# Enjoy a brew?

## Compost tea and food safety – is the organic industry doing enough?

By GARY LEESON

FOOD SAFETY IS OF CONCERN TO ALL members of the food industry and recent headlines in the United States once again highlight the need to remain vigilant.

Since April, 145 people in 16 states have become infected with *Salmonella* serotype Saint Paul, a rare strain of the food-borne bacteria that causes vomiting, diarrhoea, nausea and fever and can result in hospitalisation and death. The Food and Drug Administration has traced all of the cases back to people eating raw tomatoes but has not yet pinpointed a source for the contamination.

This headline has devastated the US tomato industry. Can you imagine the level of media interest if the source was traced back to an organic farm? The organic industry is in an acutely precarious position on food safety because our industry has built its reputation on food standards that arguably go beyond government-based food standards. Any publicity that questions the safety of organic food erodes consumer confidence and trust in the 'organic brand'.

All food safety standards are built on a hazard analysis process, and if you speak with any person dealing with food the greatest hazard is microbes. Within organic systems we are essentially growers

of microbes. Everything we do is about maximising microbial populations within our food production system. We use manures, compost teas, BD preparations; we apply worm juices; and we recycle our water. All of these inputs contain billions of microbes and other potential contaminants. In terms of hazard analysis we are 'off the scale'.

Within the current organic standards very little emphasis is placed on the procedures for manufacture and testing of many microbial, biological or botanical inputs. I believe the draft Australian Standard currently under review will require composts to meet the Australian Standard for Composting 4454. However, other inputs that are used as 'activators' and for pest and disease control, such as compost teas, worm juices, botanical extracts, ayurvedic preparations and homeopathic preparations, escape any scrutiny. All of these types of inputs have the potential to harbour not only human pathogens but also potentially toxic poisons, particularly where botanical extracts and homeopathic preparations are concerned. Ricin, for example, comes from the humble castor plant yet it is the third most toxic substance known after plutonium and botulism.

Pest and disease control products must be independently tested for safety before being registered as allowed inputs within food production.

Even though we allow ayurvedic preparations, homeopathic preparations and various other botanical and microbial 'brews', we should never ignore the fundamental rules of food safety. My view is that as an industry we must clean up our standard in terms of 'organic inputs' and list only inputs that have been put through an independent authority that is responsible for determining the safety of these types of products, like the Australian Pesticides and Veterinary Medicines Authority. Any product that kills insects or destroys diseases that is not a physical kill must produce some level of toxin and needs to be treated with a high degree of scrutiny when it comes to use patterns and dose rates. As with any pesticide, no effect levels (NOEL) and allowed daily intake (ADI) levels must be established before they can be used with any degree of safety in food crops.

## NOSB decision on teas

I also believe that as an industry we must work towards standardising the process of compost tea production that reduces the risk of teas containing potential pathogens. A simple standard already exists in the US, based on recommendations made by the National Organic Standards Board (NOSB) as follows:

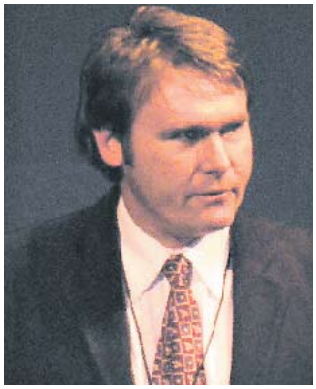
"Compost teas must be made with potable water. Equipment used to prepare compost tea must be sanitised before use with a sanitising agent as defined by 21 CFR 178.1010, using allowed materials found on the National List. Compost tea must be made with compliant compost or vermicompost, using the NOSB recommendation for compost and vermicompost and as defined in section 205.203 (c) (2) of the NOP rule. For compost tea, this applies to 100% plant feedstock materials, in addition to manure feedstocks because non-manure compost feedstocks may harbor high levels of faecal bacteria.

"Compost teas made without compost tea additives can be applied without any restrictions. Compost teas made with compost tea additives can be applied without restriction if the compost tea production system (same compost batch, additives and equipment) has been pre-tested to produce compost tea that meets the EPA recommended recreational water quality guidelines for a bacterial indicator of faecal contamination (US EPA, 2000). These indicators and the passing criteria are *Escherichia coli* (126 CFU/100ml) or *enterococci* (33 CFU/100ml). At least two compost tea batches must be tested using accepted methodology (APHA-AWWA-WEF, 1999; US EPA, 2000), with the average population of indicator bacteria across compost tea batches used as the measurement of passing. Each new batch of compost would require that the system quality assurance pre-test be conducted again as indicated. After it passes again, compost tea from the system can be used without restriction, provided that an annual re-test is completed.

"If compost tea made with compost tea additives has not been pre-tested for indicator bacteria, its use on food crops is restricted to the 90/120 day pre-harvest interval. Crops not intended for human consumption, ornamental plants, and grain crops intended for human consumption are exempt from bacterial testing and 90/120-day pre-harvest interval restrictions. Raw manure extracts or teas may be applied to the soil with a 90/120-day pre-harvest restriction. Foliar applications of raw manure extracts or teas are prohibited. Compost leachate may be applied to the soil with a 90/120-day pre-harvest restriction. Foliar applications of compost leachate are prohibited.

"Compost extracts – resulting from any mixture of compost, water, additives and adjuvants that are not held for more than one hour before use – may be applied without restriction. Compost tea or compost extracts are not allowed for the production of edible seed sprouts."

I believe the adoption of these types of fundamental hazard reduction and risk management measures are critical to ensure food safety remains the keystone to the ongoing success of our industry.



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