Journal of Agricultural, Environmental and Veterinary Sciences (JAEVS) • Vol 9, Issue 1 (2025) • P: 44 — 37

https://journals.ajsrp.com/index.php/jaevs

ISSN: 2522-3364 (Online) • ISSN: 2522-3364 (Print)

The level of application by cow breeders of scientific recommendations related to hemorrhagic fever disease in the Gogjali region

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Received: 01/12/2024

Revised: 28/12/2024

Accepted: 02/01/2025

Published: 15/03/2025

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Citation: Mahal, M. A. (2025). The level of application by cow breeders of scientific recommendations related to hemorrhagic fever disease in the Gogjali region. *Journal of Agricultural, Environmental and Veterinary Sciences, 9*(1), 37 – 44. https://doi.org/10.26389/AJSRP.Q031224

Abstract: The aim of this study is to determine the level of application of cattle breeders who live in the Gogjali region during the period 2023-2024 , east of Nineveh Governorate, for the scientific recommendations related to hemorrhagic fever disease, in addition to identifying the correlation between personal factors and the dependent factor, as well as identifying the obstacles facing the control of this disease, the research sample consisted of 170 respondents representing 50% of the research community, the research tool consisted of three parts. The first part included 5 independent variables, the second part consisted of 23 items related to measures derived from scientific recommendations, while the third part consisted of 8 paragraphs measuring the obstacles that limit the control of the disease. The tool was presented in its initial form to some specialists to verify the content validity, and then the value of the Cronbach alpha coefficient was found , it is a statistical tool used to make sure that if the questionnaire is distributed a second time , the results will be the same as the first time , and its value in this study which was 0.88. The results showed that 82% of breeders had average application level and tended to decrease. The results showed a significant correlation between the dependent variable and the following variables (age, educational level, size of the breeder's possession of cows, level of exposure of the breeder to sources of information about the disease). conclusion shows that the study area is threatened by a widespread outbreak of the disease due to the respondents' weak application of scientific recommendations. due to the respondents' weak application of scientific recommendations.

Keywords: application, cows, breeders, recommendations, hemorrhagic, fever

مستوى تطبيق مربي الأبقارللتوصيات العلمية المتعلقة بمرض الحمى النزفية في منطقة كوكجلي

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المستخلص: هدف هذه الدراسة الى تحديد مستوى تطبيق مربي الأبقار الذين يقطنون في منطقة كوكجلي شرق محافظة نينوى للتوصيات العلمية المتعلقة بمرض الحمى النزفية، إضافة الى التعرف على علاقة الارتباط بين العوامل الشخصية والعامل التابع، وكذلك تحديد المعوقات التي تواجه مكافحة هذا المرض، تكونت عينة البحث من 170 مستجوبا يمثلون 50 % من مجتمع البحث، تكونت أداة البحث من ثلاث أجزاء. اشتمل الجزء الأول على 5 متغيرات مستقلة والجزء الثاني تكون من 23 فقرة تتعلق بإجراءات مستقاة من التوصيات العلمية لمكافحة المرض في حين كان الجزء الثالث متكون من 8 فقرات تقيس المعوقات التي تحد من مكافحة المرض. تم عرض الأداة بصيغتها الأولية على بعض المختصين للتحقق من صدق المحتوى ومن بعد ذلك تم إيجاد قيمة معامل الفا كرونباخ حيث بلغت 0.88. وبينت النتائج ان 82 % من المربين كانت مستويات تطبيقهم متوسطة وتميل الى الانخفاض. وبينت النتائج وجود علاقة ارتباط معنوية بين المتغير التابع والمتغيرات التالية (العمر، المستوى التعليمي، حجم حيازة المربي من الأبقار، مستوى تعرض المربي لمصادر المعلومات عن المرض) . والاستنتاج يبين ان منطقة الدراسة مهددة بتفشي المرض بشكل واسع بسبب ضعف تطبيق التوصيات العلمية من قبل المبحوثين

الكلمات المفتاحية: تطبيق، أبقار، مربي، توصيات، حمى ، نزفية.

