

2012



# The Veterinary Genetics Assurance

Program Protocols  
and Background Information

## 1. OVERVIEW OF THE COMPANION ANIMAL INDUSTRY IN AUSTRALIA

It is estimated that Australia has approximately 33 million pets in just over 8 million households. This makes Australia one of the highest pet ownership countries in the world with approximately 36% of households owning a dog and 23% a cat. With 3.41 million Dogs and 2.35 million cats this averages to 16 dogs and 11 cats per 100 people.

Pets bring an enormous benefit to individuals and are an important part of the community and many ways the economy. Therefore as a key part of our society, responsible selling and breeding of pet animals need to be addressed. Registered bodies and pedigree registries set their members a code of ethics and members of these registries have approved schemes and a code of ethics they must adhere to. However non-pedigree breeders are rarely scrutinised for their practices and are not bound to any code of ethics.

Pet purchases i.e. sales of animals, is estimated to be \$616 million per year, with dogs making up \$135 million of the total sales. The cost of purchasing an animal can vary according to type –horse, dog, cat, etc; with a key factor determining cost being registered or papered animals having a higher purchase fee. Welfare organisation and animal shelters also account for a high number of canine purchases with approximately 60,000 (13% of total sales). Costs for adoption can start from anything around \$200, which predominantly covers the costs associated with the animal being micro chipped, de-sexed and first set of vaccinations. In some cases there is also a general, fairly subjective temperament/behavioural assessment performed prior to sale. One of the areas seen as a problem is that these dogs are primarily of unknown heritage (breed) and in many cases behavioural and health issues based on breeds is unknown and can hinder homing. Many breeds are identified via visual characteristic which has proven to be incorrect in the majority of cases. The return rate of puppies back to shelters remains very high, largely due to mismatching owner expectations.

Mixed breed dogs can also be purchased from pet shops or directly from breeders with price varying according to breeds advertised and market demand. Pedigree dogs can range from \$400 and up to \$10,000 depending on the pedigree and account for approximately 64,000 registered purebred (pedigree) dogs. Information on pedigree dogs is freely available from the ANKC web site including number of registered dogs by breed and relevant information on breed standards.

One of the largest areas of expenditure in animals is in the area of health care with veterinary care which makes up approximately 44% of all animal-related consumer expenditure. This is due to consumers becoming more aware of animals health issues together with governments (both local and state) taking a more active approach in the area of animal management.

It is important that we make what efforts we can to ensure that animals are health screened to enable buyers to make an informed educated decision on their potential purchase.

Microchip identification is also an important part of responsible animal ownership and compulsory in many states. It is a permanent method of identification where implanting is performed by veterinarians and accredited implanters. There are five registries in Australia and just over 4.6 million companion animals on those registries.

To summarise, responsible pet selling / breeding /ownership needs to be addressed not only at the level of the owner but also the breeder or seller level. Microchipping and general health screening should be part of any animal that is sold at a standard which is accepted

by breeders, veterinarians and potential animal buyers. To improve the welfare and health of companion animals will require the cooperation of many stakeholders including veterinarians, scientists, research institutes, registries, member bodies, breeders and members of the public. The Veterinary Assurance programme (VGA) goes some way in achieving this.

## 2. THE VETERINARIAN GENETIC ASSURANCE (VGA) ACCREDITATION PROGRAMME

The **Veterinary Genetic Assurance (VGA) Certification Program** integrates veterinarians together with genetic testing to provide health and pedigree assurance for all companion animal owners, sellers and potential buyers– pedigree and non-pedigree. Through their participation in a health-focused program, animal enthusiasts can design their breeding strategies around generations of accredited animals. Animal buyers and owners will have assurance that they have all the genetic information available about the animal they purchased. This will hopefully lead to public pressure for responsible breeding and the development of healthier generations of animals to come.

The **VGA** provides accreditation for genetic health test information. It integrates this with approved protocols and uses veterinarians to ensure both assessment of general health and sample integrity.

To obtain a VGA approved report any animal must have:

1. Microchip positive identification - meeting local standards
2. A veterinary examination report - see form attached
3. DNA test report by an approved laboratory – see more details below

Veterinarians or Accredited Collection Agents ensure that the animal is identified via positive ID (microchip). Only veterinarians can carry out the routine health check, ideally at the time of vaccinations or microchip implantation.

The genetic DNA screening works via a simple cheek swab which is used to carry out a number of genetic screens based on breeds and/or a full genetic screen for any unrecognised breed. DNA testing must be performed via an accepted protocol and all laboratories must offer tests that have been validated scientifically.

