

### Application Information

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#### Fruit Firmness

In order to produce the most successful yield possible from their crops, fruit harvesters have created scientific measurement standards their fruit must pass before harvesting and bringing to market. Gala apples, for example, are considered ready for harvest if their firmness reads at a level at or above 15 lbs. (6.8 kg).

A widely utilized method to measure fruit firmness is with the motorized Güss Fruit Texture Analyzer. While this industry standard instrument provides accurate results, their testing operation is slow. This can cause delays with harvesters who are testing hundreds of pieces of fruit a day. This unit is better utilized for research based tests with small batches.

To decrease the testing time, one Shimpo customer, BC Tree Fruits Cooperative, utilizes the Shimpo FGV-50XY Digital Force Gauge with 50 lb (22 kg) capacity to measure the firmness of their apples and other fruits. To perform the firmness test, they first peel a bit of skin off the apple. The apple is then placed on the machined cradle which holds the apple in place. (See photo) Utilizing an industry standard tip connected to the force gauge, they pull the lever of the test stand and log the peak force recorded by the gauge required to puncture the apple. Last, they repeat the test at various locations on the apple to confirm the firmness readings. During harvest, they will test over 1000 apples each day. To organize and record the thousands of data points they receive, BC Tree Fruits Cooperative also uses Shimpo's free Toriemon software. This Excel add-in allows for large data storage, statistics and graphing. They trust the accuracy and dependability of the Shimpo FGV-50XY force gauge and software for testing throughout their entire orchard. But most importantly, the speed of the system allows them to test all 1000 samples each day without issue which is not possible with other test equipment available.

#### Equipment Used

- *FGV-50XY 50 lb (22 kg) Digital Force Gauge*
- *Toriemon Data Logging Software*

