

Complete Guide to Dog Breeding



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Important Disclaimer

The advice and suggestions in this manual are no more than the author's personal opinions as a qualified veterinarian and experienced dog breeder. They are informational only and not meant to be a substitute for veterinary attention for your dog nor for visits to your local veterinarian for diagnosis or treatment, and do not replace licensed, hands-on, professional, pet-specific, veterinary care.

The information presented here is based on the experience and knowledge of the author. However, neither the author nor Life Positive nor its affiliates takes any responsibility for, nor makes any warranty with respect to, results that may be obtained from the use of any of the information, procedures, recommendations or dosages presented in this manual.

Before any medical or treatment decisions are implemented an evaluation of your pet's medical situation should be performed by a trained professional in your area.

If you have any questions about the information contained in this manual, especially as to decisions you may wish to make concerning the health or well-being of your dog, please consult your local veterinarian before proceeding.

If your pet is seriously ill and especially if there is a potentially life-threatening emergency involving your pet, do not wait - take your dog immediately to a trained veterinarian or animal emergency center near you.



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The Aims of Better Dog Breeding

If you love dogs and are looking for a rewarding opportunity to make a healthy hobby income from your own beloved pets, then this ebook is for you. And if you follow the guidelines I will give you, you will be embarking on a path that not only brings extra money into your life, but also contributes to the joy of others, feels right and is fun.

Ethical

We are committed to encouraging strongly ethical dog breeding ventures. If you are not a genuine dog lover, then this book is definitely not for you! Breeding dogs without generous injections of love will only reap disaster in the longer term. If you are blessed with a love of dogs, this will shine through in the care you take of your breeders, the quality of your puppies, and the gratitude and joy they bring into the lives of your customers. Your happy customers will spread the word and bring more people hungry to buy puppies from you and only you!

I have found that it is not difficult to be an exceptional breeder. The little extra things you do out of your love will easily exceed your client's expectations, and have them raving about you to others. The pride you show in the way you breed your dogs will be reflected in the pride your customers feel to own one of your wonderful pups. I am honored to take you by the hand and walk you through what it means to be an ethical dog breeder, and hope you also reap the joy and profit I have done on this road.

What do I mean by ethical dog breeding? Ethical dog breeding is a natural outcome of both a love of dogs and of the people who buy from you, and encompasses:

- Raising your dogs in a happy environment - I object to keeping dogs like production animals in concrete and wire runs. My dogs are part of my family, and are raised in a family environment. To this end, I only keep four dogs - any more and it becomes difficult to give them the attention and love that they crave and need.

- Producing puppies that are sound and healthy - This starts with the dogs you select to breed from, and how you select them, and continues through the way you feed and care for them and their puppies.
- Producing a puppy that will be an excellent pet - A puppy raised in an unenlightened environment - be it 'puppy mill', kennel or backyard - does not get anywhere near sufficient handling by people to be a properly socialized little puppy by the time it goes to its new home. This is another benefit I proudly provide for my clients - because my dogs are raised as part of my family, in my home, my pups get to participate in family life. They are therefore properly socialized and perfectly prepared to be well adjusted members of the new families they are sold to.
- Doing your best to optimize your client's ownership experience - Just because you know how to raise a dog properly, doesn't mean all your clients will know. If you have been lucky enough to grow up with dogs, then knowing what to do just comes naturally. But many people never had that advantage. If left to their own devices without any help from you, such clients may make a lot of mistakes in the raising of their puppy resulting in an unhappy puppy and an unhappy client.
- As an ethical dog breeder you, like me, will provide your clients with guidance designed to optimize their dog owning experience. I produce a "**How to Raise a Puppy**" Guide Book on Dog Ownership especially for my clients and give it to them as soon as they have put a deposit on a puppy. That Guide Book is provided as a bonus with this "**Complete Guide to Dog Breeding**" dog breeder's kit.

Profitable

We know from experience: you can enjoy your dogs and make a great hobby income too! Everything published in this manual is there to ensure that you avoid all the expensive and heartbreaking pitfalls that trap the less informed.

Good puppy production is only possible in the long term by fantastic care of your animals, pride in your puppy product, and providing genuine value to your clients. However, even

the most dotting and responsible would-be breeders can end up out-of-pocket if they don't have the right know-how.

Most breeders jealously guard the secrets they use to ensure their dogs produce saleable puppies reliably, year in a year out. Without knowledge of these secrets you can easily make mistakes that can cost you in veterinary bills, missed matings, dead puppies or even dead breeding dogs. Don't worry though! I am happy to share with you all I know about running a dog breeding venture that is an asset rather than a liability in your life.

Fun

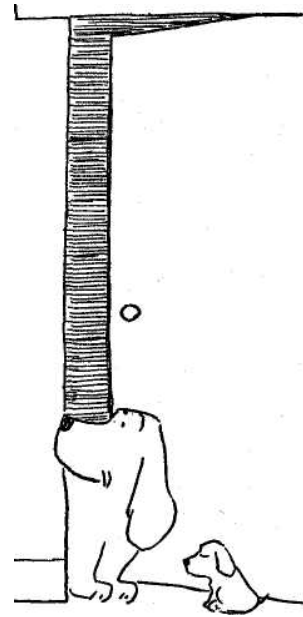
Like dog ownership, dog breeding should be fun! It only loses its sparkle when things go wrong, and things are likely to go wrong when mistakes are made. I hope the information I share with you will enable you to avoid all the dreaded and costly (and sometimes downright devastating) mistakes that I know, from my own experience, can happen to the unaware.

I am glad that this manual will help make your dog breeding venture glide smoothly along, and allow you to extract from it and share with your customers the true joy and fun breeding puppies can bring!

Do I have what it takes to be a successful dog breeder?

Your home environment

It is probably possible to raise dogs successfully in a small apartment if you do it right, choose a suitably small breed and undertake to have only a small number of breeders, but it certainly isn't the ideal situation. Puppies are messy and need space to exercise, earth to dig, and grass to play in. Unlike adult dogs that can be taken out for regular exercise, nursing pups are best left safely at home away from stray diseases and other dangers. Even if it was safe, an outing with a litter sounds like a recipe for disaster! So I can't recommend running a breeding operation unless you have access to a yard with grass and sunshine for puppies and dogs to enjoy.



So, assuming you do have access to a yard, it of course must be safely and securely fenced against escape of your dogs or invasion by outside dogs. The prospect of theft is also very real. It is wise to keep your dogs and puppies where they are not visible from the street where you live, and have access points locked against entry.

The other consideration is the size of the space you have available. It will dictate the size of the breed you choose and the number of breeding dogs you keep. You need to become familiar with the local government by-laws setting the maximum number of dogs you are legally allowed to keep in your municipality. And if you have only a small yard then you should only consider keeping small dogs!

Your space should include provision for facilities to separate your dogs at critical times in their breeding cycle. If you decide to keep both male and female breeding dogs, you will need to at times prevent them from mating, as your bitches will need to take a break from pregnancy now and then (more on this later). Also, it is wise to separate nursing bitches and their puppies from all other dogs. I found this out the hard way a few years back when one of my bitches killed a whole litter of my other bitch's puppies. In (at the time) 15 years

of breeding I had never had this experience, as my bitches happily accepted each other's puppies and even suckled each other's at times. I now know that this is a common occurrence - even mild mannered bitches may become jealous enough to destroy the progeny of 'rivals'. So be forewarned! (Wish someone had warned me!).

Your home environment needs to be warm in winter and cool in summer. This is especially true of the nursing environment. Newborn puppies, in particular, are easily lost to excessive heat or cold.

The ideal home environment is also one where the puppies have direct access to a grassed, sand or garden area right from an early age. With such access they automatically learn to toilet onto grass, sand or gardens. If they are raised on concrete or paving then they find it harder to successfully toilet train when they go to their new homes.

Your time availability

Do you have the time to breed dogs? Dog breeding is ideally for stay-at-home people. It takes very little time to feed, water and supervise your dogs. However, to be healthy, dogs require daily exercise, without which they may lose their fitness and natural vigor, inviting subsequent problems with health, birthing and breeding performance. So do not even think of breeding if you don't intend to exercise your dogs daily, without fail.

Take them out every day for a brisk 30 minute, or more relaxed 45 minute walk. If you only have three to four dogs, like me, then it's easy to do, which is yet another good reason to keep your breeding operations small and manageable. The daily walking will be wonderful for both you and them - you'll never need to buy another gym membership again! Train and rear them properly and you will safely be able to let them loose in appropriate settings to tear around and enjoy a little freedom.

Are you planning trips away? Do you love to travel? If so, then dog breeding is not for you. Having dogs is like having children. You simply can't take off and leave them! If you only kept one dog as a pet, then you perhaps could occasionally board it at kennels or with friends, but breeding dogs are another matter. When breeding dogs you have to consider when they are next on heat so that you can either successfully manage or avoid the next

mating. You also must make sure you will be home fulltime, settled and available to turn on the care and attention before, during and after whelping each and every time you have puppies to care for.

Your love of dogs

I've said it before, but it bears repeating. Don't become a dog breeder unless you are a genuine dog lover, and enjoy dogs. Otherwise you will come to resent the care required to keep them happy and produce great puppies for grateful clients. Your dog breeding hobby will only prosper if you love mutts!

How strong are you?

We've already mentioned that dogs need to be exercised, and if you are a breeder, you will need to exercise several every day. Are you strong and healthy enough to accomplish this? Your strength will also dictate the breed of dog you choose to work with. If you are healthy enough to go for a brisk walk every day, that's good enough, so long as your physical capacities match the size, strength and temperament of your special breed. Don't go for Alaskan Malamutes if you suffer from a muscle wasting illness! Be sensible.

Can you say goodbye?

As a dog lover, you relish the job of looking after your dogs, and the fun of regularly producing whole litters of gorgeous puppies to play with. But dog breeding comes at a price that is far too high for the more emotional dog lover. The price is being able to say goodbye! Like it or not, you will get attached to your puppies, and you have to be able to let them go, litter after litter.

Harder still, if you intend your dog breeding venture to be more than a short-term project, you will sooner or later have to face the prospect of replacing your breeding stock. While a male dog can successfully stud into old age as long as he is fit and healthy, around half of all bitches no longer cycle or reproduce by the time they are seven years of age, and for their own comfort should be retired around 5 or 6 years old. Is that when you plan to stop breeding? You may feel obliged to keep every breeding dog until it dies of natural causes, or pressured to do so by the other members of your household. After all, every breeding

dog will be a part of your family. If so, then go into the business fully anticipating that its viability is going to be relatively short-lived.

If not, then you have to set out from the start knowing that your bitches will need to be sterilized (to avoid possible subsequent health problems) and re-homed when their breeding days come to an end. I sell them for around half what a puppy commands, sell locally, and insist on visiting rights! And I regularly have enquiries from loving people, who do not want the bother of a puppy, looking for older ex-stud dogs. Such people also feel secure that they can be sure of the temperament of the dog they acquire - that it is great with kids, for example, or a good watch dog - something you take pot luck on when you buy a puppy.

Are you up to it? Do you have the emotional fortitude to say goodbye? My family has become used to this dilemma. We all love puppies. If we couldn't let them go, then we couldn't breed dogs, so we eventually wouldn't have puppies to love.

It's as simple as that!

Managing Your Business

Licensing Issues

The first thing you must determine before embarking on your dog breeding enterprise is whether you are allowed to have dogs on your property and if so, how many. Such considerations will dictate the number of dogs you can keep (if any!). You must register each dog with your local council (where I live it is mandatory after a pup is 12 weeks of age) and it will be given a tag to wear at all times, and required to also have a collar and medallion furnished with your contact details. The fee for registration of spayed or castrated dogs is low compared to that for breeding dogs.

If you are contemplating going down the track of being a large (commercial) breeder, you will need permission from your local authority. Local authorities normally restrict large scale dog operations to suitably zoned locations such as ascribed kennel areas or rural-zoned properties.

Taxation

If your operations amount to no more than the breeding of an allowable number of family pets from a normal household then they may be considered by your nation's taxation system as a hobby. In Australia, at least, the proceeds from a hobby are not considered as taxable income. They are thus tax-free! You will need to check the taxation implications in your country to see if they are similar.

For larger, more commercial dog breeding that is clearly bigger than a hobby, you may be subject to tax on any profits, and will need to keep appropriate records too of all expenses and income - yet another reason to stick to a small "backyard" enterprise!

Choosing a Business / Kennel Name

Your national canine authority (or specialized breed group such as rare breed organizations) exclusively maintains registration of the pedigree and show achievements of all qualified dogs and registered dog breeders in their area of jurisdiction (e.g. a particular state).

If you are breeding registered, purebred dogs then you must be a breeder registered with your presiding kennel/canine authority to be entitled to, in turn, register any pups that issue from your dogs. Being a registered breeder also gives you credibility in the eyes of your clients, and instills their confidence and trust in buying from you. Registration is renewed (and paid) annually, but is a small cost compared to your potential returns from dog breeding.

As a registered breeder, you will need to choose a 'kennel name' or 'stud prefix' for your stud. This name will appear as the first name of every registered puppy that you produce from bitches either owned or leased by you. Check out the names of other dog studs for inspiration.

Registering Your Pups

In order to qualify for registration, a dog must have parents who are both registered with the appropriate canine/kennel authority(s) in your country/for your breed. There is usually a time limit on registration such that dogs over a certain age are no longer eligible. When you apply to register a pup you will also have to register the litter (and pay a fee) and (pay another fee to) transfer the ownership of the pup to its new owner. You get to submit a few alternative registered names for the pup. The approved name will appear after your kennel prefix on its Certificate of Registration and Pedigree.

In Australia there are two kinds of dog registration available: Limited Registration and Main Registration.

Limited registration is a "pet only" registration. Dogs on the Limited Register are acknowledged officially as purebreds and can compete in agility, obedience and other

competitions, but not allowed to be entered in conformation dog shows, nor are their progeny eligible for registration.

The Main Register is the “full” registration. You are entitled to breed, show and register the puppies of your Main Register dog.

Insurance Issues

Your dogs are valuable and you may choose to insure them against accidental death, theft or other loss. It is also possible to get health insurance for pets.

Microchipping

A sensible precaution against loss of your dogs is to have them microchipped. Your dog’s microchip number is registered on a national database, and the system provides secure identification of your dog for life. Council animal pounds and veterinary clinics are normally equipped with microchip scanners with which they can quickly contact the registered owner if your dog finds its way to one of those facilities. Microchipping your dogs may also qualify you for cheaper insurance.

Keeping Useful Records

To optimize the efficiency of your breeding enterprise it is very important to keep good records of everything that goes on. It need not be elaborate to be highly effective. I use:

- A calendar with day boxes big enough to write in to record day to day breeding observations. Each dog is an individual when it comes to breeding. You can learn a lot as well as profit from being observant and keeping a record of what you notice. On the calendar I note for each bitch:
 - First day bleeding noticed (H1 for ‘heat 1’)
 - Nature of the vaginal discharge (e.g. copious and bloody, or straw colored and slightly bloody).
 - State of ovulation indicators (e.g. serum progesterone data, vaginal smear results, scoped appearance of cervix, etc).

- Behavior (e.g. boy keen, bitch mounting other bitches/being mounted by other bitches, bitch flagging her tail, etc).
 - Mating dates and details (e.g. natural mating, slipped mating, AI, etc).
 - Date pups due.
 - Date pups born (count back 63 days to pinpoint when ovulation must have occurred - your excellent records will allow you to know what to look out for in that bitch next time!).
-
- A receipt book recording details of selling transactions. I fill out a receipt whenever I accept either a deposit or final payment on a puppy. On it I write the usual information:
 - Date of transaction.
 - Being for: e.g. a purebred male pepper and salt miniature schnauzer puppy. Make sure you specify if it is non-registered, limited register or main register!
 - Name, address and telephone number of owner
 - Amount paid, and amount outstanding (if any)
 - Date and time the owners plan to pick up the pup.
 - My contact details.
 - You may also like to print your guarantee of the pup's soundness on your receipts. I print mine in the Puppy Manual I email or hand to each client and sign it.
-
- Stud Records book - The details above are summarized and backed up in a stud book in which I record
 - All mating
 - Litters born - number born (alive and dead), and their sex, color, and weight.
 - For each pup - Its name (and if registered or not), selling price and owner details. Keeping owner details may prove invaluable to you later if you lose a stud dog and want to gain access to its bloodline through its progeny.
-
- Client Waiting list - At the back of the Stud Records book I also maintain a Client Waiting List, which includes details of:
 - Date of enquiry
 - Contact details of client

- How soon they want a pup
- The kind of pup they want (color, sex, breed).

Income and expenses

If you have a large, clearly commercial (rather than hobby scale) dog breeding venture in mind, then you must keep full records of all transactions of the business for taxation purposes. This would include, of course, all income derived from sales of pups or stud fees, as well as receipts for all expenses including veterinary fees and drugs, food, grooming equipment, kennels, fencing, insurance, registration and licensing fees, advertising costs etc.

Understanding Genetics –

Laws of Inheritance

All the physical characteristics and traits (the phenotype) that are evident in any living thing are a result of its genes, inherited equally from each of its parents. Genes are strung together like a string of beads on chromosomes. The complete set of chromosomes contains the genes that make up an individual's genetic inheritance, which is like a program that determines the individual's appearance and behavior.

Each of a dog's cells (except for sex cells) contains 39 pairs of chromosomes in its nucleus, one copy inherited from the father and one from the mother. When sex cells are created the 39 pairs of chromosomes of the original cell are separated into single strands through a process known as "meiosis," so that sex cells (sperm and eggs) have only one copy of each of the 39 chromosomes. At fertilization, a sperm and an egg join to form an embryo in which the chromosomes inherited from the two parents are again joined into pairs.

The genes that are paired along the chromosomes determine the traits of the offspring. An individual may inherit genes that are unlike in the pairs, in which case one will usually dominate the other, or the genes may be identical and code for the same trait, which will thus be expressed in the offspring unopposed.

When both copies are the same the individual is said to be homozygous for the particular trait. For example, consider coat color in Labradors. The gene "B" codes for black coat color, the gene "b" codes for a brown coat, and "B" is dominant over "b". As such, a brown puppy will result only if it inherits two copies of the "b" gene, one copy from each of the parent's chromosomes, that is, if it is "homozygous bb." Conversely, if the chromosome inherited from the one parent carries the "B" gene (for "black"), and the chromosome inherited from the other parent carries the "b" gene, the puppy is said to be "heterozygous" Bb, and its coat will be as black as its black parent's because the "B" gene (with a capital letter) is dominant with respect to the "b" gene which is said to be recessive.

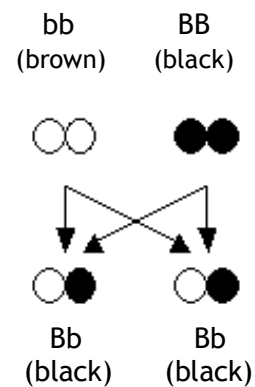
It is easy to deduce the genotype of a brown dog which can only be b/b, since the recessive trait of brown coat color can be expressed only in a homozygous individual. For recessive

traits, the phenotype is therefore a true reflection of the genotype. However, the "black coat" phenotype could correspond either to the Bb (heterozygous) genotype or the BB (homozygous) genotype. In the first case, the dog is black but carries a recessive "brown" gene that can be transmitted to its offspring. In the second case, the black homozygous parent can transmit only black genes to its offspring which will thus all be black regardless of the gene for coat color contributed by the other parent. A dog's genetic inheritance is therefore not fully revealed by its appearance.

To help you understand the logic of genetics consider these examples regarding coat color, where black (B) is dominant over brown (b).

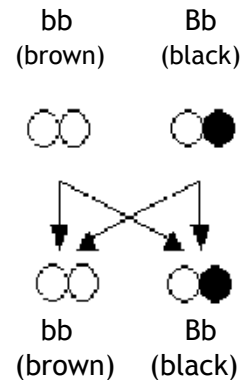
In the first example, a homozygous black dog is mated to a homozygous brown bitch. Each parent can pass on either one (and one only) of its pair of genes for coat color to a particular puppy. The dog can pass on B or B. The bitch can pass on b or b. Recombining these possibilities in the puppies results in all the pups being Bb. Since B (black) is dominant and b (brown) is recessive, all the puppies will be as black as their father.

Black Father (BB)	B	B
Brown Mother (bb)		
b	Bb (black)	Bb (black)
b	Bb (black)	Bb (black)



In the next example, a black dog is again mated to a brown bitch, but in this case, the black dog is heterozygous - its genetic makeup being Bb. So the dog can pass on either the B gene or the b gene to its offspring. As in the previous example, being brown the bitch can only pass on the b gene, as she is homozygous (bb) for brown, the recessive trait. So the pups have an equal chance of inheriting either the B or b from dad, and all will get the b from mum. They will therefore have a 50% chance of being Bb (black) and a 50% chance of being bb (brown). So half the pups of this mating will be brown, and half will be black.

Black Father (Bb)	B	b
Brown Mother (bb)		
b	Bb (black)	bb (brown)
b	Bb (black)	bb (brown)



So, could two black dogs produce a brown puppy? The answer is yes, if both parents are heterozygous black! By the laws of genetics, one in four pups are likely to be brown in such a mating.

Black Father (Bb)	B	b
Black Mother (Bb)		
B	BB (black)	Bb (black)
b	Bb (black)	bb (brown)

Unless you go to the expense of genetic typing, the only way to tell if a dog is homozygous or heterozygous for a dominant trait (like black coat color) is to breed it and take note of the phenotype (coat color) of the offspring. If a black stud dog's offspring are always black when he is mated with a brown bitch (who must be bb), it is highly probable that the stud is homozygous BB. In this case, all the offspring will be Bb and therefore black. However, if the stud is Bb (heterozygous black), he has a 50% chance of producing brown puppies when mated with the same bitch, so one would expect to find brown puppies among his offspring.

Once you know whether a feature or genetic defect is dominant or recessive, you can put chance on your side by planning your selective breeding accordingly. If you always want brown puppies, for example, always use brown sires and dams, but if you consider brown coat color to be a fault, select black breeding dogs and bitches that have no brown dogs in their ancestry.

Genetic Diseases

Because of the high degree of inbreeding inherent in many purebred dog lines, a wide range of genetic defects are over-represented in such dogs, compared to mixed breed mongrels. *The overwhelming majority of these defects are recessively inherited.* It is absolutely essential to do a little research on the breeds you are considering working with to ascertain the most common issues in that breed - every breed will have something lurking in the genetic pool. However, some are worse afflicted than others, so do your homework first! Some of these inherited defects will be lethal before the age of breeding (e.g. portavalen liver shunt) but many only manifest as problems in adult or older dogs.

Normally, problems only arise in offspring when two dogs that both happen to carry the same genetic defect are mated together. By the simple laws of genetics (presented in the previous section) the offspring of such a mating where neither parent actually expresses the fault (i.e. they are heterozygous for it) have a 25% chance of being homozygous for it - inheriting a pair of the "bad" recessive genes, one from each parent - and therefore suffering from the defect. If one parent actually expresses the fault (e.g. hip dysplasia, heart problems, cataracts) then the chance of having similarly affected puppies rises to 50%. If both parents suffer from the fault (and are therefore genetically homozygous for it), then 100% of the puppies will be affected.

The chance of two (e.g. parent) dogs carrying the same genetic defect is very much higher if they are closely related to each other than if they are not. Particular ancestral lines within a breed drawn from a limited genetic pool of dogs (as all purebreds are) will have their own particular genetic defects. This risk is inherent in purebred dogs but also naturally exacerbated over a few generations by breeders limiting their choice of stud dogs and/or mating related animals together. Many breeders seem oblivious to the dangers of this practice and even aggressively defend it. Motivated by trying to produce the perfect dog that conforms exactly to the associated breed standards, breeders habitually deliberately breed outstanding show animals back to their close relatives in order to both stabilize and stamp their line with its special characteristics. They call this practice line breeding, but it is really inbreeding.

Inbreeding/line breeding is dangerous and risky, and has no place in a dog breeding enterprise geared towards producing viable, vigorous puppies destined to become people's pets from healthy, fertile, trouble-free breeding dogs. As four geneticists recently co-wrote in [an article for The Veterinary Journal](#):

"...minimising the relationship between parents is (also) the best available strategy for minimising the chance of breeding offspring with inherited disorders: 'Inevitably, the mating of relatives increases the risk that an offspring gets two copies of one of the harmful recessive alleles carried by the common ancestor, and, consequently, is affected by the disorder. The smaller the number of generations back to the common ancestor, the greater is the risk that a descendant will have a disorder carried by the common ancestor. This biological reality applies to any ancestor, irrespective of how successful and/or famous he/she was.'

Further, they stated that every geneticist of whom they were aware shared the view that the matings of dogs and indeed all domestic animals should be arranged so as to minimize the level of inbreeding in the offspring.

Why? Well, the first thing to suffer in any animal with closely related parentage is what is called in genetics "vigor". Vigor refers to the fecundity (fertility), health and life expectancy of the animal. Inbred animals are more prone to poor reproductive performance, have smaller litters and are simply not as robust and long-lived as out-bred animals. When you cross totally unrelated individuals, on the other hand, the progeny are imparted with what is called "hybrid vigor", and will show high reproductive performance, strength, resistance to illness, and overall health and vitality. In accord with the laws of genetics, the progeny have a very low chance of being homozygous for any deleterious traits, and thus tend to exhibit the strengths of both parents. This principle is widely used in livestock where the progeny are bred for meat production under tough conditions - in cattle, for example, Asian breed bulls (eg the hump-backed Brahman) will be mated over a very distantly related breed such as British breed cows (eg Angus) to produce a tough "Brangus" hybrid that will do well under a range of environments.

