**Research Article**

# ON-CAMPUS TRAININGS ON PIG FARMING: ANALYSIS OF KNOWLEDGE GAIN

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## ABSTRACT

To know the impact of scientific trainings on pig farming in terms of knowledge gain, 140 farmers belonging to diverse backgrounds from various on campus trainings were selected randomly and interviewed with a pre-structured questionnaire 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 ($P \leq .01$) increase in knowledge score from $29.51 \pm 1.61$ to $66.23 \pm 0.89$ with a knowledge gain of $36.71 \pm 1.45$. Therefore, need based trainings specifically designed can significantly improve the awareness and understanding of pig farmers regarding various aspects of pig feeding and management.

Diversification into livestock and increasing livestock productivity should form part of strategies for poverty reduction in developing countries (FAO, 2012). Scientific pig farming with high meat producing exotic pig breeds is no more restricted to lower class people. Out of the total meat production in India, 4.98% was contributed by pigs in 2018-19. Meat production from pigs increased from 395.97 thousand tonnes in 2017-18 to 404.46 thousand tonnes in 2018-19 and the demand continues to increase (BAHS, 2019). Pigs are more efficient feed converters than other animals and pork accounts for 38% of meat production worldwide.

Growth of the hotel industry has resulted in increase in demand for pork and consequently fast food chains have multiplied. This has prompted many farmers in Punjab to venture into pig farming. Certain inherent traits like early maturity, high fecundity and short generation interval are unique to pigs, hence benefits offered by pig farming are incomparable. In addition, infrastructure investment for piggery is quite low. However, the sector is still unorganized with social stigma attached and hence require proper facilities in terms of scientific trainings with practicals for pig handling to bring about a necessary change in attitude. 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 140 trainees (from diverse backgrounds) of pig farming trainings conducted by Department of Veterinary and Animal Husbandry Extension Education, Guru Angad Dev Veterinary and Animal Sciences University

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(GADVASU), Ludhiana from August 2016 to August 2017 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 pig farming like rearing exotic breeds, 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 department- Veterinary and Animal Husbandry Extension Education, Livestock Production Management and Animal Breeding and Genetics etc. 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 score 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.

$$\text{Knowledge score} = \frac{\text{Obtained score}}{\text{Maximum possible score}} \times 100$$

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

Table 1

**Table 1**

**Impact of pig farming training on knowledge level of trainees**

| Q.No. | Statement | Correct responses (%) | | | |
|---|---|---|---|---|---|
| . | | Pre-training | Post-training | Chi square value | P value |
| 1. | Vaccination | 81 (57.86) | 109 (77.86) | 12.837 | 0.0003 |
| 2. | Reason for death of piglets at birth | 60 (42.86) | 92 (65.71) | 14.737 | 0.0001 |
| 3. | Breeds for scientific pig rearing | 72 (51.43) | 97 (69.29) | 9.329 | 0.002 |
| 4. | Castration age for pigs | 70 (50.00) | 103 (73.57) | 16.472 | <.0001 |
| 5. | Gestation period | 62 (44.29) | 104 (74.29) | 26.100 | <.0001 |
| 6. | Zoonotic diseases | 56 (40.00) | 100 (71.43) | 28.023 | <.0001 |
| 7. | Litter size in indigenous sow | 30 (21.43) | 79 (56.43) | 36.068 | <.0001 |
| 8. | Pig meat synonym | 89 (63.57) | 119 (85.00) | 16.827 | <.0001 |
| 9. | Weight of adult Yorkshire pig | 49 (35.00) | 99 (70.71) | 35.831 | <.0001 |
| 10. | Protection rail in pig shed | 15 (10.71) | 75 (53.57) | 58.947 | <.0001 |
| 11. | Deworming | 39 (27.86) | 104 (74.29) | 60.385 | <.0001 |
| 12. | Smallest project for pig rearing | 55 (39.29) | 96 (68.57) | 24.164 | <.0001 |
| 13. | Litter size in exotic sow | 87 (62.14) | 109 (77.86) | 8.231 | 0.004 |
| 14. | Creep area temperature | 22 (15.71) | 85 (60.71) | 60.036 | <.0001 |
| 15. | Nutrient deficiency in piglets | 32 (22.86) | 91 (65.00) | 50.473 | <.0001 |
| 16. | Age of piglets to take solid feed | 7 (5.00) | 82 (58.57) | 92.652 | <.0001 |
| 17. | Weaning weight of piglets | 39 (27.86) | 96 (68.57) | 46.474 | <.0001 |
| 18. | Piglets in one pen | 28 (20.00) | 87 (62.14) | 51.366 | <.0001 |
| 19. | Direction of pig shed | 38 (27.14) | 92 (65.71) | 41.871 | <.0001 |
| 20. | Age of male pigs for breeding | 38 (27.14) | 93 (66.43) | 43.394 | <.0001 |
| 21. | Common diseases in pigs | 11 (7.86) | 63 (45.00) | 49.667 | <.0001 |
| 22. | Weaning age of piglets | 26 (18.71) | 89 (63.57) | 57.949 | <.0001 |
| 23. | Protein content in piglet feed | 12 (8.57) | 86 (61.43) | 85.966 | <.0001 |
| 24. | Adult male pigs in one pen | 8 (5.71) | 91 (65.00) | 107.647 | <.0001 |
| 25. | Expense on feed in pig farm | 7 (5.00) | 77 (55.00) | 83.333 | <.0001 |