Information is to be made available in a transparent database of responsible breeders (VGA Approved) that make the effort to ensure their animals are clear of genetic disease. The VGA website also recommends and lists information about participation in other health or behavioural VGA recognized programs. The web site [www.vetga.com.au](http://www.vetga.com.au)

The program also provides breeder's with an opportunity to have some form of scientific direction in their breeding programme. Many testing organisations will store samples for any future testing and are used for any referencing in the future - there are many cases where genetic screening has eliminated or reduced the incidence of particular disease in all companion animals. However genetic screening should be treated with knowledge as it must be approached at a level which works on severity on the incidence of the disease and ensuring that other important traits such as temperament are not selected over a particular disease. The specific information generated in the DNA report belongs solely to the owner and is only made public via the owner's consent.

DNA testing should not be used to focus on simply clearing an animal of a particular disease, other factors such as temperament and maintaining a healthy genetic diversity should also be considered. Currently there are over 40 genetic tests available for over 90 breeds (for more information visit [www.breedsspecifichealth.com](http://www.breedsspecifichealth.com)). DNA testing should also be used to identify breeds present in mixed breed animals, this is critical in providing important data in relation to health and risk. Screening of all diseases for mixed breed animals will be made available and statistical data will be provided on disease and prevalence in mixed breed animals.

The programme does not aim to avoid the production of animals which may be affected by a hereditary disease or not be perfect, it is about ensuring all relevant information on health, welfare and appearance are made available to any potential buyers. The programme will reward those breeders who make an effort to breed animals to a high standard both for temperament and health. These breeders will be recognised through the VGA programme and its accredited breeders programme.

VGA will work to market the benefits of the programme and build awareness to the consumer or companion buying public. Up to date information will be published on the web site and breeders will be able to promote their involvement in the programme via the web site. This will encourage the public to purchase animals from VGA breeders and members of this accredited scheme. Brochures explaining the programme will be made freely available to members and allow for the promotion of the programme to potential animal buyers.

### 3. EDUCATION AND PROMOTION OF THE PROGRAMME

VGA will focus on educating all key stakeholders on the programme as it is a recognised key to the programme's success. It will create awareness of all VGA benefits to consumers. All approved breeders will be listed on the VGA web site with users having the option to list their details.

VGA will be promoted to potential animal buyers and educate the consumer to purchase animals from VGA breeders or approved sellers.

Veterinarians are key partners required to bring awareness of the programme and promote it to breeders and consumer directly. A wide range of media resources will be used to influence the consumer and also target welfare organisations to educate the public on the programme.

The VGA website will also list relevant heritable diseases for breeds together with educational and factual material on each disease. Relevant statistical data will also be listed and made available through the site.

To achieve success will require a shift from how animals are promoted to the public. Pedigree owners have a set of rules and regulations (code of ethics) and are held accountable to these. Breed clubs and registries have developed and enforced health programmes and in many cases have worked successfully but, work still needs to be done in some areas and breeds.

The area that remains most unaccountable is the non-pedigree area and education here needs to come from veterinarians, owners, pet shops, puppy suppliers and animal welfare organisations. Having a dedicated programme that is focused on health and breed issues it will allow real data and evidence to support the questions about relevance and incidence.

## 4. COST AND BENEFITS OF THE PROGRAMME

Cost is once off and all information is stored for any future access. The costs include:

- Genetic Screening
- Micro chipping
- Veterinary Check (physical examination)
- VGA Certification

### The benefits include

- A dedicated effort towards breeding and selling of healthy animals.
- A health standard that is recognised by all animal enthusiasts.
- Ability for breeder's to promote their responsible breeding to the consumer.
- Involvement of veterinarians in ensuring collaborated health screening protocols.
- DNA testing platforms allowing for screening of known breed and undetermined breeds.
- Recognises other approved schemes such as eye schemes, hip and elbow schemes
- Breeders will have access to a program that will promote a perceived quality standard
- Owners will be better informed on their animal's health and welfare status based on a national standard.
- Pets will benefit from improved longevity and quality of life.
- Foster a healthy relationship between breeders, veterinarians and pet owners
- Veterinary practices able to provide an input in promoting responsible breeding and incorporated DNA testing in providing a high level of medicine to their clients
- DNA testing allows for screening of animals for full list of hereditary diseases for the purpose of preventing hereditary.
- Allows for 'pedigree clearance' for hereditary diseases for offspring without necessity for testing, so testing becomes a 'once off' event.

