

PORTUGUESE WATER DOG CLUB OF AMERICA



# Portuguese Water Dog: A Guide for Breeders<sup>©</sup>

---

by

Angela Kalmanash - Mary Harkins – Ginnie Santoli – Cathy Winkler

Issued : March 2000

Updated through 9 September 2001

©Copyrighted by PWDCA 2001

Updated by PWDCA Board August 2011

## Table of Contents

INTRODUCTION.....	4
I - TO BREED OR NOT TO BREED .....	4
II - WHAT YOU NEED TO KNOW .....	7
III - BASIC PRINCIPLES OF HEREDITY .....	8
IV - SELECTING BREEDING STOCK .....	9
V - BREEDING .....	10
VI - STAGES OF THE BREEDING CYCLE.....	10
Proestrus to Pregnancy.....	10
VII - CARE OF THE PREGNANT BITCH .....	11
VIII - WHELPING .....	12
Environment .....	12
Whelping Supplies .....	12
Mechanics .....	13
Potential complications .....	14
Care of the Dam .....	14
Care of the Pups.....	14
IX - CARE OF LITTER.....	15
Environment .....	15
Record Keeping.....	16
Health.....	16
X - PUPPIES.....	17
Socialization .....	17
Grading Pups.....	18
XI - LIFELONG RESPONSIBILITIES.....	19

The Responsibility of the Breeder in Placing Puppies.....	19
PARTING THOUGHTS .....	21
EXHIBIT 1 .....	22
Health Committee Chairs or Coordinators .....	22
PWDCA supports committees for most health issues within the breed, as well as breeder resources. A current list of health committees and committee contacts can be obtained from the Club website at <a href="http://www.pwdca.org">www.pwdca.org</a> .....	22
EXHIBIT 2.....	22
RECOMMENDED READING: .....	22
Breeding.....	22
GENETICS.....	23
DOG TRAINING, HEALTH AND NUTRITION AND GENERAL INTEREST .....	23
EXHIBIT 3.....	24
RECOMMENDED WEB SITES .....	24
General Web Sites.....	24
Breeding Information Sites .....	24
Genetic Information Sites .....	24
EXHIBIT 4.....	24
EXHIBIT 5.....	25

## INTRODUCTION

Portuguese Water Dogs are intelligent, versatile and loveable dogs. We are fortunate to have them in our lives. We are also lucky to have many terrific mentors to assist and counsel both novice and advanced breeders.

This guide is designed as a starting point or outline of things to consider when undertaking a breeding. Anyone considering undertaking a breeding should read the Portuguese Water Dog Club of America (PWDCA) Breeders Agreement as a guide to breeder's responsibilities and recommended practices. (See [www.pwdca.org](http://www.pwdca.org) for current version.)

There is a vast amount of information available from: the PWDCA web site, past issues of the Courier, and the American Kennel Club and other dog organizations, as well as volumes of books on breeding and genetics. PWDCA has committees on most of the diseases currently known to affect Portuguese Water Dogs which are known or believed to be genetic in origin. Never be afraid to ask questions and then ask more questions. Know the breed standard inside out, and study pedigrees. Participate in and utilize the PWDCA Health and Litter Database. One source will not give you all of your answers nor will it be a complete reference but when you piece the puzzle together, you will be able to see your objective more clearly.

Remember, the more research you do, the clearer and sounder the breeding picture becomes.

You and only you are responsible for your breeding and the offspring produced.

Thank you to all the PWDCA members who provided ideas and suggestions contained in this guide. Special thanks to Jerold S. Bell D.V.M., Vanessa Gorman and Robin (Zaremba) Burmeister for their assistance.

## I - TO BREED OR NOT TO BREED

You own a Portuguese Water Dog. You love your dog and think that he/she is wonderful. She/he is nearing two years old. Should you breed him/her? There are numerous rationales to breed your dog but few appropriate reasons.

### Why do you want to breed your dog?

*You would be doing a service to the breed, as the Portuguese Water Dog is so rare.*

This may have been the case in the 1970s but is no longer the case today. The Portuguese Water Dog is no longer rare. Luckily it is also not yet commonplace and over-bred like Rottweilers, Labrador Retrievers, Golden Retrievers, etc.

*You want to raise a litter for the "fun" of it or to have your children experience the miracle of birth.*

While hopefully everyone who breeds a litter enjoys the experience, the act of breeding a litter is a responsibility and involves a risk. A breeder is responsible for the health and well being of the dam of the litter and for the life of every puppy that is created. The litter would not have happened without the actions of the breeder. The breeder must be prepared for and willing to accept all consequences of producing the litter.

Many first-time breeders do not realize how much time they must commit from planning to breed, to the whelping and rearing of a litter, and the placement and ongoing monitoring of the resulting puppies. It is not a nine to five responsibility, but rather a 24/7 responsibility extending beyond when the puppies are with their new families. It can be a wonderful experience but you must be prepared.

If you breed a litter anticipating your children will experience the miracle of birth, you should also anticipate and prepare them for the risks involved in the breeding. They may also experience the reality and sorrow of death. Perhaps there will be a stillborn puppy or a weak puppy that succumbs shortly after its birth. A congenitally compromised puppy may require intervention to have its suffering ended humanely. In the extreme, their beloved bitch may die due to complications. When one breeds a litter, there is no guarantee that everything will run smoothly. Risk is always part of the equation.

*You can make a lot of money by breeding a Portuguese Water Dog litter, and you need the money for college tuition, a new car, a mortgage payment or other sundry expenses.*

Portuguese Water Dog puppies are intelligent, vulnerable living beings and not simply chattel. While all breeders hope to "break even" when breeding a litter, very often the cost of breeding, whelping, and rearing the litter can far exceed the money received from the placement of the puppies. This is considering out of pocket costs only. An emergency c-section may be needed to deliver a small litter or horribly even to deliver dead puppies. An entire litter of puppies is still born due to late diagnosis of uterine inertia. A four-week old litter of puppies may suddenly contract Parvo and veterinary costs skyrocket. Or you may find that you must bottle feed a litter of puppies around the clock because the dam has an infection or because the puppies have been orphaned (you must hire someone to help while you are at work). You have spent money for the stud fee, possibly shipping the bitch, and veterinary costs. You may be left with no puppies to sell and a bitch that had to be spayed to save her life. Breeding a litter is not a way to pay your bills.

