



Evaluating the Knowledge Level of Drip Irrigation Systems among Fodder Growers in Ghayathi, United Arab Emirates

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Abstract

In this study, we looked at how well fodder growers understand drip irrigation systems. We found that 77.62% of them have a good understanding of how it works. This shows that they know how important it is to use water efficiently and grow crops in a way that is good for the environment. This knowledge can help make fodder cultivation more efficient and sustainable

Keywords: knowledge level, fodder, growers, drip irrigation, Ghayathi.

Introduction

Fodder cultivation holds immense cultural, economic, and nutritional significance in arid regions, particularly the Middle East. In recent years, there has been a notable shift towards more efficient irrigation methods, such as drip irrigation, to address water scarcity issues and bolster crop productivity. The United Arab Emirates (UAE) represents this transition, with a growing adoption of modern irrigation techniques, particularly in fodder cultivation, which forms a vital component of the agricultural landscape in the UAE, contributing significantly to the local economy and food security. Fodder cultivation is a crucial component of the agricultural industry, providing feed for livestock and supporting the dairy and meat industries. With the increasing demand for animal products, fodder cultivation has become even more important. However, the sector faces challenges such as water scarcity, land degradation, and the need for sustainable agricultural practices. Drip irrigation offers a solution to these challenges by reducing water consumption and increasing crop yields.

The successful implementation of drip irrigation systems hinges not only on technological advancements but also on the knowledge and practices of farmers. Farmers' comprehension of drip irrigation techniques, encompassing installation, operation, and maintenance, plays a pivotal role in maximizing the benefits of this irrigation method. Therefore, evaluating the knowledge level of farmers engaged in drip-irrigated fodder cultivation in UAE, becomes imperative for ensuring sustainable agricultural practices and improving overall productivity. This study aims to investigate into the understanding of farmers regarding drip irrigation techniques in fodder cultivation, with a specific focus on Ghayathi, UAE.

In Ghayathi, UAE, fodder cultivation is a significant agricultural activity, and drip irrigation has gained popularity among farmers. However, the success of drip irrigation depends on the farmers' knowledge of the system's installation, operation, and maintenance. Therefore, this study aims to assess the knowledge level of farmers engaged in drip-irrigated fodder cultivation in Ghayathi, UAE. The study's findings will provide valuable insights into the farmers' understanding of drip irrigation techniques and identify areas for improvement to enhance sustainable agricultural practices and improve overall productivity.

Methodology

A survey was conducted in January 2024 in the You Al Nazrah district of Ghayathi city, Abu Dhabi State, United Arab Emirates, to assess the knowledge of fodder growers regarding drip irrigation systems. The district was chosen because it has a high concentration of drip irrigated fodder growers. A list of farmers who used modern drip irrigation systems was compiled, and a random sample of 210 respondents was selected from the list of 450 farms.

A questionnaire was designed to gather information about the respondents' background and their knowledge of drip irrigation systems in fodder cultivation. The questionnaire covered various aspects of drip irrigation system implementation, and responses were recorded on a binary scale. The maximum achievable score on the test was 05, while the minimum was 0. The respondents were categorized into five groups based on an arbitrary method, which is elaborated below in table 01:

Table 1: Classification of Score Range Based on Drip Irrigation Knowledge

| Category | Score Range |
|-----------|-------------|
| Very low | 1 |
| Low | 2 |
| Medium | 3 |
| High | 4 |
| Very high | 5 |

Results and discussions

The study assessed the knowledge of drip irrigation system among fodder growers by managing a developed test. Table 02 displays the data concerning the level of knowledge regarding drip irrigation systems among these growers, while Figure 01 provides a graphical representation of the same.

Table 02: Distribution of the respondents according to their level of knowledge about drip irrigation system (n=210)

| Knowledge level | Frequency | Percent |
|-----------------|-----------|---------|
| Very low (1) | 0 | 0.00 |
| Low (2) | 7 | 3.33 |
| Medium (3) | 40 | 19.05 |
| High (4) | 111 | 52.86 |
| Very high (5) | 52 | 24.76 |

According to the data in Table 02, more than half of the drip irrigated fodder growers, specifically 52.86%, demonstrated a high level of knowledge regarding drip irrigation systems. The remaining respondents showed varying levels of knowledge, with 24.76% exhibiting a very high level, 19.05% displaying a medium level, and 3.33% having a low level of knowledge. Notably, none of the growers displayed a very low level of knowledge

about drip irrigation systems. These findings indicate that the majority of drip irrigated fodder growers in the study area have a good understanding of drip irrigation systems.

Additionally, it's worth noting that the high level of knowledge among these growers may be attributed to several factors. Firstly, the district where the study was conducted, You Al Nazrah, has a high concentration of drip irrigated fodder growers, which suggests that there is a strong presence of experienced farmers in the area. Secondly, the fact that the respondents were selected based on their successful implementation of drip irrigation systems on their agricultural lands indicates that they have practical experience and knowledge of the system. Lastly, the questionnaire used in the study covered various aspects of drip irrigation system implementation, which allowed for a comprehensive assessment of the respondents' knowledge.

