John Baarda – Environmentally Efficient Tomato Glasshouse Growing

Environmental Glasshouse management
With Manual and Dynamic Checkweigher
Optimizing Average Weight Software System

John Baarda Ltd based in Billingham, North Yorkshire, is one of the largest tomato growers in the UK. The Billingham facility was opened in 2007 and was developed to grow tomatoes for UK supermarkets on a year-round basis. John Baarda is one of the major tomato suppliers for Sainsbury's and Somerfield. The Billingham nursery can grow about 10,000 vines a year and these produce around 7,000t of mature tomatoes for sale at 'grade A' salad quality.

The new plant grows and packs all the tomatoes and then stores them prior to distribution across the UK. The breakthrough with growing tomatoes all year round in a sustainable fashion came in 2005 when John Baarda linked up with TerraNitrogen, Avery Weightronix, D&D Engineering and MCI Systems. MCI Systems are a leading industry software house in Farnham who supply optimizing production systems, Surrey near London, TerraNitrogen are a chemical company based in Teesside, and Avery Weightronix are a worldwide weighing company with headquarters in Birmingham, UK.

The project involved TerraNitrogen using the carbon dioxide and heat by-products of their processes to supply one of the largest greenhouse complexes in the UK to grow tomatoes throughout the year. This has had two positive affects: one is to reduce the emissions of TerraNitrogen and effectively make use of heat and CO_2 that would have been wasted and the other is to reduce emissions that would be caused by importation of tomatoes into the UK for winter. As part of its green house complex, John Baarda has its own packhouse.

MCI Systems provided their best of breads Myrias software control system for the site which ensured that the various aspects of the site resulted in efficient production of final packs of tomatoes.

In the packhouse, all the tomato varieties are weighed, wrapped and labeled, including vine tomatoes and cherry tomatoes. One problem was that Baarda had always sold by minimum weight and this has meant that their product giveaway would amount to as much as 100g for a 500g punnet. MCI optimizing checkweighing system integrates with Avery Weightronix checkpoint M high precision dynamic checkweighers and Evolution traffic light checkweighing scales. This reduced the overfills to a minimum, while increasing throughput, insuring legal compliance to European Average Weight Legislation and keeping the required legal records.

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Tomatoes are picked and sent for weighing, wrapping and labelling. The system sees the punnets placed on a conveyor and sent through the dynamic checkweigher (checkpoint M).

Punnets that are within the set weight tolerance are sent to the wrapper automatically and then to a second checkweigher which records the average weight. Punnets that are outside the tolerance are diverted by the Double-D conveyor system installed by D&D Engineering and controlled by the MCI Myrias software. The packs are diverted across to a second packing line where an operator places the punnet onto a manual checkweigher with an E1210 indicator and then adjusts the contents to within the acceptable level. Again the MCI Myrias software controls the E1210 scales, adjusting the traffic lights to optimize giveaway to a minimum. These punnets are then placed back on the conveyor and sent to the wrapper and then the final dynamic checkweigher.

The second checkweigher continuously communicates to the manual checkweighers what the weighing trends are and automatically adjusts the tolerance band on the manual machines to ensure minimum giveaway. The system also allows line performance and output to be evaluated so that performance can be improved and double handling minimised. Tim Howarth, business development manager for John Baarda commented: "Historically we had poor control over product giveaway – between 8% and 16%. With the new system, we are now able to drive to e-weights."

The checkpoint M is a high precision dynamic checkweigher that can be used for product weights of up to 7.5kg (there are four systems 750g × 0.1g, 1,500g × 0.2g, 3,750g × 0.5g or 7,500g × 1g). The system with a conveyor speed of up to 230 weighings a minute may be used as standalone device for monitoring target weights such as in the John Baarda case or also integrated into a network if required.

Checkpoint M is controlled by menu-guided touch screen operation with memory space for 50 product records. There are also special graphics screens for displaying statistics, histograms, trend and average value curves to give performance indicators.

The MCI Systems Myrias software is a complete production system able to control a complete production facility. If you would like to find out more, see a demonstration or discuss your own requirement, please phone us on 01252 722 399, email us at sales@mcisystems.co.uk or visit our website www.mcisystems.co.uk for more information.