*Your bitch/dog is a classic PWD, true to the standard in both appearance and temperament. He/she has had all his/her health tests and is not affected with any known genetic problems in the breed. You wish to pass on the good qualities of your dog and minimize the flaws. You intend to keep a puppy for yourself or place the best in co-ownership. You do all your research on selecting a mate to assure that you are minimizing the risk of producing known genetic problems. You know the risks and are prepared to accept them.*

You as a breeder are making every effort through careful research and planning to produce Portuguese Water Dogs correct to the standard, as well as "improving" each subsequent generation in your kennel. You have committed time to researching pedigrees and health issues. You have prepared yourself for the responsibility, time, risks, and rewards involved in breeding the litter. You have prospective puppy

owners interested in the litter. If you are truly prepared for this responsibility, enjoy this wonderful experience and much success to you!

### What are the resources you will need?

When planning a breeding, it is beneficial to have a mentor to assist you through this experience.

A mentor may be:

- The breeder from whom you obtained your dog.
- A breeder friend (not necessarily a PWD breeder) from a local PWD Club or all breed club.
- A veterinarian knowledgeable about canine obstetrics (not all veterinarians are comfortable with natural whelping and the problems that can be corrected without the need for a c-section).
- A veterinary technician familiar with canine obstetrics.
- Other individuals knowledgeable about canine obstetrics.

If at all possible, volunteer to help an experienced breeder during a whelping. Being a “gopher” (go for) during a whelping handled by an experienced breeder can be a tremendous learning opportunity and help prepare you for whelping a litter of your own. Tell your vet you would be available to help at a c-section birth. (Be forewarned that this is an operation.)

Read books and articles on the care of the dam, whelping, puppy care, genetics and anything else that will provide you information on being a breeder. Read any and all pertinent articles in the AKC Gazette, the PWDCA Courier, and the PWDCA Health and Litter Database. Talk with breeders, starting with the breeder from whom you obtained your dog. If you are unable to participate in a whelping in person prior to the breeding of your bitch, you may wish to obtain and view a videotape on the whelping of a litter.

Enlist the assistance of an experienced breeder during the whelping of your litter to help you identify and deal with problems that might arise.

Discuss the potential breeding and whelping with your veterinarian. In case a problem develops with the delivery, is your veterinarian comfortable with assisting in natural whelping? Will he/she be on call or is there knowledgeable emergency back up when your bitch goes into labor? Do not be afraid to ask questions before you decide to breed your bitch. Similarly if you own a potential stud dog, can your veterinarian perform an artificial insemination, collecting semen for extended chilled or even “frozen” delivery to a bitch in a distant location? What is his/her experience in this area?

Be prepared to meet the financial expense of the stud fee, possible shipping of your bitch and veterinary and nutritional care of dam and litter. Also be aware that unanticipated veterinary expenses might be incurred so have some financial reserves set aside.

## II - WHAT YOU NEED TO KNOW

If you intend to breed, it is especially important that you be familiar with the AKC Standard for the Portuguese Water Dog. Knowing the words is not enough. The words should form a mental picture of what a Portuguese Water Dog is in appearance and temperament. Go beyond the standard and research the history and purpose of the breed to better understand it. Talk to owners and breeders who are knowledgeable about the breed.

Obtain and read current copies of all pertinent AKC booklets such as:

- Rules Applying to Registration and Discipline
- Procedures for Registration Matters
- Regulations for Record Keeping and Identification of Dogs

Also obtain the necessary AKC forms for registering the litter.

Read and research your dog's pedigree. Is your dog in-bred, line-bred or an outcross? Are you trying to "lock-in" desirable traits your dog has or correct "faults" in your dog?

A brief layman's definition is as follows:

Inbreeding is the mating together of closely related dogs, such as parent to offspring, brother to sister, or half-sibling to half-sibling. Inbreeding does not of itself create any undesirable genes, but it will bring to light any genetic problems that have so far gone undetected. A half-sibling mating is sometimes also considered a linebreeding.

Linebreeding is "the mating of later generations back to some ancestor or its descendants." Such a mating involves less closely related animals such as the breeding of a grandparent to grand-offspring, uncle (aunt) to niece (nephew), or cousin to cousin. Generally speaking, inbreeding or linebreeding are utilized to try to lock-in certain desirable traits over successive generations. The problem is that undesirable recessive traits can also be produced.

Outcrossing is usually considered the mating of two unrelated dogs, one or both of which is usually linebred. Generally outcrossing is utilized to try to reduce the incidence of undesirable recessive traits.

Understand the difference between the terms phenotype and genotype. The phenotype of a dog is "what you see". For example, the color of the dog, whether it is curly or wavy, if it is cow-hocked, or if it has Progressive Retinal Atrophy (PRA) or Hip Dysplasia are all phenotypic observations about the dog. The genotype of the dog is what makes him "what you see". It is the actual genetic makeup of the dog. An example of this is a black dog producing brown offspring or offspring with a genetic disease.

What are the known genetic diseases in your dog's ancestors and in the ancestors of your dog's prospective mate? What about their littermates? What are your dog's and its perspective mate's status regarding health tests available for Portuguese Water Dogs? Knowing as much as possible about the genetic makeup of the prospective sire and dam through pedigree research and individual health

testing will help you, the breeder; reduce the incidence of genetic diseases as well as other unwanted traits.

The following is a list of American health and genetic tests or registries currently (Autumn 2011) available for Portuguese Water Dogs.

OFA is the registry (data bank) which collates and disseminates information concerning orthopedic and genetic diseases in animals.

CERF is the registry-listing dogs whose eyes have been evaluated as being clear (unaffected) of major inheritable eye diseases. CERF's goal is the elimination of hereditary eye diseases in purebred dogs through registration, research, and education. Listing is for a calendar year only and must be repeated annually. Check the notes area and back of the CERF form for comments, if any, concerning the eyes.

OptiGen mutant gene test identifies dogs that are genetically not carriers of Progressive Retinal Atrophy. Such dogs are rated "Normal". OptiGen, LLC. provides DNA based diagnoses and tests for inherited diseases of purebred dogs.

GM1 Storage Disease mutant gene test identifies whether or not your dog is genetically a carrier of this disease.

University of Pennsylvania JDCM mutant gene test identifies whether or not your dog is genetically a carrier of Dilated Juvenile Cardiomyopathy.

Addison's disease is another disease which occurs in Portuguese Water Dogs. Addison's is believed to have a genetic component but the mode of inheritance may not be known and a genetic test is not currently available.

