The Factors of Deterioration of Natural Pastures From The View Point of Agricultural Employees in Al-Muthanna Governorate

Emad Fahad Nafeh Al-Bahlì¹ and Mahmoud Hadis Jassim Al-Jumaili²

¹Ministry of Agriculture, Forests and Combating Desertification, Iraq.
²Faculty of Agriculture, Tikrit University, Iraq.

1Email: madmn15031@gmail.com
2Email: Momood.H@tu.edu.iq

Abstract

The research aimed to determine the impact studied factors represented by (people's activities, government activities, natural factors) on the deterioration of natural pastures in the Governorate of Al-Muthanna the point of view of agricultural employees in the governorate. The research included all agricultural employees with a preparatory scientific qualification in agriculture and above in the governorate their number is (94) employees. A questionnaire was prepared to collect the data necessary to achieve the objectives of the research. It consisted of two parts. The first part included the factors related to the employees, which are (term of service, academic achievement, participation in extension activities, job position and work location). The second part included a measure to identify the agricultural employees' the point of view of on the factors affecting the deterioration of natural pastures. It consists of (46) section spread over (3) field covered by the research. The results showed that government activities have the most impact on the deterioration of natural pastures, it was found a statistically significant difference in the respondents' point of view about the influence of the studied factors according to their personal characteristics. The researchers concluded the necessity of agricultural expansion in pasture lands and industrial investments, as well as the importance of personal factors in assigning employees who can work in the development of natural pastures, and the researchers recommend activating government laws for the protection of natural pastures to prevent abuses (people's activities, government activities) that contributed greatly to the deterioration of vegetation cover in the research area and taking into account the factors studied in the selection of workers in the development of natural pastures in the research area.

Keywords: Natural, Employees, Agricultural.

1. Introduction

Natural pastures represent about 70% of the Earth's surface and contain about 35% of the world's population [1]. Rangelands are among the ecosystems with a high species richness and provide a wide range of ecosystem services and Grasslands play an important role in the global carbon cycle, as 90% of their biomass is underground [2]. The global carbon stock in grasslands is estimated by the Food and Agriculture Organization of about 343 Giga ton of carbon, which is about 50% more than the amount stored in the world's forests [3]. And Pastures represent the main source of livestock, which in turn transforms materials that are not palatable by humans into high-value animal products with the amino acids they contain necessary for the human body. Different feeding methods [4]. Dry lands cover 41% From the land area It is used mostly in animal production, and pastures cover three quarters of dry lands, while 20% of them are used in rainfed and dry agriculture [5]. Natural pasture lands occupy about 57.6% of the total area of the eastern countries of Arab homeland, about 56.9% of the area of the Arabian Peninsula, and about 45% of the area of the central region, 19.1% of the area of the western countries of Arab homeland, and they represent about 36.8 % of the area of Arab homeland (the Arab Center for Studies of Dry Areas and Dry Lands [6],[7], showed that the area of desert pasture lands is estimated at 55% of the total area of Iraq, and the Badia Al-Jazirah and the northern and southern Badias constitute the greatest part, as it is the main and economic source of fodder for the development of livestock and has a significant impact on the provision of animal products and its contribution to revitalizing National economy. Pastures in developing countries are vast and diverse and are home to millions of poor people who depend on livestock for survival. In developing countries, pastures have endured a wide range of challenges including poverty, environmental degradation, social conflict and climate change[8].

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The area of Al-Muthanna Governorate is (51740) km², and the natural grasslands in it occupy 90.83% of the total area of the governorate, which is located within the Southern Badia, which is part of the western plateau of Iraq [9]. The Muthanna desert is characterized by the abundance of its various natural plants during the spring season and during the rainy season, as well as the presence of large numbers of livestock that depend for their food on plants, whether shrubby or herbaceous [10]. The activity of grazing in the research area is one of the economically important resources for the population, which pushes the herders of sheep, camels and goats to migrate from within the governorate and from the rest of the Iraqi governorates to the grasslands [11]. The excessive exploitation of some lands rich in natural plants and their use for agricultural purposes led to the deterioration of the productivity of pastures, as well as the cutting and logging of plants [12].

