

FOREST PRODUCE

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ^o C	Time	Source	Comments	
Woodware, Used Wood panels, Poles, Piles, Rounds and Sleepers (including railway sleepers) less than 300 mm in thickness or cross-section; Sawdust, Wood Chips, Wood Shavings and Wood Wool, Sawn Wood; Kava sticks; and	Invertebrates See Note 16 for ants	FPT1	MeBr	Atm	80 g/m ³	10 +	24 hrs	MAF STD; Sawn Timber	20 minutes of fan at the start, filleted or otherwise separate layers; maximum thickness of timber 200mm, if not use FPT6 or 6a. Plastic wrapping opened or perforated	
			MeBr	Vacuum	64 g/m ³	10 +	4 hrs	MAF BNZ		
			Phosphine	Atm	200ppm minimum	10-15	15 days	MAF STD; Wood Packaging:		Top-up needed to maintain concentration due to sorption by wood.
						16-20	12 days			
			21-25	9 days						
Other miscellaneous products e.g. pine/conifer cones, needles, twigs, smudge sticks etc.	Fungi, Extraneous organic material and Devitalisation	FPT2	HT	Atm		56 +	30 mins	MAF STD; Wood Packaging: ISPM 15	Note: maintain 100% humidity for fragile products or wood prone to warping.	
			HT			70	4 hrs		See Note 2 below	
			Incineration	Incinerate to ash at a MAF- approved facility or carried out under supervision by MAF BNZ						Risk items must be transported to treatment site in pest-proof containers, e.g. completely wrapped with plastic.
			Autoclaving	100 kPa		120	10 min	MAF BNZ		
			Irradiation	PPT2						

Note 2 : It takes time for the core temperature of forest produce to reach 70^oC. If it is not possible to measure the core temperature accurately, use the sliding scale for HT shown FPT4; that is, with increased thickness of wood the exposure time must be increased.

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Wood Thickness	Temp ⁰ C	Time	Source	Comments	
cont...	Extraneous organic material	FPT3	Decontaminate by sweeping and/or washing off and to be collected and destroyed in an approved manner.						
	Fungi	FPT3a	Deep burial subject to approval from MAF BNZ at an approved commercial landfill within the metropolitan area. Must be deep enough to allow a minimum of 2 metres land-fill coverage to be placed over the forest produce.						Risk items must be transported by pest-proof containers
	Pathogens (including fungi), Extraneous organic material (e.g. leaves, twigs, soil), Devitalisation (e.g. un-processed burls)	FPT4	HT	0-25 mm	70	4 hrs	MAF BNZ	Unprocessed burls and potentially viable materials, in particular, must be rendered nonviable (devitalisation) Note: maintain 100% humidity for fragile products or wood prone to warping.	
			HT	25-38 mm	70	5 hrs			
			HT	38-50 mm	70	6 hrs			
			HT	50-75 mm	70	8 hrs			
			HT	75-100 mm	70	10 hrs			
			HT	100-150mm	70	14 hrs			
			HT	150-200mm	70	18 hrs			
			HT	200-250mm	70	22 hrs			
HT	250mm +	70	26 hrs						

Note 3: The Forest Produce items listed in the commodity/product column are defined as per the relevant Import Health Standard.

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments			
Wood Packaging (as defined in the Wood Packaging Import Health Standard)	ISPM 15 Compliance OR Invertebrates (For Fungi use FPT3a, FPT2 or FPT4)	ISPM 15	HT	Kiln-drying, chemical pressure impregnation or other treatments may be used as a means of achieving heat treatment provided that the above temperature and time requirements are met.				56+	30mins	MAF STD; Wood Packaging: ISPM 15	All wood packaging material must be heated to achieve a minimum temperature of 56°C throughout the entire profile of the wood (including at its core) for duration of at least 30 minutes.	
				MeBr	Atm	650C:T or 24 g/m ³ end point	21 +	24 hrs	MAF STD; Wood Packaging:			20 minutes of fan at the start, filleted or otherwise separate layers by at least every 200mm
						800 C:T or 28g/m ³ end point	16 +	24 hrs				
						900 C:T or 32 g/m ³ end point	10 +	24 hrs				
	Phosphine FPT1							Note: Not ISPM approved				
Bamboo, Cane, Rattan, Willow And Bark (includes bark chips, cork, bark pencils, cinnamon bark and other items containing unprocessed bark)	Insects See Note 16 for ants.	FPT5	MeBr	Vac	64 g/m ³	10 +		MAF STD: Bamboo, cane, willow, or rattan from all countries	Fan circulation minimum 20 minutes at start of fumigation Plastic wrapping opened or perforated			
			MeBr	Atm	72 g/m ³	10-11	24 hrs					
			MeBr	Atm	64 g/m ³	12-15	24 hrs					
			MeBr	Atm	56 g/m ³	16-20	24 hrs					
			MeBr	Atm	48 g/m ³	20 +	24 hrs					
	HT				56	30min	ISPM 15					



Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
Poles, Piles, Rounds, Sleepers (including railway sleepers) And Wood fillets spaced more than 200mm apart	Invertebrates	FPT6	MeBr	Atm	240 g/m ³	10 +	24 hrs	MAF STD: Poles, Piles, Rounds, Sleepers from all Countries	300mm+
		FPT6a	MeBr	Atm	160 g/m ³	10 +	24 hrs		201-299mm
	Invertebrates, Pathogens, Extraneous organic material	FPT7	HT			70	26 hrs		Note: maintain 100% humidity for fragile products or wood prone to warping. See Note 2 above.
Wooden decking (associated with used vehicles etc.)	Fungi in wooden decking	Refer to Commodity/Product "Vehicles, machinery, containers, parts, tyres, equipment (not used with animals) etc." for treatment options against fungi found in used wooden decking associated with imported used vehicles, trucks and utilities. However, if fungal rot has set in and wood decay is obvious, the wooden decking must be removed and destroyed.							



STORED PRODUCTS

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments		
General Stored Products in bags & cartons only up to 50kg. See Note 4 below <i>(Refer below for additional treatments of specific stored product items)</i>	Insects (Insecta) except <i>Trogoderma</i> spp.	SPT1	MeBr	Atm	32 g/m ³	21 +	24 hrs	FAO 79	Fan circulation minimum 20 minutes at start of fumigation. See Note 16 for ants.		
			MeBr	Atm	40 g/m ³	16-20	24 hrs				
			MeBr	Atm	48 g/m ³	10-15	24 hrs				
			MeBr	Vac:91 kPa	48 g/m ³	10-15	3 hrs				
			MeBr	Vac:91 kPa	40 g/m ³	16-20	3 hrs				
			MeBr	Vac:91 kPa	32 g/m ³	21 +	3 hrs				
			Phosphine	Atm	2 g/m ³	10-15	15 days	MAF BNZ	One day less can be subtracted for cylinderised or generated phosphine.		
			Phosphine	Atm	2 g/m ³	16-20	12 days				
			Phosphine	Atm	2 g/m ³	21-25	9 days				
			Phosphine	Atm	2 g/m ³	26 + (max 35)	5 days				
			Freezing					-18 or less	7 days	MAF STD 152.02	
			HT			Atm			56 +	30 mins	MAF BNZ

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
Bulk containerised stored products, 50kg plus See Note 4 below <i>(Refer below for additional treatments of specific stored product items)</i>	Insects (Insecta) except <i>Trogoderma</i> spp.	SPT2	MeBr	Atm	48 g/m ³	21 +	24 hrs	FAO 79	Fan circulation minimum 20 minutes at start of fumigation. See Note 16 for ants.
			MeBr	Atm	64 g/m ³	16-20	24 hrs		
			MeBr	Atm	80 g/m ³	10-15	24 hrs		
			Phosphine	Atm	2 g/m ³	10-15	15 days	MAF BNZ	
			Phosphine	Atm	2 g/m ³	16-20	12 days		
			Phosphine	Atm	2 g/m ³	21-25	9 days		
			Phosphine	Atm	2 g/m ³	26 + (max 35)	5 days		
General Stored Products in bags & cartons, and bulk containerised See Note 4 below	<i>Trogoderma</i> spp only	SPT3	MeBr	Atm	40 g/m ³	32 +	12 hrs	FAO 50	Fan circulation minimum 20 minutes at start of fumigation. Note: High MeBr dosages used may not be acceptable on products for human, consult NZ Food Safety Authority.
			MeBr	Atm	56 g/m ³	27-31	12 hrs		
			MeBr	Atm	72 g/m ³	21-26	12 hrs		
			MeBr	Atm	96 g/m ³	16-20	12 hrs		
			MeBr	Atm	120 g/m ³	10-15	12 hrs		
			HT			60 +	30 mins	MAF BNZ	The core temperature of product must reach 60°C.
<p>Note 4: Stored products (in bags and cartons and in bulk) refers to dried vegetable, fruit, grain, seed, edible nuts, etc. imported for human consumption, processing or stock food. Stored products do not include fresh fruit and vegetables.</p>									

