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EFFECT OF IMPLEMENTATION OF SCIENTIFIC METHODS OF PIG REARING ON FARMERS INCOME

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ABSTRACT
Piggery farmers of the Malenad (hilly) region seldom follow scientific piggery management practices and hence were not able to obtain the expected profit. Hence, they were given awareness through intensive training, on-farm visits and veterinary care. Fifty Yorkshire crossbred piglets of around 3 weeks of age and 9 kg bodyweight were randomly assorted into control (C) and experimental groups (E) with all the scientific management practices followed in the experimental group and observed till their maturity and farrowing. Hemoglobin and PCV were significantly higher in E group (11.29 and 37.18) over C (9.18, 30.05) group respectively. Mortality (%) got reduced from 18.91 to 6.82 in C and groups E. As a result, farmers obtained a net profit of Rupees 4298 and 5287 in C and E groups indicating that following improved management practice is absolutely essential in order to reap higher profits.

KEY WORDS: pig farming, scientific piggery, piglet anaemia, pig haematology.

INTRODUCTION

Pig farming in Indian economy has appreciable importance as a part of animal husbandry since the pig population of the country is 12.79 million as per the 1992 livestock census and 13.3 million as per the 1997 provisional result of the census from states and constitutes around 1.30% of the total world's population. Due to increased awareness, there was an increase in pork production from 4.20lakh tonnes in response to consumption. Pig meat and meat products accounted to 612550 mt showing a healthy growth rate of 3.03% in the previous decade. Throughout the world, pork meat made up to 38% in which Indian share creeped up from 0.53% as in 1981 to 0.63% in 2002. On account of entire meat and meat products, pork occupies 4.32% and values up to 0.80% of gross livestock products. Though a significant pig population is present, the export of pork and pork products is meager amounting to 934 tonnes during 1995-96 which may be attributed to poor rearing practices, quality maintenance etc. The value of pork and pork products exported is Rs. 262 lakhs against the total value of Rs. 61604 lakhs on account of meat and meat products exported *(NABARD website)*.

Piggery provides a cheap source of animal-source protein, fat and energy as the wastage from kitchens, hotels, markets, slaughterhouses, and agro-industrial by products is the source of food for these pigs. Crossbred pigs form the source of sustainable income for the farmers of the Malenadu (hilly) region. Lack of knowledge about scientific piggery farming, management and market would result in obtaining lower body weight, growth rate, and survivability leading to lower profit margin. The farmers will not vaccinate the pigs periodically, deworm, no iron supplementation for piglets leading to high mortality rate due to piglet anemia and other hygienic methods of piggery farming. Hence, a trial consisting of collective scientific clubbed interventions was taken up to improve the yield from these animals. Iron supplementation is necessary for piglets as no/very little iron is passed from the mother through milk. The iron requirement for piglets during this period is 7 mg per day out of which only 1 mg per day could be supplied by the sow's milk in accordance to the findings of Cunha (1977) and Miller and Ullrey (1997). There is a need to supplement the iron from external sources to piglets before weaning is reasoned as sow's milk alone will not meet the iron requirements of rapid growth and expanding blood volume (Hannan, 1971). Iron is a component of Haemoglobin, whose deficiency leads to impairment in the oxygen supply within the body. Farrowing crate is needed for crossbred and exotic pigs as the mother falls unexpectedly on flour causing a stampede of piglets underneath it. Housing management which included floor space requirements, minimum area for each pen etc is another important attribute which farmers usually neglect.

MATERIALS AND METHODS

Farmers were given training and expertise in piggery management. Optimal veterinary care was given as to improve the economics and hygienic pork production a frontline demonstration was taken up from Krishi Vigyan Kendra, Mudigere, Chikmagalur district. Fifty crossbred (Middle white Yorkshire x local breeds), aged 3-4 weeks, around 7.5 kg were chosen for experiment and assorted randomly into two equal groups, *viz*., experimental (E) and control (C) group respectively. The control animals were reared according to farmers' practice where no vaccination against FMD, Swine fever, or deworming was done; uncooked garbage/market waste/slaughterhouse waste was fed, no iron dextran (Ferritas$^{(R)}$) injections were administered to piglets, cutting of needle teeth was not practiced, scientific weaning method was not practiced. The experimental animals were vaccinated, dewormed, iron dextran injection was given and other scientific

methods of piggery were followed. Farrowing guard/ farrowing crate was provided using heavy gauge rust-free GI hollow pipe which raised 2-3 feet away from the nearest wall and 3-4 feet above the ground. The animals were observed for feed intake, growth, survivability, the incidence of mastitis, fecal examination for enteric parasites, farmer's satisfaction etc for a period of 12 months. Weighing was done by morphometric method using the formula, Weight (Kg) = (L x G x G) x 69.3, where L= Length (m) and G = Heart Girth (m) (*Thepigsite.com*). Economics and farmers' satisfaction were recorded. All the animals were fed floor meal (comprising of wheat flour, soybean meal, fish meal/ offals, mineral mixture, salt, and vitamin) as 30% of the ration and hotel waste and other edible wastes up to 70% of the ration. The data were analyzed according to the standard protocols of Snededcor and Cochran (1989).

