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Development of an Expert System for Cocoon Cooking by using Neural Network Technology

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Abstract

The cocoon-cooking process is an important contributor to producing high-quality raw silk, but it is difficult to set its conditions. We have attempted to develop a system for optimizing the processing conditions of a cocoon-boiling machine by using an expert system and a neural network running a Back Propagation Algorithm. This expert system works under the Windows OS. The information it requires includes the silkworm rearing period, weight of cocoons, reelability percentage, breakage rate of reeling thread, and knots. We carried out cocoon-boiling experiments to obtain fundamental data, which we fed into the neural network. The results showed that our system can achieve better boiling conditions than achievable using conventional techniques. (*: To whom correspondence should be addressed, E mail: morikaw@shinshu-u.ac.jp)

Keywords

cocoon cooking, expert system, neural network, optimization, reeling

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