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
General Stored Products in bags & cartons, and bulk containerised See Note 4 above	Devitalisation, Fungi & insects including <i>Trogoderma</i> spp	SPT4	HT	40% RH (min)		85	15 hrs	FAO 50	Destroys viability e.g. of seeds, nuts and pathogens.
			Autoclave	Pres:100 kPa		120	30 mins	FAO 50	
General Stored Products in bags & cartons	Mites	SPT5	MeBr	Atm	32 g/m ³	21 +	24 hrs	MAF BNZ	Re-fumigate after 12-14 days. Note: High MeBr dosages used may not be acceptable on products for human consumption, consult NZ Food Safety Authority.
				Atm	40 g/m ³	16-20	24 hrs	MAF BNZ	
				Atm	48 g/m ³	10-15	24 hrs	MAF BNZ	
Stored products; bulk containers	Mites	SPT6	MeBr	Atm	48 g/m ³	21 +	24 hrs	MAF BNZ	Re-fumigate after 12-14 days. Note: High MeBr dosages used may not be acceptable for human consumption, consult NZ Food Safety Authority.
				Atm	64 g/m ³	16-20	24 hrs	MAF BNZ	
				Atm	80 g/m ³	10-15	24 hrs	MAF BNZ	
Citrus Products (including dried peel and dried citrus belonging to genera <i>Citrus</i> , <i>Fortunella</i> & <i>Poncirus</i>) Dried herbs and leaves	Bacteria, micro-organisms	SPT7	HT	40% RH (min)		85	8 hrs	MAF BNZ	Treatment kills pathogens
			Autoclave	Pres:100 kPa		120	30 mins	MAF BNZ	

Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Pressure/ Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
Stockfood (plant derived animal feed)	Devitalisation / Pathogens	SPT8	HT	40% RH (min)		85	15 hr	MAF BNZ	Destroys viability e.g. of seed and pathogens
			Autoclave	Pres:100 KPa		120	30 min	MAF BNZ	
			Irradiation		25 kGy			MAF BNZ	
	Insects	SPT2	MeBr						
	Trogoderma	SPT 3	MeBr						
Nuts	Insects	SPT 9	MeBr	Atm	16 g/m3	21	12 hr	MAF BNZ	
				Vac 91kPa	48 g/m3	21	1 hr	MAF BNZ	
Nuts	Devitalisation	SPT4	HT						
Plant products	Devitalisation	SPT10	Grinding						No whole seeds remaining

PLANT PRODUCTS

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp °C	Time	Source	Comments	
All Plant Products including broom millet, corn dollies, dried flowers & foliage, millet spray, straw, etc.	Devitalisation (plant & seed) and Pathogens (e.g. fungi, bacteria)	SPT4	HT	40%RH (min)		85	15 hr	FAO 50	Destroys viability (e.g. plant & seed) and kills fungi, bacteria etc. Autoclaving appropriate for <i>Nostoc commune</i> .	
			Autoclave	Pres:100 KPa		118	30 min	FAO 50		
	Insects (Insecta) except <i>Trogoderma</i> spp.	SPT1								
		PPT1	HT	Dry heat			70	4 hr	MAF BNZ	The core temperature must be 70°C for 4 hrs
	<i>Trogoderma</i> spp only	SPT3	MeBr			Use rates as prescribed for <i>Trogoderma</i> spp found in Stored Products SPT3				Fan circulation minimum 20 minutes at start
HT			Use rates as prescribed for <i>Trogoderma</i> spp found in Stored Products SPT3							
Plant Products not for human consumption (applies only to products in IHS's where this treatment is stated as an option)	Renders incapable of procreation (e.g. seed, Arthropods, pathogens etc.)	PPT2	Irradiation		25 kGy			MAF BNZ		
Brushwood Group 1 as per IHS	Devitalisation and Pathogens	SPT4 or PPT2						Dried Plant Material IHS		