Every week I hear of a purebred dog suffering a life cut short by genetic illness. There is no way a breeder can breed out all hidden "bad genes" at the moment based on genetic testing

as the number of genetic tests available at the moment is still very limited. Even so, line-breeding is often hotly defended by breeders and justified by the argument that they've done all the tests. Unfortunately most of the "best" breeders inbreed regularly (they call it line breeding) without regard to the damage they are potentially doing to their puppies' future health. Inbreeding increases the chance a puppy will inherit a lot of bad genes, or a lot of good genes... like Russian Roulette. For show breeders, it's all about winning at shows and "improving the breed" but their rejects end up as people's pets :(

Once you have established a connection with a breeder you can work with, ask for their advice about every aspect of breeding your chosen type, including where you might source dogs suitable to mate with their stock. You will find that many breeders will malign the stock of other breeders. There is a lot of jealousy between breeders, especially those who show their animals and compete with each other.

Some will readily tell you about the congenital defects lurking in the lines of their competitors' dogs. Truth be told, all pedigree breeds, simply because they are pedigree (and therefore have a limited genetic pool), will have some disease or other in their lines. It goes with the territory! Do your research and find out the most common problems in the dog breed you fancy. You can look these up on the website of the Orthopedic Foundation for animals, www.offa.org. For some genetic disorders, testing of the parent stock is a good screen for possible problems in their progeny (e.g. hip dysplasia). For many others, however, it is not.

Given the rules of inheritance, just because a dog is not affected by a particular disorder, doesn't mean that its progeny won't be. The most effective way to reduce the risk is to stay as far away from inbreeding as you can, since when dogs carrying the same genetic weakness (highly likely in closely related animals) are mated together, the chance that they will have offspring that actually expresses and therefore suffers from the weakness is very high. Aside from the suffering such disorders wrought on dogs and their owner, you don't want people coming back to you for a refund because the pup you sold them turned out to be defective, do you? And a carefully built reputation can be dashed instantly by such an occurrence!

Line breeding does produce some “outstanding” show animals, but just as many defective “duds” not suited to any purpose, least of all as innocent people’s beloved pets. Line breeding is only appropriate if coupled with heavy selection pressure (culling) and under very limited circumstances. In production animals such as livestock only a carefully selected few progeny of such matings are retained - the rest are culled, and for good reason.

The problem of inbreeding also commonly occurs within a specific geographic area where the number of purebred dogs is very limited. Sometimes the number of registered animals of certain breeds within particular countries is so low that it is almost impossible for breeders to avoid mating close relatives.

Another common scenario is what is termed “popular sire syndrome”. This may occur if a breeder imports an outstandingly successful show dog that is then made available for use by other breeders. With artificial insemination and semen storage technology, such sires can father a very large number of litters, and potentially make a significant impact on the gene pool, particularly if it is small to begin with. The implications are that:

- It may be soon become difficult to source dogs that are unrelated to this super-stud.
- The super-stud or its progeny may go on to manifest a genetic problem after it has already left a major impact on the gene pool.

Within a particular family line many individuals will be extremely likely to harbor the same recessive defect. So it is most important to realize that the chances of both parents carrying the same genetic fault increases dramatically when closely related dogs are bred together. The moral of the story for you is to:

- Find out the problems commonly inherent in your breed and whether it is possible to screen puppies or their parents for the disorder before you buy.
- Choose your breeders from lines that are as unrelated as possible. This may require sourcing your females, for example, locally, and selecting a male from a distant location such as interstate or even overseas.

- Choose breeding stock that is as outbred as possible (the same dog does not appear more than once in its pedigree). Inbred dogs not only have a high chance of carrying defects, but also suffer from the classic genetic phenomenon of “inbreeding depression”.

“Inbreeding depression” refers to an overall deterioration in health, longevity, vitality and fecundity (i.e fertility) that is proportional to the degree of inbreeding of the animal. Conversely, when animals from totally unrelated genetic pools are mated together, the progeny enjoy “hybrid vigor” - they are healthier, live longer and are more fertile. This is one reason why mongrels are generally more vigorous and healthy, breed easily, and have less need of veterinarians than purebreds.

There are a range of inherited genetic disorders common to particular dog breeds that you should consider. However, this is just an overview. I urge you to do some in-depth study yourself on any breeds you are considering and ascertain their specific issues so that you are well informed and can screen prospective breeding dogs and breeders accordingly.

Hip and Elbow Dysplasia

Hip and elbow disease can cause both pain and disability when the dog becomes lame. Hip dysplasia refers to abnormal growth or deformed structure, leading to malformation of the hip joint. Clinically affected dogs suffer from joint looseness, excessive joint wear and tear, and inflammation, leading to painful arthritis. As hip dysplasia is primarily a bone growth disorder, it is most prevalent in large and fast-growing dogs.

Hip dysplasia usually develops in younger dogs, although some dogs are not symptomatic until they are fully mature, or even seniors. It is a painful, crippling disease that causes a dog’s hips to weaken and degenerate. Because of their greater size, hip dysplasia is more common in males than females and some breeds are more prone to the disease than others.

As the problem is primarily genetic in nature, voluntary testing schemes run by the Kennel Club and many other leading canine organizations enable breeders to have their dogs’ hips X-rayed and scored for hip and elbow dysplasia, so that they can avoid breeding from unhealthy dogs. Hip registration certification, such as offered by the Orthopedic Foundation of America (OFA), is only possible upon examination of radiographs (x-rays) taken after the

dog is two years old. Dogs less than two years of age can have preliminary x-rays to establish the absence of hip dysplasia, but cannot be certified free until they reach two years of age.

Hip scores range from 0 (perfect hips) to 106. A total score of 20 indicates a 'mild degree of hip dysplasia' and 64 would indicate a 'gross degree of hip dysplasia.' While there is usually a wide range of scores within a particular breed, some degree of hip dysplasia is evident in 21% of breeds tested by such schemes, meaning a 'breed mean score' of 20 or more. These breeds include:

- Labrador Retriever
- Golden Retriever
- German Shepherd
- Beagle
- Pug
- Pembroke Corgi
- Sussex Spaniel
- Bulldog.

Breeds that are known to have a higher incidence of elbow dysplasia include:

- Basset Hounds
- Bernese Mountain Dogs
- English Mastiffs
- German Shepherds
- Golden Retrievers
- Great Danes
- Irish Wolfhounds
- Labrador Retrievers
- Newfoundlands
- Rottweilers

The sensible approach for those of you contemplating such breeds is to ensure that you select stock whose parents have been shown by the appropriate scoring examinations to have healthy hip and elbow joints. Look for pups that have parents with "excellent" ratings, and you will be well on your way to avoiding problems.

- **Heart Disease** - Some breeds are highly predisposed to developing life-threatening heart problems including dilated cardiomyopathy (particularly the Dobermann and Boxer), coronary artery vasculitis (especially Beagles), and aortic stenosis (Boxer, Bulldog, Golden Retriever and Rottweiler).
- **Eye Problems** - About 30% of all breeds are prone to a range of inherited eye or eyelid conditions, some painful or leading to partial or total blindness. These include cataracts, glaucoma, and retinal defects including retinal detachment and progressive retinal atrophy, as well as eyelid and eyelash conditions that can cause

inflammation and pain. Eye Schemes exists to screen dogs for specific eye abnormalities and diseases that are either known or suspected to be inherited in breeds.

- Glaucoma - which is associated with an increase in pressure inside the eye - results in progressive loss of vision. Affected breeds include:
 - Basset Hound
 - Cocker Spaniel
 - Welsh Springer Spaniel
 - Flat-coated retriever
 - Siberian Husky

- Progressive Retinal Atrophy (PRA), which causes blindness, is prevalent in:
 - Rough and the Smooth Collie
 - Border Collie
 - Miniature Short-Haired Dachshund
 - Irish Setter
 - Golden Retriever
 - Labrador Retriever
 - Shetland Sheepdog
 - American Cocker Spaniel
 - Springer Spaniel
 - Chesapeake Bay Retriever
 - Toy and Miniature Poodle
 - Norwegian Elkhound
 - Samoyed
 - Miniature Schnauzer
 - Welsh Corgi
 - Saluki

In all breeds studied to date, PRA is believed to be a three-gene recessively inherited trait, so for an animal to develop PRA both parents have to carry the recessive PRA gene. Thus many dogs with normal vision and no signs of PRA may be carriers. Night blindness is an early indicator of the disease which is not painful. Most affected (blind) dogs can function well in a familiar environment. PRA can be detected by an electroretinogram before any blindness becomes apparent. Though it may develop much earlier in some, most affected breeds don't show ophthalmoscopic lesions until they are four to seven years of age.

- Some breeds may also have a high inherited risk of developing cataracts. However, it is quite normal for older dogs (10 years or more) to develop "senile cataracts" due to their age - much the same as occurs in humans. Inherited cataracts usually develop in both eyes so if a dog only has one cataract it is more likely to be due to trauma (injury) than inheritance.

What is the right breed for you?

Breeds and Costs

When it comes to profitable and trouble-free dog breeding, all breeds may at first glance appear to be equal. But the truth reveals that some are definitely more equal than others!

In its most recent “Annual Cost of a Dog Report”, pet insurance company Churchill has compiled a cost comparison across several popular breeds. Churchill’s Report takes into account the costs of feeding, grooming and caring according to the annual number of vet visits and long term assessments of conditions and ailments they may face during their lifetime, as summarized in the table below:

POPULAR BREEDS	COSTS (US\$)				
	Life Expectancy (years)	Food	Essential Vet Costs	Other treatment costs	Total/year US\$
Great Dane	10	1354	589	2740	4683
Bull Dog	8	785	589	1743	3117
Blood Hound	9	1038	589	1198	2825
Rottweiler	12	1038	589	914	2541
English Setter	10	883	589	914	2386
Boxer	12	779	589	844	2212
Springer Spaniel	12	779	589	811	2179
Basset Hound	12	623	589	914	2126
Labrador Retriever	13	783	589	399	1771
Jack Russell	12	415	589	599	1603
Poodle Crossbreed	16	415	589	399	1403
Mongrel	16	572	589	200	1361

So, why the big difference between breeds? Well, size of course will be a big determinant of the cost of feeding. But even more interesting is the fact that some breeds are more prone to health problems, leading to greater expense for veterinary care. Mongrels and crossbreeds, with their “hybrid vigor”, come out on top as trouble-free, lowest cost pets.

Longevity is a good determinant of overall health and vigor and mongrels and the poodle crosses come out on top here too. That’s because they have the advantage of hybrid vigor. So, apart from the fact that purebred dogs are less vigorous because they don’t have this

advantage (being more inbred), there are big differences between breeds which we explore further in this section.

Breeds to avoid (no matter how cute)

Now, this may be a bit controversial, but you need to hear it. Many of the dog types that masquerade as breeds out there in the world are really deliberately propagated abnormalities! This may come as a bit of a shock, and I apologize if, in the next few paragraphs, I malign your favorite pooch. However, if you want to be a successful and ethical dog breeder you must use vigorous, viable breeding stock, and that means many breeds are simply out of bounds.

What am I saying here? Well, there are many health implications inherent in breeding genetically abnormal dog breeds that not only threaten the profitability of your venture, but are contrary to the welfare of the dogs and their owners. Breed-related diseases can be prevalent in pedigrees and may become a burden of worry and expense for dog owners and disability and suffering for the dogs. Breed-related problems arise from two main sources:

- Poor physical design
- Inherited genetic diseases (see previous section on Genetic Diseases)

Poor Physical Design

Let's start with squashed faced breeds often coupled with short, stumpy legs. They all arose from a congenital genetic abnormality known as brachiocephalic, where there is faulty development or nutrition of cartilage. In humans, the brachiocephalic mutation is recognized physically as dwarfism, where individuals are smaller than normal and whose parts (especially limbs) are disproportionate.

Over the centuries humans have deliberately developed dog breeds with distinct brachiocephalic traits, most notably the squashed-muzzle dog breeds. The brachiocephalic dog breeds include:

- Pug
- Basset hound
- Shih Tzu
- Boston Terrier
- British Bulldog
- Pekinese

- Pomeranian
- Dogue de Bordeaux
- Welsh Corgi

If you insist on perpetuating such breeds, be warned that you will be perpetuating the risk of associated health issues and risks, of which there are a multitude. Let's look at a few:

- **Poor bite:** Dogs with abnormally short noses still have to fit their genetic allotment of teeth in somewhere, and the result is a faulty 'bite' where the bottom and top jaws of teeth don't scissor together neatly. Why is that a problem? Well, it predisposes the dog to tooth and gum problems. It also commits the poor dog to a lifetime of poorly chewed food, causing mal-digestion leading and the inability to extract the full compliment of nutrients from food, causing unavoidably suboptimal nutrition and health. You can bypass bad teeth with a soft diet, but then the dog doesn't get to chew, fails to generate a lot of saliva, misses out on the salivary digestive enzymes, and suffers bad breath, buildup of scale on the teeth, poor digestion and, you guessed it, suboptimal nutrition.
- **Protruding (bulging) eyes:** Bulging eyes, so common in brachiocephalic breeds with abnormally short faces, are more prone to damage. Apart from that, they also are more likely to be surrounded by loose eyelids with poorly placed eyelashes that may scrape and damage the cornea and require regular maintenance or expensive surgical correction.
- **Compressed naso-pharyngeal airways:** Squashy faced dogs have the airways of their head compressed into a smaller than optimal space. The short muzzle causes difficulty breathing, wheezing, and snorting as well as poor tolerance of heat and humidity requiring air conditioning during hot weather. It may also lead to air-gulping, which can give him gas. Every vet has learned to dread the brachiocephalic breeds because they are more likely than any other to die under anaesthesia due mainly to the normal sized soft palette that can so easily compromise the airway. They are also in mortal danger if they get stung on the nose or in the mouth by a bee or wasp - as the tissues of the airway swell and can completely block off any air movement to the lungs.

- Birthing problems: With their tapered muzzles, puppies from normally shaped breeds are well designed to make their exit from the birth canal, while their squashy faced cousins are not. All brachiocephalic dog breeds have reproductive anomalies associated with dystocia (difficult birth). Dystocia is especially problematic in the dwarf dog breeds. In some brachiocephalic breeds, such as Basset Hounds, and others with heavy shoulders as well, like the British Bulldog or the Dogue de Bordeaux (like the dog 'Hooch' in 'Turner and Hooch') it is almost impossible for the dogs to give birth normally, and routine breeder practice to deliver all litters by caesarian section. That's no way to run a profitable breeding business!

In other dog breeds, we see another version of faulty cartilage formation, the achondroplastic dwarf trait. These chondrodystrophoid breeds were developed to have disproportionately short and angulated legs, and although this is normal for the breed, it is basically the result of abnormal development of cartilage. Short limbs and tiny ears are a hallmark of this type of dwarfism.

Many breeds have this genetic characteristic - some coupled with brachiocephalic tendencies - including:

- Dachshund
- Pekingese
- French bulldog
- Beagle
- Basset Hound
- American Cocker spaniel
- Shih Tzu
- Lhasa Apso
- Boston Terrier
- British Bulldog
- Welsh Corgi
- Pekinese, and many, many more!

Nothing is properly placed as nature intended on such limbs, including enlarged leg joints, twisted legs and severe alignment deviations. Health issues directly related to the poor physical structure of these dogs include patella luxation (dislocating kneecap), hip dysplasia (degeneration or malformation of the hip joint), and Legg-Perthes (breakdown of the femoral head, the "ball" of the ball-and-socket hip joint). The dog is prone to lameness from a range of leg issues from the start.

These breeds are also more likely to suffer from spinal disk prolapse. The most common signs are neck pain, forelimb lameness or neurologic deficits, ranging from mild weakness of all four limbs to four limb paralysis. The intervertebral disks in these dogs gradually become

more like cartilage than fibrous tissue, increasing the risk of prolapse (extrusion) of the disk into the spinal cord, causing intense pain and often paralysis of the lower body below the injury depending on the site of the prolapse. And because the rest of the dog is often normal sized (e.g. Basset and Dachshund) this places an inordinate strain on the dog's back. Disk herniation in these dogs usually occurs at 3 to 6 years but can appear as young as 1 to 2 years of age.

With all of these (and other) health problems inherent in poorly designed dog breeds, you should avoid them like the plague if you don't want your dog breeding to become a very expensive and disappointing hobby!

Other common inbuilt "physical design" faults include:

- Excessively loose skin (such as in the Cocker Spaniel and Shar Pei, but also around the face of all squashy nosed breeds). Why can this cause problems? Well, the extra skin folds can retain and collect moisture and are an ideal breeding ground for bacteria and other disease agents. The result is a susceptibility to skin infections. These folds can also harbor grass-seeds and other foreign bodies.
- Pendulous ears (again, the Cocker and some other spaniels). To remain healthy, the ear canal must 'breathe' and get good exposure to fresh air. In pendulous eared dogs, access of air to the inside of the ear is severely compromised. What may result from the warm damp environment of a suffocated ear canal is chronic inflammation and infection of the ear, sometimes requiring surgical correction (an aural resection) to enlarge the opening to the ear canal and restore adequate ear circulation.
- Breeds with excessive fur growing inside the ears (such as poodles) can face similar issues unless the ears are regularly plucked clear.
- Breeds with domed, bulging foreheads such as the Chihuahua may be prone to headaches and resulting bad temperament, or central nervous system (brain) disorders as they age.

Dogs of abnormally extreme size and rapid growth, or smallness and fragility, have corresponding problems, for example with their hearts and bones.

- Large or giant breeds of dog are more likely to develop bone tumors, associated with rapid bone growth during early development and a possible genetic predisposition in large and giant breeds. While primary bone tumours are rare in dogs less than 15kg, they are common in breeds such as:
 - Irish Wolfhound
 - Rottweiler
 - Great Dane
 - St Bernard
- Exceedingly small dogs have their own problems. 'Teacup Dogs', specially bred from the runts of existing 'toy' breeds such as the Chihuahua or Yorkshire Terrier for the celebrity fashion market, are too small for their teeth, stomachs or bones to grow and function properly. Many also have difficulty in maintaining a normal body temperature and can die from hypothermia (cold) or heat.

Going back to our starting principle of running an ethical business, I also think it is unfair to hoist these breeds on unsuspecting clients, knowing - as you do now - that they are likely to be in for a lifetime of veterinary issues and the associated suffering of both dog and owners. And as a breeder, this is the last thing you want to face yourself! Many of these 'physically unsound' breeds are very popular, and you may be sorely tempted to say 'what the hell' and go with them. Though you may be lucky enough to breed them profitably without major problems, you are really tempting expensive misfortune. Anyhow, don't say I didn't warn you!

So start right by going for breeds that are mechanically sound!

- Look for breeds with a well proportioned, strong, athletic body.
- Ensure your breeding stock derive from appropriately screened parents, according to the diseases that may be inherent in the breed you decide to specialize in.

You wouldn't buy a car with wonky wheels or a house with crooked walls, would you!

Grooming

Also consider the grooming costs associated with your breed. Breeds that have long coats or standards that dictate regular grooming will cost you in time, veterinary bills and money for grooming equipment. They will also incur similar costs for their prospective owners, which may be a put-off and lose you otherwise easy sales. My schnauzers need to be clipped all over every 6 to 8 weeks, and more often around the bottom to avoid soiling and 'dags'.

Since there is a certain 'snob value' associated with the breed, the type of people they attract as owners are usually more than happy to incur the expense and trouble of maintaining their coats. If you similarly choose a breed that needs to be clipped regularly, then, like me, you will probably find it cost-effective in the long run to acquire your own grooming equipment - electric clippers (get a good brand specially designed for dogs as the cheaper alternatives just don't measure up to the job), comb, and detangling brush.

Longer coated breeds will also require regular checking for grass-seeds, felted knots, and burrs. Seeds that escape your notice may end up burrowing into the flesh, particularly between the toes, inside the ears, nostrils, armpits, the vagina and even the anus. Continual vigilance is necessary to avoid this problem, which otherwise leads to a surgical procedure at the veterinarian's to remove the offending foreign body. They will also tend to get dirty quicker and need more regular baths and general attention to the state of the coat.

Temperament

Dogs used to be widely used in a variety of specialized tasks for which they were carefully selected and bred. The specific uses to which particular breeds were developed included hunting and killing rats, digging and flushing out rabbits, baiting bears, as a meat breed (e.g. the Chow), to retrieve, as guard dogs, to haul sleds, to fight each other, for hunting foxes, to protect stock, flush game, to rescue people from water or snow, for tracking, to herd cattle or sheep, or as ornamental novelties, and the list goes on! As such there is an enormous spectrum of difference between breeds in their temperament, aggression to humans or other dogs, need for exercise, propensity to bite, sociability with humans or

other dogs, love or dislike of water, ideal climate, propensity for digging or chasing, tendency to bite or herd, etc.

The overriding use that your puppies, as a successful dog breeder, will usually be destined is to be a loving family pet in suburbia. The issue here is that many of the specialized uses inherent in particular breeds might clash with this destiny. They might, for example, have an in-built propensity to dig, attack other pets, bite people, bark excessively, or suffer from the heat or cold. They might similarly be largely aloof of humans, yearn to escape and follow scents, or want to round up everyone and everything. Many breeds developed for hard work may be hyperactive pets in suburbia, and turn their frustrated energies to destructive behavior.

Do your research first on the original use of the breeds you are interested in and ask yourself how well suited such breeds are to life in the 'burbs. Take the scientifically derived breed quiz at www.PerfectMatchPuppy.com to see which breeds come out on top for the things of most value to your clients in terms of energy levels, ease of training, compatibility with kids etc. Next, go and meet a few examples from the breed. Assess for yourself the temperament and general usefulness of the breed for the customers you will be selling to.

On the other hand, much of the breeding that has gone into pedigree dogs in the past decades has been toward fostering show-winning attributes, with little regard for suitability of stock for the original purpose of the breed. As such, you are likely to encounter a lot of variability in behavioral characteristics between individuals within the same breed so that some will be more appropriate than others. We will look at this further when we discuss selection of your breeding dogs.

Even though there may well be a market demand for breeds ill-suited to ordinary family life, is it ethical to breed them? Or should we, as responsible breeders, choose to perpetuate breeds that we are confident will suit their end use admirably? Your thoughtful choice of a well-suited breed becomes a great selling point to your clients. And it also gives you the peace of mind of knowing you've done your best to match your breed to the demands of modern families and thus assure them the greatest chance of being a joy to their owners and enjoying a forever home.

What is biomass?

The next, rarely considered but important, factor in choosing your breed is biomass. Biomass simply refers to the physical size and weight of the dogs. So, why is it important?

Firstly, the amount of food you will have to buy to feed your dogs is a direct function of their size - big dogs need more food than little dogs. This will then, of course, have a direct bearing on the running costs of your breeding enterprise, and on the amount of dog poo you have to deal with!

Secondly, for most procedures, veterinary costs are also higher for larger dogs than for smaller dogs. The bigger the dog, the higher the dose of medicines needed - whether that be wormers, heartworm prevention treatment, flea control or anesthetic. So the bigger the dog, the bigger the veterinary bill! Boarding costs at veterinarians or kennels show the same trend.

Thirdly, the bigger the dog, the more damage it can do, to your own property, at large, or to other animals or people. Having a big dog or dogs thus incurs a bigger responsibility and chance of attracting a damages claim from an aggrieved victim of its wayward activities.

Fourthly, smaller to medium sized dogs enjoy a higher demand in the marketplace than larger dogs. They are also much less likely to show up in dog pounds as abandoned pets, and tend to attract more responsible, caring owners.

Fifthly, larger breeds have a shorter life expectancy, are more prone to bone cancer and hip problems, and are older when they first come on heat, and younger when they stop breeding. They tend to cycle less frequently than smaller breeds (annually as opposed to every six months), but usually have larger litters. However, with the fewer cycles in their lifetime, the result is likely to be less puppies overall than you may expect from smaller breeds.

Matching your dogs to you – strength, area, grooming, exercise

The larger, stronger and more active the breed:

- The stronger and more active you must be to handle them!
- The bigger your facilities and space must be, and
- The more exercise they will need to stay happy and well behaved.

So realistically assess your own strength, activity level, and facilities and have the sense to match it sensibly to the breed you choose.

Doing your homework – Market research, go to shows

As in any business situation, the profitability of the venture is dictated heavily by the law of supply and demand. If you want to succeed, you should be aiming to deal in a breed that has a demand that is higher than the available supply. While this will undoubtedly also make it that much harder for you to acquire your breeding stock, it will pay off in the long run in better prices and easier sales of your puppies.

Before you decide on which breed, check your local ‘pet’ classified advertisements over a month or so and see what’s on offer. Are there a lot of breeders advertising your favorites or only a few? Call a few breeders of the breeds you are short listing and find out how much they are selling for, and how quickly they are selling.

It is also wise to do a web search to see if there are any reports on trends in ownership favoring some types of dogs over others in your city or country. I have recently done just this and found growing popularity, in Britain and the US, of the Bichon Frise, Pekinese, Pug, Chihuahua and Staffordshire Bull Terrier (the latter for protection, especially popular with young men who, unfortunately, often fail to look after them well).

An increasingly trend towards apartment and multiple family dwellings, as well as declining family size, is tending to favor the less active of the small and toy breeds. Note, however, that many of these breeds are mechanically unsound or require a lot of grooming attention.

Getting into your customer's shoes – breed quiz, dog allergic market

Some dogs are meant for the suburban life, and some are not! Many knowledgeable dog lovers turn to on-line tools designed to offer them assistance in finding the breed ideally suited to their lifestyle and conditions. If you too use these same tools to find your ideal breed, then you will also be giving your customer what they want! Simply type into a web browser such as Google the search terms “select,” “breed,” and “dog.” Several online ‘select-a-dog’ services are available and they are free. What’s more, they usually include a photograph of the breed and some information on their original uses, temperament and activity level. The best by far is the one at www.PerfectMatchPuppy.com as it is based on current scientific findings, not old breed encyclopedias.

You may be dismayed to find that most breeds that are suggested by these online services fail to pass the “soundness” criteria we have been discussing here. Don’t be dismayed - that will simply help you narrow down your search for your ideal breed.

Another consideration (and selling point) is low-allergy. Dog hair (‘dander’) allergies are increasingly common in our society. People who suffer such allergies, or have children who do, are restricted to ownership of a few select low-allergy breeds. These breeds are low-allergy simply because they do not shed hair to anywhere near the extent of most dogs due to either being hairless, or more usually, because they only possess a single coat and thus shed less dander, whereas most breeds have a double coat. They are, for this reason, also popular with house-proud families who don’t want a dog that is continually dropping hair into their car, and on floor and furnishings.

