

#### Abstract:

Belgian endive [*Cichorium intybus* L.] is a very popular crop in Belgium, the Netherlands and France. Besides the external properties, the internal quality properties influence the overall quality of the endive to a large extent. Some of the quality parameters of this crop appear in the OECD standard. For example the length of the internal flower stalk in the middle of the endive is limited to 75 % of the crop length. The quality of the Belgian endive evolves after harvest. Among others, the growth of this floral stalk together with the shape of the product is one of the most important parameters for the loss of internal quality. To provide high quality crops and to monitor the crop status after harvest, non-destructive internal quality measurements are necessary. In this work a laser light transmission based quality measurement device is developed. Based on the on-line measurements of the transmitted light intensity and the diameter along the length of the crop, the length of the floral stalk and presence of any internal damage is estimated. The accuracy of the measurement method was found to be very acceptable.