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**TOBACCO, PYRETHRUM,
SPICES AND DRUGS**

Tobacco

Pyrethrum

Pepper

Chillies

Quinine

Tobacco (<i>Nicotiana sp.</i>)	Pest	Product	Formulation and Dosage	Where and when to apply
677	<i>Meloidogyne sp.</i>	143	L: 120 l/ha to a depth of 20-25 cm at planting station or in the row	Field: 2-3 weeks before transplanting the tobacco seedlings
		146	L: 60 l/ha to a depth of 20-25 cm at planting station or in the row	Field: 2-3 weeks before transplanting the tobacco seedlings
		143	L: 550 l/ha to a depth of 25 cm at 40 cm intervals	Seedbed: Several weeks before planting
		146	L: 350 l/ha to a depth of 25 cm at 40 cm intervals	do.
		149	L: 500 cc/sq.m (cover the bed with polythene; control nematodes, weeds and some soil borne fungi)	do.
678	<i>Melolonthinae</i> <i>Rutelinae</i>	7	G 10%: 24 kg/ha	Broadcast on soil surface when preparing for planting and work in 6-10 cm
		10, 16	WP 40%: 6 kg/ha	
		13	G 10%: 60-80 kg/ha WP 50% or ES 50%: 12 kg/ha ES 20%: 2 l/200 l water	
679	<i>Drasterius sp.</i> <i>Heteroderes sp.</i> <i>Agriotes sp.</i>	10	WP 50%: 3 kg/3000 l water/ha	Around the stems when plants are transplanted so that the soil is wet (setting-water treatment)
		16	WP 25%: 3 kg/3000 l water/ha	
		7	WP 25%: 10-12 kg/500 l water/ha	Broadcast on soil surface 1 month before planting and work in 15-20 cm
		10	WP 50%: 10 kg/500 l water/ha	
		13	WP 50%: 4-5 kg/500 l water/ha	
		17	G 5%: 10 kg/ha	
		27	G 10%: 20 kg/ha	

- 680 *Gryllotalpa africana* see *Gryllotalpa* (No. 7)
- 681 *Scapteriscus vicinus* see *Gryllotalpa* (No. 7)
- 682 *Gonocephalum acutangulum* **7**
10
WP 40%: 1.5 kg/6000 l water/ha
WP 50%: 2.4 kg/6000 l water/ha
see also *Drasterius* (No. 679) and *Opatrum* (No. 683)
- 683 *Opatrum sabulosum* **7**
D 2.5%: 25 kg mixed with fertilizer
see also *Drasterius* (No. 679) and *Gonocephalum* (No. 682)
- 684 *Scotia (Euroa, Agrotis) segetum* **7, 12**
13
7 D 5%: 40 kg/ha
12 D 2%: 40 kg/ha
13 WP 40%: 900 g/300 l water/ha
WP 50%: 3 kg/300 l water/ha
WP 50%: 450 g/300 l water/ha
Bait = WP 50%: 100 g + bran 40 kg mixture, 40 kg/ha
7 Bait = WP 40%: 200 g + 20 kg bran mixture
(add sufficient water to make a soft porridge-like slurry)
12.21 or 30.1 may also be used in this way
- 685 *Scotia (Agrotis) ypsilon* **9**
Bait = D 5%: 10 kg + bran 125 kg mixture, dampen with water so that the materials are crumbly and not over-moist
- 686 *Feltia subterranea* see *Scotia* (No. 684)
- 687 *Brachytrypus membranaceus* see *Gryllulus* (No. 63) and *Brachytrypus* (No. 150)
- 688 *Paralixis truncatulus* **13**
WP 50%: 2 kg/500 l water
Spray stem when pests appear
- 60 cc to the plant, planted after the rains
- Put the material in the planting hole and mix with the soil before planting
- Apply dust to plant and surrounding soil
- Spray base of stem and surrounding soil
- Broadcast on soil surface
- Scatter the bait along the rows in the late afternoon so that it does not dry out before nightfall
- Broadcast on soil surface of 1 hectare