As dander-sensitive owners trial different breeds the results are updated into an online database of low-allergy dogs. A recent update lists the following breeds as being OK:

- Basenji
- Bedlington Terrier
- Bichon Frise
- Chinese Crested

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www.DogBreedingInformation.com

- Irish Water Spaniel
- Kerry Blue Terrier
- Maltese
- Poodle
- Portugese Water Dog
- Schnauzers
- Soft Coated Wheaten Terrier
- Xoloitzcuintli
- American Hairless Terrier (the lowest allergy breed around, but also rare)
- Peruvian Inca Orchid (rare)

Once you have found your breed!

Purchase a book on the breed or search on line so you can check the Breed Standard for the breed you have your heart set on. The Breed Standard will describe the physical appearance that is desirable in dogs of that breed, including acceptable:

- Size range - often different for males than females (males are usually a little taller).
- Color - There may be several accepted color types. In schnauzers, for example, color standards include pure 'black', 'black and silver' and 'pepper and salt'. Brown is undesirable, as is white socks (though puppies often start out with either, resorting to the standard as their adult coat comes through).
- Correct set and size of the ears.
- Desirable ratio of back length to height at the shoulder.
- Eye color.
- And more, depending on the breed in question!

Become familiar with these standards so you will be able to recognize a quality animal from a reject. Go along to shows and examine the winners and runners-up, armed with your new knowledge, and quietly assess their strengths and weaknesses to yourself. There is no such thing as the perfect dog, however, as any breeder can tell you!

Research the way the different color types are inherited in your breed. In schnauzers, for example, a black and silver pup can be born of pepper and salt parents (if they both carry the gene for it) but never a black.

Find out what the main genetic weaknesses are that lurk in the breed. Every breed will have at least one! Research whether it is possible to screen the parents for the problem and how useful such a screen is for avoiding problems in the progeny (you could start with a

telephone conversation with your local veterinarian). If it is possible, then mark it as something to query breeders about when considering buying from them.

Cross-breeding

In Australia, small cute cross-bred dogs are currently all the rage. Due to healthy demand, they are fetching prices close to (and sometimes exceeding) that of many popular purebred dogs. Cross breeding is definitely frowned upon by the kennel organizations. Like independent breeds, hybrids between different breeds are not recognized by the main registries. However, that has not stopped people from developing special breed blends customized to the demands of the puppy buying market.

Selective crossing between different breeds results in “designer dogs”. Poodle crosses, for example, confer low-allergy coat characteristics in the pups. Popular examples are the Cockapoo (Cocker spaniel x Poodle) and Labradoodle (Labrador x Poodle). The practice causes much controversy; opponents cite unpredictability of temperament or type and lack of pedigree history (and thus knowledge of ancestral hereditary diseases) against the practice.

However, due to natural hybrid vigor, first cross cross-bred dogs tend to have far fewer genetic problems than their parent breeds, and are usually healthier and longer-lived.

If you are contemplating meeting the burgeoning demand for designer cross-breeds, you should subject the breeds you are considering drawing upon to the same considerations for inherent fitness and overall design as when choosing a purebred breed.

How to get started

Overview of how to get started

Once you have identified the breed that's right for you, don't be tempted to rush off and buy dogs until you have thought things through. Before you set out you must plan your breeding enterprise.

Ideally, you would start off with sexually mature dogs and circumvent the long wait otherwise faced before puppies become productive breeding animals. However, it is unusual to find high quality, adult breeding dogs on the market. Those that are available may be animals which have developed breeding problems, hidden defects or do not correspond to the desired breed standard.

If you do come across a quality adult male dog, it is prudent to begin by checking the quality of its semen, particularly if it is an adolescent that has never been a proven sire. And of course, make sure it hasn't got retained testicles. The fertility of adult bitches is less easy to verify - though she may have had several litters, she may now be past her best as a breeder through disease, exhaustion or age. Fully 50% of all bitches of 7 or more years of age have ceased fertile cycling. You may be better off with a puppy with a lifetime of breeding ahead of her.

However, selecting a puppy also necessitates placing a wager on the puppy's future, since its conformity to its breed standard and its fertility cannot usually be confirmed until later.

Are you going to keep a male dog, or use someone else's? If you have very limited space or want to maximize your returns for each dog you have, then it makes sense to own all bitches, and use an outside male to stud them. However, you will find that many established breeders out there will do their best to dissuade you from embarking on your dog breeding enterprise, and may refuse outright to ever allow you to use their male dogs, or to even buy registered pedigree pups from them that you will be able to breed with. Many insist that puppy buyers sign a "non-breeding agreement or may have their babies sterilized as puppies before they go to their new owners. Though the rescue organisations generally also encourage this (barbaric) practice with a view to preventing dog

overpopulation and spill over into shelters, it is detrimental to the long term health of the puppies concerned and does little to prevent overbreeding, since the biggest source of unwanted dogs are not pedigree breeders at all. So, you may need to make enquiries with several (even dozens of) breeders before you find one that is willing to work with you. This is why it makes good sense to establish your relationship with a few amenable breeders before you get your first pup. You may find it nigh impossible, at first, to find someone you can work with. I encourage you to persevere and keep trying until you do.

If you're that way inclined, another route to a relationship with other breeders is to set out from the beginning to show your dogs. Serious show breeders are often thrilled if they can sell to someone who will go to the trouble of showing the animal, as, since all registered dogs bear the kennel name of their original breeder, the kudos rubs off on them. They will also normally happily assist and instruct you in how to prepare your dog and yourself for the show ring. If you are keen to show then the going will be easier as far as sourcing registered pedigree stock. Bear in mind also, that some breeds are easier to prepare for show than others. Preparation of the miniature schnauzer, for example, requires staged stripping (plucking out) of its coat starting six weeks before a show. However, this doesn't suit us all. If you decide that showing is definitely not an option, then simply be prepared to have the door slammed in your face more times than not and persevere until you find breeders you can work with! Sometimes this may even mean enquiring interstate.

If you will be needing to use their male dogs, explain this up front. This will mean a regular income for them - the usual stud fee is the equivalent of the value of the "pick of the litter" that results. If no pups result, no fee is payable. However, each breeder may have their own terms and conditions. Some will insist on holding the papers and retaining the breeding rights of any registered pup they sell - which means, you raise the dog and they keep any income resulting from breeding it! So, shop around for a fair deal. Assuming you find someone you can form a business relationship with, have a look at their dogs, and if you like them, ask for a copy of the pedigree papers of the available males.

If you decide to keep your own male dog, it is often better to get him first, and bring the females in when he is at least 3 months old. The reason for this is that male puppies raised among adult females become accustomed to being subordinate to them from the start - and the bitches used to looking down on him! It may mean that one of your bitches refuses to

accept him for mating, or that he is too shy to do the deed to the willing. I have committed this error myself, and it ties you to years of having to assist the process or to resort to using Artificial Insemination or an outside stud male.

Equally important is to make sure that your puppy is a full eight weeks of age before he or she leaves the breeder. This may be part of the Code of Conduct for registered breeders where you live, as it is for my state, and there is good reason for it. Very crucial socialization between dogs happens between the ages of 5 and 8 weeks. It's when they learn how to relate normally with other dogs. If snatched away from the learning environment of their littermates and mum too young, many dogs will fail to develop their social skills at this crucial time, which may mean a lifetime of social dislocation. What it may mean for you is a dog or bitch that won't display normal sexual behavior, including refusing to mate naturally! My very first schnauzer was sold to me when she was only 5 weeks old and had to be forcibly restrained to allow my male to mate with her, each and every time I bred her. You are very lucky - you can profit from my mistakes!

When you get your female(s) you will need to ensure that they are not closely related to the male(s) you will use. Use the internet to find breeders in other states and email or call them up. Ask to see photographs and bloodlines of their stock before putting your name down for a puppy.

Checking pedigrees

Ask to see the pedigrees of sire and dam of any pups you are considering purchasing. They will go as far back four generations - as far as the eight great grandparents - and show ancestors' registered names, achievements in the show-ring, if any, as well as each dog's color, and whether the dog was imported from another country or not.

If you are interested in show quality stock, selecting a dog with a lot of show winners in its ancestry is reassuring. However, many quality dogs never make it to the show ring. Also, it is not easy to pick a winner at the puppy stage. Depending on how far back the champions were, show-winning ancestors give you some confidence on whether the pup is likely to grow up to conform to breed standards. If there are lots of champions or titled dogs in the pedigree, the puppies are more likely to become good physical examples of the breed.

Some breeders may advertise that their puppies come with "Papers" but it is important to establish if this refers to a limited register pedigree or to an authentic main registration certificate. And since it is also possible to issue papers with non-breeding clauses, get the breeder to confirm in writing that she is selling you the dog with full and independent breeding rights.

If you have some knowledge of the genetic disorders of individual dogs in the ancestry, a pedigree could theoretically help you ascertain if the puppy may be a carrier or a potential victim. Sometimes, from highly responsible breeders of particular (usually strongly afflicted) breeds the pedigree will show hip or elbow soundness scores (e.g. Orthopedic Foundation of America [OFA] numbers), or results of other genetic testing (e.g. eye tests). These results are extremely useful in helping you to choose a sound breeding dog, and can compensate for any lack of champions in the pedigree. Chances of genetic soundness in the progeny are higher with parents rated good than with those rated fair, and are even better with parents rated excellent for the particular parameter being scored.

However, for many defects you are unlikely to know such facts - breeders naturally do not advertise the genetic problems their lines suffer from, and any information gleaned from their competitors may just be malicious gossip. Avoid problems by avoiding closely bred animals, and insist on a pup-replacement guarantee that the pup is free of debilitating genetic disorders - find out the disorders common to the breed and state them on your purchase agreement.

What will be useful in the pedigree is color information - with your basic understanding of genetics you can get an idea if your dog is homozygous or heterozygous for its color. Using Labradors as an example again, if you want to breed brown labs, and are offered a black pup with a brown parent, you'll know that the pup is a heterozygous black and will throw 50% brown pups if mated with a brown dog. If your market research reveals that a particular color in your breed is becoming very popular or is in relatively short supply (for example, recently in Perth where I live everyone has started asking for black miniature schnauzers puppies) you need to study the heritability of that color and select dogs that are likely to produce puppies colored accordingly.

A Main Registration certificate allows the puppy's owner to register it with the presiding canine registration association (e.g. the American Kennel Club, the United Kennel Club, a

rare breed registry, or an independent kennel club or breed registry). Eligibility for registration confirms that the puppy comes from registered parents of that breed but does not endorse the health, temperament or genetic fitness of the puppy. However, as a breeder, you must establish from the beginning that the puppy you buy is eligible for registration, that the breeder you buy from is willing to register it on your behalf at a pre-established price, and that there are no strings attached to prevent or limit your breeding from the dog.

Checking the parents

When your search has narrowed down to consideration of a particular litter, ask to see the parents, if at all possible. Young puppies are hard to assess accurately, so examining the parents will help you a lot.

General Checkpoints

Assess each for temperament - you will be, more likely than not, selling most of your pups to the pet market, so it is wise to steer towards lines with a sociable temperament and an even disposition.

Check their size and color - both should be within the breed standard.

Make a check of all other attributes referred to in the breed standards including if the body is nicely proportioned, the legs are straight and strong, appearance and set of the ears, etc.

Open their mouths and assess how well the bottom and top teeth scissor together - this is referred to as the 'bite'. In most Breed Standards, a good bite is highly desirable, though in many squash faced chondrodystrophoid breeds, it has been abandoned.



Correct "Bite"

Check their navel for umbilical hernias (the belly button will stick out in hernia affected dogs) as patent hernias are highly heritable and if severe can lead to intestinal strangulation requiring emergency surgery.

Check the nipples - there should be four to five pairs of evenly spaced teats. A bitch with uneven, or even doubled up nipples can still make a good breeding dog, but it is still a fault.

Note the litter size. While very young or senior bitches will often have smaller litters, a large litter is a good sign that the bitch puppies in the litter are themselves likely to be prolific breeders. One of my bitches, Chloe, comes from a litter of 8 and has herself had several litters of 8 puppies - remarkable in Mini Schnauzers, despite being an unusually small example of the breed.

Inherited Disorders

If your research shows a predilection for specific inherited disorders in your breed of choice, find out if testing of parents for the disorder is possible, and seek out breeders using dogs certified as free of the disorder. Common disorders have been discussed previously here in the Genetic Diseases section.

Choosing the perfect pup

You must make the same checks on the puppies as for the parents (see above). While you won't be able to directly assess the adult size, it helps to compare each puppy to its litter mates - is it a lot smaller or bigger than the others? Was one parent unusually large or small? A standard sized puppy is most likely to grow into a standard sized adult. Bear in mind that smaller individuals are often highly sought after by buyers of the littler breeds, so you may even decide to go for the smaller pups, other things being equal. Just be sure that the pups in question are small by size, not by ill-thrift!

If you are selecting a male puppy, it is very important that the pup's testicles are descended and palpable in the scrotum by the time it is 6 weeks old. If you hold the pup on its back on your lap and gently apply a little pressure on the tummy either side of the penis, in front of where the balls should be, you should be able to either feel or see the presence of both of the testicles. A pup with undescended testicles will not be able to produce puppies, aside from the fact that such a problem automatically disqualifies it from the show ring. A pup with only one descended testicle may be able to breed, but is still disqualified, and further, at risk of developing testicular cancer in the retained testicle later in life.

Overall, try to get a feel for the degree of socialization the litter has been exposed to. Are they kept in a run out the back and only visited for feeding and hosing the cage, or are they

raised as part of the family and played with by the seller and their children regularly? Good socialization during the early, critical period from five to eight weeks of age will help ensure your puppy fits in well with your household and your friends!

Puppy Temperament

Study the temperament of the puppies. You can tell a lot about adult temperament from the age of 5 weeks. However, a pup that's a little shy at 5 weeks will often have come out of its shell by six weeks. Bear in mind that puppies, like babies, will have periods when they are very sleepy and subdued, and others when they want to play, socialize and gamble about. Ask the breeder about their respective temperaments. If they are raised as part of the family, the breeder will often have noticed differences among them already. Some, for example, will be great watch dogs, the first to bark if there's a strange noise.

Ask the breeder to call them (she will usually have a particular call they will be familiar with). Notice which ones charge cheerfully straight to her, and which, if any, hang back fearfully or suspiciously. Avoid obviously shy or unsociable individuals. In the very first litter I ever bred, some 25 years ago, I noticed that of the five puppies, there was one that would hide in the ferns and stare sullenly, while the others joyfully gamboled around me. I warned the prospective owners about its temperament, but they had their heart set on their "Max". Some time later I called them to see how they were going and they reported that Max loved the mother and daughter but had a running feud with the father, including claiming his favorite chair and growling if he came near. Some puppies will love children, and others shy away from them. This will often simply be a function of whether they have spent time with nice gentle kids or not in their first few months of life. If they have, then you have a good indicator of what they'll be like as adults. If not, then you'll just have to make sure they get plenty of positive exposure to children during their critical first 4 weeks with you (ages 8 to 12 weeks).

During the limited time you are with them you can also get a good idea of puppy temperament by performing the [Perfect Match Puppy temperament tests](#).

If the results seem contradictory it is advisable to do the tests again as the setting may not have been exactly right (puppy too young, meals, stress, sleep, etc.).

Do puppy personality tests actually work? According to some rather over-cited studies they don't, but let's take a closer look before we dismiss them.



Which Puppy Is Right for You?

Puppy temperament testing - if it works - would be one of the most important steps you could take to optimise your chances of finding THE puppy that could grow to become the dog of your dreams, and give you many years blissful canine companionship. Personality varies widely within breeds too - in my Miniature Schnauzers for example we have everything from introverted scaredy-dogs to bold extroverts - so its wise to take breed behavioral stereotypes with a pinch of salt. So while picking the right breed is important, such best laid plans can go awry if people don't choose an individual with a personality that makes it a Perfect Match Puppy for their home environment and ownership objectives.

History of Puppy Temperament Testing

Puppy profiling was first used in 1963 by Clarence Pfaffenberger to select suitable puppies as candidates for further training as guide dogs for the blind and save wasting time and training costs on puppies with low prospects of graduating. He found a high correlation between dogs that performed well at an early age and those that became guide dogs. While there is still a long way to go, many others have followed in his footsteps since then to further develop the science of puppy profiling.

By the 1970's Michael Fox's work had led to the widespread use of puppy tests to evaluate a puppy's potential for good social behavior with humans and other dogs. And by the 1990's various protocols had been developed in an attempt to avoid future problems by selecting

the right puppy or shelter dog for the right family, and to select the best service dogs for breeding.

But Do Puppy Personality Tests Work?

Despite a subsequent flurry of activity by scientists, some weren't able to predict future temperament from their puppy testing experiments and reluctantly concluded that aptitude testing in puppies does not work. This led to derision by some experts on the value of puppy personality assessments in general.

Margaret Young from North Carolina State University, for example, used the well-known Campbell puppy personality test in the early 1980s to assess 327 puppies at 6 to 8 weeks old, which she followed up at 3 years of age. She found the tests to be unreliable, particularly at predicting social attraction or dominance/aggression in adult dogs.

However, a lot of the detractors of testing fail to take into account the role that post-testing, early experiences with humans have on shaping an adult dog's personality. Innate temperament tendencies discernable in puppies are not set in stone but amenable to positive experiences and susceptible to negative ones. Retesting dogs when they are adults can only be a reliable test of puppy tests if all the dogs experienced the same upbringing in the intervening period - which of course is often not the case (e.g. as in Margaret Young's work).

Indeed, Slabbert and Odendaal discovered they could identify individuals with a high chance of becoming successful police dogs using personality assessments at 8 weeks of age. Not surprisingly, the dogs tested were of the same breed, raised in a standardised way (designed to enhance their development) effectively "ironing out" their early experiences and confirming predictability of testing at the puppy stage.

In 2010 Malgorzata Goleman conducted puppy aptitude tests on 259 German Shepherd puppies ages from 6 to 9 weeks, and then reassessed 144 of them at 12 months of age. Her results confirmed a strong correlation between the personality of puppies and the temperaments they displayed at maturity. Again, these dogs had relatively standardised rearing, all bred by professional breeders, with most going on with training for work as adults. She found that puppy tests of innate predispositions to sociability, retrieving, catching and cooperating with people had a statistically strong correlation to their later performance. Puppies that were more trusting and social at 6 to 9 weeks of age kept this

quality as adults. Dogs which, as puppies, showed a tendency towards retrieving kept it to adulthood and were found to be more compliant and cooperative towards training, even if they were not subsequently encouraged to do so by their owners.

To settle this question once and for all in 2013 Jamie Fratkin reviewed all the testing that had ever been done. He found many examples of success, and suggested that the blanket idea that ‘puppy tests do not work’ needed to be reconsidered:

One of the core questions facing many working and companion dog organizations is whether ‘puppy tests’ are predictive of later adult behavior. Our results suggest that puppy personality is moderately consistent, and remains so, throughout the juvenile and into the adult period. This may especially true for particular personality dimensions, such as aggression or submissiveness, which appear to be as consistent as dimensions measured in adult dogs.

Puppy Personality Both Consistent and Malleable

As in adults, puppy personality can be characterized as being both moderately consistent as well as sometimes highly plastic, depending on the personality dimension of interest. While some dimensions of early puppy personality have been shown to be moderately consistent with the dog it will grow to become, the way a dog is treated, particularly while it is still immature, undoubtedly has a powerful impact on shaping its natural psychology. Both the first and second two months of a dog’s life are critically formative.

Veterinarian Bruce Fogle, in his excellent book “The Dog’s Mind”, summed it up this way:

“How a dog behaves at any given time in his life is a result of a constant and fluid interplay between his genetic potential and his environment”

This is particularly true during puppyhood when the early development of the dog’s mind is taking place.

All this points to the importance of using puppy testing as just one step in the journey to find the perfect dog, in a continuum that takes all other crucial factors into full consideration: its breed, its breeder, its litter, its personality, and how its potential as a companion is nurtured by the owner in the crucial weeks and months after taking their fluffy

bundle home. And while inherited temperament tendencies certainly play a part in the way a puppy performs in personality tests, such tests are also a measure of how well socialised the puppy has been by the breeder.

The temperament of your bitch is also important - since she raises your puppies, they naturally pick up a lot of her “attitude”.

When you start breeding your own puppies, help your clients to choose the right puppy for them by going through the Perfect Match Puppy Personality Quiz with them, and having results of these tests and your other observations for your puppies on hand. They will be so impressed they will promote you as a breeder-in-a-million to everyone they meet!

Ask what treatments the pup has had.

Reputable breeders will be worming them fortnightly from the age of two weeks. They should have had their first vaccination, at the breeder’s expense, at six weeks of age. They should have had their dewclaws removed at 3 days old.

Reading the fine print

You need to ascertain at the start what conditions the breeder is willing to sell the puppy under. I recommend that you do your best to get registered dogs, so you need to check up front that the puppy you are buying will be registered by the owner and ownership transferred into your name as part of the purchase cost. Get it in writing i.e. stipulated on the receipt she gives you, that you are purchasing a fully (“main”) registered purebred dog.

Some breeders try to corner the market by either never selling registered dogs, or only doing so under conditions designed to stifle any attempts by you to breed your own litters. There are such things known as “Non-Breeding Agreements” and they are definitely not in your best interest! Sometimes you might find that virtually every breeder in your state no longer sells registered dogs without such strings attached. This is the case in my state with my breed. If you find yourself in this situation, enquire in other states, like I did, until you find someone who will work with you.

If you get really stuck, you may want to consider the only other alternatives: change breeds, or breed unregistered dogs. But if you follow the latter (desperate) course, ensure the breeder who supplies you with the dogs also gives you a copy of the pedigree registration of its parents, so at least you can show this to prospective buyers.

When to bring your pup home

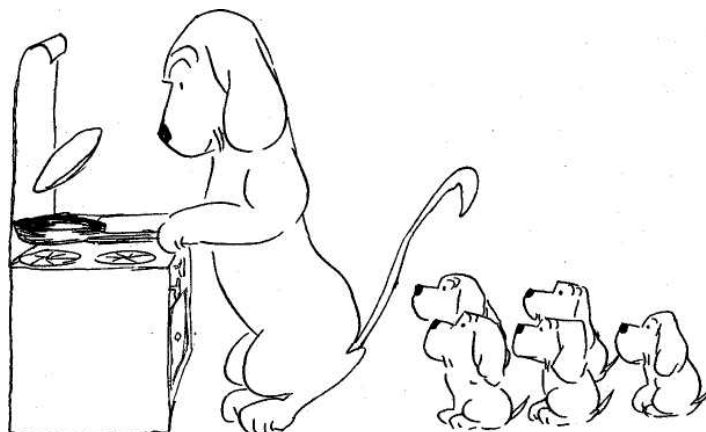
As I have pointed out previously, it is absolutely essential to the normal sexual behavior of your breeding dogs, that they spend their first 8 weeks of life with their littermates and mother. This is a critical period when dogs learn through play with each other how to socialize and behave sexually with other dogs.

No reputable breeder would even allow their puppies to go to their adoptive homes before they are 8 weeks of age. In Western Australia, this is even written into the Codes of Practice for registered breeders. To thwart this rule is to risk having one's registered breeder status revoked!

Growing your precious puppy right!

The healthy dog diet

As a firm believer in the notion that “Nature knows best”, I strive to provide my dogs with a diet as close to natural as possible. I was very inspired at the outset of my dog breeding venture by a book by veterinarian Dr Ian Billinghurst called “Give Your Dog a



Bone”, and I recommend it to anyone who wants to gain more depth on this important subject. Dr Billinghurst drew upon his observations and trials during 25 years as a small animal veterinarian to develop a diet based on raw meaty bones. He found that dogs placed on such a diet showed dramatic improvement in their health, and often also spontaneously recovered from some of the common dog ailments including flea bite allergy. Much of what follows is drawn from his work and my own application of his ideas.

Though in appearance most breeds are far removed from their ancestors, all dogs are descended from the wolf, and so their diets should simulate the eating habits of healthy wolves. Who am I to argue with millions of years of evolution? And who are commercial dog food companies and the veterinarians who pay homage to them, either?

They may argue that commercial dog foods are carefully balanced to provide for all the minerals, vitamins and essential oils and other nutrients that a dog needs - and I would agree with them! The fact that such foods are often also heavily laden with artificial colors, flavors and preservatives, as well as containing damaging rancid and oxidized fats is only to be expected of any processed foods - whether they be for you or Rover! But what they don't provide is equally, and perhaps more important.

When your pup eats bones, its teeth are cleaned and its gums are massaged. The stress of bone eating while your pup is young and growing strengthens the teeth and ensures they are firmly rooted in the jaws. Conversely, on purely commercial diets, the health of dogs

suffers in many ways. One big giveaway is the buildup of tartar on the teeth and development of foul breath due to lack of chewing. Dogs raised on commercial diets often have poorly anchored, weak teeth. Indeed, dental problems, once unheard of in dogs, now provide around a third of the income for small animal veterinarians! That many dog owners are now encouraged to actually brush their dog's teeth is an ignoble fate for the descendants of the wolf, and totally unnecessary when a natural diet is followed!

Bone eating is great exercise for a pup, of every muscle and bone in its body. In bracing, tackling, ripping and tearing its meaty bone the puppy works its jaws, neck, shoulders, back and both front and rear limbs, promoting toned, sound muscular and skeletal development.

None of these benefits derive from feeding commercial dry biscuits, mince or wet canned slops!

Build your pup's diet around raw meaty bones.

Your puppy needs food that will support proper growth, which means adequate protein, fat, energy, vitamins and minerals. Most of these come conveniently packaged in the form of raw meaty bones. As a simple rule of thumb just give your pup a diet that is 60% to 80% raw meaty bones.

