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http://eoi.citefactor.org/10.11226/v23i4

Journal of Agricultural Extension
Vol. 23 (4) October, 2019
ISSN(e): 24086851; ISSN(Print); 1119944X
http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

Training Needs of Women Dairy Farmersin AL Saniya District, AL Qadisyah Province, Iraq

https://dx.doi.org/10.4314/jae.v23i4.2

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Abstract

The study examined the training needs of women dairy farmers in AL Qadisyah Province, Iraq. A sample of 125 farm women was selected through random sampling. Face-to-face interviews with a structured questionnaire were used to collect data. Respondents had medium level of training needs on some dairy farming practices. Health care was the most preferred training aspect of women dairy farmers followed by feeding, clean milk production, breeding and marketing, while care and management of milking animals, disease prevention, feeding of milk animals, and preparation of milk products the most preferred training sub aspect. The study recommends that improved dairy farming practices should be diffuse through training and women dairy farmers should be encourage to apply the training in their dairy farms.

Keywords: Dairy cow, Livestock farmers, Milk production, Training need

Introduction

Dairy Cows contribute nearly 85% of the milk production in the whole world (Gebeyew *et al*., 2016). In Asia over 80% of the milk is produced by small-scale farmers (FAO, 2014a). Smallholder dairy farming system constitutes an important source of livelihoods to the majority of mixed crop-livestock farmers involved in agricultural production.

In most of Iraqi rural communities mixed crop and livestock production system is widespread, which includes raising small numbers of livestock. Livestock production has been traditionally practiced in most parts of Iraq; and it mainly includes sheep, cow, goats, buffalo and camel. There are 7,722,375 heads of sheep, 2,552,113 heads of cow, 1,474,845 heads of goats, 285,437 heads of water buffalo, and 58,293 heads of camel in Iraq. Cow represents 21.10% of livestock in Iraq. AL-Qadisiyah province ranked 10th in terms of cow population (151,094) (CSO, 2011). Cows are very important in traditional mixed crop livestock production systems.

Milk production of cow in Iraq is estimated at 923 liters per lactation period of 280 days, the productivity was 3.6 liters/day, and it is accounting for less than 40% of other countries (MOP, 2013). This productivity was very low compared with Saudi

Arabia (10.133), United Kingdom (7.271), Germany (6.877), Jordan (6.521), and Kuwait (6.448) liters per cow, (FAO, 2012), in Turkey (16.18) kg/cow, (Cukur, 2016). One of the major reasons of low productivity could be due to traditional dairy farming practices by farmers.

Small-scale livestock farmers, sometimes referred to as smallholder farmers, are mainly categorized by the livestock numbers (Ogunkoya, 2014). Some authors consider small-scale to be from 2 to 15 animals, others consider it to be up to 20 milking animals plus replacement heifers, or even up to 50 cattle (FAO, 2014b). Dairy cows in small holders contribute to improve the welfare of farm households, It generates income, provides a highly nutritious food for people, creates employment opportunities in the society (Nga *et al*., 2012).

Women have been involved in animal production under small holder farming system to enhance the family income as well as to meet household food needs (Batool *et al*., 2014). The responsibility of all sorts of activities involved in animal husbandry occupation is shouldered by women farmers (Naik *et al*., 2014). It is widely accepted that most of the critical roles related to livestock farming are played by the women (Arshad *et al*. 2013; Andaleeb *et al*. 2017; Mthi *et al*. 2018). Rural women play a major role in dairy production systems: they often feed the animals; milk them; clean the animals and their stall; compost manure and are often responsible for breeding, health and the sale of milk. (FAO, 2015)

Dairy farming is major occupation of rural women in Iraqi village. The ability of the women dairy farmers to increase productivity and generate more income from dairying depends on the effective use and application of improved dairy farming practices. Dairy development strategy at smallholder level requires some change in knowledge and management skills, which calls for training on improved dairy farming practices (Lemma *et al*.2018).

Some recent studies; Prajapati *et al*. (2019), Raina *et al*. (2017), Patel *et al*.(2016), Roy (2015), Tyapo *et al*. (2015), Kanwat and Singh(2014), Kathiriya *et al*.(2014), Kavithaa and Rajkumar(2014), Jadav *et al*.(2014), Jacop and George(2013a), Kale *et al*.(2013), Luqman *et al*.(2013), Patel *et al*. (2012), Rajput *et al.*(2012), Saiyad and Badhe(2012), have been conducted in many countries aim at assessing training needs of women dairy farmers. These studies indicated that the most preferred training needs of women dairy farmers in aspects and sub-aspects of dairy farming were; feeding and fodder production, breeding, balanced diet, clean milk production, housing, marketing, finance, health care, common diseases of milking animals and disease control, calf rearing and milk processing, milking hygiene practices, vaccination schedule, care of cow at time of calving and after calving.

