



PECAN NUTS: Information on products registered under Act 36 of 1947 for specific use in South Africa.

The information listed below is provided as a guideline to growers.
The provider cannot accept any liability for its accuracy and users who rely on this information do so at their own risk.

INSECTICIDES & ACARICIDES

Target	Chemical class	Group code	Active ingredient	Trade name	Form	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
Ants, Aphids, Astylus beetle, Bollworm, CMR beetle, Red spider mite, Thrips, Whitefly	unknown + botanical + cyclic aromatic + pyrethrin	3A	canola oil + garlic juice extract + piperonyl butoxide + pyrethrin extract	Kannar KangroShield 100	SC	L7630	Kannar Earth Science (Pty) Ltd	250 g/L + 642 g/L + 50 g/L + 14 g/L	500 ml/100 L	Foliar	2	Apply as a high pressure, full cover spray at first sign of pests. Repeat at 5-day intervals.
Ants, Aphids, Astylus beetle, Bollworm, CMR beetle, Red spider mite, Thrips, Whitefly	unknown + botanical + pyrethrin	3A	canola oil + garlic juice extract + pyrethrin extract	Kannar Pygar 932	SC	L7146	Kannar Earth Science (Pty) Ltd	473 g/L + 473 g/L + 2.75 g/L	1.5-2 L/100 L	Foliar	1	Apply as a high pressure, full cover spray at first sign of pests. Repeat at 5-day intervals. Use lower dose on young plants and higher dose when insect pressure is high, and plants more mature.
Aphids	organophosphate	1B	chlorpyrifos	Pyrixex 250 CS	CS	L6515	Adama South Africa (Pty) Ltd	250 g/L	200 ml/100 L	Foliar	83	Apply as a full cover spray as soon as the pest is noticed. Repeat the application 4 weeks later and so on if required. Optimal pH = 4.
Aphids	botanical	-	garlic juice extract	Kannar Garlic Repellent 930	SC	L7147	Kannar Earth Science (Pty) Ltd	478 g/L	2-3 L/100 L	Foliar	0	Add a suitable insecticide with contact and or stomach killing action to kill insect populations present on plants.
Aphids	neonicotinoids	4A	imidacloprid	Kohinor 350 SC	SC	L8447	Adama South Africa (Pty) Ltd	350 g/L	18 ml/tree	Soil drench	112	Note that imidacloprid is toxic to honeybees. Apply 2L water solution to soil directly around the base of tree trunk after clearing application area from weeds and mulch. Irrigate within 24 h after application.
Aphids	carbamates	1A	pirimicarb	Apex 500 WDG	WG	L8475	Villa Crop Protection (Pty) Ltd	500 g/kg	100 g/100 L	Foliar	56	If aphids are present, spray once in the middle of January. Add a suitable adjuvant.
Aphids	carbamates	1A	pirimicarb	Aphox	WG	L3428	Syngenta South Africa (Pty) Ltd	500 g/kg	100 g/100 L	Foliar	56	If aphids are present, spray once in the middle of January. Add a suitable adjuvant.
Aphids	carbamates	1A	pirimicarb	Unipex 500 WDG	WG	L8474	Villa Crop Protection (Pty) Ltd	500 g/kg	100 g/100 L	Foliar	56	If aphids are present, spray once in the middle of January. Add a suitable adjuvant.
Bark borer	pyrethroid	3A	beta-cyfluthrin	Bulldock Beta 125 SC	SC	L7612	Bayer (Pty) Ltd	125 g/L	1.2 ml/10 L	Knapsack	--	Apply with knapsack sprayer to lesions on branches. Do not spray the whole tree or on fruit.
Bark borer	carbamates	1A	carbaryl	Sevin XLR Plus	SC	L5783	Villa Crop Protection (Pty) Ltd	480 g/L	450 ml/100 L	Stem	--	Apply approximately 50 ml of spray mix directly into each tunnel by means of a knapsack applicator for control of stem borer or spray the lesions for bark borer control. Do not spray the entire tree. Treat only the affected areas on the stem.
