harvesting antler from the farmer's own deer and are stored according to the legal requirements for all such restricted substances

Accredited deer farmers must recognise that with any such privilege as this there is always some related responsibility and obligation. Accredited farmers using these drugs must regularly revise and update their knowledge about their responsibilities.

In addition to state law, there is a national MODEL CODE of PRACTICE FOR THE WELFARE OF ANIMALS: THE FARMING OF DEER which provides a set of minimum standards for farmed deer husbandry. Although this Code has no legal status, it has been endorsed by the Deer Industry Association of Australia, both federal and state. These codes have been used by the courts in deciding cases involving cruelty to animals. Other states/territories have incorporated these welfare codes, including the deer code, into their legislation. Agreement to comply with this Code of Practice will be a condition for accreditation.

W.A. LEGISLATION AFFECTING VELVET HARVESTING

LEGISLATION	EFFECT
Prevention of Cruelty Animal Act	1/ Analgesic/anaesthetic Drug/s must be used to prevent pain when antlers in velvet are removed from deer. 2/ Velvet can only be removed by a trained person.
Poisons Act 1964	1/ Supply and possession of all such drugs are restricted.
Veterinary Surgeons Act	1/ Only approved persons may remove antlers from deer. 2/ Only approved persons may use such drugs in animals.

RELEVANT WESTERN AUSTRALIAN LAW

A/ ANIMAL WELFARE

PREVENTION OF CRUELTY ACT

There is no present specific reference to velveting of stags or bucks.

The law states that no action or procedure will be allowed that causes unnecessary pain or mutilation.

In general, the Prevention of Cruelty to Animals Act states that *a person commits an offence if he/she should;*

.....ill-treat or cause or procure to be ill-treated or be a party to ill-treating any animal, Ill-treatment is defined as wounding, mutilating, over-driving, over-riding, overworking, abusing, tormenting and torturing, wanton or malicious beating and causing unnecessary pain or suffering.

.....needlessly slaughteror needlessly mutilate any animal or subject such animal to unnecessary pain or suffering,

.....an owner shall be deemed to have permitted cruelty within the meaning of this Act if he/she shall fail to exercise reasonable care and supervision in respect of the protection of the animal therefrom, or failed to take reasonable steps to prevent the unnecessary suffering of the animal.

These sections relate to farmed deer either in relation to the inhumane removal of antlers to possible damage inflicted by deer with hard antler to other deer during handling and/or transport and possible injury to antlers in velvet during transport and/or handling.

The Act is currently under review. The proposal for inclusion into the legislation with respect to harvesting of velvet from deer reads;

.....It shall be an offence for any person to harvest velvet from deer unless the animal has been rendered insensitive to pain and the operation is undertaken by a trained person.

VETERINARY SURGEONS ACT 1960

Veterinary surgery *means the art and science of veterinary surgery and veterinary medicine, and includes,.....*

- (c) the surgical or medical treatment of any animal,*
- (d) the giving of any anaesthetic to, or the performance of surgical operations on, any animal...*

Regulations (Veterinary Surgeons Act)

Permitted practices, 60(1), reads; *A person not being a registered veterinary surgeon may, in accordance with paragraph (b) of subsection (c) of section 26 of the Act (ie. in the absence of a veterinarian), perform the following veterinary services,*

-(g) medicate animals with drugs prescribed by a registered veterinary surgeon.*

CODE OF PRACTICES

The Model Code of Practice for the Welfare of Animals – The Farming of Deer has been reviewed to read;

5.2 Removal of Antlers

- 1. Antler of male deer should be removed annually preferably before development of “hard antler” to protect handlers, other deer and the farming facilities. Deer in “hard antler” in most species should not be yarded with other deer and should be penned singly in facilities which limit movement or space.*
- 2. Removal of the velvet antlers should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug.*

AUSTRALIAN VETERINARY ASSOCIATION POLICY

The Australian Veterinary Association, an organisation which speaks for the veterinary profession as a whole has issued a revised Policy Statement in 1994 which says in part that; *“the harvesting of velvet must be conducted with the use of an effective analgesic technique administered by a veterinary surgeon or, under the direction of a veterinary surgeon, by operators trained and accredited to perform the procedure on their own stock”.*

Velvet antler harvesting without analgesia is a painful procedure. This pain can effectively be eliminated by the use of appropriate drugs. As a result, under the law of Western Australia, harvesting of velvet antler without analgesia or anaesthesia would almost certainly be considered an “act of cruelty upon an animal” and an offence under the Prevention of Cruelty to Animals Act. Electroimmobilisation is NOT an alternative to the use of analgesic drugs for harvesting of velvet antler. Electroimmobilisation of deer (eg. With the “Stockstill” device) is illegal in the U.K., New Zealand and N.S.W. and is likely to be banned in W.A.. Objective scientific evidence of effective analgesic with that device is not available at present.

In effect, velvet antler cannot be legally harvested unless the deer concerned has been rendered insensitive to pain by the use of an analgesic or anaesthetic drug. In the past, such drugs have only been legally available to medical practitioners, dentists and veterinary surgeons.

B. DRUGS

POISONS ACT 1964

This Act regulates manufacture, merchandising, supply and use of dangerous chemicals and drugs in the community, in the interests of public health and safety. Drugs and other poisonous substances are classified into “Schedules” in the Act, which sets down specific procedures to be followed and restrictions specific to the poisons or drugs grouped in each schedule. Thus their distribution and availability is limited to those persons who have a legitimate requirement for the substances in their work and are professionally trained in their safe handling and appropriate use.

All the drugs necessary to harvest velvet antler in an humane manner are classified as “restricted substances” in Schedule 4 of the Act. Hence they are called Fourth Schedule drugs or S4 drugs as stated in,

Section 20, subsection 2(d) – Classification of drugs

Fourth Schedule: Substances the supply of which in the public interest should be restricted to medical, dental or veterinary prescription;

Section 23(2) defines – Persons authorised to sell poisons as,

(b) a medical practitioner or veterinary surgeon is authorised to have in his possession and use, supply or sell in the lawful practice of his profession any poison,

(d) a medical practitioner, veterinary surgeon or dentist is authorised to write , issue or authorise a prescription or document prescribing the use , sale or supply ofa specified drug in the lawful practice of his profession.