The best of these are chicken wings and chicken necks which provide high quality protein, a good balance of essential fatty acids and fat soluble vitamins, some B vitamins, and ample energy and all essential minerals. The bone marrow is a particularly good source of iron to build up the blood and immune system. The bone itself is a great, perfectly balanced source of other minerals, especially calcium and phosphorous. It is much easier to correctly balance your pup's calcium needs this natural way and augment the need for artificial calcium supplementation, particularly in larger breeds of dogs.

Despite some of the B vitamins being in short supply in raw meaty bones, pups raised on them and little else still do better than those fed on the best of the supposedly complete and balanced commercial dog foods.

And because they are derived from very young animals, chicken bones are lower in toxins than meat from other species which are generally much older at slaughter.

It is very important that your pup actually eats the bones, and those of chickens are small, soft and easy to chew for your puppy. Reserve meaty bones that are harder to chew - such as lamb shanks and ribs - for older dogs, or your pup may miss out on the bony part of the parcel.

For small and finicky pups, particularly those that have never seen a bone before, it can be very helpful to pulverize the chicken wings or necks a little at first, using a meat mallet. You may even need to mince up the chicken and add a little to the diet the pup has grown accustomed to, gradually weaning it onto the proper diet over a few days. Then mince/pulverize the chicken less and less until the pup is coping with a whole wing or neck by itself.

The Other Part of the Diet

The other 20% to 40% of the diet should be drawn from as wide a variety of foods as possible. Dogs are basically omnivorous so need vegetable as well as meat in their diet. Consider the wolf - when it eats a rabbit or a partridge it ingests the offal and intestines too, along with the vegetables and grains that they are filled with. If the prey is a baby or lactating mammal, that wolf will also get a good dose of dairy foods. They will also eat eggs, herbs and berries. Since all of these are essentially raw, then it makes sense to furnish as many raw foods as possible to your dog.

For the offal component of the diet, give liver, heart, kidney or brains once or twice a week. Also feed occasional milk or vegetable meals.

Leftovers (minus any cooked bones) are a great supplement to the meaty bone diet, and very practical. Soup, pasta, cooked vegetables, cheese, yoghurt, rice, in fact any remains of wholesome household meals add to the variety of your dog's diet. The more different foods you feed your puppy, the healthier he will be.

Dog Food Recipe

Here is a recipe for a high fibre, high energy supplementary meal adapted from “Give Your Dog a Bone”:

- 1 cup of soaked or cooked quick oats, or cooked brown rice
- 1 tspn honey
- 1 tspn olive oil (substitute cod liver oil in winter once a week)
- 1 tspn brewer’s yeast
- 5 desert spoons of vegetables (grated fresh combined with some lightly cooked and mashed, or juiced and then recombined as pulp and juice)
- 1 Tbspn dried fruit
- 1 desert spoon shredded coconut
- 1 tspn kelp powder
- 1 egg or egg yolk (optional)

The recommendation is to give this meal 3 to 4 times a week. Though it is low in essential minerals and protein, that doesn’t matter because the raw meaty bones more than make up for it.

Here’s a recipe I routinely use for all my dogs:

- 2 kg of chicken drumsticks, simmered for several hours.
 - Then add:
 - 3 cups of diced sweet potato or pumpkin
 - 4 cups of shredded cabbage and/or diced zucchini (marrow)
 - 3 Tbspn gelatin
 - 2 Tbspn dried and blenderized egg shells
 - 2 tspn rock or sea salt
- Cook for another 20 minutes then remove the bones when cool before serving.

It is high in minerals and protein, and ideal for breeding dogs and young growing puppies.

I find it very useful to provide the meaty bone part of the diet to my dogs whenever I need to leave them for a period of time. Gnawing at a bone provides useful and rewarding entertainment and can alleviate loneliness and boredom, thus circumventing possible destructive behavior.

Herbs to Grow for Your Dogs

Comfrey is a herb that grows readily in most areas and is rich in calcium and magnesium. I have some growing in a large pot around a lemon tree and recently noticed my dogs avidly grazing on it. Animals seem to know what they need. If it is there they will avail themselves of it whenever necessary.

How Much Should You Feed?

In the wild, natural state, wolf cubs were always a little hungry. Adult wolves did not hunt until motivated by hunger, and often had to wait until a successful kill before satiating their appetite. And so, it is natural and healthy for your dog to rest its digestive system occasionally. You can simulate this by skipping a day's feeding once a week in the adult dog.

Many people see virtue in growing their puppies as fast as possible, and the end result is frequently problems with bones and joints in the adult dog. This is particularly so of the larger breeds. As a guide, keep your puppy slim and athletic rather than roly-poly by:

- Feed about $\frac{3}{4}$ of what your pup would eat were it allowed to eat as much as it wanted.
- Once or twice a week fasting your pup on fluids for twelve hours.
- Let the pup eat its fill for 15 minutes at each meal, then take the food away (this also makes toilet training easier - see our section on House Training)



Feeding Frequency Guide

Feeding frequency depends upon the age of the pup or dog. Here is a general guide:

Age	Feeding Frequency
0 - 1 month	Pup suckles its mother exclusively (unless circumstances warrant earlier supplementation)
1 - 3 months	3 to 4 meals per day
3 - 6 months	2 to 3 meals per day
6 - 12 months	2 meals per day
After 12 months	1 meal per day

To further simulate natural conditions, vary the time of feeding, if your routine allows, and don't necessarily feed the dog according to when it is hungry.

The important exception to these guidelines is the lactating bitch. Your breeding bitch is a production animal and needs to be cared for as such. Lactating bitches have very heavy demands on their nutritional and energy reserves and I believe they should be fed as much as they desire, often two to three times what they would normally require, particularly if the litter is a large one. Even under such a regime, many bitches will lose weight during lactation.

Getting geared up

A smooth start to your pup's new life with you begins by being properly prepared! Start by having the following check-list of useful equipment to on hand before she arrives at your door:

- **Wire or plastic dog crate:** This is for your puppy to sleep and rest. Line the bottom with a tough, washable bedding material. Consider or experiment with the best location to allow your pup to settle quietly and during its rest and sleep periods away from the hubbub of the family. Depending on your circumstances and your pup's temperament that may mean bedding her away from the family, or close to the activity.
- **Food and water dishes:** Tip-proof, stainless steel are best.
- **Collar and lead:** Soft braided nylon, complete with ID Tag with your phone number.
- **Grooming equipment:** suited to your breed. This may include metal combs, detangling brushes, shampoo (pH balanced), sharp scissors and possibly electric clippers.
- **Chew-discouraging spray:** A safe spray-on product (e.g "Bitter Apple") to discourage destructive and dangerous chewing on inappropriate objects such as immovable valuables like furniture legs and curtains.
- **Blockade:** A wire or wooden "baby gate" for blocking access to rooms you want to restrict your puppy from entering until she is more reliable and better trained.

Puppy-proof your home.

Puppies explore their environment in much the way toddlers do - by chewing and getting into everything! Be sure to remove hazardous items such as electric cords, and put valuables like your best running shoes or expensive rug out of harm's way. Ensure there are no escape routes around your boundary fence big enough for a small puppy, and if you have a swimming pool, you may need to twitch wire mesh at the bottom of the pool fence so your puppy can't get in and drown.

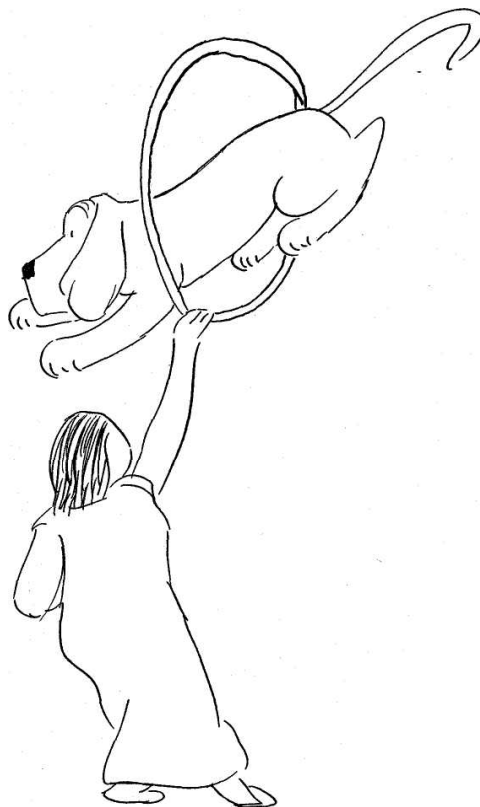
Visit your vet

Arrange for your veterinarian to give the puppy a complete checkup within 72 hours of your purchase to ensure no health problems have been overlooked. You may also elect to have her microchipped at this time.

Puppy Training

You are the boss!

Dogs are social animals, and the society in which they live is stratified by a hierarchy based on rank. In the society of a dog that has been thoroughly socialized to both humans and other dogs, the members include humans and dogs alike. No dog can feel totally secure unless there is a distinct and definite “alpha” ranking, or dominant individual in the “pack” society. If you are not willing to establish yourself in the alpha position, then you might find your dog assuming that position.



The ramifications of this unhappy state of affairs are that your dog will never allow you to dominate it in any way. This may include urinating on you and other people, disobeying your commands, and threatening or biting you (and your veterinarian) whenever there is a need for restraint to facilitate necessary procedures. Now, as a breeder you will frequently need to control and handle your animals - whether the purpose is simple restraint, grooming, removing grass seeds, ear plucking, assisting birth, collecting semen, inseminating, dressing a wound, or what have you, you will often need to dominate your dogs in one way or another to effectively manage your breeding enterprise.

Many dogs are naturally subordinate by nature and will be more than willing to delegate natural authority to you. However, with others, you may assume you have a healthy relationship with your dogs, until the true state of affairs is revealed when your loving mutt snaps at you the minute a “need to control” situation arises. The problem can be difficult to remedy without a series of physical battles with your dog in which you come out the clear victor - that is, without having to beat your poor doggy up! Prevention remains the best approach here.

The only way to avoid this situation is to establish yourself as the clear leader of your pack right from when you first bring your puppy home. A trick I teach all my customers is to lay the puppy on its side gently on the ground and keep it there with your hands, reassuring it and telling it how good it is. Maintain this for a minute or so. Most pups will struggle against this restraint within this timeframe. When it does, keep holding it down and gently but firmly tell it to “lie down” or “be still” in a deep, warning tone of voice. As soon as it ceases struggling wait a few seconds and then warmly praise it and let it go. Repeat this several times a week so that the pup gets accustomed to the idea that it must succumb to restraint. It’s a lot easier to win the battle in a pup than in an adult dog!

Puppy training

The attention and care you put into the first few weeks of your puppy’s life with you will pay off handsomely in the long term. So, while it is likely to be busy and demanding, at first, keep your sense of humor and be patient, and things will go better for you and your pup. Begin teaching your puppy simple commands as soon as you get him home.

1. Use a consistent command for each behavior you expect, so your dog doesn’t get confused. I use a combination of hand signals and voice or whistle commands.
2. Set your dog up to succeed. When setting out to train your puppy, do so in a small enclosed area without major distractions so it will be easier for your dog to pay attention to you. Is Bozo an overenthusiastic youngster with energy to burn? Tire him out a bit before training so it will be easier for him to remain calm. Do you train with treats? Schedule your training sessions before meal time so he’ll be hungry.
3. Use rewards to train your dogs - lots of pats and warm animated praise in a crooning tone of voice (“Gooooood dog! Gooooood doggie!”) plus - especially in early training- small yummy morsels (a small piece of cheese for example) pack a lot of leverage when it comes to instilling good behavior in dogs.
4. Punishment should only take the form of growling if the dog refuses to obey - for example, if it starts to move after you have told it to STAY. If you bash your dog up

for not doing what you asked, then chances are, it will not know why it is being bashed up and will instead grow fearful of you. This mistake is often made when people are trying to get a dog to COME, and all it wants to do is run around and play chasy! They chase it and when they finally catch it, bash it up! Not surprisingly, the dog is even less willing to COME on the next occasion as it fears being beaten up again. And so a vicious cycle sets in...

5. Another secret to effective training is repetition. Through repetition, a dog develops understanding of the command, how it is expected to respond to it, and the pleasant reward it will get from obeying. Just spend a few minutes a couple of times a day and your puppy will rapidly learn anything if taught correctly.

6. Be consistent. Don't want Bozo on the couch on Wednesdays when Mom visits, but don't mind him on the furniture during the rest of the week? Not gonna happen, my friend. Dogs just don't get the "sometimes" rule. Be clear on what the house rules are for Bozo and make sure all members of your household stick to them.



7. Only say it once. If your dog does not comply, don't keep saying "Sit. Sit. Bozo sit! I SAID SIT!" Don't teach your dog that you only mean it if you say it four times and very loudly. Instead of giving your cue more than once, move to a slightly different location and try again, or physically push him into complying (e.g. make him sit). If your dog still doesn't comply, he is probably confused and needs a little help understanding what you want him to do. Once he does what is asked, even if you had to physically make him, remember to immediately reward him with positive feedback and a treat.

8. Give lots of feedback. When your dog first learns a new skill, he is pretty much guessing what to do. You can help him out by letting him know when he guesses right. How do you do this? Pick a word or sound like "yes" or "good". Say your word then give your dog a pea-sized yummy treat. Repeat this about 10 to 20 times. You'll

know your dog has caught on to the game when he hears the word and looks to you for the treat. Congratulations! You've just become a Dr. Doolittle and can "talk" with your dog in a language he'll understand. Now when you train, say your word at the exact moment he complies with your command and then reward him. Only use your word if you can follow it with a reward like attention, play or treats.

9. Catch him getting it right. Don't be like many who only notice when their dog makes mistakes. Bozo pulls on the leash, they punish him. Bozo jumps up on them, they punish him. Bozo breaks his stay, they punish him. Have a clear picture in your mind of what "getting it right" looks like. Make it a point to always look for instances of your dog "getting it right" and reward him with praise, play, attention or treats for doing a good job.

Unless you are keenly interested in fully pursuing the training road, there are only a few things that you need to teach your dog by way of commands. I have found the most important to be: SIT, STAY, and COME. Whenever I hand out titbits (like the fat trimmed off tonight's dinner) I insist that my dogs first sit. If they don't sit, they don't get!

"SIT" is the foundation for all obedience. All other commands, learning and control branch from this one simple exercise. Even for those who don't care to teach "formal" obedience, "SIT" will still be a valuable tool.

Consider what happens when you take your dog for a walk. Going for a walk is usually very exciting for a dog. Often, he will jump and prance and perhaps bark while you are getting the leash and collar. By this time, the dog has gone so crazy that applying the leash and collar becomes all but impossible. Instead, put a firm "SIT" command to this craziness before it gets out of control: "Bozo SIT!" Use firm, short words (don't "ask"). Insist that the leash and collar will not go on a crazy dog. Your dog must get the message: "You must "SIT" before you go anywhere!"

Follow through by showing the dog what you want if he doesn't comply immediately. Don't forget to praise for a nice sit - even after you have made him do it. The sit will help to make him a thinking rather than a reacting dog. After you accomplish that, you can now attempt to go for that walk!

Now consider a dog who drags you toward the door, gasping and choking the entire way, jumps at the door, and rushes through the door as soon as you open it. This dog has no respect for you. Instead of allowing all the pulling and choking, insist again on a "SIT" by the door, along with a "STAY". As leader, you must always be the one to go through the doorway first. After you have gone first, a cheerful release word "OK" signals that Bozo may follow. If you must lock the door, then another SIT should be required while the dog calmly waits to start the walk.

Jumping up on you or other people can also be controlled using "SIT". We can teach "OFF" (or another word, if you wish), but we must also give your dog an alternative for jumping - one that will bring praise. And that magic "something" is SIT.

When your dog becomes excited or appears worried during a trip to the veterinarian or groomer (or wherever, for that matter), "SIT" can be the key to calm your dog and, again, get him to think rather than react.

So, practice "SIT" - quick, small, fun sits to start. Ask the dog to SIT or STAY before he gets any treat - whether it be for his meal, a treat or a walk - use every opportunity to enforce yourself as leader and instill respect. Then practice longer sits, or sits not so close to you (on the leash helps you to reinforce the command if the SIT doesn't happen). Above all, "SIT" should always be praised and your dog must know that, in any unfamiliar situation, "SIT" will always make you happy. That is how you start to get respect and obedience from one simple command - "SIT"!

If teaching sit, have Bozo on a leash, say SIT, (you could also couple this with an accompanying hand signal, such as holding your hand palm down in front of you and sweeping it downward as you voice the command) and if she doesn't sit immediately, push her back end down into a sitting posture. Do so until she remains sitting for a few seconds, then praise and reward her. Take her for a little walk around, and repeat the command, going through the same procedure several times each lesson.

For COME, you may pat your knee and crouch while calling her name, or the command "come". Start again in an enclosed area, when she is not too far from you. When she complies, give her a small treat and lavish cuddles and praise. Repeat often, gradually increasing the distance you call her from. You may also use a particular whistle. A good

way to reinforce good coming habits is to use your “come” command to call your dogs in at every mealtime. Don’t trust your dog to come in an open, public place until you are sure she has developed reliable compliance to this command in a confined place, and start by only letting her off for a short distance, gradually increasing it as she shows she is ready.

I make my dogs STAY at every opportunity. They must SIT and STAY successfully before I will put their leads on them for their beloved daily walkies. They must sit and stay at each roadside before we cross. When I get to the park or beach where they are allowed to run around free, they first must SIT and STAY, while I walk a short distance away, and wait till I give them a voice and hand signal that means they can go (I wave them forward and say “Off you go!”). Start by getting your puppy to stay for a few seconds, or while you move away by a few meters. When they succeed, reward and praise them. Gradually increase the time and distance, until they reliably comply even if you leave their sight for a little while. Eventually your dog will faithfully stay and wait for you outside the shops while you go in for the paper (even if I tie my dogs up, I still make them SIT and ask them to STAY - they have no other choice, but take every opportunity you have to reinforce the learning!).

Lead Training

A collar needs to be one of the *first* things you deal with when a new puppy comes home.

Purchase a cheap nylon buckle collar long enough to allow room for the puppy to grow and put it on your pup within the first day or two home. To avoid the pup getting a limb caught in the strange and at first uncomfortable collar, it should be fitted only loose enough to allow a couple of your fingers under it. In older dogs, the collar can be fitted a little more loosely. Remember to check it every week so that it does not become too tight as your pup grows.



At first your pup will try to remove the offending collar, and worry and scratch at it, and the leash is likely to cause even more trauma to begin with. The best training leash is a narrow two meter leather type with a hand loop on one end and a strong clip on the other. Leather isn’t apt to slip in the hands the way nylon and other fabrics do.

Introduce the leash by clipping it to the collar and allowing the pup to drag it around for a while, supervised so it does not come to grief. Then begin by holding the other end and introducing a little resistance. Hold firmly and quietly until all struggling ceases, then reward the pup and end the lesson.

Once the pup has given up fighting the leash, encourage it to follow you with vocal encouragement, gentle tugs, and perhaps a few tiny treats. Encourage him to remain by your side as you walk, and respond to digressions by getting his attention back to you. You can do this by changing direction or coaxing him with a treat. Keep it light and fun.

To teach walking manners to a puppy, clip leash to buckle collar, put toys or treats in your pocket, and coax the pup to remain near your side as you walk. Whistle, clap your hands, pat your leg, and praise as you go. If he loses concentration as a butterfly flits by or the neighbor's cat entices him to chase, change direction, coax him with a treat, and get his attention back to you. Keep things bright and cheery - you want to teach the little dickens that being by your side is fun.

To teach older puppies and adults not to pull while on the leash use or a dog halter, prong collar, or a training chain-slip collar that tightens and relaxes in response to pulling. While training, remove any other collars as they interfere with the action of the training collar. When your dog walks without pulling, don't forget to praise him. Start out by getting his attention by changing direction often while the leash is slack. If he pulls, give him a firm jank. Be persistent, consistent and determined to win! You may have to resort to a prong collar if he doesn't respond. Failing that, consider enrolling in a dog training school.

House-Training

Establishing good habits early on in housetraining your puppy is critical. Consider bringing your puppy home for the first time on a weekend so you have extra time to devote to settling in and housebreaking in those crucial first few days.

Your pup will not be reliably housetrained until it is about 6 months old, and if you are diligent in your training, will never eliminate in your house unless forced to do so by illness or excessively long confinement. However, if you at any time allow your puppy to eliminate indiscriminately in your home, the bad habit will be hard to break without having to resort to time-consuming, tedious retraining at a later date.

Housetraining is much easier when the puppy's meals, exercise and playtimes are on a regular schedule throughout the day, so work out a schedule for you and your puppy. What goes in at regular times will come out at regular times and be easier to manage! So don't have food available at all times of the day - give your puppy 10 to 15 minutes to finish each meal, then take any leftovers away.

To establish good toileting habits in a pup, it needs frequent access to the toilet area. When you are at home, take your puppy there every 30 to 45 minutes immediately following a play session, eating or drinking, and upon waking. Be sure to offer enthusiastic praise and reward whenever he eliminates in the proper place. The more often you catch him doing it right and give him positive feedback, the quicker your pup will be toilet trained, so the more time you put into this early on, the better. Punishing him for mistakes can set his progress back - focus instead on noticing and reinforcing success, and minimizing the possibility of errors.

So, never allow your pup to roam the house unattended. When you are home to monitor him, either have him on a leash or confine him to a crate for gradually increasing periods of time, helping him to develop self control. Immediately after he has pooped and peed in his toilet area you can allow him supervised freedom for short periods in your home, but don't let him out of your sight.

If you are not home or cannot tend to the puppy, then you must make sure he cannot make a mistake! Either confine him to a puppy-proofed room and line the entire floor with papers. Or if you live in a temperate climate you can put him outside in a small, secure and comfortable pen with good shelter from the elements. Ideally the pen will be surfaced with something like his toilet area and unlike the flooring in your home - dirt, grass, gravel or concrete. Put his bed, toys and food/water bowls there.

Paper training

If using a room, replace the papers with clean ones when you get home. You will notice with time that he will begin to favor toileting in a particular area. Begin gradually removing papers from areas he never uses that are furthest away from his favorite spots. If he makes

a mistake, you have been a bit too quick for him and need to go back to repapering a larger area or even the whole room. Once he is reliably using a small area of paper without mistakes, you can start moving the papered area to a corner, just an inch a day. If he makes a mistake, it means again you have progressed too rapidly and may need to go back to papering the room again. Just be patient! Over time he will become accustomed to toileting in a small papered area, and learn not use the floor.

With consistence and patience your pup will gradually develop better and better control of his bowels and bladder and become a successfully housetrained pet.

Puppy socializing

A sociable, friendly dog that is happy to meet new people, and unfazed by different experiences, is a product of two things - genetically predisposed temperament, and positive exposure and conditioning as a pup. You can get a good idea of the pup's genetic or natural temperament from doing the Campbell tests (explained earlier). And you can do a lot to modify its natural temperament through thorough and positive socialization.

There is a narrow window of opportunity to successfully socialize your puppy that begins at 5 weeks of age and continues to 16 weeks of age (some say 12 weeks of age). As you will not be getting him home until he is 8 weeks old, that only leaves a very short period where you will have to make every day count if you want a psychologically sound dog for the rest of its life with you.

Your pup will not be completely protected from common infectious diseases until it receives its second vaccination at 12 weeks of age. Even so, it is strongly advisable that regular contact with other dogs is maintained right through the important imprinting period. A good option is to take your puppy to "Puppy Pre-School" which provides the opportunity for it to mix with other vaccinated pups in a disease-safe environment. Set up a few play dates with other people in your class, or ask the breeder you got him from if there are other clients with puppies in your area. Failing this, arrange visits to or from other vaccinated dogs in a clean (non-public) environment so your puppy grows up as a well balanced, sociable, and sexually normal member of the canine race!

Unless you want your puppy to grow into a savage guard dog or nervous wreck that freaks out at every new experience, person or animal, I strongly advise you to ensure that it gets plenty of positive contact of all kinds of during the imprinting period. Poorly socialized dogs often end up in dog pounds where their disposition makes them almost impossible to rehome.

If you are embarking on a successful dog breeding business, you will want your dogs to act warm and friendly to everyone who comes along to see them with a view to buying your puppies. That includes men with beards, people with glasses, little children, old folks, women, colored people - your list of potential clients includes everyone! So expose your pups to positive varied experiences with as many different kinds of folks and critters as possible while it is still young enough to imprint familiarity with them. It also includes experiences like rides in the car, noisy traffic, umbrellas, shopping carts, skateboarders, busy marketplaces, horses or any other animal your puppy will be exposed to as an adult dog, other dogs, swimming at the beach, etc. Sit outside a busy area with your pup, such as a shopping centre or library, and invite different kinds and ages of people to give your pup a treat and pet him. Do this gradually with only one or two people at a time so that he is not overwhelmed. Take him to your veterinary clinic just to him his favorite treats while you are there. Give him treats while you hang out near a busy thoroughfare where he can be exposed to a range of vehicular and foot traffic. There is an element of risk of disease in exposing your young pup to the world, so ask your veterinarian how you can minimize this risk for diseases that are prevalent in your area. Carry your pup through public places and other areas that may be contaminated with dog diseases such as dog parks, and don't allow him contact with dogs whose vaccination status is unknown to you.

Puppy grooming

If your puppy is a type that needs grooming, make sure it gets plenty of exposure to the grooming experience from an early age. Give it a bath every few weeks starting with a few days after you bring it home and it has had a chance to settle in a little to its new abode. Praise and reassure it but brook no nonsense - if it resists you must always win by gently by firmly insisting on your way. But ensure the experience is short and as positive as possible.

Offer lavish praise and encouragement, and always quit at a moment when your pup has behaved well. Puppy's first experience with the clipper will hopefully have happened before you even bring her home. In any case, show the puppy the working clipper before starting the clip, reassure her, and - with help if necessary - carry through with the experience. It is wisest to make the first few lessons with the clipper as positive and non-traumatic as possible - don't insist on doing a salon quality job, just focus on exposing your puppy to familiarity with being groomed without scaring them!

