



# Exceptionally High Hatchability of Vanaraja Hatching Eggs under Field Conditions- A Success Story

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### ARTICLE INFO

#### Article history:

Received 17 March 2017

Revision Received 26 June 2017

Accepted 11 August 2017

#### Key words:

Broody hens, Hatchability, Natural incubation.

### ABSTRACT

150 Vanaraja hatching eggs were provided to 15 tribal farm women for natural incubation using broody hen. The freshly collected hatching eggs were sorted and clean eggs of uniform size, ideal shape, texture were separated out. The eggs were pre-candled to remove the eggs with shell deformities, hairline cracks *etc.* Training with regards to selection of broody hen, preparation of the egg nests, feeding, care and management of brooding hen during the period of incubation was provided prior to setting of eggs for incubation. The overall hatchability on total eggs set (HTES) was 98% and hatchability on fertile eggs set (HFES) was 98.66%. The farmers were quite satisfied with the results of incubation and having hatched the chicks through natural incubation at their premises, farmers showed more involvement and care in rearing the chicks. The success story further demonstrates that excellent hatchability under natural incubation could be achieved through careful selection of hatching eggs, less pre-incubation holding period of the eggs, optimum brooding nest material. Moreover, distribution of hatching eggs could be a low cost intervention to promote backyard poultry farming.

## 1. Introduction

Backyard poultry plays a key role in the home economy and its increased production has the potential to improve food security and assist in poverty alleviation. Backyard Poultry promotion programmes nationwide comprise distribution of improved germplasm of poultry in form of day old chicks or nursery brooded chicks along with package of practices for scientific rearing of chicks in backyard. Such intervention involves cost which at times acts a limiting factor. To decrease the cost of intervention and foster more farmer involvement, this success story reports distribution of hatching eggs of improved varieties among women farmers and their successful incubation using broody hens. Broodiness a common characteristic of

the native chicken is a dominant character that acts as a hindrance for high egg production (Pampin and Ruiz, 1998). Broody hen hatches the chicks with very low costs. This is a great advantage for the rural people who have no access to electric incubators, which is more expensive and operate with large amount of eggs. Broody hens later act as the best trainees for their offspring in showing them how to look for feed and to tackle adverse situations like protection from predators.

## 2. Materials and Methods

The study was carried out at Gujjar Patti, Village Yarmuqam, District Ganderbal, a tribal village 10 km from

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district headquarter and 25 kilometres from capital city of Jammu & Kashmir. It was performed under the activities of ICAR- Poultry Seed Project and Frontline demonstration programme of Krishi Vigyan Kendra Ganderbal. A survey was first conducted to investigate the availability of a sufficient number of broody hens as well as the interest of the farmers. Women beneficiaries were asked to choose medium sized hens that were set on dummy eggs to induce broodiness. Care was taken that all the hens were in good health and had all normal feathers. Naked neck hens were avoided. To free the birds from the ecto and endo-parasites, the hens were dusted and dosed 3-4 days prior to setting the hens on eggs. A traditional eggs nest comprising a willow/ wicker basket of 10 inch diameter at base, 15 inch at top and 15 inch depth. Basket was filled to a 2/3<sup>rd</sup> portion with soft straw pressed down to make a hollow for placing the eggs. The hen was then gently seated on the eggs and left undisturbed in a quiet corner of less frequented room of the farmer's house. Some farmers placed a piece of iron in the straw. The hens were usually allowed to come off their eggs at least once every day and to stay as they wanted usually for 15 - 30 minutes. Clean water and grains (mixture of broken rice and maize) placed about 3-4 ft from the nest. Hatching eggs produced from Vanaraja Parent Stock were used in the study. Clean, sound eggs with strong shell texture and average egg weight of 51.3±2.77 g, shape index of 71-74% were collected over a period of 5 days. Further the eggs were pre-candled to separate out the eggs with shell defects, hairline cracks and other abnormalities. One hundred and fifty such eggs were carried to the study area in proper packing to prevent adverse effects of long distance transportation. The 10 eggs each were distributed among 15 women beneficiaries in the study area for setting under the broody hen. All the 15 beneficiaries were able to set the eggs within 3 days duration. Weekly visits were paid to the study area to supervise incubation process.

### 3. Results and Discussion

At the end of incubation process a field day was organized in which all the 15 beneficiary female farmers participated. The farmers had come with their broody hens with their brood of chicks. Broody hens weighed 950-1100g. The age of the broody hens ranged from 2 to 4 years as reported by the farmers. 13 out of 15 farmers had obtained 100% hatchability by hatching all 10 chicks out of 10 hatching eggs set for incubation. One farmer had a hatching of 90% (9 chicks out of 10 hatching eggs) and other farmer had hatchability of 80% (8 chicks out of 10 hatching eggs). The break-out study on three un-hatched eggs revealed one infertile egg and two late embryonic

mortalities. The overall hatchability on total eggs set (HTES) was 98% and hatchability on fertile eggs set (HFES) was 98.66%. The high hatchability (92.4%) was also recorded using broody hens in rural Bangladesh by Roy *et al.*, 2004). Highly excellent hatchability results in our study could be attributed to careful selection of hatching eggs, less pre-incubation holding period of the eggs, relatively lesser number of eggs set under the broody hen, optimum brooding nest material and above all involvement of the women farmers.

The negative effect of longer pre-incubation holding period on hatchability has been demonstrated (Saha *et al.*, 1992, Tona *et al.*, 2004 and Petek *et al.*, 2005). Low average HTES (63.1±1.51%) using rice husk filled brooding nest for natural incubation was however reported by Farooq *et al.* (2000 & 2003). Better hatchability under natural incubation using 100 gm chopped paddy straw and 250 gm husk spread on to a gunny bag set in a bamboo basket compared to 1 kg saw dust, 250 gm rice husk and 50 gm chopped paddy straw spread on to a bamboo basket reported by Das *et al.* 2016 indicates the probable effect of brooding nest material.

The results of this study indicated that proper selection of hatching eggs, broody hens and brooding nests resulted in excellent incubation results. The farmers were quite satisfied with the results of incubation and desired to have more hatching eggs for incubation. The average weight of chicks at hatch was 36.27±2.11 g. The farmers were advised about requirements of young chicks, their nutrition and housing. Further the procedure of medication and vaccination was demonstrated. Having hatched the chicks through natural incubation at their premises farmers were showing more involvement and care in rearing the chicks. The success story further demonstrated that distribution of hatching eggs could be a low cost intervention to promote backyard poultry farming.

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