

连栋温室可移动式双层内保温幕保温节能效果初探

Temperature and Energy-Saving Effects of Applying the Mobile Double Layers Thermal Screen in A Greenhouse

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中文摘要:

在连栋温室用聚乙烯膜、镀铝膜(单层镀铝, 镀铝面朝下)设置可移动式双层内保温幕, 与对照温室和双层充气膜温室相比较研究其保温节能效果和对室内光照度的影响。结果表明在甘肃榆中地区, 连栋温室使用可移动式双层内保温幕在初冬时节可以使供暖设施启动的时间推延1个月左右, 具有明显的节能效果; 在启动供暖设施后, 可以使室内凌晨的温度提高2.5~3.5℃, 其保温效果优于双层充气膜; 在阴雪天气下, 与双层充气膜相比可以提高正午12:00温室室内气温; 对温室室内光照度的影响有3种情况: 在晴天, 室内光照低于对照但高于双层充气膜的温室; 在阴雪天, 室内光照度略低于双层充气膜的温室; 在多云天气下, 对一个座北朝南的温室而言, 可移动式双层内保温幕的聚乙烯膜正午在温室距地面不同高度的平面上对光照度的影响面积占温室总面积的比因温室结构和当日正午太阳高度角的不同而不同, 可由公式: $A=1-(\beta-x)/(\alpha \cdot \text{tga})$ 确定

英文摘要:

The mobile double layers thermal screen (MDLTS) consists of the film polythere and film plating aluminum. The effects of setting were studied in the greenhouse. The results show that the MDLTS can postpone the commencement of heating facilities by about a month in early winter. When compared with double inflated plastic, the MDLTS increases temperature by 2.5~3.5℃ and 2℃ at 7:00 and 12:00, respectively, after starting up the heating facilities on rainy or snowy days. The effects of conserving heat and saving energy with the MDLTS was better than that of the double inflated plastic. In the greenhouse setting, the MDLTS had less illumination than that in CK and was better than that in the double inflated plastic house on a clear day. However the illumination was less than that in the greenhouse with double inflated plastic on rainy or snowy days. On a cloudy day, the ratio of the area affected by the film of polythene illumination to the area of house at the plane aparting from the earth is decided by the formula $A=1-(\beta-x)/(\alpha \cdot \text{tga})$.

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