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
Brushwood Group 2 as per IHS	Regulated pests	FPT5 or PPT2						Dried Plant Material IHS	
Mosses & Lichens	Devitalisation	SPT4							

NURSERY STOCK

Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Active ingredient	Application Rate	Time	Source	Comments
All whole plants and cuttings e.g. cuttings, scions, budwood, marcots, off-shoots	Insects (Insecta) Only See Note 5 below	NST1	Organophosphorous	Acephate	0.75 g a.i./L of dip/spray	2-5 mins	MAF STD: 155.02.06	Non-dormant material only
			Organophosphorous	Chlorpyrifos	2.4 g a.i./L of dip/spray	2-5 mins		Non-ionic surfactant required for dipping
				Dimethoate	As per label	2-5 mins		Non-dormant material only
				Pirimiphos-methyl	0.475 g a.i./L of dip/spray	2-5 mins		Non-ionic surfactant required for dipping
				Acephate	0.75 g a.i./L of dip/spray	2-5 mins		Non-dormant material only
			Carbamate	Carbaryl	As per label	2-5 mins		
			Diacylhydrazine	Tebufenozide	As per label	2-5 mins		
			Neonicotinoid	Imidacloprid	0.16 g a.i./L of dip/spray	2-5 mins		Non-dormant material only
			Pyrethroid	Deltamethrin	As per label	15 mins		
			Pyrethroid	Fenvalerate	As per label	15 mins		
	Spinosyns	Spinosad	As per label	2-5 mins	Dip/spray at room temperature			

NOTE 5: The above contact and systemic insecticidal dips may be used instead of fumigation but only if the packaging material is separately fumigated or destroyed. **Two chemicals must be used for any treatment**, one organophosphorous and one other insecticide must be used. Plants are to be immersed completely or all surfaces sprayed to runoff. The chemicals, if compatible, may be combined as a single treatment. Dip solutions must be used no more than twice or as per manufacturer's recommendations.

Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Pressure/ Humidity	Dosage	Temp. ⁰ C	Time	Source	Comments
All whole plants and cuttings e.g. cuttings, scions, budwood, marcots, off-shoots	Insects	NST2	MeBr	Atm	48 g/m ³	10-15	2 hrs		Packaging to be dipped or fumigated as per FVT7 or destroyed. See Note 16 for ants.
			MeBr	Atm	40 g/m ³	16-21	2 hrs		
			MeBr	Atm	32 g/m ³	22-27	2 hrs		
			MeBr	Atm	28g/m ³	28-32	2hrs		
	Insects	NST3	Hot Water AND Chlorpyrifos + non-ionic surfactant		2.4 g a.i./L	24C then 45C	2hrs 3hrs 2 mins		Maximum of 2 times use of solution or as per manufacturer's recommendations
	Spiders	NST4	Chlorpyrifos		0.24 g a.i./L		2 mins		Packaging to be dipped or fumigated as per FVT7 or destroyed
	Molluscs	NST5	Methiocarb		0.75 g a.i./L		5 mins		
	Mites/Insects	NST6	Phosphine+ CO ₂ + MeBr	Atm	3g/m ³ +5% CO ₂ 13g/m ³ 3g/m ³ +5% CO ₂ 13g/m ³	15	4 hrs	Kawakami et al 1996	Add the MeBr into chamber directly after the PH ₃ /CO ₂ mix (Eco2fume tm) has been added.
			Phosphine+ CO ₂ + MeBr	Atm		20	3hrs		
	Fungi	FNS8	If waiting for fungi identification plants can be treated as per FNS8 and directed to PEQ pending result. BSI must be informed of identification results. Further action may be required.						
Bacteria/ Virus		Hold consignment. Following identification contact MAF BNZ.							Packaging to be treated the same as the product