\*\* (If some time has passed since the publication of this pamphlet, it is strongly recommended that you contact the PWDCA, Inc. to ascertain whether additional health or genetic testing has become available or if those listed above have been modified.)\*\*

Please refer to the Recommended Reading List for some books on breeding that will be of interest to you. (See Exhibit # 2.)

### **III - BASIC PRINCIPLES OF HEREDITY**

If you are going to breed your dog, it is advisable to have some understanding of modes of inheritance and phenotypes. Four of the modes of inheritance you will encounter in your reading and research are autosomal recessive (not sex-linked, but rather simple recessive), autosomal dominant (simple dominant), sex-linked and polygenic. Autosomal or simple recessive indicates that a single gene is involved. (Many books have been and continue to be written on canine genetics, note some of them on our Recommended Reading List. See Exhibit # 2)

A recessive trait is one that must be present in both parents to be passed on to any of their offspring. Those offspring that inherit the recessive gene from both parents potentially are affected. A dog that exhibits a recessive trait will definitely pass on the gene for that trait. Examples of autosomal recessive traits in the Portuguese Water Dog are Storage Disease, (GM-1) and Progressive Retinal Atrophy. With an autosomal recessive trait, if one parent is a carrier and the other parent does not carry the trait, none of the offspring will exhibit the trait and, statistically, half of the offspring are likely to carry the trait. Likewise, with an autosomal recessive trait, if one parent is affected, (i.e., exhibits the trait) and the other parent does not carry the trait, none of the offspring will exhibit the trait and all of the offspring will carry the trait.

A dominant trait is one that needs to be carried by only one parent to be passed on to its offspring. In most cases, the parent that carries the dominant trait also exhibits it.

A sex-linked trait can be dominant or recessive and is linked to the sex chromosome. Hemophilia in canines and humans is an example of a sex-linked trait.

A polygenic trait (or multifactorial trait) is one that is controlled by a number of genes, each of which adds in increments to the degree of manifestation of the trait. Hip dysplasia is believed to be an example of a polygenic trait, because two parents that are clear of hip dysplasia may produce it in their offspring. It is dependent on the combined action of an undetermined number of genes.

#### **IV - SELECTING BREEDING STOCK**

This is probably the toughest and most important decision you will have to make. Start off with a sound mental picture of what the breed standard looks like. One tool that can help you in this process is an outline to help clarify things. Take a pen and paper or sit down at your computer and set up three columns. Label them for traits you have and want to keep, the breed standard, and traits you want to develop. In the first column, write down the good traits of your dog, be honest with yourself: there is no perfect dog. In the middle column outline the PWD breed standard. Your last column is your "needs improvement" column or wish list.

Keep in mind your goal is to improve on what you currently have. Never do a breeding to just breed. When you breed it is beneficial to have in mind where you will be taking the "grand get" to be bred. Chances are very high that your ultimate goal is a generation or more away and will be attained only through foresight.

Take your wish list and start doing some research. Go through the courier stud/brood bitch issue. Go through your dog's pedigree. Do some footwork, go to conformation, agility, or obedience shows and speak to the owners or handlers. Go over their dogs. ("Hands on experience is best.") What is the dog's temperament and type? Does this dog have the attributes that will enhance your line without decreasing some of your positives? After you have narrowed your field of potentials, research the pedigrees. Ask questions. If you want information on an ancestor, call the owners and speak to them.

Now the hard part starts. Portuguese Water Dogs have several genetic diseases. Do your homework. Research pedigrees. Use tools such as PWDinfo.com or the PWDCA Health and Litter Database for generation information. Track inheritance modes (where known), coefficient of inbreeding, and statistical incidences of GM-1, JDCM, hip dysplasia, PRA, Addison's, IBD etc. Ask questions. If something smells like a fish," it is possibly fishy. Call the health committee heads: they are a valuable source of information (see Exhibit #1). If the dog has been bred before, ask for a reference and try to see the progeny. Look at the grandparents, parents, siblings and offspring.

## **V - BREEDING**

A female's heat (estrus) will generally cycle in periods ranging from 5 to 7 months and occasionally longer. This can be affected in households with multiple females where a female in heat can induce another to come into season early. The duration of estrus ranges from 19 to 28 days. Ovulation varies but generally will occur around the 16th day from when discharge began. The female will often be receptive to a male from about the 11th day to the 18th day, and in some cases even earlier or later.

There is much written on when to mate the female. Common practice leans toward two breedings during the first four days of receptivity (to maximize fertility), with a repeat breeding not to exceed 24 hours after the second breeding for a total of 3 matings.

Some breeders utilize ovulation timing through blood tests to check hormone [Progesterone] levels, if a veterinarian in their area is knowledgeable in this testing method.

Not every breeding will result in a litter. Female dogs may not conceive for many reasons. Health related reasons range from lack of ovulation, timing inaccuracy, poor semen quality, obstruction, lack of implantation, inability of placental development, and/or infection.

It is important to have a pre-pregnancy check up with your vet. Most stud dog owners require a female to be tested for Brucella within two weeks to one month of breeding. A bitch's owner should also determine that the stud dog is not carrying any penile infections that may affect the bitch. A bitch's owner should also want to check on the stud's semen quality. Good semen quality is 10 million per pound of body weight, white in color, and greater than 80% motility with a pH of 6.2 to 6.6.

## **VI - STAGES OF THE BREEDING CYCLE**

### ***Proestrus to Pregnancy***

Keep a record of when your female started in season. (You should do this every season as a general rule of thumb to monitor her health.) Normally during the start of the cycle (proestrus), females will have a discharge and the vulva starts to swell. In the next stage (estrus), females are receptive to males and will normally "flag" or bend their tails over to the side. This stage will last approximately nine days. During this stage many breeders will monitor the luteinizing hormone surge via a progesterone assay (blood test). If monitored every two days you will be able to graph the LH surge. Ovulation occurs 36 to

48 hours after this surge. A fertilized egg will implant in the uterus 17-18 days after ovulation. Sperm will still fertilize mature eggs at least 2-3 days after the ovaries release them.

In addition to natural breeding, other modes of breeding are artificial insemination using fresh, extended, or frozen semen. With fresh semen, a male is collected and immediately inseminated into the female. Extended semen is usually used due to geographical distance between the breeding pair. The semen is collected, an extender is added, and the semen is overnighed to the female. Extended semen will not last beyond 2-3 days. Frozen semen is usually used to continue the gene pool of an older, altered, or deceased stud dog. Due to the decreased mobility of the sperm, the frozen semen is usually surgically implanted directly into the uterus to maximize the probability for conception.

