

Azolla: The Eco-Friendly Super Feed for Poultry

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ABSTRACT

Azolla, a fast-growing aquatic fern, has gained attention in poultry feeding due to its nutritional benefits and sustainability. Rich in proteins (up to 25%), essential amino acids, vitamins, and minerals, Azolla is an excellent supplement to poultry diets, especially for chickens and ducks. Its high protein content makes it a valuable alternative to traditional feed ingredients like soybean and fishmeal, which are often costly.

INTRODUCTION

Azolla is a floating fern resembles algae consisting of a short, branched, floating stem, bearing roots which hang down in the water. Normally Azolla is grown in paddy fields or shallow water bodies and it multiplies very rapidly. Azolla is known for fixing atmospheric nitrogen because of *Anabaena*



azollae (blue-green algae) in the lobes of Azolla leaves and it is rich in protein (20-25%) and minerals (Ca, K, Mg) (Patil and Patil, 2020). It is the fastest-growing plant and a known source of protein, containing almost all essential amino acids, mainly lysine, most important limiting amino acid in poultry feeding (Prabina and Kumar, 2010).

Advantages:

- Easily grows in wild environment and even can be grown under controlled environment like poly house and greenhouse.

- It can fix atmospheric CO₂ and nitrogen to form carbohydrates and ammonia respectively.
- It helps to increase the crop yield and quality.
- When used as supplemental feed in dairy, piggery and poultry, increases the production performance.
- Farm women can easily grow Azolla in the house backyard; thus, it is women friendly.

Nutritive Value

Azolla is highly valued in poultry feeding due to its rich nutritive profile, which offers several essential nutrients for poultry growth, health, and production.

Protein Content: Azolla contains 25-30% protein, making it an excellent source of high-quality protein for poultry. This protein is rich in essential amino acids, which are crucial for muscle growth, feather development, and overall health in poultry.

Amino Acids: Azolla provides essential amino acids such as lysine, methionine, and tryptophan. These amino acids are important for growth, egg production, and immune system function.

Vitamins: Azolla is a good source of vitamins, particularly B-vitamins (like B1, B2, B6, and folic acid), which play a vital role in energy metabolism, nerve function, and red blood cell production. It also contains vitamin C; an antioxidant that supports immune function and helps reduce stress in poultry.

Minerals: Azolla is rich in essential minerals like calcium, phosphorus, magnesium, potassium, and iron. These minerals are crucial for bone health, egg production, muscle function, and overall metabolic processes in poultry.

Fiber: Azolla contains a moderate level of fiber, which aids in digestion and helps prevent gastrointestinal issues in poultry.

Fat Content: Azolla contains a low to moderate fat content, which helps provide energy without excessive fat buildup.

Proximate composition of Azolla meal (on DMB)

Nutrient	% DM
Dry matter	89.73
Organic matter	75.73
Crude protein	23.49
Ether extract	3.7
Crude fibre	14.7
Nitrogen free extract	33.84
Total ash	24.26
Acid insoluble ash	7.94
Calcium	2.58
Phosphorus	0.26

Cherryl *et al.* (2019)

Azolla in Poultry Feeding

Azolla meal up to 5% in the broiler ration found to improve performance and had no deleterious effect on the palatability of broiler diets. It has been reported that inclusion of azolla meal up to 10% improved performance of egg type chicks. Results of the study conducted by us indicated that Azolla can be incorporated in the poultry diet up to 10% without affecting the growth and egg production in dual purpose varieties developed for rural poultry farming. Azolla feeding in laying hens give dark yellow colour to the egg yolk. The cost of feed can be reduced by Rs. 2/ kg by including 10 % dried Azolla meal in poultry feed. Overall, Azolla's high protein, amino acids, vitamins, minerals, and fiber content make it a valuable addition to poultry diets, promoting better growth, health, and productivity.



CONCLUSIONS

Azolla is an eco-friendly, cost-effective, and nutrient-rich feed for poultry. Azolla feeding in poultry has been shown to enhance growth rates, egg production and immunity. It can be used either fresh or dried, depending on the farmer's preference. However, its use should be balanced, as an excess can cause imbalances in nutrient intake. Integrating Azolla into poultry diets not only provides nutritional benefits but also supports a more

sustainable and cost-effective approach to poultry farming.

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