

Valentine & Sons Seed Company
<http://www.vnsseed.com>

Raising Heritage Poultry in your Backyard

Brief History of Domestic Poultry

Use in ancient times

Domestic fowl, both ornamental and livestock, goes as far back as Roman times although all domestic chicken originate with the Red Jungle Fowl from South Asia.

Ancient Egyptians were the 1st to use oven incubators for hatching. These were built much like today's brick ovens and needed to be maintained for temperature and humidity for 21 days (or the incubation period).

Use in Colonial America

1st mention of Domestic poultry, that we have found so far, in Colonial New England is in Edward Winslow's Journal in 1623 when he sent chicken broth to an ailing Wampanoag sachem named Massasoit. Upon Massasoit feeling better Winslow sent him chickens which Massasoit kept to breed. Numerous archaeological digs have discovered remains of chickens at both English sites and Native American sites from the 17th century.

By the 18th century chickens were everywhere in the New World, from small and mid-sized farms to large plantations. Even many slaves were allowed to keep chickens. The fact that they were extremely low maintenance and so prolific made them very appealing to people.

By the late 18th century exotic breeds of chicken were all the rage (much like the small dogs of today...actually, kind of like chickens today ;)) Even Thomas Jefferson himself kept Silkies and Polish chickens!

During the early 19th century, poultry was kept mainly as a secondary source of food for both farm and "non-farm" households. It was typically the job of the women and children to raise them. However by the 1840's there was a movement by some industrious farmers to improve breeds towards either egg laying or meat, and so began the demise of the typical barnyard fowl.

Brief discussion of the introduction of the APA Standard

Before the Standard in 1874 there were many breeds of chicken, but they didn't necessarily have definitive names or a standard look until the American Poultry Associates (APA) published the Standard of Perfection (SOP).

Importance of Heritage breeds

Definition (from the ALBC)

Heritage Chicken must adhere to all the following:

1. **APA Standard Breed.** Heritage Chicken must be from parent and grandparent stock of breeds recognized by the American Poultry Association (APA) prior to the mid-20th century; whose genetic line can be traced back multiple generations; and with traits that meet the *APA Standard of Perfection* guidelines for the breed. Heritage Chicken must be produced and sired by an APA Standard breed. Heritage eggs must be laid by an APA Standard breed.
2. **Naturally mating.** Heritage Chicken must be reproduced and genetically maintained through natural mating. Chickens marketed as Heritage must be the result of naturally mating pairs of both grandparent and parent stock.

3. **Long, productive outdoor lifespan.** Heritage Chicken must have the genetic ability to live a long, vigorous life and thrive in the rigors of pasture-based, outdoor production systems. Breeding hens should be productive for 5-7 years and roosters for 3-5 years.

4. **Slow growth rate.** Heritage Chicken must have a moderate to slow rate of growth, reaching appropriate market weight for the breed in no less than 16 weeks. This gives the chicken time to develop strong skeletal structure and healthy organs prior to building muscle mass.

Chickens marketed as Heritage must include the variety and breed name on the label.

Terms like “heirloom,” “antique,” “old-fashioned,” and “old timey” imply Heritage and are understood to be synonymous with the definition provided here.

Abbreviated Definition: A Heritage Egg can only be produced by an American Poultry Association Standard breed. A Heritage Chicken is hatched from a heritage egg sired by an American Poultry Association Standard breed established prior to the mid-20th century, is slow growing, naturally mated with a long productive outdoor life.

The American Livestock Breeds Conservancy has over 30 years of experience, knowledge, and understanding of endangered breeds, genetic conservation, and breeder networks.

Genetics and biodiversity

Before commercialization of agriculture each area had to provide the agricultural needs of the local population. Therefore, farmers would breed animals that had favorable traits not only to the local environment but also to the cultural tastes of that area. Imagine this going on in every corner of the world for millennia! As a result, humans had created a staggering number of differing livestock breeds; each one completely unique in its physiology, genetics and the products it produced. A minuscule percentage of these breeds won out as the best candidates for the ever commercializing agricultural world and as these breeds were manipulated through pointed breeding over the last two hundred years the vast world of heirloom livestock was dubbed unnecessary. Doves of heirloom breed went extinct. Only now are we beginning to realize the many benefits these breeds still have to offer:

Nutrition

Flavor

Hardiness

Beauty

Medical Benefits in Research

Genetic reservoir for future agricultural problems

Economically

Heritage breeds are much hardier and healthier than industrial chickens and, therefore, are less expensive to take care of. The average Heritage Large Fowl eats about 60lbs of feed per year (current rate of feed \$15.00 50/lb bag est.)

Historically

Heritage breeds have been around for generations and have proven to be excellent dual purpose birds suited for a homestead, small farm, or backyard.

Lost and critically endangered breeds

Many breeds that existed in the 18th century no longer exist today due to breeding for “perfection”.

Rare Breed Facts - Why Raise Rare Breeds?