This Act thus makes it illegal to possess any restricted substance (S4 drug) for use in a domestic animal, unless that drug was legally dispensed (ie. supplied directly to the animal’s owner) or prescribed (ie. supplied by a pharmacist on an order or “prescription” of a veterinary surgeon).

Regulation 21(c) Poisons Act - Labelling on medicines or preparations.

A pharmaceutical chemist or veterinary surgeon, for use on any animal shall comply with that regulation if it is labelled with –

- (i) the words “Keep out of reach of children”;
- (ii) the owner’s surname and the species of animal;

- (iii) instructions for the use of that medicine or preparation;
- (iv) a date of dispensing, and a number identifying the prescription or supply which corresponds to – (ii), the patient's records, in the case of a veterinary surgeon;
- (v) the name and address of the pharmacy, or veterinary practice, from which it was supplied;
- (vi) the words "For veterinary use only" or "For animal treatment only", together with the words "For external use only" if the medication or preparation is not prepared for internal use.
- (vii) withdrawal period.

Regulation 30 Poisons Act – Storage of drugs

The Poisons Act and Regulations also set down the legal requirements for storage of drugs and poisons and the records required to document the quantity of and persons to whom drugs or poisons are supplied. The Act places restrictions on the circumstances in which veterinary surgeons are permitted to prescribe or dispense S4 drugs to their clients. All S4 drugs must be stored in a secure, locked facility at any time when not actually in use or being transported. Any person having a hazardous substance or a poison, shall keep that poison or hazardous substance in such a manner as to preclude contamination of any food, drink or condiment by the poison or hazardous substance; and to preclude access to the poison or hazardous substance by children.

Regulation 31 Poisons Act – Disposal of Drugs

A person shall not dispose of any poison in any place or manner likely to constitute a risk to the public.

Regulation 36(2) Poisons Act – Persons authorised to dispense

A medical practitioner, pharmaceutical chemist, or a veterinary surgeon or an assistant under the direct personal supervision of a medical practitioner, pharmaceutical chemist, or a veterinary surgeon shall be the only person who shall dispense a Fourth Schedule drug. In effect, this Act means that deer farmers (and other farmers) can only legally acquire S4 drugs for use in their animals from or on the prescription of a registered veterinary surgeon. Any other source of supply is illegal. The conditions under which such drugs may be supplied or prescribed by veterinary surgeons are regulated by several Acts, including the Poisons Act and the Veterinary Surgeons' Act.

Any deer farmer who legally obtains an S4 drug from a veterinary surgeon and then supplies that S4 drug to another person commits a serious offence under the Poisons Act which is punishable by fine and/or imprisonment.

VETERINARY SURGEONS ACT

Amendment Regulations 1993

Regulation 28A

A veterinary surgeon who prescribes any substance that is in the Fourth or the Eight Schedule to the Poisons Act 1964

Fails to observe the prescribed standards of professional conduct if he or she –

- a) does not have knowledge of the property or premises where the animal or animals to which the substance or mixture is to be given or administered are kept;
- b) has not discussed the health of the animal or animals with the owner or person in charge of the animal or animals within 7 days of prescribing the substance or signing the order.

The Veterinary Surgeons Board considers that a bona fide relationship exists if the veterinarian visits the property at least once a year.

Veterinary Surgeons Act Amendment 1995

Regulation 23(4) Without limiting the meaning of the expression, “unprofessional conduct as a veterinary surgeon”, a registered veterinary surgeon is guilty of such unprofessional conduct if that person

- (h) supplies or prescribes a substance referred to in the Fourth Schedule to the Poisons Act 1964
 - (i) without ensuring a clinical record is maintained relating to the animal or group of animals, in respect of which is supplied or prescribed;
 - (ii) in a greater quantity than is reasonably required to treat the animal or group of animals, in respect of which the substance is supplied or prescribed; or
 - (iii) without complying with any other conditions prescribed by regulations for the purposes of this subsection.

23(14) In subsection (4) (h) (I), “clinical record”, in relation to an animal or group of animals, means a documentary record of ---

- (i) the name and address of the owner of the animal or group of animals;
- (ii) appropriate details to identify the animal or group of animals;
- (iii) the clinical history of the animal or group of animals, including the results of any diagnostic tests such as blood tests or x-rays;
- (iv) the results of any examination by any registered veterinary surgeon of the animal or group of animals; and
- (v) details of the substances supplied or prescribed for the animal or group of animals.

AUSTRALIAN VETERINARY ASSOCIATION POLICY

SUPPLY OF RESTRICTED DRUGS

A registered veterinary surgeon can lawfully supply/prescribe a Schedule 4 drug if he/she fulfils the following criteria:

1. The animal must be under his/her care,
2. The treatment recommended must be recorded,
3. The client must be advised of the correct usage of the drug and;
 - (a) if for a food producing animal, withdrawal times must be explained and documented on the label,
 - (b) if for use in a performance animal, advise compliance with the relevant rules of racing (thoroughbred, harness or greyhound) or the rules of the other performance event organisations.
4. If the drug is intended for internal use it must be labelled as set out in accordance with State Health Department regulations.

“Under the care of a veterinary surgeon” means:

- (a) the veterinary surgeon is given responsibility for the health of the animal, herd or flock by the agent or owner(s),
- (b) the care of the animal, herd or flock by the veterinary surgeon is real and not merely nominal ie. the veterinary surgeon has at least,
 - (i) either seen the animal, herd or flock for the purposes of diagnosis or prescription immediately prior thereto; or
 - (ii) visits the property or other premises on which the animal, herd or flock is kept, sufficiently often and recently enough to have acquired from personal knowledge and inspection an accurate picture of the current health state on that property or premises sufficient to diagnose or prescribe for that situation in question.