Introduction:

The livestock sector is of great importance in most countries of the world due to the nutritional The livestock sector is of great importance in most countries of the world due to the nutritional importance of red and poultry meat, eggs, milk and its derivatives (Dhash , 2016) . In Iraq, the livestock sector is increasingly important and influential in providing food needs, especially with the increase in population density and the increase in demand for food. (Al Khazraji and Al Saadi ,2018) , and It is known that the size of livestock in Iraq exceeds the size of the population, and that the number of livestock represents the majority of this size, and that livestock are of great importance in the economies of countries, including Iraq (Al-Abbassi , 2017) .Animal products make an important contribution to the food of the population in both rural and urban area, and meat and dairy are an essential element in this food because they contain the basic nutritional components that the human body needs in its construction of protein, fat, sugars, minerals and vitamins. (Kshash, 2009)

Cows are one of the main sources of meat and dairy production. Moreover, the livestock sector generates income, employment and foreign currency for all stakeholders in the animal industry. Animal epidemics can lead to reduced and high costs of livestock production and a lower contribution to the national product of countries .(Sarker etal 2013) . The development of the livestock sector faces many obstacles, including poor care and the inability of breeders to provide the ingredients for all the necessary production elements in terms of high-quality feed and infrastructure for breeding pens.(Musa etal ,2013) .

In addition to the low level of knowledge and skills of breeders in managing their herds, especially concerning to the veterinary aspect, if they suffer from a lack of knowledge in the face of pathogens that affect cows (Hadi and Naji , 2015) . As diseases hinder productive growth and cause financial losses to breeders (Giasuddin etal , 2021.)

There is also a relationship between human and animal health, whether in husbandry, care or companionship, and as a result of this relationship, diseases transmitted from animals to humans have arisen (Ghazal etal , 2000) . The majority of the countries of the world have been trying recently to limit the spread of infectious and epidemic diseases common to humans and animals, after the outbreak of the Corona virus in the world, which spread among the countries of the world at an increasing speed, which threatens humans as a result of the mutation of these disease-causing viruses and the weakness of human knowledge of ways to combat and confront them, and the infection is increasing through direct contact with the infected animal or through dairy and its products or water contaminated with animal waste or through insects. (Shehata , 2020) .

One of the diseases that have been spreading in Iraq is hemorrhagic fever, if statistics indicate an increase in suspected and confirmed infections and deaths in particular in Nineveh Governorate . (Iraqi High Commission For Human Rights , 2018)

It is a viral disease spread in more than 30 countries around the Black Sea and in the Middle East and Africa, and results from a deadly viral infection through tick bites or direct contact with secretions or blood or animal or infected human (Yilmaz etal , 2009). In areas where infections are present, farmers and ranchers are high-risk populations as they are in direct contact with animals that may be infected. (Bakir etal , 2005). Since the livestock profession requires the breeder to be in physical contact with animals, it is necessary to pay attention to preventive measures. (Weese& Armstrong , 2002).

Especially with the accompanying lack of knowledge and awareness of livestock owners and workers in livestock pens of precautionary measures related to diseases that can be transmitted from humans to animals (Cediel etal , 2012) .

Based on what the researcher observed in the study area of the high number of cases of hemorrhagic fever disease among large numbers of livestock breeders, he decided to identify the levels of implementation of scientific recommendations related to combating this disease in order to form a concept that helps in creating veterinary extension programs and projects in the future, in addition to coming up with recommendations that help specialists realize the strengths and weaknesses in awareness campaigns in order to fill the gaps that hinder the control of this dangerous disease that threatens the dairy sector in addition to considering it as a health threat to the owners Recommendations that help specialists to realize the strengths and weaknesses of awareness programs in order to fill the gaps that hinder the control of this serious disease that threatens the cows production in addition to considering it a health threat to livestock owners and workers in this sector and the rest of their family members in particular and the community in the study area and surrounding areas generally .

Research objectives

1. Determining the level of implementation of scientific recommendations related to hemorrhagic fever disease by cattle breeders in the Gogjali region generally.

2. Finding the correlation between some personal factors and the dependent factor .
3. Determining the level of obstacles that limit the control of the disease.
4. Ranking the obstacles paragraphs according to the arithmetic mean of each paragraph.