General Facts

- Genetic diversity within a breed is the presence of a large number of genetic variants for each of its characteristics. All breeds within a species share at least 50% of the total diversity for the species as a whole. The other 50% is unique within the species. This variability is significant because it allows the species to adapt to changes in environments or other pressures by selection for the most successful variants. The opposite of genetic diversity is genetic uniformity. A population that is genetically uniform may be exquisitely suited to a particular environment. Unfortunately, specialization frequently results in an inability to meet the challenges imposed by and change in the environment or in selection goals. A truly uniform population has no reserve of options for change. In today's large scale agricultural systems, only a relatively few highly specialized breeds are used to supply the majority of the world's food resources. This places the world's food supply at risk if anything should happen to these breeds such as disease or irreversible adverse genetic mutation. Excerpt from "Taking Stock", published by ALBC
- In Europe, half of the breeds in existence at the turn of the last century are now extinct and a high percentage of the remaining breeds are in danger of disappearing over the next 20 years. In North America, over one third of livestock and poultry breeds are rare or in decline. A survey undertaken by FAO, has determined that many breeds of livestock have already become extinct, and that 35 percent of all remaining mammalian breeds and 63 percent of avian breeds, reported on an on-going basis by countries to the FAO are currently at risk of extinction. FAO report 2001 on the State of the World's Animal Genetic Resources for Food and Agriculture.
- In Ireland, exclusive use of one variety of potato, the "Lumper", led to the great famine. It was cheap food to feed the masses. Potatoes were propagated vegetatively so for all intensive purposes, the potatoes were clones with little to no genetic variation. When the potato fungus called "the Blight" arrived from the Americas in 1845 to Ireland, the Lumper had no resistance to the disease leading to the near complete failure of the potato crop across Ireland. Had the farmers used multiple varieties of potato, the famine may not have occurred. Keep in mind that Andean natives were cultivating three thousand varieties before the Spaniards arrived. Today in the US we cultivate 250 varieties ALBC composite from numerous sources
- According to WWF there are fewer than 2500 Giant Pandas left in the wild. There are currently 80 livestock and poultry breeds with similar or fewer animals in their population (9 cattle breeds, 2 goat breeds, 8 horse breeds, 2 donkey breeds, 7 pig breeds, 11 rabbit breeds, 5 sheep breeds, 19 chicken breeds, 6 duck breeds, 6 goose breeds, 5 turkey varieties). World Wildlife Fund and ALBC Conservation Priority List 2009
- About 20 percent of farm-animal species are endangered, says FAO. The U.N. Food and Agriculture Organization estimates that one in five species of farm animal are in danger of extinction. Of more than 7,600 species that the FAO has in its farm-animal database, 190 have kicked the bucket in the last 15 years -- about one breed a month. The globalization of livestock production is the "biggest single factor" impacting farm-animal biodiversity, says the FAO, as global agriculture focuses heavily on specialized, super-productive livestock. Indeed, a mere 14 species provide 90 percent of the human food supply from animals. FAO's José Esquinas-Alcázar is stressing the importance of maintaining animal genetic diversity, which he says will "allow future generations to select stocks or develop new breeds to cope with emerging issues, such as climate change, diseases, and changing socioeconomic factors."

Poultry

- The turkey is the most genetically eroded of all livestock species. Only several strains of large white turkey are used for over 90% of all turkey production. These birds have such large breasts that they are no longer capable of breeding naturally. Fertility has been decreasing for the variety. Often, the birds get so big that their legs will collapse under the tremendous body weight. Their fast growth and large bodies also make them prone to heart attacks causing fatalities from shipping stress. Farmers become reliant on hatcheries to provide stock. Without artificial insemination performed by humans, this breed would become extinct in just one generation. (ALBC piece compiled from multiple sources)
- 60 breeds of chicken that had been raised in the United States prior to World War II were abandoned in favor of just a handful of high performers. Today, five industrial "improved" breeds of

chicken supply almost all of the chicken meat and brown eggs sold as food. White eggs now come almost exclusively from a single breed of industrial white leghorns.

- Ten large companies produce more than 90 percent of the nation's poultry using hybridized, fast growing birds. (National Resources Defense Council). NC State University study shows that the fast growth of the hybrids is supported by the development of thin intestinal linings that allow nutrients to be absorbed very quickly by the body. These extra thin intestinal linings make the birds vulnerable to infection and reduce disease resistance. In effect, it becomes necessary to incorporate antibiotics and anthelmintics (parasitic de-wormers). The poor immune system leaves them open to bacterial infection and disease like avian influenza. That's why bio-security becomes a huge issue in the poultry industry.
- A report from the University of Arkansas, Division of Agriculture puts the rapid growth rate of today's chickens into perspective: "If a [human] grew as fast as a chicken, you would weigh 349 pounds at age two." Sustainable Agriculture · Thirty-nine percent of the U.S. population uses organic products according to The Natural Marketing Institute (NMI) and SPINS.
- Farmers markets have enjoyed rapid growth in the United States. Between 1994 and 2000, the number of U.S. farmers markets increased by 63%, from 1,755 to 2,863 according to USDA.

Laws

The laws for maintaining a poultry flock range greatly state to state and even town to town. Before instigating your poultry program we strongly recommend you contact the following offices and become familiar with the laws of your area:

- Your Cooperative Extension
- Your State Veterinary Office
- Your Town Office

Animal husbandry

History

There are two books that will give you a great overview of the history of animal husbandry one is "The Art of hatching and bringing up Domestick Fowl" by M. DeReaumur and "Creatures of Empire" by Virginia DeJohn Anderson. Raising Domestic fowl goes all the way back to Ancient Egypt and continues today all over the World.

How it is done today from a breeder standpoint

The small breeder of today has it much easier than our forefathers. With the advent of electricity, pumped well water, better quality feed, and modern medicine it is relatively easy to raise a healthy flock of Heritage poultry.

Choosing the heritage breed for you

Climate

In New England we would recommend a winter hardy breed for a small backyard flock. Generally, we are extremely fond of dual purpose breeds, such as the Dorkings, American Dominiques, and Sussex breeds that we raise. Dual purpose breeds are what our forefathers generally raised because they could get meat and eggs from the same birds, just like most heritage breeds today. The only difference in raising dual purpose fowl for meat vs. eggs is in the feed you choose.

Space

In choosing how many birds you want for your flock, keep in mind that you will need 4 square feet per bird in your coop and 8 square feet per bird in your run. If you free range, then the run is irrelevant.

Budget

Keeping Heritage poultry isn't expensive to maintain, however you can expect to outlay between \$500.00 and \$1000.00 your first year (this total includes such items as waterers, feeders, heat lamps and so on. It is also subject to your coop design and if you choose to build it yourself). You will also have to consider the cost of the initial animals plus shipping, fencing (should you desire it) and medical care (both routine and otherwise).

Intentions for your eggs/meat

Decide your intentions for the flock. Though most are dual-purpose, there are still some breeds that are noted as superior layers where others are notably good meat birds. However, if you desire both eggs and meat, you may go with a dual purpose breed so you only need to maintain one breed.