Pest	Product	Formulation and Dosage	Where and when to apply
689 <i>Trichobaris trinotata</i>	39 see also <i>Paralixus</i> (No. 688)	ES 50%: 750 cc/500 l water	On stems and leaves when first signs of damage are seen
690 <i>Phthorimaea heliopa</i>	12	D 5%: 40 kg/ha WP 25% or ES 25%: 3 kg/600 l water/ha D 1%: 40 kg/ha ES 50%: 300-450 cc/600 l water/ha	As preventive measure: Spray or dust advanced crops fortnightly As soon as first seedlings in seedbeds show swollen stems
691 <i>Nezara viridula</i>	13 35.3 see also <i>Cyrtopeltis</i> (No. 617) and <i>Nezara</i> (No. 841)	WP 50%: 1 kg/500 l water/ha Dust 1%: 25-30 kg/ha	On leaves and stems when pests appear
692 <i>Planococcus citri</i>	34 35 39	ES 20%: 1.25-1.5 l/750 l water/ha ES 50%: 2.5 l/750 l water/ha ES 20%: 1.5 l/750 l water/ha	When pests appear. Repeat after 10 days
693 <i>Ditylenchus dipsaci</i>	39	ES 50%: 750 cc/1000 l water/ha	On foliage and stems when first signs of damage are seen
694 <i>Epilachna 28-maculata</i>	12 13	WP 50%: 2 kg/500 l water/ha WP 20%: 2 kg/500 l water/ha	When beetles appear
695 <i>Lema bilineata</i>	12 see also <i>Epilachna</i> (No. 694)	D 5%: 20-25 kg/ha	When beetles appear
696 <i>Epithrix hirtipennis</i>	12 34	D 5%: 20-30 kg/ha WP or ES 25%: 1.5 kg/250 l water/ha ES 25%: 250 cc/250 l water/ha	The lowest leaves on the plant must be treated
697 <i>Mimaulus thesii</i>	7 13, 15	WP 40%: 1.25 kg/500 l water/ha WP 50%: 1 kg/500 l water/ha	When weevils appear

698 <i>Psara periusalis</i>	27	ES 60%: 500 cc/500 l water/ha	When first signs of damage appear
699 <i>Phthorimaea operculella</i>	12	WP 50%: 3 kg/750 l water/ha	As preventive measure: Spray every 14 days after first signs of damage appear
	27	ES 25%: 1.5 l/750 l water/ha	When first signs of damage (mines) appear
	28	ES 40%: 1000 cc/750 l water/ha	
	39	ES 50%: 500-750 cc/750 l water/ha	
700 <i>Diacrisia obliqua</i>		see Thosea (No. 318)	When caterpillars appear
701 <i>Protoparce sexta</i>	11	ES 25%: 4 l/500 l water/ha	When caterpillars appear
	21, 34	ES 25%: 2 l/500 l water/ha	
		see also <i>Mimaulus</i> (No. 697)	
702 <i>Heliothis (obsoleta) zea</i>	0	Bait = WP: 1 kg + maize meal 9 kg (mixture) 10 kg/ha	To buds of plants when small caterpillars appear
	11	Bait = WP 50%: 250 g + maize meal 10 kg (mixture) 10 kg/ha	
	12	Bait = WP 50%: 250 g + maize meal 10 kg (mixture) 10 kg/ha	
	21	D 5%: 20-25 kg/ha	On buds and foliage; repeat at fortnightly intervals
	30.1	WP or ES 50%: 2 kg/750 l water/ha ES 25%: 2 l/1000 l water/ha ES 60%: 0.5-1 l/1000 l water/ha	
703 <i>Prodenia litura</i>	12	WP 50%: 3-4 kg/750 l water/ha	When caterpillars appear or first signs of damage are seen
		see also <i>Mimaulus</i> (No. 697) and <i>Prodenia</i> (No. 837)	
704 <i>Laphygma exigua</i>		see <i>Laphygma</i> (No. 660)	
705 <i>Zonocerus elegans</i>	10	WP 50%: 2 kg/1000 l water	Cover a strip 10-15 m wide round the plot
	12	D 5%	
	13	WP 50%: 3 kg/1000 l water D 2%	
	35	WP 50%: 1 kg/1000 l water ES 50%: 3 l/1000 l water	
706 <i>Catantops opulentus</i>		see <i>Zonocerus</i> (No. 705)	

