The Little Series of Homestead How-Tos

from 5 Acres & A Dream

How To Preserve Eggs

freezing, pickling, dehydrating, larding, water glassing, & more

by Leigh Tate

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Contents

Preface

When I published *5 Acres & A Dream The Book: The Challenges of Establishing a Self-Sufficient Homestead*, I described it as neither a how-to nor a why-to book. Although it contains quite a bit of practical advice about many homesteading skills, it is mostly the story of our journey toward simpler, sustainable, more self-reliant living. *The Little Series of Homestead How-Tos* is a complement to that book. It is a work in progress which will eventually include all of the skills mentioned in *5 Acres & A Dream The Book* and *Critter Tales*, plus other how-tos as well. I hope they will encourage you, my readers, toward your own self-reliant lifestyles.

General Comments and Precautions

Preserving eggs is something most folks don't think about nowadays. With grocery stores and refrigerators, they don't need to. The homesteading lifestyle, however, with its goals of simpler, more self-reliant, often off-grid living, brings the question to mind for a whole new generation of folks. The methods in this eBook cover both historic and modern solutions to the problem of seasonal supply. All of them are in use today.

One question I don't specifically address is how long eggs will keep with each of these methods. From my reading, research, and personal experience, I don't think there is a specific answer to that question. For example, water glassed or oiled eggs will likely keep longer in an unheated basement in northern Michigan than on a kitchen counter in southern Alabama. Much will depend upon storage temperature.

Without any extra steps toward preservation, eggs have a pretty good shelf-life, especially with refrigeration. Check the expiration date on grocery store eggs to see what I mean. They are considered safe to eat 4 to 5 weeks after the expiration date. Grocery store eggs have been washed, of course, but eggs do have their own natural protective coating. This is known as the "bloom" or cuticle. The bloom coats the porous egg shell, protecting it from potential invasion by bacteria. It is those bacteria that contaminate the egg contents, causing it to become rotten. Washing the egg removes the bloom and decreases the egg's shelf life.

Of particular interest on this topic, is the research done by *Mother Earth News*. They did extensive testing of egg freshness on both store bought and homegrown eggs, using most of the techniques described in this eBook. The results make a good case for not washing eggs, also that they are good candidates for preservation. See the bibliography for a link to the article.

For all egg preservation techniques, common sense applies:

Never use broken, cracked, or dirty eggs for storage.

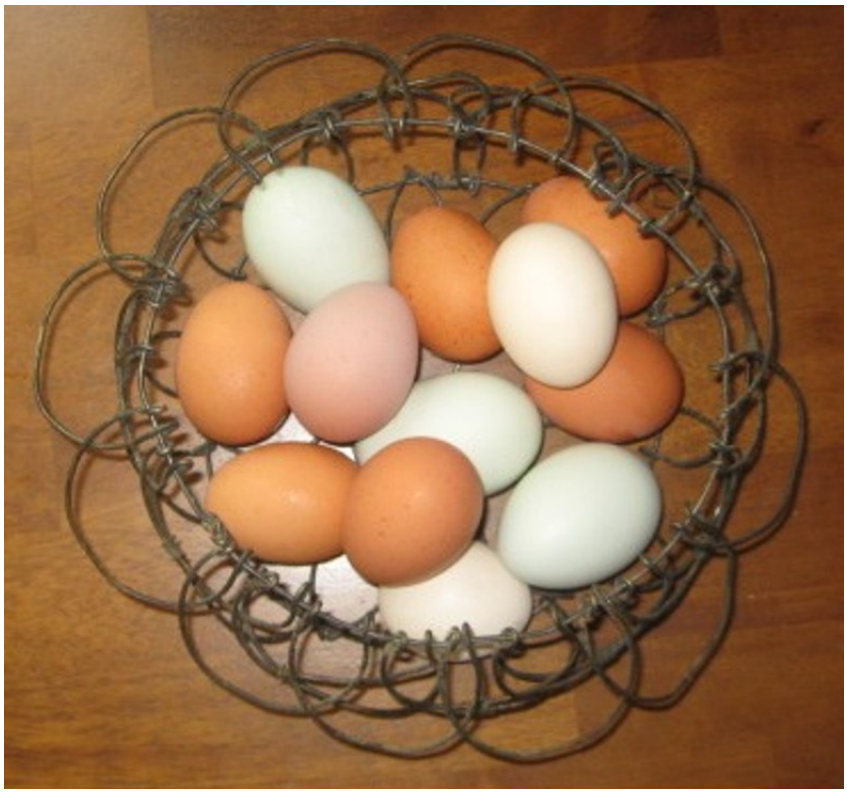
Use the freshest eggs possible.

