

Inspection system for the peach fruit moth




Stimulation and
export promotion
of Japanese agriculture
Inspection system for the peach fruit moth

Since the larvae of the peach fruit moth were detected in peaches from Yamanashi Prefecture by the fruit import inspection in Taiwan in August 2010, the export has been temporarily banned. The current manual inspection method has limitations, and the industry has been urged to come up with a feasible solution for detecting the peach fruit moth in raw fruits.

An innovative technology, which can detect the larvae with 100% success rate and handle fragile material, has at last been developed.

Make the Impossible Possible



Nov. 18 Wed. – 20 Fri. 2015 10:00-17:00
Agribusiness Creation Fair 2015
Venue: Tokyo Big Sight, East Hall

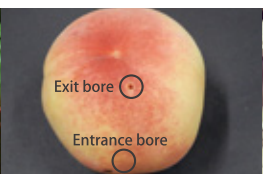


Achieve 100% detection rate and 100% quality maintenance

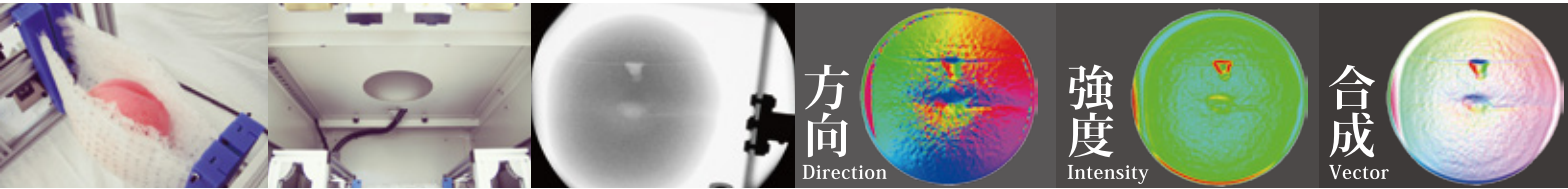
It had been impossible to detect fruit damaged by the peach fruit moth by visual inspection. Our new technology makes 100% automatic detection possible with image processing and recognition of the fruit using X-ray images from multiple directions. Moreover, we have developed a technique for handling soft and fragile fruit.

This is not just the development of a technology. It will also dramatically advance the traditional inspection system.

This breakthrough can lead to the promotion of our export market by enhancing consumer confidence in Japanese agriculture.

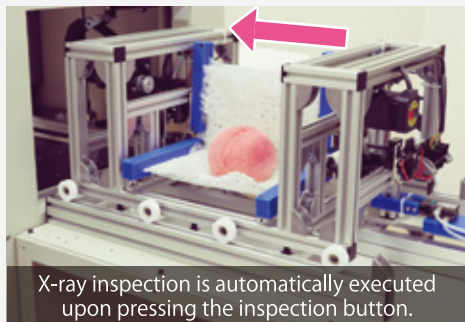


For stimulation and export promotion of Japanese agriculture



The peach fruit moth inspection system will accelerate Japan's recovery from the export ban.

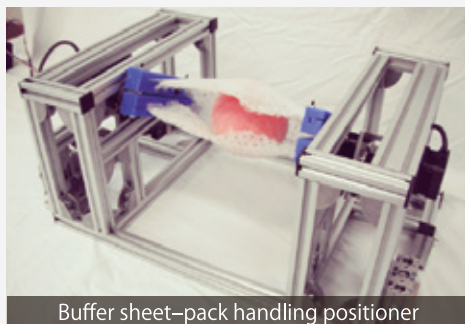
Scientists in the Yamanashi Prefecture has been working to increase peach export to Taiwan. During the export process, Taiwan's import quarantine requires a clear demonstration of the absence of larvae in the fruit. Since the entrance bores of the larvae of the peach fruit moth immediately after hatching are very small (approximately 0.2 mm in diameter), they are difficult to detect. Although visual inspection, which is labor-intensive, is performed on every single fruit, it is still impossible to detect the larvae of peach fruit moths with a 100% success rate. In the inspection process, the fruits are manually handled, and this added pressure causes further quality degradation problems such as discoloration. In order to solve these problems, we have developed a peach fruit moth detection algorithm using X-ray images taken from multiple directions, and a detection robot for holding and rotating the fruit without damaging it.



X-ray inspection is automatically executed upon pressing the inspection button.

Speed up by automatic inspection

We established an automatic inspection technology for detecting foreign objects within natural objects, which is not possible with visual inspection. It eliminates our current reliance on inefficient manual operations, and will halve inspection time. It can further improve the profitability of farmers because the false positive rate is less than 20%.



Buffer sheet-pack handling positioner

The fragile object is gently wrapped

Peaches are perishable, soft and very delicate fruits that are destroyed and rendered commercially inviable by manual pressure. There has been no technology able to handle fragile objects. The establishment of a technology for handling fragile objects has made it possible to run the necessary tests in a shorter time and more reliably than for manual inspection.

Note : Patent application for the buffer sheet is pending.



Dedicated touch-panel operation software



Anyone can operate the technology easily because of the large-screen touch panel. It is also possible to check the data, such as the history of past damaged fruits, and the information can be managed in conjunction with the inspection system.

Note : Example of the operation screen display



Yamanashi, connecting to the world

An increase in the export volume of peaches and the application of this technology to other fruits such as apples and pears will allow Japanese agricultural products to be exported to other countries such as China, Hong Kong, Europe and the United States.