To make training more effective, training needs should determine prior to commencement of training programs, so the subject matter of training can be established on the basis of trainees' needs. Therefore, we need to study the training needs of women dairy farmers in Iraq in order to promote their skills, expertise and enhance milk production and productivity, to make dairying a successful enterprise, especially, as similar studies is limited in Iraq. Therefore, this study assessed training needs of women dairy farmers. The findings presented in this paper provide information on training needs of women dairy farmers in some

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http://eoi.citefactor.org/10.11226/v23i4

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http://journal.aesonnigeria.org
http://www.ajol.info/index.php/jae
Email: editorinchief@aesonnigeria.org

dairy farming practices that may be useful for extension agencies to develop suitable training programs for dairy farm women.

Methodology

The study was conducted in AL-Saniyah district, AL-Qadisiyah province lies between 31.17 to 32.24 North latitude and 44.24 to 45.49 East longitudes. The district covers a total of 210 square kilometres of landmass constitute 2% of province area, and population stands at 55,656 constitute 4.22% of province population, about 81% of them lives in rural area (SDQ, 2016). Agriculture is the major source of income for a great number of people of AL-Saniya district.

The major farming activity in the study area was crop-livestock production. Large percent of district area is under cultivation for crop production. Some of the most widely cultivated crops are vegetables, wheat, barley, alfalfa, clover, and fruits, especially Figs, in addition to the existence of palm groves. The district is famous for its cattle breeding. There are 9,373 heads of sheep, 2,668 heads of cow, 1,347 heads of water buffalo, and 1,414 heads of goats in the district. Cow represents 2.8% of cows in the province (CSO, 2011). Cows are the most source of milk. There is Al-Qadisiyah dairy factory, the 2nd biggest dairy factory in Iraq which was established in 1981.

Study population consisted of 387 women farmers practicing dairy in the district, from where 125 were selected at random. The instrument used was a 2 part questionnaire. The first included socio-economic characteristics: age, number of dairy cows, and years of experience in dairy farming. The second part included 5 aspects of dairy farming practices with 47 sub-aspects: health care (13 sub-aspects), feeding (11), clean milk production (7), breeding (13) and marketing (3). Content validity of the questionnaire was established by a panel of experts in fields of agricultural extension and cows or milk production. A pilot study was conducted on 12 women outside the sample to establish reliability of the instrument, and a Cronbach's alpha (a reliability coefficient) of 0.91 was established, indicating the instrument used was reliable and valid.

To determine training needs, schedule was developed. These were determined with the help of 4 Likert-like scale; very highly needed (VHN) (4), highly needed (HN) (3), moderately needed (MN) (2) and slightly needed (SN) (1). Perceived training needs of individual practices were determined after taking in to consideration its respective obtained score, each respondent was given a score ranging from (47 to 188). Based on mean (M) ±standard deviation (SD), respondents, and the 5 main aspects were assigned to categories as follows: low training needs (below M–SD), medium (M±SD), and high (above M+SD). Each aspect was given a score ranging from (1 to 4). The 47 sup-aspects were categorized based on weighted arithmetic mean (WM) for level of training in it, into: low (1-1.9), medium (2-2.9) and high (3-4).

Face to face interviews were used and data collected by researcher's visits to respondents between 10th and 22nd August, 2018. Data were analyzed using

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frequency, percentage, mean(M), standard deviation (SD) and weighted arithmetic mean (WM).

Results and Discussion

Characteristics of Farm Women

Table I shows the selected characters of the respondents. The results indicate that respondents were divided depending on their age to (20, 30.4, 36, 13.6 %) within (17- 27, 28- 38, 39- 49, 50- 60) years, respectively, the average age was (37.7) years. It indicates that the majority of rural women in the research area are young, still strong and capable of undertaking rigorous activities in dairy farming management, they are likely to be less cautious of undertaking risks to improve their dairy farm enterprise.

By number of dairy cows, they owned, results show that 35.2%, 45.6% and, 15.2% owned between 1-3, 4- 6, 7- 9 cows, respectively while only 4.0% owned between 10 and 12 cows. The average cow numbers owned was 4.6 which strongly suggest that most of women farmers in the locality operated on a small scale dairy farm.

On years of experience in dairy farming, they ranged from 5 to 48 years, and the mean years of experience in dairy farming was 23.8 years. This means that women in the study area participate in dairy farm activities from t an early age.