Because of the importance of natural pastures in the research area, the idea for the search came to answer the following research questions:

- What is the level of influence of the studied factors represented in (people's activities, government activities, and natural factors) on the deterioration of natural pastures from the point of view of agricultural employees in Al-Muthanna Governorate?
- What is the order of the paragraphs of each factor in descending order according to their impact on the deterioration of natural pastures from the point of view of agricultural employees in Al-Muthanna Governorate?
- Is there a discrepancy in the agricultural staff’s point of view in the impact of the studied factors on the deterioration of natural pastures according to some personal characteristics represented in (term of service, academic achievement, participation in pasture development, job position, and work location)?

2. Research Objectives

- Determine the influence studied factors represented by (people's activities, government activities, and natural factors) on the deterioration of natural pastures from the standpoint of agricultural employees in Al-Muthanna Governorate.
- Arranging the section factor (people's activities, government activities, and natural factors) in descending order and according to the percentage weight from the point of view of the agricultural employees in AL- Muthanna Governorate.
- Determining the discrepancy in the agricultural staff's point of view in the impact of the studied factors on the deterioration of natural pastures according to some personal characteristics represented in (term of service, academic achievement, participation in pasture development, job position, and work location).

3. Statistical Hypotheses

Statistical hypotheses were made according to the studied factors as follows:

- All categories of agricultural employees averages equal according to the length of service.
- The averages of all categories of agricultural employees are equal according to educational attainment.
- The average of the participant category is equal to the average of the non-participant category.
- All categories of agricultural employees averages equal according to the job position.
- The average category of the city center is equal to the average of the district category.

4. Research Methodology

The descriptive approach was adopted to achieve the objectives of the research to describe the subject to be studied through a correct scientific methodology and to transform the results reached into expressive digital forms that can be interpreted, and one of its advantages is that it gives accurate real information that helps in explaining human and social phenomena[13].

5. Area

Al-Muthanna Governorate was chosen as an area to conduct the research for the following reasons:

- Natural pastures constitute the largest part of its lands with an area of (18,771,120 acres) out of the total area of the governorate, which amounts to (20,696,000) acres, as it constitutes 90.83% of the governorate’s area [9].
- It owns a animal wealth of about (140,9337( sheep, goats, camels and cows), the bulk of which depends on pastures [15].

6. Community and Sample Research

It is the statistical units to be studied. It has the same basic characteristic to be analyzed, and it is required in the statistical community that it be well defined [16]. The research included all the agricultural employees working in the agricultural
departments and who have a scientific qualification in the agricultural specialties, their number is (124) employees distributed among the agricultural divisions and the rest of the departments in the governorate.

An exploratory sample was selected using the simple random sampling method, consisting of (30) respondents from agricultural employees, thus the number of employees subject to the research procedures reached (94) respondents.

6.1 Resolution setting

The questionnaire was prepared in its initial form in line with the objectives of the research. It consisted of two parts. The first part included a set of questions related to some personal characteristics of agricultural employees represented in (term of service, academic achievement, participation, job position, and work location). The second part included a measure to identify the agricultural staff’s view point on the impact of factors on the deterioration of natural pastures. It consists of (46) section spread over the research fields (the field of people’s activities, the field of government activities and the field of natural factors) covered by the research, a five-meter scale was placed in front of each of them that included the alternatives (very effective, effective, medium impact, low impact, no effect).