SUMMARY

1. Under W.A. law, “de-antlering” of deer is an act of veterinary science. It is illegal for any person other than a registered veterinary surgeon or a person under veterinary supervision to remove the antler from deer in W.A. (Veterinary Surgeons Act 1960)
2. Causing pain to a deer by removing its’ antlers in velvet without making the deer insensitive to pain with an S4(restricted substance) analgesic or anaesthetic drug would be considered an “act of cruelty to an animal” by any court in W.A. Hence removal of antler from deer without proper analgesia is effectively illegal in W.A.
3. Velvet antler may be removed once the animal has been desensitised to pain, by a trained person, ie. a veterinary surgeon or a person who has undertaken an accreditation course.
4. It is illegal for any farmer to obtain S4 drugs for use in animals other than on prescription or by direct supply from a registered veterinary surgeon. (Poisons Act 1964 and Veterinary Surgeons Act 1960)
5. In general terms, a veterinary surgeon is not allowed to supply any S4 anaesthetic drug to a client for use by that client in his or her own animals unless he or she is a bona fide client. The Veterinary Surgeons Board considers that a bona fide client relationship exists if the veterinary surgeon visits the property at least once a year. Veterinary Surgeons Act - Amendment Regulations 1993)
6. A trained accredited person may remove velvet antler from his/her own deer. Australian Veterinary Association Policy 1994)
7. S4 drugs supplied by a registered veterinary surgeon to an accredited deer farmer may only be used by that deer farmer for the purpose and according to the written instructions which must be given to the deer farmer by that veterinary surgeon. (Poisons Act 1964)

APPENDIX D

LEGAL ASPECTS OF DEER VELVETING IN QUEENSLAND

As at August 2002

In Queensland several different Acts of the Queensland Parliament or their subordinate Regulations regulate the harvesting of velvet antler from deer.

The principal legislation regulating deer velveting are the:-

- **The Animal Care and Protection Act 2001**
- **Health (Drugs and Poisons) Regulations 1996**
- **The Veterinary Surgeons Act 1936**

The DIAA Velvet Accreditation Scheme will help deer farmers understand their legal responsibilities under the laws affecting velveting. Deer farmers accredited by this scheme will be able to harvest velvet from their own deer, using restricted drugs. These drugs will be prescribed/dispensed to accredited farmers by their own veterinary practitioners on the strict condition that they are used only for harvesting velvet from their own deer and are stored according to the legal requirements for such dangerous substances.

(1) THE WELFARE ASPECTS OF VELVETING

The Standing Committee on Agriculture Technical Report Series – No. 30 titled “Model Code of Practice for the Welfare of Animals The Farming of Deer” (which is currently under review) has the following to say with regard to removal of deer antlers:-

5. Management Practices

5.2 Removal of Antlers

- (i) Antlers of male deer should be removed annually, preferably before development of “hard antler”, to protect handlers, other deer and the farming facilities. Deer in “hard antler” in most species should not be yarded with other deer and should be penned singly in facilities that limit movement or space.
- (ii) Removal of the “velvet antlers” should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug.

The position statement from the National Consultative Committee on Animal Welfare (a past committee which advised the Federal Minister for Agriculture, Fisheries and Forestry) states:-

“There is need to remove antlers from deer for their own safety and the safety of farmers.

The National Consultative Committee on Animal Welfare (NCCAW) accepts that the harvesting of antlers in velvet from deer as an agricultural enterprise can be conducted in a safe and humane manner.

However NCCAW is concerned that the harvesting of antlers in velvet from deer without the use of appropriate analgesia (pain relief) is a painful procedure. Cutting the antlers of deer prior to their maturation, without adequate pain relief, is a cruel practice, which should be prohibited.

NCCAW accepts that the most safe and humane way of doing this is to remove the antlers when they are in a late stage of growth, but before maturation when the animals become very aggressive and dangerous to handle for several months.

Protecting the welfare of deer during velvet antler harvesting requires both safe and effective restraint of the deer as well as effective analgesia of the incision site. Such restraint can be achieved by either physical means, using a cradle or such an appropriate handling facility or by the use of sedative or immobilising drugs. Proper facilities to safely restrain the deer are essential to avoid injury to deer during the harvesting procedure.

There are several effective methods of analgesia and several effective methods of restraint. Effective analgesia can be achieved by the use of regional nerve block on animals held in a suitable crush or under sedation, or by the use of drugs which fully immobilise and anaesthetise the deer for the procedure. However, currently available electro-immobilisation devices have not been shown to produce adequate analgesia for antler removal and must not be used.

States should enact legislation with a strict requirement for the effective analgesia in this procedure. Measures should be taken to ensure maximum compliance.”

(2) PROCEDURES

The Australian Veterinary Association (AVA) policy on Farming of Deer

(2.11.4) Harvesting of Antlers in Velvet

The AVA believes that the harvesting of velvet must be conducted with the use of an effective analgesic technique.

Discussion: Male deer are more amenable to handling when in velvet, making them less likely to be stressed or injured by handling or restraint than would be the case a few months later when in hard antler.

Physical restraint, used in conjunction with local anaesthesia, may be appropriate if good facilities and good stockmanship are available. The deer must be trained and local anaesthesia used.

Chemical restraint may vary from light sedation with local analgesia to immobilisation and recumbency.

The choice of restraint may also be influenced by the species of deer.

The AVA and the Veterinary Surgeons Board in each state support the National Velveting Accreditation Scheme. The only drugs made available to farmers under this scheme are 2% xylazine, local anaesthetic and yohimbine. The veterinarian must conduct an annual supervising visit to each accredited deer farm to inspect the facilities and check drug books etc.

In Queensland the *Animal Care and Protection Act 2001* applies to the Velveting of Deer.

This new Bill that was proclaimed on 1 March 2002 places a duty of care on anyone who is in charge of an animal and it is an offence to breach that duty of care. The Duty of Care is to positively provide for the welfare needs of animals. It is different from being cruel to animals. To fulfil their duty of care to an animal in their charge, people must take reasonable steps to provide the animal's needs for the following in a way that is appropriate:

- food and water
- accommodation or living conditions for the animal
- to display normal patterns of behaviour
- the treatment of disease or injury, or
- ensure any handling of the animal by the person, or caused by the person, is appropriate.

