

LENGTH OF DAY EFFECTS ON HYDRANGEA

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A study was made of the effects of length of day on the growth and development of hydrangea plants during both the summer growing period and the forcing period.

Plants of Merveille and Engel's White were grown in daylengths of 8, 12, 14 and 18 hours and in continuous light as well as in natural daylength conditions. All of the plants received daily treatments of 8 hours of natural daylight and the plants on daylengths longer than 8 hours received supplementary low-intensity light to fulfill their daylength treatment.

It was learned that increasing the daylength with this low-intensity light (~~light from~~ 100-watt Mazda lamps in reflectors 3-4 ft. above the plants) increased the height of the plant during both the summer growing period and the forcing period. That is, short days caused short plants and long days caused tall plants. The main reason for plants being short on short days was that the pairs of leaves on the stems were closer together --rather than fewer pairs of leaves-- on the short days. Plants grown in the relatively long natural days of summer and early fall responded in the same manner as plants grown on artificially produced long days. The plants forced on the relatively short natural winter and early spring days responded as plants grown on artificially produced short days. Flower buds of plants grown in continuous light tended to be blind or abortive, but generally there was no effect of daylength on the flowering response, either initiation or development.

The daylength responses described will account in part for the fact that hydrangea plants of a given variety when forced later in the season are taller than those forced earlier. These experiments showed that length of day is another of the factors of environment -- along with temperature, spacing, length of cold storage, etc.-- that influence the growth and development of hydrangea plants.