

Abstract

Since the Montreal Protocol Agreement there has been unfortunately a sharp increase in the use of MB for quarantine and preshipment (QPS) use which accounts for 19-21% of global production. There is not yet a mandatory need to reduce QPS consumption because of the fear that these restrictions may affect international trade. The global phase out in durable commodities like grain and soil fumigation has seen a gradual increase in the cost of MB in recent times. BOC's ENVIROSOL[®] liquid CO₂ application technology is seen as a suitable solvent-propellant system to carry and disperse bioactive alternatives to 64 MB as non-flammable gaseous or vapour mixtures or as aerosol particles. Particle sizes between 2-20 µm produced by this technology improves efficacy by enhanced penetration into produce and synergism with active compounds. Several research projects with Crop & Food Research are looking at MB alternatives (ethyl formate [VAPORMATE[®]], carbonyl sulphide, ethanedinitrile, phosphine) for QPS at their new fumigation facility in Palmerston North. These include using VAPORMATE[®] to disinfest tropical insect and arthropods pests like mites, mealybugs and scale on bananas and pineapples, thrips in onions for export to Europe, apple LCM and LBAM in export apples to US, and thrips and aphids in export flowers. Collaborative preshipment disinfestation research with alternatives are also being carried out with countries of origin of produce to reduce biosecurity risk to New Zealand. Commercial trials showed that VAPORMATE[®] has the potential to disinfest fresh produce with no risk from residues.