

# **SAGE: An object-oriented framework for the construction of farm decision support systems**

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## **Abstract**

In agriculture as in other domains, there exists a need for multifaceted and comprehensive decision support frameworks enabling the integration and use of different types of knowledge and information processing tools. The object-oriented paradigm provides a foundation for the construction of such general decision support frameworks. The objective of the described project was to build an object-oriented framework (called SAGE) for **knowledge management** and decision support in the area of agro-ecosystem management. The Smalltalk object-oriented programming system was the basic technology used to build the SAGE system. A Smalltalk-based object-oriented database management system was also used to provide persistence for Smalltalk objects. The result of the design and implementation effort is a **library** of Smalltalk classes that constitutes a framework onto which developers can build systems to represent agroecosystems and support the management of these systems. These classes are described and their design and implementation issues are discussed.

**Author Keywords:** Farm management; Decision support systems; Smalltalk; Object-oriented software; Object-oriented databases