

B-114 The effect of growing seasons on the relationships among the quality characters of orchard grass (*Dactylis glomerata*)

S G J N Senanayake*

Plant Chemistry Laboratory, Dept of Plant Breeding, National Grassland Research Institute, Tochigi, Japan

Orchard grass (*Dactylis glomerata*) is a fast growing perennial grass, but the poor quality of this grass in the summer growth is a serious problem. Therefore the present study was conducted to investigate the relationships among quality characters and the effect of growing seasons on these relationships. 5 strains and 4 cultivars of orchard grass were grown in a Randomized Complete Block Design with 4 replicates at Hokkaido National Agricultural Experiment Station, Japan. The spring, summer and autumn harvests were used in this study. Samples were analysed for *in vitro* dry matter digestibility (IVDMD), crude protein (CP), acid detergent fibre (ADF), neutral detergent fibre (NDF), acid detergent lignin (ADL), and % dry matter (DM). Lignin in cell wall was computed as $(ADL/NDF) \times 100$, hemicellulose and cellulose were calculated by the difference between NDF and ADF, and ADF and ADL respectively. The correlations of other characters with IVDMD were computed. The effect of seasons on these correlations was also studied. Significant differences in quality were observed for different seasons. In general, the strongest correlations between IVDMD and other quality characters were observed in summer harvest. IVDMD has shown significant correlations with ADL, lignin in cell wall and DM when computed over harvests.

The digestible fibre content of orchard grass can vary in different seasons due to the differences in the lignification of cell walls. Though IVDMD mainly depends on the amount of lignin in cell walls. IVDMD is also affected by the ADL and DM. The ADF and NDF could be considered as the limiting factors to IVDMD only within a particular season.

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* Present address: Dept of Agricultural Biology, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya.