

Shock waves reverberate around Fruit Focus

Growers and visitors were visibly stunned by the shock waves generated at this year's Fruit Focus at EMR, East Malling. Were these shock waves reflecting an unexpected increase in the price of English berries, or the trading collapse of one of the nation's multiple retailers? Neither scenario was the case, the shock waves emanated from Inopower's hail control system, set off regularly during the event.

Growers recognised that the period of intense heat at the centre of the weather pattern in the South East at the end of July could come to an end with hailstorms, thunderstorms or torrential rain. UK growers are acquainted with the use of cloud-seeding devices in Northern Italy as a means of dispersing hail-laden cloud systems. Some are also only too aware that their farms are at risk from this annual

scourge of fruit quality.

The technology offered by Marnix van Praet of Inopower makes the modern hail control gun available to fruit growers and it is widely employed on the continent for grapes, apples and pears. Remotely controlled, the gun releases ionising shock waves into the atmosphere (up to 15,000 metres) where temperatures are -50C. Reverberating around the clouds they carry

a huge ionising potential, creating a mixture of polarities, smashing and dispersing the ice crystals or hailstones and falling as rain or sleet.

Modern technologies for plotting cloud movements and weather frontal systems can enable growers to monitor and predict such patterns of cloud risk and set the unit into action at least 20 minutes ahead of the arrival of a hailstorm.

Could new plant antifreeze extend season for UK fruit crops?

Over the years the fruit industry has had products to combat the low temperature risks associated with poor weather in April and May. A new company, introducing a new product – Cropaid Natural Plant Antifreeze® – was present at Fruit Focus, offering new science to counter cold and frost injury.

Cropaid NPA® has been 10 years in developing its potential, with the original science emanating from Turkey, followed by 6 years of field trials of crops susceptible to low temperature damage, including field grown vegetables and salad crops. The Fruit Grower spoke to Director, Aydin Tanseli, who holds the exclusive world-wide distribution rights.

The formulation of Cropaid stimulates the formation of antifreeze proteins (AFP) and antifreeze amino acids (AAA), both of which are capable of increasing the plants resistance to cold and frost injury. The formulation comprises three types of Thiobacillus bacterium, *T. thioxidans*, *T. thioparus* and *T. ferroxidans* and a mixture of 60 minerals

formulated into a natural and safe product.

"For growers of susceptible field crops we see the opportunity to extend the season of supply at both ends of the growing period," explained Aydin Tanseli. "This may be using Cropaid at the early stages of berry crops under tunnels or field crops known to flower in periods of low temperature in the UK, including perhaps apricots and peaches. It will protect the flower parts at this critical period of the season".

Aydin also believes that in addition to its antifreeze properties Cropaid has the potential to ease plant stress during periods of extremely high temperatures. "We have found that where plants are sprayed with Cropaid NPA in the autumn it will reduce premature leaf-fall and offer buds resistance to high temperature", he said.

The indicative rates of application are 500-550gms diluted in 100 litres of water for tree fruits when in flower, and 500-600gm in 100 litres as an autumn application. "It is recommended that fine mist spray patterns are used

at least 4-5 hours ahead of known low temperatures," said Aydin. "To apply a few days ahead of forecast frost is much better, ideally at temperatures above 12C. On field crops 9C -12C is recommended, repeating the application every 7-15 days".

ADAS's Crop Physiologist Dr Jeremy Wiltshire has evaluated Cropaid NPA® in potato trials in East Anglia where he reported 'treated plants were less severely damaged than untreated. The treated tubers sprouted earlier, enabling earlier planting schedules and promoted earlier vegetative growth'.

Working in collaboration with Professor Ben Grout at

Writtle College in Essex, further trials of the material were carried out on strawberry plants, where it was concluded that 'the potential to decrease the economic loss through frost damage to foliage and flower was increased'.

Aydin Tanseli believes Cropaid offers growers several degrees of frost protection (perhaps 4C - 7C) and that the product enhances 'plant strength' and the potential for improved fruit flavours. "I am also convinced it offers the opportunity to growers to reduce pesticide use on their plants and also enhancing winter hardiness if applied in the autumn," said Aydin.

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