Registered product list for use against specific targets

The information listed below is provided as a guideline to growers. Always read the product label carefully before product use.

The provider cannot accept any liability for its accuracy and users who rely on this information do so at their own risk.

ACARICIDES & INSECTICIDES

Updated: Winter 2019

Target	Chemical class	Group co	Active ingredient	Trade name	Form.	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
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.
	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.
	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.
	neonicotinoids	4A	imidacloprid	Kohinor 350 SC	SC	L8447	Adama South Africa (Pty) Ltd	350 g/L	18 ml/tree	Soil drench	112	Note that imidachloprid 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.
	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.
	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.
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.
	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	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.
	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.
	microbial	-	*Helicoverpa armigera* nucleopolyhedrovirus [syn. bollworm nucleopolyhedrovirus]	Helicovir	SC	L8484	River Bioscience (Pty) Ltd	5 x 10^9 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 *Helicovir* must be ingested. For heavy infestations a chemical alternative should be considered or used in conjunction with *Helicovir* 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.
				Graboll		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.
				Bolldex®		L8895	Madumbi Sustainable Agriculture (Pty) Ltd					
	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.
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.
	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 locaion 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).
			(E,E)-8,10-dodecadien-1-ol [codlemone]	Chempac BioLure CM-10X		L6232		31 021 g/Kg			0	
	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 co	Active ingredient	Trade name	Form.	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
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.
	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.
	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.
	diamides	28	chlorantraniliprole	Coragen	SC	L8529	FMC Chemicals (Pty) Ltd	200 g/L	17.5 ml/hl 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.
	neonicotinoids + benzoylureas	4A + 15	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.
	insect virus	-	*Thaumatotibia* (*Cryptophlebia*) *leucotreta* granulovirus [syn. false codling moth granulovirus]	Cryptogran	SC	L7598	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.
				Cryptex		L8037	Madumbi Sustainable Agriculture (Pty) Ltd	2 x 1010 occlusion bodies/ml	3.3 ml/100 L			First application ± 10-14 days after the 1st main moth flight peak followed be a second application 10-14 days after the 2nd peak. Min 200 ml/ha, max 330 ml/ha.
	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.
			(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.
				X-Mate™ FCM	GS	L10320	Insect Science (Pty) Ltd	962.5 mg + 287.5 mg	1 disp. / 250 m^2			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.
				Check-Mate FCM-F	CS	L8384	Spectrum Research Services cc	175.2 g/L + 49.8 g/L	110 ml/ha			Apply using a water voume of 20-50 L/ha, sprayed in the top 1/3 of te tree canopy every 21-28 days. First application should be done before the first male moth peak at the beginning of the season.
			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			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.

Target	Chemical class	Group co	Active ingredient	Trade name	Form.	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
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.
	microbial	-	*Bacillus thuringiensis*, subspecies kurstaki (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.
			Beauveria bassiana	Broadband	EC	L8270	BASF South Africa (Pty) Ltd	4 x 109 spores/ml	50 ml/100 L			Apply minimum 1000 ml/ha late afternoon or evening as full cover spray. Add an approved adjuvant for optimum efficacy.
				Eco-Bb	Spore Concentrate	L8469	Madumbi Sustainable Agriculture (Pty) Ltd	2 x 109 spores/g	1 g/L			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.
	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 products with a different mode of action must be used for the control of the first generation the following season.
				Runner 240 SC		L7779	Dow AgroSciences Southern Africa (Pty) Ltd					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.
				Walker 240 SC		L10348	Villa Crop Protection (Pty) Ltd					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.
	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 TREND® 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.
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.
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.
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).
	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.

Information on products registered under Act 36 of 1947 for specific use on pecan nuts in South Africa

Target	Chemical class	Group co	Active ingredient	Trade name	Form.	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
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.
	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.
	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.
	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).
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.
	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	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.
	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.
	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.
	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.
	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.
	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.
	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.
	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.
	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.

Information on products registered under Act 36 of 1947 for specific use on pecan nuts in South Africa

Target	Chemical class	Group co	Active ingredient	Trade name	Form.	Reg. no.	Company	Active quantity	Dosage	Appl. type	PHI	Notes
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.
	neonicotinoids	4A	imidacloprid	Kohinor 350 SC	SC	L8447	Adama South Africa (Pty) Ltd	350 g/L	18 ml/tree	Soil drench	112	Note that imidachloprid 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.
	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.
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.
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.
	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.
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.
Nematodes	organophosphate	1B	fenamiphos	Nemacur 100 GR	GR	L2056	Villa Crop Protection (Pty) Ltd	100 g/kg	10 g/m2 bas in area	Soil drench	120	Apply the granules evenly, in Spring, to a trash free soil surface in the tree basin area. Irrigate immediately after application with at least 25 mm water.

PHI = Pre-harvest interval (witholding 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.