Bollworm - African (American) bollworm	pyrethroid	3A	alpha-cypermethrin	Fastac SC	SC	L4992	BASF South Africa (Pty) Ltd	100 g/L	5 ml/100 L	Foliar	30	High volume, full cover foliar application: 125-175 ml/ha. Optimum pH = 4. Maximum 2 applications per growing season. Warning against ballworm resistance.
Bollworm - African (American) bollworm	diamides + pyrethroid	28 + 3A	chlorantraniliprole + lambda-cyhalothrin	Ampligo	CS	L8685	Syngenta South Africa (Pty) Ltd	100 g/L + 50 g/L	200-500 ml/ha	Aerial; Ground	14	Maximum 4 applications per season. Apply before pests reach damaging levels based on economic thresholds. Scout fields and repeat sprays if populations start to rebuild, with a minimum of 7 days between applications. Optimum pH = 3.5 - 4.0.
Bollworm - African (American) bollworm	avermectins; milbemycins	6	emamectin benzoate	Proclaim	SG	L7581	Syngenta South Africa (Pty) Ltd	50 g/kg	22-34 g/100 L	Foliar	14	Use the lowest rates for low to moderate infestations and the highest rate for high infestations. Timing and frequency of applications should be made at first signs of insect infestation as indicated by local spray threshold. For best results apply soon after pest eggs have hatched. Treatment must be made before larvae penetrate fruit or stems.
Bollworm - African (American) bollworm	microbial	-	<i>Helicoverpa armigera</i> nucleopolyhedrovirus [syn. bollworm nucleopolyhedrovirus]	Bolldex®	SC	L8895	Madumbi Sustainable Agriculture (Pty) Ltd	7.5 x 10 ¹² occlusion bodies/L	200 ml/ha	Foliar	0	First application with detection of bollworm eggs. Second application 7 -10 days after first application and so on if bollworm stays present. Do a full cover film application during late afternoon or evening. Optimum pH = 5-8.
Bollworm - African (American) bollworm	microbial	-	<i>Helicoverpa armigera</i> nucleopolyhedrovirus [syn. bollworm nucleopolyhedrovirus]	Graboll	SC	L9295	Chempac	7.5 x 10 ¹² occlusion bodies/L	200 ml/ha	Foliar	0	First application with detection of bollworm eggs. Second application 7 -10 days after first application and so on if bollworm stays present. Do a full cover film application during late afternoon or evening. Optimum pH = 5-8.
Bollworm - African (American) bollworm	microbial	-	<i>Helicoverpa armigera</i> nucleopolyhedrovirus [syn. bollworm nucleopolyhedrovirus]	Helicovir	SC	L8484	River Bioscience (Pty) Ltd	5 x 10 ¹¹ occlusion bodies/ml	12 ml/100 L	Foliar or aerial	0	Apply during early morning after eggs hatched and before larvae exceed 10 mm in length. Thorough coverage is essential as <i>Helicovir</i> must be ingested. For heavy infestations a chemical alternative should be considered or used in conjunction with <i>Helicovir</i> for extended efficacy. Optimum pH = 5-7. Apply a minimum spray mixture of 400 L/ha. Aerial: minimum of 30 L/ha. Add a non-ionic surfactant or 5 ml/100 L Breakthru. ead label for further application instructions.
Codling moth	pheromone	-	(E,E)-8,10-dodecadien-1-ol [codlemone]	BioLure CM	RB	L5690	Spectrum Research Services cc	5.25 g/kg	1/trap/2 ha	Lure	0	Remove protective strip and place in Yellow Delta Trap. Hang trap out in same location each year, placing them out early in the season. Hang as high as possible in tree tops. Replace the lures every 6-8 weeks (remove old lures from orchard).