6.2 The validity of the resolution

The Virtual validity of the questionnaire was achieved by presenting its sections to experts and specialists in agricultural extension from the Extension and psychology to ensure the extent to which the paragraphs represent the purpose that was designed to measure it in terms of the formulation of the paragraphs, their clarity, the accuracy of the test and the method of answering. Some modifications have been made to the formulation of the paragraphs and according to the experts’ opinions, As for the validity of the content, it was achieved by presenting the questionnaire to experts and specialists in the field of natural pastures and combating desertification, for the purpose of making sure that each paragraph of the scale covered the aspect to be measured, and some paragraphs were modified according to the opinion of experts. Thus, the form for collecting data is ready for the initial test, as shown in Table 1.

| Seq | Field name                      | number of paragraphs |
|-----|---------------------------------|----------------------|
| 1   | The field of activities of the people | 12                   |
| 2   | The field of government activities | 22                   |
| 3   | The field of natural factors     | 12                   |
| Total|                                | 46                   |

6.3 Measuring stability and viability

After the modifications to the questionnaire in its final form and ready for the pre-test, a simple random exploratory sample consisting of (30) respondents was selected from the agricultural employees of the Muthanna Agriculture Directorate and the data of the exploratory sample was collected for the period from 5 - 15/8/2020) in order to ensure the clarity of the questionnaire items and their understanding by the respondents, and to find the reliability and validity coefficients for the test items. It is the ability of the tool to measure what it was designed to measure in varying periods of time [17]. I used the spss program for social sciences to find the stability of the scale of the research fields using the split-half method, and to obtain the validity of the scale, the square root of the stability was taken, as shown in Table 2.

| Seq | Field name                      | number of paragraphs |
|-----|---------------------------------|----------------------|
| 1   | The field of activities of the people | 12                   |
| 2   | The field of government activities | 22                   |
| 3   | The field of natural factors     | 12                   |
| Total|                                | 46                   |

[18] stated that the test reliability coefficient is acceptable if its value reaches (0.70) or more, and it is more acceptable whenever it approaches the correct one. After applying the conditions of stability and validity to the test items, the questionnaire was ready for data collection.
7. Measurement of Search Variables

Measurement is defined as the process of describing information quantitatively, that is, using numbers to describe information or data, arranging and organizing it in a simplified form, objective form that can be understood and then easily interpreted [19].

7.1 Measuring independent variables

- Duration of service: It was measured by the number of years of service of the respondent when collecting the data.
- Academic achievement: It was measured according to the employee’s academic qualification through the alternatives (Agriculture high school, Agricultural Institute, College of Agriculture, Higher Certificate) and the values were given (1, 2, 3, 4) respectively.
- Participation: It was measured through the two alternatives (participant and non-participant) and they were given numerical values (2, 1) respectively.
- Job position: It was measured through three alternatives, namely (manager, division official, employee), and numerical values were given (3, 2, 1), respectively.
- Work location: It was measured through the two alternatives (City Center, District) and numerical values were given (2, 1) respectively.

7.2 The measure of the dependent variable: Degradation of natural pastures

It was measured through a scale that included (46) items representing the factors of deteriorating natural pastures from the respondents' point of view, and a five-level scale was placed in front of the items, which are (very influential, influential, medium-impact, low-impact, ineffective), and numerical values were given (5, 4, 3, 2, 1) respectively, and the grades were distributed over the research areas, as shown in Table 3.

Table 3. Distribution of degrees of research fields.

| Seq | Field name                        | Number of paragraphs | scale degree |
|-----|-----------------------------------|----------------------|--------------|
| 1   | The field of activities of the people | 12                   | 12-60        |
| 2   | The field of government activities | 22                   | 22-110       |
| 3   | The field of natural factors       | 12                   | 12-60        |
| Total |                                    | 46                   | 63-315       |

7.3 Statistical means

For the purpose of analyzing the collected data and obtaining results to achieve the objectives of the research, the statistical analysis program (SPSS for the social sciences and statistical methods (Term, frequency distribution, mean, and percentage weight).