Table 1: Characteristics of dairy farm women

Characteristic	Category	%	Mean	S.D.
Age (years)	17 – 27	20.0		
	28– 38	30.4	37.7	13.8
	39 – 49	36.0		
	50 – 60	13.6		
Number of dairy cow owned	1 - 3	35.2		
	4 – 6	45.6	4.6	1.7
	7 – 9	15.2		
	10 – 12	4.00		
Experience's years	5- 15	19.2		
	16 – 26	44.0	23.8	12.4
	27 – 37	28.8		
	38 – 48	8.00		

Overall Training Needs

Training needs score of rural women ranged from (47-188), with a mean of 123 and standard deviation of 25. Based on mean (M) ± standard deviation (SD), respondents were classified into three categories, which has been presented in Table 2.

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For the first category, the mean need score for training is less than the upper limit of training need by 33 score, this shows the weakness need for training among respondents in this category. As regard to second category, the difference between the mean and the upper limit of training need has reached 19 score, which represents a medium need for training.

For the third category, respondents showed the less difference between mean and the upper limit of training need, that reached 13 score. This shows the highly need for training among respondents in this category. The mean needs for training for all respondents were (123) which are within medium Category.

Table 2: Training needs.

Training needs category[a]	Mean	SD
Low (< 98)	64.7	22.3
Medium (98-148)	129.8	37.6
High (>148)	174.5	8.7
Total (47-188)	123.0	25.0

[a] According to total Mean and SD, categories were determined as; low (below M–SD); medium (M±SD), and high (above M+SD).

Training Needs on Some Aspects of Dairy Farming Practices

With respect to overall preference of training need of women dairy farmers Table 3 reveals that health care is the most preferred training aspect of women dairy farmers ($\bar{x}$ =3.4) followed by feeding ($\bar{x}$ =3.1), clean milk production ($\bar{x}$ =2.8), breeding ($\bar{x}$ = 2.2) and marketing ($\bar{x}$ =1.6).The overall training need index of improved dairy farming practices were ($\bar{x}$ = 2.62). This means that training needs in aspects of health care and feeding were high, medium in clean milk production, breeding and was low in marketing aspect. The results were similar with findings of Roy (2015) and Kale *et al*., (2013).

With regard to health care, the highly training needs of respondents is due to fact that parasites and various diseases in animals generally cause greater economic losses to dairy farm breeders by mortality and morbidity, which influence the quality and quantity of milk. Animal health care improved practices keep animals healthy and improve quantity as well as quality of milk production and reduce expenditure on animal health. FAO (2014b) revealed that in small-scale units of dairy farm, diseases often rank as the most important constraints on production, so, improved animal health care is an essential issue for small-scale farm development. Therefore, women dairy farmers in the district felt the high need for training in health care.

Feeding is the most important factor in successful animal care. Dairy cow can realize its production potential when it is fed well by given appropriate foods. Annah *et*

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al.(2018) indicated that poor nutrition results in low production and reproductive performance slow growth rate, loss of body condition and increased susceptibility to diseases and parasites, while Shyam *et al*.(2016) see that balance feed and its composition and time of feeding in dairy cows was very important factor to get optimum production .So, the most respondents felt high training needs on feeding to gain knowledge , skills, and improved practices to be able to feed their cows optimally.

Clean milk means the raw milk that has been produced in the udder of healthy dairy animals, handled under hygienic conditions and contains only allowed quantity of pathogens and chemicals (Jacop and George, 2013b). Women dairy farmers are interested in clean milk production practices because milk is the main product from a dairy enterprise, and women must therefore aim at maximizing on milk output from their dairy cows, at the same time must ensure that milk is produced in clean and hygienic conditions so that it is fit for human consumption.

In case of breeding, the less training needs may be due to the fact that many of these practices are done by men because it requires greater strength and contact with people from outside the village. In the same context, Jadav *et al*.(2014) sees that since the major farm operations of breeding, require outside contact, the involvement of women farmers was less and this might be the reason for the women farmers' preference of these major farm operations as the least preferred areas of training.

Marketing was the aspect in which most of respondents felt low level of training needs. Similar results were also reported by Dhaka *et al*.(2017).This result may be due to milk marketing system, common in Iraq, that is done through intermediaries who collect milk from homes and then market it to the dairy factory, which means decline of women's participation in marketing activities. Yasmin and Ikemoto (2015), Ogdand and Hembade (2014) also reiterated this.

Table 3: Training need for training on aspect of dairy farming.