Use unwashed eggs if possible.

When using stored eggs in the shell, crack each one separately into a measuring cup or small bowl. If it looks or smells funny, discard it.

Lastly, learn to adjust your meal planning and recipes to what's available. This is what seasonal eating is all about. During summer, my husband Dan and I eat eggs every day. During winter, we eat less eggs and more of other things. Still, it's nice to have eggs. Most of these techniques should keep eggs available throughout the months the chickens aren't laying.

How To Determine Egg Freshness



First things first. The methods discussed in this little eBook will have the best results if the freshest possible eggs are used. A simple, time-honored way to determine freshness is with the float test.

Place the eggs in a bowl or pan of water. The freshest eggs will lie on their sides on the bottom. As the eggs age, one end will begin to turn upwards. An egg which remains on the bottom but in an upright position is about at the end of its shelf life. Eggs that float need to be discarded.

Why does this work? Egg shells are porous, which allows the contents to evaporate over time. This creates an enlarging air bubble within the egg. That air bubble causes the egg to float.

How To Freeze Eggs

My husband and I eat a lot of eggs because we have a lot of eggs. Sometimes too many. Freezing them is an easy and simple way to preserve extra eggs when the hens are laying abundantly. It ensures eggs for baking and omelets when the chickens are molting, or when daylight hours grow short and so does the supply of homestead eggs. Eggs can be frozen whole, or whites and yolks can be frozen separately.

What you'll need:

Mixing bowl
Egg whisk or egg beater
Ice cube tray or
Muffin tin
Fresh eggs

Beat the eggs as for scrambled, adding salt if desired (1/2 tsp per cup of eggs). Pour into ice cube trays or muffin tins and freeze.

How many eggs? As with most other homestead projects, there is no one-size-fits-all way of doing things. To answer that question there are several variables to be considered. One is the size of the ice cube tray or muffin tin, the other is the size of the eggs.

Eggs are technically sized according to weight. The most common commercial sizes are:

Extra large = greater than 2.25 oz. (64 g)
Large = greater than 2 oz. (57 g)
Medium = greater than 1.75 oz (50 g)

I find it easier to think of them in terms of volume. Conventionally accepted volumes for eggs are:

Extra large egg = 4 tablespoons
Large egg = 3.25 tablespoons
Medium egg = 3 tablespoons

Even so, if you have a flock of mixed breed chickens like I do, then you likely get different size eggs. How do I know how many eggs an ice cube tray will hold? By experimenting I learned that my ice cube tray will hold ten beaten eggs of mixed sizes. If a recipe calls for one large egg, I use two cubes.

A standard muffin tin will hold two eggs per muffin cup, so it takes twenty-four raw beaten eggs to fill the tin. This is actually a more convenient size for me, although I still like the egg ice cubes too.

Once frozen, they can be removed and stored in plastic freezer bags until needed. I find them easier to remove if I first spray the tin or tray with a vegetable spray. If needed, set the bottom in cold water for several seconds.

Frozen eggs work well for scrambled eggs, omelets, quiche, or baked goods. It only requires a little planning ahead to defrost them. When defrosted they look just like fresh eggs. But how do they taste? Do they pass muster? Judge for yourself. Here's a snippet of a conversation between my husband and me the first time I scrambled them for lunch.

Me: "Well? "
Dan: "Well what? "
Me: "How are they? "
Dan: "How are what? "
Me: "The eggs! How do they taste? "
Dan: "Like eggs."

If you wish, you may freeze yolks and whites separately. According to the National Center for Home Food Preservation, yolks will require the addition of 1/2 tsp salt per cup of eggs or 1.5 tbsp sugar or corn syrup to prevent graininess. Stir gently before freezing. One tablespoon equals the yolk of one egg.

