



جامعة الموصل
كلية الإدارة والاقتصاد

دور أبعاد جودة منظومة الرّي المحوري في تحقيق الانتاج
الزراعي المستدام
دراسة ميدانية في الشركة العامة للتجهيزات الزراعية /
فرع نينوى

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المستخلص

يهدف هذا البحث إلى تحليل دور أبعاد جودة منظومة الرّي المحوري الخمسة (كفاءة الأداء، الموثوقية، المتانة والفاعلية، سهولة الصيانة، والجودة المدركة)، في تحقيق الإنتاج الزراعي المستدام بأبعاده الثلاثة (الاقتصادي، البيئي، والاجتماعي)، وذلك في إطار تطوير أساليب الرّي الحديثة بما يسهم في تعزيز كفاءة استخدام الموارد المائية وتحقيق الاستدامة الزراعية في العراق.

تبلورت مشكلة البحث في التساؤل عن مدى إسهام ابعاد جودة منظومة الرّي المحوري في تحقيق الاستدامة الزراعية، وما طبيعة علاقات الارتباط والتأثير بين أبعاد جودة منظومة الرّي في تحقيق الإنتاج الزراعي المستدام في بيئة العمل الزراعي المبحوثة.

ولتحقيق أهداف البحث، تم بناء مخطط فرضي يوضح علاقات الارتباط والتأثير بين متغيراته، وتم اتباع المنهج الوصفي التحليلي، واستخدام الاستبانة كأداة رئيسة لجمع البيانات من عينة عشوائية بلغت (49) فرداً من العاملين في الشركة العامة للتجهيزات الزراعية/فرع نينوى. تم تحليل البيانات باستخدام برنامج SPSS الإصدار (25) وتطبيق مجموعة من الأساليب الإحصائية، منها التكرارات، المتوسطات الحسابية، ومعامل الارتباط (Pearson)، وتحليل الانحدار المتعدد، توصل البحث لمجموعة من النتائج ابرزها:

- 1- وجود علاقة ارتباط وتأثير معنوي بين ابعاد جودة منظومة الرّي المحوري والإنتاج الزراعي المستدام.
- 2- تمثل كفاءة الأداء والجودة المدركة أكثر الأبعاد تأثيراً في تحقيق الإنتاج الزراعي المستدام.
- 3- أظهرت النتائج أن العاملين يمتلكون وعياً جيداً بأهمية الجودة، لكن هناك حاجة إلى تدريب مستمر.

لتعزيز الجوانب التقنية. وبناءً على ذلك قدمت الباحثة مجموعة من المقترحات ابرزها:

- 1- ضرورة تبني نظام صيانة تنبؤية ذكي يعتمد على تقنيات إنترنت الأشياء لمراقبة أداء المنظومات وتقليل الأعطال.
- 2- تعزيز الوعي الزراعي لدى المزارعين بأهمية استخدام التقنيات الحديثة في تحقيق الاستدامة.
- 3- دعم مشاريع التمويل الأخضر لتسهيل اقتناء المنظومات الحديثة وتقليل الكلف على المزارعين.

الكلمات المفتاحية:

أبعاد جودة منظومة الرّي المحوري، الإنتاج الزراعي المستدام، الشركة العامة للتجهيزات الزراعية فرع نينوى.

Abstract

This study aims to analyze the role of the five dimensions of center pivot irrigation system quality performance efficiency, reliability, durability and effectiveness, ease of maintenance, and perceived quality in achieving sustainable agricultural production across its three dimensions: economic, environmental, and social. The research is conducted within the framework of developing modern irrigation methods that contribute to enhancing water resource use efficiency and promoting agricultural sustainability in Iraq.

The research problem is centered around the question of the extent to which the quality of the center pivot irrigation system contributes to achieving agricultural sustainability, as well as the nature of the relationships of correlation and influence between quality dimensions and sustainable production dimensions in the studied agricultural environment.

To achieve the study's objectives, a hypothetical model was developed to illustrate the relationships of correlation and influence among the variables. The descriptive-analytical method was employed, and a questionnaire was used as the main tool for data collection from a random sample of 49 employees working at the General Company for Agricultural Supplies / Nineveh Branch. Data were analyzed using the SPSS version (25) software and a set of statistical techniques, including frequencies, arithmetic means, Pearson correlation coefficient, and multiple regression analysis.

