The Journal of Rural and Agricultural Research Vol. 14 No. 2, 44-47 (2014)
Received May 2014; Acceptance October 2014

A test to measure knowledge about poultry management practices

GITAM SINGH, G.N. THORAT[1], M.S. TRIVEDI[1], RAGINI MISHRA AND S.K. SHARMA
K.V.K., Tonk, Rajasthan – 304022

Abstract

Livestock cum poultry farming has ample scope to enhance the income and employment opportunities of the tribal women population in these areas. Due to lack of participatory mode of situational assessment, planning and implementation of development projects, such economic potentials are seldom exploited. The present study however, appraises the tribal women's knowledge of improved livestock and poultry farming practices in a selected tribal settlement in the Western Ghats. Initially a list of 80 items was prepared by reviewing the literature and after having discussions with the experts, for developing knowledge test. Highly significant bisrial correlation co-efficient ('r' bis) proved the validity of the items included in the test battery. These skills enable them to manage their profession, effectively facing with the changes in agribusiness environment and remain in the high competition of trade environment. Egg laying strains of chickens, the length of the upper beak distal from the nostrils which remains following trimming, should be 2 to 3 mm. Beak trimming of layer hens normally occurs at 1-day of age at the same time as the chick is being sexed and vaccinated. Both males and females were debeaked at 10-14 days of age at 12-14 weeks of age.

Key words: Employment, economic, sexed, vaccinated, agribusiness environment

Introduction

Poultry farming is an ancient business in India, but scientific up keep of poultry is very new. It has got economic, nutritional, industrial, recreative and researches importance. It also plays an important role to improve economy of the poultry owner. Various government and non-government organization have also recognized the importance of poultry farming as employment generating enterprise and are engaged in motivating more and more entrepreneurs to take up this enterprise. Any enterprise to run in profit requires good knowledge about varies activities to be taken up to run the enterprise and management of these activities better way. Knowledge plays an important role for achieving desired results. Knowledge according to High knowledge of poultry management practices would lead an individual towards an active participation in income generating activities. Considering this fact, it was worth to develop a test to measure the knowledge of poultry farmers regarding poultry management practices.

Studies indicate that the food of the most people of the world (especially, developing countries) is suffering from protein deficiency and since protein, especially animal protein, play important role in human nutrition, its quality and quantity must reach to ideal extent (Nikougoftar, 2003). Studies indicated that the distance of supply and demand is very high to provide the least needed animal protein. FAO had been recommended that the minimum protein which an individual must consume in a day is 65 g which from this 36g, that is 40% must provide through animal resources (Yusuf and Malomo, 2007). The consumption rate of animal protein is 22g/day in Iran and this rate is 30% less than the recommended rate by FAO.

Methodology

Efforts have been made to develop a standardized knowledge test with the help of which knowledge about poultry management practices of poultry farmers can be measured. Initially a list of 80 items was prepared by reviewing the literature and after having discussions with the experts, for developing knowledge test. Each item was given the score of 1 or 0 for dichotomized responses of correct or incorrect answers, respectively.

The collected items were administrated to the randomly selected 48 respondents from the area under study. The total score secured by an individual respondent of 80 items was the knowledge score.

After arranging the items in descending order on the basis of the total score obtained by the

[2]Directorate of Groundnut Research (ICAR), Ivnagar Road, Junagadh-362 001
Corresponding author e-mailgunvantthorat@yahoo.com

respondents, the respondents were divided into six equal groups each of eight. For the item analysis, the middle two groups were eliminated and the four extreme groups with high and low scores were kept. Selection of items for final format for the knowledge test was done on the basis of following criteria.

Item Difficulty Index-P

The index of difficulty was worked out as the percentage of the respondents answering an item correct the items with 'P' value (Item Difficulty Index) ranging from 10 to 90 were considered for final selection of the knowledge battery.

$$P = \frac{\text{No. of respondents answered correctly}}{\text{Total No. of respondents}} \times 100$$

Discrimination Index

The items with E1/3 values ranging from 0.20 to 0.80 were considered for final selection.