## 5. SAMPLE COLLECTION

Ensuring sample integrity is a key part of any testing to eliminate doubt of the result being from a different animal. Many organisations allow individuals to collect and send tests in themselves. Although acceptable for ones' own personal information, it cannot be accepted by registries and fellow breeders looking to mate with the animal being tested. Positive identification and independent collection are two key protocols required to ensure sample integrity and internationally accepted results. This is not due to "breeders not being trusted" but is more about ensuring an internationally accepted standard is set which allows acceptance of results.

### 5.1 POSITIVE IDENTIFICATION

Positive ID is the identification of a dog via its microchip or a recognised tattoo scheme at the time of sample collection. This is essential to tie all results to the dog presented for DNA sample collection and examination.

All Endorsed or Certified or Recognised results must have the animal identified via positive ID. Positive ID MUST be cited using a microchip scanner to locate the microchip and record the number. The collector must acknowledge the number, record it and is required to sign off on the application form that they have identified the animal via positive ID.

Genetic testing is still accepted and can be carried out without any form of positive identification but animals will not be issued as Certified or Endorsed report.

The requirement for positive identification does not impose any additional costs to the breeder as it is compulsory in many states to microchip all animals prior to sale. Owners do have the option to have their puppy screened prior to microchipping to allow them to select puppies based on known genetic disease status or to confirm parentage. Results will be issued as Not Certified or Not Endorsed. Breeders will have the option to have these results Endorsed or Certified after microchipping but will need to re-submit a sample and will have extra costs associated.

## 5.2 INDEPENDENT COLLECTION

Independent collection is also a requirement of endorsed/certified/recognised genetic results. Samples must be collected independently for any such results. All vets are automatically accepted as independent collection officers. They require no further accreditation.

To assist breeders with sample collection Approved Collection Agents/Officers are part of the programme and are accepted as independent collectors. Agents will be nominated by member bodies or breed clubs and take part of an accreditation training scheme. Training will require all non-vets agents attend an accreditation course. These will be run locally and through online webinars. All attendees will be trained on establishing positive identification, collection/process, basic genetics and a demonstration on how to carry out a collection. Once completed participants will receive a Certificate of Accreditation and be issued with an ID number. This number will be used as the main identifier and must be cited when carrying out a collection. This number will also be used as a means of reporting any collection which do not follow approved collection processes.

DAN collection Kits will be made freely available to all collection officers and can also be ordered electronically. All collection officers MUST have access to a microchip reader for collections. Collection officers will receive regular updates via email including new disease releases, fact sheets and price changes. All Collection procedures will be made available electronically. Collection instructions are included with all collection kits as part of the DNA Collection Kit. Instructions are printed on all collection kits.

## 6. SAMPLE COLLECTION PROCESS

Samples for DNA extraction include buccal (cheek) swabs, and blood. Blood samples should be collected in EDTA tubes. Buccal swabs (nylon brushes) are the preferred method of sample collection for genetic testing.

Although buccal swab collection is a simple non-invasive collection procedure it is open to the likelihood of contamination if the procedure is not done correctly. Contamination from other sources is likely if the following procedure is not followed.

- Try not to feed the animal for 5 minutes prior to collection.
- Samples can be collected from animals of any age.
- Although human contamination does not affect the sample or the result, it is recommended to wear gloves when taking the sample. This is more necessary for vets who are exposed to animals on a more frequent basis thus making cross contamination more of a possibility.
- If collecting where positive ID is required you will need access to a microchip scanner to identify the animal's microchip number.

1. You need to collect 2 swab samples for each animal.
2. Prior to collection cite the animal's microchip/tattoo/ear brand number and record that number on the application form.
3. Insert the head of the swab into the cheek area of the animal.
4. To ensure sufficient capture of epithelial (cheek) cells from the animal pinch the cheek around the swab and gently swirl (twist) the swab around the pinched cheek.
5. Swirl for approximately 5 secs.
6. Allow the swab to air dry for approximately 3 minutes before placing back into its original sleeve.

