

# A Pilot Study on Horti-Poultry Integrated Farming Model

## ABSTRACT

Under the innovative concept of integrated farming, a trial comprising of 600 Vanraja birds of one month age were divided into two equal groups was conducted. One group ( $T_1$ ) that served as control was confined to shed and put on concentrate feeding and the birds in another group ( $T_2$ ) were given free access to the KVK orchard during day and confined to shelter during night and they were allowed to feed on herbage, insects and other scavenging resources during the day and in the evening hours were offered kitchen waste comprising of leftover rice, vegetable waste, egg shells, leftover pulses etc. collected from the hostels of Faculty of Veterinary Sciences and Animal Husbandry, Shuhama that are in the close vicinity of the Kendra. At the end of 40 weeks trial, the concentrate feeding cost in case of free-range reared birds was reduced by around 80% and there was less mortality, increase in the body weight and egg production with an additional income of around 101850/- per ha per season (how it is calculated? Mention in methodology) from the orchard as compared to the control group. This innovative model of integrating the poultry with horticulture developed is novel in character and has a huge scope for economic upliftment of rural populace.

Key words: Innovative, Integrated, horticulture, poultry, farming.

## INTRODUCTION

Optimum utilization of resources is a dominant factor for maximizing returns from minimum inputs and integrating livestock rearing and horticulture is an important medium to do so. Backyard poultry farming is not new and is being practiced since the time immemorial and livestock and poultry provide a major contribution to India's economy (Nath et al, 2012). Poultry farming also helps in income generation for unemployed rural youth and women (Padhi, 2016). However, most of the backyard poultry production comprises of rearing indigenous birds with poor production performances. The potentiality of indigenous birds in terms of egg production is only 60 to 80 eggs/ bird/ year and meat production is also very less. However, the backyard poultry production can be easily boost up with improved varieties of chicken and can promise a better production of meat and egg (160-200 eggs/year). Improved strains perform better than the indigenous strain. Vanaraja has proved to be the best strain with all features to be a suitable candidate for backyard poultry farming (Banja et al, 2017).

With the introduction of newly developed bird strains, backyard poultry farming is considered as the sure tool to improve the socio-economic status of the traditional farmers. Birds have certain inherent attributes and are a promising source of rural income with low input, short gestation period, and efficient production, better and quicker returns. J & K in general and Kashmir valley in particular with predominantly being non-vegetarian society has a huge demand for chicken and eggs. Unlike other states of the country poultry sector failed to pick up in Kashmir due to multiple reasons and lack of feeding resources is one of the important reasons. The gap between production and requirement is partially fulfilled by purchase of huge quantities of live broilers and eggs from neighboring states thus draining the state exchequer. According to a media report J & K's import bill for meat, poultry and eggs

is approximately Rs 2,000 crore per annum. While there has been some progress in commercial broiler production by way of opening more and more broiler farms particularly in rural areas. Commercial layer industry is virtually non-existent and there is limited egg production from backyard poultry which has witnessed some revival after the popularization of strains like Vanraja. These birds particularly Vanraja has shown tremendous performance in Valley fields and has raised hope of transforming the economy of rural Kashmir. If the amount of land under fruit cultivation is exploited doubly by introducing backyard poultry birds alongside fruits under the concept of Horti-Poultry Model, there will be a tremendous revenue generation vis-à-vis organic farming and soil health management.

## METHODOLOGY

Integrating poultry with horticulture (fruit crops) following a standard procedure is here termed as Horti-Poultry Model. To start with and to give concept a practical shape KVK-Ganderbal under the technical guidance of Division of LPM, SKUAST-K started the trial with 600 Vanraja birds of one month old to implement the concept. The birds were divided into **the** two groups of 300 birds each, with one group put on the confined feeding and another reared open in orchards in which birds were given free access to the KVK orchard during day and confined to shelter during night. The Birds were allowed to feed on herbage, insects and other scavenging resources during the day and in the evening hours were offered kitchen waste comprising of leftover rice, vegetable waste, egg shells, leftover pulses etc. collected from the hostels of Faculty of Veterinary Sciences & Animal Husbandry, Shuhama that are in the close vicinity of the Kendra. The birds were constantly checked for any signs of diseases particularly deficiency diseases. Small amount of supplemental feeding (10 gms/bird comprising equal proportion of yellow maize and broken rice) was also offered during the night confinement. Whereas, the group confined to intensive rearing was fed entirely the concentrate feed and mineral as well as vitamin supplements (60 gms concentrate feed with multimineral, multivitamin liquid supplements).

## RESULTS AND DISCUSSION

In **the** control group of 300 birds, initially within first 08 weeks 22 birds died due to different infectious and non-infectious diseases (mainly enteritis, pneumonia, non specific diarrhea etc) and at the end of the trial (40 weeks), 31 birds were died totaling a mortality rate of 10.3% where as in the treatment group ( $T_2$ ) only 22 birds died (7.3% mortality), 10 due to enteritis and 02 due to predators. At 21 weeks of age in the control group, male and female birds attained a body weight of 3.2-4.0 kg, 2.7-3.5 kg, respectively whereas, in the treatment group, male birds attained a weight of 2.2 -2.5 kg of weight while the hens acquired a weight of 1.8 to 2.3 kg. In both the groups only 14 active and healthy cocks were retained for mating purpose as a parent flock with male to female ratio of around 1:8. The extra male birds were sold out @ Rs 200/kg live weight. In the control group, the birds started egg laying at the age of 31 weeks with an initial laying percentage of 37% that increased to 45.5% after 35 weeks of age and afterwards the egg percentage ranged between 28-47%. Whereas, in the treatment group, the birds came to lay at 28 weeks of age and initially for the first 4 weeks 33.3% (37 eggs/day) egg production was recorded that increased to 46.8% (52 eggs/day) after another 3 weeks. Thereafter the egg production ranged between 25-49%. A ~~portion~~ **number** of the eggs so collected were distributed among farmers for house hold incubation **and** some **eggs** were sent to **the** hatchery of LPM Division, SKUAST-K for

hatching, while some were sold @ Rs 6/egg and. The chicks so obtained from the hatchery were again distributed among the farmers.

The major observations of the trial at the end of 40 weeks were that the concentrate feeding cost in case of the treatment group ( $T_2$ ) was reduced by 80% upto 28 weeks (start of egg laying) and no supplemental feeding was required after birds came to lay as against 60 gms of concentrate feed that given to confined birds ~~to indoor rearing~~ ( $T_1$ ). Only 10.0 gms of concentrate feed/day was required under this model for feeding of birds in the treatment group ( $T_2$ ) till the start of lay and complete restriction of concentrate feeding after 28 weeks of age. Besides being economical in terms of the feed and labour cost, the integrated farming concept ensured resource optimization, income supplementation, deweeding, orchard sanitation, organic fertilization, hoeing, disease control of birds and additional income from the fruit orchards.

### CONCLUSION

At the end of the successful trial of Horti-Poultry integration it was concluded that birds grown under semi-intensive conditions perform better, ensure better utilization of resources, serve as secondary sources of income to orchardists, cause deweeding and natural sanitation of orchards, is a means of women empowerment, can prove a potential means of enhancing farmers income and can contribute to food security ~~food security~~ but requires mass awareness and encouragement to exploit the concept fully.



Fig. 1. Field study

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