Haryana Vet. (June, 2022) **61(1),** 99-102

Research Article

KNOWLEDGE INCREMENT ASSESSMENT FOR SCIENTIFIC GOAT FARMING TRAININGS

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Received:23.07.2021; Accepted:17.09.2021

ABSTRACT

To know the impact of scientific trainings on goat farming in terms of knowledge gain, 120 farmers belonging to diverse backgrounds from various on campus trainings were selected randomly and interviewed with a pre-structured interview schedule both at the start as well as at the end of training course. Increase in the proportion of correct responses given for different knowledge statements was observed. There was significant ($P \leq 0.01$) increase in knowledge score from 30.30±1.38 to 64.73±1.04 with a knowledge gain of 34.43±1.10. Therefore, need based trainings specifically designed can significantly improve the awareness and understanding of goat farmers regarding various aspects of goat feeding and management.

Keywords: Goat farming, Knowledge increment, Training

How to cite: Shelly, M. (2022). Knowledge increment assessment for scientific goat farming trainings. *Haryana Vet.* **61(1)**: 99-102.

Diversification into livestock and increasing livestock productivity should form part of strategies for poverty reduction in developing countries (FAO, 2012). Goat rearing plays a vital role in food and economic security of rural people, especially landless,marginal and small farmers (Chander and Rathod, 2015). Out of the total meat production in India, 14 % was contributed by goats in 2018-19. Meat production from goats increased from 1042.93 thousand tons in 2017-18 to 1097.91 thousand tons in 2018-19 and the demand continues to increase (BAHS, 2019). In addition, goats also contribute 3 % to total milk production of the country (BAHS, 2019). People farm goats principally for their meat, milk, fibre and skins. Goat farming can be very suited to production alongside other livestock on low quality grazing land. Goats efficiently convert sub-quality grazing matter that is less desirable for other livestock into quality lean meat. Three-quarters of the global population eat goat meat. Goat meat contains low amounts of saturated fatty acids and cholesterol. It is considered to be a healthier alternative to other types of red meat.

Goat production in rural India suffers from various constraints like lack of scientific knowledge which leads to poor productivity (Mohan *et al.*, 2009). Training of people concerned with animal husbandry and community development aims at improving knowledge, skills and continuous exchange of ideas, experiences and opinions so that doubts and difficulties could be removed.

MATERIALS AND METHODS

Data from 120 trainees (from diverse backgrounds) of goat farming trainings conducted at Krishi Vigyan Kendra, Sri Muktsar from February 2019 to March 2020 was collected both on the first day as well as the last day of a week-long training course so that knowledge gain can be judged appropriately. Although studies on the subject have earlier been carried out, but a fresh perspective from time to time is always the need of the hour to know the gaps arising with time and offering another insight into an issue. Training imparted information regarding all aspects of goat farming like breed characteristics, shed provision, vaccination, deworming, balanced ration for different categories, common diseases etc. Trainees were randomly selected and the farmer categories were chosen according to the suitability of the study and to allow easy presentation. The collected data were analyzed using SAS 9.3.

Interview schedule was prepared and pretested to judge knowledge and awareness level of trainees. The contents of various knowledge statements in test were validated by the subject matter specialists of various concerned departments. For evaluation through knowledge test, each correct answer was scored as one and each wrong answer was scored zero. The sum of score was taken as knowledge score. For each training programme, maximum possible score was 25 and minimum was 0. Knowledge Index at pre and post evaluation stage was calculated by dividing the total score obtained by the maximum obtainable score and multiplying the result with 100.

$$\text{Knowledge Index (KI)} = \frac{\text{obtained score}}{\text{maximum possible score}} \times 100$$

Knowledge gain = Knowledge Index (post test) - Knowledge Index (pre test)

RESULTS AND DISCUSSION

Socio-personal and communication profile of trainees: Table II shows that out of the total 120 respondents from training programme on goat farming, majority (55.83 %) belonged to age group of 31-45 years and only 16.67 % were in higher age group (≥ 46 years). Also most respondents (37.50 %) were educated till high school only. Hundal *et al.* (2016) in a similar study on goat farming trainees reported

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that 66 % trainees belonged to 31-50 age group and most (48.80 %) were educated till high school. As far as annual income is concerned, majority (70.83 %) had annual income between 1-6 lakh. At least half of the respondents had land holding between 1-5 acres and 23.33 % were landless. Also Table 3 reveals that most trainees had medium and low level of mass media exposure. In addition, as many as 60.83 % had only medium extension agency contact and majority respondents (61.67 %) had low level of social participation. Dhaka *et al.* (2017) also reported that substantial percentage of farm women with livestock have no source of information from extension personnel and there is urgent need to make these services available so that they may have updated information to boost and sustain livestock productivity. Therefore, need based information through scientific goat farming trainings is required.