Breed tendencies

Poultry breeds can differ drastically one from the other. Many industrialized breeds do not perform well or even perish in a free-range environment and should not be used as such. Some breeds are markedly docile where a few breeds tend to be more aggressive. Though usually not the case, some breeds are notoriously messy and may not be good candidates for tight, closed coop environments, though free-range suits them well. Each breed represents certain times and locations in history. If you wish represent a certain point in history, a little research to pinpoint your breed choices will benefit your efforts.

Think about what you want from the poultry you are considering and do a little research as you make your selection to help ensure an enjoyable experience for years to come.

Incubating eggs

Fertile chicken eggs have a 21 day incubation period and if you are using an incubator to hatch, maintaining heat and humidity is imperative (follow manufacturer's instructions). If you are hatching using a broody hen, the hen will take care of the egg through hatching. While the natural method is a wonderful choice it can be inconsistent and if you are trying to hatch out many chicks in a short season, this may not be the method for you.

Choices in incubators

For a small to medium scale operation you have three choices. There are the inexpensive foam incubators, the mid range plastic incubators or the cabinet incubators. Each choice has their pros and cons.

Feature	Styrofoam	Plastic	Cabinet
# of Eggs	38	24	288+
Set it and forget it	No	Yes	Yes
Easy to clean	No	Yes	Not really
Maintains temp well	No	Yes	Yes
Auto-turner	Yes (not recommended)	Yes	Yes

We whole heartedly recommend the Brinsea Eco 20 with Auto-turn cradle for the home hobbyist. It is easy to use, and is truly “set it and forget it”.

Proper handling of eggs

When storing your eggs before you incubate (no more than 2 weeks), you should store them at room temperature (68-70 degrees) in a paperboard egg carton (not the plastic ones) with the pointed end of the egg down. You should also rotate the box once to twice a day.

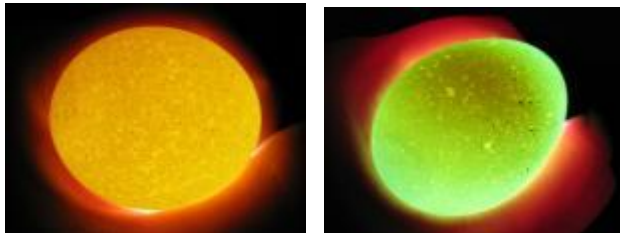
Temp and humidity

For a forced air incubator the temp should be 99.5 degrees F. and for a still air it should be 101.5, any severe fluctuation in temp could kill the chick. As far as the humidity, you should follow the incubator manufacturer’s instruction.

Candling eggs

Thanks to “SilkieChicken” from Backyardchickens.com for the pics.

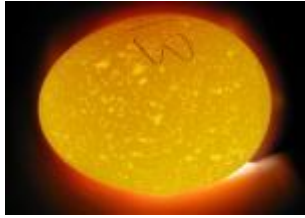
0 hrs Note that with just enough light you can see though brown and green eggs easily. Shell thickness and egg size will impact image quality, so note these are bantam eggs.



This is a great example of a porous egg, not ideal for hatching.



28hrs Not much to see though the egg at this point. If you were to open the egg and look at it under a dissection microscope, you’d see that the head/neural fold has formed, and up to 4 pairs of somites. (Somites are mesodermal cells which migrate and give rise to tissues such as muscle, bone, and cartilage. Note the number on the egg. It serves as tracking and to know which side is "up" as I am hand turning 3x a day.



52 hrs If you look closely, you can see the start of the blood island in the middle of the egg. The heart is actively beating by this time and has started to turn; the heart starts out as a tube during development.



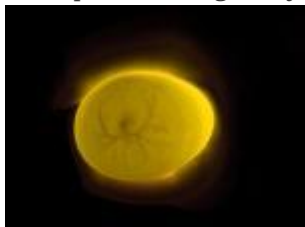
May be easier to see after Photoshop, it's that darker ring on top of the yolk shadow



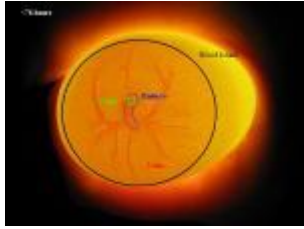
76 hrs At this point, limb buds have not only formed but are enlarging and the eye is beginning to become pigmented.



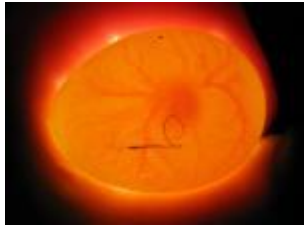
Some photo editing and you can really see the veins!



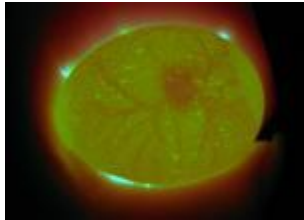
Schematic



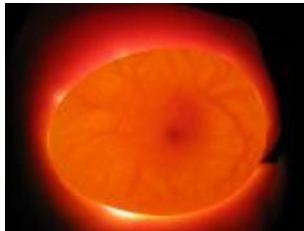
100 hrs The limbs are now starting to look like limbs and the embryo starts to look like what a common person would say is an embryo.



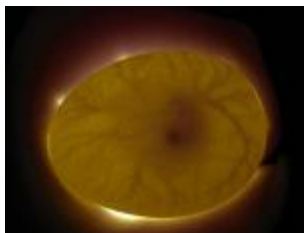
Enhanced to see veins



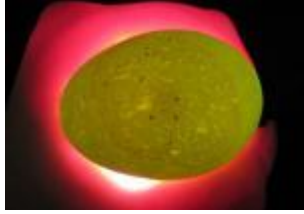
Day5 On this day, the beak has just become viable and the chick's limb buds are no longer buds and instead will have identifiable digits! The black dot is the eye.



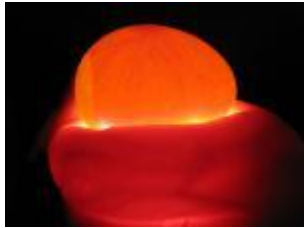
Edited to enhance veins



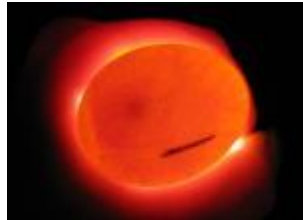
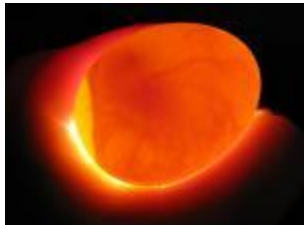
A day 3 or so quitter



Profile view and you can see the veins in my finger too.



