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# Success Stories on Large Scale Azolla Cultivation for Semi Intensive Poultry

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## Abstract

**A**zolla easily grown in wild environment and even can be growth under controlled environment like polyhouse and green house. Azolla is treated as a feed supplement to poultry birds. Two species of azolla viz., *A. microphylla* and *A. filiculoides* are analysed for their nutritional parameters so as to select the suitable Azolla species to feed the poultry birds. The total protein content of the eggs laid by the Azolla fed birds was high (14.0 g/100g of edible portion) and the total carotene content of these eggs (440 µg/ 100 g of edible portion). The increase in egg productivity, nutritional value and savings in the concentrated feed clearly indicated the suitability of Azolla as a potential feed supplement for poultry birds.

## Background Information

**A**zolla is a free floating water fern that floats in water and fixes atmospheric nitrogen in association with the nitrogen fixing blue green alga, Anabaena azollae. Azolla is considered to be a potential biofertilizer in terms of nitrogen contribution to rice crop. Long before its cultivation as a green manure, Azolla was used as a fodder for domesticated animals such as pigs and ducks. In recent days, Azolla is very much used as a sustainable feed substitute for livestock especially dairy cattle, poultry, piggery and fish. Azolla contains 25-35% protein on dry weight basis and rich in essential amino acids, minerals, vitamins and carotenoids including the antioxidant b carotene. Chlorophyll a, chlorophyll b and carotenoids are also present in Azolla. Azolla is used as a fodder in North Vietnam, Asia, Africa and China and the rare combination of high nutritive value and rapid biomass production make Azolla a potential and effective feed substitute for livestock, particularly poultry birds. The population of poultry in Dharmapuri district is 34, 28,790 under farm condition 17,000 and egg production 157 lakhs. The major problems in commercial poultry rearing are high feed cost and so alternative for concentrate feed. Hence to address the problem large scale cultivation of Azolla was demonstrated in the farmers' field.

Th. M. Rajagopal, S/O Madhappan, an innovative farmer from Kittampaty, Pennagaram, Dharmapuri, Tamil Nadu was successful in large scale of Azolla cultivation for semi intensive system of poultry rearing. He is 33 years old, having BCA education and worked in Bangalore. For last four year he started semi intensive system of poultry rearing and he could able to get very low income due to high feed cost. On an average he was spending Rs. 11,250.00 /month/birds as a feed cost. Seeking solution to these problems he approached

KVK, Dharmapuri and KVK has provided package of practice for large scale cultivation of Azolla.

### Intervention

Technical guidance was given on package of practice for large scale cultivation of azolla.

#### A. Large scale Azolla Cultivation -

- Shade net size: 105 × 40 × 8 feet.
- Single unit Azolla size: 50 × 15 feet.
- Total number of Azolla unit: Four.
- Production of Azolla: 30 kg/ day.
- 50 × 15 feet size unit four numbers, so totally 3000 square feet.
- Trained to cultivate Azolla cultivation and feeding to poultry.
- Super phosphate: 1 kg / pit once in 15 days, dung 30 kg/ each pit /15 days once.

- Change of water 15 days once.
- Daily harvest 30 kg of fresh Azolla for poultry.

#### B. Feeding Management

- Regular feeding of 30 kg of fresh Azolla for 600 birds.
- Quantity of concentrate feed: 15 kg /day.

### Success Point

As a result of technological intervention by the KVK, Dharmapuri the farmer had obtained good revenue.

#### Fixed Cost

- Construction of shade net : Rs. 1,00,000.00

#### Variable Cost

- Maintenance of shadenet shed: Rs. 2,500.00 /month
- Concentrate feed cost alone: Rs. 11,250.00
- Azolla + concentrate feed: Rs. 2,250.00
- Azolla fed 60 g/bird/day.

#### Income

S.No	Particulars	Concentrate	Azolla+Concentrate	% gain
1	Egg production	84	93	19
2	Egg weight	57	53	0.04
3	Meat (kg in 30 week of age)	1020	1250	2.3



Figure 1: Large scale azolla production



Figure 2: Feeding of azolla to the chicken

### Outcomes

As a result of technological intervention by the KVK, Dharmapuri the farmer had obtained good revenue. Large scale of Azolla cultivation for 3000 square feet farmer can get 30 kg of Azolla per day, this was sufficient for morning time feeding and concentrate feed was given during evening which results in saving of 20 % cost per month. The farmer can save Rs. 8,000.00 to Rs. 9,000.00 per month. Small landless farmer with commercial poultry rearing can start large scale of Azolla as an alternative to concentrate feeding to poultry.

### Conclusion

The rapid biomass production due to high relative growth rate has increased protein, carotene and b carotene contents and good digestibility of the Azolla hybrid. It is used as an effective feed supplement to poultry birds. In Indian conditions, agriculture is very much coupled with poultry farming. Azolla is an important low cost input, which plays a vital role in improving soil quality in sustainable rice farming. The twin potential as biofertilizer and animal feed make the water fern Azolla as an effective input to both the vital components of integrated farming, agriculture and animal husbandry.