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Interactive Effects of Vernalization, Day Length and Light Intensity on the Number of Leaves and Flag Leaf Area in Some Wheat Cultivars

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Abstract: The interactive effects of vernalization, day length and light intensity on the number of leaves and flag leaf area on the main shoot of five bread wheat (*Triticum aestivum* L.) cultivars (Çukurova-86, Atay-85, Lancer, Haymana-79 and Bezostaya-1) each with different biological characters, were investigated. The research was carried out in four independent experiments which were the combinations of two different day lengths (14 and 18 hour day⁻¹) and light intensities (13500 and 33750 lux) and vernalization periods. Vernalization treatment was applied for 0, 15, 30, 45 and 60 days at 2±1°C in a dark, cold room at 80% humidity and also 90 days only in the 14 hour and 13500 lux experiment. In the experiments, leaf emergence was completed in control and treated Çukurova-86 and Atay-85 and in Lancer, Haymana-79 and Bezostaya-1 after 30, 45 and 60 day vernalization treatments. The minimum leaf number was obtained with 14 hour and 13500 lux treatments. 13500 lux accelerated the transition of the apex from the vegetative to the reproductive stage through an effect probably similar to that of vernalization, only with 14 hour days. The maximum leaf number was obtained with 14 hour day and 33750 lux treatments. The number of leaves and flag area were lower due to the increase in vernalization periods in the spring cultivar and vernalized winter cultivars.

Key Words: Wheat, vernalization, day length, light intensity, leaf number, flag leaf area.

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