

## 日光温室山墙对室内太阳直接辐射得热量的影响

### Effect of gable wall on the heat gain from direct solar radiation in sunlight greenhouse

投稿时间: 2003-10-19 最后修改时间: 2004-2-22

稿件编号: 20040555

中文关键词: 太阳直接辐射; 日光温室; 温室得热估算; 太阳方位角; 山墙

英文关键词: direct solar radiation; sunlight greenhouse; estimation of heat gain in greenhouse; sun azimuth; gable wall

基金项目:

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中文摘要:

该文计算了日光温室室内各个面的太阳直接辐射, 结果表明: 山墙内侧的太阳直接辐射日变化规律不同于室内其它各个面。对于长度较短的温室, 如果忽略山墙的作用, 将会忽略山墙内外侧太阳辐射对室内得热的影响, 同时忽略山墙在室内各个面产生的阴影, 从而高估了室内其它面的太阳辐射得热, 高估值随着温室长度的递减而递增, 给日光温室热环境的分析带来误差。该文还测量了日光温室各个面的热流量, 分析了山墙的蓄热放热过程及其随温室长度变化对室内得热的影响。因此, 对长度较短的温室, 必须考虑山墙对室内得热的影响。同时也为日光温室长度的确定和室内作物布局提供理论依据。

英文摘要:

The direct solar radiation intercepted by each surface inside the sunlight greenhouse was computed. The result shows that the diurnal course of direct solar radiation intercepted by east and west wall was different from that of the others. For shorter sunlight greenhouse, if neglecting effect of east and west wall, it will decrease the heat gain in greenhouse on the east and west wall. At the same time, it will neglect the shade areas produced by the east and west wall, and overrate the solar radiation on the other surfaces inside the greenhouse. With the length of greenhouse decreasing, the overrated value will increase. It will lead to error when the thermal environment of greenhouse was analyzed. The heat flux of each surface was measured. The course of heat accumulation and heat release of the east and west wall and its change with the length of greenhouse were analyzed. Therefore, for shorter sunlight greenhouse, the effects of the east and west wall on the heat gain of greenhouse must be considered. It can be referenced for the decision of the length of sunlight greenhouse and the layout of the crop.

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