Whites do not need salt or sugar. Don't beat or whip before freezing, just stir gently. Two tablespoons equals the white of one egg.

Eggs that remain in the freezer gradually dehydrate somewhat, but even after a year I've used them in a pinch for baking, adding a little milk, whey, or water until I get a fresh beaten egg consistency. They can also be defrosted and fed to cats, dogs, or pigs.

To Use: defrost and use like beaten eggs in baked goods, scrambled eggs, quiche, etc.

How To Pickle Eggs

Pickling eggs is another easy, plus tasty, way to preserve hard boiled eggs The recipe is simple, especially if made with leftover pickle juice. I do this instead of making a special brine because I'm a waste-not-want-not kind of gal, so throwing out that pickle juice isn't in my vocabulary. I use it for cole slaw, salad dressing, and pickling eggs.

We prefer dill, rather than sweet, pickle juice for those eggs, but any leftover pickle brine can be used. For pink eggs, add a little pickled beet juice.

What you'll need:

Wide mouth canning jar or crock with lid
Leftover pickle juice
Hard-boiled eggs, peeled

Eat the pickles and save the pickle juices. Place peeled, hard boiled eggs in a clean, wide mouth canning jar. Cover with pickle juice or brine and let sit in the fridge for at least one week.

To store: Unrefrigerated, these are said to keep for two weeks, refrigerated, they will keep for months.

To Use: Pickled eggs make a nice snack all by themselves, can be added to fresh green salads, used to make deviled eggs, or for egg salad for sandwiches.

How To Dehydrate Eggs

Back in my Y2K prepper days, one of the things I bought for my food storage was powdered eggs. Of course we didn't need them for the much speculated Y2K disaster, but I did find them very handy to use at a time when I didn't have chickens. Dehydrating eggs is still a possibility for home preservation, with a couple of considerations.

Eggs can be dehydrated either cooked (as in dried scrambled eggs) or raw. There are warnings about dehydrating raw eggs, however, due to concern about salmonella. This is why commercially dehydrated raw eggs are pasteurized. Salmonella is a fairly ubiquitous bacteria which causes food poisoning. It is found both on the egg shell surface and within the egg itself. Salmonella food poisoning outbreaks are usually associated with commercial farm-factory produced eggs. That would recommend not using store purchased eggs for dehydrating. It doesn't mean that salmonella can't be a potential hazard with eggs from free-ranged chickens, just less likely. Salmonella is killed at 160°F (71°C), so the precaution is to not use raw dehydrated eggs without cooking.

A second consideration is shelf life. Due to the high fat content of egg yolks, they won't keep for more than 3 or 4 months before becoming rancid. Rancidity can also be a problem for drying scrambled eggs cooked in oil. Two possibilities exist here. 1) use a non-stick cooking pan, or 2) use a saturated fat such as coconut oil, palm oil shortening, beef tallow, lard, or clarified butter. Saturated fats are more stable and less prone to rancidity. Either way, if the dehydrated eggs can be vacuum packed, refrigerated, or frozen, so much the better.

What you'll need:

Fresh home-laid eggs (i.e. not store bought)
Whisk or egg beater
Bowl
Skillet (for scrambling first if desired),
Food dehydrator (equipped with a fruit leather tray if drying raw eggs)

To dehydrate scrambled eggs: Cook in skillet, spread out on food dehydrator trays, and dry at 145ºF (62.7ºC, setting for meat, fish and jerky) until crisp and brittle. These are best if powdered once cool. They can be used as chunks, but the result is a somewhat chewy (okay, rubbery) scrambled egg.

To dehydrate raw eggs: Beat as for scrambled and pour into the fruit leather made trays for your food dehydrator. Alternatively, you can use a cookie sheet or foil. Set dehydrator temperature to 145ºF (62.7ºC). Drying time is longer than for scrambled eggs, so working with smaller amounts is best. Powder in a blender.

To store: store in clean glass jars or containers. Shelf-life will be improved if they are kept in the refrigerator or freezer.

To rehydrate: Mix equal parts powdered egg and warm water. Allow to sit at least ten minutes before using.

