

## Effect of High Temperatures in Summer on the Growth of Paprika Plants<sup>®</sup>

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The number of people concerned about health issues has been increasing in recent years. This is reflected in a changing trend in eating habits towards the consumption of more vegetables. Paprika (*Capsicum annuum* Longum Group) is a vegetable that comes to mind when thinking of health issues owing to the fact that it contains a lot of vitamin C and  $\beta$ -carotene, a precursor for vitamin A. The demand for paprika from markets has been increasing, however, its domestic production is still not sufficient. The excess demand is met through imports from The Netherlands, Korea, New Zealand, and other countries.

There are several reasons that account for this low domestic production. Cultural methods have not yet been established to fit our natural conditions, such as climatic factors, in Japan. Climatic conditions in this country differ from that of the countries mentioned as suppliers. The hot weather in summer seems to be an especially limiting factor for cultivation. Our aim was, therefore, to establish cultivation methods suitable for our hot summer conditions.

Experiments were carried out in a polyhouse 33 m long, 7.2 m wide, and 3.2 m high at Ikeda Factory belonging to Ibigawa Industry, Co. The polyhouse was provided with fans automatically operating at 25°C, a shading screen, and a protecting sheet against cold weather. To regulate the house temperature, side sheets were rolled up and down every morning and evening.

Paprika seedlings were planted in a rock-wool hydroponic system in March and May and harvesting began in May and July, respectively.

The most important factors, plant emaciation and stem elongation, presumably caused by high temperatures were not severe in our system. That is, color, size, and thickness of leaves were more than expected. Plants maintain a good balance between stem diameter, leaf spreading, stem internodal length, and number of fruits. Therefore, high temperatures hardly affected paprika yield, the fruit size was slightly small, due to the fact that they turned red and yellow earlier. The yield in summer increased significantly because fruit drop which usually occurs in winter and spring did not occur.

It is reported that the optimum temperature range is a narrow range of 23 to 28°C. If effective and reasonable management for radiant fluxes and moisture conditions are conducted, there will be no serious problems in the production of paprika in Japan. Moreover, through a little more development of cultural methods, the production of paprika can reach the same level as other foreign countries in the near future.