RESULTS AND DISCUSSION

After initial adoption, no/very low incidence of the diseases monitored (mastitis, swine fever, worms voided or found during slaughter, piglet anemia, enteritis *etc.*) was noticed in E group (4%) when compared to C group (37%). Due to scientific intervention in treatment and management of animals, bodyweight of the adult pigs increased significantly (P≤0.05) over control pigs (Table 1). Dry matter intake (g/kg $W^{0.75}$), survivability of piglets, average daily gain enhanced since there was no worm load, low disease incidence in experimental animals. Faecal examination of the 'E' group showed no parasite infection over 'C' group which could add to the better performance of animals (Blood and Radostits, 1995). There was high incidence of mastitis in C group because, of the injury of the mother's teat by needle teeth of the piglets. On later stages sows refused to feed piglets. This caused low survivability of piglets due to lack of sows milk added by iron deficiency during growth stages. Farrowing guard prevented injury and mortality of piglets as improper conditions will have the inevitable results of either reducing the size of the sow herd, piglet mortality or increasing the available space or contriving to increase pig growth rate (Thies Nicolaisen *et al.*, 2019).

Hemoglobin and PCV were significantly higher in E over C group (table 2) which indicates better health and nutritional status of the animal (Jerry Kaneko, 1999). Similar observations were recorded by other researchers [Tyler and Merlin, (2019), and Lipiński *et al.* (2010)] who observed better survivability, and higher hemoglobin levels (g/dL) in piglets supplemented with iron injections. Farrowing guard reduced the incidence of the number of piglets trampled by the sow per litter averaged from 3.1 piglets in the control group to 0.72 piglets in the Experimental group (Pedersen *et al.*, 2013). The farmers obtained net profit of Rs.989.00 in É' group over 'C' group per animal and Rs. 11529 per litter size of 8 piglets per farrowing. On an average, each sow would deliver twice in a calendar year. The farmers were highly satisfied with the improved methods of piggery over conventional methods. The impact of this experiment was largely welcomed by the farmers as 74% of the respondents strictly followed the scientific guideline laid even after completion of the frontline demonstration.

TABLE 1: Effect of improved management of pigs on performance and economics*

Particulars	Control	Experiment
Initial body weight (3 weeks)	9.2±0.1	9.3±0.1
body weight (8 months)	71.69±7.2[a]	79.95±4.6[b]
DMI	1.86±0.12[a]	2.16±0.20[b]
Metabolic body weight	24.64±3.1	26.74±2.4
Dry Matter Intake (g/kg $W^{0.75}$)	75.48±4.8[a]	80.77±7.5[b]
Dry Matter Intake (kg/100 kg BW)	2.59±0.4	2.71±0.3
Dressing %	69.85±6.1	72.44±2.2
Incidence of diseases under observation	37.15±4.8[a]	4.26±0.16[b]
Mortality	18.91±3.4[a]	6.82±0.85[b]
Total profit	6452	7196
Expenditure	2100	2315
Net profit	4298	5287
Profit of 'E' group over 'C' group (Rs/animal)		989
Average number of animals alive per litter of size 8 piglets/farrowing	6.49	7.45
Profit per farrowing (Rs)	27882	39411
Net profit per litter (Rs)		11529

(* -The values in a row are statistically different from each other (P≤0.05)).

TABLE 2: Haematological parameters of T1 age group birds.

Parameters	Control	Experiment
Hb (g/dl)*	9.18±0.12[a]	11.29±0.15[b]
PCV (%)*	30.05±2.38[a]	37.18±4.22[b]
MCV (fl)	24.19±2.88	26.08±3.18
MCHC (g/dl)	38.22±6.01	40.86±5.44
RBC (10^6/µL)	8.06±0.52	8.94±1.02
WBC (10^3/ µL)	24.16±4.38	27.05±5.32
Neutrophil (10^3/ µL)	10.22±2.11	10.31±1.42
Eosinophil (10^3/ µL)	1.14±0.11	1.16±0.12
Lymphocyte (10^3/ µL)	11.95±1.38	13.62±0.69
Monocytes (10^3/ µL)	1.29±0.16	1.35±0.08
Basophil (10^3/ µL)	0.05±0.01	0.05±0.01

(* -The values in a row are statistically different from each other (P≤0.05)).

CONCLUSION

With the intervention in the piggery farming practices, and extensive training the farmers were highly benefitted and followed them strictly even after completion of the program. They also prevent the spread of infection due to communicable and various parasitic diseases such as hydatid cysts, intestinal worms, flukes (as in measly pork) etc. leading to clean meat production. A good profit margin was obtained per animal implying scientific piggery management is an absolutely essential tool of implication.

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