Pest	Product	Formulation and Dosage	Where and when to apply
707 <i>Thrips tabaci</i>	27 39	ES 25%: 600-750 cc/500 l water ES 50%: 250 cc/500 l water	When first signs of damage appear
		see also Thrips (No. 810)	
708 <i>Frankliniella fusca</i>		see Thrips (No. 810)	
709 <i>Heliothrips haemorrhoidalis</i>		see Scirtothrips (No. 527)	
710 <i>Anaphothrips obscurus</i>		see Thrips (No. 707 and 810)	
711 <i>Cyrtopeltis tenuis</i>		see Cyrtopeltis (No. 617)	
712 <i>Dicyphus minimus</i>	39	D 1%: 15-20 kg/ha ES 25%: 750-1000 cc/750 l water/ha	On folige as needed
713 <i>Orosius argentatus</i>		see Empoasca (Nos. 636 and 814)	
714 <i>Empoasca tabaci</i>		see Empoasca (Nos. 636 and 814)	
715 <i>Bemisia tabaci</i>	28, 33.10	ES 40%: 625 cc/1200 l water/ha	When the plants look sickly and are full of very minute, white flying insects
		see Bemisia (No. 817)	
716 <i>Trialeurodes tabaci</i>		see Bemisia (No. 817) and Bemisia (No. 715,	
717 <i>Myzodes persicae</i>	21 27 35 36 39 28 42	ES 25%: 1.25 l/750 l water/ha ES 25% or WP 25%: 1 l/750 l water/ha ES 25% or WP 25%: 1.25-2 l/750 l water/ha ES 20%: 1 l/750 l water/ha ES 50% or WP 50%: 300-500 cc/750 l water/ha ES 40%: 500 cc/750 l water/ha ES 50%: 400-800 cc/750 l water/ha	When aphids appear on plants. Do not apply insecticides for 5 days before transplanting

- 718 *Macrosiphon solani* see Myzodes (No. 717)
- 719 *Cyaneolytta pectoralis* see Mylabris (No. 856)
- 720 *Heliothis virescens* see Heliothis (No. 702)
- 721 *Heliothis assulta* see Heliothis (No. 702)
- 722 *Lasioderma serricornis* **2** synergised pyrethrum spray: Spray the room once a fortnight
tel quel
- 13** WP 50%: 1 kg/100 l water } 100 cc/
17 WP 20%: 2.5 kg/100 l water } sq.m Treatment of the walls of tobacco stores
see also Balanogastris (No. 166)
- 723 *Setomorpha margalaestriata* see Lasioderma (No. 722)
- 724 *Ephesia elutella* see Lasioderma (No. 722)

Pyrethrum (*Chrysanthemum cinerariaefolium*)

Pest	Product	Formulation and Dosage	Where and when to apply
725 <i>Nysius</i> sp.	see Creontiades (No. 797)		On stems when pests appear
726 <i>Frankliniella dampfi</i>	see Thrips (No. 727)		
727 <i>Thrips tabaci</i>	28, 48	ES 40%: 500 cc/500 l water/ha	On foliage when pests appear. Repeat 2 weeks later
728 <i>Myzodes persicae</i>	see Myzodes (No. 717)		
729 <i>Tetranychus bucleni</i>	28, 48	ES 40%: 500-750 cc/500 l water/ha see Tetranychus (No. 820) or Thrips (No. 727)	Repeat after 14 days

			Pre-plant treatment
730	<i>Meloidogyne</i> sp.	see <i>Meloidogyne</i> (No. 101)	
731	<i>Radopholus similis</i>	see <i>Radopholus</i> (No. 102)	do.
732	<i>Disphinctus maesarum</i>	see <i>Heliothis</i> (No. 137)	
733	<i>Ferrisia virgata</i>	see <i>Ferrisia</i> (No. 72)	When mealybugs appear
734	<i>Saissetia coffeae</i>	see <i>Saissetia</i> (No. 455) and <i>Saissetia</i> (No. 488)	
735	<i>Lepidosaphes piperis</i>	39 ES 50%: 750-1000 cc/1000 l water	On foliage and stems when scales appear. Repeat after 2 weeks
736	<i>Thosea sinensis</i>	see <i>Thosea</i> (No. 318)	
737	<i>Cricula trifenestrata</i>	see <i>Parasa</i> (No. 439)	
738	<i>Gynaikothrips Karny</i>	see <i>Thrips</i> (No. 810)	
739	<i>Elasmognathus greeni</i>	see <i>Habrochila</i> (No. 38)	
740	<i>Diplogomphus hewitti</i>	see <i>Habrochila</i> (No. 38)	
741	<i>Longitarsus nigrispennis</i>	12 39 WP 50%: 4 kg/1000 l water D 1%: 15 kg/ha	When beetles appear on plant. Repeat after 2 weeks
742	<i>Lophobaris piperis</i>	13 WP 50%: 1 kg/1000 l water see also <i>Trichobaris</i> (No. 689)	On foliage and stems when weevils appear or when first signs of damage are seen
743	<i>Dasynus piperis</i>	see <i>Dasynus</i> (No. 352) and <i>Leptoglossus</i> (No. 529)	
744	<i>Elasmognathus hewitti</i>	see <i>Habrochila</i> (No. 38)	