8. Results and Discussion

8.1 The first objective

Determine the impact studied factors represented by (people's activities, government activities, and natural factors) on the deterioration of natural pastures from the point of view of agricultural employees in Al-Muthanna Governorate, which are represented in:

8.1.1 The area of activity of the people

The results showed that the lowest numerical value for the level of influence of parents' activity is (26) and the highest is (55), and an average is (47.08). The respondents were divided into three categories according to the extent and length of the category. The results were as shown in Table 4.
Table 4. Distribution of respondents according to their standpoint of the impact of people's activity on the deterioration of natural pastures.

| Categories       | Number | Percentage | Average |
|------------------|--------|------------|---------|
| Low (26-35)      | 7      | 7.45       | 32.33   |
| Medium (36-45)   | 28     | 29.79      | 41.35   |
| High (46-55)     | 59     | 62.76      | 51.55   |
| **Total**        | **94** | **%100**   | ****    |

Table 4, shows that the highest percentage of respondents is in the high category with a percentage of (62.76%) with an average of (51.55), followed by the medium category with a percentage of (787.29%) with an arithmetic average of (41.35). This shows that most of the agricultural employees are in the high to medium category, and this may be due to their awareness of the negative impact of the people's activities on the natural pastures.

8.1.2 The Government activities

The results showed that the lowest numerical value for the level of impact of government activities from the respondents' point of view is (51) and the highest value is (107), with an average of (89.79). The respondents were divided into three categories according to the extent and length of the category, and the results were as shown in Table 5.

Table 5. Distribution of respondents according to their view of the impact of government activities on the deterioration of natural pastures.

| Categories       | Number | Percentage | Average |
|------------------|--------|------------|---------|
| Low (51-69)      | 6      | 6.39       | 60.33   |
| Medium (70-88)   | 32     | 34.04      | 81.96   |
| High (89-107)    | 56     | 59.57      | 97.42   |
| **Total**        | **94** | **%100**   | ****    |

Table 5, shows that the most respondents are in the high category (59.57%), with a mean of (97.42). It is followed by the middle category with a percentage of (34.04%) with a mean of (81.96). This is an indication that the vast majority of respondents see the high impact of government activities on the deterioration of natural pastures. This may be due to the large number of government activities in the region and their observation of the impact of these activities on the deterioration of natural pastures, especially the expansion of cultivation of pasture lands.

8.1.3 The natural factors

The results showed that the lowest value expressing the level of influence of natural factors from the respondents' point of view is (25), and the highest value is (57) degrees, with an average of (45.35). The respondents were divided into three categories according to the extent and length of the category, and the results were as shown in Table 6.

Table 6. Distribution of respondents according to their view of the effect of natural factors on the deterioration of natural pastures.

| Categories       | Number | Percentage | Average |
|------------------|--------|------------|---------|
| Low (25-35)      | 13     | 13.83      | 30.53   |
| Medium (36-46)   | 32     | 34.04      | 41.78   |
| High (47-57)     | 49     | 52.13      | 51.62   |
| **Total**        | **94** | **%100**   | ****    |

It is evident from Table 6, that the highest percentage of the respondents falls within the high category with a percentage of (52.13%) with a mean of (51.62). It is followed by the middle category with a percentage of (34.04%) with a mean of (41.78). The reason for this may be due to the respondents' knowledge of the effect of natural factors on the deterioration of natural pastures, especially periods of interruption of rain and high temperatures.
8.2 The second objective

Arranging the paragraphs of each field in descending order from the point of view of the agricultural employees in Al-Muthanna Governorate and according to the percentage weight.

8.2.1 The area of activity of the people

Parents' activity items were arranged from the respondents' point of view in descending order according to the weight percentile. The results were as shown in Table 7.