Aspect	$\bar{x}$	SD
Health care	3.4	0.47
Feeding	3.1	0.54
Clean milk production	2.8	0.89
Breeding	2.2	0.93
Marketing	1.6	0.81

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Training Needs on Sub-Aspects of Dairy Farming Practices

Regarding training needs on sub-aspects of animal health care practices; result in Table 4 reveals that women dairy farmers expressed high training needs in all sub-aspects. The most important was care and management of milking animals, disease prevention ($\bar{x}$ =3.8) followed by symptoms of common diseases, information on infectious diseases ($\bar{x}$ =3.7) care and management of sick animals ($\bar{x}$ =3.6), sterility treatments ($\bar{x}$ =3.5), precaution against parasitic diseases ($\bar{x}$ =3.4). Similar findings were reported by Tyabo *et al*.(2015); Kavithaa and Rajkumar (2014); and Patel *et al*.(2012).

Among the various sub-aspects of feeding practices, feeding of milking animals was the most important and ranked first by the respondents for the purpose of training ($\bar{x}$ =3.7) followed by importance of feeding mineral mixture ($\bar{x}$ =3.6), feeding of pregnant animals ($\bar{x}$ =3.5), feeding of new born calves ($\bar{x}$ =3.3) and advantage of compounded ($\bar{x}$ =3.2).These results are in consonance with the findings of Subash *et al*.(2015).

Under clean milk production aspect, women dairy farmers considered preparation of milk products as the most important training needs ($\bar{x}$ =3.7), which means that women dairy farmers want to know more about preparation of milk products because that returns from manufacturing and marketing of dairy products are greater than the return from marketing raw milk. This was followed by knowledge of zoonotic disease that spread through infected milk ($\bar{x}$ =3.5).

Training need of women dairy farmers with respect to breeding practices revealed that breeding program ranked first ($\bar{x}$ =3.2) followed by rearing the calves ($\bar{x}$ =3.1), repeat breeding management and reproductive efficiency of dairy animal ($\bar{x}$ =3.0). About the training need with respect to marketing, marketing of products was in first rank ($\bar{x}$ =1.9) followed by milk marketing ($\bar{x}$ =1.8).

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Table 4: Training needs in sub aspects of dairy farming

Aspects	Sup aspects	$\bar{x}$
Health care	Care and management of milking animals	3.8
	Disease Prevention	3.8
	Symptoms of common diseases	3.7
	Information on infectious diseases	3.7
	Care and management of sick animals	3.6
	Sterility treatments	3.5
	Precaution against parasitic diseases	3.4
	Care and management of new born calves	3.3
	First aid measures to be taken during emergency	3.2
	Deworming schedule and procedures	3.2
	Care and management of pregnant animals at the time of parturition	3.1
	Treatment against contagious diseases	3.0
	Vaccination schedule	3.0
Feeding	Feeding of milk animals	3.7
	Importance of feeding mineral mixture	3.6
	Feeding of pregnant animals	3.5
	Feeding of new born calves	3.3
	Advantage of compounded	3.2
	Preparation of balanced ration for their animals at a cheaper rate	3.0
	Conservation of fodder crops	2.9
	Feeding of dry animals	2.8
	Time and frequency of feeding	2.8
	Fodder cultivation	2.7
	Silage making	2.6
Clean milk production	Preparation of milk products	3.7
	Knowledge of zoonotic disease that spread through infected milk	3.5
	Type of milking	2.9
	Hygienic method of clean milk production	2.7
	Value addition of milk	2.5
	Storage of excess milk	2.4
	Preservation of milk and milk products	1.9
Breeding	Breeding program	3.2
	Rearing the calves	3.1
	Repeat breeding management	3.0
	Reproductive efficiency of dairy animal	3.0
	Selection of breeds	2.3
	Knowledge of high yielding breed	2.3
	Maintenance of records on breeding	2.2
	Detection of heat symptoms	2.1
	Pregnancy diagnosis	2.1
	Time of post-partum insemination	2.0
	Infertility problems and Reproductive disorder	1.4
	Selection of adult animal and dairy heifer	1.3
	Time of artificial insemination	1.1
Marketing	Marketing of products	1.9
	Milk marketing	1.8
	Marketing of livestock	1.1

Conclusion and Recommendations

Women dairy farmers had medium training needs regarding improved dairy farm practices. They expressed high training needs in health care, and feeding. With regard to health care, they had high level of training needs with farm practices like care and management of milking animals, disease prevention, symptoms of common diseases, information on infectious diseases, care and management of sick animals. Training needs were also high for feeding, practices, especially for feeding of milking animals and importance of feeding mineral mixture, clean milk production and preparation of milk products.

To increase milk production and productivity in small scale dairy farms, improved and scientific dairy farming practices should be made available to the women farmers. Training course should be conducted for women dairy farmers where respondents high training needs.

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