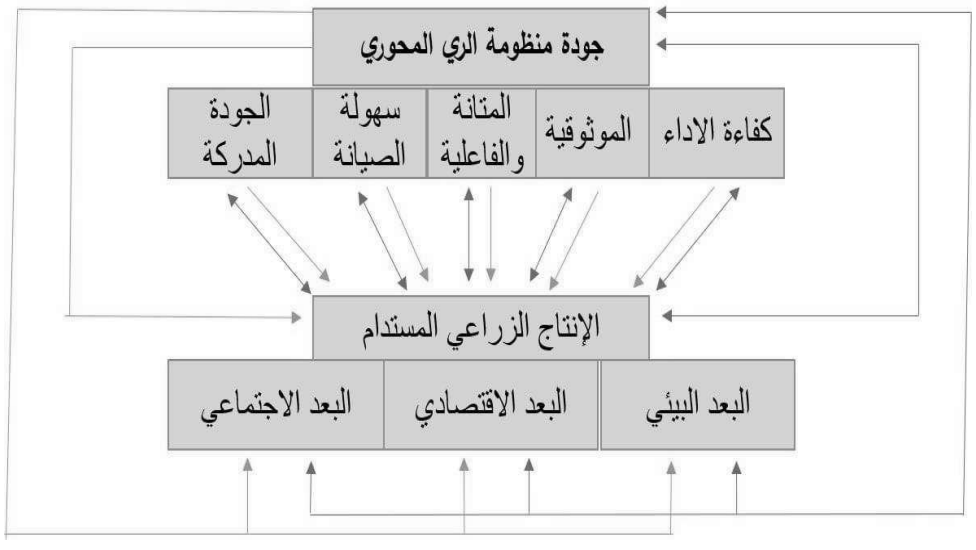
The study reached several key findings, the most important of which are:

1-There is a positive and significant correlation and impact between the quality of the center pivot irrigation system and sustainable agricultural production.

2_Performance efficiency and preserved quality represent the most influential dimensions in achieving agricultural sustainability.

Filler

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HIGHLIGHTS	GRAPHICAL ABSTRACT
The current research structure comprises four chapters: Chapter One: includes two sections: Section One: Research Methodology, and Section Two: Previous Studies. Chapter Two: includes the theoretical framework in two sections: Section One: The Quality of Center Pivot Irrigation Systems, and Section Two: Sustainable Agricultural Production. Chapter Three includes: Section One: Description and Analysis of Research Variables, and Section Two: Testing of Research Hypotheses. Chapter Four includes the conclusions, recommendations, and proposed future studies	 The diagram illustrates a conceptual model. At the top, a box labeled 'جودة منظومة الري المحوري' (Quality of Center Pivot Irrigation System) is connected by double-headed arrows to five boxes below it: 'كفاءة الاداء' (Performance Efficiency), 'الموثوقية والفاعلية' (Reliability and Effectiveness), 'المتانة' (Durability), 'سهولة الصيانة' (Ease of Maintenance), and 'الجودة المدركة' (Perceived Quality). These five boxes are all connected by double-headed arrows to a central box labeled 'الإنتاج الزراعي المستدام' (Sustainable Agricultural Production). This central box is then connected by double-headed arrows to three boxes at the bottom: 'البعد البيئي' (Environmental Dimension), 'البعد الاقتصادي' (Economic Dimension), and 'البعد الاجتماعي' (Social Dimension). A large rectangular frame encloses the entire diagram.
KEYWORDS	Abstract
Dimensions of the quality of the center pivot irrigation system, sustainable agricultural production, General Company for Agricultural Equipment, Nineveh Branch	This research aims to analyze the role of the five dimensions of center pivot irrigation system quality (performance efficiency, reliability, durability and effectiveness, ease of maintenance, and perceived quality) in achieving sustainable agricultural production in its three dimensions (economic, environmental, and social). This is done within the framework of developing modern irrigation methods that contribute to enhancing water resource use efficiency and achieving agricultural sustainability in Iraq. The research problem is formulated by questioning the extent to which the dimensions of center pivot irrigation system quality contribute to achieving agricultural sustainability, and the nature of the correlation and influence relationships between the dimensions of irrigation system quality in achieving sustainable agricultural production in the studied agricultural work environment. To achieve the research objectives, a hypothetical model was developed to illustrate the correlation and influence relationships between its variables. The descriptive analytical method was followed, and a questionnaire was used as the primary tool for data collection from a random sample of (49) employees of the General Company for Agricultural Supplies/Nineveh Branch. The data were analyzed using SPSS version 25 and a range of statistical methods were applied, including frequencies, arithmetic means, Pearson correlation coefficient, and multiple regression analysis. The research yielded several key findings, most notably: a significant correlation and influence between the dimensions of center pivot irrigation system quality and sustainable agricultural production; and that performance efficiency and perceived quality are the most influential dimensions in achieving sustainable agricultural production. The results also showed that workers possess a good awareness of the importance of quality, but there is a need for continuous training to enhance technical aspects. Based on these findings, the researcher presented a set of recommendations, including: 1- The necessity of adopting an intelligent predictive maintenance system based on Internet of Things (IoT) technologies to monitor system performance and reduce malfunctions. 2- Enhancing farmers' awareness of the importance of using modern technologies to achieve sustainability. 3- Supporting green financing projects to facilitate the acquisition of modern systems and reduce costs for farmers.

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**The Role of Pivot Irrigation System Quality
Dimensions in Achieving Sustainable Agricultural
Production**

**A Field Study in the General Company for
Agricultural Supplies / Nineveh Branch**

A Higher Diploma's Research

Quality Management

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