



**Annexure-5**

Revision date: 05<sup>th</sup> February, 2021

**List of chemicals with CIB & RC label claim for use in grapes**

Sr. No.	Chemical recommended for major disease & pest	Nature of chemical	Dose on formulation basis	EU MRL (mg/kg)	Pre-harvest Interval (PHI in days)
<b>I</b>	<b>Downy Mildew</b>				
1.	Mancozeb 75 WP	NS	1.5-2.0 g/L	5.0	66
2.	Propineb 70 WP	NS	3.0 g/L	1.0	75 (avoid using after fruit set)
3.	COC 50 WP	NS	2.5 g/L, 2.4 g/L	50.0	42 (avoid using after fruit set)
4.	Copper hydroxide 53.8 DF	NS	1.5 g/L	50.0	12
5.	Fosetyl Al 80 WP	S	1.4-2.0 g/L	100.0	30
6.	Metalaxyl + Mancozeb 8 + 64 WP	S + NS	2.5 g/L	2.0 + 5.0	66
7.	Metalaxyl-M + Mancozeb 4 + 64 WP	S + NS	2.5 g/L	2.0 + 5.0	66
8.	Cymoxanil + Mancozeb 8 + 64 WP	S + NS	2.0 g/L	0.3 + 5.0	66
9.*	Ametoctradin 27 + Dimethomorph 20.27 SC	NS + S	800-1000 mL/ha	6.0 + 3.0	34
10.*	Dimethomorph 50 WP	S	0.50 to 0.75 g/L	3.0	34
11.*	Fenamidone + Mancozeb 10 + 50 WG	S + NS	2.5 to 3 g/L	0.6 + 5.0	85
12.*	Azoxystrobin 23 SC	S	494 mL/ha	3.0	7
13.*	Iprovalicarb + Propineb 5.5 + 61.25 WP	S + NS	2.25 g/L	2.0 + 1.0	75
14.*	Famoxadone 16.6 % + Cymoxanil 22.1 % SC	S + NS	500 mL/ha	2.0 + 0.30	27
15.*	Kresoxim methyl 44.3 SC	S	600-700 mL/ha	1.5	30
16.*	Pyraclostrobin 5% + Metiram 55% 60 WG	S + NS	1.50-1.75 kg/ha	1.0 + 5.0	66

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17.	Fluopicolide 4.44% + Fosetyl-Al 66.67% WG	S	2.25 to 2.5 kg/ha	2.0 + 100	40
18.*	Mandipropamid 23.4% SC	NS	0.8 mL/L	2.0	5
19.*	Azoxystrobin 8.3% + Mancozeb 66.7% WG	S + NS	1500 g/ha	3.0 + 5.0	66
20.	Copper Sulphate 47.15% + Mancozeb 30% WDG	NS	5000 g/ha	50.0 + 5.0	66
21.*	Dimethomorph 12% + Pyraclostrobin 6.7% WG	S + S	1500 mL/ha	3.0 + 1.0	55
22.*	Azoxystrobin 11 % + Tebuconazole 18.3% w/w	S + S	750 mL/ha	3.0 + 0.5	60
23.	Cyazofamid 34.5% SC	NS	200 mL/ha	2.0	50
24.	Benalaxyl-M 4% + Mancozeb 65% WP	S + NS	2750 g/ha	0.3 + 5.0	66
25.*	Fenamidone 4.44% + fosetyl-Al 66.66% WDG	S	2000-2500 g/ha	0.6 + 100	90
26.*	Metiram 44% + Dimethomorph 9% WG	NS + S	2500 g/ha	5.0 + 3.0	66
27.*	Kresoxim methyl 18% + Mancozeb 54% WP (72 % WP)	S + NS	1500 g /ha	1.5 + 5.0	66
28.	Amisulbrom 17.7% SC w/w (20% SC w/v)	NS	375 mL/ha	0.5	59
29.	Captan 50 % WP	NS	2500 g/ha	0.03*	70
30.	Ziram 27% SC	NS	2300-3500 g/ha	5.0	66
<b>II</b>	<b>Powdery Mildew</b>				
12a.*	Azoxystrobin 23 SC	S	494 mL / ha	3.0	7
15a.*	Kresoxim methyl 44.3 SC	S	600-700 mL/ha	1.5	30
22a.*	Azoxystrobin 11 % + Tebuconazole 18.3% w/w	S + S	750 mL/ha	3.0 + 0.50	60
31.*	Penconazole 10 EC	S	0.50 mL/L	0.5	50
32.*	Hexaconazole 5 EC	S	1.0 mL/L	0.01	60
33.*	Myclobutanil 10 WP	S	0.40 g/L	1.0	30
34.*	Flusilazole 40 EC	S	25 mL/200L	0.01	60
35.*	Difenoconazole 25EC	S	0.50 mL / L	3.0	45

