

Analysis of Knowledge and Attitude of Cattle Ranchers towards Artificial Insemination in Dairy Cattle (Case Study: West Azerbaijan Province, Iran)

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Abstract— The main goal of this research was investigation the knowledge and attitude of cattle ranchers towards the artificial insemination in dairy cows. Research population of this study was consisted of ranchers in West Azerbaijan Province (N=15747). A number of 182 ranchers were selected through proportional stratified random sampling. A questionnaire was the main instrument for data collection. A pilot test was conducted to find if the questionnaire reliable and Cronbach's Alpha ranged from 0.86. The findings of this study showed that the rate of ranchers in health management were more than other sectors such as nutrition management, Heat Detection Management and Female Calves Management Time. On the other hand the results showed that almost of respondents' perception (80 percent) towards artificial insemination in positive and relatively positive.

Keywords— Cattle Ranchers, Technical knowledge, Perception, Artificial Insemination, Iran.

I. INTRODUCTION

IN Iran, cattle production has an important role in agricultural livestock. Director of production of animal breeding center in the Ministry of Agriculture said Iran in the dairy industry in average production is one of the five world countries [1].

FAO statistics shows, developing countries have around the 70 percent of dairy and beef cattle of world. These countries can provide only 21% of milk production and 34% of meat production of the world [2]. According to the results of statistics in 2011 in Iran the total number of industrial cattle cooperatives were 753 units by the capacity 131637 cows. Almost of industrial cattle cooperatives located in West Azerbaijan Province [3].

Therefore the increase in livestock production in these countries is very important. Experts suggested various methods such as artificial insemination for increases in animal products. One of the easiest and fastest ways to

increase production of livestock is breeding. Artificial Insemination is a process by which sperm is placed into the reproductive tract of a female cow for the purpose of impregnation. The advantages are a greater genetic distribution and the control of venereal disease transmission. It was proposed that Artificial Insemination be used in small-scale cattle farms in rural areas [4, 5]. Allen [6] stated that the process of artificial insemination pregnant sperm through artificial transfer of stored bull to cow's reproductive tract. Artificial insemination is widely used for livestock breeding, especially for dairy cattle.

Animal experts express the main problem of ranchers in developing countries in the lack the technical knowledge in the field of artificial insemination.

Visalvethaya with his cooperatives [7] states the essential success factors like communication, local network development, regular visits, and good coordination with clear responsibility of all stakeholders to accepted artificial Insemination.

Artificial insemination has many advantages. Increased production is the main reason for using Artificial inseminations on dairy cattle. AI-bred dairy cattle produce about 10–16 (kilogram) fatter and protein per lactation than their naturally-bred herd mates. By using Artificial insemination and licensed semen, venereal diseases (i.e. diseases usually spread by the bull during mating) can be eliminated from a herd. Artificial insemination allows the elimination of dangerous bulls on the farm. Artificial insemination requires good records which will aid better management of the herd. The wide choice of bulls within each breed allows flexible breeding programs and greatly facilitates crossbreeding [8].

This study attempts to appear the situation of technical knowledge and perception of ranchers about artificial insemination? So the agricultural extension programs, most designed to increase knowledge and improve ranchers' attitude about important role of artificial insemination in their cattle productivity. Also this is very important to analysis and aware of the ranchers' attitudes about this method. Gary [9] finding shows that ranchers have positive attitudes about

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Artificial insemination, but due to the poor knowledge they used traditional methods for breeding livestock.

II. MATERIAL AND METHODS

A survey was conducted to achieve the research objectives. The survey was conducted between 16 March 2011 and 12 May 2011. Research population of this study was consisted of ranchers in West Azerbaijan Province (N=15747). A number of 182 ranchers were selected through proportional stratified random sampling technique. A questionnaire was the main instrument for data collection. The questionnaire included both open-ended and fixed-choice questions. The open-ended questions were used to gather information not covered by the fixed-choice questions and to encourage participants to provide feedback. A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used as a quantitative measure. Content and face validity were established by a panel of experts consisting of faculty members and animal science experts in the Department of Agriculture. A pilot test was conducted to find if the questionnaire reliable and Cronbach's Alpha ranged from 0.86. The data were coded and analyzed by using the Statistical Package for the Social Science (SPSS16) for windows. Descriptive statistics (frequencies, means, and standard deviations, range, minimum and maximum) were used to describe analyzed data.

III. RESULTS AND DISCUSSION

A. Personality characteristics of respondents

The results of descriptive statistics show that the average age of ranchers was 46 years, and the majority of them were in the 52-35 age group (60.1 percent). The average of age experience in animal husbandry activity was 21. The average heads of cattle was 12 heads. The average of Daily Milk production (Liter) was 47.34 liter (Table I).

TABLE I
PERSONALITY CHARACTERISTICS OF RESPONDENTS

Characteristics	Mean	SD.	Min.	Max.
Age	45.87	11.38	21	67
Years of experience	21.02	14.46	2	52
Heads of cattle	12	7	2	32
Daily Milk production (Liter)	47.34	21.48	4	350

B. Ranchers knowledge about artificial insemination

To assess the technical knowledge of ranchers about the artificial insemination 16 items in connection with the Female Calf's Management Time, Nutrition Management, health management and heat detection management products (4 items for each segment) was used. Respondents were then answered to items by True or False question. Score 1 for correct answers and to wrong answers and no answer was zero-rated, the ranchers score is among 16-0 technical knowledge. Finding in Table 2 shows that the lowest levels of

ranchers' knowledge are in the Female Calfs Management Time.

TABLE II
PRIORITIZATION OF TECHNICAL KNOWLEDGE ABOUT LIVESTOCK ARTIFICIAL INSEMINATION

	Mean	Sd.	Rank
Health Management	3.35	0.21	1
Nutrition Management	3.01	1.12	2
Heat Detection Management	2.52	0.89	3
Female Calfs Management Time	1.86	0.42	4

C. Ranchers' Perception about Artificial Insemination

In this research for investigation the attitudes of ranchers used 11 items and requested from respondents marked their attitude in 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was applied as a quantitative measure. Table 3 shows the finding research about perception of ranchers about Artificial insemination. Results show that about 80 percent of respondents have good perception about artificial insemination (Table 3).

TABLE III
CLASSIFICATION OF RANCHERS' PERCEPTION TOWARDS ARTIFICIAL INSEMINATION

Grade Classification	Perception level	frequency	percent
0-2	negative	2	1.09
2.1-3	Relatively negative	25	19.23
3.1-4	positive	51	28.02
4.1-5	Relatively positive	96	51.66

As the results show that there is a positive perception in the majority of cattle ranchers about artificial insemination. Also finding in this study appear that ranchers' have little knowledge in time management inseminated heifers. Therefore recommends that extension organizations have more pay attention for providing practical training in this field for cattle ranchers in west Azerbaijan. The research results show that respondents' knowledge is relatively good in health and nutrition management at the time of artificial insemination.

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