Puppy health

Intestinal Parasites

All puppies require worming with a complete wormer (that handles tapeworms as well as the usual roundworms and hookworms) starting at 2 weeks of age. Pups and their lactating mothers are the most susceptible to intestinal parasites, which are "switched on" to greater activity and egg and larvae production as whelping approaches and throughout lactation. The lactating bitch is thus the most dangerous potential source of infection for puppies and children alike. Puppies can even be infected while still in the womb! Infection can even occur while suckling via the bitch's breast milk. The feces of untreated lactating bitches and their puppies will be absolutely loaded with parasites.

Affected puppies are poorly grown, listless and often have a pot-bellied appearance that seems out of proportion with their weak and spindly legs. They will commonly also suffer from diarrhea (which will be similarly heavily contaminated with parasitic eggs and/or tiny larvae).

Worming should therefore begin at 2 weeks of age and continue fortnightly until the puppy is 8 weeks old. Thereafter it is recommended to worm the puppy again at 12 weeks of age, then every 3 months throughout its lifetime. You can dramatically reduce the contamination burden in your dog areas through basic hygiene. Clean up and remove all feces before they have been there 7 days or more, and regularly worming your dogs (especially pregnant bitches - more on that later). After 7 days, the stages of many common parasites will leave the feces and no longer be amenable to easy removal. All public places frequented by dogs will be heavily loaded with hookworm larvae (especially during warm,

moist conditions) and most particularly roundworm eggs, which are long lasting in the environment under all conditions and tend to adhere to fur and shoes by which means they can invade your home space.

Infectious Disease

Up until it is about 4 weeks of age, a puppy suckling off a vaccinated bitch will receive antibodies to common diseases in her milk, and thus have some measure of protection. Your puppy will normally have been vaccinated at 6 weeks of age, and come to you with an authentic vaccination certificate. The most commonly vaccinated for diseases (in Australia) are Canine Distemper, Canine Hepatitis and Parvovirus. In wet areas Leptospirosis is commonly vaccinated for. In rabies endemic areas, rabies is naturally also on the list. Ask your veterinarian about diseases common in your area, and vaccinate accordingly. If your dog will live in a kennel situation either all the time (God forbid!) or occasionally, then you should also ensure it is vaccinated against Kennel Cough. Reputable kennels insist on this.

The old puppy shots schedule - taught to me and other aspiring vets at vet school decades ago - went like this:

We need to protect puppies from as young an age as possible. So let's give them their first vaccination at six weeks of age. However, every puppy gets a big dose of protective antibodies in the first suckle (of colostrum) from its mother. These antibodies wane over time but are still relatively high in the puppy's body at six weeks of age and tend to neutralize vaccinations given at that time.

So, in short, the first vaccination given at six weeks of age, is very often not effective.

Because we can't rely on it, we then recommended another two rounds of vaccine at around 10 and again at 14 weeks of age.

A Better Puppy Shots Schedule

Now we know better.

Research has revealed that over-vaccinating puppies predisposes them to autoimmunity diseases without offering better protection from disease.

The new puppy shots schedule goes like this:

By eight weeks of age the level of antibodies from their first feed from mom has dropped low enough to make vaccination at this time highly effective in around 95% of puppies. Since we can rely on it, only one follow up puppy vaccination is needed, around four weeks later (ie at 12 weeks old). Giving a booster 12 months later has been found to then protect the puppy for life.

If it wasn't so important to get the puppy out there socializing with its new owners by eight weeks of age I would keep it a week longer and delay the first vaccination to 9 weeks of age. This would bring its effectiveness up close to 100%. However, there is only a narrow timeframe of opportunity to expose puppies to the world and owners are the best placed to give their puppies the one on one attention doing this well requires.

The biggest threat to life by far for any young dog are behavioural issues stemming from inadequate socialization at the right age!

Keeping your puppy separated from the world until its last puppy shots is a recipe for disaster. Socialization can and should be full-on during this time, and can be done safely.

Owing to political considerations, in Australia the Australian Veterinary Association has compromised with the profession. While acknowledging the effectiveness of the new protocol for puppy shots, the AVA's recommendation is to give boosters every 3 years after the 12 month shot. Some veterinarians still stick to the old regime

What Puppy Shots to Give When

I routinely only vaccinate puppies for Distemper, Canine Hepatitis, and Parvovirus. In this case, more is not necessarily better. Giving combinations of multiple vaccines has been shown to be harmful to the development of a strong immune system in puppies. However, if you plan to use kennel boarding services in the future, additional vaccination against Kennel Cough will be required. In some areas vaccination against Leptospirosis and Rabies will also be necessary.

It normally takes six weeks for immunization to "take" and the body to produce an effective arsenal of antibodies in readiness for infection. For this reason, it is wise to keep your puppy away from potential sources of infection until it has had its 12 week shots. However, some immunity will develop after two weeks from their first vaccination. And given the importance of proper socialization during the puppy stage to the temperament of the adult dog, careful exposure to vaccinated dogs in clean environments should be risked by the new owner (see section on socialization).

If you are going to take your dogs out into the public arena every day for a good solid bout of exercise, they will be exposed to what is known as “street boosters”. Every post, dog or poo they sniff will be a potential source of exposure to infection, acting in much the same way as a vaccination. As such, they will be able to maintain a strong immunity status to most common diseases. In this situation, despite what your vet might say, you should only need to vaccinate every few years. However, dogs kept always away from public spaces, or those that have reduced immunity due to sickness or old age, should be vaccinated each and every year.

Heartworm

If you live in a heartworm endemic area, you will also need to provide your puppy with heartworm prevention medication to destroy the larval stages - the microfilaria - before they develop into adults in the heart and pulmonary artery (the main artery from the heart to the lungs). This protection should start well before the dog reaches 5 months of age and continue every few months (the drug companies and your vet will say every month) for the life of the dog.

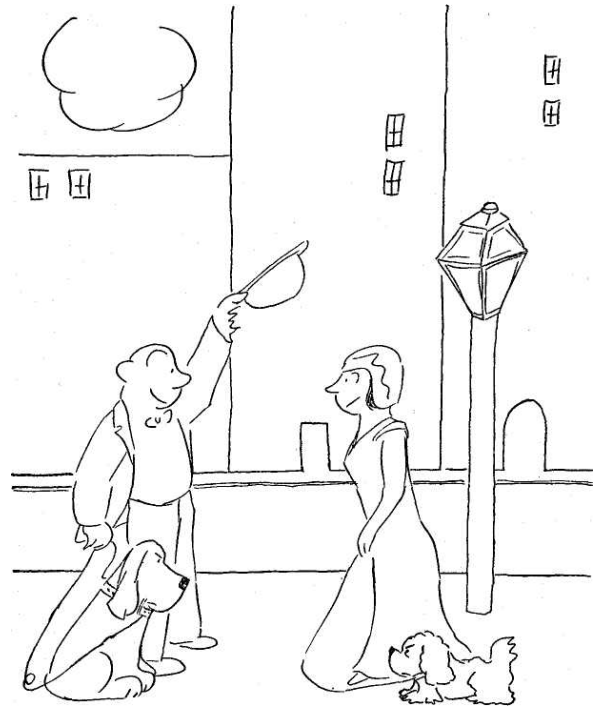
If you get a dog that has not had such a treatment regime maintained, then you must not give it heartworm prevention medication! That is because it may have adult worms already living in the heart. If you medicate, these can die and float off into the arteries of the lungs, to lodge in and block the smaller arterioles, leading to massive death of lung tissue and a possibly fatal outcome!

Exercise is important!

To be healthy and happy, your dogs (and you!) require daily exercise. So, chuck in your gym membership, and commit yourself to at least 20 minutes (preferably 40 minutes) of brisk walking with your dogs every day. Make daily exercise a routine and you and your animals will enjoy greater health and fewer medical bills for the rest of your life!

There are other benefits too. Did you know that walking a dog is the best way to meet other people? They'll often say hello to him and give him a pat, totally ignoring you! But such meetings can and do lead to getting to know the other people in your community and sometimes even the develop of valuable new friendships.

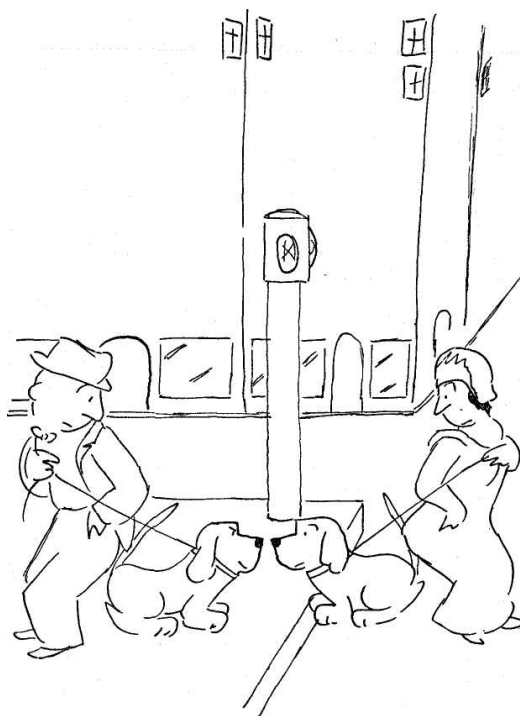
My own mother is a living example. Thanks to her rather food-oriented fox terrier "Dopey" she met the love of her life. She was walking over a bridge where people were fishing, when Dopey decided to sample some rather yummy smelling bait that seemed to him to be there for the taking. The episode led to conversation, then a date, and now a 'happy ever after'!



Breeding for the first time

Timing

Many breeders will tell you that you should not breed your bitch before she is 2 years of age, but I disagree. While it is important that your young would-be breeder has attained close to her final adult size before she is mated for the first time, waiting longer than this invites disaster. The reason is that as she ages, the cartilage that joins together the two sides of a bitch's pelvis become ossified into hard bone as she achieves full maturity. It is best to initiate the pelvic canal to the birthing process while it still has a little "give" in it. Subsequent births are then likely to be that much easier and trouble free.



I have maintained this policy through the whole 18 years I have been breeding dogs, and (touch wood!) have never had one bitch require either a caesarian or veterinary assistance with a birth. All my bitches have recovered rapidly from the birth process without recourse to antibiotics or oxytocin. None have ever retained a placenta or a pup. After all, birth is a natural process. In dogs that have a healthy diet, daily exercise and comfortable conditions to birth in, there should be no problems. The fact that I have carefully selected a strong and vigorous breed to work with also has a lot to do with my good luck, I am sure!

So, in smaller, vigorous breeds, you may find that your new bitch has her first estrus period ("heat") as young as 5 to 7 months of age. Skip that heat, and consider mating her on her subsequent heat (usually when she is just over 1 year old) unless she is poorly grown in which case you should delay mating for one more heat period (when she is around 18 months old). Larger and less vigorous breeds may not cycle until they are 12 months of age or older and may only cycle once a year. If they are well grown, I would consider mating them then. However, don't overfeed your pups in the hope that they will reach breeding size earlier as this will inevitably be counterproductive to their health and vigor over the long term.

Ensure that your breeding dogs get regular exercise in public places frequented by other dogs. Take your young bitches, in particular, out regularly. This is important not only for ensuring she is fit and toned for her role as a breeder, but also to expose her to infectious diseases. A healthy, vaccinated dog or bitch needs the opportunity to come into contact with canine diseases on a regular basis so that they can maintain strong immunity. Herpes virus, for example, is part of the common kennel cough complex of pathogens. Any dog in regular contact with other dogs will be exposed and develop immunity to the bug. This immunity will be transferred to their pups through the colostrum in her first milk. However, pups born to a bitch that has not developed immunity can die during their first three weeks of life (“Fading Puppy Syndrome”) if exposed for the first time during pregnancy or early lactation.

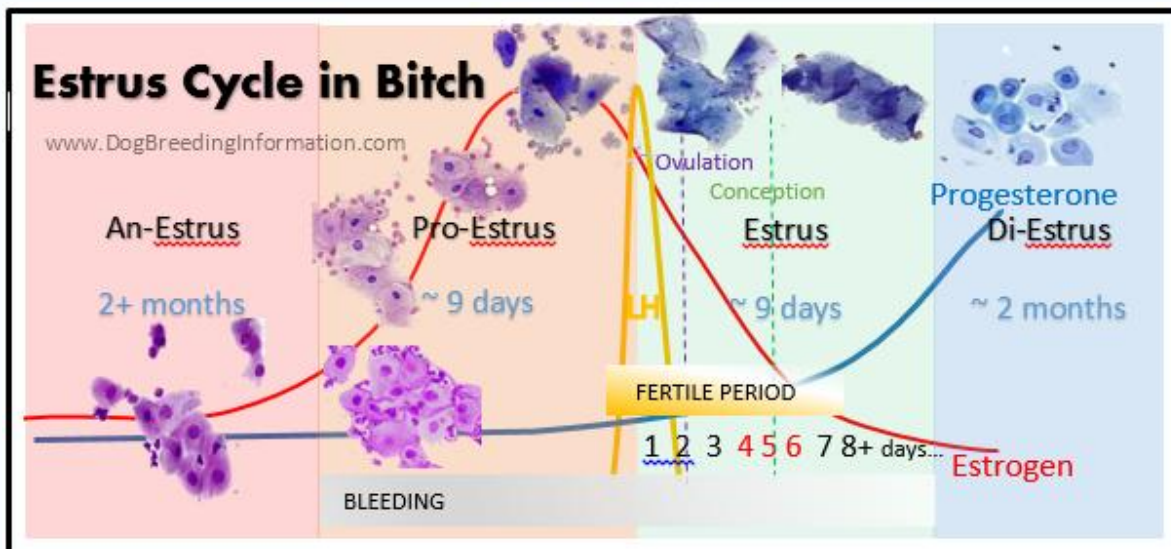
Mating

A virgin bitch will sometimes be skittish and difficult to mate. A virgin dog will often be unsure, unskilled, and definitely inexperienced! It is advisable to therefore mate virgin animals to experienced animals. When you are just starting out you may need to rely on someone else’s dog to mate your virgin bitch for the first time. The other option in the case that nature doesn’t take it’s natural course, is artificial insemination. With the right equipment and know-how, anyone can successfully artificially breed their dogs in their own backyard! I have put together a special **Artificial Insemination Kit** (available from www.dogbreedinginformation.com) that will provide you with everything you need to do this. If you are lucky, however, your young dogs will just do what should come naturally without your intervention. I remember getting a new trio of dogs of similar age many years ago. When they were about 9 months old, my then very small son brought me a live newborn puppy to look at! I was very shocked! I never imagined that a dog and bitch only 7 months old would be able to get it together to achieve such a feat.... But they did, and the proof was there before my eyes.

The Reproductive Cycle

Breeding Time line

All cycling bitches experience a defined heat period within which there is a small window of opportunity for fertilization to occur. However, there is a lot of variation in the frequency and length of the reproductive cycle between different breeds and different bitches. It can vary from one cycle (or heat) every 18 months (this is typical of some of the giant breeds) to one every 4 months. The average bitch will cycle approximately every 6 months and an individual bitch will tend to conform to her own unique repeating pattern throughout her fertile years.



The reproductive cycle of the bitch is made up of distinct phases:

- A "Heat" lasting around 3 weeks made up of:
 - Proestrus
 - Estrus
 - Diestrus
- Anestrus - the rest period between heats.

Phase	Usual Length	Events
Proestrus	5-7 days Range: 1-21days	Follicles start to develop on ovary. Uterus lining forms. Bitch not receptive to male. May be bloody vaginal secretions.
Estrus	4-13 days	Ovarian follicles mature, producing estrogen. Typically less blood in vaginal secretions. Bitch becomes receptive to mating. Vulva may be swollen, pink. <u>Ovulation</u> occurs a few days before estrus ends.
Diestrus	7-10 days	Follicles become Corpus luteums and produce progesterone (may be a little bleeding again due to waning estrogen) to support pregnancy. If they persist without pregnancy a false pregnancy may ensue (common in dogs).
Anestrus	3 - 17 mth	Rest period.

Mating

Even where both the bitch and the dog are healthy, and mating occurs at exactly the right time, about one time in seven you won't end up with a litter. And once the bitch is six years old her chance of conceiving drops by a third; once she is 7 years old, it drops by a half.

That is normal and a fact of life, so don't assume something is wrong if you miss a pregnancy now and then.

Aside from that, accurate timing of mating is the single most important factor for breeders in optimizing both the number and size of the litters that they are able to breed. It is also the area where breeders most commonly run into problems.

Part of the problem is the "old school" idea of mating on days 10/11 and 13/14 after the first bleeding day of the heat (day 1 - the onset of proestrus). This approach can run into trouble for many reasons including:

- It's easy to miss the first day of bleeding (lining her bedding with a white sheet helps)
- The bitch can go into heat without bleeding
- 20% of bitches have a cycle that varies from the "norm" (see table above).

Fresh dog sperm is capable of fertilizing an egg for 5 to 6 days. A few days before estrus ends, the follicles on the ovaries of the bitch will ripen and burst, releasing the eggs. However, the eggs are not mature enough for fertilization until 2 to 3 days after ovulation. And once mature they remain viable for a further 2 to 3 days.

The biggest litter size, therefore, will be achieved when a bitch is bred two days after ovulation, when both semen and eggs will be at their peak viability. However, a successful pregnancy can still result if the bitch is bred any time between the 2 days prior to ovulation to the 4 days after ovulation.

So the challenge for you as a breeder is in pinpointing when your bitch has ovulated. There are several methods available and they vary in their simplicity, accuracy and expense.

Pinpointing Ovulation

Breeders have access to a range of means of pinpointing ovulation:

Visible signs of estrus

- Vaginal bleeding that usually diminishes as ovulation approaches
- Swelling of the vulva
- Bitch's positive response to the male
 - Standing still to allow the dog to mate her
 - Flagging of the tail (it moves to the side)
 - Raising her back end toward the dog.
 - Flirting with the dog (gamboling playfully around him in a teasing manner).

However, some bitches will respond positively to the dog throughout proestrus, and some will never respond at all, even at ovulation! For the bitch that does respond, the breeder can ensure that fertilization had occurred by mating her every two to three days during her

estrus period. For the bitch that doesn't, the breeder can learn how to do their own Artificial Insemination (AI) and inseminate her with semen collected from their own dog at the same 2 to 3 day intervals. However, if you need to use someone else's dog, either for a natural mating or AI (especially if using short-lived frozen sperm), then pinpointing ovulation accurately may be necessary.

Blood Progesterone

Progesterone is a reproductive hormone that begins to increase in the bloodstream just prior to ovulation. For most bitches when progesterone rises to 2.0 nanograms (one billionth of a gram) ovulation is imminent, and when levels reach 5.0 to 10.0 nanograms, the bitch is ovulating.

Progesterone levels are a very accurate means of pinpointing ovulation. However, the tests are expensive and distressing for the bitch, as blood will need to be drawn several times every 3 days until ovulation is detected. If frozen semen is being used timing is more critical and even more frequent sampling is needed. Another drawback is that the blood needs to be assessed by a laboratory, so if you live in a remote area it may take up to 3 days to get your result!

Veterinarians defend the expense and distress to the bitch of this method with the lure of maximizing litter size and breeder revenue, and in some cases this may be quite justified.

However, progesterone kits are available to breeders that chart progesterone levels through color changes. They only provide a subjective idea of progesterone level rather than the precise measurement the more formal laboratory tests yield. However, in conjunction with other ovulation timing methods, may be a good option. Nevertheless, they still rely on blood, and the blood also need to be centrifuged to separate out the clear serum for testing.

Blood Luetinizing Hormone (LH)

As it is the hormone that triggers it, Luetinizing Hormone normally peaks just prior to ovulation. The blood test for blood has similar drawbacks to the blood test for progesterone, and an added disadvantage. The LH surge, may occur anywhere from 3 to 5

days before to 5 days after the onset of estrus, a margin too wide to be either useful or reliable. Detecting the LH surge accurately is normally impractical as it requires twice daily blood tests.

Use of Glucose Sticks or “Ovulation Test Pads”

Glucose detecting reagent strips (sold at exorbitant markups as “Ovulation Test Pads”) are sometimes used at home by the breeder to avoid expensive veterinary costs associated with more invasive techniques discussed below. Glucose may be first detected in vaginal fluid between 3 days before and 3 days after ovulation. As we have seen, eggs are not ripe for fertilization until 2 to 3 days after ovulation and remain viable for a further 2 to 3 days once mature. Thus, if mating or Artificial Insemination takes place on the first day that the glucose is detected in the vaginal fluid, then repeated 3 days later, then theoretically it is likely to cover the fertile period and result in success.

This technique is not as accurate as vaginal smears or blood tests. However, there is no reason why you cannot be successful with glucose strips.

Failure of the method can easily arise if:

- The strip is contaminated with urine while performing the test. To do so could give you a false reading.
- Blood colors the strip making accurate interpretation of strip color impossible.
- There is insufficient vaginal fluid available to adequately wet the strip and give you a meaningful reading.

Use of Breeding Records

Keep a comprehensive record of your bitch during her heat period (even if you don't intend to mate her). Very often she will exhibit the same characteristics time and again from one heat season to another. Take note of:

- Behavior - Behavior may be your first clue that a heat is approaching. Bitches coming into heat or on heat may mount or be mounted by other dogs, male and female. They may lick each other's vulvas, or become unusually playful and flirtatious.

- Vaginal secretions - Are they bloody and copious and do they taper off to a more serous discharge towards the end of her heat? Perhaps she hardly secretes at all?
- Duration - Does she exhibit the “typical” timing or an extended or very short heat?
- Whelping date - Whelping occurs 62 to 64 days after ovulation. If you go back on your records you will then know what signs to look for when that bitch ovulates next time.

Vaginal Smear

Your veterinarian may offer you a cheaper option to blood tests that is less distressing to the bitch. This is the use of vaginal smears. The veterinarian (*or educated owner - see below*) stains, and studies the smear microscopically to check the proportion of cornified epithelial cells present in vaginal secretions which indicates if the bitch is in estrus or not. The shape of the cells and types present give a good picture of what stage of her cycle the bitch is at. Vaginal Cytology should be carried out at least 3 times, starting day 5 after bleeding starts and thereafter every 2 days until the percentage of cornified cells is >60%, indicating the onset of estrus and the fertile period.

Though not as reliable as blood tests, vaginal smears are useful indicators of when a progesterone test should be taken, avoiding the cost and discomfort of multiple blood tests.

I use vaginal smears exclusively now. If a bitch’s smear shows she is in estrus, I mate her. I take a new smear every 2 days thereafter and repeat mating until the smear shows estrus is over.

DIY Home Fertility Test

Having a canine fertility test you can use at home is invaluable. Determining the fertile period for breeding dogs is the biggest challenge dog breeders face in consistently achieving all the big litters they want. A home fertility kit for dogs based on vaginal cytology is a great solution.

The old rule of thumb - to breed on days 9 and 11 after heat starts - works fine for only about half the bitches out there, so what about the rest? Fact is that around half of all bitches fail to show an obvious bloody discharge to mark the start of the heat (pro-estrus). Many more are also far enough away from “average” in their cycle timings to make hitting the fertile period close to impossible without expensive testing.

The good news is you can easily, quickly and inexpensively deal with this situation at home using a combination of behavioral testing and vaginal smears (detailed in the DIY Canine Fertility Kit available at www.DogBreedingInformation.com).

Using Vaginal Smears to Pinpoint the Fertile Period of Breeding Dogs

The cells lining the vagina change in appearance in response to rising and falling levels of the hormone estrogen, with a lag of 3 to 6 days. So they are an effective rear-view “window” to see what stage the bitch is in in her estrus cycle and have been used routinely for decades as a canine fertility test. The practice of taking smears of the vaginal cells, staining the smears and looking at them under the microscope is called Vaginal Cytology.

When she is in estrus, nearly all the cells of the vagina are distinctively different from normal, being large and flat with sharp angled edges and a tiny or absent central dark spot (the nucleus). At all other times, such as in Pro-estrus and Di-estrus, most cells present are plump and round with a much larger dark central spot (nucleus). So once estrus is over, diestrus begins and the appearance of the vaginal smear under the microscope changes abruptly back again to soft, round plump cells with large dark nuclei, very similar to those seen in an-estrus.

Usefulness and limitations of Vaginal Cytology

It only takes a few minutes to prepare a vaginal smear of your bitch. As a canine fertility test, they are very useful for timing:

- When to start natural matings and knowing when to take your bitch to the dog.
- When to start artificial inseminations with freshly collected semen.
- When to start progesterone testing for artificial inseminations with chilled or frozen semen. Starting too early costs breeders a small fortune in time, vet bills and unnecessary hormone tests!

Fresh, good quality semen will last up to 6 days inside the bitch, while the eggs are only fertilisable for a small window of opportunity lasting around 3 days (approximately days 4, 5 and 6 after the onset of estrus). This underscores the importance of achieving one or more matings early in estrus. Late matings when the eggs are tired or dead will lead to very small litters or no litters at all!

Vaginal cytology will tell you when she is ready to take to the dog, thus ensuring you achieve the earlier matings that result in the biggest possible litters. On its own it does not however tell you exactly when she ovulates nor when her most fertile period is likely to be.

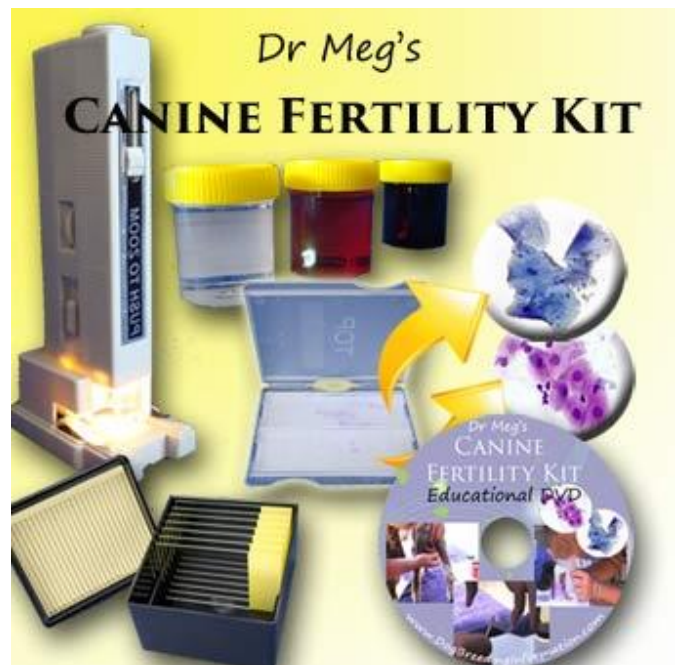
Dr Meg's DIY Canine Fertility Test Kit for Breeding Dogs More Successfully

This DIY Canine Fertility Kit makes it quick and easy to conduct Vaginal Cytology on your own breeding dogs at home.