Codling moth	pheromone	-	(E,E)-8,10-dodecadien-1-ol [codlemone]	Chempac BioLure CM-10X	RB	L6232	Spectrum Research Services cc	31 021 g/kg	1/trap/2 ha	Lure	0	Remove protective strip and place in Yellow Delta Trap. Hang trap out in same location each year, placing them out early in the season. Hang as high as possible in tree tops. Replace the lures every 6-8 weeks (remove old lures from orchard).
Codling moth	diamides + pyrethroid	28 + 3A	chlorantraniliprole + lambda-cyhalothrin	Ampligo	CS	L8685	Syngenta South Africa (Pty) Ltd	100 g/L + 50 g/L	200-500 ml/ha	Aerial; Ground	14	Maximum 4 applications per season. Apply before pests reach damaging levels based on economic thresholds. Scout fields and repeat sprays if populations start to rebuild, with a minimum of 7 days between applications. Optimum pH = 3.5 - 4.0.
Codling moth	avermectins; milbemycins	6	emamectin benzoate	Proclaim	SG	L7581	Syngenta South Africa (Pty) Ltd	50 g/kg	22-34 g/100 L	Foliar	14	Use the lowest rates for low to moderate infestations and the highest rate for high infestations. Timing and frequency of applications should be made at first signs of insect infestation as indicated by local spray threshold. For best results apply soon after pest eggs have hatched. Treatment must be made before larvae penetrate fruit or stems.

Target	Chemical class	Group code	Active ingredient	Trade name	Form	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
False codling moth	pheromones	-	(E)-7-dodecenyl acetate + (E)-8-dodecenyl acetate [syn. (E)-8-dodecen-1-yl acetate] + (Z)-8-dodecenyl acetate [syn. (Z)-8-dodecen-1-yl acetate]	F.C.M. PheroLure	VP	L7875	Insect Science (Pty) Ltd	12.5 + 10.4 + 2.1 mg/lure	1 trap/4-5 ha	Lure	0	Place lure in a delta trap and replace every 28-30 weeks.
False codling moth	pheromones	-	(E)-8-dodecenyl acetate [syn. (E)-8-dodecen-1-yl acetate] + (Z)-8-dodecenyl acetate [syn. (Z)-8-dodecen-1-yl acetate]	Check-Mate FCM-F	CS	L8384	Spectrum Research Services cc	175.2 g/L + 49.8 g/L	110 ml/ha	Mating disruption	0	Apply using a water volume of 20-50 L/ha, sprayed in the top 1/3 of the tree canopy every 21-28 days. First application should be done before the first male moth peak at the beginning of the season.
False codling moth	pheromones	-	(E)-8-dodecenyl acetate [syn. (E)-8-dodecen-1-yl acetate] + (Z)-8-dodecenyl acetate [syn. (Z)-8-dodecen-1-yl acetate]	RB Splat FCM	AP	L10259	River Bioscience (Pty) Ltd	30 g/Kg	1000 g/ha	Mating disruption	0	Apply to top third of actively growing trees at a rate of 500 x 2 g or 750 x 1.3 g point sources. Apply every 10-12 weeks beginning in October. Do not apply 14 days before or after copper sprays or when temperatures exceed 35°C.
False codling moth	pheromones	-	(E)-8-dodecenyl acetate [syn. (E)-8-dodecen-1-yl acetate] + (Z)-8-dodecenyl acetate [syn. (Z)-8-dodecen-1-yl acetate]	X-Mate™ FCM	GS	L10320	Insect Science (Pty) Ltd	962.5 mg + 287.5 mg	1 disp. / 250 m ²	Mating disruption	0	Use 40-42 X-Mate™ FCM dispensers in total / ha / production season irrespective of tree density. Use the table provided on the label as a guideline to determine your correct placement within the orchard. Hang the dispensers evenly and uniformly throughout the orchard.
False codling moth	neonicotinoids + pyrethroid	4A + 3A	acetamiprid + bifenthrin	Aceta Star 46 EC	EC	L9255	Adama South Africa (Pty) Ltd	16 g/L + 30 g/L	150 ml/100 L	Foliar	28	Monitor for the pest and start application when the first signs of pest presence are observed. Apply as a full cover spray to the point of run-off. Apply at intervals of 7-10 days. To avoid the development of resistance, apply as part of an IPM strategy. Do not exceed two applications per growing season. Do not spray on the trees while flowers are present due to adverse effects on honeybees.