Research methodology :

The descriptive approach was used to achieve this research

Research population and sample:

This research was conducted in the Gogjali region , which is located northeast of the city of Mosul, the research population consisted of (340) cattle breeders. With regard to the research sample, (170) respondents were randomly selected, and their percentage of the total population amounted to (50%)

Research tool:

A questionnaire consisting of 3 parts was distributed to the respondents to answer it without any intervention or influence from the researchers for the answer to be objective and expressive of reality, the questionnaire paragraphs were compiled through scientific sources that include instructions and scientific materials related to hemorrhagic fever disease in addition to discussions with specialists at the College of Agriculture and Forestry and some paragraphs were also obtained by reviewing the scientific contents of some educational seminars and workshops that aim to spread awareness of the details of the spread of the disease and ways to control it. After that, the questionnaire was presented in its initial form to achieve content validity to a number of specialists in the Department of Agricultural Extension and Technology Transfer and the Department of Animal Production at the College of Agriculture and Forestry and their amendments and suggestions were taken, followed by the distribution of the questionnaire to the stability sample, where the questionnaire was distributed to 30 respondents who were excluded from the final sample and the Cronbach's alpha coefficient was used to extract the reliability of the questionnaire and its value amounted to 0. 88, which is an acceptable value according to the statistical theories and laws, followed by the data collection process, which lasted from January to May of 2024, after which the data was unpacked and tabulated in Excel and then the spss program was used to conduct statistical analysis.

Tool Parts

The first part: The first part included personal data of the respondents, which are as follows (age, educational level, number of years of work in cattle breeding, the size of the breeder's possession of cows, the level of exposure to sources of information on raising cows.

These variables were measured as follows:

1. ***Age:*** A question was asked to the researcher about the number of years of his life until the time of data collection.
2. ***Educational level:*** This variable was measured through the following options (Illiterate, reads and writes, has a primary school certificate, has junior study certificate, has higher School certificate, has a diploma study certificate, has a bachelor's degree certificate, has higher education certificate) and the following numerical values were set for it (1, 2, 3, 4, 5, 6, 7, 8)
3. ***The number of years of work in the cows breeding*** **:** this variable was measured by asking the researcher about the period between the first year in which he worked in breeding cows until the time of data collection
4. ***The size of the breeder's possession of cows:*** This variable was measured through the following options (Large holding, medium holding, small possession) and allocated numeric values 3, 2, 1 respectively
5. ***The level of exposure to sources of information about hemorrhagic fever disease*****:** This variable was measured through 12 sources of information, three alternatives were placed in front of each source, namely (exposed to the source most often, exposed to the source sometimes, rarely exposed to the source) and allocated numerical values (1,2,3)

The second part**:** consists of 23 paragraphs, 3 alternatives were placed in front of each of them, which are (I always do this, I do it sometimes, I do it rarely) and put numerical values (1,2,3) respectively. As shown below in Table 1

Table (1) shows the paragraphs of the respondents' application of scientific recommendations related to hemorrhagic fever disease

No.	Paragraphs	I always do this	I do it sometimes	I do it rarely
1	Preventing infected cows from mating with healthy cows			
2	Keep firewood and stone piles 100 feet away from the barn			
3	Mow the grass well within 100 feet around the barn			
4	Animals that have died from the disease are buried deep enough to prevent re-infection			
5	Notify the competent authorities when symptoms of infection appear in the cows herd			
6	Regularly dispose of garbage and cattle waste from the quarantine areas of infected cases			
7	Rodent control inside the barn			
8	Ensure that feed containers are free of ticks in them			
9	Avoiding the phenomenon of indiscriminate slaughter near population centers			
10	Keep cows away from tick-infested areas during the spring semester			
11	Regularly check the body surface of cows for ticks			
12	Wear light-colored clothing when working inside the barn			
13	Wear anti-sting paws for ticks			
14	Wear long boots when working inside the barn			
15	Conduct a veterinary examination before slaughtering cows			
16	Wearing medical paws when performing cow obstetrics			
17	Re-spraying barns with sanitizers 14 days after tick control			
18	Closing the corners, openings and cracks in the barn with a cement mixture			
19	Trimming the lower branches of trees if they are near or inside the barn			
20	Avoid trying to remove ticks by hand			
21	Cutting garden grass constantly as soon as it is close to the barn			
22	Follow-up and monitoring of suspected infected cows			
23	Using more than one type of pesticide in rotation during the treatment period			

***Third part*:** Eight problems were identified based on discussions with specialists and people familiar with the disease situation in the study area, and four alternatives were assigned to each problem (high impact, moderate impact, low impact, and very low impact).

Results and discussion

Objective one: Determine the level of application of cows breeders to scientific recommendations related to hemorrhagic fever disease in Gogjali region

The lowest value of this variable was (25), the highest value was (63), the arithmetic mean was (43.19) and the standard deviation was (8.4).