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Active ingredient	Dosage	Time	Source	Comments	
Dormant bulbs, root divisions, corms, tubers and rhizomes	Insects	NST7	NST2, OR NST3, OR NST6, OR apply two active ingredients from different chemical groups below.						Packaging to be dipped or fumigated as per FVT7 or destroyed. See Note 16 for ants.
			Neonicotinoid	Diazinon	0.5 g a.i./L	5mins			
			Phenylpyrazole	Fipronil	40 mg/L	5 mins		non-ionic surfactant required	
			Organophosphorous	Pirimphos-methyl	3.25 g a.i./L	5mins		non-ionic surfactant required	
			Organophosphorous	Imidacloprid	0.16 g a.i./L	5 mins			
	Nematodes	NST8	NST2 + immersion in Fenamiphos, 1g a.i./L for 1 hour OR Hot water at 44°C for 3 hr (pre warm at 24°C for 2 hr) + immersion in Fenamiphos, 1 g a.i./L for 1 hour						Maximum of 2 times use or as per manufacturers recommendations. Packaging to be dipped or fumigated as per FVT7 or destroyed
	Mites	NST9	NST6 OR Hot water at 44°C for 3 hr (pre warm at 24°C for 2 hr).						Packaging to be dipped or fumigated as per NST6 or destroyed

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Active ingredient	Dosage	Time	Source	Comments	
Dormant bulbs, root divisions, corms, tubers and rhizomes	Fungi	NST10	Dip with one of the following chemicals then hot water at 44 C for 3 hr (pre warm at 24 C for 2 hr);				0		Dipped at room temp unless stated. Before any treatment is carried out, any bulbs with established infections are to be sorted & destroyed. Packaging to be dipped or heat treated SPT4 or destroyed
			a) Sodium hypochloride 10% a.i., Ph 6.5-7 for 5 mins with agitation						
			b) Bromo-chloro-dimethylhydantoin, 8.1-16 g/L						
			c) Formaldehyde, 0.4% for 2hrs						
			d) Peroxyacetic acid, 80 ppm for 5 mins, wetting agent required						
			e) Chlorine-dioxide, 80mg/L for 5 mins with agitation						
			OR						
Dip in two active ingredients from different chemical groups below.									
			Benzimidazole (wetting agent required)	Thiabendazole	1-1.3 g/L	15-30mins			
			Benzimidazole	Thiophanate-methyl	0.75 g/L	15-30mins			
			Dimethyldithiocarbamate	Thiram	11.2 g/L	15mins			
			Imidazole	Prochloraz	0.25 g/L	15mins			
			Strobilurin	Azoxystrobin	0.95 g/L	15mins			

FRESH FLOWERS AND FOLIAGE

Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Pressure/ Humidity	Dosage	Temp ⁰ C	Time	Source	Comments
Fresh Flowers and Foliage only	Snails (Mollusca); except Giant African Snail	FNS4	MeBr	Atm	48g/m ³	12 +	24 hrs	MAF BNZ	Fan circulation minimum 20 minutes at start of fumigation. See Note 6 below.
		NST5	Methiocarb						
	Giant African Snail (Mollusca)	VCE2	The high dosages of MeBr which would be required here are likely to be phytotoxic to plants.						Fan circulation minimum 20 minutes at start of fumigation
	Mosses & Lichens	FNS5	Recondition consignment by removing all mosses and lichens for destruction.						The consignment must be re-inspected prior to release.
	Large hitchhikers such as worms		Hold consignment and following identification contact MAF BNZ.						100% inspection & removal may be an option.
	Only for ants, aphids, earwigs, moths, psocids, thrips	FNS6	Pestigas (pyrethrum + CO ₂) + ECO2 Fume (Phosphine + CO ₂).	For rates & details refer Note 7 below	15 +	15 hrs	Approved by MAF BNZ	For requirement to re-inspect, see Note 8 below	
Mites.	NST6	NST6 or extend FNS6 to 24hrs						Kawakami et al 1996	

Note 6: This MeBr treatment for snails on fresh flowers, foliage and nursery stock may be permitted only if a full re-inspection is conducted after the MeBr fumigation is completed and all the gas fully discharged. If live snails are found during the re-inspection, the whole consignment must be held and MAF BNZ notified immediately.