Table 7. The parents' activity paragraphs are arranged in descending order according to the percentage weight.

| Seq | Sections                                      | Average | Weight percentile | Grade |
|-----|----------------------------------------------|---------|-------------------|-------|
| 3   | Cutting trees and shrubs (log)               | 4.55    | 91                | 1     |
| 4   | Overgrazing                                  | 4.53    | 90.6              | 2     |
| 1   | early grazing                               | 4.46    | 89.2              | 3     |
| 2   | Using machines to remove vegetation         | 4.07    | 81.4              | 4     |
| 6   | Sheep flocks from other provinces           | 3.97    | 79.4              | 5     |
| 7   | Indiscriminate farming in the lands of the Badia | 3.95 | 79                | 6     |
| 9   | The people's monopoly on some pasture lands | 3.93    | 78.6              | 7     |
| 5   | The traditions followed by the Bedouins in raising large numbers of sheep and goats | 3.81    | 76.2              | 8     |
| 8   | Random dirt roads for vehicles              | 3.74    | 74.8              | 9     |
| 12  | Traffic randomly in natural pastures        | 3.5     | 70                | 10    |
| 11  | The lack of acreage planted with fodder crops | 3.39 | 67.8              | 11    |
| 10  | The number of families engaged in raising livestock | 3.10 | 62                | 12    |

Max value = 5

It is clear from Table 7, that the section on cutting trees and shrubs (woods) ranked first, as it achieved a percentage weight of (91), and this may be due to the damage caused by cut down trees and shrubs to the vegetation cover due to the large number of uses of firewood in the research area. The effect of cutting down may not be limited to the stems of the plant only, but also reaches the roots of the plant, it causeses trees to die, and the importance of these trees and shrubs helps to hold soil and preventing its erosion. And finally, the paragraph of families working in livestock farming, as it achieved a percentage weight of (62), and this may be the reason for changing the lifestyle of many citizens in the research area and not relying on the profession of livestock breeding only as a major profession for the family's livelihood and the trend towards professions other.

8.2.2 The field of government activities

Paragraphs of government activities were arranged according to the respondents' point of view, in descending order, according to the percentage weight, and the results were as shown in Table 8.

It is clear from Table 8, that the paragraph (expansion in increasing agricultural contracts at the expense of pasture lands) got first place, as it achieved a percentage weight of (88.2), and this may be due to the significant impact of plowing and leveling work for the lands that it performs Contractors for the purpose of cultivating pasture lands, which causes the uprooting of trees, the uprooting of trees and shrubs and the degradation of pastures. While (the paragraph of opening roads and transportation) ranked last, as it achieved a percentage weight of (69.2). The reason for this may be that the effect of opening roads on pasture lands has limited impact on certain areas of land, while other paragraphs affect vast areas and unspecified natural pasture lands.

8.2.3 The natural factors

The section of the field of natural factors were arranged according to the respondents' stand point, in descending order, according to the percentage weight, and the results were as shown in Table 9.

It is evident from Table 9, that the climate change paragraph ranked first in terms of impact according to the respondents' point of view, as it achieved a percentage weight of (93.6), and this may be due to the impact of the drought years and the
lack of rain in the pasture lands from For the growth and prosperity of natural vegetation in the region and its impact on the degradation of the pastures, While the (Wild Animals and Birds Clause) ranked last in terms of the level of impact according to the respondents’ point of view, as it achieved a percentage weight of (57.2), and the reason for this may be that its impact is limited on pastures and that there are more influential factors than migratory animals and birds on natural pastures.

Table 8. Arrangement of government activities in descending order by weight percentage.