False codling moth	neonicotinoids + benzoylureas	4A + 1S	acetamiprid + novaluron	Cormoran 180 EC	EC	L9480	Adama South Africa (Pty) Ltd	80 g/L + 100 g/L	50-75 ml/100 L	Foliar	84	Maximum one application per season. Apply as a high volume spray to the point of run-off, ensuring thorough coverage. Monitor for the pest and start application when the first signs of pest presence are observed. The application rate depends on the level of infestation and size of the larvae at application. Apply in an IPM programme, alternating with products with a different mode of action.
False codling moth	microbial	-	<i>Bacillus thuringiensis</i> , subspecies <i>kurstaki</i> (strain SB4)	BeTaPro™	WG	L8834	BASF South Africa (Pty) Ltd	± 100 000 ITU/mg	160 g/ha @ 1000 L/ha or 320 g/ha @ > 1000 L/ha	Foliar	0	Apply as preventive full cover film spray when FCM warrants control. UV sensitive. For extended modes of action, use in combination with BroadBand™ at the recommended rate. Minimum three applications per season in IPM program.
False codling moth	microbial	-	<i>Beauveria bassiana</i>	Broadband	EC	L8270	BASF South Africa (Pty) Ltd	4 x 10 ⁹ spores/ml	50 ml/100 L	Foliar	0	Apply minimum 1000 ml/ha late afternoon or evening as full cover spray. Add an approved adjuvant for optimum efficacy.
False codling moth	microbial	-	<i>Beauveria bassiana</i>	Eco-Bb	Spore Concentrate	L8469	Madumbi Sustainable Agriculture (Pty) Ltd	2 x 10 ⁹ spores/g	1 g/L	Foliar	0	High spray volume of 600-1000 g/ha depending on size of tree and degree of infestation. The higher rate is preferred on large trees, or when pest severity is high.
False codling moth	diamides	28	chlorantraniliprole	Altacor	WG	L8467	FMC Chemicals (Pty) Ltd	350 g/kg	10 g/100 L spray mixture	Foliar	10	Apply as a full cover foliar application at spray volumes from 2000-4000 L/ha depending on the stage of the crop (max 300 g/ha). Add a registered non-ionic wetter. Ensure thorough coverage of the foliage and developing fruit. Controls larvae only. Maximum two applications per season.
False codling moth	diamides	28	chlorantraniliprole	Coragen	SC	L8529	FMC Chemicals (Pty) Ltd	200 g/L	17.5 ml/h spray mixture	Foliar	10	Apply as a full cover foliar application at spray volumes from 2000-4000 L/ha depending on the stage of the crop. Add a registered non-ionic wetter. Ensure thorough coverage of the foliage and developing fruit. Controls larvae only. Maximum two applications per season with ten day intervals.
False codling moth	diamides + pyrethroid	28 + 3A	chlorantraniliprole + lambda-cyhalothrin	Ampligo	CS	L8685	Syngenta South Africa (Pty) Ltd	100 g/L + 50 g/L	200-500 ml/ha	Aerial; Ground	14	Maximum 4 applications per season. Apply before pests reach damaging levels based on economic thresholds. Scout fields and repeat sprays if populations start to rebuild, with a minimum of 7 days between applications. Optimum pH = 3.5 - 4.0.
False codling moth	pheromones	-	E-8-dodecenyl acetate + Z-8-dodecenyl acetate + E/Z-8-dodecenol	Isomate® FCM	VP	L7692	Nulandis	0.24 g/kg	800 dispensers / ha / season	Mating disruption	0	End September to beginning of October (before first FCM emergence); Hang 500 ISOMATE FCM dispensers in all relevant orchards followed by 300 Isomate FCM dispensers at the beginning of January.