Note 7: Spray with Pestigas (synergised pyrethrum with carbon dioxide as a carrier gas) at 4.4 g/m³ (within an airtight enclosure or fumigation cell) and hold for 10 minutes. This is followed by a spray with ECO2 Fume (Phosphine with carbon dioxide as a carrier gas) to give a concentration of 700 ppm a.i./m³ of PH₃ and hold for 15 hours at a minimum air temperature of 15°C.

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Active ingredient	Dosage	Time	Source	Comments
Fresh Flowers and Foliage only	Insects (Insecta) only	FNS7	Contact insecticides: (Choose one, plus a systemic insecticide)	800 g/L diazinon	0.5 ml/litre of water	15 mins	MAF STD 155.02.06	The contact and systemic insecticidal dips may be used instead of fumigation but only if the packaging material is separately fumigated or destroyed. These chemical dips are not acceptable on goods for human consumption. Two chemicals (active ingredients) must be used for any treatment; one contact insecticide and one systemic insecticide must be used. Plants are to be immersed completely in the chemicals. The chemicals, if compatible, may be combined as a single treatment.
				100 g/L dichlorvos	4 ml/litre of water	15 mins		
				25 g/L permethrin	1 ml/litre of water	15 mins		
				475 g/L primiphos methyl	1 ml/litre of water	15 mins		
				240 g/L taufluvinate	0.4 ml/litre of water	15 mins		
			Systemic insecticides: (Choose one, plus a contact insecticide)	195 g/L acephate (soluble concentrate)	0.8 g/litre of water	15 mins	MAF STD 155.02.06	
				970 g/kg acephate (water soluble granule)	1 ml/litre of water	15 mins		
				500 g/L dimethoate	0.4 ml/litre of water	15 mins		
				600 g/L methamidaphos	1.6 ml/litre of water	15 mins		
				350 g/L imidacloprid	0.45 ml/litre of water	15 mins		

Note 8: From Jamieson 2005: If any live Arthropod pests different from those mentioned here are found during inspection, and the importer wishes to use this treatment option, leave some of the live pests in at least 5 (or as many as possible) of the cartons they were found in. Mark the cartons clearly so they can be easily identified. Following treatment inspect the marked cartons to ensure all the pests concerned are killed and if the pests are killed, the consignment can be released. If the pests are alive, offer re-fumigation with methyl bromide (if applicable) or re-ship/destroy etc. If insufficient Arthropod pests are "seeded", a full re-inspection is required. Notify MAF BNZ of the results.

Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Dosage	Time	Source	Comments
Fresh Flowers and Foliage only	Insects (Insecta) only	FNS7 cont...	Mineral Spraying oils or Surfactants				See Note 9 below
		FVT1 or NST6	Methyl Bromide				See Note 16 for ants.
	Fungi only	FNS8	125 g/L chlorothalonil & 125 g/litre thiophanate-methyl (e.g. Greenguard) Or 250 g/L chlorothalonil & 250 g/L thiophanate-methyl (e.g. Taratek 5F) Or Other treatments as approved by MAF BNZ	6 ml/litre of water 3 ml/litre of water	15 mins 15 mins	MAF BNZ NZ Agri-chemical Manual	See Note 9 below. These fungicides may be used as treatment options against fungi especially since final identifications of fungi may take a long time. All plants to be treated are to be immersed completely in the chemicals.
Devitalisation	FNS9	360 g/L Glyphosate (e.g. based on 0.5 % Roundup)	Immerse the stems etc to within 50 mm of the flowers for 20 minutes. The temperature should be a minimum of 15°C high enough to ensure transpiration is taking place.			Refer to MAF STD 152.09.05; this treatment is required only for stems of flowers and foliage requiring Additional Declaration 3, i.e. treatment to render the consignment non-propagatable.	

Note 9: If a compatible (refer NZ Agrichemical Manual) adjuvant oil or a surfactant (improves wetting, penetration, adhesion) is used in the dip(s), the dipping time may be reduced from 15 min to 5 min but all air bubbles must have dispersed from the flower/foliage surface ; except for bulbs, corms, tubers and rhizomes when dipping time will remain 15 min.