It includes:

Full instruction manual with colour step-by-step photographs to illustrate every part of the Vaginal Cytology procedure, from collecting the sample, making and dyeing the slide, examining the slide and interpreting what you see on the slide.

Manual also shows you exactly How to Use Breeding Reflexes in the Bitch to Pinpoint the Start of Estrus - even without a male dog present.



- Educational DVD that shows you exactly how to do every step of the procedure.
- Stained example slide set comprising vaginal smears taken at Estrus and Pro-estrus/Di-estrus in my own dogs to make interpretation easier for you.
- Powerful pocket microscope with 200 X zoom magnification.
- Professional Staining Kit comprising 3 separate staining formulations that should last you for years.
- Spare microscope slides to use with samples from your own bitches (they can be reused over and over again).

Investment is \$247 including postage and will pay you back over and over again with more successful matings and bigger litters for years to come.

The Act of Mating

It is normal to expect a bit of playful courting behavior between the bitch and the dog before the serious business of mating gets underway. From 5 to 15 minutes of uninterrupted play and interaction should be allowed without any interference (so long as they are not hurting each other of course). Play between the two dogs may occupy the whole of their first time together. This is fine. It is best to leave them to it, and watch how matters proceed from some discreet vantage point. Between two experienced breeding dogs, much can be gleaned about the readiness of the bitch for mating by her response to the dog's advances and the degree of his sexual interest in her.

However, if the bitch or the dog is inexperienced, they may have trouble even if the bitch is physiologically ready to mate. Sometimes a little help will be necessary. If someone sits quietly and discreetly down and holds the bitch so she doesn't move around, a keen dog will often then be able to focus enough to complete the task. Any significant size mismatch between the two can also be compensated for by lowering or raising the back end of the bitch by standing her in a shallow depression or on a small platform.

It will greatly benefit the confidence and later performance of an inexperienced dog to be mated the first few times with an experienced and willing bitch. Likewise, it is best initially to breed an inexperienced bitch to an experienced dog.

The penis of the dog contains a bone that allows it to penetrate the bitch's vagina before the penis becomes erect. Once it has penetrated, the penis then becomes engorged,

including swelling at the base, which is known as the *bulbus glandis*, that then locks the two animals together for the duration of the mating in what is known as a tie. This can last up to an hour, but more usually about 10 to 15 minutes.

The dog ejaculates in three fractions. The first is basically to clean out the waterworks of the dog. It is clear and of about 1ml. The second is sperm-rich and milky, and produced within the first few minutes of mating. At this point he may attempt to dismount but remains locked with the female while producing the third fraction of ejaculate which is again clear, sperm-free fluid. All up the dog produces about 4 to 5 ml of ejaculate. It is important to supervise the mating so that the male dog's reproductive parts aren't inadvertently damaged by the two coupled dogs dragging each other about. Some bitches will struggle and need gentle but firm restraint and reassurance to keep them still and calm.

Sometimes a dog will gain penetration but will not be able to achieve a "lock" with the bitch. Since the fertile fraction of the ejaculate is produced in the first few minutes of the mating, simply holding him into position for this time will usually be enough for the mating to be fertile. It is advisable for two people to assist in this situation - one to hold the bitch and one to steady the dog.

Artificial Insemination

In pedigree dogs, it is not uncommon for either the bitch or the dog to be unable to mate. There can be many reasons including lack of libido in either, large difference in size, arthritis or hip problems, aggression, or the dogs may simply not like each other!

In such circumstances, artificial insemination (AI) may be the best method of breeding. It offers several advantages over natural breeding including:

- If you are using an outside dog, AI will avoid the need to transport and therefore stress the bitch. Stress can cause excessive weight loss and poor conception.
- It may be cheaper to transport semen than to transport your bitch to the dog.
- The semen can be tested before use to ensure it is viable.

- AI can overcome the problem of a significant size difference in the breeding pair.
- AI can overcome reluctance of the bitch to breed, or lack of libido in the dog.
- AI can overcome the risk of injury if one or both dogs are aggressive.
- The dog will not be exposed to any sexually transmitted diseases the bitch may have.

AI can be done using fresh, chilled, or frozen semen.

- Fresh semen is transferred in to the bitch in the same form as it was collected.
- Chilled semen is spun down to separate out its sperm-rich fraction which is immersed in a special medium containing nutrients, buffers, and antibiotics. It is then refrigerator chilled and shipped for insemination within 24-48 hours of collection.
- Frozen semen is prepared in a similar way except that a cryoprotectant is added to the medium. It is then stored as either pellets or straws freezing it in liquid nitrogen. In this environment the semen will stay viable indefinitely but once thawed, must be used within a few hours.

Semen type	Period of viability	Comments
Fresh	6 days	Results close to natural mating. AI can occur before or after ovulation. Can simply be deposited into the vagina. The breeder can easily learn - with the right equipment - to do this themselves.
Fresh chilled	48 hours	Timing more critical (e.g use of blood progesterone assay to pinpoint ovulation). Can be deposited into the cervix in standing bitch.
Frozen	12 hours	Timing very critical (multiple and frequent progesterone assays). Needs to be deposited into the uterus (surgically). Potential access to valuable bloodlines of long dead dogs! Semen easily damaged with possible loss of conception rate.

The accurate timing of ovulation (e.g. measurement of serum progesterone) is strongly recommended to minimize the number of AI procedures performed and is essential when using chilled or frozen semen.

Imagine Doing Your Own AI!

You can easily learn the techniques of Artificial Insemination and perform it in your own home. No more worries about “Will he mate her or not?” or “Will she stand still this time?” AI is the solution to the terrible dilemma that plagues every serious breeder sooner or later...

Learning AI can save you thousands of dollars in litters you otherwise would never have had!

As our **video trailer** shows, canine A.I. basically involves collecting semen from the chosen male dog, and transferring it into the vagina of the chosen female:



With the Right Equipment and Right Techniques YOU Can DIY AI Too!

No matter what size dogs you have...



No matter if you finished high school or not...

Everything you need to do this like a pro is in our **Canine AI Kit** including:

- **Full DVD** that you can play on any computer or DVD player.
- **All the specialized equipment** you need for the job.
- **18 page Handbook** to explain everything you need to know.
- **Works on all breeds**
- **Can be reused over and over again**

Kit is available from www.DogBreedingInformation.com

Inducing Heat

Some dog breeders advocate “jump starting” heat. This is certainly possible using hormonally active drugs that interfere with the normal cycle of the bitch by interrupting the corpus luteum bodies on the ovary so that they stop producing progesterone. However, there are very specific and restricted circumstances where such a course should be considered. One is where a bitch has high testosterone levels (if your bitch is very aggressive you may opt to look into this option). Many breeders use such drugs in bitches that have a long interval between heats - of a year or more - to get them to cycle more frequently. The practice is common in greyhound circles.

One major disadvantage is that an induced heat is not as fertile as a spontaneous one (the litter size is likely to be smaller). So if your bitch is already cycling every 6 or so months, you are better off to simply wait until she is ready than to try and force the issue.

If your bitch has never cycled, you also run the risk of sabotaging her reproductive performance for the rest of her life, ruining a good dog. The artificial hormone effectively tells her body that she is fully developed and as a result she may fail to develop further, including within her reproductive system. Her subsequent heats, if she has them at all, may become irregular. So, only to be used (if at all) in mature bitches (4 years of age or older) who have already had a few natural heats.

The most common drug used in dogs to induce heat is **PG 600**, a combination of 400 IU of Pregnant Mare Serum Gonadotrophin and 200 IU of Human Chorionic Gonadotrophin originally formulated for use in swine. It is a cheap drug given by an excruciatingly painful injection into the muscle in a bitch that has gone at least four months since her last heat or whelping. Only 40 to 50% of treated bitches will come into heat (within a week) but not all heats will be fertile. The product is not approved for use in dogs, and if used multiple times, the bitch may develop cystic ovaries. There are other drug-based options but they are either hellishly expensive, impractical or have dangerous side effects.

Better alternatives to try before considering the rather desperate ‘drug’ option:

- Improve your bitch's (and all your dogs for that matter) diet. Dry commercial dog foods are often low in healthy fats as they are apt to become rancid and spoil. A range of fatty acids are essential to normal functioning of the reproductive system as they contain the precursors used by the body to manufacture hormones. Essential fatty acids (in moderation - do not overdo it!) also add shine to the coat, boost energy levels and are great for overall health. Add a few teaspoons of quality oil (vary the type e.g bacon grease, non-GM canola oil, peanut oil, sunflower oil, cod liver oil, fish oil capsules, evening primrose oil, butter, olive oil) and gradually increase to a few tablespoons a day dribbled over the top of her normal food.
- Exercise. Regular daily exercise is well known to get bitches cycling.
- Exposure to male dogs. Sometimes bitches raised on their own won't cycle until exposed to male dogs. Take your dogs for a brisk walk in public every day and they will get more than enough exposure as well as be healthy enough to start cycling more regularly.

Health Checks Prior to Breeding

A few infectious agents are transmissible between a dog and bitch at mating. Most of them, apart from *Brucella canis*, are of no consequence to the health and fecundity of your dogs. If the mating is by Artificial Insemination, the male is protected but can still potentially pass disease on to the bitch via his semen. As it is important to the success of your venture that you protect your valuable breeding dogs from such diseases, it is wise to insist on a health check of all dogs prior to mating.

Any male dog you are using for the first time should have be subjected to a preliminary semen examination for viability. In this way you can avoid an otherwise missed pregnancy if it happens to have low semen quality, giving you the opportunity to use an alternate sire.

Vaginal cultures are of little value in a pre-breeding examination as the vagina of the dog is never sterile anyway. It normally hosts a varied population of bacteria and other micro-organisms (including *E. coli*, *Streptococcus*, *Staphylococcus*, *Pastuerella* and *Mycoplasma*), that will be in healthy balance unless the dog has been treated recently with antibiotics or the bitch is otherwise unhealthy.

Brucellosis, on the other hand, is a serious infectious disease in dogs. Infected bitches will abort litters late in pregnancy. Infected males will suffer inflammation of the testes and subsequent infertility. Carrier dogs will shed the bacteria in all body discharges including urine, saliva, tears, feces, blood and birthing fluids. As a result, dogs can be infected at any time that they are in contact with other dogs, or frequenting places where other dogs have been. Luckily the disease is not common (and Australia is free of the disease). However, the admission of just one infected dog into your breeding establishment can infect all others and destroy your enterprise. The recommendation in countries where the disease is prevalent is to test bitches prior to every breeding, and dogs every six months.

Fertility Problems

There are several possible causes of low fertility in the dog. Here is a guide to sorting them out, and the order in which you should proceed.

Timing of the mating

When a mating fails to result in a pregnancy the most common reason is poor timing with respect to ovulation.

Natural rest for the bitch

Even where the bitch and the dog are fertile and timing of the mating is perfect, 15% of bitches will fail to get pregnant during a particular heat period. This is normal. Only when a bitch has failed to achieve pregnancy in two consecutive cycles is further investigation warranted

Fertility of the dog

As dogs age, they become more likely to suffer from reproductive infections and inflammation that may compromise the quality of their semen. Even a formerly virile and fecundate dog could suffer diminished fertility between one mating and the next. It is thus appropriate to have his semen examined for its quantity and viability, particularly if he has had a recent history of failing to get more than a few normally fertile bitches pregnant.

Age of the bitch

As already discussed, the fertility of the bitch drops rapidly once she gets to “middle age” - by six years old her chance of conceiving drops by a third; once she is 7 years old, it drops by a half.

Investigating further

Once the male has been ruled out as a cause of infertility, the many possible causes in the bitch can be explored. Causes of infertility on the bitch's side of the equation include problems with:

Fertility Disorders in the Bitch	Possible Causes
Egg production	<ul style="list-style-type: none"> - Sexual immaturity - Hormonal dysfunction (obesity, or problems with thyroid or adrenal glands) - Previous hormone treatments (growth stimulants, corticosteroids, progesterones) - Excessive sports training - Infection (e.g. canine herpes virus) - Poor diet (e.g. too low in energy or fat)
Fertilization of the eggs	<ul style="list-style-type: none"> - Sperm disabled by infection (vaginal, uterine; in male - urinary, prostate) - Egg passage blocked by inflammation of the oviduct
Implantation of the embryos	<ul style="list-style-type: none"> - Uterine infection - Cystic endometrial hyperplasia - Heat periods too close together (un-rested uterine wall)
Disorders interrupting pregnancy	<ul style="list-style-type: none"> - Embryos unviable due to genetic incompatibility of parents (same lethal recessive trait) - Infection (viruses: herpes, canine distemper; parasites: toxoplasma; bacteria: salmonella, pasteurilla, canine brucellosis) - Toxins: large number of chemicals (e.g. in common cleaners and insecticides) and medicines may damage embryos, especially in the first 3 weeks of pregnancy.

Obviously, treatment for these fertility problems will depend on their origin. A thorough veterinary investigation will be required to ascertain the exact cause of infertility. This will include a review of the bitch's history (previous cycles), any treatments that may have been given (particularly hormone treatments), the mating date, how the mating proceeded, any discharges from the vulva, and measurement of hormone levels in the bitch. Use of hormones to treat infertility can cause more problems down the track and must only be entertained when the reason for infertility has been identified with certainty and all other possible treatments have already failed.

Diagnosing Pregnancy

Unlike the situation in humans, pregnancy in the bitch is not signified by the presence of a specific hormone. There are several techniques available for diagnosing pregnancy in the bitch, of varying accuracy. Each are specific to a particular stage of her pregnancy, but none can accurately detect any but the most advanced pregnancies. For this reason, I shy away from worrying about pregnancy diagnosis at all. She is either pregnant or she isn't! If she is... she'll have pups, if she isn't.... then she won't.

Further, it is not uncommon up to day 38 of pregnancy for a bitch to reabsorb one or more (even all) pups in the litter (due to placental insufficiency, fetal genetic disorders, or fetal damage from toxins or infectious agents). As such, the number of pups detected by any methods used before then may often exceed the actual number of live pups born. But for completeness, I have outlined currently available pregnancy diagnostic techniques and their timing and accuracy in the table below:

Days since ovulation	Method	Accuracy
26 - 35	Abdominal palpation: Pups can be felt by the experienced veterinarian through the abdominal wall of the relaxed and not overweight bitch as small "beads" along the uterine horns. By week 5 palpation of pups is no longer possible due to fluids in womb	Low. Pups in uterus feel similar to and can be confused with fecal pellets in the intestine. Also close to impossible to accurately determine number of pups in litter.
After 28 days	Relaxin (hormone) assay	Confirms pregnancy but not number of pups or whether they are alive or not.
26 - 63	Ultrasound	Accurately confirms presence of living fetuses (detects heart beating). Not accurate for litter size.
After 45 days	X-Ray (radiograph)	Best estimate of litter size.

Pregnancy Time line

The table below outlines pup development, changes you will notice in the bitch, and how to feed, exercise and care for her during different stages of her pregnancy.

Week	Development of Pups	Changes in the Bitch	Care of the Bitch
1	- Fertilization occurs in fallopian tubes - Embryo development resilient to external factors	- Possible morning sickness - Possible personality changes (usually she will become rather sooky and a bit lethargic and pathetic)	- Normal feeding - Moderate daily exercise - All medications must be pre-approved with veterinarian before use - No insecticides (eg flea treatments) - No live vaccines
2	- Embryos grow from 4 to 64 cells - Embryos descend to uterus		
3	- Embryos implant in uterus		
4	- Grow to 1.5 cm - Eyes, spinal cords and faces take shape - Organs form - Embryos very susceptible to defects	- Possible clear vaginal discharge - Breasts begin to grow	- Limit strenuous activity - Add extra high quality protein to diet on alternate days (hard boiled egg or ¼ cup cottage cheese)
5	- Grow to 3 cm - Toes, claws and whisker buds take shape - Gender discernable - Eyes close - Organ development complete - Embryos again resilient to developmental interference	- Abdomen begins to swell noticeably. - Gain in weight	- Add a small meal to amount fed - Switch to puppy biscuits - Introduce the whelping box
6	- Grow to 4.5cm - Skin pigment develops - Fetal heartbeats detectable with a stethoscope	- Nipples thicken and darken - Belly keeps growing - Should begin sleeping in her whelping box	- Add a medium meal to amount fed - Add extra high quality protein to diet daily (hard boiled egg or ¼ cup cottage cheese) - Notify your buyer list of when pups due
7	- Pups get larger - Hair begins growing	- Pregnancy obvious - Begins to shed abdominal hair	- Feed a little more in each meal - Avoid rough boisterous activity
8	- Fetal movement can be felt in resting bitch - Safe birth possible	- Abdomen becomes huge - Breasts developed and will produce milk when squeezed	- Add a third meal to each day - Worm bitch with vet approved wormer - Prepare for birth (see section below)
9		- Nesting behavior in bitch	- On day 58 after the first mating start taking her temperature 3 times a day - Take bitch's temperature 2-3 times/day and watch for Signs of labor (see section below)

Avoid giving your bitch any medications or exposing her to chemicals of any kind during the first 3 weeks of pregnancy.

During this early period of embryonic development the pups are very vulnerable to toxic insults that can either cause defects or death.

Infectious agents can pose a similar threat so avoid contact between your bitch and other dogs or possible sources of infection during this critical first trimester.

False Pregnancy

Such is the nature of the reproductive hormone cycle in the dog that your bitch can exhibit all of the above signs of being pregnant - including becoming a bit of a sook, eating a lot, sleeping a lot, and lactating - without actually being pregnant! This is known as a “False Pregnancy”. It is common and can occur whether your bitch has been mated or not.

My first bitch as a never-mated maiden, went into a false pregnancy after her first heat, then lactated and suckled a kitten!

There is a danger associated with false pregnancy though. Some bitches, for poorly understood reasons, may contract an infection of the uterus that becomes what is known as “pyometra” - a uterus swollen up with pus. Some 4 to 12 weeks after her last heat, she will have a distended abdomen that may be mistaken for pregnancy.

If her cervix is open, the uterine pus will leak out as a foul smelling, thick pale-red vaginal discharge. She may be otherwise well, or be feverish and lose her appetite. Valuable bitches can be treated with prostaglandins and antibiotics and should be bred on the next heat to avoid reoccurrence, then spayed as soon as their breeding life is over.

If her cervix is closed, the pus cannot escape and she will become severely ill and depressed with a grossly enlarged uterus, and stressed kidneys manifesting as thirst and frequent urination. Affected bitches can die of pyometra, and the only treatment is complete removal of the uterus (hysterectomy).

Pyometra is most common in older bitches that have had a large number of heat cycles. For this reason, it is best to have any bitches that are past their breeding years spayed prior to re-homing or retirement.

Preparing for the Birth

From the 8th week of pregnancy on you should ready yourself and any other people who may be involved in the whelping of your litter. Notify your veterinarian and any friends who will be lending a hand (e.g. someone to drive you and your bitch to the vet's in an emergency), and have their normal and emergency/after hours telephone numbers ready. Arrange so you can take the day off work for the whelping, and make sure there is plenty of gasoline in your car.

If your bitch has long or wooly hair, give her a gentle bath and then - unless she is entered in a show next month - clip around her vulva, the insides of her hind legs and her tummy. It is amazing how knotty, mucky and felted long hair becomes under the constant onslaught of a litter of vigorous pups! This way she'll be easy to keep clean, you will more readily be able to see what is happening during the birth, and it will be easier for the pups to find the nipples.

The Nesting Box

Your bitch and her litter will stay in the nesting box until the pups are a few weeks old. It therefore needs to be roomy enough for her to stretch out in without cramping. Guard rails along the inside lengths of the box will provide the pups with areas that are safe from being crushed by the bitch's body.

The nesting box should be placed in a location that is safe from other dogs. Even normally gentle bitches will sometimes kill the litters of other bitches if they get a chance - it's instinctive in some alpha females to do so (I have suffered this terrible catastrophe myself and learnt the hard way). The location must be quiet and peaceful, away from any hustle and bustle. The lighting should be subdued - put it on in an adjacent room, but leave the birthing area dim. Do not use the birth as an opportunity to invite people over for an "experience". Any noise or new faces will only distress your girl. If she does not feel safe, then she will feel stressed and anxious, and her stress may interfere with the smooth progress of the birth. For this reason, I routinely:

- Drape a sheet or throw over the Nesting Box to screen and make the bitch feel hidden and secluded.

- Temperature control - The whelping location must be neither hot nor cold, but “just right!” If the bitch is panting and seems warm after the birth is over, set up a fan to blow over the top of the nesting box. Similarly, set up a heater or a 100 Watt bulb at one end of the Box so the pups and the bitch can adjust their position for optimal comfort.

Prepare the nesting box for the birth by lining it with newspapers.

- Newspaper - As they become soiled simply lay more on top - you can dispose of the lot later when the birth is over. Some bitches will dig and paw at the paper during the birth, and you (and she) may risk losing track of puppies beneath mounds of shredded newspaper. Just remove the shreds as they are formed and keep the box open and free of debris.

Once the pups are born and the birth is over, you should give your bitch a sponge bath to clean up her back end and make her comfortable. At the same time you can weigh and sex the pups, and replace the newspaper with bedding.

- Bedding - I use old baby blankets (have a good supply on hand). A primo solution is a square of sheepskin lined with a sewn-in towel, made to fit your Nesting Box. You will need at least four so that you can change the bedding twice a day (or as needed) and still have time to launder the soiled ones ready to use again.

Incubator Box

Some people routinely use an Incubator Box to put puppies in while the bitch is still birthing pups. I don't do this, as I have found that my bitch will often become unduly upset if I take a pup away from her, distracting her from focusing on with the job of birthing. The sucking action of the already birthed pups on the bitch's nipples also releases natural oxytocin, which causes the uterus to contract and speed the birth. My motto with any birth is to interfere as little as possible. I just sit quietly nearby ready to lend a hand, help her by clearing a pup's nose of membrane or mucus, or pulling any out from under her if she accidentally sits on it.

However, it is wise to have an Incubator Box on hand in case you have a puppy that is weak, dramatically undersized, or depressed and needs some encouragement to breathe. Such a pup will often need a bit of TLC for the first few days of its life. Again, if your bitch requires a caesarian, an Incubator Box is a safe place to hold your pups until she is well enough to care for them properly herself.

The Incubator Box only needs to be big enough to accommodate a litter of newborns of your breed. It should either be placed in a warm spot next to a heater or, better yet, include a:

- Heating pad over which a warm...
- Baby blanket or bath towel is placed to keep your puppies cosy.

Other Equipment for the Birth

The bitch's body temperature can give you advance warning of when birth is getting close (discussed on page 96). Therefore ensure your equipment includes:

- A thermometer - Temperature of the bitch is taken via the anus. Wet the thermometer with a little water first to make insertion easier and more comfortable for the bitch. A digital thermometer is easiest to use and read. However, an ordinary mercury thermometer can also be used. Just be sure to hold it at the top and give it several good flicks in the air to shake the mercury back to the bottom before you attempt to take your reading.

A lot of bitches will tend to birth at night, and may even sneak off into a dark spot in the yard or under the house before you realize what is happening. For this reason it is absolutely essential that you have:

- A strong flashlight

To prevent this from occurring when you take her outside to toilet or have a walk around (which can often get a slow birth happening again) you must keep her under control right through the birth, so you'll need:

- A buckle collar and lead for your bitch.

I also like to have a low-key peek at my bitch behind the screen I've draped over her cage to count the pups (and ensure none are squashed beneath her) and check how she is going, so find it useful to have a:

- Small torch or pencil-light

It is important to keep a record of the progress of the birth, noting down the time of occurrence of events such as when she strains (has contractions), whenever any discharge is noted (and its color, amount, smell), the time pups are born, and the number of placentas that come out. This way you will have accurate information upon which to decide if things are going normally or not, and to tell your veterinarian in case you need to call for advice.

You will also know if the bitch has retained any of the placentas, which can lead to serious complications if she is not given a shot of oxytocin while her cervix is still open immediately after birth to clean her out.

Some breeders also routinely note the sex and color of the pups, weigh them with a food scale, and - if they are hard to tell apart - use a little nail polish, clip a small part of their fur or put different colored rick-rack ribbon loosely around their neck to keep track of who is who.

I interfere with the bitch and the birth as little as possible, and don't bother weighing my pups at all. I don't even check their sex until the bitch leaves them to go to the toilet for the first time, which may be from immediately to 12 hours after the birth. However, for pups that appear weak at birth and you are not sure if they are suckling properly, it is useful to record their weight so that you will be able to monitor if it is going up appropriately after feeds and over time, so by all means invest in:

- An electronic food-scale to weigh your pups

And, to keep adequate records you will require:

- Notepad and Pen (the Breeding Records Book supplied with this manual is ideal)
- Clock or watch

You may need at some point to assist the birth, so should have on hand:

- Surgical gloves - especially in countries that have Brucellosis, as it is readily transferable (and dangerous) to people. In Australia, which is free of Brucella, I prefer to assist the pups with my bare hands (scrubbed clean and nails cut short).
- Lubricant (e.g. KY Jelly) - it's amazing what a difference to a birth a bit of the old KY Jelly can make! I find it especially useful if the birth is a breech (back end first) or the pup is very large. I load up a 5 ml syringe a couple of times and gently empty it up there around the pup that has entered the vagina but seems stuck, so get yourself:
- 5 ml syringes

Now and then a pup will find it difficult to take its first breath due to a buildup of phlegm and fluids in its mouth and nose. You can clear this using:

- A bulb syringe

Some breeders routinely cut the umbilical cord as the pups are born, and believe it is preferable not to allow the bitch to eat the placentas, as she will if left to her own devices. There is also the concern that the bitch may chew the cord off too close to the puppy and cause an umbilical hernia. The cord should be cut about 1" from the body, and then tied with the disinfected dental floss, and swabbed with disinfectant. In a day or two it will dry and fall off.