False codling moth	oxadiazines	22A	indoxacarb	Steward 150 EC	EC	L8435	FMC Chemicals (Pty) Ltd	150 g/L	50 ml/100 L spray mixture	Foliar	14	Apply as a full cover foliar application at spray volumes from 2000-4000 L/ha depending on the stage of the crop. The addition of a registered non-ionic wetter, such as TREN D® 90, may enhance the insect control potential. Apply when moth catches in pheromone traps indicate an infestation of FCM or at the onset of ripening. Further applications should be made at 10 day intervals if necessary.
False codling moth	diacylhydrazines	18	methoxyfenozide	Marksman 240 SC	SC	L10389	ICA International Chemicals (Pty) Ltd	240 g/L	60 ml/100 L	Foliar	14	First application in susceptible period, usually beginning of November to end of December. Use recognized monitoring practices to determine presence of FCM. Do not apply more than 3 times per season. If Marksman 240 SC is used to control the last generation in a season, a product with a different mode of action must be used for the control of the first generation the following season.
False codling moth	diacylhydrazines	18	methoxyfenozide	Runner 240 SC	SC	L7779	Dow AgroSciences Southern Africa (Pty) Ltd	240 g/L	60 ml/100 L water	Foliar	14	High volume application. Start application in the susceptible period, usually from the beginning of November to the end of December. Monitoring must be carried out to determine presence of pest. Do not apply more than 3 times per season. Has ovicidal (egg) and larvicidal (larvae) properties. Optimum pH = 4-9.
False codling moth	diacylhydrazines	18	methoxyfenozide	Walker 240 SC	SC	L10348	Villa Crop Protection (Pty) Ltd	240 g/L	60 ml/100 L water	Foliar	14	Start treatments in the susceptible period (normally from beginning of November until end of December). Confirm presence of the pest by means of recognized monitoring practices. Apply as a full cover high volume spray. Do not apply more than 3 times per season. Alternate with registered insecticides with a different mode of action.
False codling moth	spinosyns	5	spinetoram	Delegate 250 WG	WG	L8392	Dow AgroSciences Southern Africa (Pty) Ltd	250 g/kg	20 g/100 L	Foliar	7	Apply as a high volume application when pest is present, normally from early-mid November to harvest. Apply 2-3 applications in this period, if additional applications are required use a product with a different mode of action. Optimum pH = 5-8.
False codling moth	insect virus	-	<i>Thaumototobia (Cryptophlebia) leucotreta granulovirus</i> [syn. false codling moth granulovirus]	Cryptex	SC	L8037	Madumbi Sustainable Agriculture (Pty) Ltd	2 x 10 ¹⁰ occlusion bodies/ml	3.3 ml/100 L	Foliar	--	First application ± 10-14 days after the 1 st main moth flight peak followed by a second application 10-14 days after the 2 nd peak. Min 200 ml/ha, max 330 ml/ha.

Target	Chemical class	Group code	Active ingredient	Trade name	Form	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
False codling moth	insect virus	-	<i>Thaumotobia (Cryptophlebia) leucotreta</i> granulovirus [syn. false codling moth granulovirus]	Cryptogran	SC	L7588	River Bioscience (Pty) Ltd	5 x 1010 occlusion bodies/ml	10 ml/100 L	Foliar	0	Apply as a full cover film spray when the pest occurs. Sprays should be applied shortly after moth flight peaks. A final application 4 weeks before harvest is recommended. Apply during late afternoon or evening. Optimal pH = 5-8. Controls larvae only. Add 3-5 ml non-ionic organo-silicone or alkylated phenol-ethylene oxide wetters. Add 250 ml molasses or 225 g powdered molasses + a wetter or 10 ml + 225 g mancozeb + oil.
Leaf roller	avermectins; milbemycins	6	emamectin benzoate	Proclaim	SG	L7581	Syngenta South Africa (Pty) Ltd	50 g/kg	22-34 g/100 L	Foliar	14	Use the lowest rates for low to moderate infestations and the highest rate for high infestations. Timing and frequency of applications should be made at first signs of insect infestation as indicated by local spray threshold. For best results apply soon after pest eggs have hatched. Treatment must be made before larvae penetrate fruit or stems.
