Improvement of Farmers Economy through Frontline Demonstrations conducted at VUTRC, Trichy

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ABSTRACT

Proven scientific technologies related to the Animal Husbandry practices are generally demonstrated in the field for the benefit of the farmers. Veterinary University Training and Research Centre, Tiruchirappalli has conducted three frontline demonstration programmes (FLD) during the year 2015 - 2018. By these programmes, it is observed that farmers get benefitted economically. Twenty farmers were benefitted in the programme conducted in 2015-16 on the "Impact of TANUVAS mineral mixture on the milk yield of dairy cows". Mineral mixture supplementation improved the milk quality and milk quantity. Hence each farmer obtained additional improved returns of Rs.150/month/cow. In the year 2016-17 a programme on "Scientific intervention in to Improve Production Performance of Backyard native chicken" was conducted and four farmers were benefitted. They reported that the scientific technologies like TANUVAS desi chicken feed, deworming and vaccination demonstrated in this programme increased body weight gain, reduced mortality, increased egg production and improved hatchability. Each farmer profited Rs.500/- for 5 birds additionally. Six farmers participated and benefitted in the programmes conducted in 2017-18 on "Azolla pinnata as cattle feed supplement". Supplementation of azolla reduces the cost of production of milk and improves the milk quality. In this study it is observed that there was a reduction in cost of production of about Rs.2.50 / litre of milk. Also there was an increase in returns of milk since improved quality of milk.

"Seeing is believing" concept is the major outline of the Front line demonstration programmes. Hence farmers of the villages where the programmes were conducted also were benefitted apart from the beneficiaries.

Key Words: Front line demonstration, Mineral mixture, Azolla, Scientific practices

INTRODUCTION

Front line demonstrations are very effective in teaching the concept to the farmer by "seeing is believing" and this will be motivating the farmers to adopt the technology/scientific practice. Tamilnadu Veterinary and Animal Sciences University is practicing front line demonstrations of proven technologies/scientific innovations through its outreach centres for the benefit of farming community. Veterinary University Training and Research Centre,

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Tiruchirappalli is one of the outreach centre in TANUVAS situated in Trichy town whereby farmers can be reached easily for their technical advices. Apart from the regular on campus and off campus training programme, on farm trial and front line demonstrations are very easier to reach the farm personnels. So far three programmes were conducted at VUTRC Trichy from 2015 and the improvement in farmers economy was recorded.

MATERIALS AND METHODS

Impact of TANUVAS mineral mixture on the milk yield of dairy cows

Twenty beneficiaries were involved in this project who are having milch animals. Two groups of having 20 numbers of lactating cows which are in second order of lactation were selected for this trial: one group for control and another one for treatment group. All the animals were recently calved (within one month). All the beneficiries were gathered and instructions about supplementation of mineral mixture was given by the programme coordinator and co-coordinator. TANUVAS mineral mixture was supplemented @ 50g/day/cow with feed for a period of six months. All the other parameters like feeding, grazing, milking etc were remaining same since the beneficiary group belonged to the same village and community. Milk production and milk quality were assessed in every two months for a period of six months. For recording the milk quality (fat, protein, lactose and SNF) we used the milk o scanner available in nearby society. The data has been tabulated and analysed.

Scientific Intervention to Improve Production Performance of Backyard Native Chicken

Four beneficiaries were involved in this project who are having desi chicken not less than 10 in numbers. Five birds of each farmer totally 20 birds were undertaken for scientific intervention in this study. Other birds of the beneficiaries were treated as control. All the beneficiries were taught about scientific intervention in backyard native chicken rearing. Each beneficiary was given with 87.5 kg of TANUVAS desi chicken feed. All the 20 birds were dewormed and vaccinated against Ranikhet disease with Oral Pellet Vaccine. Method demonstration of dipping was done for ectoparasitic control. Beneficiaries feed their chicken (20 Nos) with TANUVAS desi chicken feed @ 100g/day/bird with regular grazing for a period of six months. The mortality rate and production performance (body weight, egg weight and no. of eggs produced & hatched) of the native chicken were assessed at monthly intervals for the period of 6 months. The data has been tabulated and analysed.

Azolla pinnata as cattle feed supplement

Six numbers of Azolla units were established at farmer's field. A total number of six demonstrations were done to cultivate the *Azolla pinnata* at the farmer's field with a gathering of farmers. Awareness campaign was conducted to create the awareness about the azolla as cattle feed supplement. Milk production details and quality of milk were assessed through farmer's record. Cost of production per litre of milk before and after intervention of azolla was worked out.

RESULTS AND DISCUSSION

Mineral mixture supplementation improves the milk production significantly (P>0.05) in the field milch cows (Table 1). Quantity of milk production has been significantly increased in the TANUVAS mineral mixture supplemented group 6.70±0.11 over the control group (6.55±0.12) at 4th month of lactation. Milk production has been reduced in the 6th month of lactation in both control (6.15±0.25) and supplemented group (6.25±0.11). This is mainly due to stage of lactation of milch cows. All the nutrient values like fat, SNF, Protein and lactose values were reported significantly (P>0.05) higher when compared to control group. Economically each farmer is getting Rs.150/Cow/month additionally due to mineral mixture supplementation. These findings are similar to those of Shivdeep Singh (*et al.* 2016) Hackbart *et al.* (2010) who reported an increase in milk production in dairy cattle. In Indian conditions, Tiwari *et al.* (2013) has reported an increase in milk production as well as increased in total lactation length in cattle post area specific mineral mixture supplementation. Nocek *et al.* (2006) observed an increase in milk production during second lactation as compared to first lactation post mineral supplementation. Hence it can be concluded that mineral mixture supplementation increases the milk production. In contrast with the findings of the present study, Wu *et al.* (2000), Sharma *et al.* (2002), Rabiee *et al.* (2010) and Begum *et al.* (2010) reported no significant changes between supplemented and non-supplemented groups in milk components such as milk lactose, milk protein, milk fat and milk SNF.