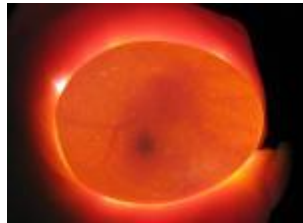
Day 6 It gets harder to take clear vein pics, as there is enough vascularization that it gets a bit washed out.



Enhanced image.



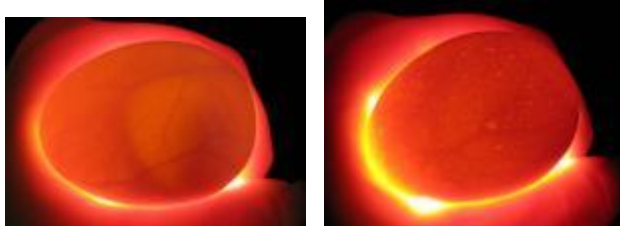
Day 7 If you were to open them up, you'd see little specks where future feathers would emerge!



Day 8



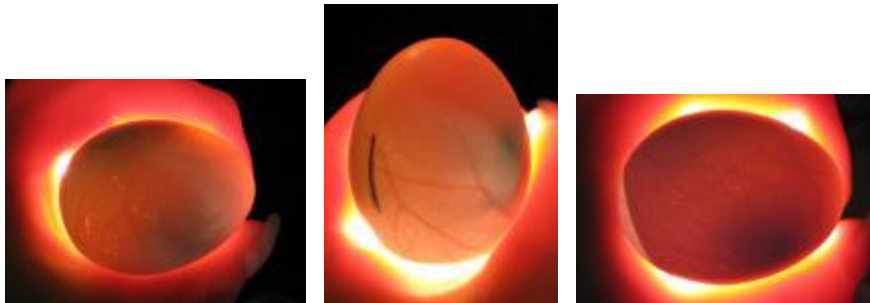
Day 9



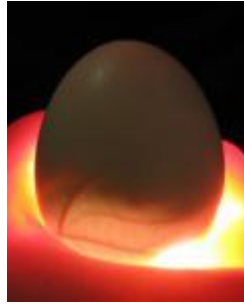
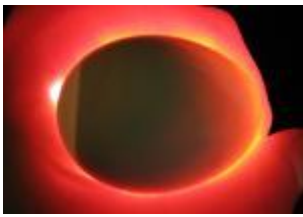
Day 10



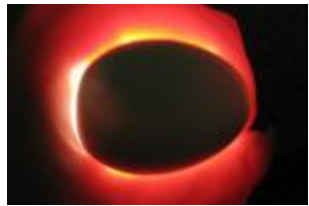
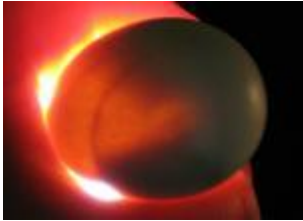
Day 11



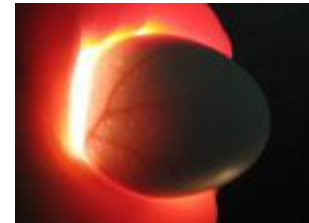
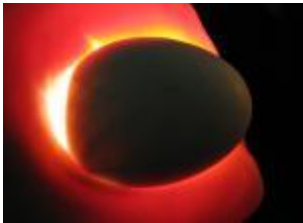
Day 12



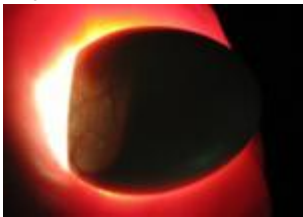
Day 13 If you opened them up, you'd see claws forming!



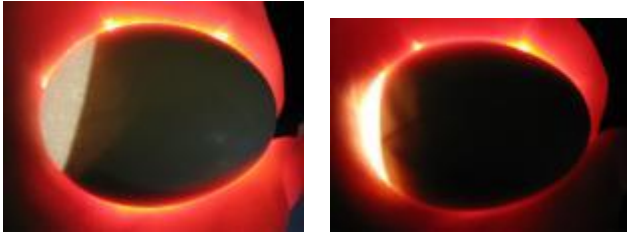
Day 14 It's so dark there is pretty much nothing really to see! Just a bit of space left



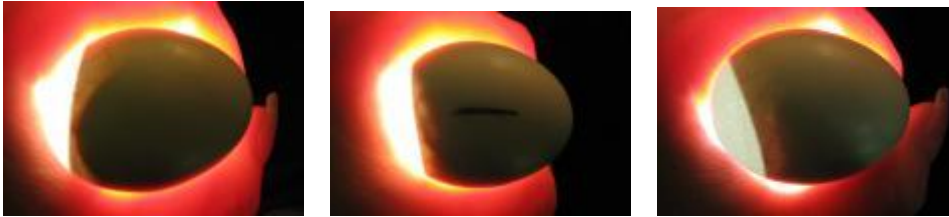
Day 15



Day 16 You can see toes in the second one!



Day 17



Day 18 Lock down!!!! Since there is plenty of space in the bator, I made little paper cups to put each egg in. Hopefully this will catch the majority of the hatch junk left over from popping out so clean up is a bit easier.



HATCH DAY Note, there is no plan to open the bator for the next 48 hours. The top is clear so all the action can be seen without compromising the hatch!

Pips





First to hatch: About 14 hours after the first pip at 4am. Note the clean hatch and absence of any blood in the shell. It was ready!



Second to hatch: About 17 hours after the pip at 4am. Could have piped any time between 11pm and 4 am though. Another clean hatch.



30 hours after the first pip, the hatch is now complete! This is about my average time to hatch. I've had some take even longer so there really is no rushing the little guys. There were 7 fertile eggs that made it to day 3. *All 7 hatched on their own* without opening the bator between day 18 though post hatch and fluff.

