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# **Database Management System (IT615)**

## **Noun Analysis and ERD for Sustainable Agriculture Resource Management**

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## **Final Problem description**

- Farmers need increased awareness and training on sustainable practices and new agricultural technologies.
- Farmers seek better access to tools like weather forecasting, soil health monitoring, and disease management systems.
- Programs to encourage youth to continue farming and adopt sustainable methods.
- There is a need for improved water conservation techniques and irrigation systems.
- Education on crop rotation and diversified farming for better productivity and sustainability.
- Cost-effective technological solutions for small-scale farmers to integrate into their practices.
- Researchers stress the need for more clarity and education on sustainable farming, focusing on long-term resource conservation and ecosystem health.
- Both farmers and researchers agree on the need for new technologies like precision farming and smart irrigation systems to enhance sustainability and productivity.
- While crops can boost yields, careful management is required to avoid environmental risks.
- Improved techniques for soil and water conservation are needed for more efficient farming.
- Increased awareness and education on sustainable practices.

- Enhanced access to modern agricultural technologies.
- Support for technology adoption and addressing the high cost of technology:
- Training programs and support for young farmers:
- Encouragement of crop rotation and modern water management practices

While young farmers are knowledgeable about sustainable agriculture, they encounter significant barriers related to technology access, financial constraints, and a lack of training opportunities. To empower this demographic, it is essential to enhance access to affordable sustainable technologies, increase funding for training programs and low-interest loans, and foster mentorship connections with experienced farmers.

Queries could identify geographic areas with high young farmer populations but low access to funding and training programs. Relationships between young farmers and their mentors could be tracked to measure the impact of mentorship on adoption of sustainable practices. By using data to understand the barriers and target support, we can create more opportunities for young farmers to thrive in sustainable agriculture

- The shift away from traditional methods has led to unsustainable farming practices, impacting long-term productivity.
- Farmers lack tools to efficiently track and manage critical resources such as soil health, water usage, and weather patterns.
- While technology has increased yields, it has also intensified the challenge of balancing high productivity with sustainability.

- Farmers often do not have access to crucial real-time information, such as weather forecasts or crop growth metrics, which could help optimize their decisions.
- Many farmers have limited access to training and information about modern sustainable practices, resulting in a reliance on outdated methods.
- Unpredictable weather patterns, such as droughts or floods, severely disrupt farming cycles and strain water resources.
- Farmers face difficulties in adapting their practices without real time data or technologies to manage the effects
- The mismanagement of irrigation systems, compounded by water scarcity, leads to inefficient water use and stress on water resources, particularly in drought-prone areas.
- Traditional irrigation practices are often not optimized for modern water conservation needs.
- The lack of precision farming tools, such as sensors for soil monitoring or automated irrigation systems, makes it difficult for farmers to adopt efficient resource management strategies.

## Noun Analysis

Nouns	Verbs
Student	Access
Farmer	Analyzes
Researcher	Manages
Educational resources	Needs
Technology	Suitable
Crops	Grow
Crop diseases	Analyzes
Whether	Searches
Soil	Reviews
Policy	
Training programs	
Machinery	
Fertilizer	
Crop rotation	
Irrigation	