

## Effect of Educational and Extension Programs in Improvement of Raw Milk Quality with CIPP Evaluation Model in Iran

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**Abstract:** Today, quality of products is one of the most important goals for producers' that are looking at long-term strategic goals to the market, seeking to improve their position among other competitors. Amongst 450 trainees who took part in Gilan province Hygiene milk courses, Hundred twenty person were selected as research statistical sample based on multi stage bunch sampling. Test tools are researcher made questionnaire that their apparent validity was controlled by consultation of Gilan province agricultural experts. This evaluation was performed by pasteurized milk plant' cooperation after reduction of microbial load of milk in small town arrangement.

[Keshavarz, SH. **Effect of Educational and Extension Programs in Improvement of Raw Milk Quality with CIPP Evaluation Model in Iran.** *Rep Opinion* 2018;10(9):37-40]. ISSN 1553-9873 (print); ISSN 2375-7205 (online). <http://www.sciencepub.net/report>. 6. doi:[10.7537/marsroj100918.06](https://doi.org/10.7537/marsroj100918.06).

**Keywords:** Extension courses, Improvement of milk quality, Evaluation, CIPP pattern

### 1. Introduction

Today, quality of products is one of the most important goals for producers' that are looking at long-term strategic goals to the market, seeking to improve their position among other competitors (Axin, 1988). Quality of milk that is affected by various factors has direct impact on the farmers' income as well as health issues. Household consumption of milk as one of the basic goods has special place in the nutrition of groups with different ages. As per capita consumption of milk in each country is considered as one of the indexes of progress and development. On the other side milk is rich in calcium, protein and vitamins and is therefore suitable for the growth of microbes and pathogens. Given the large livestock producers, who use traditional methods and are mainly located in rural areas, In order to improve milk quality, every attempt is required to promote farmers' knowledge and skills about issues such as hygiene of milking and milk storage condition ( amiri and emadi , 2002). In this regard, training farmers and extension to meet the educational needs of their familiarity with the principles of proper animal husbandry, animal health and milk hygiene is one of the types of mentoring programs to further improve the quality and reduce the microbial load for this group of livestock producers.

The aim of this training study is to provide knowledge and information to producers to increase product quality and their income respecting these required principles to maintain animal health and milk deliveries up to the plant.

Extension is an educational activity in order to transfer knowledge and necessary skills for specific clients, derived from survey sources, research and

development and follow up to adoption of those by learners; and eventually assessing actual results of this adoption and reflecting those to production sources as well as provision of datum (Shahbazi, 1977). Upon this, educational extension must encourage some kind of learning customized and placed in the context of the overall experience and depth of his perception.

Thus poor educational context and inappropriate method to interrogate demand will provided unsuitable conditions and will never fit in order and comprehensive perception organization lacking considerable credit (Malek Mohammadi,1999). Understanding the important point, how much are demands and expected goals met by extension trainings is the only possible way of evaluating implemented trainings and investigating practical consequences of those in change of trainee's behavior and viewpoint.

Evaluating extension – educational programs are termed to organized activities which enable trainer, programmers and executers to measure trainees achievement level to educational goals and generally effectiveness rate of educational programs. The main purpose of this evaluation is to provide a basis for judgment and decision making (Hejazi, 1996).

Evaluation is also one of the planning process stages that is being performed in the preparation stage (evaluation prior to implementation), implementation (evaluation of the run) and after the program execution (evaluation after the run). The evaluation, objectives, policies and programs were reviewed and necessary administrative actions are the future plans (Rezvani, 1999). Among different patterns of evaluation, the CIPP pattern provides more accurate evaluation of the implemented programs due to comprehension and compared to others models.

Stephan Beam and Shang Field have provided most complete definition for CIPP evaluation "Evaluation is determination process, acquisition and preparation of discretionary and judicial information about value and merit of plan goals implementation and results in order to guide decision making, service to response demands and more perception of surveyed phenomenon". (Fami & 2007)

With above definition, key aspects of our study program which should be evaluated are as follows:

Determining program goals, preparation of suitable plan to reach goals, implementing prepared plan and product investigation or program efficiency in CIPP pattern by evaluation, ground evaluation, input evaluation, trainees evaluation, and output evaluation, are being evaluated (Shahbaazi and Hajjarian 1991).