Post hatch shell interior. Note that all the vessels are gone and it's just pink. Not a single drop of blood. The little blob in the bottom is the chick wastes from development; think of it as embryo poo.



Helping a chick out of its egg

This can be inherently dangerous but is often the only way to save a distressed chick. On occasion a chick will pip but not hatch after an appropriate amount of time has passed. Though most farmers feel it is due to a problem that should not be allowed to survive, I find that this can be due to several factors, some of which is not due to the chick's genetic makeup. For example, if humidity is too low then a part of the chick can become stuck to the inside of the shell. This prevents it from rotating inside the shell, keeping it from properly twisting the umbilical cord and cracking the shell all the way around. Sometimes they pip in the narrow end and therefore have trouble spinning inside the shell. The following method is not guaranteed to work in every case but has been quite successful at Valentine and Sons for years.

You don't want to wait too long or the chick will die of exhaustion or stress. If the chick has pipped but not hatched in 24 hours I usually proceed. Carefully chip the hard shell away from the inner, leathery egg lining. Then moisten ONLY THE VERY TIP of the narrow end. The more area you moisten, the less potential oxygen the chick will be getting so keep this to a minimal area of the leathery lining at the point of the egg. The narrow tip of the egg is where the umbilicus attached to the chick's belly. Moistening it will make the blood vessels in that area visible. (Note: If a chick piped in the narrow end then this will be reversed.) Locate the umbilicus. If you can't see it then carefully peel away the outer leathery lining while leaving the thin, clear inner lining intact. Then find an area near the umbilicus where there are no visible vessels. Carefully break through the membrane at that area to expose the umbilicus. Pinch the umbilicus between your finger and thumbnail for at least twenty to thirty seconds. This will stop blood flow to the vessels in the membrane. Now it is safe to open the rest of the membrane and release the chick. IF ANY PART OF THE MEMBRANE IS STUCK TO THE CHICK DO NOT PULL IT OFF!!! If you do, you will most likely rip the chick's skin. Simply moisten the spot with warm water and set the chick under the light in the brooder. After a few minutes, depending on the dryness of the area, it should slip right off when rubbed. If no membrane is stuck to the chick, then remove it and quickly set the chick under the light in the brooder as it will be cold and exhausted.

Cracking eggs that did not hatch

If an egg does not hatch it is important, if your intend to breed, to crack it open and discover what went wrong. This will help you better understand genetic and physiological problems in your breeding flock as well as possible flaws in your incubating methods.

Wear rubber gloves. Gently crack the egg at the fat end, where the air sac should be, with a light, blunt object. That way, if the chick is alive, you are less likely to injure it. Then peel the shell away and examine the contents. If it was infertile, then it will look like an eating egg, though the yolk is often ruptured at this point. If there are blood vessels present or a blood ring, then it was an early stage death, usually due to a genetic issue in the chick. If there is an embryo no bigger than an inch then it was a mid stage death. The larger, late stage deaths can usually reveal some clue to the chick's catastrophic failure. This can be a cleft pallet exhibited as a severely sunken beak, a hernia exhibited as some or all of the yolk protruding out of the abdomen, or any number of other fatal defects. Each of these is going teach you about your flock and help you make better decisions in your breeding program.

Proper care and handling of poultry

Day Olds

General care & setup

When you get day old birds they will need extra special care. Day old chicks will need heat (roughly 90 degrees), water, and chick starter feed. You will need housing for them. This is called a brooder. It allows ½ sq ft per bird with enough room for the birds to get away from the heat lamp. See pic included with this booklet. You will need a chick feeder and a chick waterer (you will want to make sure the waterer base is small enough that a chick can't get in it and drown or soak itself. A soaked chick will quickly become hypothermic). You will also need a heat lamp with a bulb that can maintain the proper temperatures for the chicks (make sure you purchase a quality heat lamp that is, at least, rated for the bulb you put in it). Place the heat lamp at one end of the brooder, leaving a darker end for the chicks to go if they are overheated. The food and water should be set towards the light but not directly under it. Chicks tend to migrate towards light and therefore will find the food and water but will not become overheated while eating and drinking. For the 1st week or two we suggest you use paper towels for bedding, then by week 3 you can switch to pine bedding. Always make sure you buy pine bedding and not cedar or some other wood. Some woods can cause respiratory problems in the birds.

Medical issues

If a chick is too hot, too cold, or stressed it can die. It is critical that you maintain the roughly 90 degree temp and you do not over handle them. One of the most common problems caused by the above symptoms is called "pasty butt". This can kill a bird within days because it is unable to pass droppings. However, checking for and treating "pasty butt" is rather easy. At least once a day pick the chick up and inspect the vent area where the droppings come out. If you see a pasty-like substance covering the vent, then the chick has pasty butt. To remedy this, take a cotton swab and with warm water gently roll it over the area to soften the substance, and then gently roll it off the feathers until it's clear. Do not pull it off the fuzz as you could injure the bird by pulling its intestines out.

Imprinting!!!

If you are hatching through the use of an incubator, then imprinting your birds to humans is quick, easy and invaluable trick. It is an investment that will drastically save you a lot of trouble in the years to come. Imprinting works best in the first four days after hatching and can be done in small groups of a dozen or so. Starting on the second day after hatching, sit down and hold the chicks on your lap or chest for five to ten minutes (longer may chill them) with your hands or a towel just covering over them for security. Make sure they can still get good airflow.

The idea is to get them to fall asleep on you. This shows that they have sufficiently reach a level of comfort with you as a person. Handling their feet, beaks, and wings at this stage is also a good idea. It gets them used to the kind of handling they will routinely receive for medical treatments and greatly reduces their stress through those experiences. This should be repeated once to twice a day for the first week or two. However, do not go much longer than four weeks or the roosters can become aggressive towards humans once they reach maturity. Imprinting has proved invaluable at Valentine and Sons. The birds trust their human keepers, do not stress during medical procedures and will not readily flee when loose.