To Use: Once rehydrated these can be used in baking, the same as fresh eggs. They can also be scrambled or used in quiche.

How To Water Glass Eggs

Before electricity was widely available, water glassing eggs was a common way to preserve them. Water glass (sodium silicate), was readily available at hardware and drug stores for that purpose. It is a slippery, slightly alkaline liquid which is still used as a cement floor sealer and cardboard carton adhesive, Unfortunately, it has become a hard to find item. Because of that, it may not be a first choice for homestead egg preservation, but I include it as a useful method for an off-grid or nonelectric situation.

What you'll need:

Clean, freshly laid, unwashed eggs
A gallon crock or glass jar
Water glass (Sodium Silicate)
Water for diluting, boiled and cooled.

Check eggs for cracks, dirt, or manure. Do not use these. Washing will remove the bloom and decrease the effectiveness of water glassing.

In the crock or jar, mix 11 parts water with one part water glass. Add the eggs, allowing them to be submerged at least two inches below the liquid surface. Cover the crock and check the contents from time to time because the water glass will evaporate. Top off with water glass as needed.

To use: wash the eggs as you remove them to use. Break individually into a measuring cup or bowl to check for freshness. Most sources say they're best if used within five months.

How To Lard (Or Oil) Eggs

Larding eggs is another old fashioned way to preserve them. I've not tried this method, but it is said to work very well. Eggs can be packed in a crock filled with lard, or coated with lard and packed in salt, sawdust, or oatmeal.

The modern version is to use mineral oil. Mineral oil is touted by the cosmetics industry for "protecting" the skin. Food-grade mineral oil is sometimes used by commercial egg producers to coat washed eggs. Mineral oils such as baby oil contain perfumes and additives, and should not be used. The eggs can be stored in cartons or packed in crocks with salt, sawdust, or oatmeal.

Why does this technique work? Egg shells are porous. The oily coating helps prevent or slow evaporation of the liquid contents of the egg. It also serves as an artificial "bloom," helping to protect the egg from bacterial contamination.

I've read where some folks use coconut oil or butter to coat eggs for storage. One consideration with using various fats and oils is rancidity. Lard, coconut oil, and butter are saturated fats. This means they are more stable and slower to go rancid than commonly used unsaturated vegetable cooking oils. Mineral oil, on the other hand, is petroleum based and does not turn rancid.

The cooler the storage area, the longer they will keep.

To use: Break individually into a measuring cup or bowl to check for freshness. Use as raw eggs.

How To Have Fresh Eggs All Winter

The first summer my hens started laying, I froze thirteen dozen eggs for winter use. We did not plan to artificially light the coop, preferring to allow the chickens their natural seasonal cycle. Imagine my surprise when I continued to get eggs all winter. Production was down, only one to three eggs per day, but in the end, I did not use a single of my frozen eggs except to experiment.

Two factors are attributed to the winter laying layoff: molting and daylight.

Molting is the natural process by which a chicken renews her plumage; old feather fall out and new ones grow in. During this time she stops laying. In regards to when that happens, there are several factors involved: when she was hatched, breed, individual genetics, management techniques, and stress.

Hatch date. A January or February hatched pullet will begin laying earlier than a July or August hatched chick, but will obviously have an earlier molt. One strategy for year round eggs is to allow for chicks hatched at different times of the year. Egg production will still decrease during winter months, but all hens won't molt at the same time.

Breed is another factor, in fact, some are actually considered winter layers: Buckeye, Chantecler, Delaware, Dominique, Faverolles, Jersey Giant, New Hampshire, Orpington, Plymouth Rock, Rhode Island, Sussex, and Wyandotte. There are other things to consider before choosing one of these, such as egg size, production average, breed purpose, etc., but the list gives you an idea of breeds to research further. (For a more complete list of breeds, see "Bibliography," for a link to John Henderson's "Henderson's Handy Dandy Chicken Chart.")

Individual genetics. Some chickens are early molters, others are late molters. An early molter will begin her molt after about 8 or 9 months of laying. A late molter will produce 12 to 15 months before beginning her molt. How can you tell the difference? Wing feathers tell all. The early molter will drop her primary wing feathers one at a time. The late molter will drop all of them at pretty much the same time. Because of this, the early molters have a longer molt and longer cessation of egg production.

