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Araucana Chickens and Their Unusual Eggshell Colors

Araucana chickens have been around a long time. They have created more than the usual amount of interest because they lay eggs with blue shells or other pastel colors. They have been crossbred with many other chickens, so considerable variation exists among birds that are called Araucanas. Some of them are rumpless (have no main tail feathers or tailhead), and many have unusual feather tufts at each side of the head.

In the past few years, claims that these colored eggs are higher in protein and contain little or no cholesterol have been used to promote these fowl or their eggs. This fact sheet summarizes some of the facts and fallacies about these chickens so that individuals can make better judgments about the Araucana chicken and its eggs.

ORIGIN OF THE ARAUCANA

The chicken that we know as the Araucana was brought to the attention of the poultry world at the First World's Poultry Congress at The Hague (Holland) in 1921. Professor Castello of Spain reported the discovery of native chickens in Chile in 1914 that laid eggs with blue shells, had ear tufts, and had no tail.

While chickens with all these traits did exist, it turned out that they were not native fowl of Chile but were from flocks of a poultry breeder that had selectively crossed stocks to combine those traits in the same bird. At the Second World's Poultry Congress in 1924, Professor Castello attempted to set the record straight and said that all three traits seldom if ever were found in individual native birds. The native stock of Chile included three different types of chickens:

- A common Chilean fowl that differed little from other known chickens, but in which there were families that laid blue eggs.
- A rumpless fowl that usually laid blue eggs.
- A fowl with feather tufts at each side of the head. These birds had normal body shape and rarely produced blue eggs.

Castello also reported other types of native fowl present. Since they ranged for themselves, there was a continued mixing of types and coloration. The result was native stocks with a wide variety of characteristics.

Araucanas were probably first imported into this country in the early 1920's. The Araucanas we have today have been developed from a few importations of stocks lacking consistency in genetic background from the start. As these birds have been multiplied without a breed standard, it is easy to understand the diversity in characteristics we now see in the Araucana chicken.

There have been no widely recognized criteria or breed characteristics for this fowl until recently. Poultry raisers interested in having Araucanas "just to have a few chickens running around the place" are often not concerned about the breed characteristics of their birds. But poultry keepers and youth project members interested in exhibiting their birds should be aware that breeding standards have been adopted for the Araucana.

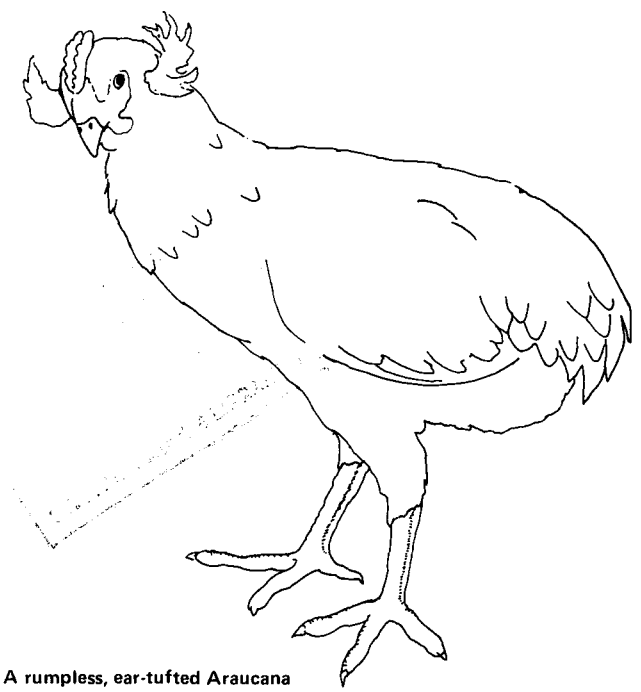
The American Poultry Association standard (APA Newsletter, 1977) specifies for both large fowl and bantams a rumpless bird with ear tufts and a pea comb. Five varieties are listed —Black Red, Black, White, Silver Duckwing, and Golden Duckwing—using the same general disqualifications and color descriptions as the Black Breasted Red Cubalaya or the respective variety of Modern Game breed.

The American Bantam Association Standard (1976) also requires a pea comb but permits both tailed and rumpless varieties, as well as ear-tufted and non-tufted varieties. Seven color varieties are listed—Black, Black Breasted Red, Blue, Buff, Multicolored, Silver, and White.

Other individuals and organizations have proposed standards for the Araucana fowl. Exhibitors should determine the criteria being used in judging poultry shows they wish to enter so that they can appropriately breed and select birds to achieve the highest awards.

GENETICS OF BREED CHARACTERISTICS

The blue shell pigment tends to be deposited throughout the entire shell, while the brown coloration is mostly in the outer layers. The blue and brown shell color traits are transmitted independently. The blue egg shell color is a dominant genetic trait to non-blue shell color. When combined with various shades of brown, the shell may appear green or olive.



A rumpless, ear-tufted Araucana

The dominance of the blue shell trait is easily seen in crossing with other breeds. Degree of transmission of the trait will depend on whether individuals mated are homozygous (both chromosomes carrying the dominant gene for the trait) or heterozygous (only one chromosome carrying the dominant gene).