If you prefer this you will need:

- Hemostat forceps - to clamp the cord on the puppy side of the cut.
- Dental Floss (dipped in disinfectant solution)- remove the forceps after a minute or so and tie dental floss tightly around the crushed cord prior to cutting it.
- Metal scissors (surgical grade is best) - for cutting the umbilical cord. Cut it on the side of the clamped and tied off cord that is away from your pup, as the object is to stop your pup from bleeding. Blunt scissors will leave a cut that won't bleed as much as sharp scissors will.
- Quick Stop Powder - to stop any bleeding from the stump after the cord is cut.

However, as you know I put a lot of trust in nature's wisdom. As a result, I nearly always let the bitch eat the placentas. In the process the pup will end up dangling from its cord that is fast disappearing into her mouth. Invariably (in my experience) when Mom gets close to the pup, she chews through the cord, doing your job for you. Cords chewed in this way rarely bleed.

However, whether you like to interfere, or are happy to trust your bitch, after the pups' cords have been cut or chewed, you should treat the stump with antiseptic. For this you will need:

- Antiseptic (e.g. Betadine or Iodine solution)
- Cottonbuds

The Birth Process

Signs Leading Up to Labor

- A dramatic drop in body temperature:
 - During the last week of pregnancy you should be taking your bitch's temperature at least twice, preferably three times, a day. This will provide you with an early warning of the birth.
 - Her temperature will drop from a normal 37.9 - 38.2°Celsius (100.2-100.8°Fahrenheit) to around 36.7 - 37.4°Celsius (98-99.4°Fahrenheit) within 24 - 48 hours of labor. Unless the bitch is heading for uterine inertia (where she goes into labor with a sluggish uterus that yields no pups within a reasonable timeframe) the temperature should stay low until labor begins.
 - As soon as you notice the temperature drop, let your vet and your helpers know the birth is imminent.

- Restlessness - In the last day leading up to labor your bitch will appear restless and begin anxiously seeking out place that feels safe to have her pups. This is called "nesting behavior".

The Normal Labor

Labor occurs in three stages.

1. Dilation of the cervix:

This stage may last as long as 12 hours and occurs before any serious abdominal contractions are evident (there may be a few very weak contractions).

- She will become restless and exhibit pronounced nesting behavior, such as digging at her bedding or in sand in her yard. She may spurn her usual sleeping place and anxiously visit several potential nest sites trying to choose a place where she'll feel safe and comfortable to have her pups. You'll have to keep a close eye on her and gently redirect her to the nesting box, as she is very likely to pick or dig out some very inaccessible and downright unsuitable spot if left to her own devices. Provided the spot she chooses is

accessible I often let my bitch have her first puppy there. I find that once she has birthed her first, and I transfer her and the pup to MY chosen nest, she is then happy to settle down in it.

- She may refuse food close to going into labor.
- As labor approaches she may seem distressed, panting, restless and uncomfortable.
- She may lick and look at her vulva.

2. Passage of puppies:

Labor proper begins when the bitch starts straining seriously. Her contractions can be felt as a distinct hardening of the abdominal walls of her belly, and seen as arching and tightening of the muscles on her back and body that progress towards her tail. Between contractions she will pant heavily. Offer her frequent small drinks of water during labor as the panting will dry her out and make her thirsty. During labor she will worry and scratch at her bedding and get up and down and move around a fair bit in obvious discomfort. Don't worry - this is normal!

Prior to the passage of the first pup there may be a green discharge (lochia) from the vulva. This signifies the placenta separating from the uterus and is normal. The first pup should be born within an hour or two of seeing the first lochia.

In an uneventful labor, the straining and contractions will become more frequent and gain in strength until the front of the water sac that surrounds the pup appears at the vulva. The pup usually is delivered shortly afterwards. Soon after this its placenta normally follows, usually attached to the pup by the umbilical cord.

The normal interval between deliveries can vary between 15 minutes to up to an hour or so.

From the first obvious abdominal contractions, a pup should be born within 4 hours. No more than 2 hours should elapse between pups. Puppies may be born either head first with front legs extended or in the reversed 'breech' position presenting tail and hindlimbs first. A breech pup will often take longer to birth than one coming head first.

The pup may still be inside the amniotic sac when born. If so, you must tear the sac around the puppy's head so that it is free to take its first breath. You may also need to wipe mucus from around its nose and mouth with a towel.

Abnormalities of second stage labor include:

- Prolonged labor with no pups produced. If there is a long delay between births despite straining, or straining becomes weak and ineffectual, I find it most beneficial to give the bitch an oral calcium gel to feed her muscles to work more effectively. During delivery, low calcium can cause uterine inertia where the uterus just doesn't have enough energy to go through with the job of delivering the pups. You may want to consider giving her a carefully calculated dose of calcium gel at the onset of labor to ensure her uterine muscles have sufficient calcium to contract properly. In my 10-15 kg bitches I give 1 teaspoon (5 ml) by mouth of Calcoral Gel - an oral calcium supplement that delivers 13350 mg of calcium per 100 ml i.e. one 5ml teaspoon is 667 mg. It tastes foul but does the job, is inexpensive, safe, and available from the internet as a dairy cow treatment.
- Malpresentation of a pup (for example, single limb protruding from the vulva). You can insert a lubricated finger gently into the vagina and visualize the parts of the puppy that are presented by feel. Because of the relatively small size of most dogs, it is difficult though sometimes possible to correct the position of a poorly presented pup. Both pups and the Mom's vaginal tissues are also quite delicate and care must be taken if attempting to sort a malpresentation out yourself.
- Appearance of abnormal discharge from the vagina. However, DO expect black, green and bloody discharge - this is in most cases normal.

3. Passage of the placenta:

Each pup has its own placenta which is normally passed within 5 to 15 minutes of the pup being born. If left to her own devices, the bitch normally eats the placentas. During the break between deliveries, the healthy vigorous pup will nurse from the bitch. This will encourage further contractions and a speedy labor, as it stimulates oxytocin release in the bitch. Early nursing is also important to ensure the pup gets the antibody-rich colostrum of the first milk. This protects it in early life from infection from diseases to which the bitch has been exposed. The colostrum also has a laxative effect that will ensure the pups eliminate properly and kick start their digestive systems. However, puppies can safely go for several hours before their first feed, so don't worry if you can't latch them onto the bitch straight away.

Once the last pup in the litter has been born, the bitch will stop straining and panting, and will settle down peacefully to attend to her babies. When her puppies have finished feeding and are settled quietly:

- Take her for a walk outside to relieve herself.
- Make sure she has frequent access to water.
- Sponge clean the muck from her back end and dry her off.
- Remove the soiled newspaper from the nesting box and replace with a clean thick, double-sewn blanket.
- Offer her a light nutritious meal such as chicken broth with rice.

Veterinary Check

It is often recommended to have your veterinarian check your bitch as soon as possible after the birth (within 5 to 6 hours preferably) to ensure there are no retained puppies or placentas (which, I hope, you have been counting as they come out!). There is only a small, 24 hour, window of opportunity after the birth when the cervix will still be open, so that when your vet gives your bitch Oxytocin to make the uterus contract, it is able to clean itself out and expel any pup or placenta that is still left in there. Your vet will palpate (feel) for pups through the bitch's abdomen, or may even Xray her to check for remaining pups. Your veterinarian can also check the pups for obvious congenital defects such as cleft palate, explain your options, and humanely euthanize any with serious problems.

However, if she is a healthy bitch, she stopped straining soon after the last pup and its placenta was born, and all placentas have been accounted for, there is really no reason to give her Oxytocin or antibiotics. As always I maintain that the less you interfere, the better, but it is ultimately up to you.

I certainly do not recommend that you administer any such drugs to your bitch yourself either during or after the labor. With Oxytocin it is easy to give too much, which can spasm the uterus and trap and suffocate the pups, the opposite to what you want. Antibiotics interfere with the proper balance of microorganisms important to digestion and so can cause diarrhea in the bitch and her pups.

So long as your bitch eats well and seems bright and happy, you can relax. If she loses her appetite, and pants a lot despite your attention to maintaining her environment at a comfortable temperature, you should take her to your veterinarian for a check. You might also like to take her temperature with your rectal thermometer to reassure yourself that it is not higher than the normal range: 37.9 - 38.2°Celsius (100.2-100.8°Fahrenheit). An elevated temperature with loss of appetite usually means infection.

Vaginal discharge

The bitch will produce a vaginal discharge for several days after the birth. This is normal! While it may be green on the first day, after that it should be reddish-brown.

Watch the vaginal discharge closely for the first week or so after the birth. Consult your veterinarian for advice immediately if:

- If the vaginal discharge is black.
- If the vaginal discharge contains pus and smells foul. This indicates a possible uterine infection. The bitch will no doubt also be lethargic, panting, have lost her appetite, and running a fever.

Whelping Worries and what to do about them

Puppy won't breath:

Obviously it is paramount that the pup breaths immediately after birth - if your newborn gives a squeak, well and good. However sometimes breathing is compromised by:

- The persistence of an intact water-sac (membrane) around its muzzle - If Mom gets distracted and fails to clear the pup's mouth and nose of the sac and fluids, then you will need to do it, pronto! Tear the sac away from its mouth and nose. If it looks lively, let Mom lick and stimulate it. If not, rub it briskly with a warm, soft towel until it squeaks, shows strong signs of life and starts moving around.
- Presence of fluids and mucus in the mouth and nose - hold the pup upside down to drain the fluids and phlegm free of its airways. If it still seems clogged up, cradle the puppy firmly and gently between both your hands, with its head down, and providing good support of its delicate head, neck and spine, raise it above your head and swing it briskly down between your legs, using centrifugal force to clear the nose and throat. If this doesn't work, you can try using a bulb syringe to aspirate any possible fluid. All the while, continue to rub it briskly and keep the pup warm until it squeaks and shows strong signs of life.
- Being born unconscious due to a difficult or caesarian birth - you can sometimes revive a limp puppy by keeping it warm and giving it a brisk rub with a towel. You can try a few drops on the tongue of **Bach's Rescue Remedy** to give weak pups a good gentle "kick start."

Another alternative revival technique uses stimulation of an **acupressure point on the nose**. Into the thin line down the middle of the pup's nose, just below and between the nostrils above the top lip, insert a fine needle a few millimeters only (about 1/8th of an inch at most) and wiggle it about. Anyone or anything that won't breath can often be jump started this way.

If after 15 minutes of rubbing, being kept warm and trying the other techniques, the puppy still has not started breathing, it may be a goner. Place it into the warm

Incubator Box, and focus back on your bitch and her other pups. I have heard many stories of pups that have appeared well and truly dead after a Caesarian, but later revived by themselves when the anesthetic wore off.

The bitch strains but no puppies come:

Keep a careful record of the time your bitch first starts straining (use the Recording book provided). It is not unusual for birth to progress slowly, especially for the first pup. Here's a guide of when to start worrying and what to do:

- 1 hour and no pups - If more than an hour elapses after straining has begun and there is still no pup, then put her on a leash and take her outside for a quiet 15 minute walk and a chance to toilet. This can often help to progress the birth.

You may also try a trick to stimulating stronger contractions by gently inserting a lubricated finger into her vagina and tickling the vaginal roof.

- 2 hours and no pups - Gently feel inside the birth canal and try to visualize what your finger is telling you. Is that a muzzle or a tail you can feel? If you can't feel a pup at all, then chances are the birth canal is blocked higher up by a poorly presented pup, in which case, you may need to consider taking her to your veterinarian. If you can feel the front or back end of a pup in the birth canal, you can help speed things up by gently introducing some lubricant (e.g. KY Jelly) around the stuck puppy with a small syringe.

To speed up a sluggish labor you might also try the safe homeopathic treatment **Blue Cohash (Caulophyllum)** which is often available from health shops (only to be used if she is already undoubtedly in labor) and/or give her calcium gel.

- 3 hours and no pups - A trip to your vet is warranted. He will probably Xray her to gauge the size and position of the pups, give her oxytocin and/or calcium, and if these don't work, perform an caesarian. You should discuss this eventuality beforehand with your vet and let him know your preferences regarding preserving your bitch's reproductive system for future breedings, gassing the bitch down to minimize anesthetic depression of the pups in the uterus, and being present to assist with reviving the puppies.

Black, green or red discharge and no pups

If your bitch produces a thick black, red or green discharge from her birth canal before any puppies are delivered, this often indicates that the placenta of one or more of the puppies has begun to separate from the uterine wall, which may threaten the oxygen supply of the puppy(s) involved. Therefore, if birth (or a caesarian) doesn't happen soon, the puppy involved may suffocate. So if you note such a discharge, and no puppies are born soon afterwards, you should immediately consult your vet and get ready to rush your bitch in for emergency attention. In the case of a green discharge, a reasonable wait for the first pup to be born is 1 to 2 hours.

If you are at all worried...

There are many problems that can crop up, so if you feel at all worried or uncertain, keep good records and call your veterinarian to explain exactly what is happening and ask for his advice. When it comes to the life of your bitch and her valuable puppies, it is better to be safe than sorry.

If your bitch must have a caesarian (or is aggressive to her pups)

Deprived of the experience of birth, many caesared bitches may at first have difficulty accepting their pups. Your bitch will also be in great pain from the surgery, and groggy and hung-over from the anesthetic. She may at first even act aggressively towards her pups. You may need, for the first few days, to restrain the bitch with a firm hand to lie still, and place the pups onto her nipples so that they may feed. If she growls, just keep her head away from the pups. The suckling will stimulate the release of mothering instinct inducing hormones, as well as ensuring the pups get the colostrum present in the first milk. The more often the pups suckle, the quicker this will kick in. The pups may need to be kept in the Nesting Box between feeds so that they come to no harm. Don't leave the pups with the bitch until you are sure that she has properly bonded with them. Newborn pups will need to feed at least every four hours, so this will mean getting up in the middle of the night to latch the puppies on to her. After a few days she will very likely settle down and mother the pups on her own. If she doesn't you may need to take over the nursing of the pups yourself (see below).

Things to watch out for in newborn pups that are being artificially raised or aren't suckling on mom properly:

- Dehydration. Any newborn pup that is not nursing or those kept in a hot, dry environment can quickly become dehydrated. The gums of a dehydrated pup will be dry and tacky, and its skin will become stiffer and less elastic than normal. A home humidifier may be needed to overcome an overly dry nesting environment.
- Low blood sugar (hypoglycemia). Again, if a pup is not nursing properly its blood sugar can plummet, causing it to appear lethargic, weak and depressed, progressing to coma. A few drops of corn syrup on the tongue may be enough to perk it up again.
- Diarrhea. Diarrhea can be a symptom of many ailments, from overfeeding to enteritis. Either way, diarrhea robs the pup of vital fluids and will lead to serious dehydration if left untreated. If the pup develops watery yellow or green tinged feces and is otherwise well, overfeeding could be the problem. Simply dilute the formula 50:50 with a children's oral electrolyte solution for a few days. If the problem persists then an enteric infection is likely, necessitating a trip to your veterinarian for antibiotic treatment and subcutaneous (under the skin injections of) fluids.

Incubator Box

Puppies that can't be kept with their Mom will need to be kept in your incubator box in a cosy, draught-free location. This can be as simple as a cardboard box lined with paper towels with a heating pad wrapped in a towel at one end, set on very low to help maintain the pup's body temperature. However, whatever heat source you use, be sure that the pups are not overly heated or in danger of being scorched. If you have a puppy who has for some reason become chilled, warm it back up gradually (I like to place them under my jumper until they've warmed up enough to go in the incubator box).

The box needs to be just big enough so the puppies can move away from the pad if they feel too hot, and tall enough so that they can't fall out.

Newborns are unable to control their own body temperature, and will rely on you keeping the box between 85 and 97° Fahrenheit for the first 2 weeks of their life.

Hand-rearing puppies

Because the composition of bitch's milk changes with the changing needs of the puppies as they grow, natural nursing remains the absolute best option to grow healthy pups. Many bitches will accept the pups of another, so, if at all possible, foster your puppies onto another nursing bitch provided this does not exceed her lactating abilities or number of productive nipples.

However, there are many situations that could arise that necessitate either full or temporary hand-rearing of all or part of a litter. For example, your bitch may die or go missing. She may suffer from a temporary illness (e.g. mastitis or eclampsia) and need you to take over the role of nursing her litter until she is back on her feet again to reduce the strain on her system and give her an opportunity to recover. During a prolonged illness lasting more than a few days, her milk production may rapidly "dry up", and despite resumed suckling of the puppies can take some time to reestablish to adequate flows. Some older bitches may fail to lactate properly at all, and their pups will need to be fully raised by you.

Hand-rearing pups can be fraught with challenges. The pups will be more likely to suffer from digestive problems with associated constipation or diarrhea. However, successful hand-rearing is certainly not beyond the abilities of the average devoted dog breeder.

However, younger pups will need to be bottle fed. In any case you should ensure that the pups receive the first, colostrum-rich milk if at all possible (even if your bitch dies during birth, put the pups on to suckle her) within 12 hours of birth. The colostrum contains antibodies that protect them from diseases for the first crucial weeks of their lives, as well as important aids to their digestion.

Start off by weighing your puppies on a kitchen food scale (one that measures in grams) and maintain a record so that you are able to check their progress. It is important that they do not lose weight.

As with human infants:

- Feed according to when they show signs of hunger - crying, moving around a lot, and sucking on each other - rather than according to the clock. If they are asleep, leave them to sleep.
- Initially they require more frequent feeding - every 2 to 4 hours. Eventually they should be able to make it through the night without needing a feed.
- All utensils must be sterile (e.g. boiled or washed and soaked in bottle sterilizer then rinsed thoroughly before use).
- Any water used to make up milk formulas should first be boiled.
- Formula should be fed at close to body temperature (100° F).
- Discard any formula left over from each feed.
- The puppies should be gently burped after each feed.
- Use a newborn human baby bottle and teat. Because the formula is thick, the nipple opening may need to be enlarged slightly by using a hot needle. The hole in the teat should be big enough to allow easy sucking without drowning the pup - it should drip but not stream out when the bottle is inverted. Faster flow may lead to milk in the puppy's lung and life-threatening pneumonia.

Unlike human infants:

- Until they are 1 to 2 weeks of age, puppies need to be stimulated after each feed in order to be able to pass stools and urine. Taking the place of their Mom's tongue, gently stimulate around the anus and genitals with wad of tissue moistened with warm water.

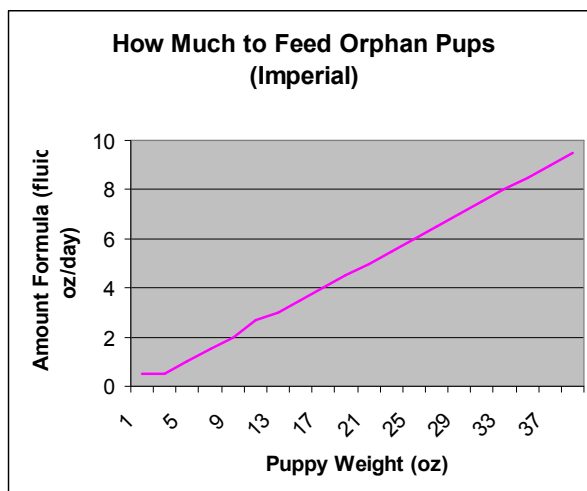
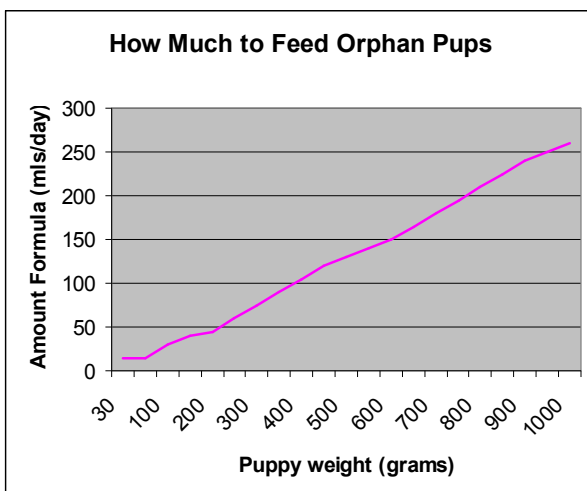
Bottle Feeding Recipe:

Bitch's milk is twice the energy density and contains more protein, fat, calcium and less lactose than cow's milk. Commercial orphan puppy formulas (e.g. Esbilac) are available at pet stores and veterinary hospitals. However, puppies often do better on home-made formula.

Blend together:

- 10 oz. (300 mls) of canned evaporated milk + 3 oz. (90 mls) of boiled water (or, instead of the above, use 13 oz. (390 mls) of undiluted goat's milk)
- 1 raw egg yolk
- 1 cup of whole fat yogurt
- 1/2 Tsp Karo Syrup or Corn Syrup

This recipe delivers approximately 330 calories/fluid ounce (11 calories/ml). It can be chilled and used as needed for up to 1 week. The graphs below show the total volume of formula to feed each puppy in a day, according to the pup's body weight. Divide the total volume for the day between the number of feeds to find the amount to give in each feed. For example, if you are providing six feeds a day (i.e four hours apart) then divide the amount of daily formula by six to arrive at the volume that each pup should receive in each feed.



Things to Watch Out for in Nursing Bitches

Mastitis

Check the udder and nipples of your bitch regularly for mastitis. The mammary glands can become infected, requiring veterinary care. Signs to watch out for are swelling, lumpiness, and redness. The breasts will feel hot to touch and painful for the bitch. The milk may be off colored and/or clotted. She may resent the puppies suckling, and be off her food. Her body temperature may also be elevated. Prevention is best achieved by good health (diet, exercise, fresh air and water) and hygiene, ensuring the bitch's nesting box is always clean and fresh.

Lactation Tetany

Both giving birth and lactation make heavy demands on the calcium levels of breeding bitches.

Low calcium will show up as restlessness, panting, a stiff-legged gait, and diminished coordination, and you may also see muscle spasms and possible seizures in severely affected bitches. She may also drool and stagger about. Taking your bitch for a walk every day during lactation allows you to quickly spot these signs which will become obvious after walking a few hundred meters but won't show up until things are dire if she's just lying around. Small breed dogs are more prone to this problem.

As the pups grow and begin to drag more and more calcium out of your bitch through her milk (weeks 2 to 5) the risk of this condition increases. Once well established, milk tetany (also known as hypocalcemia, eclampsia or puerperal tetany) is an emergency situation requiring veterinary help, so stay alert and nip it in the bud at the first signs of the condition with the oral calcium gel (see dose rate and source on page 98) so you can avoid this potentially lethal condition.

Most veterinarians will give a small, gradual injection of calcium gluconate into the bloodstream to remedy the problem. They have to be very cautious, however, as it is very easy to give too much, causing the heart to slow down and even stop fatally! I have known bitches to die from calcium injections administered in excess by experienced veterinarians.

An oral calcium supplement doesn't present this dangerous problem and is absorbed almost as quickly as the injectable, so can be given in small, frequent amounts until the bitch recovers (e.g. give a 10 - 15 kg bitch a tablet [600 mg of calcium] by mouth every few hours for 1 to 3 doses until she returns to normal). This safe, easy treatment can be repeated every day or so throughout lactation without harm. However, if such treatment does not quickly restore the bitch's condition, seek immediate veterinary advice, as she may be suffering from some other condition (e.g. infection for example).

Never be tempted to provide heavy calcium supplementation to your bitch during pregnancy in the hopes of preventing tetany because - paradoxically - it can actually lead to hypocalcemia. The reason is that the calcium metabolism in the body is finely balanced by hormones that control its harvesting or depositing into the bones, depending on supply and demand. If you over-supply calcium when there is only moderate demand, the body switches off levels of the hormones that harvest calcium. When the heavy demands of lactation then come in after the pregnancy, the bitch is less able to access her stores of calcium and may then suffer worse tetany than if you did not supplement.

The best precautions are to

- Ensure your dog gets a good supply of calcium and other essential minerals in its normal ration from raw meaty bones (e.g. several meals of chicken necks a week plus crushed clean dried eggshells in home cooked dog food, a tspn per dog 3 x a week).
- Supplement your bitch with a higher calcium ration AFTER she has given birth to match the demand from the pups if she has a history of eclampsia (I supplement mine with free access to a commercial puppy biscuit as a background feed to her normal raw meaty bone based diet, as these are high in calcium).
- Supplement feed the pups from 3 ½ to 4 weeks of age to reduce the demands on the bitch, especially if she has a large litter. When I know they will be hungry (say 4 hours since they fed off their Mom) I plant the puppy's paws around a large shallow dish and use a plastic teaspoon to scoop a little of the mixture into their mouths and give them a taste. Once they get the taste and overcome their fear of the situation, their nose will avidly follow the spoon down into the dish. This way they will all learn to eat from the dish within a day or two or coaching.

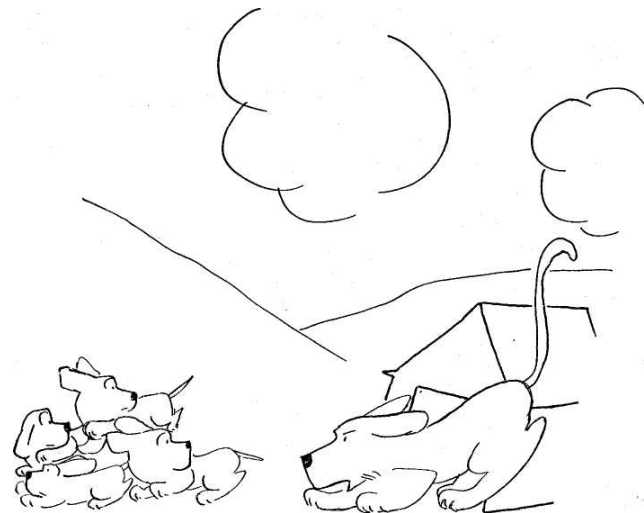
- Wean your pups early by gradually (start in week 4 and finish by week 6) reducing the time they have access to their Mom, and providing them with meals. I give milky blended home cooked meals alternated with commercial puppy food, leftovers, minced meat, and crushed chicken necks chopped small.