There are many options open to us as breeders. With a local breeding, the female should be introduced to the male before the breeding. You can drive to and from the stud owners' house or choose to leave your female with them. If you need to ship your female to a male, do so several days before the breeding so that she can become comfortable in the environment, get to know the male dog, and reduce her stress level (which will affect fertility). With a natural breeding, make sure that the stud dog owner doesn't have another breeding to another bitch that same week as this will affect his fertility.

You will not be able to tell if your bitch is pregnant until at least one third of her pregnancy is over. Your veterinarian can palpate your bitch at approximately 28 days post breeding and feel the vesicles. When the veterinarian palpates your bitch he/she allows the uterus to "float" through his/her fingers and feels for a string of pearls which are the developing fetuses. Palpation is difficult in nervous or large bitches. Improperly done palpation can damage the forming fetuses; therefore, a novice breeder is discouraged from attempting to do a palpation him/herself.

## **VII - CARE OF THE PREGNANT BITCH**

During the first half of the pregnancy, there is no reason for any nutritional change. Subsequently up to 25 percent of her diet should be animal proteins such as: cooked eggs, yogurt and cottage cheese. DO NOT use calcium supplements as they will cause problems. Multiple smaller meals are also a good idea. Many experts warn that it is best to avoid the following drugs during pregnancy: Corticosteroids, Gentamicin(damage kidneys), Organophosphates, and Tetracyclines. Topical medication and other topical treatments are also absorbed very dramatically into the body. Antibiotics which are considered "safe" to use are Clavamox, Amoxicillin, and Cephalexin. Baytril is not safe for pregnancies or small puppies. Always consult your vet before using any medication or treatment on a bitch you believe is pregnant.

Ultrasound is the best manner to monitor fetal viability with minimal invasiveness. This can start being done as early as 19 days after ovulation. The puppies heartbeats are audible after day 26. A mild radiograph can be taken after 45 days. This is your best warning of a possible problem: it will tell you numbers of puppies, size, and position. It may be an advanced warning to prepare for a potential C-Section. If you have any fetal concerns, you can monitor fetal health through: ultrasound, radiographs,

and hormonal stats, as well as through a fetal heartbeat monitor. Companies such as Whelp Wise in Colorado rent them and monitor results telephonically. (Since there have been some studies done that seem to indicate that irradiation in the fetal and neonatal period is associated with a potential cancer risk, please consult with your vet.)

It is also possible after pregnancy has been confirmed that reabsorption or abortion may occur. There are many reasons for this. Some of them are uterine lining problems, infections, chromosomal and genetic flaws (which are probably more common than we now know), hormonal and stress related (the bitch releases extra cortisone if she is stressed which can cause reabsorption of the litter). If there is a mismating involved and you wish to terminate the pregnancy, the best method currently available that will not cause medical problems or require an ovariohysterectomy in the bitch is the use of Prostaglandin F2a. The use of estrogens to terminate pregnancy all too often results in medical problems which can lead to the need for an ovariohysterectomy. Prostaglandin F2A is used after 30 days of gestation. It triggers the bitch to go into labor, thus suppressing the progesterone immaturely. There is no damage to the uterine lining. But the female needs to be closely monitored in all cases for Pyometritis. Some side effects to Prostaglandin F2a are salivation, vomiting, diarrhea, trembling, panting and generalized weakness. You and your vet need to monitor the female for any potential infections which may cause severe problems. DO NOT undertake the termination of an unwanted pregnancy without the guidance and assistance of your veterinarian.

## **VIII - WHELPING**

When whelping a litter of pups, there is nothing more reassuring than having a great veterinarian. The following is not meant to take the place of veterinarian advice, but only to serve as a guide to whelping. Most veterinarians are not breeder vets, so it is always beneficial to have an experienced breeder on call to help with advice as well.

### ***Environment***

The ideal environment for whelping is a quiet and private, draft free room kept at 70-72 degrees. Lighting should be good, but not harsh. It is most important to remember your bitch deserves to feel safe and secure. Keep all strangers and other animals out of the room. This is not the time to invite the neighbors in to witness the miracle of life.

### ***Whelping Supplies***

Three days to a week prior to the earliest due date, all equipment and supplies should be gathered together. The whelping box can be as simple as a kiddie pool or a more sophisticated structure made out of metal, plastic, or wood. A nice one can be built out of plywood, with guard pig rails on all sides about 3-4 inches from the ground. It should have a removable divider in the middle that can be taken out as the pups grow to give them more space. Approximate working dimensions should be 48" square.

For the actual whelping, you will need lots of clean absorbent towels, paper towels, washcloths, newspapers, washable bedding such as blankets and sheets, a bulb syringe, a digital thermometer, iodine, dental floss (to tie off umbilical cords), blunt scissors for cutting the cord if necessary, a scale, 3x5 cards or a note pad and a pen for recording birth data, and at least two garbage bags, (one for soiled papers and one for soiled towels and bedding). (Also, for new pups awaiting the imminent birth of a sibling, a heating pad and a laundry basket lined with towels is nice to have.)

Recommended optional equipment to have on hand include a heat lamp or heat mat, tube feeding supplies and formula (or ingredients to make some up see Exhibit # 5), varied colored ribbons or yarn for identifying pups, and snacks and drinks for the human part of the long vigil.

Other possible needs could include some homeopathic remedies, such as Fading Puppy (to jump start a slow starting pup), Caulophyllum (to combat uterine inertia) and Cinchona or China (to rebuild lost fluids), or allopathic drugs such as Oxytocin (obtained previously with your veterinarian's permission).

## ***Mechanics***

When it comes to labor, every bitch is different. It is advisable to determine your bitch's normal temperature by taking it several times during early pregnancy. Usually 12-36 hours prior to birth the bitch's temperature will drop. The bitch's temperature should be taken daily starting a week prior to the earliest due date and as time draws nearer, two or more times a day. Normal temperature for a bitch is 100.5 to 102 degrees. Once it drops (usually by 1 and 1/2 degrees and stays down), it is wise to stay close to her and watch for other signs that birth is imminent. It may also be advisable to inform your veterinarian at this time that whelping is near so that he/she might be on standby in case of an emergency.

Some bitches, become quite clingy and don't want to be alone when their time approaches, while others want to be left in solitude. Some have to go outdoors a lot to relieve themselves. Often there will be a sticky discharge from the vulva.

As things progress, the bitch will start to pant heavily, maybe whining or crying, and act generally uneasy. Often this is all accompanied by digging and nesting in the whelping box (or if not watched closely, in the back of a closet or on the couch cushions).