Many of the chickens that have been called Araucanas are nothing more than crossbreds carrying the blue shell gene. For example, if a hen of a white-shelled breed is mated to a male carrying the blue shell gene, at least half of the offspring from this mating should lay eggs with blue shells. These crossbred offspring with many possible different feather colors, comb types, and body characteristics have often been sold as Araucanas—leading to much of the confusion and lack of standardization we have concerning the breed.

Cornell University researchers reported the gene for the blue shell and the gene for the pea comb to be closely linked on the same chromosome. Breeders will find that birds with pea combs from families laying blue-shelled eggs will tend to breed true for the trait more consistently than birds with other comb types. The pea comb and rose comb genes are dominant to the single comb gene. Rose and pea comb genes combine to produce a walnut or cushion comb.

The Araucana is the only chicken with ear tufts—groups of small stiff feathers that originate from a pedicel or stalk of skin just at or below the ear. Ear tufts should not be confused with the muffs and beard found in some other breeds of chickens. University of Connecticut research has shown ear tufts to be a mutant trait determined by a dominant gene. This gene is completely lethal when transmitted from both parents and 20 to 25 percent lethal to the embryos inheriting the gene from only one parent.

This lethal characteristic presents problems to the breeder of Araucanas since all embryos that have both chromosomes carrying the ear tuft gene will die. The live tufted bird will carry the gene on only one of its chromosomes so it can never breed true for this characteristic.

From a genetic standpoint, a breeder mating tufted birds can expect about 25 percent of the chicks with the ear tuft gene on both chromosomes (dead embryos), 25 percent of the chicks not carrying the gene (non-tufted chicks), and 50 percent of the chicks carrying the gene on one chromosome like their parents (of which 20-25 percent may be dead embryos). When the mortality from this lethal characteristic is added to the usual embryonic losses, a hatch from tufted parents may not be much more than 50 percent. Where there is close inbreeding of lines with such lethal traits, there are few live, healthy, normal chicks.

The Connecticut studies also reported considerable variation in expression of the tufts, sometimes being absent on one side, or with differences in length and appearance. The high embryo mortality and other deformities related to the ear tuft gene will be a challenge to the standardbred Araucana breeder and limit the number of offspring available for selection for propagation or sale.

The rumpless trait, which varies from partial to complete, is due to the absence of the tail structure and main tail feathers of the birds. Inherited rumplessness is dominant to normal tail development. The trait has been known for centuries and has been reported also in Prussian and Belgian fowl. Some studies show a lower fertility of eggs from rumpless matings.

THE ARAUCANA EGG

Many nutritional and quality claims have been made for Araucana eggs. Advertisements for Araucana chicks have contained the wording "reports claim more nutrition and less cholesterol." No reports backing up these claims have been found. Advertisements have also said, "Laboratory Report 6949 of the Ontario Testing Lab., Mr. C.E. Durin, Chief Chemist, records the protein content of Araucana eggs to be 58.60 percent as opposed to 48.20 percent in white or brown-shelled eggs." No one has been known to obtain a copy of Laboratory Report 6949, or even locate the chief chemist or his laboratory.

Other references relate to German scientists testing Araucana eggs reporting no cholesterol, 20 percent more protein, 20 percent more iron, and other nutritional findings. Interested investigators have been unable to obtain research data to back up these claims, or to locate the scientists or their laboratories.

Within the past 10 years, research at several American universities has failed to substantiate claims that Araucana eggs are lower in cholesterol than other chicken eggs. In fact, some studies show them to be higher. A 1975 Texas A & M University study found no significant differences in cholesterol content among eggs from Araucanas, White Leghorns, quail, or pheasants. There was more variation in the cholesterol content of eggs within a breed than there was between species. The same year University of California-Davis research reported Araucana eggs to have a slightly higher cholesterol content than commercial chicken eggs.

A more recent study at Kansas State University compared eggs from Araucana hens from several Midwestern states with white-shelled and brown-shelled eggs. Analyses of albumen and yolk of eggs from Araucana, White Leghorn, and Plymouth Rock hens revealed no statistically significant differences. Araucana eggs were highest in cholesterol content but not significantly so. Cholesterol content among eggs collected from different sources varied considerably, but differences were not statistically significant.

University of Connecticut researchers recently compared Araucana eggs with both brown- and white-shelled eggs. The Araucana eggs had a higher cholesterol content per gram of yolk in all comparisons, being significantly higher in three out of eight tests. They found that the yolk to albumen ratio was higher on the Araucana eggs, apparently due to a lesser amount of albumen secreted during egg formation in relationship to a particular size yolk. This lesser amount of albumen relative to the yolk resulted in 4 percent decrease in total protein (on a dry weight basis) for blue-shelled eggs rather than the 20 percent increase of some claims.

Percent production was lower for the Araucanas compared to the white and brown shell strains in both years of the Connecticut study. The egg size of the Araucana egg varies generally from medium to large.

The Kansas study reported that shells of blue eggs were slightly thicker than those of brown or white shelled eggs, but not significantly so. Araucana egg shells usually would be expected to be reasonably thick, considering the egg size and usual egg production rate of these birds. The only taste comparison noted in research literature was conducted many years ago with no difference in flavor compared to ordinary hen eggs at that time.

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