| Seq | Sections                                                                                      | Average | Weight percentile | Grade |
|-----|-----------------------------------------------------------------------------------------------|---------|-------------------|-------|
| 1   | Failure to enforce laws and regulations                                                        | 4.39    | 87.8              | 3     |
| 2   | Lack of interest in conducting scientific research specialized in the field of pastures and   | 4.28    | 85.6              | 4     |
| 3   | Non-involvement of the local population in development activities                             | 4.24    | 84.4              | 7     |
| 4   | Uneven distribution of water sources                                                           | 4.26    | 85.2              | 6     |
| 5   | Not establishing scientific institutes and scientific research centers specialized in the    | 4.19    | 83.8              | 8     |
| 6   | Lack of cadres working in the field of pasture development                                    | 4.28    | 85.6              | 5     |
| 7   | Expansion of agricultural contracts at the expense of pasture lands                           | 4.41    | 88.2              | 1     |
| 8   | Weak coordination between the agricultural and environmental departments in the governorate   | 4.17    | 83.4              | 10    |
| 9   | Lack of material incentives for employees working in the field of pasture development          | 4.12    | 82.4              | 11    |
| 10  | Failure to train livestock breeders on how to optimally use pasture                           | 4.07    | 81.4              | 12    |
| 11  | Weak capacity building and training programs in the field of pastoral resource management     | 4.07    | 81.4              | 13    |
| 12  | Lack of government support in providing feed                                                   | 4.06    | 81.2              | 14    |
| 13  | The weak role of agricultural associations in educating shepherds to preserve pastures         | 4.06    | 81.2              | 15    |
| 14  | Weakness of pastoral guidance and environmental awareness programs                            | 4.05    | 81                | 16    |
| 15  | Irregular grazing at appropriate times to protect the pastures from deterioration              | 4.02    | 80.4              | 17    |
| 16  | Investments and government projects                                                           | 3.92    | 78.4              | 18    |
| 17  | Oil drilling work                                                                             | 3.85    | 77                | 19    |
| 18  | Urban sprawl                                                                                 | 3.67    | 73.4              | 20    |
| 19  | Military operations and their impact on soil compaction and vegetation cover                  | 3.64    | 72.8              | 21    |
| 20  | Open roads and transportation                                                                 | 4.46    | 69.2              | 22    |

Table 9. Arrangement of the natural factors paragraphs in descending order by weight percentage.

| Seq | Sections                                        | Average | Weight percentile | Grade |
|-----|------------------------------------------------|---------|-------------------|-------|
| 1   | Climate changes (drought and less rainfall)    | 4.68    | 93.6              | 1     |
| 2   | High salt content in the soil                  | 3.79    | 75.8              | 8     |
| 3   | Deterioration of soil properties                | 3.92    | 78.4              | 5     |
| 4   | Sand dune crawling                              | 4.18    | 83.6              | 3     |
| 5   | Soil erosion                                   | 4.04    | 80.8              | 4     |
| 6   | Wind erosion                                   | 4.04    | 80.8              | 4     |
| 7   | Length of solar brightness                     | 4.38    | 87.6              | 2     |
| 8   | Spread of diseases in pasture plants           | 3.41    | 68.2              | 9     |
| 9   | Rodents and insects                            | 3.34    | 66.8              | 10    |
| 10  | Fire                                           | 3.02    | 60.4              | 11    |
| 11  | Low soil fertility                             | 3.82    | 76.4              | 7     |
| 12  | Urban sprawl                                   | 3.67    | 73.4              | 20    |
| 13  | Oil drilling work                              | 3.85    | 77                | 19    |
| 14  | Investments and government projects            | 3.92    | 78.4              | 18    |
| 15  | Military operations and their impact on soil   | 3.64    | 72.8              | 21    |
| 16  | Open roads and transportation                   | 4.46    | 69.2              | 22    |
8.3 The third objective

Determine the discrepancy in the agricultural employees’ standpoint in the influence of the studied factors on the deterioration of natural pastures according to some personal characteristics represented in:

8.3.1 Length of service

The respondents’ service years were limited to between (1-32) years. The respondents were divided into three categories to express their point of view about the impact of the studied factors on the deterioration of natural pastures in Al-Muthanna Governorate. One-way analysis of variance was used to show the significant differences between the averages of these groups, and the results were as shown in Table 10.

