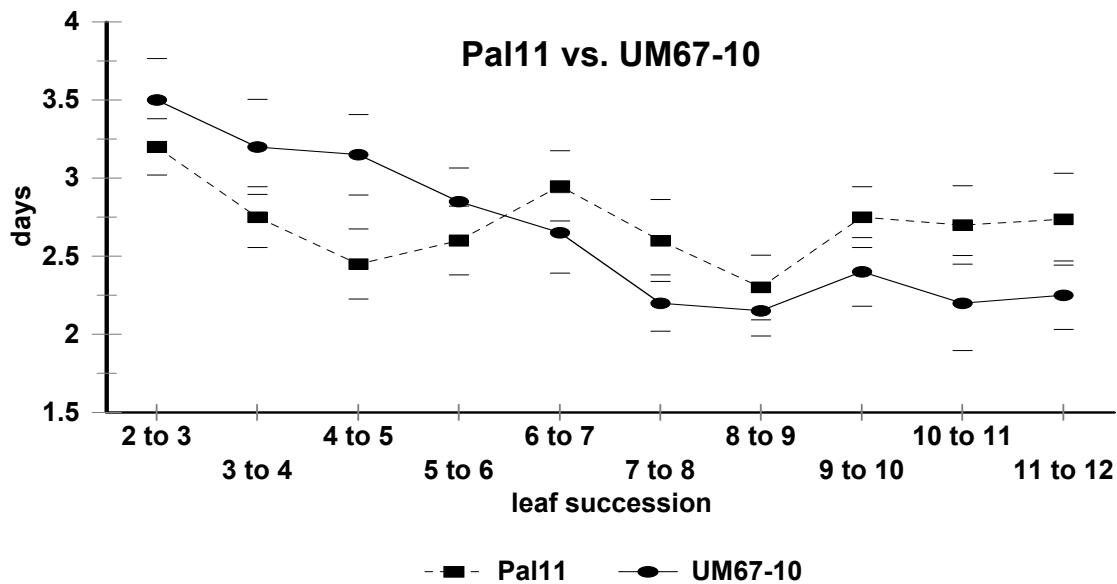


## COMPARATIVE GROWTH AND DEVELOPMENT IN CREEPING BENTGRASS AND ANNUAL BLUEGRASS

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This study investigated the growth and development of creeping bentgrass (CB) and annual bluegrass (AB) in order to gain an insight in the impact of development on competition between these species. Leaf appearance is critical to the establishment of a plant as it influences tillering. Tillering is required for a plant to increase its leaf area, and therefore, its ability to trap sunlight and manufacture the energy required for survival. This growthroom study investigated two CB and two AB germplasm for development. Leaf, tiller and internode appearance were monitored. Leaf, sheath and internode lengths were measured as were root, shoot and main stem dry weights at 35 days after transplanting. CB germplasms were slower to produce leaves initially (Figure 1), possibly due to their earlier initiation of internode elongation. UM67-10 was found to be a higher tillering CB, and had significantly shorter leaves than Emerald (Figure 2). The shorter leaf lengths resulted in 2 more leaves to be produced on the main stem of UM67-10 during the course of the experiment. Leaf lengths for the two annual bluegrasses were similar until Pae 11 initiated its flag leaf (leaf below the seed head) (Figure 3). Root dry weight was significantly higher, due to greater adventitious root production, for Pal 11, a perennial AB biotype. UM67-10 had increased (quicker) leaf succession rates later in development (Figure 1). This later advantage for CB, along with greater internode elongation, may be beneficial in responding to damage to the turf once the plant has established. AB also had less % increase in leaf lengths at earlier leaves, again conferring an advantage to this species. However, the greater root proliferation along with greater tillering potential in AB may give AB the edge over CB in establishing in golf course turf.