FRESH FRUIT AND VEGETABLES

Commodity/Product	Reason for Treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp. ⁰ C	Time	Source	Comments
Fresh Fruit and Vegetables (including Pineapples) See Notes 10 and 11 below <i>(Refer below for additional treatments for some specified fruits and vegetables)</i>	Insects (except fruit flies) Mites and Slugs Spiders ; except in grapes & bananas specified below in FVT6, & FVT8	FVT1	MeBr	Atm	48 g/m ³	10-15	2 hrs	FAO 79/ BNZ	Pulp temperature to be used. Fan circulation minimum 20 minutes at start of fumigation.
			MeBr	Atm	40 g/m ³	16-21	2 hrs	FAO 79/ BNZ	
			MeBr	Atm	32 g/m ³	22- 27	2 hrs	FAO 79/ BNZ	
			MeBr	Atm	24 g/m ³	28 - 32	2 hrs	FAO 79/ BNZ	
			MeBr	Atm	16 g/m ³	33 - 36	2 hrs	FAO 79/ BNZ	
USA strawberries peaches, plums, nectarine, table grapes and cherries.	Failed in transit cold treatment	FVT1a	MeBr	Atm	48 g/m ³	12-17	2 hrs	MAF BNZ IHS	Three pulp temperatures to be used. Fan circulation minimum 20 minutes at start of fumigation.
Fresh Fruit and Vegetables	Spiders (Arachnida)	FVT2	SO ₂ /CO ₂	Atm	1% SO ₂ and 6% CO ₂	16	30 mins	MAF BNZ	Minimum inner carton /box temperature shall be 16 ⁰ C
	Fruit flies & live <i>Drisophila suzukii</i>	Hold consignment! Following identification, use BORIC (pest data base) and follow instructions.							

Note 10: Some treatments for fresh fruit and vegetables are contaminant or commodity specific e.g. HCN for bananas. If a specific treatment is not identified for a commodity, then use the generic treatments identified.

Note 11: It is not acceptable to use chemical dips for commodity items used for human consumption (e.g. fruit, vegetables, stored products etc.)



Commodity/Product	Reason for Treatment	Short code	Treatment/ Chemical	Pressure/ Humidity	Dosage	Temp ^o C	Time	Source	Comments
cont...	Snails (Mollusca), except Giant African Snail	FVT3	MeBr	Atm	48 g/m ³	12 +	24 hrs	MAF BNZ	Fan circulation minimum 20 minutes at start of fumigation See Note 12 below.
	Giant African Snail (Mollusca)	The high dosages of MeBr which would be required here are likely to be phytotoxic to plants and not acceptable for human consumption.							
	Bacteria/ Fungi/ Virus	Hold consignment! Following identification, use BORIC (pest data base) and follow instructions.							
Fruit Fly Host Material (i.e. all fruits and vegetables that are hosts to fruit flies)	Arthropods (Arthropoda including Insecta) & Devitalisation	FVT4	Freezing			-18 or less	7 days	FAO 50 MAF STD 152.02	A fully calibrated and reliable thermograph recording may be required for the 7-day exposure period.
Non-Fruit Fly Host Material (i.e. all fruits and vegetables not attacked by fruit flies)	Arthropods (Arthropoda, including Insecta) & Devitalisation	FVT5	Freezing			-10 or less	7 days	FAO 50 MAF STD 152.02	A fully calibrated and reliable thermograph recording may be required for the 7-day exposure period.
Bananas & Pineapples	Surface insects	FVT6	HCN	Atm	3 g/m ³ (2620ppm)	13.5 +	2 hrs See Note 13 below.	BNZ/ Pharmo-chem Co.	Fan circulation (1m/sec minimum) throughout treatment, plastic carton liners perforated or removed, inner carton/ box temperature to be used
<p>Note 12: This MeBr treatment for snails on fresh fruit and vegetables may be permitted only if a full re-inspection is conducted after the MeBr fumigation is completed and all the gas fully discharged. If live snails are found during the re-inspection, the whole consignment must be held and MAF BNZ notified immediately.</p> <p>Note 13: If discoids are used rather than bottled hydrogen cyanide (HCN) gas, add 30 minutes to the exposure times mentioned above to allow sufficient time for HCN gas to form. Commodity must be dry as any moisture will absorb HCN and fumigation enclosure must have painted surfaces.</p>									

