

# HORIZONTAL TEMPERATURE GRADIENTS UNDER A THERMAL SCREEN

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Under a thermal screen, often large temperature gradients are recorded. Several causes may be indicated for this. Last year's study of the effects of using a thermal screen (see Annual Report 1984, p. 75) indicated that not screening the glasshouse walls, or screening them in another way, together with the glasshouse roof, is to be regarded as the main cause. In an experiment the effect of using gable screens on horizontal temperature distribution was analysed. Furthermore the effect of temperature differences on the growth was studied.

On a tomato nursery with thermal screens and separately controllable gable screens, temperature measurements were carried out in a glasshouse of ca 4.000 m<sup>2</sup>, on 30 spots evenly distributed over the glasshouse area, and observations were conducted of the growth and production of tomatoes, in order to find an answer to the above questions. It appeared that if the screens were open, the air

temperature along the main path and along the glasshouse walls was higher than in the middle. If only the roof was screened, the temperature along the glasshouse walls was lowest. If, however, the entire glasshouse, including the walls, was screened, the horizontal temperature differences were smaller than under comparable circumstances without screen. In contrast to practical experience, a good thermal screen appears to be an effective aid to reduce temperature differences. The experiment on this holding confirmed that with fans only small temperature differences can be erased. It appeared that shutting off half of the heating pipes, with the aim to create more air movement in the glasshouse, easily leads to very great temperature differences because the supply and return pipes become too hot, comparatively speaking. On average the temperature differences on this nursery were so small that no significant relationship could be demonstrated between temperature and production.



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