Discrimination index – E1/3

$$E\ 1/3 = \frac{(S_1 + S_2) - (S_5 + S_6)}{N / 3}$$

Where, S_1, S_2, S_5 and S_6 are the frequency of correct answer in the group G_1, G_2, G_5 and G_6 respectively.

N= Total number of respondents in item analysis sample

Biserial correlation

The biserial correlation (r bis) for each of the item was calculated and tested by using the formula given by Guilford.

Final format of the knowledge test for measuring poultry entrepreneurs' knowledge regarding poultry management practices

1. How much is the average egg weight?
2. Why Debeaking is carried out in birds?
3. How many times Debeaking is done in layer birds?
4. What is the feed consumption during 0-8 week's period in layers?
5. What is the feed consumption during 0-20 week's period in layers?
6. What is the feed consumption during 21-72 weeks period in layers?
7. Which materials are normally used as litter?
8. Can we house three layers in one cage?
9. Mention important precautions for the prevention of diseases in poultry birds?
10. Which are the symptoms of Marek's disease?
11. What is the age for first vaccination against Marek's disease?
12. Which are the symptoms of Ranikhet disease?
13. What is the age for vaccinations against Fowl pox disease?
14. Mentions the coccidiostat used to control the coccidiosis?
15. Give the crude protein and energy content of Starter chick mash (BIS standard).
16. Give the crude protein and energy content of Grower chick mash (BIS standard).
17. Give the crude protein and energy content of Layer chick mash (BIS standard).
18. Mention sources of calcium used in poultry feed? the symptoms of ranikhet disease?t marek' in poultry birds?dge regading poultry management practices

Reliability and validity of the test

To know the reliability of the knowledge test, the split halves method was used (r= 0.91). For testing the validity, the results of the biserial correlation (r bis) were considered. Highly significant bisrial correlation co-efficient ('r' bis) proved the validity of the items included in the test battery.

Results and Discussion

A whole large egg out of its shell weighs approximately 60g. Of this about 1/3 is the yolk and 2/3 was the white so one egg white will weigh approximately 40g. The weight was 63g and 73g (when in their shells) so there will be some variation between eggs.

The benefits of beak trimming were mainly welfare advantages, some of which directly relate to increases (or reduced decreases) in production. These included reduced feather pecking and cannibalism, better feather condition, less fearfulness and nervousness, less chronic stress, and decreased mortality. Birds was trimmed lower beak is somewhat longer than the upper beak. USA's UEP guidelines suggest that in egg laying strains of chickens, the length of the upper beak distal from the nostrils which remains following trimming, should be 2 to 3 mm. Beak trimming of layer hens normally occurs at 1-day of age at the same time as the chick is being sexed and vaccinated. Both males and females were debeaked at 10-14 days of age at 12-14 weeks of age. The feeds given to layer parents will be more or less similar to that of commercial layers in respect of major nutrients. Sometimes, N.D., I.B.D. and I.B. killed vaccines are repeated at 45 weeks of age in problematic areas, to increase the maternal acquired immunity in the chicks. Fowl cholera vaccine has to be given at about 10 weeks of age in endemic areas. Moreover, the flock has to be tested for *Mycoplasma* and *Salmonella* at around 16 weeks of age, to eliminate the positive reactors. The females will be fed a 18% protein and 3.0 to 3.5% calcium feed while the cocks with 13-14% protein and 1-1.5% calcium feed with higher levels (40mg/kg) of vitamin E; on other aspects, both

the feeds are comparable.

Poultry litter is used in confinement buildings used for raising broilers, turkeys and other birds. Common bedding materials include wood shavings, sawdust, peanut hulls, shredded sugar cane, straw, and other dry, absorbent, low-cost organic materials. Sand is also occasionally used as bedding. The bedding materials help absorb moisture, limiting the production of ammonia and harmful pathogens. The materials used for bedding can also have a significant impact on carcass quality and bird performance. The cage system of rearing birds has been considered as a super intensive system providing floor area of 450-525 sq. cm. (0.6 - 0.75 sq. feet) per bird. In cage the birds are kept in one, two or three per cage, arranged in single or double or triple rows.

