FACT SHEET

Carbendazim - Analysis and Implications

Carbendazim is a broad-spectrum benzimidazole fungicide widely used in many countries to control fungal diseases in certain crops including fruit trees.

Earlier this year traces of carbendazim were found in orange products imported from Brazil to the US. The Brazilian juice manufacturer informed the United States Food and Drug Administration that some Brazilian growers had sprayed trees with the chemical and levels up to 0.035 ppm were found in juice arriving in the US, where carbendazim spraying is banned.

Australia imports 32,000 tonnes of frozen concentrate orange juice annually, two-thirds of which comes from Brazil[(1)]. According to Food Standards Australia the acceptable level for carbendazim residue in Australia is 10 ppm which was well above the acceptable level in Europe of 0.2 ppm whilst in the US no trace is permitted[(1)]. The levels detected in the US were well below the internationally accepted level for carbendazim permitted in oranges and significantly below the US human health and safety level[(2)]. Even though the levels detected to date are very low and considered safe, the US began rigorous testing for carbendazim as the chemical is banned for use on orange crops. The Australian Pesticides and Veterinary Medicines Authority (APVMA) are completing a review of the use of carbendazim in Australian agricultural sector. Some agricultural production uses, including use on all citrus fruits, were suspended by the APVMA in January 2010[(2)].

Australian companies are still importing orange juice from Brazil to meet the local demand even though the US has temporarily stopped doing so because of health concerns associated with use of carbendazim. It is imperative that the Australian importers, just as their US counterparts, undertake testing of all imported orange juice from Brazil to gauge the concentration of carbendazim in these products to ensure that the levels found are below the acceptable levels and do not pose a health risk.

The Food Safety Laboratory (FSL) within Agrifood Technology was approached by importers to test for carbendazim in respective imported orange juice from Brazil. Based on the in-house methodology for the determination of pesticide residues in fruits and vegetables, analysts at FSL employed the highly sophisticated Liquid Chromatography-Mass Spectrophotometer instrument equipped with a Triple Quadrupole Detector to determine the concentrations of carbendazim in a range of orange juice samples imported from Brazil. The methodology and instrumental analytical technique engaged allowed the determination of carbendazim levels to as low as 0.001 ppm (1 ppb), highlighting the sensitivity of the analytical techniques available within FSL. Consequentially signifying the wider scope and capacity the laboratory possesses for analysis and determination of a wide range of pesticides and/or other chemical components in a given matrix at extremely low levels.

1) http://fw.farmonline.com.au/news/nationalrural/agribusiness-and general/general/carbendazim-scare-in-brazilian-fruit-juice/2418771.aspx
2) http://www.foodstandards.gov.au/scienceandeducation/factsheets/factsheets/carbendaziminorangej5414.cfm