Impact of goat farming training on knowledge level of trainees: Table 1 lists the pre training and post training KI of respondents after the training programme. Bashir *et al.* (2017) also reported that average knowledge scores increased from 11.13 to 21.65 as a result of training indicating high knowledge gain. Only 35.83 % were aware about correct age of castration before training, however as a result of training 70 % gave correct responses. Similarly, knowledge regarding vaccination, debudding age, age determination, wool yielding breeds, protein content in feed for 4 week old kids, common diseases in goats, solid feed for kids and daily green fodder for goats etc. showed significant (P<.01) improvement. Belakeri *et al.* (2017) also reported significant knowledge gain in fodder production (70.36%) aspect followed by health care management, housing management, feeding practices, breeds & breeding management, general care & management among the trainees. So it is quite evident that training on scientific goat farming is a must to develop interest and motivation in farmers. Singh *et al.* (2012) also highlighted the effectiveness of training programmes for enhancing skill and knowledge of participants on improved agricultural tools and machines. Niwas *et al.* (2021) and Kadagi *et al.* (2020) also reported the favorable impact of scientific goat trainings on knowledge gain as well as adoption of technologies by trainee farmers.

Table 1

Impact of goat farming training on knowledge level of trainees

Q.No.	Statement	Correct responses (%)			
		Pre-training	Post-training	Chi square value	P value
1	Breed with roman nose and flat leaf like ears	102 (85.00)	107 (89.17)	0.926	0.336
2	Breed with best quality skin and meat	12 (10.00)	65 (54.17)	53.714	<.0001
3	Gestation period	92 (76.67)	98 (81.67)	0.909	0.340
4	Position of boar shed	38 (31.67)	62 (51.67)	9.562	0.002
5	Goat meat synonym	0	67 (55.83)	92.948	<.0001
6	Goat milk as medicine for diseases	35 (29.17)	65 (54.17)	15.429	<.0001
7	Disease resistant factors in goat milk	2 (1.67)	65 (54.17)	82.181	<.0001
8	Good wool yielding breeds	51 (42.50)	87 (72.50)	22.097	<.0001
9	Average daily green fodder for goats	46 (38.33)	97 (80.83)	45.003	<.0001
10	Mashed or pelleted feed for goat	57 (47.50)	86 (71.67)	14.551	0.0001
11	Age determination	60 (50.00)	94 (78.33)	20.948	<.0001
12	Sparing time for a pregnant goat from milking	61 (50.83)	88 (73.33)	12.904	0.0003
13	Goat identification	8 (6.67)	59 (49.17)	53.856	<.0001
14	Debudding age	29 (24.17)	70 (58.33)	28.902	<.0001
15	Benefits of debudding	13 (10.83)	63 (52.50)	48.139	<.0001
16	Castration age	43 (35.83)	84 (70.00)	28.112	<.0001
17	Sirohi breed of goats	35 (29.17)	77 (64.17)	29.531	<.0001
18	Space requirement for adult doe	12 (10.00)	74 (61.67)	69.659	<.0001
19	Common diseases in goats	60 (50.00)	92 (76.67)	18.373	<.0001
20	Vaccination	0	58 (48.33)	76.484	<.0001
21	Full mouth stage in goats	27 (22.50)	77 (64.17)	42.421	<.0001
22	Goats accommodated in one acre irrigated land	14 (11.76)	74 (61.67)	64.593	<.0001
23	Solid feed for kids	59 (49.17)	88 (73.33)	14.764	<.0001
24	Protein content in feed for 4 week old kids	19 (15.83)	64 (53.33)	37.296	<.0001
25	Medicine for mouth ulcers in FMD	34 (28.33)	81 (67.50)	36.881	<.0001

Table 2

Socio-personal profile, Pre-training KI, Post-training KI and Knowledge gain of w.r.t. independent variables.