Management techniques. The amount of daylight influences laying, so whether or not to provide artificial light during winter is a question to consider. The reason for this is that the hen's pituitary gland

is sensitive to light, causing it to secrete the hormone responsible for ovulation, i.e making eggs.

Although artificial lighting is standard practice in commercial egg production it is actually quite controversial amongst chicken owners. Some prefer to allow their hens to complete the natural cycle of seasons. We do, and I simply adjust the number of eggs we eat and use during winter months. I also rely on preserving eggs, as you might have already guessed. ;)

For those wishing to try this management technique, a 40-watt light bulb is enough for 100 square feet of chicken coop. It doesn't have to be a glaring light, just enough for a human to read by. The key is to ensure at least 16 hours of light per day (total daylight and artificial light) and 8 hours of darkness for nighttime roosting.

Stress can cause a decrease in egg production. Stress factors include disease, parasites, the presence of perceived threat (animal or human), changes in diet or weather, or improper management techniques such overcrowding or poor ventilation. Commercial egg producers actually use stress to force molting, because it offers the producer an increased production from older hens. It is achieved by reducing artificial lighting and feed. Interestingly, experiments utilizing this techniques indicate an increased presence of Salmonella.

Even pulling together the best of all the above, winter laying will commonly not be as good as summer laying. As with any local diet, cooking and eating is adjusted according to the eggs available.

Other Possibilities

There are a few other possibilities for preserving eggs. I did not go into detail for these for various reasons, but will mention them here.

Liming eggs. Fresh eggs can be stored in a solution of: 16 parts water, 1 part pickling salt, and 2 parts food-grade lime, such as pickling lime. Although keeping quality is said to be good, the disadvantage appears to be that the eggs taste "limey" over time.

In noodles. This idea comes from Carla Emery's *The Encyclopedia of Country Living*. The beauty of noodles is that they don't need refrigeration to store long term.

In baked goods which can be frozen. Instead of preserving the eggs, preserve the things in which they'd be used, such as cakes, muffins, cookies, pancakes, and breakfast breads.

I believe that's about it! If you know of another method, I'd love to hear about it.

Glossary

Bloom - also known as the cuticle, this is a natural protective coating on the egg. It's purpose is to seal the porous shell to protect from bacterial invasion.

Cuticle - also known as the bloom, this is a natural protective coating on the egg. It's purpose is to seal the porous shell to protect from bacterial invasion.

Dehydrating - process of drying a food so as to remove excess water content. If done properly, it can prolong shelf-life for years.

Dual-purpose - refers to any breed of chicken raised for both eggs and meat.

Early molter - a chicken which begins its molt after 8 to 9 months of egg laying. It is slower to drop wing feathers than a late molter, which results in a longer molting period.

Float test - a method of determining egg freshness. The freshest eggs will stay on the bottom of a bowl of water, less fresh will begin to tip upward, and very old eggs will float.

Forced molting - a method primarily used by commercial egg producers to increase productivity in older hens. It is achieved by reducing food and light.

Free-range - commonly thought to mean chickens which roam freely outdoors. In the U.S. there is no legal definition. As a marketing term, the USDA only requires that animals not be contained and have access to an outside area, for example an open door. It does not indicate whether or not the animal actually roams outdoors.

Fruit leather tray - a dehydrator accessory for drying liquids such as fruit pulp for fruit leather.

Larding - an egg preservation method which creates an artificial bloom on washed eggs by coating with lard or oil.

Late molter - a chicken which begins its molt after 12 to 15 months of egg laying. Wing feathers are dropped all at once, resulting in a shorter molt than early molters.

Liming - an egg preservation which utilizes a solution of food grade or pickling lime (calcium hydroxide), salt, and water to extend the shelf-life of eggs.

Molt - also spelled moult. Natural, annual process of renewing feathers. Old feathers fall out and new ones grow in.

Oiling - an egg preservation method which creates an artificial bloom on washed eggs by coating with oil or lard.

Ovulation - in chickens refers to the formation of the future egg yolk in the hen's ovary.

