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 (ISO 9001:2008 Certified Institute)



ADHOC LIST OF CHEMICALS WITH PHI FOR POMEGRANATE PRODUCTION

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S. No.	Agrochemicals recommended for major diseases and insect pests	Nature of Pesticide	Dose on formulation basis	EU MRL (mg/kg)	PHI (Days)
DISEASES					
A. Bacterial Blight (<i>Xanthomonas axonopodis</i> pv. <i>punicae</i>)					
1	2-Bromo-2-nitropropane-1,3-diol (a.i.95%)	S	0.5g/l	0.01	60
2a	Copper compounds (including Copper oxychloride 50% WP, Copper hydroxide 53.8% WP, Bordeaux mixture etc.)	NS	2-2.5g/l	20	15
3	Streptomycin sulphate 90% + Tetracycline hydrochloride 10%	S	0.5g/l	0.01+0.01	60
B. Wilt (Fungi-<i>Ceratocystis fimbriata</i>, <i>Macrophomina</i> sp. <i>Rhizoctonia</i> <i>Fusarium oxysporum</i>)					
4a	# @ Carbendazim 50% WP	S	2.0 g/l	0.1	@
5a	@ Propiconazole 25% EC	S	2.0 ml/l	0.01	@
@ Note: Recommended for soil application/drenching only during rest period starting soon after harvest and before regulating next crop					
C. Fungal Leaf/Fruit Spots and Rots (<i>Alternaria alternata</i>, <i>Cercospora punicae</i>, <i>Colletotrichum</i> sp., <i>Drechslera</i> sp., <i>Sphaceloma</i> sp. etc)					
6a	Azoxystrobin 25% SC	S	0.5-1.0 ml/l	0.01	60
4b	# Carbendazim 50% WP	S	1.00 g/l	0.1	100
7	# Chlorothalonil 75% WP	NS	2.0 g/l	0.01	90
2b	Copper compounds (including Copper oxychloride 50% WP, Copper hydroxide 77% WP etc.)	NS	2-2.5 g/l	20	60
8	Difenoconazole 25% EC	S	0.5-1 .0 ml/l	0.1	60
9	Fluxapyroxad 25%+Pyraclostrobin25%SC	S+S	0.2-0.25ml/l	0.1+0.02	60
10	Hexaconazole 4%+Zineb 68% WP	S+NS	2.5g/l	0.01+0.05	60

11	Hexaconazole 5%EC	S	1.0 ml/l	0.01	70
12	<i>Iprobenphos</i> (Kitazin) 48 EC.	S	1-0-1.5ml/l	0.01	60
13a	#Mancozeb 75% WP	NS	2.0 g/l	0.05	100
14a	Metalaxyl 8% + #Mancozeb 64% WP	S+NS	2.5g/l	0.01+0.05	90
15	#Metiram 55% + Pyraclostrobin 5% WG	S+NS	1.5-1.75g/l	0.05+0.02	120
16	Myclobutanil 10WP	S	0.4g/l	0.02	90
5b	Propiconazole 25% EC	S	0.5-1 ml/l	0.01	60
17a	Pyraclostrobin 20% WG	S	1.0g/l	0.02	60
18	Sulphur 80% WP	NS	2.5 g/l	50	15
19	Tebuconazole 25.9EC	S	0.625ml/l	0.02	90
20	Tebuconazole 50% + Trifloxystrobin 25% WG	S+S	0.175-0.2 g/L	0.02+0.01	100
21	Thiophanate Methyl 70% WP	S	1.0 g/l	0.1	60
22	Tricyclazole 18%+Mancozeb 62% WP	S+NS	2.5-3g/l	0.01+0.05	60
23	#Propineb 70% WP	NS	3.0g/l	0.05	100
24	#Thiram 75% WP	NS	2.0g/l	0.1	100
25	#Ziram 27%SC	NS	2.5ml/l	0.1	100
D. Fungal Blight(<i>Phytophthora</i>sp)					
6b	Azoxystrobin 23% SC	S	0.5-1.0 ml/l	0.01	60
2c	Copper Compounds (including Copper oxychloride 50% WP, Copper hydroxide 77% WP etc)	NS	2-2.5 g/l	20	60
26	Cymoxanil 8%+Mancozeb 64%	S+NS	2.0 g/l	0.01+0.05	90
27	Dimethomorph 50% WP	S	1.0 g/l	0.01	90
28	Fosetyl- Al 80%WP	S	2.0 g/l	2.0	52
13b	#Mancozeb 75% WP	NS	2.0g/l	0.05	90
14b	Metalaxyl 8% + #Mancozeb 64%	S	2.5 g/l	0.01+0.05	90
17b	Pyraclostrobin 20%	S	1.0/ha	0.02	60
INSECT AND NON INSECT PESTS					
E. Fruit Borer (<i>Deudorix isocrates</i>)					
29a	Chlorantraniliprole (18.5%EC)	NS	0.75 ml/l	0.01	60
30a	Cyantraniliprole 10.26% OD	S	0.7-0.9 ml/l	0.01	40
31a	Cypermethrin 25% EC	NS	1.0 ml/l	0.05	70
32a	#Deltamethrin 2.8 EC	NS	1.5 ml/l	0.01	40
33a	Flubendiamide 19.92% w/w+ Thiacloprid 19.92% w/w	NS+S	0.5ml/l	0.01+0.01	90
34a	#*Fenprothrin30 EC	NS	1.5ml/l	0.01	60
35a	Indoxacarb 14.5% SC	NS	0.75 ml/l	0.02	30
36a	Spinosad 45% SC	NS	0.5 ml/l	0.02	40
F. Stem Borer (<i>Celosterna spinator</i>), shot hole borer (<i>Xyleborus fernicatus</i>), Termites (<i>Odontotermesobesus</i>, <i>Microtermisobesi</i>)					
37a	#Chlorpyrifos 20% EC	NS	2.0 ml/l	0.01	40