Commodity/Product	Reason for treatment	Short code	Treatment/Chemical	Pressure/Humidity	Dosage	Temp. ⁰ C	Time	Source	Comments	
Grapes	Spiders (Arachnida) from Australia, Chile, Italy and USA	FVT8	MeBr	Atm	48 g/m ³	12 +	8 hrs	MAF BNZ (Zettler unpublished)	Fan circulation minimum 20 minutes at start of fumigation, inner carton /box temperature to be used.	
Root crops associated with the soil e.g. ginger, garlic, taro, yam, cassava, etc.	Nematodes	FVT9	MeBr	Atm	48 g/m ³	10-15	4 hrs	FAO 50	Pulp temperature to be used.	
			MeBr	Atm	48 g/m ³	16-20	3.5 hrs	FAO 50	Fan circulation minimum 20 minutes at start of fumigation.	
			MeBr	Atm	48 g/m ³	21-26	3 hrs	FAO 50		
			MeBr	Atm	40 g/m ³	27-31	3 hrs	FAO 50		
			MeBr	Atm	32 g/m ³	32 +	3 hrs	FAO 50		
			Hot air							Rates are being investigated
			Hot water							Rates are being investigated
	Weed seeds	FVT10	Reconditioning to remove weed seeds. Verification by inspector supervision or by MAF inspection of a new random sample. Where reconditioning is removal of contamination site (e.g. cutting tops off pineapples) verification is by visual MAF check							
	Soil	FVT11	Either washing or scraping or brushing then reinspection							

SEEDS

Commodity/Product	Reason for treatment	Short code	Treatment/ Chemical	Pressure/ Humidity	Dosage	Temp ⁰ C	Time	Source	Comments	
Seeds For Sowing	Insects (Insecta) except Trogoderma spp.	SST1	MeBr	Vac:91 KPa	40 g/m ³	20	3 hrs	FAO 79	Fan circulation minimum 20 minutes at start of fumigation.	
			MeBr	Atm	16 g/m ³	20 +	24 hrs	FAO 79		
			MeBr	Atm	24 g/m ³	10-19	24 hrs	FAO 79	See Note 16 for ants.	
			Phosphine	Atm	2 g/m ³	10 -15	7 days	FAO 79		
			Phosphine	Atm	2 g/m ³	16 - 20	6 days	FAO 79		
			Phosphine	Atm	2 g/m ³	21 - 25	5 days	FAO 79		
			Phosphine	Atm	2 g/m ³	26 + (max 35)	4 days	FAO 79		
	Trogoderma spp.	SPT3	MeBr	Use rates as prescribed for Trogoderma spp. found in Stored Products. Potential for reduction in germination.					FAO 79	Fan circulation minimum 20 minutes at start of fumigation
	Mites (Arachnida)	SST2	MeBr	SST1 then hold securely and re-fumigate after 12-14 days.				MAF BNZ		
	Seed and soil as contaminants	Dressing out or sorting or reconditioning of seeds is a viable "treatment" option in some instances. The method here involves manual or mechanical removal of all biosecurity risk contaminants for destruction by an approved method. Reconditioning must be done under supervision by an Inspector. The reconditioned seed consignment must be re-inspected by an Inspector to ensure freedom from contaminants prior to final release.								
Bacteria/Fungi/Virus	Hold consignment. Following identification, Inspector to use the BORIC database and follow instructions.									

Seeds

Seeds Not For Sowing	Devitalisation of seeds	SST6	Autoclave	Pres:100 kPa		118	30 mins	MAF STD:	To destroy viability and kill fungi
	(including							BNZ-	
	contaminant seeds) and Fungi		HT	40% RH (min)		85	15 hrs	GCFP-PHR	
	Devitalisation of seeds (including contaminant seeds)	SPT10	Grinding or milling						No whole seeds remaining