Pituitary gland - a light sensitive gland which causes the secretion of hormones which stimulate egg

production.

Rancidity - refers to chemical and physical changes in fats and oils as part of their decomposition process. Usually creates an off smell or off flavor. Rancid oils have been shown to cause liver damage in laboratory rats.

Salmonella - rod shaped gram negative bacteria found in both warm and cold blooded animals, as well as the environment. In regards to chickens, it is found both in and on eggs, and causes food poisoning.

Shelf-life - the length of time a food last without deteriorating. For eggs the determining factors are storage temperature and whether or not they've been washed.

Sodium silicate - generic name for sodium metasilicate (Na2SiO3), commonly called water glass. It is used as a sealer for cement, as well as other commercial applications. In egg preservation, it is used in solution to store unrefrigerated eggs.

Water glass - common name for sodium silicate (above).

Water glassing - egg preservation method utilizing a solution of water glass and water for an off-grid method of keeping eggs.

Winter layers -breed of chickens which are known to lay throughout winter months.

Bibliography

Books

Emery, Carla, *The Encyclopedia of Country Living: An Old Fashioned Recipe Book*. 9th ed. Seattle: Sasquatch Books, 1998.

Mercia, Leonard S., *Raising Poultry The Modern Way*. Pownal, VT:Storey Books, 1990.

Websites

Evaluation of strategies for induced molting on Salmonella Enteritidis problems in laying flocks - USDA REEIS

Functional Food Design Rules - Part 3 - IvanNicolov.com

Henderson's Handy Dandy Chicken Chart

How Cooking Oil Goes Rancid - IvanNicolov.com

How To Freeze Eggs - 5 Acres & A Dream The Blog

How To Preserve Eggs With Water Glass - Granny Miller

How To Store Fresh Eggs - Mother Earth News

Light For Laying Hens - RoysFarm

National Center for Home Food Preservation

Salmonella - Wikipedia

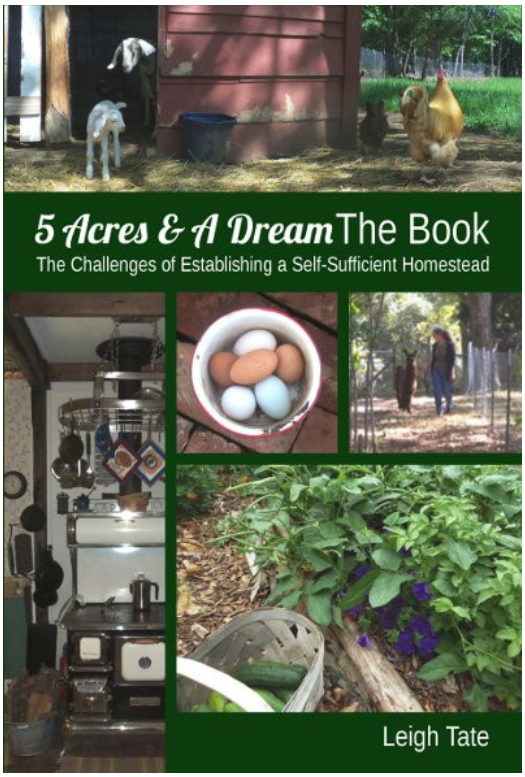
Using Artificial Light To Stimulate Egg Production - Chicken Keeping Secrets

What do food labels really mean? - GreenCityBlueLake

About The Author

Leigh Tate and her husband Dan homestead five acres in the foothills of the southern Appalachian Mountains. Their goal is simpler, sustainable, more self-reliant living, and a return to agrarian values. In addition to critter keeping, gardening, food preservation, cheese making, and woodstove cookery, Leigh loves to write about homesteading. She is the author of the popular *5 Acres & A Dream The Book: The Challenges of Establishing a Self-Sufficient Homestead*, *The Little Series of Homestead How-Tos*, and *Critter Tales: What my homestead critters have taught me about themselves, their world, and how to be a part of it.* You can read about Leigh's and Dan's ongoing homesteading adventures at her blog, *5 Acres & A Dream The Blog*.