The Act uses the word "appropriate" with regard to the Duty of Care. Rather than being rigid and prescriptive, the Act allows the flexibility to cover different types of animal use and different circumstances.

Codes of Practice

The Act recognises Codes of Practice on animal welfare for a wide range of animal uses. Most of these Codes are "officially named" in a regulation. The Codes then act as benchmark for acceptable animal welfare standards, thus providing some certainty in business planning and good guidelines to all people on how to fulfil their Duty of Care. The Codes are also used by inspectors as references to determine whether people are fulfilling their Duty of Care, and as a guideline for issuing written directions to rectify animal welfare problems. Non-compliance with these "named" codes is *not* automatically an offence under the Act

Animal welfare directions

Animal welfare directions allow inspectors to order a course of action to improve a situation where animals are not being adequately cared for. These directions aim to:

- prevent a potential animal cruelty situation from occurring
- resolve an existing problem.

Inspectors have the authority to issue written directions, specifying in detail what the person in charge of the animal must do to ensure the animal is properly cared for. This direction could include providing food, water, rest or shelter, or consulting a veterinary surgeon. In the case of livestock, the Codes of Practice would be used as a key standard for determining whether or not animals were being cared for adequately.

Offences

(a) It is an offence for people to breach their Duty of Care to an animal in their charge.

(b) There is also a general offence of "cruelty". This covers types of activities that 99.9% of the population would instantly agree are absolutely unacceptable. This includes beating, abusing, terrifying, inhumane killing and transporting animals that are unfit for transport. The underlying principle here is that the activity is unjust or unreasonable or unnecessary, and that the animal suffers as a consequence of the activity.

Penalties

Penalties for people or organisations found guilty of offences are now greatly increased, compared to the previous legislation.

The maximum penalty for cruelty in the previous Act (Animals Protection Act 1925) was \$1500 or 6 months prison. Now, the maximum penalty for cruelty is \$75 000 or 2 years prison.

The Act provides for a broad range of enforcement powers to promote and to monitor acceptable animal welfare standards and to protect animals from cruelty, where required. Compliance will be mainly achieved through education and promotion of agreed animal welfare standards for all types of animal use. DPI and the RSPCA are the main agencies enforcing the Act. Police officers are not appointed as inspectors under the Act, but are able to fully respond to animal welfare complaints under the *Police Powers and Responsibilities Act 2000*.

There is general agreement amongst persons who would be considered expert in this area by the law, that velvet harvesting without analgesia is a painful procedure, and furthermore, agreement that this pain can be effectively relieved by the use of appropriate drugs. Thus harvesting velvet antler without analgesia could be an offence under the *Animal Care and Protection Act 2001*.

(3) SUPPLY OF RESTRICTED DRUGS

The “**Health (Drugs and Poisons) Regulation 1996**” controls the supply, labelling use etc. of restricted drugs. Officers of Queensland Health administer this legislation.

This regulation makes it an offence for any person to be in possession of a restricted drug without authority.

The Regulations allow a veterinarian to supply 'restricted drugs' under the following conditions:-

- (1) The animal(s) must be under the veterinarian's care.

This care is demonstrated when responsibility for the health of the animal or herd has been given to the veterinarian by the agent or owner, and the care of the animal or herd by the veterinary surgeon is real and not merely nominal.

This means that the veterinary surgeon has at least:-

- (i) either seen the animal or herd for the purposes of diagnosis immediately prior to supply of a prescription; or
 - (ii) visited the farm or other premises on which the animal or herd is kept, sufficiently often and recently enough to have acquired from personal knowledge and inspection an accurate picture of the current health state on that farm, sufficient to be able to diagnose and prescribe for the animal or herd in question.
- (2) The treatment recommended must be recorded.
- (3) The client must be advised of the correct usage of the drug and if for a food producing animal, withdrawal times must be explained.
- (4) If the drug is intended for internal use it must be labelled in accordance with Regulation B8.01 of the regulations.

Withholding Periods

The Veterinarian has a legal responsibility to ensure that clients are aware of the correct withholding period for prescribed drugs and treatments. These must be carefully observed before slaughter for residues to be avoided.

(4) VETERINARY INVOLVEMENT

The *Veterinary Surgeons Act 1936* regulates registration of veterinary surgeons in Queensland, provides for establishment of the Veterinary Surgeons Board of Queensland and gives the Board powers in relation to setting rules and standards for professional conduct of veterinarians.

Under the act the performance of surgical operations on animals and the administering of anaesthetics to animals is considered veterinary surgery. Thus deer velvet antler removal is considered an act of veterinary surgery and no person other than a veterinary surgeon can perform an act of veterinary surgery for fee or reward.

Thus deer farmers accredited by this scheme will be able to harvest velvet from their own deer only.

(5) SUMMARY

- CAUSING pain to deer by removing its velvet antler without making the deer insensitive to that pain by the administration of an appropriate S4 (restricted) analgesic or anaesthetic drug could be considered an act of cruelty under the Animal Care and Protection Act 2001.
- It is illegal for any farmer to obtain restricted drugs for use in animals other than on the prescription or supply of a registered veterinary surgeon.
- Restricted drugs supplied to an accredited deer farmer, may only be used by that deer farmer on his own deer for the purpose and in the manner according to the written instruction given by the veterinary surgeon.

Sandy Mackenzie Qld Department of Primary Industries

APPENDIX E

LEGAL IMPLICATION OF THE NATIONAL VELVET ACCREDITATION SCHEME IN AUSTRALIA

THE LEGAL ASPECTS OF VELVETINC IN VICTORIA

The Standing Committee on Agriculture Technical Report Series No. 30 titled "Model Code of Practice for the Welfare of Animals The Farming of Deer" has the following to say with regard to removal of deer antlers:

5. Management Practices

5.2 Removal of antlers

(i) Antlers of male deer should be removed annually, preferably before development of "hard antler", to protect handlers, other deer and the farming facilities. Deer in "hard antler" in most species should not be yarded with other deer and should be penned singly in facilities that limit movement or space.

(ii) Removal of the "velvet antlers" should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug.