## RESULTS AND DISCUSSION

**Socio-personal and communication profile of trainees**

Table 2 shows that majority (54.29%) respondents were less than 30 years of age. Hundal *et. al.* (2016) in a similar study on pig farming trainees in GADVASU reported that majority (44.2%) belonged to 25-35 year age group. More than one-third (37.86%) of the respondents had higher secondary qualification and 35.00 percent were graduates and above. It was also observed that majority (64.29%) had annual income between 1-6 lakh rupees. Also table 3 reveals that majority trainees had medium level of mass media exposure and extension agency contact, however, it is also clear that majority had low social participation. Therefore, pig farming still carries social stigma in society.

**Impact of pig farming training on knowledge level of trainees:-**

Table 1 lists the pre-training and post-training scores of respondents after 5-day training programme. Only 50.0 percent were aware about correct age of castration before training, however after attending classes, 73.57% gave correct responses. Similarly knowledge regarding vaccination, deworming, zoonotic diseases, nutrient deficiency in piglets, weaning weight of piglets etc. showed significant (P<0.01) improvement. Therefore training on scientific pig 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.

**Impact of antecedent/background variables on the knowledge gain**

As is clear from table 2, overall pre knowledge score of 29.51 ± 1.61 rose to post knowledge score of 66.23 ± 0.89 (P<0.01). Education had no impact on pre knowledge score, post knowledge score and knowledge gain. This is because information specific to pig farming only can result in correct response. However, pre knowledge score was more in higher income group (≥ 6 lakh) as compared to others. Post knowledge score was highest '≥ 6 lakh' category followed

Table 2

**Table 2**

**Socio-personal profile, Pre-training score, Post-training score and knowledge gain w.r.t. independent variables**

| Variable | Frequency (percentage) | Pre training score (Mean ± SE) | Post training score (Mean ± SE) | Knowledge gain (Mean ± SE) |
|---|---|---|---|---|
| **Age** | | | | |
| < 30 years | 76 (54.29) | $27.37^a \pm 2.18$ | $64.00^b \pm 1.08$ | $36.63^a \pm 2.08$ |
| 31-45 years | 40 (28.57) | $30.40^a \pm 3.20$ | $68.70^a \pm 1.44$ | $38.30^a \pm 2.61$ |
| ≥ 46 years | 24 (17.14) | $34.83^a \pm 3.37$ | $69.17^a \pm 2.89$ | $34.33^a \pm 3.20$ |
| **Education** | | | | |
| High school | 38 (27.14) | $29.47^a \pm 2.78$ | $65.26^a \pm 1.70$ | $35.79^a \pm 2.92$ |
| 10+2 | 53 (37.86) | $30.04^a \pm 2.72$ | $66.49^a \pm 1.38$ | $36.45^a \pm 2.30$ |
| Graduate and above | 49 (35.00) | $28.98^a \pm 2.85$ | $66.69^a \pm 1.60$ | $37.71^a \pm 2.49$ |
| **Income/year** | | | | |
| < 1 lakh | 35 (25.00) | $28.91^b \pm 3.13$ | $61.48^c \pm 1.89$ | $32.57^a \pm 2.89$ |
| 1-6 lakh | 90 (64.29) | $28.22^b \pm 2.06$ | $66.93^b \pm 0.95$ | $38.71^a \pm 1.89$ |
| ≥ 6 lakh | 15 (10.71) | $38.67^a \pm 3.84$ | $73.07^a \pm 3.34$ | $34.40^a \pm 2.55$ |
| **Income source** | | | | |
| Only land | 51 (36.43) | $28.63^a \pm 2.71$ | $63.92^{bc} \pm 1.33$ | $35.29^b \pm 2.52$ |
| Only animals | 8 (5.71) | $34.00^a \pm 6.32$ | $66.00^{bc} \pm 1.51$ | $32.00^b \pm 5.95$ |
| Land and animals | 30 (21.43) | $21.07^a \pm 3.22$ | $68.00^b \pm 1.45$ | $46.93^a \pm 2.94$ |
| Land and others (service/business) | 20 (14.29) | $30.00^a \pm 4.16$ | $61.20^c \pm 3.27$ | $31.20^b \pm 3.35$ |
| Others | 24 (17.14) | $34.00^a \pm 3.40$ | $68.00^b \pm 1.72$ | $34.00^b \pm 3.15$ |
| All three (land, animals, others) | 7 (5.00) | $50.28^a \pm 5.85$ | $84.00^a \pm 1.23$ | $33.71^b \pm 5.85$ |
| **Land (acres)** | | | | |
| Landless | 10 (7.14) | $33.60^a \pm 5.41$ | $69.20^a \pm 2.31$ | $35.6^a \pm 5.04$ |
| 1-5 | 78 (55.71) | $31.13^{ab} \pm 1.99$ | $65.28^a \pm 1.07$ | $34.15^a \pm 2.05$ |
| 5-10 | 31 (22.14) | $21.81^b \pm 3.87$ | $65.93^a \pm 2.02$ | $44.13^a \pm 3.14$ |
| >10 | 21 (15.00) | $32.95^a \pm 4.18$ | $68.76^a \pm 3.06$ | $35.81^a \pm 2.28$ |
| Overall | | $29.51 \pm 1.61$ | $66.23 \pm 0.89$ | $36.71 \pm 1.45$ |