Table 10. Shows the results of the analysis of variance by Length of service.

| Categories          | The number | percentage | Average | F. value | probability value | Statistical significance |
|---------------------|------------|------------|---------|----------|-------------------|-------------------------|
| Low (1-10) years    | 59         | 62.77      | 180.71  |          |                   |                         |
| Medium (11-21) years| 29         | 30.85      | 182.31  | 2.282    | 0.108             | N.S                     |
| High (22-32) years  | 6          | 6.38       | 196.68  |          |                   |                         |
|                     | 94         | %100       |         |          |                   |                         |
| Total               |            |            |         |          |                   |                         |

Table 10, shows that (p. v > 0.05) where it reached 0.108. So, we accept the alternative hypothesis which states that all the average categories of agricultural employees are equal of their standpoint of the influence of the studied factors on the deterioration of natural pastures according to the service period. This result indicates that There are no statistically significant differences between the average groups according to age.

8.3.2 Learning level

The respondents were distributed according to learning level into four categories to express their point of view about the effect of the studied factors on the deterioration of the natural pastures in the Governorate of Al-Muthanna, the results were as shown in Table 11.

Table 11. Shows the results of the regression analysis for the categories of academic achievement.

| Seq | Collection Categories | The number | Average | F. value | probability value | Statistical significance |
|-----|-----------------------|------------|---------|----------|-------------------|-------------------------|
| 1   | Junior high           | 6          | 167.46  |          |                   |                         |
| 2   | Institute             | 9          | 179.33  |          |                   |                         |
| 3   | College               | 65         | 181.05  | 5.907    | 0.001             | S                       |
| 4   | Master's Degree       | 14         | 195.86  |          |                   |                         |
|     | Total                 | 94         |         |          |                   |                         |

Table 11, shows that (0.001 = probability value ), so we reject the statistical hypothesis and accept the alternative hypothesis which states (there is a significant difference between at least two of the averages according to academic achievement) and to find out the source of the variance I use the (LSD) test ,The results were as shown in Table 12.

Table 12. Shows the results of the LSD test by categories of academic achievement.

| Categories          | Gurg in averages | Statistical value | Statistical significance |
|---------------------|------------------|-------------------|-------------------------|
| Institute: Junior high | 11.83      | 0.142             | N.S                     |
| College: Junior high | 13.55      | 0.039             | S                       |
| High: Junior high    | 28.36      | 0.000             | S                       |
| College : Institute  | 1.72       | 0.751             | N.S                     |
| High: institute      | 16.53      | 0.012             | S                       |
| High: College        | 14.81      | 0.001             | S                       |
Table 12 shows that the source of variation is the difference in the average of the top class with the averages of the rest of the Learning level classes, and the reason may be that the holders of higher degrees have more academic experience and knowledge about the reasons for the deterioration of natural pastures in Al-Muthanna Governorate.

### 8.3.3 Participation in mentoring activities

The respondents were divided according to their participation in the natural pasture development programs into two categories, and the participant category got a higher average than the non-participant category. To test the significance of differences between the averages of the two categories, a (t) test was used, and the results were as shown in Table 13.

**Table 13.** Results of the t-test by participation in natural pasture development programs.

| Seq | Categories      | Enumeration | Percentage | Average | F . value | Probability value | Statistical significance |
|-----|-----------------|-------------|------------|---------|-----------|-------------------|--------------------------|
| 1   | participant     | 16          | 17.02      | 194.33  |           |                   |                          |
| 2   | not participating | 78         | 82.92      | 179.74  |           |                   |                          |
| Total |                 | 94          | %100       |         | 3.838     | 0.001             | S                        |

It is evident from Table 13, that (p.v < 0.05), therefore we reject the statistical hypothesis and accept the alternative hypothesis that states (the average of the participant category is not equal to the mean of the non-participant category). In favor of a participant category, the reason may be that participants in Guidance programs have more knowledge of the factors that lead to the deterioration of natural pastures.

### 8.3.4 job position

The respondents were distributed according to job position into three categories to express their point of view about the effect of the studied factors on the deterioration of the natural pastures in Al-Muthanna Governorate. The results were as shown in Table 14.

