A NONDESTRUCTIVE NIR SPECTROMETER : DEVELOPMENT OF A PORTABLE FRUIT QUALITY METER

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The quality of agricultural products is very important factor for consumers. **In Japan, quality is** sometimes more important than cost. **Usually, the** quality **of fresh food products is determined in terms of** shape, color, size, etc. **However, these indices are not always associated with** taste, **leaving consumers to complain.** Recently, two types of the fruit quality meter (a tabletop type - K-FS200 and a portable type - K-BA100, Kubota Corp.) using NIR technology **were introduced** in Japan. A tabletop instrument is for post harvest use and a portable one is for precision agriculture use. The both meters use the NIR region **from** 600nm to 1000nm **in the** *interactance* mode **to determine quality factors related to taste. The instruments** can measure sugar content **and** acidity of **such** fruit as apples, tomatoes, tangerines **and other fruits. The measurement is timely,** nondestructive and precise. **For example,** the coefficient of variation (CV) is **less than 6%** for sugar in most fruits. The K-FS200 **has been evaluated** in supermarkets, grading facilities, and wholesalers in Japan. **The introduction of the K-FS200 has drawn attention to taste quality** and **its use** is becoming more popular. **In addition,** researchers or farmers are **becoming** interested in measuring product ingredient not only after harvest but also during growing in the field so that they **can make intelligent judgements concerning soil amendments, such as** fertilizers and water, **in order to** improve quality and yield. The K-BA100 has been developed for this application. It employs the fiber probe for flexible measurement and **is battery powered** for field use. **Design of the fruit quality meters will be discussed. Applications to fruit quality will be presented.**