

## 自然光照人工气候室的研究

### A Research Project on Phytotron With Natural Lighting

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中文摘要:

本文介绍了中国农业科学院植物保护研究所自然光照人工气候室在总体布置、隔热保温的节能措施、全铝合金骨架结构的设计、遮阳防雹、制冷及自动控温、补光等设施方面的特点,既符合了实用、经济、可靠、先进的原则,又创造性地解决了全年利用气候室研究小麦锈病的问题,特别是在炎热的夏季。它的建成将为我国今后各类农用人工气候室的设计提供有益的经验。

英文摘要:

This paper states the experience on the design and construction of a phytotron with natural lighting for the Chinese Plant Protection Research Institute of Chinese Academy of Agricultural Research by the Chinese Academy of Agricultural Engineering Research and Planning, Beijing, P · R · C · in order to explain the principles of the Construction of a phytotron. This project was assigned to the Chinese Academy of Agricultural Engineering Research and planning in 1982 and completed in July 1985. After one and half years running, the Chinese Ministry of Agriculture organized a group of research fellows from different agricultural institutes to check up the performance of this phytotron. They Collected the data including the field distribution of temperature and humidity within the phytotron and natural light transmissivity both in 1986 and 1987. The results were very satisfied. That means the design and construction of this phytotron are successful. The specific feature of this phytotron is how to design a phytotron to suit measures to local conditions to reduce the construction cost and the energy consumption. This paper introduces the overall plan of the phytotron, economization on energy, structure of aluminium-alloy framework, sun-shading measures, air-cooling measures and automatic temperature control, complement of light, etc. This phytotron tallies with the principle of practicality, economy, reliability and advantage. It solves the problem creativity, that we can research the wheat rust in all the year, especially in summer. Authors of this paper hope that this design will be a reference for other phytotron designers. And authors will appreciate any suggestions from anybody else.

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