The position statement from the National Consultative Committee on Animal Welfare (a committee which advises the Federal Minister for Primary Industries and Energy) states

" There is need to remove antlers from deer for their own safety and the safety of farmers.

The National Consultative Committee on Animal Welfare (NCCAW) accepts that the harvesting of antlers in velvet from deer as an agricultural enterprise can be conducted in a safe and humane manner.

However NCCAW is concerned that the harvesting of antlers in velvet from deer without the use of appropriate analgesia (pain relief) is a painful procedure. Cutting the antlers of deer prior to their maturation, without adequate pain relief, is a cruel practice that should be prohibited.

NCCAW accepts that the most safe and humane way of doing this is to remove the antlers when they are in a late stage of growth, but before maturation when the animals become very aggressive and dangerous to handle for several months.

Protecting the welfare of deer during velvet antler harvesting requires both safe and effective restraint of the deer as well as effective analgesia of the incision site. Such restraint can be achieved by either physical means, using a cradle or such an appropriate handling facility or

by the use of sedative or immobilising drugs. Proper facilities to safely restrain the deer are essential to avoid injury to deer during the harvesting procedure.

There are several effective methods of analgesia and several effective methods of restraint. Effective analgesia can be achieved by the use of regional nerve block on animals held in a suitable crush or under sedation, or by the use of drugs which fully immobilise and anaesthetise the deer for the procedure. However, currently available electro-immobilisation devices have not been shown to produce adequate analgesia for antler removal and must not be used.

States should enact legislation with a strict requirement for the effective analgesia in this procedure. Measures should be taken to ensure maximum compliance."

The Victorian Department of Agriculture "Agnote" Code of accepted farming practice for the welfare of deer makes the following reference to velveting:

Removal of Antlers

- For the protection of handlers, other deer, and facilities, male deer should have their antlers removed annually before development of hard antler.
- Removal of velvet antlers should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain using analgesia, anaesthesia, tranquillisation or sedation as appropriate.
- Removal of hard antlers should be undertaken in a manner that minimises discomfort to the animal.

The Victorian Deer Breeders' Association Recommended Codes of Practice For Deer Farming - March 1981 in Section 6 addresses the issue of Protection From Pain and Fear.

Section 6 (2) states "... No pain causing practice should be carried out for the sake of production or for the benefit of the deer where practicable pain-reducing or painless methods of husbandry are available to achieve the same result."

Section 6 (4) states "...Harvesting of velvet antler must be conducted in a manner in which the male deer does not experience undue discomfort during the transection and is not exposed to stress nor suffers significant loss of blood. Thus velvet antler harvesting must be conducted with adequate and skilfully administered analgesia and tranquillisation or sedation. This can only be achieved by the use of drugs which are legally available by veterinary prescription.."

The Australian Veterinary Association policy on Farming of Deer until March 1994 stated:

2. PROCEDURES

2.11 Farming of Deer

2.11.4 Harvesting of antlers in velvet

The AVA believes that the harvesting of velvet is an act of veterinary science and must be conducted with the use of an effective analgesic technique.

This was amended by the membership at the **Annual General Meeting** to:

2.11.4 Harvesting of antlers in velvet

The AVA believes that the harvesting of velvet must be conducted with the use of an effective analgesic technique administered by a veterinary surgeon or, under the direction of a veterinary surgeon, by operators trained and accredited to perform the procedure on their own stock.

Discussion: Male deer are more amenable to handling when in velvet, making them less likely to be stressed or injured by handling or restraint than would be the case a few months later when in hard antler.

Physical restraint, used in conjunction with local anaesthesia, may be appropriate if good facilities and good stockmanship are available. The deer must be restrained and local anaesthesia used.

Chemical restraint may vary from light sedation with local analgesia to immobilisation and recumbency.

The choice of restraint may also be influenced by the species of deer.

The drugs used in sedation, tranquillisation, analgesia and anaesthesia of deer for velveting are all potent substances. There are three Acts of Parliament that relate to the control and the administration of these drugs.

The three Acts are:

- (i) Prevention of Cruelty to Animals Act 1986
- (ii) Drugs, Poisons and Controlled Substances Act 1981
- (iii) Veterinary Surgeons Act 1958

The Prevention of Cruelty to Animals Act 1986 under Clause 9 has two specific references to the use of drugs:

Clause 9 states that a person who -

9(c) knowingly or negligently does or omits to do an act with the result that unnecessary, unreasonable or unjustifiable pain or suffering is caused to an animal; OR

9(j) other than in accordance with the "Vermin and Noxious Weeds Act 1958", the "Wildlife Act 1975" or the "Drugs, Poisonous and Controlled Substances Act 1981" intentionally administers to an animal or lays a bait for the animal containing

- (i) a poison
- (ii) any other substance when administered to that type of animal has any harmful effect on the animal

commits an act of cruelty upon that animal and **is guilty of an offence**.

The RSPCA Position Paper on Deer Farming reads:

9. Deer Farming

RSPCA (Victoria) does not regard deer farming as inherently cruel and it is acceptable where proper animal husbandry procedures, with due regard to animal welfare principles, are practised. All surgical procedures including those related to animal husbandry, for example antler removal and castration, must be performed in the presence and under the direct supervision of a veterinary surgeon.

The RSPCA Policy in relation to velvetting of deer is as follows:

De-Antlering of Deer

1. Antlers in Velvet

The RSPCA (Victoria) believes that the institution of proper animal husbandry techniques (eg. the castration of all juvenile males not required for breeding) will render the need for the removal of antlers in velvet unnecessary except in cases of injury or disease. The Society is opposed to the removal of antlers in velvet for commercial sale as a medicinal product.

The only acceptable method for the removal of antlers in velvet is for the animal to be appropriately restrained, deep narcosis or general anaesthesia to be administered by a veterinary surgeon, and the antlers removed in his presence. A satisfactory method of haemostasis must be used, and postoperative procedures need to be implemented (eg. dressings to prevent fly-strike), to minimise the possibility of untoward sequelae.

2. Hard Antlers

Hardened antlers may be removed at any time provided that the animal is appropriately restrained after the application of suitable tranquillising drugs to minimise shock or fear in the animal.