Poultry can be affected by a variety of diseases and parasites, some of which are endemic to certain types of bird. You will need to introduce and maintain a strict hygiene programme to keep diseases out of poultry. As well as carrying out stringent hygiene and insecurity measures, you will need to carry out vaccination or medication strategies to prevent and/or control certain endemic diseases. The two most serious diseases that you must keep out of poultry flocks are Newcastle disease and avian influenza (bird flu). Other poultry diseases include chronic respiratory disease, fowl cholera, Salmonella, Campylobacter and internal parasites. Salmonella and Campylobacter, while highly contagious in poultry, are not necessarily life-threatening for fowl. These diseases can however cause serious illness in humans if they get into the food chain. Daily inspection of poultry by trained staff, in good lighting conditions, and independently of any automatic surveillance equipment, is the best method to prevent serious outbreaks of disease. Inspections will enable you to detect early signs of disease simply by noting changes in the behaviour and condition of individual hens.

Marek's disease is a highly contagious viral neoplastic disease in chickens. It is named after József Marek, a Hungarian veterinarian. Occasionally misdiagnosed as an abtissue pathology it is caused by an alphaherpes virus known as 'Marek's disease virus' (MDV) or *Gallid herpesvirus 2* (GaHV-2). The disease is characterized by the presence of T cell lymphoma as well as infiltration of nerves and organs by lymphocytes.[1] Viruses related to MDV appear to be benign and can be used as vaccine strains to prevent Marek's disease. For example, the related Herpes virus of Turkeys (HVT) causes no apparent disease in turkeys and continues to be used as a vaccine strain for prevention of Marek's disease (see below). Birds infected with GaHV-2 can be carriers and shedders of the virus for life. Newborn chicks are protected by maternal antibodies for a few weeks. After infection, microscopic lesions are present after one to two weeks, and gross lesions are present after three to four weeks. The virus is spread in danderfrom feather follicles and transmitted by inhalation.

Keep turkeys with chickens (this may help the chickens with Marek's, but can lead to black head disease in the turkeys). Vaccinate all chicks at 1 day old; keep chicks from exposure until immunity has developed, about 7 days. Cull affected birds. Some birds develop temporary paralysis that disappears after 1-2 days. They appear to return to normal, but frequently die from internal tumors a short time later.

Remarkable gross lesions are usually seen only with viscerotropic velogenic Newcastle disease. Petechiae may be seen on the serous membranes; hemorrhages of the proventricular mucosa and intestinal serosa are accompanied by multifocal, necrotic hemorrhagic areas on the mucosal surface of the intestine, especially at lymphoid foci such as cecal tonsils. Splenic necrosis and hemorrhage and edema around the thymus may also be seen. In contrast, lesions in birds infected with lo NDV strains may be limited to congestion and mucoid exudates seen in the respiratory tract with opacity and thickening of the air sacs. Secondary bacterial infections increase the severity of respiratory lesions.

Fowl pox is prevalent, chickens and turkeys should be vaccinated with a live-embryo or cell-culture-propagated virus vaccine. The most widely used vaccines are attenuated fowlpox virus and pigeon pox virus isolates of high immunogenicity and low pathogenicity. In high-risk areas, vaccination with an attenuated vaccine of cell-culture origin in the first few weeks of life and revaccination at 12–16 wk is often sufficient. Health of birds, extent of exposure, and type of operation determine the timing of vaccinations. Because the infection spreads slowly, vaccination is often useful in limiting spread in affected flocks if administered when <20% of the birds have lesions.

Monitored broilers were not treated with anticoccidial agents, but the achieved production results were nevertheless high. After 42 days of fattening in all cycles, the following results were recorded: mean production number 303; body weight 2.232 kg; feed conversion 1.70, mortality rate 1.17; culling 1.89 % with survival rate of 96.94%. Caecal coccidiosis as the cause was confirmed at necropsy.