Finally the bitch will begin to push, either standing or lying down. It often looks like she is trying to have a bowel movement, but the tail is arched with the tip toward the ground. Watch for a bulge under her tail and/or a bubble protruding from the vulva and when it starts moving down the birth canal, actual birth should be only moments away.

In a completely normal birth, a pup will emerge nose and front paws first, face down. A breech birth is so common as to be considered nearly normal. That is when the pup arrives back feet first, paws down or slightly to one side.

## ***Potential complications***

Fortunately Portuguese Water Dogs are usually easy whelpers, not in need of a lot of intervention. But as with all things, there are potential complications. This is where your veterinarian and/or friends experienced in whelping pups are indispensable.

Some common problems are very large whelps, breech births, malpresentations, separated placentas, broken sacs and uterine inertia (often after a difficult birth or in a large litter).

Often these can be dealt with at home; some will need veterinarian care. As always there is a question of when or if to call your veterinarian. This is when a friend experienced in whelping is a wonderful asset. Gut feelings seem to play a part here. Are things progressing? How does the bitch seem to be coping? Do things feel right? Be prepared in advance with your veterinarian's phone number and familiarity with location of the nearest 24 hour emergency veterinary clinic at hand, and have your car ready to go. A good veterinarian is a tremendous asset.

## ***Care of the Dam***

Prior to whelping, many people bathe the bitch a week to a few days before the earliest due date. Any shaving should be done early enough to have some hair growth prior to whelping to protect the bitch from puppy toenails. When you do this, lie the bitch on her left side. It is her most comfortable side and does not impact her organs. For very long lion clips, hair should be trimmed shorter around the nipples to prevent the pups' feet from getting tangled and allow the nipple to be grasped without a mouthful of hair.

Post-whelping cleaning should include a warm water rinse to remove blood and fluids from the tail and hindquarters. If the bitch is too worried about her pups, this can be done just outside of the whelping box, or even to one side in it. Keep an eye out for sore nipples and/or inflamed mammary glands. The dam should also be monitored for temperature changes for several days as this is often an early indication of problems. Normal temperature for a bitch is usually 100.5° to 102° (the average being 101).

Many people give an Oxytocin injection after whelping is over to help empty the uterus or have an x-ray taken to be sure all whelps are born.

Homeopathic remedies might include Caulophyllum instead of Oxytocin and either Cinchona (China) or Pedialite to help rebuild lost body fluids, if there was a lot of blood loss. If after giving any of these remedies you take your bitch to the veterinarian, please make sure to tell your veterinarian about the homeopathic remedies you have used.

## ***Care of the Pups***

As the pups arrive, you can be as involved as you wish or need to be. You may do anything from allowing the bitch to do it all, only helping as needed, or become totally involved in the birth. The puppy may be in a sac (a thin membrane surrounding the puppy and filled with fluid), or the sac may have ruptured during the delivery.

As soon as the pup is born, the sac needs to be removed. Often the bitch will do this on her own, then chew off the cord and eat the placenta. She should be watched carefully to see that she doesn't "worry" the cord too much. Allowing the bitch to eat the placentas is not mandatory and may even cause diarrhea. Keep track that each puppy's birth is followed by the placenta as a retained one can cause infection in the uterus.

Now is the time to tie off the cord and dip it in iodine, if desired.

While often it seems very rough, licking and nudging the pup helps get it started. Using a washcloth or towel to vigorously and firmly rub a pup while holding it with its head slightly lower than its rear can help clear the lungs and stimulate a "slow" pup.

Many people swing a "non-breathing" pup to help give it a jump-start on life. It is important to remember that new pups are VERY slippery. To help prevent the pup slipping from your hands during this procedure, it should be placed in a washcloth or towel. Then holding the pup cupped belly down in one hand, head resting on the fingers, cover it with the other hand. Supporting the neck and head to prevent whiplash or brain damage, swing the pup in an arc from above the head to around knee level. This helps to force any fluid from the lungs. This method is sometimes difficult for novice breeders. When the pup is breathing, towel it vigorously or allow the bitch to lick and nuzzle it.

Place the newborn pup back with the dam and let it get to nursing until another pup starts to make an appearance. Now, record on 3x5 cards or a note pad the birth weight, sex, date, and time of birth of each pup. As well as identifying markings.

## **IX - CARE OF LITTER**

### ***Environment***

Initially the environment around the pups should be kept dimly lit and draft free. While it is important to keep the pups warm, newborn and young pups easily dehydrate so it is important that the room or whelping box not be too hot. A good room temperature for a litter of pups that are with its dam is 72°. Keep close watch on how they are faring. If the pups are in a heap and noisy, they may be too cool, or if they are all spread out, they may be too warm. Until the pups are 3-4 weeks old, they lack the ability to control their temperature so they must be warmed by an outside source. If the pups seem to be too cool, a heat lamp should be hung over a portion of the whelping box so that the bitch and pups can get away from the heat if they choose. The same applies to heat sources from below such as heating pads or mats. A solitary puppy has greater heat needs than multiple pups. The temperature in the room for a sole pup should be kept closer to 80 degrees.

Some light (such as a nightlight) is necessary at all times, so the bitch can avoid jumping or stepping on pups while moving around the whelping box. This is where a whelping box with "pig rails" is helpful.

Drafts can be avoided by draping sheets over an exercise pen that has been set up around the whelping box or, simply keep the whelping box in a spare room.

Bedding should be comfortable for the bitch since she will be lying in there almost constantly. The floor should be well padded with blankets and covered over with a soft sheet. The soft sheet will prevent irritation of the umbilical cords and is easily removed and laundered. Because so many bitches dig in the whelping box after the puppies are born, it is a good idea to have the flooring material well anchored so a pup will not wind itself up in it.

## ***Record Keeping***

Record-keeping on your litter is very important. A separate 3x5 card or a page in a notebook is all that is necessary. Birth weight, time of birth, identifying marks, birth order, and daily weights should be recorded here. Daily weighing is a good habit to develop. It is your first indication that you may have a problem. Any medications, vaccinations, tests or special veterinarian attention can be recorded here too.

Notes should also be kept on the bitch, such as when she was bred and on what days of her season, how many days her gestation lasted, and how many live pups she produced.

In addition, the American Kennel Club requires that a record be kept of each bitch and the breedings that have taken place. They will send a form with your litter registration. They want to know all of the breeding information and AKC numbers of the sire and dam, as well as where all of the puppies wind up being placed. These records must be maintained for at least five years after the dog has died, been sold, or been given away. Note that the AKC does not accept records kept on a computer, so maintain printouts [hard copies] in case you are the subject of an inspection.