Table (2) show categories of respondent according to their application of scientific recommendation related to hemorrhagic fever disease

categories	Freq.	%	Mean
Poor implementation (25-37)	44	26	31.11
Moderately implementation (38-50)	96	56	43.94
Serious implementation(51 – 63)	30	18	57.18

categories	Freq.	%	Mean
Total	170	100	

It is clear from the above table that 82% of the respondents' level of application of scientific recommendations related to hemorrhagic fever disease is average and tends to decrease. This may be due to weak health monitoring and the tendency of breeders to slaughter infected cows before their death to avoid financial losses, which makes them disinterested in applying scientific recommendations, especially since the symptoms of the disease do not appear directly visible on the meat of the carcasses. This finding is consistent with the findings of study of (Salam , 2022) . and differs from (Nejati etal, 2023) , (Safieyan etal , 2020) and (Arikan etal , 2010).

Second objective **:** finding the correlation between cow breeders' implementation of scientific recommendations related to hemorrhagic fever disease and some of their independent factors

Table (3) shows the correlation between the dependent factor and the independent personal factors

variables	Freq.	%	Arithmetic mean	Pearson value	Spearman value
age				-.161*	
(29-38) year	79	46	44.4		
(39-48) year	62	36	43.3		
And more49	30	18	39.8		
Educational level					.167*
Illiterate	8	5	38.25		
reads and writes	29	17	43.03		
has a primary school certificate	75	44	42.71		
has junior study certificate	35	21	42.97		
has higher School certificate	21	12	48.85		
has a diploma study certificate	2	1	50.5		
has a bachelor's degree certificate	0		0		
has higher education certificate	0		0		
Number of years working in cow breeding				017.	
(14-25) year	33	19	41.54		
(26-37) year	68	40	44.47		
38 and more	69	41	42.55		
The size of the breeder's possession of cows					-.211**
Large possession	49	29	42.25		
medium possession	75	44	41.45		
small possession	46	27	46.71		
The level of exposure to sources of information about hemorrhagic fever disease					
(15-20) weak exposure	46	27	40.63	.314**	
Moderate exposure (21-26) moderate exposure	50	29	40.2		
(27-32) Heavy exposure	74	44	46.81		

Age**:** The results showed that the low age group was the highest in terms of frequency and percentage, as their percentage reached 46%, and the arithmetic mean of the age variable was (40.5) , the standard deviation was (7.4), and the average application of scientific recommendations was (44.4). Regarding the analysis of the correlation relationship between the age variable and the

dependent variable, the value of the Pearson correlation coefficient was (0.161 - *) , which indicates the presence of a significant negative correlation at the level (0.5). The reason for this may be that combating the tick insect that causes hemorrhagic fever requires great physical effort, which makes the application of scientific recommendations by elderly cattle breeders weak compared to the young cattle breeders who are supposed to have higher physical abilities, and thus their application of scientific recommendations is relatively high.

Educational level: The results showed that most respondents had a primary school certificate, with a frequency of 75 respondents, representing 44%, and their average application of scientific recommendations was 42.71. The smallest group was the category of respondents who had a diploma, with a number of (2) respondents, representing (1%), and their average application of scientific recommendations was (50.5). As for the correlation analysis, it was found that the value of Spearman's correlation coefficient was 0.167*, which is a significant direct relationship at the level of (0.05). This may be because the respondents with relatively high educational levels can understand the details of the control process and apply the recommendations regardless of their difficulty. This result is consistent with the result of study of (Safieyan etal , 2020).

Number of years of work in cattle breeding: It was found that the majority of the respondents had spent 38 years or more working in cattle breeding with a frequency of (69) respondents and a percentage of 41% and the arithmetic mean of their level of application of scientific recommendations (42.55). concerning the analysis of the correlation between this independent variable and the dependent variable, it was found that the value of Pearson's correlation coefficient was 0.017, which is an insignificant value indicating the absence of a correlation between the number of years of experience in cattle breeding and the level of application of scientific recommendations related to hemorrhagic fever disease by breeders.

The size of the breeder's possession of cows: By reading the results of the analysis in Table 3, it is clear that the most respondents are those who indicated that their possession is medium (44%) and their average application of the recommendations amounted to (41.45). Regarding the correlation analysis, the value of Spearman's correlation coefficient is (0. 211*-), which indicates a significant negative correlation between the independent and dependent variables. This may be because breeders who have a high possession of cattle numbers have a relatively high margin of profits and therefore do not work seriously in applying the disease protection measures accurately and on all the herd, especially with the preference of many breeders to slaughter the infected cows before their death in order to minimize the economic loss. Unlike breeders with a low number of cows, since any infection has a significant and negative impact on the level of economic returns and profits, especially with the high dollar exchange rate in the local markets, and therefore they tend to apply scientific recommendations strictly to prevent any member of the herd from being infected with the virus to avoid infection and deaths . This result differs from the result of a study (Nejati etal , 2023).