**Figure 1.** Leaf succession rates for Pal 11 AB and UM67-1 CB.

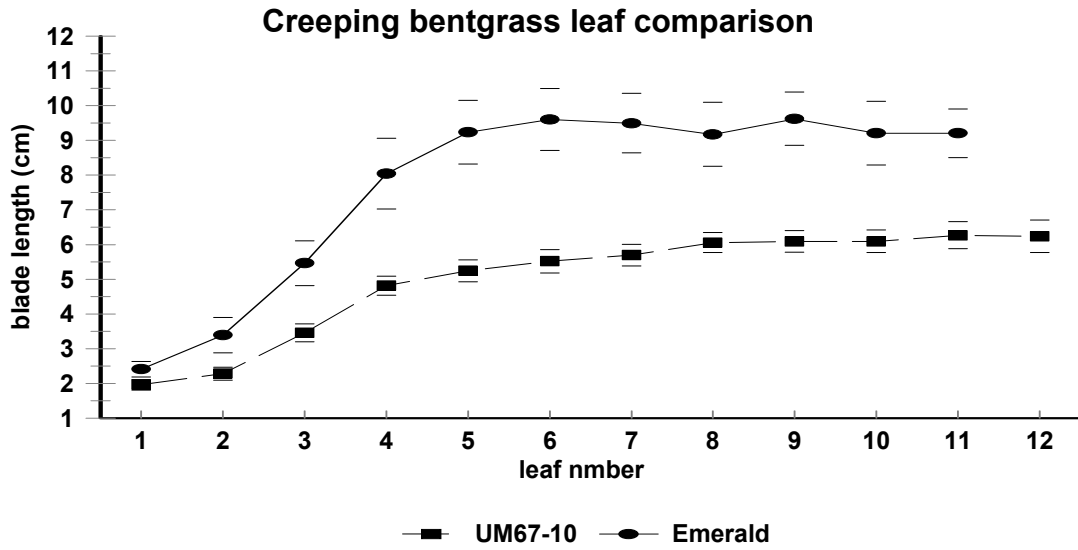


Figure 2. Leaf blade lengths for Emerald and UM67-10 creeping bentgrasses

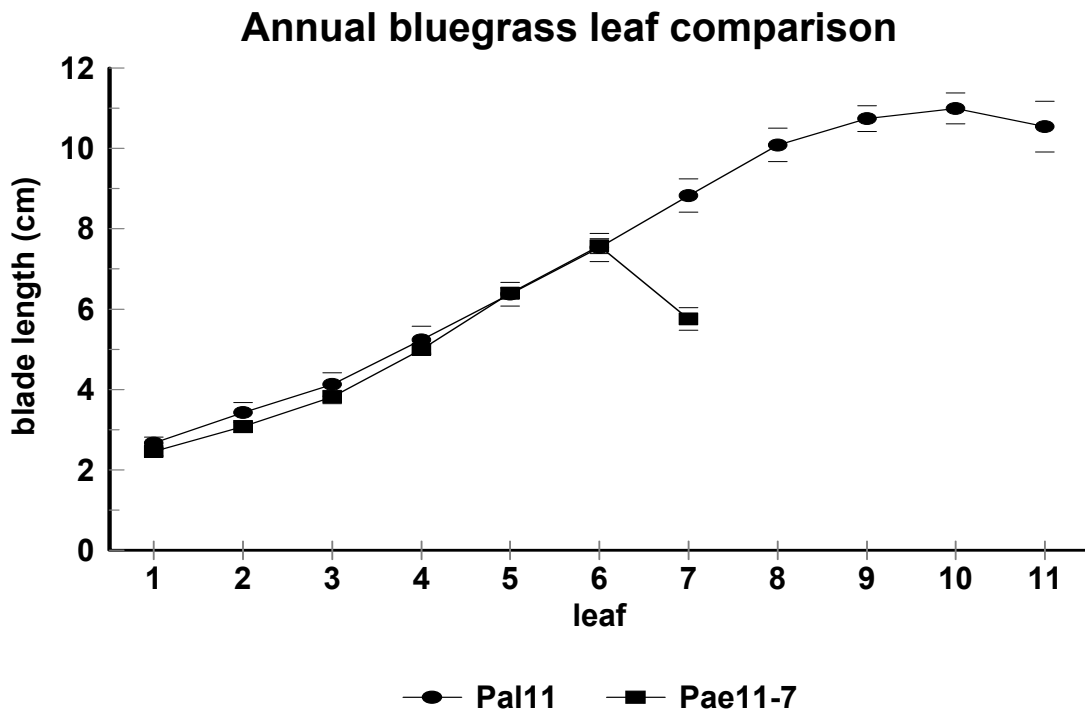