## ***Health***

On a daily basis, it is important to closely examine and weigh each puppy. A healthy pup appears vibrant and feels firm in your hand. A sickly pup feels limp and flaccid. Pups should twitch in their sleep and most murmur and peep.

Each pup should be weighed daily for a minimum of two weeks, longer if its health is in question. The rate of gain is subject to the size of the pups at birth and the number in the litter. Pups from an average litter of 6-8, weighing 12-16 oz. at birth, should gain about 1 oz. per day after day 2. Many pups don't gain in the first 24 hours, but be concerned about a loss. (Many normal Portuguese weigh considerably less than 12-16 oz. at birth. Normal weight loss is 1-2 oz. in the first day.) Average temperature for a newborn during the first week is 96 to 97F, for the second week is 97 to 98F, for the third week is 98 to 99F and for the 4th week on is 100F.

For pups that seem to be nursing but aren't gaining weight, a couple of things can be tried. First and easiest is to let the dam do the work, but you shuffle the pups so that the smaller ones get the best spot at the food bar. This is especially important with a large litter and not enough nipples to go around. The biggest pups may need to be temporarily put in a basket with a heating pad, while the smaller ones get first suckle. Pups receive 95 percent of their initial disease protection during their first 48 hours of nursing. The initial mother's milk produced during the first 48 hours is maternal antibody-rich colostrum. It is important for all pups to nurse for at least the first 48 hours, if at all possible.

Second and not as easy is supplementing the pups with formula. You can try bottle-feeding or tube feeding. Puppies cannot gag until they are 7 to 10 days old. Therefore, please do not feed them with an eyedropper). Formulas come in powdered form needing to be mixed with water, or pre-made. Alternatively, you can make up your own following your vet's advice.

Rear dewclaws and front dewclaws (if desired) should be removed between days 2 and 4 depending on the size of the pups in the litter. Days 3 or 4 is optimal.

Although a puppy's eyes open between days 10 and 12, normal vision occurs at 3-4 weeks. Ears open during days 14-17. Pups are walking by day 21. Weaning usually begins around weeks 3-4. The first meals are generally very liquid and warm. Gradually progress to more and more solid food until they are eating more like an adult. Since their stomachs are small, they need to be offered 3-4 meals per day. As weaning progresses to a more solid food, you must provide fresh water for the pups. They may not drink it at first, but they need to have it available and learn to drink.

An immunization and worming schedule should be worked out in advance with your veterinarian's advice. This can vary significantly, but it appears best to have the medications spread over time and not given all at once. It is wise to do some research on this prior to breeding so that a decision can be made thoughtfully and your veterinarian is prepared with the proper vaccines.

An example of a schedule might be a wormer at 3 and 6 weeks and the first vaccine at 7-8 weeks. Many veterinarians like to spread the vaccines over time as well. Every vet may have a different vaccine protocol depending on professional judgment, choice, and different breeds or families of dogs. Please consult with your vet.

Housebreaking begins early, in the whelping box. Keep the bedding scrupulously clean. A divided box is helpful here as the pups will sleep on the bedding and move off it to relieve themselves. Have the gate for letting them in and out by the bedding and they will stay much cleaner. If the box is kept very clean and the pups are on a tight schedule of feeding and being let out, they can be well on their way to housebreaking by the time they leave for their new homes.

## **X - PUPPIES**

### ***Socialization***

Socialization of your puppies is VERY important. Starting at birth, the pups should be handled daily. For the first few weeks, this should only be done by members of your family. Wash your hands before handling puppies! As the pups develop they should be exposed to a variety of things, starting with toys and/or new challenges in the whelping box when their eyes and ears are open (about two weeks). Chew toys, cardboard tunnels, small crates with no doors, pop cans, milk jugs and bones all make good toys for puppies.

Once the pups start to be weaned, strangers of all ages and both sexes should be introduced to them. Make sure that any children are gentle and quiet.

Around four weeks, the pups should be taken out of the whelping box daily to experience new environments. First, expose them only to the room outside the box, and then slowly open up the world to them as they become comfortable with each new place.

They should experience typical household noises, first as a litter, then in smaller groups, and finally on their own. A rule of thumb is each pup should get about 10-15 minutes per day of time on its own away from littermates. Exercises that are confidence builders are extremely important in small puppies.

Each pup should learn about grooming tables, dryers, nail clipping, baths, scissors and clippers. This is very important, as the pup will spend lots of time being groomed in its life and the more pleasant it is for the pup the better.

Prior to placement, they should experience riding in the car, sleeping alone in a crate, and anything else thought necessary to make their switch to being an only dog easier.

### ***Grading Pups***

Grading pups starts at birth. Early on, temperaments are developing and the structure is there from birth. Many breeders prefer to choose their pups between 5-6 weeks and strongly believe that observing the pups gives them the best insight into aptitude and attitude of each pup.

At about seven weeks a temperament test can be given. It includes short tests on dominance, startle factors, people orientation, prey drives, pain tolerance, and forgiveness. These should be given by an experienced stranger and used as an added help in deciding which pup goes where. The temperament test is not and should not be the sole consideration used in placing a puppy.

Prior to evaluation of the pups, rereading of the breed standard can refresh memories on the specifics of the PWD. A video "The Puppy Puzzle" may be helpful to novices. General structure, movement, pigment, coat, and temperament must all be taken into consideration. If selecting a puppy for potential breeding purposes, be especially critical. This is where an unbiased experienced breeder or friend can be invaluable. They can often see things that the breeder misses. Since an evaluator has no vested interest in the pups, they can look at the pups with an open mind. During examination of each pup, the bite should be examined. Also, each male puppy should be examined to determine if both of his testicles are correctly descended. As it is easy to damage the tiny testicles on a very young pup, a novice breeder may want to have the veterinarian check for them when the pups are taken in for shots or a health checkup. It is also recommended that every puppy be seen by an ophthalmologist to determine that eyes are normal. CERF all of your puppies! This is particularly valid for potential show/breed prospects as eye conditions they may have are probably genetic and can be passed on to their get.