Also by Leigh Tate



5 Acres & A Dream The Book:
The Challenges of Establishing a Self-Sufficient Homestead

What does it take to become a successful homesteader? Based on her popular homesteading blog, *5 Acres & A Dream*, Leigh Tate shares how she and her husband Dan are facing the challenges of trying to establish a self-sufficient homestead; from defining their dream, finding property, and setting priorities, to obstacles and difficult times, to learning how to work smarter, not harder. She shares what they've learned about energy, water, and food self-sufficiency for themselves and their animals too. Included are copies of their homestead master plan plus revisions and a sampling of Leigh's homestead recipes. Paperback.

For more information and where to buy, visit http://kikobian.com/5acres.html.

Critter Tales: What my homestead critters have taught me about themselves, their world, and how to be a part of it

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For more information and where to buy, visit http://kikobian.com/Critter_Tales.html.

The Little Series of Homestead How-To
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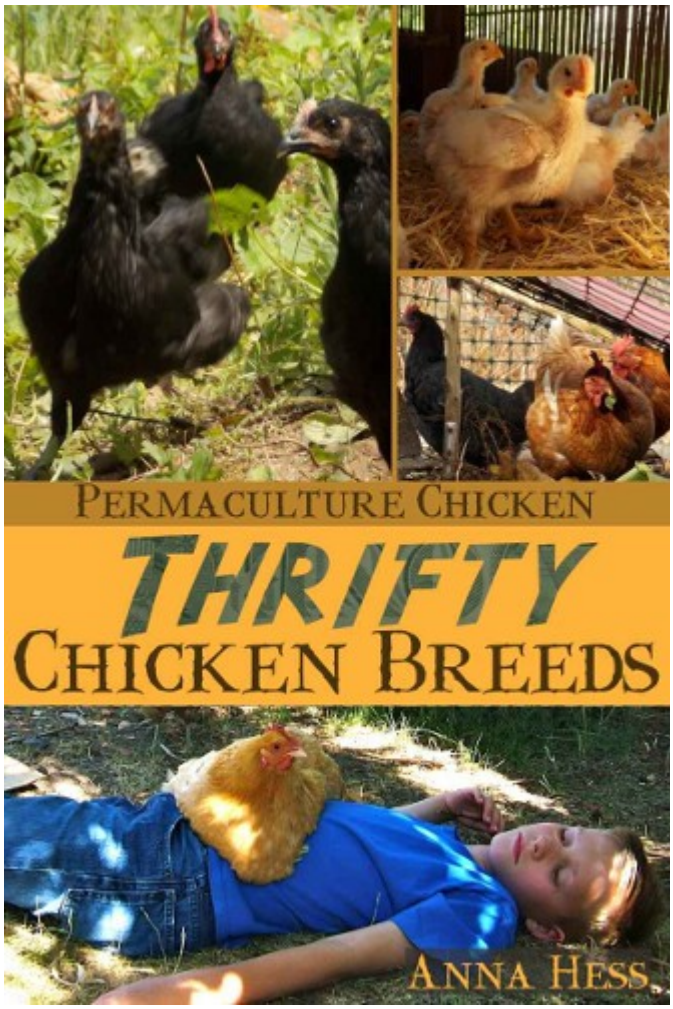

Thrifty Chicken Breeds: Efficient Producers of Eggs and Meat on the Homestead

Do you want your chicken habit to pay for itself?

Many backyard chicken keepers are surprised to learn that they spend more on store-bought feed than they would have paid for eggs and meat at the grocery store. If you're on a budget and want your foray into poultry to save money, not lose money, your first step should be to select thrifty chicken breeds.

The best breed for the cost-conscious homesteader will be a dual-purpose chicken that forages well, doesn't cost much to feed, stands up well to predators and weather, and lays copiously in the winter. In addition, Thrifty Chicken Breeds covers a variety of other factors homesteaders should look for when choosing new birds, then explains why a dozen common breeds do or don't make the cut.

This new installment in the popular Permaculture Chicken series helps make backyard chicken keeping cheaper, sustainable, less smelly, and more fun. Join the thousands of readers who have used Hess's tips to turn chickens into a frugal part of their permaculture homesteads!

38 photos and diagrams.

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