Level of exposure to information sources on hemorrhagic fever disease:

It was found that the majority of the respondents were heavily exposed to information sources about the disease under study, as their number (74), their percentage (44%) and the average application of the recommendations (46.81). With regard to the correlation relationship, it was found that the value of the Pearson correlation coefficient (0.314**) is a significant positive correlation at the level of 0.01. This may be due to the intensification of awareness campaigns that affected the study community and thus made the educators heavily exposed to information sources and this is what made the correlation relationship strong between the level of exposure of educators to information sources and the level of their application of scientific recommendations. This finding is consistent with the findings of the study done by (Nejati etal , 2023)

Third Objective: Finding the level of obstacles that limit the control of the disease

The results showed that the lowest numerical value of the obstacles was 11, the highest numerical value was 25, the arithmetic mean was (19.141) and the standard deviation was 2.9. The results also showed that the majority of respondents by 89% indicated that there are medium obstacles and tend to be large, and this may be due to the novelty of the spread of the disease and the lack of experience of the various parties whose work is related to raising cows and the rest of the types of livestock in addressing the spread of this modern epidemic in the study area.

Table (4) shows the levels of obstacles hindering the control of the disease

Level of obstacles	freq.	Ratio %
(11-15) Minor Constraints	19	11
(16-20) Medium-damaging Constraints	95	56
(21-25) Severe constraints	56	33

Level of obstacles	freq.	Ratio %
Total	170	100

Objective Four: Ranking the obstacles according to the arithmetic mean for each obstacle:

This objective was achieved by ranking the arithmetic mean in descending order for each obstacle selected by the respondents.

Table (5) shows the ranking of obstacles according to arithmetic mean in descending order

No.	Obstacles	arithmetic mean
1	Recent outbreak in the study area	2.58
2	Lack of veterinary laboratories specialized in testing blood samples	2.57
3	Fewer licensed health slaughterhouses	2.54
4	Some breeders prefer to slaughter infected cows and sell them before they are perished	2.50
5	Popular indifference among the people to the seriousness of the disease	2.44
6	Some breeders do not report cases of infection	2.30
7	Weak agricultural and veterinary extension activity	2.22
8	High cost of veterinary drugs	2.16

It is clear from the above table that the issue of the recent appearance of the disease in the study area ranked first with an arithmetic mean of (2.58). This may be because the knowledge, skills and experiences of breeders related to combating this disease are still in their initial stages and have not yet been refined and therefore they have not formed a base of practical experience that enables them to immunize their cows' barns until the time of conducting the study, especially since any newly emerging disease in any area requires veterinary staff and residents to take time to understand the symptoms of the disease in addition to the weakness and strength of the pathogens of the infection . The issue that ranked last according to the order of the arithmetic mean is (expensive veterinary drugs) with an arithmetic mean of 2.16. This may be due to the availability of the economic purchasing power of breeders and therefore do not see the cost of veterinary treatment as an issue of great harm.

Conclusions

1- The study area is threatened by the outbreak of the disease as the level of application of scientific recommendations by breeders is low

2- Older cattle breeders, in addition to respondents with low educational levels and breeders with a large number of cattle holdings, their level of application of scientific recommendations is not at the required level.

3- The control of the disease in the study area faces moderate obstacles and tends to be significant, which explains the increasing number of infected people in the Nineveh governorate.

Recommendations

1- The need to strengthen health control procedures from the competent authorities and expose violating breeders and non-implementers to preventive scientific recommendations for prosecution and fines

2- The need for health monitoring and veterinary awareness teams to make unannounced visits to cows' barns belonging to the elderly and those with a simple educational level, in addition to breeders with large holdings of cows.

3- The need to highlight the infected barns and breeders who contracted the disease and extract the mistakes they made that caused them to be infected in order to provide an informative media content that draws the attention of breeders to the need to correct the matter before the infection spreads, as the disease is newly spread in the study area.

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Acknowledgements:

I am pleased to extend my sincere thanks and appreciation to the Presidency of the University of Mosul and the Deanship of the College of Agriculture and Forestry for the facilities they provided to conduct this research activity.