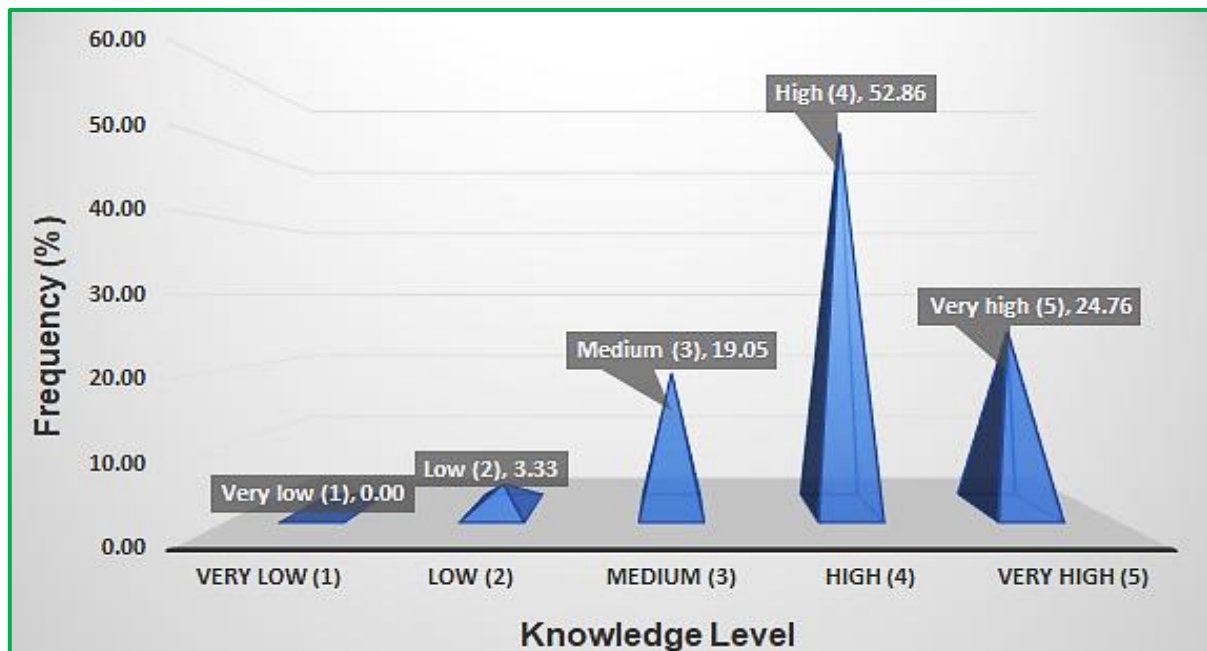


Fig. 01: Distribution of the respondents according to their level of knowledge about drip irrigation system

The study's findings indicate that approximately 77.62% of drip-irrigated fodder growers have a high to very high level of knowledge regarding drip irrigation systems. This suggests that the majority of respondents possess a strong understanding of the technology. Several factors may contribute to this, including higher education levels, active social involvement, frequent extension contacts, exposure to mass media, economic incentives, high annual incomes, and a preference for scientific practices among drip-irrigated fodder growers. These findings support the results of a similar study conducted by (Arshad *et al.*, 2021) regarding farmers' awareness of advancements in cotton production technology.

The study's results indicate that the respondents' understanding of drip irrigation systems may be attributed to their active participation in agricultural education and training programs. These programs have provided them with hands-on experience and knowledge of the technology. Furthermore, the findings are consistent with the evolving trends in modern agricultural practices, emphasizing the importance of sustainable water management techniques. It is worth noting that drip irrigation systems are a vital component of modern agricultural practices, as they offer a sustainable and efficient method of water management. The technology's popularity is increasing among farmers due to its ability to reduce water waste and increase crop yields. The study's findings suggest that most drip-irrigated fodder

growers are aware of the benefits of drip irrigation systems and are actively implementing them in their agricultural practices.

Conclusion

In conclusion, the study's findings indicate that the majority of drip-irrigated fodder growers (77.62%) possess a high level of knowledge regarding drip irrigation systems. This is likely due to several factors, including their active participation in agricultural education and training programs, exposure to mass media, economic incentives, and a preference for scientific practices. The findings support the importance of sustainable water management techniques in modern agricultural practices. By promoting a strong understanding of these practices, farmers can contribute to the long-term sustainability of the agricultural sector while optimizing crop production and preserving valuable water resources.

References

1. Ahmed, A., Steve, Green., Wasel, A., Dahr, A., Kennedy, L., Kemp, P., Dawoud, M., Clothier, B., 2019. Water use and irrigation requirements for fodders on commercial farms in the hyper-arid United Arab Emirates. *J. Agric. Water Manag.*, 223: 1-6.
2. Arshad, I., Rabbani, M.U., Khan, Z.A., Ali, W., 2021. Impact of Vocational Agricultural Training Programs on the Promotion of Fodder Cultivation in Ghayathi, United Arab Emirates. *Int. J. Altern. Fuels. Energy.*, 5(2): 16-20.
3. Arshad, I., Khan, Z.A., Vallejera, C.A.E., Shah, N.H., 2019. The role of Punjab agricultural extension services in promoting cotton cultivation: Case Study. *PSM Bio. Res. J.*, 4(3): 100-107.
4. Patel, B., Patel, M.R., and Nayak, J.J., 2018. Level of knowledge about drip irrigation system of drip irrigation banana growers. *Guj. J. Ext. Edu. Vol. 29(2): 218 – 219.*