

## Non-Food Uses of Poultry & Egg Products

Not every chicken and egg produced by the poultry industry is destined to end up on our plates. There are many uses for what is currently thrown away or has been thrown away in the past. Why pay to dispose of a product when there may be a way to put it to good use? The selection of products that follows will hopefully teach you about many of the non-food uses of poultry and egg products.

### Eggs and Egg products

**Glue** – One of the first glues, egg whites can be used alone or in a mixture to glue objects together. Albeit not one of the strongest glues alone, the adhesive properties of egg whites can be improved by adding flour, sugar, water, and alum in different amounts.

**Hair Conditioner** – An early non-food use of whole eggs, or just the fattier egg yolks, is as a hair conditioner. Adding an oil, such as olive oil, and the scent of your choice, can create a lovely hair conditioner. When mixing the ingredients, beat until frothy and leave in the hair for 20 minutes, then rinse with warm water. This hair treatment will help hair be less prone to breakage and shedding.

**Face Mask** – A long-time do-it-yourself facemask includes eggs as an ingredient. The yolk contains Vitamin A which has moisturizing properties. The protein in the egg white is also considered to have positive effects on reducing the size of pores or in reducing puffiness. There are many different recipes available depending on the needs of an individual's skin type.

**Seed Starters** – If cracked cleanly halfway around the egg, the shell itself can be used for starting seeds. Poke a hole in the bottom and fill the eggshell half with soil. Place the shell halves in an egg carton to keep them upright and plant the seeds inside. When ready to transfer to another container or be placed outside, then the shell and seedling can be planted together.

**Abrasive Pan Cleaner** – Eggshells can be washed, dried, and then crushed into a fine powder in order to create a natural abrasive pan cleaner. Mixing a cup of ground eggshells with 3 cups of baking soda, and then drying the mix is an acceptable blend for use in the home. It takes quite a large number of broken eggshells to make enough for a natural cleaner.

**Toothpaste** – Some toothpastes use an abrasive substance in the blend to aid in whitening teeth. This calcium carbonate ingredient comes from eggshells. It helps to remove stains from the surfaces of teeth.

**Fertilizer** – Eggshells can be washed, dried and ground up to create a soil amendment. It increases the calcium content of the soil which may be low due to the presence of excess nitrogen and low soil pH. When these soil conditions occur, then calcium uptake by plants that benefit from calcium such as tomatoes, peppers, eggplant, broccoli, cauliflower, swiss chard, and spinach. Extra calcium in the soil can also help prevent certain plant diseases such as blossom end rot.

**Folk Art Decoration** - Decorated eggs can take different forms. From Ukrainian Pysanky to Romanian eggs, decoration using beeswax and colored pigments is commonly done using a tool called a kitsky. Artists can start with eggshells of different colors and sizes. Designs are made using dyes and symbols with different meanings, some of which are traditional.

Paint – Egg tempera paint is a mixture of pigment and egg yolk along with an extender such as vinegar, water or wine. Most mixtures will last only a day unless an extender is added to allow the paint to be used for up to a week or so. Tempera been used on Egyptian sarcophagi and in paintings because of its ability to last for long periods of time.

Vaccines – Fertilized whole eggs have been used for decades in the development and production of vaccines. Partially incubated eggs are given a dose of the organism for which a vaccine is needed. The inside of an egg is sterile so the chick will then provide the right atmosphere to reproduce the organism. After a few days of incubation, the virus is harvested from the eggs and either killed to make a killed vaccine or weakened in some manner to make an attenuated vaccine. An example of a common vaccine that uses this process is the Influenza vaccine or flu shot. People who are allergic to eggs can have an anaphylactic response if given a vaccine that was produced using eggs.

Plant Water – After you hard-boil eggs, the water can be cooled and used to water plants. Solanaceous plants, including peppers, tomatoes and eggplants, grow well with the slightly higher calcium content of the water.

Oxidizing Jewelry – Hard-boiled egg yolks, mashed and placed in a sealed plastic container with jewelry can be used as an oxidizing agent. Some jewelry appears better with more contrast as it brings out details in the design. Place the jewelry on a rack above the yolks for 1-2 days to create the effect.

Leather Cleaner – Egg whites are thick and sticky. Using egg whites on leather that needs cleaning will require a little gentle scrubbing to lift off the dirt and grime. Wipe with a damp cloth and dirt is removed with the whites. What remains is a little bit of protective cover and shiny leather.

## Feathers

Down – Down feathers are collected from both ducks and geese. Down feathers have long been valued for their ability to insulate. These feathers have been used in bedding and clothing with good effect.

Art & Clothing – Collecting feathers that have been molted naturally or harvested from processed birds can be sorted and packaged. Feathers have been used to make masks and costumes for stage and gallery. Feathers can also be cut and painted as a canvas for artwork. Traditional Native American clothing, regalia, and headdresses have also included different types of feathers.

Fly-tying – Chickens bred for extra-long hackle and saddle feathers are prized by fly fisherman to be used in fly tying. Flies are tied in different configurations to mimic different types of insects preferred by fish. The hackle and saddle feathers can also be dyed to help sell the fish on the type of insect that the fly is designed to imitate.

Feather Fiber – This is made by removing the lighter feather material from the quill. Millions of tons of feathers are discarded as waste in the poultry industry annually. The poultry industry pays to have feathers removed from processing facilities. Some is re-routed into feather meal which is an ingredient in poultry feed. The success in routing more feathers into alternate products, such as those listed below, will be in creating feather fiber products who have more value than what is currently in use.

- Air Filter – Chicken feather composite paper is made of 51% feather fiber and 49% wood pulp. Feather fiber is finer than wood pulp fiber. Wood pulp fiber is 10-20 microns while feather fiber is 5 microns in diameter. This finer diameter removes more spores, dust and dander from the air, which is preferable for those who have asthma.
- Sound Reduction – Chicken feather fiber can be used to make sound deadening composite material. This product has been used in locations such as cubicles, cars, and sleeping compartments.
- Fabric – Feathers are being processed into fiber components that resemble cotton, wool and linen. This method takes an agricultural waste product and turns it into an alternative to the petroleum based synthetic fibers currently in use.
- Miscellaneous – Feather fiber has been used on a limited basis in non-woven textile, bioplastic, energy storage, paper additive, cosmetics, and carbon nanotube production.

Prepared by:

Dr. Brigid McCrea

Small Flock Poultry Specialist & 4-H Small Animal Program Leader

Auburn University Cooperative Extension System