Age	Frequency (percentage)	Pre KI (Mean ± SE)	Post KI (Mean ± SE)	Knowledge gain (Mean ± SE)
< 30 years	33 (27.50)	$30.54^{a} \pm 2.21$	$64.61^{a} \pm 2.32$	$34.06^{b} \pm 1.69$
31-45 years	67 (55.83)	$33.61^{a} \pm 2.01$	$66.86^{a} \pm 1.23$	$33.25^{b} \pm 1.60$
e" 46 years	20 (16.67)	$18.80^{b} \pm 1.30$	$57.80^{b} \pm 2.29$	$39.0^{a} \pm 2.59$
Education	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
High school	45 (37.50)	$27.56^{b} \pm 2.17$	$63.20^{b} \pm 1.34$	$35.64^{b} \pm 1.72$
10+2	41 (34.17)	$26.54^{b} \pm 2.13$	$67.12^{a} \pm 1.55$	$40.58^{a} \pm 1.75$
Graduate and above	34 (28.33)	$38.47^{a} \pm 2.54$	$63.88^{ab} \pm 2.63$	$25.41^{c} \pm 1.37$
Income/year	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
< 1 lakh	30 (25.00)	$28.00^{b} \pm 1.75$	$62.13^{a} \pm 1.54$	$34.13^{a} \pm 1.64$
1-6 lakh	85 (70.83)	$30.64^{b} \pm 1.82$	$65.84^{a} \pm 1.32$	$35.20^{a} \pm 1.41$
e" 6 lakh	5 (4.17)	$38.4^{a} \pm 3.92$	$61.60^{a} \pm 5.88$	$23.20^{b} \pm 1.96$
Income source	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
Only land	17 (14.29)	$30.59^{ab} \pm 4.55$	$70.12^{a} \pm 2.48$	$39.53^{a} \pm 2.52$
Only animals	22 (18.49)	$29.27^{ab} \pm 2.19$	$63.45^{b} \pm 1.92$	$34.18^{bc} \pm 1.43$
Land and animals	39 (32.77)	$31.69^{a} \pm 1.72$	$62.26^{b} \pm 1.22$	$30.56^{c} \pm 1.93$
Land and others (service/business)	15 (12.61)	$25.60^{b} \pm 3.42$	$60.80^{b} \pm 4.45$	$35.20^{abc} \pm 2.98$
Others	26 (21.85)	$32.31^{a} \pm 4.23$	$68.62^{a} \pm 2.60$	$36.31^{ab} \pm 3.06$
All three (land, animals, others)	0	0	0	0
Land (acres)	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
Landless	28 (23.33)	$20.43^{b} \pm 1.75$	$63.00^{b} \pm 2.01$	$42.57^{a} \pm 2.22$
1-5	60 (50.00)	$35.87^{a} \pm 2.12$	$68.93^{a} \pm 1.57$	$33.07^{b} \pm 1.46$
5-10	17 (14.17)	$30.35^{b} \pm 3.58$	$61.18^{b} \pm 1.52$	$30.82^{b} \pm 2.63$
>10	15 (12.50)	$26.40^{c} \pm 1.74$	$55.20^{c} \pm 1.57$	$28.80^{b} \pm 2.74$
Overall		30.30 ± 1.38	64.73 ± 1.04	34.43 ± 1.10

Note: Figures with different superscripts in column for different variables differ significantly (P<.05)

Table 3

Pre-training KI, Post-training KI and Knowledge gain w.r.t. communication profile

Mass media exposure	Frequency (percentage)	Pre KI (Mean ± SE)	Post KI (Mean ± SE)	Knowledge gain (Mean ± SE)
Low	44 (36.67)	$29.00^{b} \pm 2.67$	$65.73^{a} \pm 1.71$	$36.73^{a} \pm 1.33$
Medium	46 (38.33)	$28.09^{b} \pm 1.79$	$64.52^{a} \pm 1.65$	$36.43^{a} \pm 2.03$
High	30 (25.00)	$35.60^{a} \pm 2.60$	$63.60^{a} \pm 2.24$	$28.00^{b} \pm 2.10$
Extension agency contact	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
Low	31 (25.83)	$28.13^{b} \pm 3.02$	$66.58^{a} \pm 1.86$	$38.45^{a} \pm 1.66$
Medium	73 (60.83)	$30.03^{b} \pm 1.64$	$63.89^{a} \pm 1.17$	$33.86^{b} \pm 1.55$
High	16 (13.33)	$35.75^{a} \pm 4.01$	$65.00^{a} \pm 4.57$	$29.25^{c} \pm 2.30$
Social participation	**Frequency (percentage)**	**Pre KI**	**Post KI**	**Knowledge gain**
Low	74 (61.67)	$33.84^{a} \pm 1.98$	$66.05^{a} \pm 1.38$	$32.22^{b} \pm 1.32$
Medium	37 (30.83)	$22.49^{b} \pm 1.42$	$62.27^{a} \pm 1.79$	$39.78^{a} \pm 2.00$
High	9 (7.50)	$33.33^{a} \pm 0.67$	$64.00^{a} \pm 3.06$	$30.67^{b} \pm 3.71$

Note: Figures with different superscripts in a column for different variables differ significantly (P<.05)

Impact of antecedent/background variables on the knowledge gain: As is clear from Table 2, overall pre KI of 30.30±1.38 rose to post KI of 64.73±1.04 with a knowledge gain of 34.43±1.10 (P<.01). Pre KI and post KI were lowest in high age category than others because knowledge regarding these is affected by familiarity with the subject matter, however knowledge gain was highest in this category probably because people in this age have high propensity to learn. It was observed that pre KI was highest in 'graduate and above category' which might be due to their education level, whereas both post KI and knowledge gain were highest in '10+2' category as those with more motivation to learn always gain more. Knowledge gain was lowest in high income group which could be due to their overconfidence as a result of resource sufficiency.

As seen in Table 3, pre knowledge index was highest in 'high' mass media exposure category and high extension agency contact category. Knowledge gain was lowest in these because probably they already had high initial knowledge score related to the subject. Pre KI and knowledge gain had no clear relation with social participation.

CONCLUSION

Study clearly demonstrated that well designed and need based training programmes are essential sources of knowledge for farmers and must for startups in this enterprise. Knowledge gain was more with age but was low with increase in education, income, mass media exposure and extension agency contact probably because people already had high initial knowledge scores. Training plugs the knowledge gaps leading to exchange of viewpoints and imparting the required motivation for farmers.

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