In this model the external and internal validity, permanence, objectivity, relevance, importance and scope of operation, acceptability, accordance to the conditions, permeability and efficiency has been considered. Results of the evaluation are those reports decision makers can use in future planning (Dola, 1984).

The overall objective of this study was to evaluate the effectiveness of training for the extension of Gilan province, (Iran) on improving the quality of raw milk with the following specific objectives:

- 1- Identification of factors promoting knowledge and skills of the farmers and methods to reduce contamination of dairy milk
- 2- Evaluate the effectiveness of promotional activities to reduce the contamination of milk
- 3- Satisfaction survey of farmers from training programs implemented

## 2. Material and Methods

Amongst 450 trainees who took part in Gilan province Hygiene milk courses, Hundred twenty person were selected as research statistical sample based on multi stage bunch sampling. Test tools are researcher made questionnaire that their apparent validity was controlled by consultation of Gilan province agricultural experts. Four questionnaires were designed for this purpose,

- a) Diagnostic questionnaire
- b) Development of a questionnaire
- c) Assemblage questionnaires and the final questionnaire

Recent questionnaire were completed several months after termination of training by assessors and by direct observation in the factory.

## 3. Results

Table 1 shows the scores achieved by respondents in the 14 targeted behavioral questions in the diagnostic and assemblage stage.

Accordingly, behavioral objectives "observed the cow udder washing before milking" (M = 73), "Familiarity with methods of washing with a milking machine" (M = 70) and "knowledge of the proper temperature while delivering milk to the factory (M = 69) were allocated to have the highest average in the diagnostic process.

In the other hand, behavioral objectives "observing the rules of feeding cows postpartum (M = 20)," Familiarity with mastitis symptoms "(M = 34) and "The important consideration in milking" (M = 38) were allocated to the lowest average in the diagnostic phase.

Upon data from the table of courses aimed at reducing the microbial load behavior "the most important diseases that infect the milk" (M = 95) and observe the cow udder washing before milking (M = 93) constituted the highest mean scores.

If we know the educational effectiveness of different knowledge and trainees' knowledge before and after the period, we can then recognize the effectiveness of behavioral objective "knowledge of the washing machine milking", " observing important point of milking," "familiarity with the symptoms of mastitis disease "and the most important diseases that can contaminate milk.

Further, minimum rate of effectiveness were also seen regarding two goals "Awareness to proper milk temperature at time delivery to plant "and "observing cow udder washing before milking ".

Results of mean compare test about two stages of diagnostic and assembling evaluation show implementation of training courses were resulted to increase of knowledge level of participants in quality promotion courses (  $t=-1/91$  ;  $p=0/05$  ).

### *Educational content:*

30.8% of respondents reported to the educational materials as very good range and 42.1% (n = 15) of respondents reported that bad. The appropriateness of the training needs of learners: 30.8% (n = 33) of respondents with educational content to fit their needs very well and the range of 45 to have it good. 14% (n = 15) of respondents believed that index bad.

Development evaluation has been made during the course and all things relating to education and its components were surveyed which the following results were obtained:

### *Applicability of training for learners:*

The majority almost together of respondents (944%) evaluated their training applicable and useful, and only 5.6 percent evaluated it useless.

Understandability of educational materials: 57 (53.3%) of the learners understood the training and 39 (n = 36.4) have also reported it is very understandable.

*Educators teaching how to:*  
88.8% evaluated teaching method very good and satisfied very well.

Table 1 - Comparison of the diagnostic and assembling evaluation

Items	Behavioral Goals	Mean (before)	Mean (after)	Difference
1	Observing main points of milking	38	81	43
2	Observing cow under washing before milking	73	93	20
3	Familiarity with milking Machine washing know how	70	64	6
4	Awareness to proper milk temperature for delivery to plant	69	88	19
5	Familiarity with milk indexes in plant	60	88	28
6	Familiarity with nourishing milk color	43	70	27
7	Familiarity with milk Sterilization boiling time	50	83	33
8	Awareness to milk pasteurization method	40	63	23
9	Observing main points in milking cows nutrition	55	71	16
10	Familiarity with milk drying method postartum	50	71	21
11	Observing cow nutrition bases after artum	20	69	29
12	Awareness to main milk contaminating disease	60	95	35
13	Familiarity with udder inflammation symptoms	34	74	40
14	Familiarity with Brucellosis disease	54	77	23

*Knowledge level of trainees:*

37 patients (34.6%) rated knowledge of educators as very good, while 5.6 (n = 6) of the respondents believe that the educators had poor knowledge.

