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## Agricultural and Food Science - abstract



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Alterations in growth and canopy architecture among dwarf,  
semidwarf and tall oat lines grown under northern conditions

Keywords *Avena sativa* L., dwarfing gene, internode, leaf area, leaf  
area duration, leaf area duration, plant stand,

### Abstract

The Finnish growing season is particularly short, with an intensive growth period, unfavourable rainfall distribution and frequently occurring fluctuations in climate that affect crop growth and yield formation. A three-year study was conducted in the field to determine the contribution of alterations in canopy structure, tillering and stem elongation among dwarf (D), semidwarf (SD) and tall (T) oat (*Avena sativa* L.) lines to yield formation. Yield components, leaf characteristics and straw traits were measured from six oat lines (D lines Pal and Grane, SD lines Hja 76416 and Salo, and T lines Veli and Jalostettu maatiainen) separately on the main shoot and tillers. Results indicated that long leaf area duration and high leaf area index were associated with increased grain yield probably due to more persistent and active assimilation. Also, higher number of leaves increased the grain yield. Higher peduncle, straw and node weights associating with increased grain yield may result from more abundant assimilate reserves; however, the longer the straw and peduncle, the lower the grain yield, which may result from increased lodging of SD and T lines. The traits contributing most to the grain yield varied greatly from year to year. It is concluded that no single dominant trait determined grain yield, since yield is a product of several different traits. SD lines seemed to be most promising for further breeding programs on the basis of their growth pattern and yielding ability.

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