Fresh produce: Assured food safety in seasonal harvesting and processing

One of the largest vegetable processing companies in the world is based in the rich farming region of Nord-Pas de Calais. Bonduelle grew from its foundation in 1853 as a grain and juniper distillery. In 1926 the company started a small canned pea operation on the family farm producing approximately 120 tonnes per year from 20 hectares of garden peas.

Today the company is producing well over €1.5 billion of vegetable products from 60,000 hectares of farmland in 20 countries.

Vegetable production has, until recently, been seen by the public as a relatively low risk activity. The heating involved in canning and bottling processes make for a safer end product with long shelf life and relatively less risk from storage and handling abuse.

Frozen vegetables

The introduction of frozen vegetables by Bonduelle in 1968 took the company into a process area with a slightly higher food safety risk.

The company had to ensure control of safe on-farm practices and maintain high standards in-plant where reliance was placed upon the blanching process to provide some microbial control.

Recently, through development and acquisition, Bonduelle has become involved in new markets where its subsidiaries produce delicatessen salads and fresh vegetables.

Food safety is critical with no controlling intervention from cooking or blanching and many products being eaten raw, such as the ready to eat salad pots. So, the fact that they apply HACCP management principles is important to the safety and enjoyment of their consumers.

The special challenges presented by salad and vegetable harvesting are derived from the fact that the harvest is usually a short seasonal timespan using seasonal workers.

The farms where the crops are grown are under annual contracts and with a 92% loyalty level amongst over 5,000 farmers the objectives of maintaining high productivity and quality can be achieved.

This loyalty is derived from a strong relationship/partnership. It allows good planning and rotation to ensure best crop yields and the continuity helps to ensure a proper use of pesticides and a safer harvesting of the produce.

The control of pests and the use of manure and pesticides are laid down in the farmers' contract documents.

From July to October the huge amounts of labour needed for harvesting and the seasonal needs of the factories can be a challenge. However, in areas where the company is based, such as the Nord-Pas de Calais there is an established, trained labour force.

Though machinery can reduce the needs for some hand harvesting it is not possible for crops like squashes and cauliflower.

On farm hygiene is centred in the crop cleaning and preparation areas where the collected crop is trimmed and made ready for the factory.

Staff training

Training of seasonal workers from May to July starts with health and safety training and food safety. They are usually a mix of student and local family workers. The workers are paid not just at harvest time but receive a steady salary throughout the year to ensure continuity and the retention of skilled and experienced staff.

The company also works in co-operation with other seasonal production companies who need workers at different periods, for example duck liver producers.

In some regions they have staff with 20 years of continuous seasonal employment, though in the south west of France they have to compete with the seasonal demand of the holiday resorts.

Food safety testing is usually carried out in the laboratories at the manufacturing sites where they are operated to ISO 9000 standards. Half of the company's testing is carried out externally and having a local infrastructure of suitable laboratory services is important.

The Nord-Pas de Calais area, for example, has services such as the Institut Pasteur in Lille. The company also uses international laboratories, such as Campden and Chorleywood Food Research Association in the UK, for high risk testing.

Research and development

Stimulating research and development is a major issue in France and Bonduelle has concentrated this activity into one division. It is, for example, looking at areas such as blanching and nutrient retention.

To satisfy market demands it is also examining the reduction of cooking times, whilst at the same time ensuring microbial food safety.

The company's centres of development are based in France, Spain, Italy and Germany.

It will look for development partnerships with local universities where the portfolio of specialisations are broad enough to find the necessary expertise.

The company has found that schools of engineering with their practical approach to problem solving are very useful.

The Nord-Pas de Calais, once a major centre of heavy industry, still retains these skills though the region has expanded its economic base through major government and European Union investment over the past 20 years.

The opening of the Channel tunnel has placed Lille at the apex of the London-Brussels-Paris rail links giving locally based companies, such as Bonduelle, substantial access to markets, skills and facilities. n

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Fresh produce: Safe strawberries and other soft fruits

Some 15 years ago a group of farmers got together to form a consortium to produce soft fruits in a modern way to suit the needs of the modern retail market.

They were aware of a number of issues and wanted to find solutions that would address these challenges and enable them to provide what the markets wanted. They believed that there were several areas in which they needed to research and develop new answers.

Selecting for succulence

A programme of development of new varieties was begun to give a selection of strains that would satisfy the consumer's need for flavour and succulence, and would perform well for the growers in terms of resistance to pests, ease of growing and length of season.

"A major opportunity was to see if we could develop a growing system that would reduce or even eliminate the need for using pesticides," David Griffiths, technical director for Angus Soft Fruits, told International Food Hygiene.

"Time after time research into consumer concerns placed worries about pesticides in fresh produce high on their worry list."

The methods that were developed not only solved this issue but also provided a system that would help to expand the cropping cycle dramatically. By placing the crops in a grow bag on metre high benches inside a polytunnel there were many pluses from a horticulture point of view and also from a harvesting and food safety point of view.

The plants are placed in a controlled growing medium and provided with an irrigation feed at root level. This reduces the risk of soil-borne contamination, and the regular testing of irrigation water is designed to guard against waterborne disease. The tunnel reduces the risk of rain splash problems and the potential of contamination by wildlife.

The two traditional threats, for which the old answer was to spray with pesticides, are insects and diseases. Strawberries alone have over 80 diseases and parasites and are targeted by grubs, moth larvae, beetles, millipedes, slugs, snails and birds.

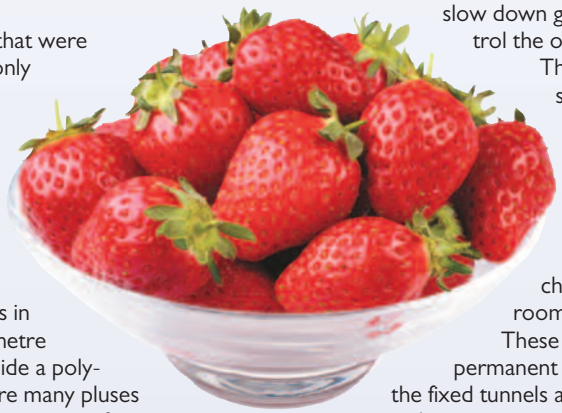
Raising the growing beds and enclosure reduces the plants exposure to these problems and allows the farmer to use natural methods for control and prevention. By controlling airflow and watering, the grower can grow the fruit in an environment that is less likely to encourage mould growth – so no spraying is needed.

The use of chemical controls for insects is not required because when any signs of infestation are spotted by the teams of crop monitors natural predators are introduced, such as ladybirds to control aphids.

The exceptional success in extending the growing season has meant that raspberries, for example, can now be harvested for five months of the year instead of five weeks.

Controlled development

This has been achieved by growing a sequence of plants in controlled stages of development so that a series of crops are being grown at any one time by making a careful use of cold storage to slow down growth and control the onset of flowering.



This still needs a seasonal workforce who are all put through basic hygiene training upon induction and provided with full changing and washroom facilities.

These facilities can be permanent where adjacent to the fixed tunnels and where mobile tunnels are in operation mobile facilities can be provided. Hand hygiene is, however, not water reliant and wide use is made of alcohol free wash and sanitising gels.

About 50 Scottish based farmers are involved with this scheme and they market their fruit under the Good Natured Fruit label. The scheme has also been expanded overseas and there are partners now producing fruit in Holland, Spain, Argentina, Chile and Mexico. n

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