## **XI - LIFELONG RESPONSIBILITIES**

### ***The Responsibility of the Breeder in Placing Puppies***

The most difficult aspect of breeding a litter is making sure that the pups are placed with people who are willing to make a lifetime commitment to them. Use the PWDCA Breeder Referral List to find potential owners and network with friends. A breeder should talk to each potential owner several times before the pups are placed and, if at all possible meet every member of the family, including any household help who will have daily interaction with the pup. This is important because while some members of a family want the pup, maybe Mom and Dad are not as committed as you would like them to be. If the family wants the pup because the kids want a dog, or if the family expects the kids to take on the responsibility for the dog, be wary. Once the novelty of owning a dog wears off, the responsibility for the dog will fall to the parents who may decide the dog is just too much trouble.

If there is more than one person involved in the purchase of the pup, ALL parties involved should show the same enthusiasm for owning the dog. When interviewing the potential owners, pay attention to how each member of the family interacts with the pups or older dogs in your household. Does one member of the family show fear of the dogs/pups? Are you satisfied that the pup would fit into the lifestyle of the potential owners? If the answer is no or if you have any reservations whatsoever about these owners, don't be afraid to say no. If you have to keep a pup longer than you would like to, so be it. The right owner will come along eventually. Remember that your first responsibility is to the pup and you want to make sure that the pup will be a cherished member of the household for life.

If you are placing a pup out of your area and are unable to meet the potential owners, make sure you get a reference from another breeder or friend who has met them and can assure you that the family would be good owners. But, just because a friend or breeder can vouch for the family, this does not absolve you from the responsibility of talking to the owners yourself to ensure that you are comfortable with them and your pup will be going to a good home.

When placing puppies, a limited registration is a good tool to use to ensure that the pup will not be bred without your knowledge. Also, spay/neuter contracts are a must for a pup that is not breeding quality. If you do place a pup with full registration, you may wish to co-own so you will have more control over the breeding life of that pup. Co-ownership agreements have downfalls and the AKC recommends avoiding them. You should be sure that your contract spells out exactly what is expected from both owners and what costs are incurred by each owner. Here are some of the topics which should be addressed in your co-ownership agreement:

- Is the dog to be shown and, if so, who is responsible for handling fees?
- If you place a bitch, who is responsible for choosing the stud dog? Who is responsible for stud fees and litter fees? Who will place the litter? You, as the original breeder may wish to assume these responsibilities.
- Also spell out in your contract all the health testing that is to be done before a breeding is even planned and who is responsible for paying for such test costs..
- If you sell a male on a co-ownership agreement, be certain that the new owner will consult you before allowing the dog to be used at stud. Remember that only one owner's signature is needed for a stud dog to register a litter, while a bitch needs all owners to

sign before a litter can be registered with the AKC. When you place a potential stud dog, remember he can be responsible for many more litters than a bitch can, so be very sure that the people you place the stud dog with have the best interest of the breed at heart and will use him selectively. Be a mentor to your owners so that in the event they want to go on with breeding/showing dogs, they will have the knowledge and support of an experienced breeder to do so responsibly. Your responsibility as a breeder must include not only the dogs you produce, but also the dogs that are produced by dogs you sell. Always use a contract when placing a pup, regardless if it is of pet or show potential. Make sure both parties understand their responsibilities including any health testing that you might require. Impress upon the new owners that if the placement does not work out, you will take the dog back, no matter what age. It is also a good idea to discuss what would happen if the breeder dies. What would happen to the dog if the owner had to give it back at some point? It is the breeder's responsibility to make sure that each dog owned or bred by him/her will be taken care of should the need arise?

Support your new owners in every way possible. Encourage them to call you with any questions or problems they may have with the pup and make every effort to answer all the questions and help them to solve any problems. Suggest the new owners join the local PWD club and the national club to continue to educate themselves. Help them to find obedience classes and a groomer in their area should they need it. In short, if you offer the new owner as much support as possible, you will help to ensure that the pup will have a good home for life.

It is a good idea to include the following in your puppy packet:

- Information on grooming and what tools to use.
- Information on typical PWD behavior patterns and necessary training.
- Information on feeding and what food you recommend.
- Crate training information.
- Applications for both the PWDCA and their local PWD club.
- Pedigree
- Copies of all of the health tests on both the sire and dam
- All pertinent puppy specific information (for example inoculation receipts and other test results if needed)
- A copy of the contract outlining the specific things you feel are important.
- A note indicating the type of AKC registration (if not already in the contract) and anticipated date of receipt.
- List of books and articles that you feel might help the new owner. After you have done everything possible to ensure the proper placement of your pups, don't be discouraged if a placement doesn't

work out. It happens to all of us at one time or another. There are many reasons why placements don't work out including divorce, death, and change in owner's circumstances to name just a few. You cannot know what will happen in the future. The important thing to remember is that you, the breeder, are ultimately responsible for the pups you produce. No matter what age, take that dog back. There are many people looking for older dogs to adopt so if you need help placing an older dog, just ask.

Please make provisions for your dogs and their progeny in the event of your demise. Many people have developed contacts and set aside monies in their will to care for their dogs if something happens to them. Also, a great idea if you travel with your dogs is to place a letter within your vehicle registration with instructions on whom to contact to care for your dogs in an emergency and assurances that any bill will be paid.

Breeding a litter is not just about raising and selling puppies, it is a commitment for the lifetime of the dog.

## **PARTING THOUGHTS**

We, as breeders, are the guardians of the breed. We shape the public perception as well as the future integrity of the breed. Breeding litters to offset life's expenses IS NOT responsible breeding and will damage our breed. Health and other quality issues including pride in what you produce should be in the forefront of your breeding program. Your commitment to the dogs you produce is LIFELONG. It does not end when that puppy goes to its new home. If you are not prepared to provide for the well-being of that pup above all else, you should not be a breeder. Not everyone that walks in your door will be prepared to take on the responsibility of caring for your dog. If your potential puppy people are not willing or able to assume their part of the burden in caring for the dog, then you should be prepared not to sell them a dog. Be prepared to hold your puppy until you find the right owner for it. Always remember, the future of the Portuguese Water Dog is in our hands as breeders.

## EXHIBIT 1

### ***Health Committee Chairs or Coordinators***

PWDCA supports committees for most health issues within the breed, as well as breeder resources. A current list of health committees and committee contacts can be obtained from the Club website at [www.pwdca.org](http://www.pwdca.org).