*Behavior and educators in the classroom:*

The overwhelming majority of respondents were satisfied with the high frequency behavior and showed this satisfaction very good with the consent of the 59.7% (n = 62) and 32.7% (n = 35) in good limit.

*Posters used in classroom:*

Poster usage apparently lacked constant trend in educational courses so that in some cases 4.8% (n=49) poster was not used at all, and in other cases up to plenty limit (31.8) posters were used in educational press.

*Using Images in Education:*

In half of the training images have not been used (48.6%). Frequency of use of the images was 16 and 26 with medium and high compactness.

*Use of chart in education:*

Charts and graphs were often used almost not enough.

*Using blackboard:*

Upon learners opinion this training aid tool was also medium used so as 47.7% (n=51) expressed no use of blackboard.

*Using Film in Education:*

72.9% reported its usage null, but 10.3 as very good.

*Use a Voice recorder:*

85% (n = 91) reported it at null level.

*Light status in Class:*

80 (73%) have been satisfied with light status in the classroom but only few 7.5% (n = 8) of them reported it bad, and 17.8% (n = 19) described at poor level.

*Ventilation status in class:*

54.2% (n = 58) of respondents reported it moderate.

*Location of training:*

Though unsatisfied people with the training location were high (24%) but total (76%) evaluated educational place status as moderate up to completely suitable.

*Training Facilities status (tables and chairs):*

A significant number (34%) were diagnosed educational facilities as inadequate. 11.2 (n = 12) in the medium limit and 54.2% (n = 58) have described it as perfect.

*Class Temperature status:*

63.6% (n = 68) have reported this index at moderate limit.

*Education execution how to:*

78.6% (n = 84) reported these courses presented theoretically and 6.5% knew it practical, while 16 patients (15%) found it more practical.

*Number of visit:*

More than half of the courses have only had just one scientific visit; and only 5 courses (4.7%) had four scientific visits.

*Duration of training:*

Nearly 30% (n = 32) of total respondents (97.2%) were satisfied with the training season. 4.7% believed it very long while 59.8% (n = 64) of respondents found it appropriate.

*Reasons for participation in training:*

The majority of learners reported need feeling as most important reason (66.4%), 16.8% (n = 18) advocates' encourage and 13 (12.1%) have friends encouraged.

*Record in latter training courses:*

88.8% (n = 77) of individuals have had records in similar courses.

**The final evaluation**

Hence training effectiveness survey of knowledge and skill level of farmers is not individually possible, this evaluation was performed by pasteurized milk plant' cooperation after reduction of microbial load of milk in small town arrangement.

Milk collected from dairy farmers who had participated in the education process by evaluating the average indices of microbial load of milk, the mean percent fat, and protein in milk, heat delivery to the plant ( $t = 1.73$ ,  $p = 0.05$ ) examined training was mentioned that in all cases, positive and significant effect on indicators has improved, but regarding increased fat and milk protein in animal feed which has significant role, no meaningful effect was observed.

**4. Recommendations**

Evaluation of learners of extension implemented training course indicated that teaching aids were not much used. Also observation of learnt subject of participants was not practically demonstrated during visits which this factor cause practical aspects of training be weaker than theoretical aspect.

Thus in order to more effectiveness of trainings, it is necessary training aid tools get vastly utilized and

more précised programming be made for audiences visits.

Further, since two important indexes of milk fat and protein increment do not indicate meaningful improvement, it is suggested simple and independent educational texts be taught to audiences regarding house held animal digestion structure, different ration of nutrition and know how of Fat and protein increment by using audiovisual media.

**Acknowledgements:**

With thanks to Mrs. Z. Khayyati who contributed in collecting data for this research.

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