Feeding the Lactating Bitch

Feeding and caring for a healthy litter of puppies makes a heavy demand on the reserves of the bitch. In their natural state, the ancestors of the dog handled these demands in a very specific way: only the 'alpha' or top bitch and dog in a pack were allowed to mate and reproduce. It was the duty of every other dog in the pack to provide for the needs of the whelping 'alpha' bitch. Only in this way would the survival of her progeny be assured, and the strongest genes in the pack preserved and passed on.

Though domestic dogs no longer observe these breeding restrictions, the raising of a litter is no less taxing. Your breeding bitch is a production animal demanding knowledgeable and careful management. To do otherwise is to invite disaster.

A bitch's dietary requirements during lactation grow as the puppies grow, peaking until when they are 3 to 4 weeks of age and begin to adapt to alternative nourishment from meals that you provide them. At the peak, her daily food needs can be 3 to 4 times that of when she is neither pregnant nor lactating. At about this time she will also start to reject their demands to suckle, signaling that you must step up efforts to wean them over to being fed by you.



Lactation also robs her body of fluids, so she will also need plenty of access to fresh water. To protect her from losing condition, you need to feed her an energy and nutrient dense ration with plenty of fat and protein as well as carbohydrate to maintain her energy levels. I manage this by doubling her normal dietary ration (see "The healthy dog diet" section) plus offering unlimited access to a commercial puppy kibble and, of course, fresh water.

Worm your lactating bitch with a roundworm-effective wormer when her pups are 2 and 4 weeks old, at the same time as her pups.

Puppy Timeline

Puppy Age	Features
Day 1-3	Pups suckle 10 to 15 hours per day.
Day 3	Dewclaw removal (and tail docking where applicable). Both of these procedures can be undertaken by the knowledgeable breeder.
Day 4	Pups suckle less (around 8 hours per day).
Day 10-12	Pups open their eyes.
Day 14	Worm pups (and their Mom) with approved puppy wormer.
Day 21	Pups can be taught to eat soft, milky meals from a dish.
Days 21-35	Gradually increase size, number (to 4 a day) and solidity of meals fed to pups and slowly reduce suckling access time with their mother.
Day 28	Worm pups (and their Mom) with approved puppy wormer.
Day 42	Worm pups with approved puppy wormer.
Days 49-56	Wean pups, if you haven't already (I normally wean mine by day 35).
Day 56	Worm pups with approved puppy wormer. First vaccination (normally Distemper, Hepatitis, Parvovirus combination) Pups can be released to their new homes.

If you have any problems or questions about mom or the puppies, do not hesitate to contact your veterinarian.

Feeding your puppies

When the puppies are 3 or more weeks old, teach them over a week or so to eat out of a dish. At this age, you can start them off with finely minced meat or fish mixed with warmed whole milk formula and soggy wheat biscuits/Farex into a wet gruel, served in a large shallow dish. When you know they'll be hungry (for example at first feed time of the morning) plant the puppy's paws around the dish (yes, they will get messy) and use a plastic teaspoon to scoop a little of the mixture into each of their mouths to give them a taste. Once they get the taste and overcome their fear of the situation, their nose will avidly follow the spoon down into the dish. This way they will all learn to eat from the dish within a few days of coaching.

I gradually increase the solidity and frequency of their meals over a week or so, while cutting back on the number of times they are allowed to suckle from their mother (she'll normally be very happy for you to take over by now). From milky gruel they graduate to soft tinned puppy food. By 5 weeks they should effectively be weaned and eating 4 meals a day. From 5 to 6 weeks I introduce them to chicken necks which I first crush with a mallet and then cut into small pieces so as not to choke the puppies.

By now their daily feed regime looks something like this:

- Early morning (as soon as I wake up) - Milky cereal with a raw egg or whole tinned fish (catfood) mixed in. I also sprinkle a little of my home-made vitamin/mineral formula in, and add a dash of oil (olive, sunflower, or cod liver) or fat from our meat grill tray.
- Mid morning - Tinned puppy food, tinned cat food, dog polony, leftovers or made-up dogfood recipe (see "The Healthy Dog Diet" page 51).
- Mid afternoon - They can snack on puppy biscuits (ad lib).
- Early evening - Crushed chicken wings or necks; once a week they get raw liver instead.

Housing Your Puppies

Until your puppies are about 3 1/2 weeks old, their mother will normally be happy to clean up any and all of their faeces and urine. However, many initially zealous mothers will start to tire of the whole motherhood thing at about this time or soon after. As soon as you start to notice your puppies mess persisting in their whelping box, it is time to move them to a run of their own. I like to use a metal dog exercise pen for this purpose.



Notice that there is a clearly defined sleeping area (the crate which is lined with soft bedding material) and a metal tray full of sand. The rest is lined with newspaper. This arrangement is highly beneficial since it presents clearly separate areas for the puppies for sleeping, eating and toileting. I have found it invaluable in “pre-potty training” my puppies. Most of them very quickly “get it” to use the sand for their toileting exclusively.

Puppies raised by breeders in runs that have just newspaper for everything are often difficult to toilet train as they haven’t learnt to discriminate between their separate living

areas. The other benefit of the sand and the crate is that it helps the puppies to readily respond to crate-based potty training and associating sand (i.e. outside areas) with toileting. This is a tremendous boon to their new owners who will be very grateful to you for taking this extra care in raising their puppy!

Selling Your Puppies

How much to charge for your puppies.

Presumably you did your research right at the beginning on the going market value of your breed, and have built a firm foundation for the viability of your dog breeding venture by choosing a breed (and color) that is inherently sound, in demand, and not oversupplied.

However, a couple of years may have elapsed since then before you actually have puppies to sell. The market value of dogs is subject to fluctuation. Purebred dogs are basically a luxury item and, some may say, even a fashion accessory! People choose breeds and colors according to what is “fashionable” at the time, and this affects the price. So you will have to check the newspaper classifieds and call a few breeders to find out what the current going rate for puppies of your breed is.

Another determinant of price is competition. You may be lucky at the time you offer your pups to the market and be the only advertiser for that breed and thus the only source at the time. In this case you can charge the “full” market price for your puppies. However, sometimes you will find that after weeks of no ads, two other breeders have pups for sale at the same time as yours! In such cases (especially if you have a particularly large litter) you may have to drop your price slightly.

However, there are many ways of adding massively to the companionship value of your puppies, and then attracting long waiting lists of the discerning buyers who are happy to pay more for such pups. You can learn how to do this for free with the short course available to subscribers at www.DogBreedingInformation.com

You may also find that the biggest demand is for female pups (a lot of people don’t like the habit of male dogs of peeing on everything, and some of course may want to breed). If this is the case in your breed, then you might want to consider asking more for female pups especially if you only have a few females and a lot of males in the litter.

I also sometimes offer a discount on pups that remain unsold past 8 weeks of age (this has only happened to me ONCE and that was 20 years ago), and to people who buy two pups at the same time.

Pups with a serious defect should not be sold. However, minor defects are not uncommon. Examples are a small umbilical hernia or imperfect bite. Pups with such minor issues sold as pets-only can be sold at full pet price. However for large hernias or other problematic defects a discount equivalent to the veterinary fees to fix the problem is justified.

In the event that you allow a pup to be sold registered, a premium price is warranted (usually around 25 to 50% higher than non-registered price - more for stock from show winning parents) that also helps offset the costs of registering the puppy and the litter it came from, that must be met by you as breeder.

Taking deposits

When buyers have selected a pup they wish to purchase, it will often still be a few weeks too young for them to take home. It is thus appropriate to take a non-refundable deposit to hold the pup for the client and endorse their commitment to the purchase. This is especially important given that pups have a “use by date” of about 8 weeks, after which they rapidly lose both their appeal and value in the marketplace. Normally I insist on a \$500 deposit. However, if holding pups for a week or more past 8 weeks of age (e.g. for clients awaiting vacation times and such) you must insist on full payment by 8 weeks of age. Try to dissuade buyers from doing this as the puppy is missing out on the all important one on one socialization that should be in full swing between 8 and 12 weeks of age.

I also charge \$10 a day boarding costs as a lone pup is quite a time-consuming boarder! Explain this upfront and it is amazing how many clients manage to find a friend or family member to babysit the puppy for them!

Preparing puppies for sale

There are several mistakes breeders commonly make that reduce the appeal of their pups to the puppy buyer market. All are avoidable.

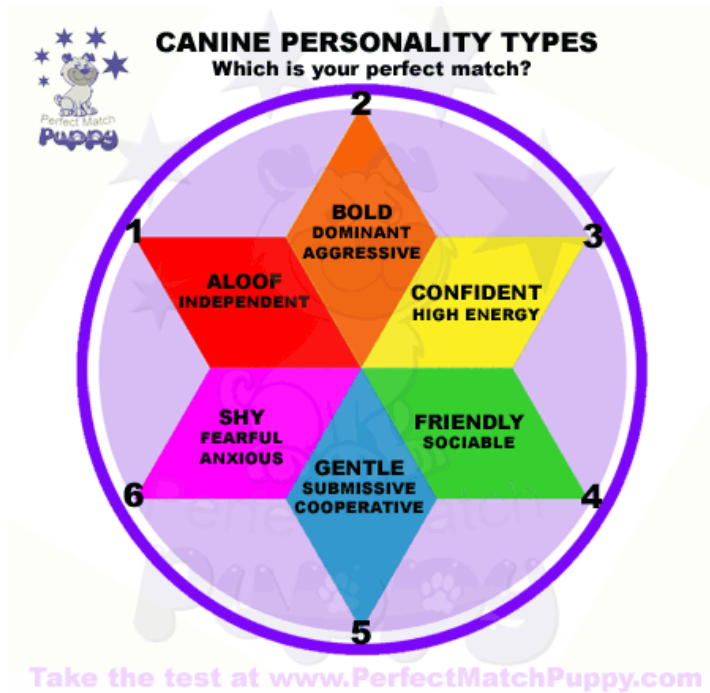
Socialization

The first one is not adequately socializing their puppies. This is particularly common to larger breeders who churn out a puppy production line in factory farm-like conditions. The pups in this situation often only see humans for feeding, medications and hosing out of their run. There is little interaction, contact or socialization at all. The result is pups that are suspicious or fearful of humans. Poorly socialized pups will fail to respond in a friendly, appealing way to prospective buyers. Even if you do manage to sell them, they are likely to become maladjusted pets prone to behavioral problems, spoiling your chances of building a great reputation as a breeder. I don't recommend that you become such a breeder!

I know that the bigger breeders out there love to malign the so-called "backyard breeder" and brainwash the public to avoid them at all costs. However, the truth is that the backyard has the highest potential of turning out the best quality pups for the pet market! So, keep your dog breeding business at a small, family scale. Only at this scale can you afford the time to handle each and every pup each and every day (where cute little puppies are concerned, it's not hard to train and recruit your gentle children, friends, and relatives to help!).

Personality Testing

Another big mistake is in not taking the trouble to observe and type your pups according to their personality. Buying a pup is a big decision, and it is also confusing - it's very hard to tell in a short visit the kind of dog the puppy is likely to grow into, and since you will be stuck with your choice for years, it can be a very stressful and worrying decision!



Instead, imagine yourself as a puppy buyer who goes along to a breeder who takes the time to find out the kind of dog that will suit their needs then matches you up with the exact pup with the right temperament and personality for you. How impressed would you be? How much more confident would you feel about choosing that pup?

This is yet another way that you can outshine all your competitors in the dog breeding industry and deliver outstanding service! But such great “matching” is only possible if you get to know each puppy individually, and this, again, can only be achieved by operating at the “backyard” scale.

Presentation

Your pups should be healthy, vermin-free and attractive - a credit to you as a breeder. Give them a bath and groom before presenting them to prospective buyers. If they are of a breed that is customarily clipped, then clip them as well. I like to buy cheap colorful collars to put on the pups (first remove bells and things that might choke your pups). This is a finishing touch that renders them irresistible, and also makes it easier for clients to choose a favorite. It also makes it easier for you to identify the chosen pup and match it up with the correct owner later on. However, the puppies will try and pull each other’s collars off, so it is prudent to back up your ID system with nailpolish inside an earflap. Don’t give them a big

meal just before people arrive as they will more than likely be sleepy and dull when you want them to be active, playful and alert.

Advertising

Before you advertise, check your list of people waiting for your pups, check if they still need a pup, and let them know what you have. As your reputation and time in the industry grows, you will find that an increasing proportion of your litters are sold without advertising at all.

The best way to grow a long list of committed owners is to start a Facebook page and update it regularly with photos about your dogs. And it's free! Sending out carefully crafted emails to people enquiring about your puppies is also important. You can learn more about how to do these things by taking the free Value Added Breeding course available to subscribers at www.DogBreedingInformation.com .

When to advertise

Pups are most appealing when they are small, between the ages of 4 and 8 weeks. Your goal should be to have them all sold by the time they are ready to leave you. If the litter is large, start your advertising early to give you time to meet this deadline. Given that your pups will not be ready to go to their new owners until they are 8 weeks old, you then potentially have several weeks to secure committed buyers for them.

So if you haven't got a long waiting list yet (very soon you will, if you follow the guidelines I've given you) you should begin advertising your puppies when they are 3 to 4 weeks old to give buyers ample time to find you. However I would recommend that you explain to clients that you will not be able to reliably choose the right puppy for them until they are 6 to 7 weeks old when their personality emerges. Then allocate the puppies according to the homes to which they are the best personality match. People buying fully registered pups should be given the pick of the litter and be prepared to follow your advice on this.

Where to advertise

Facebook beats online or print advertising hands down. But until you have your own page, you can maintain an advertising listing with their local kennel club/canine organization. For large breeders this may be a good strategy. Another effective avenue is dog sales websites that will often offer breeders a free webpage of their own. You could also use classified newspaper advertisements. The best time to advertise is on the weekends, and the best place is in the most popular weekend newspapers. Saturday and Sunday are equally good. A lot of people will refer to them during the week and call you then.

Prepare your marketing spiel

All marketing is based on presenting the benefits of your product to prospects. If you have been following the advice in this manual you will have a lot to say to prospective buyers on the advantages of buying from you:

- Superiority of the breed - since you have been so careful to choose a well-built, intrinsically sound breed, let buyers know about it and the years of trouble-free dog ownership that it offers them.
- Outbred dogs - alert buyers to the risks inherent in pups that are inbred, how common it is, and your strict policy of outbreeding.
- Health screens (if any) you have had done on the parents to reduce the risk of genetic disease in your pups.
- Guarantee - Offer a full money-back promise good for the first 2 years of the pups' life guaranteeing that it is free of serious genetic defects.
- Socialization - Explain to people that your pups are better because they are raised as part of your family. Tell them how important early puppy socialization is to the temperament and personality of the dogs they become, and the overall quality of the dog owning experience for them, the buyer. Also explain the dangers of buying from large breeders where this is not possible.
- Personalization - Let them know that you are so close to your pups that you get to know the personality of each and every one, and can help them find the pup that is perfect for their situation.
- Price - If people balk at the price, let them know that it is the current norm for the breed, and that over the long life of the puppy is quite negligible compared to getting the dog that they really want.

Screening buyers

Some breeders are in the habit of putting prospective owners of their puppies through the third degree ostensibly to see if they “qualify” as fitting owners. Since the buyers of your puppies will pay handsomely for them, in a sense they have already proven that they place a lot of value on them and so are very likely to take good care of their investment. The information pack I give to clients also helps make up for any ignorance on their part that might otherwise preclude them from providing a good life for their dog.

So, the main criterion that I maintain in screening buyers is based on how happy I believe puppy is likely to be in their household. Dogs are very social animals. To be happy they need company and social interaction. To this end there are really only two types of homes that I do not knowingly send puppies to:

- Large breeding kennels - where the puppy will be raised in a compound of wire and concrete along with other hysterically confined inmates and used primarily as a breeder in a puppy factory.
- Lonely homes - where the puppy is destined to spend most of its days alone in someone’s yard. If prospective owners come from households where both parents work I insist that their only way of getting one of my pups is to buy two so at least the dogs will have each other to be with when their owners are not at home.
- Homes where the owner is inactive - it has been my sad duty many times to decline the sale of my pup to older or physically disabled people who are not fit enough to exercise them every day. In such cases I suggest they get an older dog of an exercise intolerant breed such as the peke, pug and shitzu.

Gently question the client about the kind of home they will be offering the puppy and advise them accordingly.

If you can't help them this time

Some clients may be set on a particular color or sex that you are unable to offer them at the time. Inform them of other litters that you are likely to have in the near future, and offer to notify them exclusively of newly available pups in advance of advertising. Assure them that you do not mind if they manage to get a pup from elsewhere in the meantime - you will be happy to call them anyway. Keep a careful record of the date, name, preferences and contact details of all such enquiries.

Handling visits by prospective clients

For very busy people like you and me, a great option is holding a Puppy Open Day. I invite everyone who is either already on my list, or interested in meeting my dogs, as a group. My Puppy Open Days are “two hours of power” held on a Sunday afternoon. I hold them whenever I have a 7 week old litter of puppies. It is also an opportunity for the owners of those puppies to meet them for the first time, hard on the heels of [personality testing](#) which has allowed me to allocate them their particular puppies.

Make a good impression

Here's a sweeping generalization for you - people who are big on animals have a tendency to be small on housekeeping and general hygiene. If you are like me, you are not the most fastidious housekeeper in your street. However, presentation is a big part of marketing any product and applies to you and your pups as much as it does to anything else! The idea is to instill confidence. So, on the days that you are letting clients into your abode to view your pups you may need to make a special effort.

- You: Present yourself as someone who looks trustworthy and reputable! You don't have to don your Sunday best to look the part. Neat, clean casual clothes will do. Brush your hair, your teeth, tidy your nails, use deodorant, and wear shoes. A little lipstick and subdued makeup wouldn't go astray (unless you are a fella!). If you smoke, refrain while customers are around.

- **Environment:** Make sure everywhere in your home and yard that clients will be exposed to is clean and tidy. Manage your enterprise and your dogs so that your home doesn't develop that "doggy" smell and general untidiness that so often characterizes the dog breeder! Ensure the puppy run is freshly mucked out and the food and water bowls are clean. Pick up and dispose of any feces in the yard. Mow the lawns, straighten the cushions, empty and hide the ashtray, and tuck away anything else that might detract from a good impression.
- **Litter Parents:** I am continually amazed by the number of puppy clients who report the refusal of breeders to allow them to view the pup's parents. What are they trying to hide? Don't be like them! Let people interact with all your dogs, including the parents if both are available. Of course they will be clean, neat and tidy, and not scratching with fleas or pivoting on their bottoms from worms! You should be proud of your beautifully socialized, healthy, well presented dogs and eager to share them with clients. To be otherwise is to foster suspicion and mistrust in your clients.

Atmosphere

Too often I hear of clients being virtually interrogated by aggressive breeders who don't seem to know how to make someone feel welcome or comfortable. Such breeders sabotage themselves!

Your objective as a successful dog breeder must be to have your clients trust you and feel welcome. So create an atmosphere conducive to this objective! Have comfortable seating available where they can interact with the pups, and offer your clients a cup of coffee. For those that haven't yet joined your list, show them the information pack they will be given when they place their deposit on a pup, leave them a copy to peruse, and answer any questions they may have. Then tell them you will be back in a short while to answer any more questions, and leave them alone for 5 to 10 minutes to talk amongst themselves and interact with the pups and your other dogs.

If you turn out a quality product, a lot of your business over the long haul will be word-of-mouth and repeat customers. You will build a long waiting list of people who have shopped around enough to know that your pups are outstanding and worth waiting for!

Security

Bear in mind that sometimes people posing as clients may be there to case your situation just so they can return later and relieve you of your valuable stock. I have known breeders to lose whole litters to theft. You can protect yourself in several ways:

- Ask for people's contact details before giving out your address.
- Viewing should be by appointment only. Don't offer any details about when you are likely to be home and when you are likely to be out.
- Put locks on all gates and doors accessing your dog areas.
- Discretely record the number on the car license plates of clients you feel uneasy about.
- Restrict prospective buyers to a particular area at the front of your property so that they do not have the opportunity to case out exactly where your puppies are housed and the potential access ways.
- Once you start advertising, don't plan any time away until your last pup has been safely picked up by its new owner.

Information to give to buyers

Remember our goal as an exceptional dog breeder to operate in an ethical manner? Well, as we discussed at the start, that means doing everything we can to help foster a positive dog owning experience for our clients. An important component is to provide a comprehensive guide to successful dog ownership as a complementary gift to your clients. I use a plastic folder with a clear cover and 20 plastic sleeves in it. In it include:

- An attractive coversheet with your breeder's prefix, contact details, and a picture of the breed.

- Copies of the parent's pedigrees.
- The pup's vaccination certificate.
- The pup's diet, worming and vaccination history up to the age of 8 weeks and when the next treatments are due.
- Pointers on preparing for the puppy.
- Information on how to feed a healthy diet.
- A guide to socialization.
- A guide to general training and house-training.
- A brief troubleshooting guide.
- An overview of how to groom the breed.

Good preparation is essential to successful raising of a pup during the critical first few weeks that your clients have him home. The guide is handed over to clients as soon as they have paid their deposit on a puppy. They are instructed to read the information before they come to collect it so that they can avoid making mistakes that will be much harder to remedy later. You should not assume that your buyers will know what to do.

Many of your clients will not have had the pleasure of owning a dog before. They may have been raised in a city, or be from a culture where dog ownership was not practiced. For others it may have been many years since they last had to contend with raising a puppy. Even experienced dog owners will appreciate the great information you offer.

All will appreciate the special care you take to ensure they optimize their dog owning experience. For you it is yet another opportunity to stand out as someone exceptional in the dog breeding field. Your clients will proudly show off the attractively presented

information pack to their friends and family. This is great marketing for you! As a gesture of your commitment to your pups' welfare, you should also offer to be available to answer any concerns or questions the owners may have for the life of the dog.

Guarantees

As an ethical dog breeder you should do all in your power to ensure that the dogs you select as breeders are likely to be free of genetic disorders, and outbred to further increase the chances of producing genetically sound pups. In this way you protect both the quality of your pups and your reputation and viability as a breeder. With this confidence you should guarantee buyers that your pups will grow into dogs that are un-afflicted by the serious genetic diseases inherent in the breed. And you should offer to either refund the purchase price or replace any pups that do develop serious inherited defects.

A good return policy

It is a good policy, aside from guaranteeing the genetic soundness of your pups, to tell owners that you will take back for re-homing any pup that does not work out with them. In 24 years as a breeder I have never had such a return. Careful matching of the right puppies with the right owners, good socialization, and owner education (i.e. the information pack) will ensure that virtually all pups settle well into their new homes and provide a quality ownership experience for your clients.

Non-breeding Agreements

A lot of breeders insist that their clients sign a non-breeding agreement as a condition governing the purchase of their pups. They maintain that as responsible breeders dedicated to improving their breed that any dogs that are sold as pets are those that have not met the stringent and highly particular breed standards and should therefore be sterilized. Such dogs are just as sound as any other to be pets, but are disqualified as breeders by simple morphology - for example, their ears don't fold correctly, their color is not quite right or they don't have that desirable degree of squashiness in their face.

While this is normal practice in the breed I work with, I do not follow it. My reasoning is, that non-breeding agreements are impossible to police and therefore worthless. Further, I (perhaps cynically) believe that the real reason behind non-breeding agreements is simply to limit the supply of the breed, and therefore help to maintain their monetary value. This is borne out by the fact that while any breeder only need breed a bitch once or twice in its lifetime to produce quality replacement stock, in actuality they churn them out for the pet market as frequently as allowed under the breeders' Code of Practice! So, like much of what many breeders spout, it's a load of hoo-ha. All this makes it very hard for you to get hold of registered quality pups to breed with (so much for such restrictions being about improving the breed!). But once you do (and if you are persistent enough, you WILL) it makes perfect sense to protect your market by similarly limiting the number of registered breeding-quality dogs that you contribute to the supply side of things.

Instead of non-breeding agreements, I sell nearly all my pups unregistered (but do include copies of both parent's registered pedigrees with their information packs and hand out limited registration papers once proof of sterilization is provided). Therefore, any pups bred from them will also be un-registerable. This protects my market. However, if you are approached by someone who wants to become a registered breeder I suggest that you do cooperate with a select few people who are serious about it. Friends and family members are prime candidates. As an exceptional breeder you WILL find that soon you will be unable to meet the demand that you attract.

So foster a cooperative relationship with people interested in sourcing (or, preferably, already holding) bloodlines not related to yours to make up their little stud. One or two such prospects can be a source of outside bloodlines and replacement stock for your enterprise for years to come. They will also protect you from totally losing your lines if tragedy happens to wipe out your stock (unfortunately it happens).

How to sell a registered pup and still retain some control of its breeding

There may be situations - such as establishing a mutually beneficial breeders' partnership, or to preserve your bloodlines - where you choose to help someone else set up to breed from registered dogs by supplying them with a registered pup. However, you may be concerned that your carefully bred pup (from disease-screened parents) may be mated with another dog that either hasn't been so carefully bred, or is too closely related for comfort. If problems arise in the pups, then you may find yourself shouldering some of the blame and ruined reputation, since their pedigrees will show your dogs as grandparents.

One way to prevent this from happening is to offer dual ownership on the registration papers of your pup. That way, your signature (and thus consent) will be needed to register any future progeny of that puppy, and you can thus exercise some say in what it is mated with.