## EXHIBIT 2

### ***RECOMMENDED READING:***

#### **Breeding**

Breeding Better Dogs C. Battaglia, 1986

Canine Reproduction P Holst, 2000

The New Art of Breeding Better Dogs K Onstott

How to Breed Dogs L. Whitney 1971 Howell

Book of the Bitch Evans & White, UK, 1997

Dog Breeding for Professionals Herbert Richards, 1989

Born to Win: Breed to Succeed Patricia Craig 1997

Joy of Breeding Your Own Show Dog Ann Seranne, 1987

Successful Dog Breeding C. Walkowicz & B. Wilcox, DVM 1994

The Whelping and Rearing of Puppies Muriel Lee 1997

A New Guide for Breeding and Whelping Dogs J.M. Pickell

Standard Book of Dog Breeding Dr. Alvin Grossman

K-9 Structure and Terminology E. Gilbert and T Brown

The AKC Complete Dog Book

The New Dogsteps R. P. Elliot

The Dog in Action Mac Dowell Lyons

## **GENETICS**

Genetics of the Dog; Malcolm B. Willis 1989 Howell

Control of Canine Genetic Diseases; G.A. Padgett, DVM 1998

Genetic Connection: Guide to Health Problems in Purebred Dogs; Ackerman, 1999

## **DOG TRAINING, HEALTH AND NUTRITION AND GENERAL INTEREST**

The Perfect Puppy; Gwen Bailey

The Doctors Book of Home Remedies for Dogs and Cats; Rodale Press

The Complete Portuguese Water Dog (first edition); D. Miller & K, Braund

The New Complete Portuguese Water Dog; (second edition) Kitty Braund

Portuguese Water Dog ; Carla Molinari

Don't Shoot the Dog;;Pryor

The Culture Clash; Donaldson

Give Your Dog a Bone; Billinghurst

Holistic Guide for a Healthy Dog; Volhard

How to Raise a Puppy You Can Live With; Rutherford & Neil

The Sirius Puppy Training(video); Ian Dunbar

Puppy Puzzle: Evaluating structural Quality (video); Hastings

The Art of Raising a Puppy; The Monks of New Skeet

Puppy Puzzle – The Hastings approach to evaluating the structural quality of puppies video by Bob & Pat Hastings

PWDCA Courier Articles

AKC Gazette Articles

AKC Brochures

## **EXHIBIT 3**

### ***RECOMMENDED WEB SITES***

#### **General Web Sites**

Portuguese Water Dog Club of America - [www.pwdca.org](http://www.pwdca.org)

American Kennel Club - [www.akc.org](http://www.akc.org)

Orthopedic Foundation for Animals - [www.offa.org](http://www.offa.org)

Optigen - [www.optigen.com](http://www.optigen.com)

Canine Eye Registration Foundation (CERF) - <http://www.vmdb.org/cerf.html>

Canine Health Information Center (CHIC) - <http://www.caninehealthinfo.org/>

#### **Breeding Information Sites**

Breeding Articles - [www.showdogsupersite.com](http://www.showdogsupersite.com)

[http://www.akc.org/breeders/index.cfm?nav\\_area=breeders](http://www.akc.org/breeders/index.cfm?nav_area=breeders)

[www.dog-play.com/breeding.html](http://www.dog-play.com/breeding.html)

[www.dog-play.com/breedercomparison.htm](http://www.dog-play.com/breedercomparison.htm)

#### **Genetic Information Sites**

[www.workingdogs.com/doc0031.htm](http://www.workingdogs.com/doc0031.htm)

[www.vetgen.com](http://www.vetgen.com)

[www.cyberpet.com/cyberdog/articles/general/genetics.htm](http://www.cyberpet.com/cyberdog/articles/general/genetics.htm)

<http://www.continentalkennelclub.com/Articles.aspx?type=breeding>

## **EXHIBIT 4**

### **TEN COMMANDMENTS FOR A RESPONSIBLE PET**

#### **OWNER**

1. My life is likely to last 10 to 15 years. Any separation from you will be very painful.
2. Give me time to understand what you want of me.
3. Place your trust in me-it is crucial for my well-being.

4. Don't be angry with me for long, and don't lock me up as punishment. You have your work, your friends, your entertainment. I only have you.
5. Talk to me, even if I don't understand your words. I understand your voice when it is speaking to me.
6. Be aware that however you treat me, I'll never forget it.
7. Before you hit me, remember that I have teeth that could easily crush the bones in your hands, but I choose not to bite you.
8. Before you scold me for being lazy or uncooperative, ask yourself if something might be bothering me. Perhaps I'm not getting the right food, or I've been in the sun too long, or my heart is getting old and weak.
9. Take care of me when I get old. You, too, will grow old.
10. Go with me on difficult journeys. Never say "I can't bear to watch" or "let it happen in my absence." Everything is easier for me if you are there.

REMEMBER, I LOVE YOU!!!!!!!!!!!!

(Found at the SPCA in TX author unknown.)

## **EXHIBIT 5**

### RECIPES

1.

#### Neonates

##### A. Hot Sock

For a chilled pup or a pup just arrived via C section, Dr. Hutchinson recommends using a clean white cotton tube sock filled with rice. Place the sock in the microwave for 2.5 minutes. Place the sock alongside the pup (hot water bottles will cool off quicker than the rice will).

##### B. Supplemental Feeding Formulas:

###### Hoskins' Puppy Formula

4oz cow milk

4oz water

1-2 egg yolks

2 Tums

1 teaspoon vegetable oil

Mix just enough of the formula to keep it fresh. Place it in a baby bottle with an "easy nipple" and put it in the microwave on low. You want to bring the temperature of the contents to approx. 100 degrees without cooking it. If the contents are too cold, the puppy will not drink the formula. If you overheat the formula, it will congeal.

Breeders Formula (used by many PWD breeders):

1 can evaporated milk

1 can water

2 packets unflavored gelatin(Knox)

2 beaten egg yolks

1 tablespoon Half and Half (you can substitute olive oil)

1 tablespoon plain yogurt

Dissolve the gelatin in the water on a very low flame before you mix the milk in. (You want to warm, not cook, the formula) Add the other contents, stirring them in slowly. Just as with Hoskins' formula, you want to bring the temperature of the contents to approximately 100 degrees without cooking the formula. (If you cook the formula, it will congeal and you have to start a new batch). Refrigerate all unused portions.

To start a puppy supplement feeding on a bottle, you may want to place a tiny drop of honey or Karo Syrup (White Corn Syrup) on the nipple. This will sometimes help the puppy get started taking the nipple as they like sweet things. Once the puppy is used to the bottle, you do not have to continue the "sweetening." Puppies will not take the bottle if it is too warm or cold. For a neonate that has no sucking reflex, please contact your vet as it may need to be tube fed. (If a puppy needs to be tube fed, it is crucial that the tube reaches the stomach as placing it in the wrong location will cause aspiration pneumonia.)