***Collected samples can be stored at room temperature or 40°C indefinitely prior to postage.***

## 7. BENEFITS/REQUIREMENTS TO THE PEDIGREE DOG INDUSTRY

The value of any pedigree dog is that its ancestry (pedigree) is recorded and known. Databases of pedigree registrations are maintained by a central body of which they are appointed as the representative that recognises and ensure that pedigree is valid. The value of having a true and correct pedigree is the key requirement for any potential buyer. In many international registries it is compulsory to DNA profile all breeding stock to ensure integrity of the pedigree database. Based on this all VGA certified pedigree (pure breed) breeders are required to have all their breeding stock DNA profiled and where possible offspring parentage verified via DNA. All pedigree dog owners who take up DNA testing will automatically be VGA accredited and will not to bear any extra fees or costs to become a member. For full transparency, any VGA member consents to his breeding animals be used by any third party to verify parentage. VGA members will have the option of parentage confirmation being issued at the time of sale; potential buyers will also have access to verify any animal purchased by submitting a sample for DNA analysis for confirmation of parentage.

It is important that pedigree pet owners not only focus on genetic outcomes but still maintain a responsibility towards breeding temperamentally and physically sound pure bred animals.

Knowing ones pedigree provides the potential to remove faulty genes from the gene pool. Through rigorous DNA testing and the selection of appropriate breeding mates, diseases can effectively be wiped out. It also enables owners to predict the likely care needs of pedigree animals - owners of cross breeds do not necessarily have that information.

The VGA offers breeders the opportunity to promote their organisation and animals to better compete with other breeders such as unregistered puppy farms.

The VGA programme ensures that rewards are not only focused on results in the show ring, but also other key areas such as health and the human-animal bond.

### **In summary the key points of DNA testing are:**

#### **7.1 Pedigree Assurance**

- All pedigree animal owners must DNA profile of at least all breeding stock allowing for the option of having any offspring parentage verified by a third party
- Parentage confirmation is encouraged as part of the programme but is optional
- DNA profiling is a once off fee
- VGA will work with member bodies to provide information electronically to their registries

## 7.2 Hereditary Diseases

- Pedigree pet owners must screen their breed for any hereditary diseases relevant to their breed
- Only peer reviewed/published or patented disease tests will be accepted
- Results from any accredited laboratories will be accepted
- Results are reported as NORMAL, CARRIER or AFFECTED
- Any breed club or litter registration programmes are accepted and recognised under the VGA scheme
- VGA focuses on integrating pedigree assurance and potential prevention/elimination of hereditary diseases.
- VGA will work and recognise any AVA approved schemes
- VGA provides information on hereditary diseases by breed, together with fact sheets on each disease and statistical data.

## 8. OWNERSHIP OF RESULTS

Results are owned by the owner as identified on the application form. As part of the programme all veterinarians who take a sample can request a copy of the result(s). Members of a breed club or approved health scheme can have information electronically transferred to that approved scheme by signing their consent on the application form. Owners will be able to access and view all results via their own secure login and password.

**Please Note:** DNA profile information can be used and accessed by any individual who wishes to confirm parentage from the animal that has been profiled. No consent is required. Diseases information belongs to the owners and only they can request to have that information onto an open or closed register.

Vets will play a role in discussing impact of result with owner. If a vet has paid or been invoiced for the test then results will only be sent to the veterinarian. The application form allows for consent for a copy of results to be sent to the veterinarian.

When submitting a sample for DNA profiling the information obtained from the profile is used to verify the parentage of any animal no matter who the owner of the dam and sire is. Breeder who does not wish to have their animal's DNA profile accessed by other customers for parentage verification should not request a DNA profile.

**No results will be issued to the collection officer unless specified by the owner.**

Veterinarians can be issued with results if requested by the owner or when submitted directly as indicated on the application form.

## 9. BENEFITS TO PUPPY BUYERS

Ensuring a puppy's health is known to buyers is a key point when making a decision on whether it becomes part of your family and more importantly how it will fit in with your lifestyle.

The programme does not focus on ensuring only healthy genetically normal animals are available to the consumer, it simply makes it important that the animal's health status is made aware to the buyer prior to purchase. VGA serves as a starting point for puppy buyers and gives them an indication of any potential health issues they may face during the ownership of the animal.



VGA will focus on educating potential buyers, promoting the benefits of selecting a VGA certified animal. Purchasing animals that are properly identified, DNA health screened and vet checked.

## 10. PUPPY HEALTH SCREENING

Screening puppies for any hereditary diseases and carrying out a veterinarian health clinical exam is a key part of the programme. In some cases dog owners will need to DNA test puppies before registration or point of sale. Owners may wish to clarify the parentage and/or disease status of the puppy before it is micro chipped or registered. This will be most likely be in cases where the disease status may be severe for affected dogs and the breeder needs to make a decision on the puppies after clarification from DNA testing. It may also be for the breeder to be able to make a decision on which puppy to keep for breeding purposes based on normal/carrier/affected and the ability to place dogs on limited registers. Certain testing platforms allow for a complete health screen on any puppies whose pedigree (breed make up) is unknown. This allows the veterinarian/owner to ensure that any genetic diseases can be assessed when breed is unknown.