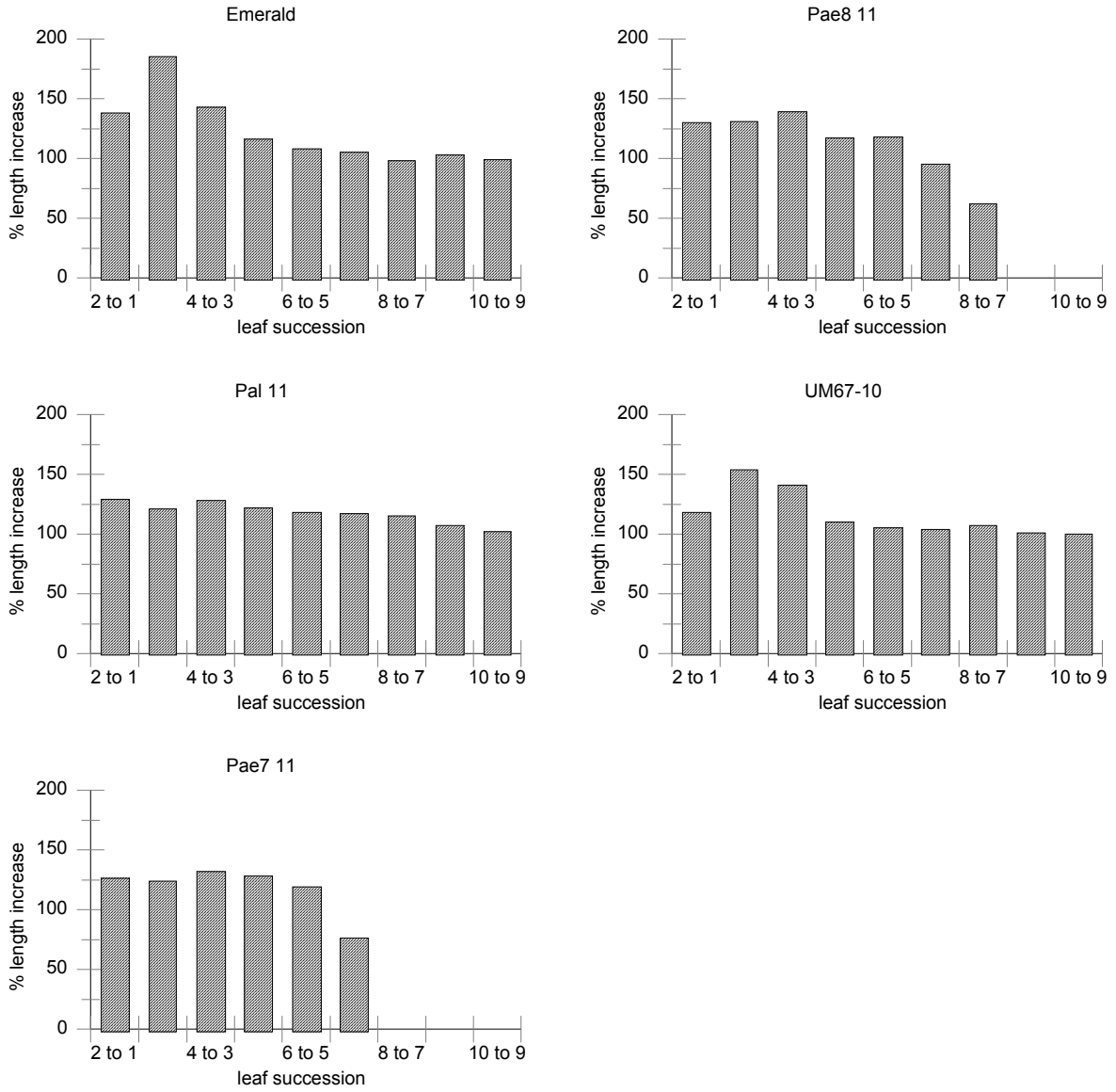


Figure 3. Leaf blade lengths for Pal 11 and Pae 11-7 annual bluegrasses.



**Figure 4.** Percent increase in leaf length between successive leaves on the main stem.