

## 温室作物生态健康智能监护系统(GH-Healthex)的研制与测试

### Development and test of intelligent monitoring and managing system for greenhouse crop ecological health

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中文摘要:

研制温室作物生态健康智能监护系统是为了解决目前温室环境监控系统普遍存在的自动获取的数据未与具体作物健康生育的特殊需求相结合, 也未被用于病虫害的智能化防治等问题。该文报导的温室作物生态健康智能监护系统(GH-Healthex)实现了这类数据在植物健康监护和病虫害智能化防治中的利用。以番茄为研究案例, 系统通过对温室环境监测数据的分析, 结合作物种植知识库中番茄生长发育及其病虫害发生规律可以进行智能化决策, 即当温室内出现了不利于作物生长的气象条件时, 系统会自动的通过系统界面提示用户采取相应措施, 以保证温室番茄的优质、高效生产。该系统提供了一个作物知识库平台, 若以其他作物的种植和病虫害防治数据替代番茄数据, 便能更广泛地推广应用。

英文摘要:

Greenhouse crop has many advantages: high yield, high profit, growth in whole year, big demand in market. Having a relatively close space, greenhouse is featured with high humidity and low illumination; also, plant diseases and insect pests invade greenhouse crop easily. Intelligent monitoring and control of crops-based ecosystem health in greenhouse is a new direction of information agriculture. This paper reported a case study to show the success that data from greenhouse can be used intelligently to make decision in management of tomato development and prevention of tomato diseases and pests. GH-Healthex system utilizes data in the fields of crop wardship and intelligent prevention of greenhouse crop diseases and pests. To achieve high yield, high quality and efficiency in tomato production, the computer-logged data from greenhouse use by combination of managing knowledge in tomato growth, plant diseases and insect pests were analyzed. When climate harmful to tomato occurs, the system can prompt users to carry out reasonable managements. This system provides a knowledge platform and general database, so user can use it also for other crops, not only tomato.

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