Try not to negatively imprint them. Keep in mind that anything negative event that happens to these birds at this time in their lives will stay with them for life. We at Valentine and Sons received four, two week old hens that were hatched and raised in a local kindergarten class. Though beautiful and healthy, they were the most untrusting and nervous birds we have had to date. However, proper imprinting will assure that your birds will have no undue anxiety towards the sight and sounds of you.

Week Old

Week old birds are pretty much the same as day olds when it comes to care, except you will want to lower the heat to 80-85 degrees.

Two Weeks

At two weeks you can switch them over to pine bedding and lower the heat to 75-80 degrees.

Three Weeks

At three weeks old lower the heat to 70-75 degrees.

Four Weeks

At four weeks old the birds should be almost fully feathered out and will be fine at room temperature. At this age they can go outside in the coop if the temp is fairly steady in the high 50's/low 60's. You can also switch them out to full size feeders and waterers.

Medical Issues

At four weeks, you need to watch out for bloody dropping in the coop and/or chickens that seem lethargic or are all puffed up and nesting in a corner. This is a sure sign of Cocci. Cocci fast acting and deadly, but easily treatable with Sulmet, purchased at your local feed store or online. If Cocci is caught early it is fully curable. The survivors should be immune at that point.

Six Weeks

At six weeks (yes, we skipped 5) you should start to wean them off of the chick starter and mix in pellets, starting with a 75/25 mix and every 4-5 days changing it 25 percent (i.e. 75/25,50/50,25/75,100 percent pellets).

Six Months

At six months your birds will start laying, and you will get to enjoy fresh eggs from your barn yard!

At this age you should have a coop big enough to allow 4 sq ft per bird of living space and a run that allows 8 sq ft per bird (not applicable if free ranging).

After 8-12 months your hens will go into a molt for a month (usually right before winter) and stop laying while they produce new feathers. This is perfectly normal. After the molt they will begin laying again.

List of Supplies you will need

Chicks

Brooder – see pic below
Heat lamp
Chick waterer
Chick feeder
Chick starter feed
Paper towels
Feed container (recommended)
Pine bedding

Chickens

Coop – see pics below
Pine bedding
Poultry waterer
Poultry feeder
Layer Pellet feed
Feed container
+/- Runs and/or fencing – see section below

Medical Supplies

There will be several times when you will have to administer medications or treatments to a bird. Consider your safety as many medications or powders, even organic or holistic, can be irritating to the skin or should not be breathed in. Read labels carefully and when in doubt, wear gloves and a mask.

You will need to decide what kind of medications you are going to use. Are you going to use organic and holistic treatments, pesticides and wormers or a mix of the two? All options have their pros and cons. Some of the medications you may want to keep on hand are listed below. They are not expensive and you don't want to find that the store is out of them when you need them.

Sulmet for Cocci – You could wait until you need this to buy it, but it is a good idea to keep some on hand. It is usually needed quickly.

Food Grade Diatomaceous Earth – aka Food grade DE – used for treating mites and lice. We have found the best way to use this is to fill a bag with it. Place the chicken in the bag. Close the bag around its neck with its head sticking out. Then roll the chicken until the body is thoroughly coated. After, fill an old sock with DE and hang it in the pop door of the coop, that way the chickens hit their heads on it and release DE every time they go in and out of the coop. Though nontoxic, you will want to wear a mask and gloves for this! It's drying to the skin and can be dangerous if inhaled.

Bio-security and disease

Hereditary vs. Pathogenic

There are too many hereditary and pathogenic diseases to cover them all in this seminar. However, if you plan to breed, it will be imperative that you determine if a sick chicken has a pathogenic or hereditary disease. If a disease or condition is hereditary, you need to take actions to prevent the passing of the genetics responsible for it. That means culling the individual exhibiting the disease and closely monitoring/ culling the parents of the affected individual as well. Culling does not necessarily mean killing. To 'cull' an animal simply means to remove it from the flock. Though measures should be taken to ensure they will not produce offspring.

Pathogenic disease, on the other hand, is not due to genetics and should be treated as research recommends. Keep in mind that fowl have an extremely high metabolism and therefore disease tends to become serious very quickly in them, sometimes killing within hours! Therefore, if you notice disease in your birds, treat immediately!

Protecting your poultry against disease

Bio-security! Bio-security! Bio-security! When considering your flock, keep in mind that you are responsible for their environment. This includes any pathogens (germs) coming in or out of that environment. If you go to the county fair and view all the animals from all the various farms in the area (now in close quarters and stressed out) odds are you're going to get some poultry-sensitive pathogens on your clothes or at the least on your shoes! If you then go home, waltz into your coop to take care of your prized birds for the evening but haven't changed your shoes, odds are you're going to have some sick birds on your hands in the following days. Likewise, you could be carrying pathogens to other people's birds on your shoes! Bio-security can be used to prevent so many problems. Keep a set of shoes or rubber slippers aside just for when you are working with your birds. Use a shallow tub with bleach-water or some other sanitizer as a step-in foot bath for guests coming into your coop area. Use the same foot bath when you return from a fair or another farm.

Quarantining new birds for two weeks before introducing them to the flock is also highly, highly recommended. Even if the bird seems healthy, the stress of being in its new environment often weakens their immune system just enough for an underlying pathogen to take hold. Once that bird is sick, it will become contagious to the rest of the flock. It's much easier to treat only one bird versus an entire flock and no one likes to gain a single bird at the cost of losing three to disease. Also, thoroughly inspect a new bird several times. Once when you first obtain the bird, several times throughout its quarantine and once more before you introduce it to your flock. Points that should be checked are their nostrils, eyes, beak, feet, vent, chest, abdomen and so on.

Common diseases amongst poultry

Coccidiosis, respiratory disease, mites, lice, egg bound, protein deficiency, intestinal blockage, impacted crop, etc.

Culling

To cull a bird means to remove it from the flock. There are several reasons a bird should be culled from a breeding program. Aggression is difficult to train out of a bird and should not be maintained in a breeding program. Older animals can be culled if their production has significantly decreased or they have had enough offspring that their genetics has saturated the flock. ANY BIRD WITH A HEREDITARY DEFECT SHOULD BE IMMEDIATELY CULLED OUT OF YOUR BREEDING PROGRAM. With the dwindling numbers in heritage breeds, it is disastrous to willingly allow a genetic defect to proliferate.