**Table 14.** Shows the results of the regression analysis by job position.

| Seq | Categories      | The number | Percentage | Average | F . value | Probability value | Statistical significance |
|-----|-----------------|------------|------------|---------|-----------|-------------------|--------------------------|
| 1   | Manager         | 11         | 11.70      | 171.9   |           |                   |                          |
| 2   | Division official | 10        | 10.64      | 179.00  |           |                   |                          |
| 3   | Employee        | 73         | 77.66      | 184.22  | 2.06      | 0.132             | N.S                      |
| Total |                 | 94         | %100       |         |           |                   |                          |

It is evident from Table 14, that (0.05 > probability value), so we accept the statistical hypothesis that states (all the averages of the categories are equal according to the job position), meaning that there are no statistically significant differences in the averages of the job position.

### 8.3.5 Work place

The respondents were divided according to the workplace into two categories. The district center category obtained a higher average than the governorate center category. To test the significance of the differences, the (t) test was used. The results were as shown in Table 15.

**Table 15.** Shows the results of the (t) test by work site.

| Seq | Categories      | The number | Percentage | Average | F . value | Probability value | Statistical significance |
|-----|-----------------|------------|------------|---------|-----------|-------------------|--------------------------|
| 1   | Districts       | 42         | 44.68      | 189.60  |           |                   |                          |
| 2   | City center    | 52         | 55.32      | 176.27  | 3.248     | 0.002             | S                        |
| Total |                 | 94         | %100       |         |           |                   |                          |

The results in Table 15, showed that (probability value < 0.05), therefore we reject the statistical hypothesis and accept the alternative hypothesis that states (the average of the City center category is not equal to the average of the district center category) and in favor of the district category, The reason may be that the respondents in the center of the elimination of direct contact with nature are more than the respondents in the center of the province, which makes them more familiar and knowledgeable about the factors that lead to the deterioration of natural pastures.
Conclusions

- The results showed that most of the respondents were in the categories of high and medium in their view of the impact of the studied areas of (people's activities, government activities, and natural factors) on the deterioration of natural pastures. We conclude from this the importance of these factors on the deterioration of natural pastures in the research area.
- The results showed that the section on cutting trees and shrubs (wooding) and the paragraph of overgrazing above the capacity of the pasture are among the most important activities of the people that cause the deterioration of the natural pastures from the respondents' point of view.
- The results showed that the expansion clause in increasing agricultural contracts at the expense of pasture lands is one of the most important governmental activities that cause the deterioration of pastures from the respondents’ point of view. Number of animals in the search area.
- The results showed that the climatic changes paragraph (drought and lack of rainfall) ranked first from the respondents' point of view in the impact of natural factors on the deterioration of natural pastures. We conclude from this the importance of using water harvesting techniques and providing the largest amount of water for use in the dry season.
- The results showed that the paragraph (preventing the encroachment of various human activities (civil and governmental) on pasture lands is one of the most important ways to develop natural pastures from the respondents’ point of view. natural,
- The results showed that there is a discrepancy in the respondents' viewpoints regarding the influence of the studied factors according to some personal factors. We conclude from this the importance of these factors in selecting the employees who can be assigned to develop the natural pastures in the research area.

Recommendations

- Taking into consideration the studied factors (people's activities, government activities, and natural factors) in the plans for the development of natural pastures in the research area.
- The necessity of enacting and implementing laws and legislations that preserve natural pastures.
- Preventing all forms of abuse, whether related to the activities of the people or the government, and maintaining sufficient areas for the number of animals in the area to prevent the accumulation of herds in narrow areas that cause the deterioration of pastures at a high speed.
- Intensifying extension activities by agricultural staff working in the development of natural pastures in the field of pastoral extension to maintain the sustainability of natural pastures.
- Establishing stations for pastures and allocating sufficient funds for these stations to establish mothers’ fields and botanical gardens to preserve the genetic assets of pastoral plants and develop pastures.
- Taking into account the personal characteristics of the personnel who are assigned to manage the natural rangelands in the research area.

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