Chillies (<i>Capiscum</i> sp.)	Pest	Product	Formulation and Dosage	Where and when to apply
	745 <i>Meloidogyne</i> sp.	see <i>Meloidogyne</i> (No. 304)		
	746 <i>Radopholus similis</i>	see <i>Meloidogyne</i> (No. 304)		
	747 <i>Hodotermes</i> <i>mossambicus</i>	see <i>Hodotermes</i> (No. 170)		
	748 <i>Scirtothrips dorsalis</i>	see <i>Scirtothrips</i> (No. 664) and <i>Thrips</i> (No. 810)		
	749 <i>Empoasca lybica</i>	see <i>Empoasca</i> (No. 814)		
	750 <i>Tetranychus</i> sp.	see <i>Tetranychus</i> (No. 327)		
	751 <i>Anthonomus Eugeniae</i>	12	D 5%: 25-30 kg/ha WP 50%: 4 kg/1000 l water WP 20% or ES 20%: 10 kg/ 1000 l water	On foliage when weevils appear. Repeat weekly
	752 <i>Phthorimaea</i> <i>gudmanella</i>	22	WP 20% or ES 20%: 10-15 kg/ 1000 l water	On flowers and young pods when first signs of damage are seen
	753 <i>Zonosemata electa</i>	35	WP 40%: 4 kg/1000 l water	On foliage when flies appear or when first signs of damage are seen. Repeat at fortnightly intervals
	754 <i>Helopeltis westwoodi</i>	12	D 5%: 20-30 kg/ha WP 50%: 2-4 kg/1000 l water	On foliage when pests appear or when first signs of damage are seen

755 <i>Meloidogyne</i> sp.	see Meloidogyne (Nos. 1 and 101)		
756 <i>Coccus viridis</i>	see Saissetia (No. 455) and Saissetia (No. 488)		On trunks and leaves when scales appear
757 <i>Howardia biclavis</i>	see Howardia (No. 76)		
758 <i>Alcides cinchonae</i>	12 13, 15	WP 50%: 5 kg/1000 l water ES 20%: 2-4 l/1000 l water	On leaves and twigs when weevils appear. Repeat after 2-3 weeks if necessary
759 <i>Helopeltis cinchonae</i>	12	WP 50%: 5 kg/1000 l water	On foliage when bugs appear
760 <i>Dactylispa manteroi</i>	12	WP 50%: 3 kg/1000 l water	On foliage when beetles appear
761 <i>Metanastria hyrtaca</i>	see Parasa (No. 79) and Parasa (No. 439)		
762 <i>Odonestis plagifera</i>	see Parasa (No. 79) and Protoparce (No. 701)		
763 <i>Deitephila nerii</i>	see Parasa (No. 79) and Protoparce (No. 701)		
764 <i>Boarmia crepuscularia</i>	see Parasa (No. 79) and Protoparce (No. 701)		
765 <i>Euproctis varia</i>	see Parasa (No. 79) and Protoparce (No. 701)		
766 <i>Heliothrips haemorrhoidalis</i>	see Scirtothrips (No. 527)		On first signs of damage
767 <i>Anaphothrips orchidii</i>	see Selenothrips (No. 85) and Scirtothrips (No. 527)		On first signs of damage
768 <i>Pachypeltis vittiscutis</i>	see Helopeltis (No. 754)		
769 <i>Tetranychus urticae</i>	see Tetranychus (No. 820)		
770 <i>Hemitarsonemus lata</i>	see Hemitarsonemus (No. 147)		On foliage when first signs of damage are seen