Litchi moth & Carob moth	diamides + pyrethroid	28 + 3A	chlorantraniliprole + lambda-cyhalothrin	Ampligo	CS	L8685	Syngenta South Africa (Pty) Ltd	100 g/L + 50 g/L	200-500 ml/ha	Aerial; Ground	14	Maximum 4 applications per season. Apply before pests reach damaging levels based on economic thresholds. Scout fields and repeat sprays if populations start to rebuild, with a minimum of 7 days between applications. Optimum pH = 3.5 - 4.0.
Macadamia nut borer	pheromone	-	[Z]-8-dodecenyl acetate [syn. (Z)-8-dodecen-1-yl acetate]	M.N.B. PheroLure	VP	L8257	Insect Science (Pty) Ltd	0.08 mg/lure	1 trap/4-5 ha	Lure	0	Place lure in a delta trap and replace every 4-6 weeks.
Macadamia nut borer	organophosphate	1B	acephate	Orthene 75 SP	SP	L0190	Arysta LifeScience South Africa (Pty) Ltd	750 g/kg	75 g	Foliar	35	Make the first application after flowering stage when the pest activity is first observed but before the neonate larvae enter the nuts. All applications should be made as a medium to full cover spray. Do not exceed more than 4 applications per season.
Macadamia nut borer	neonicotinoid	4A	acetamiprid	Allice 20 SP	SP	L8723	Arysta LifeScience South Africa (Pty) Ltd	200 g/kg	50 g or 40 g + 20 g Emma	Foliar	50	Use appropriate scouting and monitoring techniques to predict the onset of pest infestation. In orchards with a known history of MNB infestation or a predicted high level of infestation, do the first two applications with Emma. Thereafter, continue the programme with Emma only (refer to the Emma label).
Macadamia nut borer	neonicotinoid	4A	acetamiprid	Wonderland 200 SP	SP	L10057	FarmAg International (Pty) Ltd	200 g/L	50 g or 40 g + 20 g Emamectin benzoate 50 g/kg WG / 100L water	Foliar	50	Use appropriate scouting and monitoring techniques to predict the onset of pest infestation. In orchards with a known history of MNB infestation or a predicted high level of infestation, do the first two applications with Emamectin benzoate 50 g/kg. Thereafter, continue the programme with Emamectin benzoate only. If low levels of infestation, use Wonderland alone at the higher rate. Do not exceed 2 applications per season. Medium cover spray, ensure good coverage and neonate larvae should not have penetrated into the husk.
Macadamia nut borer	avermectins; milbemycins	6	emamectin benzoate	Emma	WG	L9022	Arysta LifeScience South Africa (Pty) Ltd	50 g/kg	20 g + 40 g Allice 20 SP and/or 30 g	Foliar	50	Use appropriate scouting and monitoring techniques to predict the onset of pest infestation. In orchards with a known history of MNB infestation or a predicted high level of infestation, do the first two applications with Allice.
Macadamia nut borer	avermectins; milbemycins	6	emamectin benzoate	Vitex 50	WG	L9525	Meridian Agrochemical Company (Pty) Ltd	50 g/kg	30 g/100 L	Foliar	50	Use the appropriate scouting and monitoring techniques to predict the onset of pest infestation. Start applications when MNB eggs are hatching, but before the neonate larvae penetrate the nuts. A medium cover spray is essential to ensure that all the nut clusters are adequately protected. If high infestations of MNB persist, repeat the application after 7-10 days. Maximum 4 applications per season either solo or in mixture. Maximum of 2 applications of the mixture with Tamprid per growing season (20 g Vitex + 40 g Tamprid).
Macadamia nut borer	spinosyns	5	spinetoram	Delegate 250 WG	WG	L8392	Dow AgroSciences Southern Africa (Pty) Ltd	250 g/kg	20 g/100 L	Foliar	7	Apply as a high volume application when pest is present, normally from early-mid November to harvest. Apply 2-3 applications in this period, if additional applications are required use a product with a different mode of action. Optimum pH = 5-8.