With half of your chicks destined to be male excess roosters are obviously going to be a problem if some are not culled from the flock. Fighting can lead to serious injury and over mating of the hens can lead to balding on the back and mid-wings. This increases the probability of injury during mating. It is also unsightly and often mistaken as a mite problem.

So what do you do with these unwanted birds? You can sell or donate them depending on the laws in your area. I like this option for most of the birds because it spreads knowledge and genetics involving heritage breeds. However, slaughter is usually the best option for anything that has a hereditary condition. This prevents any accidental mating of the bird and, being dual purpose, can be enjoyed as a meat bird.

What to do when you find a dead bird

A necropsy should be done on any animal found dead to determine the cause of death. This can be done by a veterinarian or by a trained individual (check with your state vet for laws and suggestions). Always wear gloves! An examination of the body and immediate area can help determine if death was caused by a predator and possibly even which type of predator. An examination of the organs will show if any are diseased, damaged, malformed or missing. This is valuable information in a breeding program. A report should be made (with pictures if possible) so that details can be easily summoned years down the road. Once this is done the body should be buried several feet down to prevent the spread of disease. Another option is to donate the body. Some schools and universities appreciate such donations but check with the state veterinarian for certain laws or restrictions.

Brooder and coop design

Space requirements

½ square foot per bird for the first month, 2 square feet on month two, and 4 square feet on month three through adulthood.

Materials

Brooder

Brooders can be built from anything from old aquariums, to plastic totes (recommended), to large wooden boxes. The key is that they have plenty of ventilation (but not drafty) and are able to maintain heat.



Coops

A coop should be well built with exterior grade plywood and 2x4 construction. The coop should be well ventilated and insulated, with some natural light. We favor the “ark” style for the design of a coop. This coop is easy to build, easy to ventilate, and you don’t have to worry about snow load in the winter time! If you look at the interior picture, you will see two pop doors, the reason for this is so that we can put a hinged, wood framed chicken wire “wall” up to divide the coop in half, allowing us to create breeding pens.



The 2nd style of coop that we use is the small double decker seen above. This coop is perfect for a breeding trio and we use these coops to put select trios in for breeding purposes... affectionately called the bachelor pad. © This coop is easy to build and with a 4x4 footprint, will fit anywhere. The lower level has hardware cloth on the “floor”, so predators can’t dig under the coop and gain access to the birds. There is a trap door between the 1st and 2nd level that can be closed in inclement weather.

Ventilation

Coop ventilation is very important. Poultry are susceptible to respiratory issues and poor ventilation can trigger that. Poor ventilation can also promote excessive mold growth. This can be extremely dangerous to the chickens, as well. However, you also don't want the coop to be too drafty, especially in the winter, as drafts can kill poultry. The trick is to figure out the balance between draft and ventilation.

Light and heat

In New England, especially during the winter, light can be an issue. Large poultry operations make sure that their poultry has an optimum 13 hours of light a day in order to try and maintain an output of one egg a day per bird (some industrial layers have been bred to lay an egg every 22 hours, but this can be unhealthy for the bird). We don't artificially light the coop unless egg production drops below 25%, as we believe in giving the birds a break during the winter, it's only natural. We also don't heat our coops unless the temperature drops below 10 degrees. At that point we only use a 70 watt red heat bulb (we use red, because it calms the birds and should not disturb their day/night cycle). The key to keeping the coop warm is insulation in the coop and the number of birds. If you properly insulate a coop and hold to the 4 sq ft per bird rule, your chickens will maintain a comfortable temp in the coops.

Nesting boxes

Nesting boxes are very handy to keep your hens laying in the same place. Without them you may end up playing hide and seek with their eggs every day. You will want to make your nest box 12x14x10h, with a cover. Place straw in the box and the hens will take care of the rest. You don't need to have a nest box for each and every hen. Usually a 1 to 4 ratio works well. There are stories of poultry keepers building walls of nest boxes only to have the 20 or so hens use one or two "favorites".

Run size and design

If you choose to free range this section is irrelevant, unless you plan on breeding. If you do put a run up for your poultry, the general rule is 8 sq ft per bird. When building the run you need to consider your space, drainage, and predator situation. Once you decide on the space, you will want to look at how dry the area is year round. You don't want your birds in a swamp in the spring. You can use sand or stone under a layer of dirt to help with drainage. The next thing to consider is predators. Do you see a lot of animal sign on your property? If the answer is yes, what type of animals? If you have raccoons or fisher cats, you will want to have chicken wire and hardware cloth protecting your flock. I would recommend chicken wire for the full height of your run, and buried 12-14 inches under the ground at an arch to prevent animals from digging underneath. You will also want to run hardware cloth for 2-3ft high around your run to protect your flock from predators pulling a chicken through the wire. The last thing to consider is birds of prey. If you have a hawk problem, you will want to at least put bird netting over your runs.

Free range vs. pasture raised

If you are able to free range your flock, this is the easiest way to keep your flock healthy and happy, however there are a few things to consider when free ranging. Do you have predators in your area? Do you live on a main road? Do you have a garden that is unprotected? Do your neighbors mind if your flock ends up in their yard? Keep in mind that the term "free range" has become a marketing term and isn't always the best solution. In recent years many large flock owners have moved to pasture raising. Pasture raising chickens allows you more control of where your flock pecks and scratches. You will need to construct mobile pasture pens, using the same dimensions as you would on your runs. However you also want to build a way to shade the birds and protect them from inclement weather while they are out in the pasture. Overheating in direct sunlight is a real threat with no shade options. I have found that building a Quonset hut type pen out of PVC and covering it with chicken wire is the way to go. You may also want to put wheels on your frame so you can move it easier. This allows you to move the frame to

different parts of your property and control the “damage” done. It is imperative that you bring the birds back to their coops before dark, so as to avoid issues with predators.