The Drugs Poisons and Controlled Substances Act 1981 regulates the possession, sale and use of poisonous substances. It classifies substances into schedules or categories. The tranquillisers, analgesics and anaesthetics used for velveting fall into Schedule 4.

Schedule Four
(Restricted Substances)

Substances or preparations -

- (a) the supply of which in the public interest should be restricted to medical, dental or veterinary practitioners; or
- (b) which are potentially harmful but the toxic or deleterious nature of which has not yet been evaluated.

Division 2 - Authorised Persons

Section 13 (1)

Subject to this Act and the regulations -

- (a) any medical practitioner, pharmacist, veterinary surgeon or dentist is hereby authorised to obtain and have in his possession and to use, sell or supply any poison or controlled substance or drug of dependence in the lawful practice of his profession

Part X - Restricted Substances
Division 1 - Authorised Persons

Regulation 1001 (4) A Veterinary Surgeon shall not administer, sell, prescribe, dispense, offer or supply any restricted substance other than for an animal under his care.

The Veterinary Surgeons Act 1958 controls the practice of Veterinary Surgery and Medicine. According to the Act no person other than a registered veterinarian may:

1. make a diagnosis
2. perform on animals techniques that require special skill
3. perform techniques in treatment which include the use of drugs scheduled to be used only by certain persons including registered veterinary surgeons.

Section 15 (1) specifically states:

"No person, other than a person registered under this Act as a veterinary surgeon, shall practice veterinary surgery or veterinary medicine."

Apart from these Acts of Parliament the Guidelines for Veterinary Surgeons issued by the Veterinary Board of Victoria cover the supply of restricted substances for Animal Treatment by registered Veterinary Surgeons.

Guideline 6

Role and Responsibility of the Veterinary Surgeon in the Administration, Prescription and the Supply of Restricted Substances for Animal Treatment.

6.2.2 Opinion

" ... The Veterinary Board of Victoria considers that to be **"lawful practice"** the animal(s) or herd for which the restricted substance is used, or for which the restricted substance is prescribed, sold or supplied, must be **"under the care of"** the veterinary surgeon prescribing the restricted substance.

Before an animal or herd could be considered in a professional context to be under a veterinary surgeon's care, the following conditions should be met:

- (a) the veterinary surgeon should have been given responsibility for the health of the animal or herd in question by the owner or his agent;
- (b) the care of the animal or herd by the veterinary surgeon should be real and not merely nominal; and
- (c) in amplification of the above, although circumstances will vary enormously, the veterinary surgeon must at least:
 - (i) **either have seen the animal or herd for the purpose of diagnosis or prescription and immediately prior thereto; or**
 - (ii) **have visited the farm or other premises in which the animal or herd is kept sufficiently often and recently enough to have acquired from personal knowledge and inspection, an accurate picture of the current health state on that farm sufficient to enable him to make a diagnosis or prescribe for the animal or herd in question, and to have confidence that the owner or his agent has sufficient knowledge and competence, and access to adequate facilities, to be able to administer the restricted substance effectively and safely.**
- (d) without limiting the generality of the foregoing, the veterinary surgeon must:
 - (i) ensure that the owner and/or his agent, has the appropriate skill, equipment and facilities necessary to determine the live-weight of the animal(s) to be treated and to safely restrain the animal while the treatment is administered.
 - (ii) have discussed with the owner, and/or his agent, and examined when visiting the premises, arrangements for the correct storage of the restricted substance, and for the safe disposal of empty containers, used syringes & hypodermic needles.

(iii) have discussed with the owner, and/or his agent, and preferably issued in writing, the dose rate of the restricted substance or specified the actual amount to be administered, contra-indications for the use of the restricted substance, special precautions to be taken in using the restricted substance, potential adverse reactions to the treatment which might reasonably be expected, withholding periods for both meat and milk."

THE IMPLICATIONS FROM THESE ASPECTS OF THE LAW ARE THAT:

1. There is no objection, in Victoria specifically and Australia generally, by any animal welfare organisation or the Law, to the concept of velveting deer.
2. It is an offence for other than a registered Veterinary Surgeon to possess or administer restricted drugs to animals .
3. A Veterinary Surgeon cannot supply restricted substances unless he or she has fully complied with the guidelines.
4. A Veterinary Surgeon acting outside the guidelines could have very severe penalties imposed by the Veterinary Board and/or the Courts.
5. A person other than a registered Veterinary Surgeon may possess and administer restricted drugs in Victoria, under the direction of a Veterinary Surgeon.
6. Electro-immobilisation of deer must not be used.
7. Farmers, not being registered veterinary surgeons, may velvet their own deer in a humane manner, BUT NOT OTHER FARMERS' DEER.

APPENDIX F

LEGAL IMPLICATION OF THE NATIONAL VELVET ACCREDITATION SCHEME IN AUSTRALIA

THE LEGAL ASPECTS OF VELVETING IN TASMANIA

The Standing Committee on Agriculture Technical Report Series – No. 30 titled “Model Code OF Practice for the Welfare of Animals The Farming of Deer” has the following to say with regard to removal of deer antlers;

5. Management Practices

5.2 Removal of antlers

(i) Antlers of male deer should be removed annually, preferably before development of "hard antler", to protect handlers, other deer and the farming facilities. Deer in "hard antler" in most species should not be yarded with other deer and should be penned singly in facilities which limit movement or space.

(ii) Removal of the "velvet antlers" should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain with an appropriate analgesic drug.

The position statement from the **National Consultative Committee on Animal Welfare [NCCAW]** (a committee which advises the Federal Minister for Primary Industries and Energy) states

" There is need to remove antlers from deer for their own safety and the safety of farmers.

“NCCAW accepts that the harvesting of antlers in velvet from deer as an agricultural enterprise can be conducted in a safe and humane manner.

“However NCCAW is concerned that the harvesting of antlers in velvet from deer without the use of appropriate analgesia (pain relief) is a painful procedure. Cutting the antlers of deer prior to their maturation, without adequate pain relief, is a cruel practice which should be prohibited.