Mealy bug	sulfoximines	4C	sulfoxaflor [syn. isoclast]	Closer 240 SC	SC	L9694	Dow AgroSciences Southern Africa (Pty) Ltd	240 g/L	12 ml/100 L	Foliar	14	High volume full cover application ensuring good coverage. Apply at first signs of infestation, preferably at crawler movement stage. Repeat application 6 weeks later. Maximum 2 applications per season.
Mites - European red mite; Red spider mite	avermectins; milbemycins	6	abamectin [syn. avermectin]	Agrimec Gold	SC	L9235	Syngenta South Africa (Pty) Ltd	84 g/L	130-320 ml/ha + 0.25% light mineral spray oil	Foliar	14	Do not apply more than 320 ml/ha per application. Wait at least 21 days between applications. Do not use more than twice per season. Ensure product is mixed with non-ionic activator type spray oil. Do not use any other type of adjuvants. Optimum pH = 6-7.
Stem borer	pyrethroid	3A	beta-cyfluthrin	Bulldock Beta 125 SC	SC	L7612	Bayer (Pty) Ltd	125 g/L	1.2 ml/10 L	Knapsack	--	Apply with knapsack sprayer directly into the tunnels. Hold the nozzle against the tunnel for 4 seconds and apply approximately 50 ml spray mixture per tunnel.
Stem borer	carbamates	1A	carbaryl	Sevin XLR Plus	SC	L5783	Villa Crop Protection (Pty) Ltd	480 g/L	450 ml/100 L	Stem	0	Apply approximately 50 ml of spray mix directly into each tunnel by means of a knapsack applicator for control of stem borer or spray the lesions for bark borer control. Do not spray the entire tree. Treat only the affected areas on the stem. More stable in acidic media.
Stink bug	pyrethroid	3A	alpha-cypermethrin	Fastac SC	SC	L4992	BASF South Africa (Pty) Ltd	100 g/L	10 ml/100 L	Foliar	30	High volume, full cover foliar application: 125-175 ml/ha. Optimum pH = 4. Maximum 2 applications per growing season.
Stink bug	diamides + pyrethroid	28 + 3A	chlorantraniliprole + lambda-cyhalothrin	Ampligo	CS	L8685	Syngenta South Africa (Pty) Ltd	100 g/L + 50 g/L	200-500 ml/ha	Aerial; Ground	14	Maximum 4 applications per season. Apply before pests reach damaging levels based on economic thresholds. Scout fields and repeat sprays if populations start to rebuild, with a minimum of 7 days between applications. Optimum pH = 3.5 - 4.0.
Stink bug	organophosphate	1B	chlorpyrifos	Pyrinex 250 CS	CS	L6515	Adama South Africa (Pty) Ltd	250 g/L	200 ml/100 L	Foliar	83	Apply as a full cover spray as soon as the pest is noticed. Repeat the application 4 weeks later and so on if required. Optimal pH = 4.
Stink bug	pyrethroid	3A	lambda-cyhalothrin	Karate EC	EC	L3752	Syngenta South Africa (Pty) Ltd	50 g/L	10 ml/100 L	Foliar	7	Apply as a high volume spray with 5-day intervals. Apply 250-500L water / ha for ground application and at least 30 L water / ha for aerial application.
Stink bug	pyrethroid	3A	lambda-cyhalothrin	Karate Zeon	CS	L6330	Syngenta South Africa (Pty) Ltd	50 g/L	100-200 ml / ha	Foliar & aerial	7	Apply as a high volume spray with 5-day intervals. Apply 250-500L water / ha for ground application and at least 30 L water / ha for aerial application.
Stink bug	pyrethroid	3A	lambda-cyhalothrin	Karate Zeon 10 CS	CS	L9023	Syngenta South Africa (Pty) Ltd	100 g/L	5 ml/100 L	Foliar	7	Apply as a high volume spray with 5-day intervals. Apply 250-500L water / ha for ground application and at least 30 L water / ha for aerial application.
