

# **Pulsed Field Gradient Spin Echo Methods for On-line Determination of Fruit Quality**

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Pulsed field gradient spin echo (PFGSE) methods have been investigated as potential candidates for off-line and on-line determination of fruit quality. A single shot pulse sequence which uses diffusive attenuation to suppress the water signal in avocado is shown to give a good correlation with oil content. Following from this result, another pulse sequence was used to measure Brix in intact cellular tissue of apple and strawberry. Given the signal to noise ratio, the correlation for avocado and apple was established without repeated acquisition, so this protocol should also be useful for rapid, on-line measurements at low spectrometer frequencies. Water suppression by the  $T_1$ -null method fails with cellular tissue because of the considerable variation in the longitudinal relaxation times of vacuolar and cytoplasmic water.