“NCCAW accepts that the most safe and humane way of doing this is to remove the antlers when they are in a late stage of growth, but before maturation when the animals become very aggressive and dangerous to handle for several months.

Protecting the welfare of deer during velvet antler harvesting requires both safe and effective restraint of the deer as well as effective analgesia of the incision site. Such restraint can be achieved by either physical means, using a cradle or such an appropriate handling facility or

by the use of sedative or immobilising drugs. Proper facilities to safely restrain the deer are essential to avoid injury to deer during the harvesting procedure.

There are several effective methods of analgesia and several effective methods of restraint. Effective analgesia can be achieved by the use of regional nerve block on animals held in a suitable crush or under sedation, or by the use of drugs which fully immobilise and anaesthetise the deer for the procedure. However, currently available electro-immobilisation devices have not been shown to produce adequate analgesia for antler removal and must not be used.

[States should enact legislation with a strict requirement for the effective analgesia in this procedure. Measures should be taken to ensure maximum compliance."]

The Victorian Department of Agriculture "Agnote" *Code of accepted farming practice for the welfare of deer* makes the following reference to velveting:

Removal of Antlers

- For the protection of handlers, other deer, and facilities, male deer should have their antlers removed annually before development of hard antler.
- Removal of velvet antlers should be the responsibility of a registered veterinary surgeon. The procedure should be performed when the animal has been made insensitive to pain using analgesia, anaesthesia, tranquillisation or sedation as appropriate.
- Removal of hard antlers should be undertaken in a manner that minimises discomfort to the animal.

The Victorian Deer Breeders' Association's *Recommended Codes of Practice For Deer Farming - March 1981* in Section 6 addresses the issue of Protection From Pain and Fear.

Section 6 (2) states "... No pain causing practice should be carried out for the sake of production or for the benefit of the deer where practicable pain-reducing or painless methods of husbandry are available to achieve the same result."

Section 6 (4) states "...Harvesting of velvet antler must be conducted in a manner in which the male deer does not experience undue discomfort during the transection and is not exposed to stress nor suffers significant loss of blood. Thus velvet antler harvesting must be conducted with adequate and skilfully administered analgesia and tranquillisation or sedation. This can only be achieved by the use of drugs which are legally available by veterinary prescription.."

The Australian Veterinary Association policy on Farming of Deer until March 1994 stated:

"The AVA believes that the harvesting of velvet is an act of veterinary science and must be conducted with the use of an effective analgesic technique."

This was amended by the membership at the **Annual General Meeting** to:

“The AVA believes that the harvesting of velvet must be conducted with the use of an effective analgesic technique administered by a veterinary surgeon or, under the direction of a veterinary surgeon, by operators trained and accredited to perform the procedure on their own stock.” *[Male deer are more amenable to handling when in velvet, making them less likely to be stressed or injured by handling or restraint than would be the case a few months later when in hard antler.]*

Physical restraint, used in conjunction with local anaesthesia, may be appropriate if good facilities and good stockmanship are available. The deer must be restrained and local anaesthesia used.

Chemical restraint may vary from light sedation with local analgesia to immobilisation and recumbency.

The choice of restraint may also be influenced by the species of deer. The drugs used in sedation, tranquillisation, analgesia and anaesthesia of deer for velveting are all potent substances. There are three Acts of Parliament that relate to the control and the administration of these drugs.

The Acts are;

Veterinary Medicines Act 1987 [to be replaced by an Agvet Chemicals Control of Use Act]

Poisons Act 1968

Veterinary surgeons Act 1987

Animal Welfare Act 1994

The Veterinary Board of Tasmania has produced a policy with respect to the supply and use of the S4 restricted drugs which encompasses the requirements of the various interrelated Acts –

Veterinary Board of Tasmania’s Policy on the Supply of S4 Veterinary Drugs

It is the policy of the Board that the following points would be considered in a case of misconduct in a professional respect brought before the Board with respect to the supply of S4 veterinary drugs –

It is recognised that some restricted drugs [S4] are drugs of management and can be expected to be sought by clients.

Supply of S4 preparations should only be for animals under the care of the veterinary surgeon prescribing or supplying the particular drug.

“*Animals under the care of a veterinary surgeon*” means –

the veterinary surgeon has been given the responsibility for the health of the animals by the owner or agent of the owner;

the care of the animals real and not notional in that the veterinary surgeon has either seen the animals for the purpose of diagnosis immediately prior to supply or has visited the property and has seen the animals sufficiently often or has examined the animals so as have acquired from personal knowledge an accurate picture of the current health status of the animals to allow an accurate diagnosis and the appropriate supply of restricted drugs.

It is usual practice to examine the particular animal or group of animals for which the supply of S4s is made.

Detailed knowledge of the client and his animals is necessary to establish a relationship whereby direct examination of the animals to be treated may be on occasions be omitted before supply of S4 drugs.

Requests for repeat supplies should only be granted to known clients.

Supply should only be in quantities appropriate for the number of animals involved. Where large quantities are requested for group treatment in the absence of examination, only sufficient material should be supplied until an appropriate examination can be made.

For reasons of limited access to animals it may be appropriate to supply S4s to other than known clients. For animals which cannot reasonably be examined by a registered veterinary surgeon it is appropriate to supply S4s for the immediate relief of suffering, providing all possible information is sought from the client in relation to the particular case, and that all necessary guidance is provided into the use of the drug, including withdrawal period where necessary.

Detailed records should be kept of all supplies of restricted drugs as part of case records -

Client	Date	Drug [name and strength]
Quantity	Dosage	WHP Advised
Repeat Supply	Authorisation	

A veterinary surgeon cannot dispense a prescription of another veterinary surgeon. This can only be done by a pharmacist.

By law all veterinary drugs are to be stored in accordance with labelling instructions and used within the expiry time.

Labelling and packaging of dispensed drugs shall be in accordance with the requirements of the *Poisons Regulations* for that particular class or Schedule of drug.

Welfare considerations regarding velveting are also reflected in legislation and can be summarised within the policy of the RSPCA

The RSPCA does not regard deer farming as inherently cruel and it is acceptable where proper animal husbandry procedures, with due regard to animal welfare principles, are practised. All surgical procedures including those related to animal husbandry, for example antler removal and castration, must be performed in the presence and under the direct supervision of a veterinary surgeon.