Stink bug	pyridine azomethine derivatives	9B	pymetrozine	Chess	WG	L8104	Syngenta South Africa (Pty) Ltd	500 g/kg	40 g/100 L	Foliar	21	Ensure good coverage (diffuse wetting type) of the target area through a medium cover spray as soon as threshold levels are reached (an average of 0.4 stink bugs per tree using the "knockdown" technique). Repeat application after 28 days if necessary. Do not apply less than 3000 L/ha, but if less than 3000 L/ha is applied, do not use less than 1.2 kg Chess/ha. Optimum pH = 7.

Target	Chemical class	Group code	Active ingredient	Trade name	Form	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
Stink bug	pyridine azomethine derivatives	9B	pymetrozine	Chess	WG	L8104	Syngenta South Africa (Pty) Ltd	500 g/kg	40 g/100 L	Foliar	21	Ensure good coverage (diffuse wetting type) of the target area through a medium cover spray as soon as threshold levels are reached (an average of 0.4 stink bugs per tree using the "knockdown" technique). Repeat application after 28 days if necessary. Do not apply less than 3000 L/ha, but if less than 3000 L/ha is applied, do not use less than 1.2 kg Chess/ha. Optimum pH = 7.
Stink bug	neonicotinoids	4A	thiamethoxam	Actara SC	SC	L7207	Syngenta South Africa (Pty) Ltd	240 g/L	9 ml/tree followed by 6 ml/tree	Drench	93	Drench 9 ml/tree at the end of flowering followed by 6 ml/tree 90 days later. Maximum 2 applications per season. Mix with 1L of water and apply with a jug. Irrigate within 24 hours of application. Efficacy of Actara might be affected if used on older trees (12 years +) or soil with clay > 25%. Read the label for pollinator precautions.
Thrips	organophosphate	1B	chlorpyrifos	Pyrinex 250 CS	CS	L6515	Adama South Africa (Pty) Ltd	250 g/L	200 ml/100 L	Foliar	83	Apply as a full cover spray as soon as the pest is noticed. Repeat the application 4 weeks later and so on if required. Optimal pH = 4.
Thrips	neonicotinoids	4A	imidacloprid	Kohinor 350 SC	SC	L8447	Adama South Africa (Pty) Ltd	350 g/L	18 ml/tree	Soil drench	112	Note that imidacloprid is toxic to honeybees. Apply 2L water solution to soil directly around the base of tree trunk after clearing application area from weeds and mulch. Irrigate within 24 h after application.
Thrips	spinosyns	5	spinetoram	Delegate 250 WG	WG	L8392	Dow AgroSciences Southern Africa (Pty) Ltd	250 g/kg	10 g/100 L	Foliar	7	Commence spraying at the first signs of thrips presence. Repeat application when necessary. Apply as a light cover spray ensuring thorough coverage of the target area. Do not exceed 3 applications per season.
Weevils - Banded fruit weevil	pyrethroid	3A	alpha-cypermethrin	Fastac SC	SC	L4992	BASF South Africa (Pty) Ltd	100 g/L	10 ml/100 L	Foliar	30	High volume, full cover foliar application: 125-175 ml/ha. Optimum pH = 4. Maximum 2 applications per growing season.

PHI = Pre-harvest interval (withholding period). Time from spray or application up to harvest or handling of nut in husk - measured in days.

-- No PHI applicable. Usually the case for products of biological nature.

Formulation notes: AP - other products - applied undiluted, EC - Emulsifiable Concentrate, GR - Granule, WG - Water-dispersible granule, SC - Suspension Concentrate, CS - Capsule suspension, SG - Water soluble granule, GS - Grease, RB - Bait (ready for use), SP - Water-soluble powder, VP - Vapour releasing product, SC - Suspension Concentrate.

Group code: Insecticide Resistance Action Committee code - indicates the chemical action grouping.