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

**Table 3**

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

| Variable | Frequency (percentage) | Pre training score (Mean ± SE) | Posttraining score (Mean ± SE) | Knowledge gain (Mean ± SE) |
|---|---|---|---|---|
| **Mass media exposure** | | | | |
| Low | 39 (27.86) | $31.08^b \pm 2.96$ | $68.21^{ab} \pm 1.27$ | $37.13^a \pm 3.18$ |
| Medium | 82 (58.57) | $25.85^b \pm 2.07$ | $64.49^b \pm 1.22$ | $38.63^a \pm 1.77$ |
| High | 19 (13.57) | $42.11^a \pm 3.69$ | $69.68^a \pm 2.64$ | $27.58^b \pm 3.24$ |
| **Extension agency contact** | | | | |
| Low | 52 (37.14) | $21.08^c \pm 2.31$ | $63.85^b \pm 1.44$ | $42.77^a \pm 1.98$ |
| Medium | 73 (52.14) | $32.44^b \pm 2.23$ | $66.79^b \pm 1.18$ | $34.36^b \pm 2.14$ |
| High | 15 (10.71) | $44.53^a \pm 3.40$ | $71.73^a \pm 2.89$ | $27.20^b \pm 3.67$ |
| **Social participation** | | | | |
| Low | 99 (70.71) | $30.06^b \pm 1.79$ | $66.22^b \pm 0.92$ | $36.16^a \pm 1.78$ |
| Medium | 35 (25.00) | $24.34^b \pm 3.54$ | $63.88^b \pm 2.10$ | $39.54^a \pm 2.87$ |
| High | 6 (4.29) | $50.67^a \pm 4.70$ | $80.00^a \pm 3.86$ | $29.33^a \pm 1.69$ |

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

by '1-6 lakh' category and least in '< 1 lakh' category and the difference was significant (P < .05). Knowledge gain didn't vary significantly. Post knowledge score and knowledge gain didn't vary significantly with land holding, however pre knowledge score showed difference between categories. This may be due to individual curiosity levels which lead to differences in information level.

As seen in table 3, post knowledge score is highest for high level of mass media exposure as mass media has become the first source of easy availability of information. Also pre knowledge score and post knowledge score were highest for high level of extension agency contact than others. This shows that those farmers who remain in touch with experts on the subject are well aware of the recommended practices. As for social participation, pre knowledge score and post knowledge score were highest for high level of participation than for medium and low levels. This is natural as people gain information though close friends, relatives and neighbors.

## 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. Various socioeconomic parameters like age, education and land availability do not affect knowledge gain significantly, however contact with experts on the subject and mass media exposure does affect knowledge gain significantly. Training plugs the knowledge gaps leading to exchange of viewpoints and imparting the required motivation for farmers.

## REFERENCES

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