31b	Cypermethrin 25% EC	NS	1.0 ml/l	0.05	70
35b	Indoxacarb 14.5% SC	NS	0.75 ml/l	0.02	30
G. Mealy Bug (<i>Ferrisia virgata</i>) and Scale Insects					
38	Buprofezin 25%SC	NS	1-1.5ml/l	0.05	38
37b	*Chlorpyrifos 20% EC	NS	2.0 ml/l	0.01	40
39a	#*Imidacloprid 17.8% SL	S	0.5ml/l	1.0	60
40a	*Thiamethoxam 25% WG	S	0.5 g/l	0.01	60
H. Thrips (<i>Scirtothrips dorsalis</i>), Aphids (<i>Aphis punicae</i>), Whitefly (<i>Siphoninus phillyreae</i>)					
41	#*Acetamiprid 20 SP	S	0.3 ml/l	0.01	90
29b	Chlorantraniliprole (18.5%EC)	NS	0.75 ml/l	0.01	60
42	#*Fipronil 80WG	NS	0.25g/l	0.005	90
34b	#*Fenpropathrin30 EC	NS	1.5ml/l	0.01	60
33b	Flubendiamide 19.92% w/w+ Thiacloprid 19.92% w/w	NS+S	0.5ml/l	0.01+0.01	90
30b	Cyantraniliprole 10.26% OD	S	0.7-0.9 ml/l	0.01	40
39b	*Imidacloprid 17.8% SL	S	0.5 mL/l	1.0	60
43	*Lambda-Cyhalothrin 5% EC	NS	0.5 ml/l	0.01	80
36b	Spinosad 45% SC	NS	0.5 ml/l	0.02	40
44	#Thiacloprid 21.7%SC	S	0.3ml -0.75 ml/l	0.01	90
40b	#*Thiamethoxam 25% WG	S	0.5 g/l	0.01	60
I. Mites					
45	#*Abamectin 1.9% EC	NS	0.5 ml/l	0.01	30
46a	Azadirachtin 1%	NS	2.0 ml/l	0.01	3
47	Emamectin Benzoate 05 SG	NS	0.25g/l	0.01	45
48	Fenazaquin 10%EC	NS	0.4ml/l	0.01	30
34c	#*Fenpropathrin30 EC	NS	1.5ml/l	0.01	60
49	#Propargite 57% EC	NS	1.0 ml/l	0.01	15
J. Leaf Eating caterpillars					
29c	Chlorantraniliprole (18.5%EC)	NS	0.75 ml/l	0.01	60
31c	Cypermethrin 25% EC	NS	1.0 ml/l	0.05	70
32b	#Deltamethrin 2.8 EC	NS	1.5 ml/l	0.01	40
35c	Indoxacarb 14.5% SC	NS	0.75 ml/l	0.02	30
50	Profenofos 50EC	S	1-1.5ml/l	0.01	60
K. Nematodes (<i>Meloidogyne incognita</i>)					
46b	Azadirachtin 1%	NS	2.0 ml/l	0.01	3
51	#Fipronil 0.3G (1 application at beginning of crop regulation and one after harvest in rest period)	NS	40g/plant	0.005	100
GROWTH HORMONES (for defoliation, flowering and checking flower/fruit drop)					
52	6-Benzylaminopurine (6BA) Technical grade	S	0.01g/l	NA	NA
53	Ethephon 39% SL (use only for defoliation)	S	1.0- 2.5ml/l	0.05	135

54	2,4-D Ethyl Ester 4.5 % GR	S	0.23 -0.46g/l	0.05	60
55	Gibberellic Acid (GA) Technical grade	S	0.05g/l	NA	NA
56	1-Naphthyl acetic acid 4.5% SL	S	0.23ml/l	0.06	60

EU-MRL: European Union –Maximum Residue Level

PHI: Pre Harvest Interval; **NA:** Not Available

NS: Non systemic; **S:**Systemic

*** Pesticides highly toxic to honey bees: Avoid sprays in flowering period**

Not banned but in EU Pesticides Watchlist; Use with caution

NOTE:

- Recommended agrochemicals for the management of various insect pests and diseases along with their dose, PHI and MRL values are recommendations by Universities and Institutes & available research literature, hence are of advisory nature for the Good Pomegranate Production Practices and therefore, not covered under any legal scrutiny.
- As the data based on scientific field trials on PHI for pomegranate are not available for all chemicals hence, are based on available residue analysis reports of limited pomegranate samples of harvested produce during previous years or PHI for other fruit crops grown in similar climatic conditions and hence, may change at later stage on availability of scientific data. Therefore PHI given here are only indicative and adhoc in nature and are of advisory nature, therefore, not covered under any legal scrutiny.
- All the doses mentioned above are for high volume sprayers, where normal spray volume is 800-1000 l/ha. Spray volume can however be changed as per the efficiency of sprayers used. However, the amount of each pesticide (active ingredient) recommended for 1 ha on the basis of 1000 l spray solution should be strictly maintained to minimize pesticide residues.
- The responsibility of safe usage of chemicals for the management of any of the above pests and diseases will rest with the growers or exporters in compliance with the requirements of the importers/EU. ICAR-National Research Centre on Pomegranate shall not be covered under any legal scrutiny.