

Balancing Nutritional Benefits and Myths

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Soy is an ingredient in many avian diets and has been the subject of ongoing debate within the bird-owning and breeding communities. This controversy often stems from misunderstandings and misinterpretations of the physiological differences between birds and humans. The primary misconception about soy's "risks" likely arises from extrapolating findings from mammals to birds. Scientific literature supports that soy, particularly its protein and isoflavones, has little to no adverse hormonal effects in avian species, unlike some effects observed in mammals. This article explores the nuanced role of soy in avian nutrition, supported by scientific studies, to clarify its impact and advocate for informed perspectives.

Understanding Soy and Its Components

Soybeans are rich in compounds called isoflavones, particularly genistein and daidzein, which possess weak estrogenic and antiestrogenic activities. In humans, these compounds can influence hormonal balance due to their affinity for estrogen receptors. However, extrapolating human responses to avian species is problematic. Birds have a distinct endocrine system that processes dietary components differently from mammals, which is critical to understanding the actual effects of soy in their diets.

Reproductive System Differences: Birds vs. Humans

Birds and humans differ significantly in their reproductive physiology. While humans have complex hormonal cycles influenced by soy's phytoestrogens, avian species exhibit seasonal reproductive cycles that are not regulated in the same way. These cycles are influenced by environmental cues such as daylight length, perception of a mate,

availability of high-calorie food items, and perception of a nest box, which trigger hormonal changes leading to reproductive readiness. This adaptation helps align breeding with optimal conditions for offspring survival. Research, including studies conducted on Japanese quail, has shown that dietary soy isoflavones in high concentrations can have modest effects on male reproductive development at high concentrations but do not exert the same estrogenic or antiestrogenic activities seen in mammals.

For instance, a study by Wilhelms et al. (2006) investigated the impact of soy isoflavones on Japanese quail and concluded that even high doses did not significantly influence growth, feed intake, or female reproductive organs.

Whole Toasted Soybeans vs. Soybean Meal

It is essential to differentiate between whole, toasted soybeans and soybean meal. Whole, organic, rolled, and toasted soybeans, such as those used in Harrison's Bird Foods, retain more of their natural nutritional profile and are processed without harmful chemicals. In contrast, soybean meal is currently made by pressing the oil out of the soybeans, although in some regions extraction using hexane is still employed. This process can strip the soy of beneficial components and introduce residues that are less ideal for bird health. Therefore, the form of soy included in a bird's diet matters significantly when evaluating potential effects and benefits.

Studies on Soy Benefits and Concerns

Soy has been a component of bird diets for decades, providing a source of high-quality protein and beneficial nutrients. Harrison's Bird Foods, a well-regarded avian nutrition provider, uses whole, organic, rolled, and toasted soybeans. Their formulations have been tested over 40 years, demonstrating excellent egg-laying and hatching success in breeding facilities worldwide. The positive outcomes noted include enhanced bird health and improved reproductive success rates.

Dr. Kirk Klasing from the University of California, Davis, noted during the 2nd International Symposium on Pet Bird Nutrition (2007) that even genetically modified soybeans with higher levels of phytoestrogens did not impact fertility or health in finches, a species with one of the highest metabolism rates. His studies further confirm that soy does not pose a risk to avian reproductive health.



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(concluded)



Addressing Misinformation and Misconceptions

A prevalent concern among bird enthusiasts is that soy consumption stimulates hormonal imbalances similar to those in humans. However, evidence points to other causes being more significant contributors to hormonal stimulation, such as exposure to certain plastics, pesticides, and feeding practices involving rich or high fat foods. Soy's reputation as a potential endocrine disruptor in birds often arises from anecdotal claims and poorly substantiated reports. For example, a lawsuit in New Zealand during the 1970s blamed soy for early maturation in rosellas. Subsequent investigations revealed that these birds were likely affected by an early case of circovirus, not soy consumption.

Benefits of Soy in Bird Diets

The inclusion of soy can offer numerous advantages for birds. It serves as a highly digestible source of protein and essential amino acids, vital for maintaining feather quality, muscle health, and immune function. For instance, studies have shown that diets supplemented with low soy levels can enhance bone mineral density (BMD), which is particularly important during the late laying period in birds when bone demineralization can occur. Research has demonstrated that soy supplementation helps maintain BMD by improving the levels of key nutrients such as vitamin D, calcium, and phosphorus, supporting stronger skeletal health and overall egg quality in poultry. The addition of soy has been associated with improved eggshell strength, thickness, and albumen quality, as demonstrated in research involving older laying hens and quails.

Moreover, the antioxidant properties of soy can positively influence birds' health by reducing oxidative stress and supporting the immune system. Soy's role in enhancing total antioxidant capacity was highlighted in studies on broilers infected with the infectious bursal disease virus, where supplemental soy improved recovery outcomes.

Conclusion

Scientific studies, ranging from controlled experiments on quail to extensive reviews by avian nutrition experts, show that soy does not pose the hormonal risk often feared by bird owners. In contrast, soy in avian diets can be beneficial and safe. It is essential to distinguish between human and avian physiology when considering dietary impacts. Low-level soy inclusion supports protein needs, bone health, and reproductive performance, proving to be a valuable component of a balanced bird diet.

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