This standard prescribes requirements, sampling and methods of test for chicken (Gallus domesticus) feeds. Chicken feeds shall be of the following six types: a) Broiler Starter Feed (BSF) — a ration to be fed to

chicks intended for meat production, up to the age of six weeks. Broiler Finisher Feed (BFF) — a ration to be fed to growing chickens, intended for meat production, from six weeks onwards. Chick Feed (CF) — a ration to be fed to chicks, not intended for meat production, up to the age of 8 weeks. Growing Chicken Feed (GCF) — a ration to be fed to growing chickens, from 8 to 20 weeks or until laying commences. Laying Chicken Feed (LCF) — a ration to be fed to laying birds from 20 weeks onwards or after laying commences. Breeder layer Feed (BLF) — a ration to be fed to breeding chicken.

Dietary energy content must be specified to maintain the proper ratio of protein to energy so that birds can consume an adequate amount of protein. The protein requirement or amino acid requirements can be defined accurately only in relation to the energy density. Also, the degree of fat deposition in meat producing birds can be affected by the relationship. Some combinations of fats and carbohydrates have a protein-sparing effect. Impossible to set the energy requirement in terms of unit/kg diet because birds adjust their feed intake to achieve the daily energy intake.

Some minerals such calcium and phosphorus are required in large quantities. For example, laying hens require between 3.5-4% calcium, 0.3-0.4% available phosphorus and 0.2% sodium in their diets for egg production. Other minerals, such as copper, iron, manganese, zinc, selenium, cobalt, iodine and molybdenum, are required in milligram quantities but deficiency of these minerals will lead to serious health problems in mild cases and death in severe cases.

Currently weak management of production factors and economic inefficiency of production enterprises is one of the agricultural problems. Incorrect using is related to low of information and technical skills of farmers. So, paying attention to farm management and recognition its restricting factors and providing suitable executive ways, will be a good way to change in production of agricultural products and ideal use of production factors (Yaaghubi, et al., 2009). Farms operators need to management skills to take correct decisions. These skills enable them to manage their profession, effectively facing with the changes in agribusiness environment and remain in the high competition of trade environment (AL-Rimawi et al., 2006).

Almost equal number of respondents belonged to the medium and low categories. Only a few had high level of knowledge. As communicated by the respondents, lack of awareness of scientific rearing practices was the major impediment in taking up income generating ventures in poultry farming. Similar finding was reported by Durgga Rani, 2004.

The literature also supports the findings of this study. (Mowaad M., 1992 and Umunnav et. Al, 2012) found that farmers who are exposed to more than one extension method had higher scores in knowledge gain rather than other farmers.

References

Guilford, J. P. (1965). Fundamental statistics in psychology and education, New York, McGraw Hell –Book co. Inc.:317-319

Mowaad M. Effectiveness of some Aids in Extension Work at a village in Egypt. Unpublished PhD Thesis. Faculty of Agriculture. Ain-Shams University, Cairo, Egypt; 1992.

Nikougoftar, N., 2003. Factors associated with improving productivity in rural industries, Ministry of Agriculture (Jihad-e-keshavarzi) (case study of Tehran), MSc thesis, Faculty of Agriculture, Tehran University. (In Persian)

Rani, V.D. 2004. Training Needs of farm women of Thrissur Taluk in dairy and poultry farming. *M.V.Sc. thesis*, Kerala Agricultural University, Thrissur, India. 126 p.

Umunnav MO, Adeeko A, Onifade OT, Adigun OS, Apapa AN. Poultry Farmers' Access to Extension Services in Atisbo Local Government Area of Oyo State, Nigeria. African Journal of Basic & Applied Sciences. 2012;4(6):221-225.

Yaaghubi, A., Chizari, M., Pezshkirad, G., and Foeli, S., 2009. Importance of farm management skills from the viewpoint of Wheat farmers in Tafresh Township. Journal of Agricultural Economic and Development. 17(66):99-114.

Yusuf, S.A. and Malomo, O., 2007. Technical efficiency of poultry egg production in Ogun state: a data envelopment analysis (DEA) approach. International journal of Poultry Sciences, 6(9): 622-629.