The RSPCA Policy in relation to velvetting of deer is as follows:

De-Antlering of Deer

1. Antlers in Velvet

The RSPCA (Victoria) believes that the institution of proper animal husbandry techniques (eg. the castration of all juvenile males not required for breeding) will render the need for the removal of antlers in velvet unnecessary except in cases of injury or disease. The Society is opposed to the removal of antlers in velvet for commercial sale as a medicinal product.

The only acceptable method for the removal of antlers in velvet is for the animal to be appropriately restrained, deep narcosis or general anaesthesia to be administered by a veterinary surgeon, and the antlers removed in his presence. A satisfactory method of haemostasis must be used, and postoperative procedures need to be implemented (eg. dressings to prevent fly-strike), to minimise the possibility of untoward sequelae.

2. Hard Antlers

Hardened antlers may be removed at any time provided that the animal is appropriately restrained after the application of suitable tranquillising drugs to minimise shock or fear in the animal.

THE IMPLICATIONS FROM THESE, AND OTHER ASPECTS OF THE LAW ARE THAT –

1. There is no objection, in law, by any animal welfare organisation, to the concept of velvetting deer.
2. Unless lawfully supplied by a Veterinary Surgeon, it is an offence for other than a registered Veterinary Surgeon to possess or administer restricted drugs to animals.
3. A Veterinary Surgeon cannot supply restricted substances unless he or she has fully complied with the guidelines.

4. A Veterinary Surgeon acting outside the guidelines could have very severe penalties imposed by the Veterinary Board and/or the Courts.
5. A person other than a registered Veterinary Surgeon may possess and administer restricted drugs under the direction of a Veterinary Surgeon.
6. Electro-immobilisation of deer must not be used.
7. Farmers, not being registered veterinary surgeons, may velvet their own deer in an humane manner, **BUT NOT OTHER FARMERS' DEER.**

APPENDIX G

AUSTRALIAN VETERINARY ASSOCIATION POLICY

2.11.4 HARVESTING OF ANTLER IN VELVET

The AVA believes that the harvesting of velvet must be conducted only by trained persons, - with the use of an effective analgesic technique. Where indicated, sedation must also be used for physical restraint and to minimise stress in handling.

NOTE; Male deer are more amenable to handling when in velvet, making them less likely to be stressed or injured by handling or restraint than would be the case a few months later when in hard antler.

The choice of restraint may be influenced by the species of deer.

Physical restraint, used in conjunction with local anaesthesia, may be appropriate if good facilities and good stockmanship are available. The deer must be accustomed to handling and restraint.

Chemical restraint may vary from light sedation to immobilisation and recumbency. Local anaesthetic should be used in conjunction with sedation and sedation alone must not be relied upon for analgesia when velveting deer.

2.11.5 NATIONAL DEER VELVETING ACCREDITATION SCHEME

The key elements of the National Deer Velvetting Accreditation Scheme are:

The scheme is managed by a national committee appointed by the DIAA with an experienced deer veterinarian serving on the committee in each state. The AVA's appointed member is Dr AW English (1997).

After completing a prescribed training programme, which is now consistent across all States, deer farmers can be accredited to harvest velvet antler from their own deer.

The training programme consists of a self-assessment of knowledge and farm handling system followed by a two-day theoretical training course. The candidate must achieve 75 per cent or better in an open book examination on material covered during the course.

Once achieving the required mark in this examination, the farmer then seeks the cooperation of his/her local veterinarian in having his/her skills and knowledge confirmed by a practical test. Accreditation of the accredited deer farmer's handling facilities takes place at the same time.

Veterinarians undertaking to accredit and supervise farmers performing velvetting of their own deer, have a responsibility to maintain and update their knowledge of advances in the

field. If necessary, veterinarians shall undertake the same training programme as the deer farmers, to maintain their level of knowledge.

The Deer Industry Association of Australia committee responsible for administering the Deer Velvet Accreditation Scheme shall keep an up-to-date record of all veterinarians and farmers accredited in each state. This record shall be available on demand to the AVA and to regulatory bodies such as the Veterinary Boards and Health Departments in each State.

After passing these tests the farmer shall receive an accreditation number and a supply of velvet tags identified by the same number to mark any velvet harvested by him/her.

All velvet must be marked with an NVAS tag to be accepted into the national pools for sale or for export.

The accrediting veterinarian supplies the farmer with the amounts of drugs required to harvest velvet antler from the deer under his control. Both farmer and veterinarian are required to keep records of drugs issued and used and number of deer velveted. Any un-used drug supplies are to be returned to the accrediting veterinarian at the end of each season. While the farmer has possession of these drugs, they are to be stored and used safely in compliance with all State regulations applicable to such drugs. A copy of the records relating to the use of drugs are to be submitted annually to the National Committee and the National Office of the AVA.

The only drugs to be made available to farmers specifically for use in deer velveting under this scheme are 2% xylazine, local anaesthetic and yohimbine. Veterinarians can dispense other restricted medications for therapeutic use in individual deer or for herd health purposes. Suitable recommendations shall be made for withholding periods in any deer intended for human consumption.

The veterinarian must conduct a minimum of one annual supervising visit to each accredited deer farm to inspect the deer, facilities and to check drug records, storage and competency.

To maintain membership of the scheme, each accredited farmer must attend a refresher course every three years. Accredited deer farmers must not train other persons to velvet deer on their behalf. Only persons who have undergone training under the NVAS shall velvet deer and this MUST be restricted to their own deer.

In order for the NVAS to maintain support from deer farmers, veterinarians and regulatory authorities, it is important that all partners in the scheme fulfil the requirements of this policy. The ultimate legal responsibility for the supply of restricted, scheduled medication and the supervision of the accredited deer farmer and his animals rests with the veterinarian who provides the medication to the farmer. Nothing under this scheme relieves the veterinarian or the deer farmer of their legal obligations under the various State and Federal Anti-cruelty Acts controlling the welfare of the animals under their charge.