Feed and water

Your average large fowl will eat around 60 pounds of feed a year, less if you pasture or free range. We recommend that you free choice your flock, keeping your feeders full daily. We use galvanized feeders, as they stand up better than plastic. We also recommend that you free choice grit (keep their crops healthy if you free range) and oyster shell (if you are experiencing soft egg shells) in a separate container. You will also need to keep waterers full daily. Your choice in waterer is dependent on the size of your coops and number of birds. We have found that 4 birds will go through a gallon of water in a day, give or take. So if you figure your waterer should be a quart per bird, this will give you the recommended size of your waterer.

Predator control

When building your coops and runs you need to make sure that you don't have any gaps, anywhere. Predators, especially raccoons and fisher cats, will find a way in to your coop, if you let them. Hardware cloth and poultry staples are your friends when building your coop. Make sure that all vents are secure with hardware cloth and that all plywood or siding is properly secured to your framework. Make sure that there are no gaps in the woodwork of your coop. If rats or weasels are able to get their front teeth in a pencil-sized gap in the woodwork of your coop, they will chew the hole larger and get in. Make sure that all doors, both human and chicken doors have secure latches. The same goes for your runs, make sure that all the wire is securely attached to your framework. The run is less of an issue as long as you put your flock up and secure your coops before dark.

Acquiring stock

If you truly care about raising Heritage breeds, you will really want to find a breeder that specializes in the breed you wish to raise. By definition, a Heritage breed must be bred to the APA SOP (Standard of Perfection). While they may look mostly like the breed that you choose, hatchery stock may have some flaws and/or crossbreeding in its lines. This may not come out in the birds you got from the hatchery, but if you try to breed those birds, your next generation may start to show the cross breeding characteristics. The 1st step in finding a quality breeder would be to attend your local 4H or other Poultry club shows. Find the breed you like at the show and ask around as to who is breeding them. Your next step would be to Google the name of the breed you want with the word 'club' after it. This may point you to a website for the national club of your breed of choice. And lastly, you can try the forum on backyardchickens.com, though be careful to find a breeder and not just a producer.

Layer and flock management

In deciding how many birds you wish to keep, you need to consider how many eggs you want in a given week? You can safely say that your hens will lay an egg every other day, so 4 hens will give you just over a dozen eggs a week. Heritage breed hens should lay for 5-7 years and can live as long as 12-13 years, unlike production breeds that lay for 2-3 years and live for 5-7 years. With this in mind you will want to consider what you plan on doing at the 5 year mark. You will need to start your phase in/phase out plan, meaning you need to start phasing out the old hens and bringing in the new ones, so as not to lower your egg count. To do this, you will need to have separated pens, as introducing smaller poultry into an existing flock can be problematic. You will also need to consider what you plan on doing with the older hens. They will need to be culled from your flock, unless you plan on having an “old hen home” for non egg laying hens. Culling, by definition, means to remove from your flock. You do not have to slaughter the birds. There are some folks who like keeping hens, whether they lay or not.

Breeding management

As a beginning breeder, one will go to a poultry show or go on line and want one of every breed out there. While it seems nice to have a little of everything, we recommend you focus on one or two breeds. Any more than that becomes a full time job, and you aren't doing justice to the breed. Find a local breeder that raises the breed you want and become friends. A mentor is always a good thing to have in this hobby.

To create the healthiest offspring you are going to need two different bloodlines. The males of one bloodline can be bred to the females of the other and vice versa. The offspring can be bred to a third bloodline. However, before acquiring the bloodlines, get as much family history on them as you can. You'd hate to find out that both breeders got their stock from the same source and your chicks are inbred. There is a proper way to inbreed, called line breeding. This can be done effectively, over many generations, but it can also be disastrous if the proper steps aren't followed. Therefore, research should be done before attempting line breeding. Your next step should be to acquire a copy of the APA SOP, so you know what characteristics you are trying to achieve as a breeder.

Once you have established your breeding flocks, you will want to start collecting and hatching as many eggs as you can handle. We recommend doing one breed at a time, especially if your different breeds have similarly colored chicks. Make sure you have your brooder setup with the heat lamp at least 12 hours before hatching so you can move the chicks from the incubator to the brooder safely. You will be able to sex some breeds when they are a day old. Others, you will have to wait a week and try feather sexing them (feather sexing is done by spreading their wing and comparing flight feather length to the rest of the wing. The length of the tail feathers can also be a factor.) However, you will have some breeds that will hide their sex until they lay an egg or crow. Once you start determining sex, you should start to separate the birds, so that you know which are pullets and which are cockerels and from which bloodlines. Once your birds have matured enough ("market weight" 14-16 weeks) you will want to start matching them up to the SOP and culling the ones that don't make the grade. When you have done this, and are certain which are hens and which are roosters, you can start building new breeding flocks or breeding trios for the following breeding cycle. We don't recommend putting any less than two hens with one rooster, as the rooster will over-breed the hen and could injure her. Our typical breeding pens have a 1-6 ratio, unless we are trying to breed a very specific combination of hens/rooster.

One nice thing about breeding heritage poultry is that they are good layers for many years. Sometimes eight or more years will pass before a heritage hen starts to lay poorly. For this reason you can keep breeding groups together for a long time. However, if the offspring has access to their own parents, then inbreeding becomes a real possibility. Several things may be done to avoid this scenario. You can identify which rooster you want with which hens and keep them separate from the flock as you collect hatching eggs from them. The problem with this is the longevity of sperm in poultry. Sperm from a single mating can continue to fertilize eggs in the hen for two to four weeks. So if a hen was mated by the undesired rooster, you must keep her in isolation from all roosters you don't want mating her for two to four weeks before you can begin to collect hatching eggs.

An easier way is to cull all roosters once a breeding season has ended. Then get new roosters from a fresh bloodline for the next breeding season. Detailed record keeping will make breeding decisions much easier. Leg tags and trapping nesting boxes makes this process much easier but are at the discretion of each keeper.

Feel free to contact us @ dave@vnsseed.com with any questions you may have, or visit our web site @ <http://www.vnsseed.com> or our Facebook page <http://www.facebook.com/VNSSEED>

Copyright 2013 Valentine & Sons Seed Company LLC