Table – 1. Impact of mineral mixture on the milk yield

Parameters		Milk production (L/day)	Fat (%)	SNF (%)	Protein (%)	Lactose (%)
2nd month	Control	6.52±0.25	3.01±0.15	8.12±0.05	3.13±0.01	4.03±0.27
	Treatment	6.62 ±0.31	3.23±0.11	8.36±0.25	3.35±0.21	4.26±0.24
4th month	Control	6.55 ±0.12	3.11±0.05	8.17±0.25	3.11±0.12	4.05±0.14
	Treatment	6.70 ±0.11	3.48±0.05	8.56±0.17	3.41±0.05	4.28±0.20
6th month	Control	6.15 ±0.25	3.26±0.32	8.12±0.14	3.15±0.11	4.21±0.12
	Treatment	6.25 ±0.11	3.71±0.05	8.60±0.02	3.55±0.16	4.58±0.20

In this study, it is observed that average body weight of scientifically grown desi chicken had improved over the control birds (Table 2). The body weight at first lay and 40th week were 1.25±0.14 and 1.75±10.12 respectively. This in accordance with the findings of Nath and Pathak (2013) and Faruque *et al.* (2013).

The egg production at 24th, 32nd and 40th week egg production were 11.84±1.06, 13.84±1.16 and 14.36±1.06 respectively.

Mortality was lower in scientifically reared desi chicken compared to control desi chicken. Mortality of control desi birds upto 40th week was recorded as 6.61 ±1.32 and for scientifically reared desi chicken was 2.02 ±0.12.4. This is in contradicting with the following finding of Tanveer Akhtar, 2015 who reported that survivability of desi bird was 61.40% under village conditions. This contradiction in this study may be due to awareness of good management practices by this FLD programme in this Punganur village, Ramji Nagar, Trichy. Average egg weight of desi chicken at 32nd and 40th week of control and 24th, 32nd and 40th week of treatment were 29.45±2.31, 32.95±1.98 and 37.1±1.41, 40.80±1.12 and 42.00±1.18 respectively. These results are in concordance with the findings of Mahapatra and Pandey (1989) and Sharma (1995). Hatchability in scientifically reared chicken was noted as 78.27±2.48 (28th week)and 80.26±2.16 (36th week). Overall performance of scientifically reared desi chicken improved the farmer's economy which was recorded as Rs.500/5 birds additionally

Table -2. Effect of scientific management in desi chicken in production parameters

Parameters	Control						Treatment					
Weeks	20	24	28	32	36	40	20	24	28	32	36	40
Mortality (%)	6.61 ±1.32						2.02 ±0.12					
Body Weight (Kg)	0.85± 0.03	0.98± 0.12	1.12± 0.32	1.26± 0.13	1.28± 0.14	1.28± 10.04	0.85± 0.02	1.25± 0.14	1.52± 0.03	1.61± 0.01	1.78± 0.12	1.75± 10.12
Egg production	-	-	-	10.52 ± 1.30	-	9.4± 1.64	-	11.84± 1.06	-	13.84± 1.16	-	14.36± 1.06
Egg weight	-	-	-	29.45± 2.31	-	32.95± 1.98	-	37.1± 1.41	-	40.80± 1.12	-	42.00± 1.18
Hatchability (%)	-	-	-		62.24± 2.48		-		78.27± 2.48		80.26± 2.16	

Farmers advised to feed the azolla as cattle feed supplement. Before starting the azolla supplementation, milk production details were collected and taken as control. This study was conducted for six weeks duration (Table 3). All the animals were having second order of calf and between 3rd to 4th month of lactation. It is observed that there was an increase in milk production and quality. There was a significant change in fat and SNF after one week of supplementation of azolla. After 3rd week, no significant changes observed in milk production, fat and SNF. Hence the farmers were advised to continue the supplementation to all their cows for increased milk production and quality.

Table -3. Impact of azolla feeding on milk production and quality

Duration (after azolla supplementation)	Milk production (litre/day)	Fat	SNF
Control	10.52±0.51	3.81±0.11	8.31±0.05
Ist week	10.71±0.25	3.82±0.15	8.52±0.02
2nd week	11.12±0.32	3.65±0.25	8.65±0.11
3rd week	11.52±0.25	3.72±0.21	8.75±0.21
4th week	11.56±0.26	3.80±0.15	8.75±0.25
5th week	11.45±0.18	3.78±0.20	8.75±0.23
6th week	11.52±0.13	3.75±0.25	8.78±0.15

Table 4. Cost effectiveness in milk production

Cost of feed/day	Control	Treatment (with Azolla supplement)
Green fodder 15 Kg	60.00	60.00
Paddy straw 5 kg	10.00	10.00
Concentrates 6 kg	120.00	90 (4.5 kg)
Azolla 750 g		1.00
	190.00	161.00

Cost of production of 12 litres of milk in control animals was Rs.190/- whereas azolla supplemented animal it is around Rs.161/-. Hence there was a reduction in cost of production in azolla supplemented animal which is Rs.2.5 /litre of milk (Table 4).

In each front line demonstration, the technology/ scientific practices reached the farmers. Since the participated farmer's economy improved, other farmers were also getting motivated by seeing the demonstrations. Hence it is concluded that front line demonstrations provided the knowledge as well as increased income to the farmers.

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