## 11. BENEFITS TO THE VET INDUSTRY

There are a number of approved AVA and breed clubs health schemes and specific requirements which make it compulsory for any litter registrations. VGA recognises and will integrate with any approved schemes and will support and recommend them. VGA also support veterinarians with diagnosis by providing free DNA health screening for any clinically diagnosed animals assisting veterinarians with genetically confirming diagnosis.

Many veterinarians are unaware of many genetic tests that are available and how the use of these tests can assist with screening and diagnosis. VGA will work on bringing together genetics to vet education programmes to help create awareness amongst veterinarians. VGA will also provide veterinarians with tools to assist breeders with breeding strategies to using carriers which is critical for breeding purposes.

With the number of available disease tests increasing dramatically, and test costs reducing, it is critical that veterinarians work closely with scientists and service providers to obtain up to date and relevant information on genetic tests available and more importantly the mode of inheritance/penetrance. Samples are required to assist with any research into diseases and these key samples can only be provided by a veterinarian working closely with their clients.

VGA will direct breeders and pet owners to veterinarians to carry out a routine health screen by completing a VGA Physical Examination form for dogs and cats (see attached).

VGA will offer the ability to identify unknown breeds via DNA if requested and cross reference disease data. This information will be made available to veterinarians and linked to relevant cross breeds identified.

It is important to understand that pedigrees (genetic diversity) for each country will be different and hence diseases which may be prevalent in one region may not be in another this is why it is important a unique Australian database is created. This can only be created with the assistance of breeders working with their veterinarians and referral practices to report and confirm the diagnosis of genetic disease. Universities and vet teaching organisations

working with scientists and research organisations to ensure all the relevant information and samples are captured. Samples together with relevant information will also be made available to research institutes and member bodies.

The Australian Veterinarian Association (AVA) has policies and guidelines surrounding genetic defects in domestic animals and can be viewed at [www.ava.com.au/policies](http://www.ava.com.au/policies). Taking a more proactive role in health awareness and potential implications needs to be the responsibility of the veterinarian at the time of vaccinations and routine checkups. Vets need to be active in collecting relevant data in breeds and disease detected providing clients with relevant statistical information on each disease associated with breed.

## 12. BENEFITS TO WELFARE GROUPS

The VGA will allow welfare groups to be seen to promote re-homing of animals that have been health screened, vet checked and microchipped in line with the program's protocols and public demand.

Prior to re-homing all welfare groups must de-sex and microchip. As discussed, the issue surrounding accurate breed identification and the implications of getting this incorrect do affect the re-homing and animal return rates. VGA encourages where possible breed identification be via DNA analysis. This is not a VGA requirement for welfare groups but should be encouraged in circumstances where re-homing or breed identification is required such as in the area of breed specific legislation.

## 13. ROLE OF PET SHOPS

Pet shops promote the sale of unknown pedigree (with no papers) animals to the public. VGA approval will ensure that advertised breeds are confirmed via DNA, screened for any genetic health diseases, vet checked and properly identified via microchip. The sale of animals by pet shops has been questioned mainly due to the origin of the animals they are seeling – e.g. puppy mills or puppy farms. In the majority of these places the animals born there will more than often have long term health and behavioural problems which is usually due to the environment they are brought up in. Although VGA will not deter this it will restrict and make a puppy mill or puppy farms more accountable and allow those who participate to demonstrate a general endeavour to breeding in a responsible and healthy manner. Pet shops should work to ensure only puppies with VGA Certification are promoted and sold in their establishments.

## 14. COST OF VGA

VGA will be available at no extra charge to member pedigree breeders. Member pedigree breeders must meet the requirements as set out in the document – DNA profile of all breeding stock, disease test for all relevant genetic diseases, microchipping of all animals and veterinary health check.

All VGA members will receive a Certificate of Membership. Any animal submitted and meets the requirements – Genetic Screening, Positive Identification and Vet Examination report – will be issue with results as VGA Approved.

Non pedigree members will pay a once off administration membership fee of \$25 and have their details listed on the site and reports issued with VGA certification.

## Responsibility and Vision

Our responsibility and vision as veterinarians is to make genetic information more accessible and affordable. The beneficiaries of this strategy are going to be healthy animals, clear of genetic disease.

[www.asaplab.com.au/dnatesting](http://www.asaplab.com.au/dnatesting)



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