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36.	Sulfur 40 SC, 55.16 SC, 80 WP, 85 WP, 85 WP	NS	3.0 mL, 3.0 mL, 2.50 g, 1.87-2.50 g, 1.50-2.0 g/L, respectively	No MRL required	PHI not applicable
37.*	Tetraconazole 3.8 EW	S	0.75 mL/L	0.5	30
38.*	Tebuconazole 50% + Trifloxystrobin 25% WG	S + S	0.175 g/L	0.5 + 3.0	34
39.*	Fluopyram 200+Tebuconazole 200SC	S + S	0.563 mL/L	1.5 + 0.5	60
40.	Metrafenone 50% SC	S	250 mL/ha	7.0	22
41.	Fluxapyroxad 25% + Pyraclostrobin 25% SC	S + S	200 mL/ha	3.0 + 1.0	60
42.*	Boscalid 25.2% + Pyraclostrobin 12.8% w/w WG	S + S	500-600 mL/ha	5.0 + 1.0	55
43.	Meptyldinocap 35.7% EC	NS	308.6-342.8 mL/ha	1.0	50
44*	Fluxapyroxad 75 g/L + Difenconazole 50g/L SC	S + S	800 mL/ha	3.0 + 3.0	45
45	Cyflufenamid 5% EW	S	500 mL/ha	0.2	50
<b>III</b>	<b>Anthracnose</b>				
2a.	Propineb 70 WP	NS	3.0 g/L	1.0	75
3a.	COC 50 WP	NS	2.5 g/L, 2.40 g/L	50.0	42 (avoid using after fruit set)
19a.	Azoxystrobin 8.3% + Mancozeb 66.7% WG	S + NS	1500 g/ha	3.0 + 5.0	66
20a.	Copper Sulphate 47.15% + Mancozeb 30% WDG	NS + NS	5000 g/ha	50.0 + 5.0	66
27a.	Kresoxim methyl 18% + Mancozeb 54% WP (72 % WP)	S + NS	1500 g /ha	1.5 + 5.0	66
39a.	Fluopyram 200 + Tebuconazole 200SC	S + S	0.563 mL/L	1.5 + 0.5	60
46.	Carbendazim 50 WP, 46.27 SC	S	1.0 g/L, 1.0 mL/L	0.30	50
47.	Thiophanate methyl 70 WP	S	0.71- 0.95 g/L	0.10	50 (Use of Thiophanate methyl should be avoided after flowering stage)

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48.	Carbendazim 12% + Mancozeb 63% WP	S + NS	1500 g/ ha	0.30 + 5.0	66
49.	Kasugamycin 5% + Copper Oxychloride 45% WP	S + NS	750 g/ha	0.01 + 50.0	70 (Use should be avoided after flowering stage)
30a.	Ziram 27% SC	NS	2300-3500 g/ha	5.0	66
<b>IV</b>	<b>Bacterial Leaf Spot</b>				
49a.	Kasugamycin 5% + Copper Oxychloride 45% WP	S + NS	750 g/ha	0.01 + 50.0	70 (Use should be avoided after flowering stage)
<b>V</b>	<b>Flea beetle</b>				
50.	Imidacloprid 17.8 SL	S	0.30-0.40 mL/L	1.0	60 (Use of imidacloprid should be avoided during pre-flowering and flowering stage)
51.	Lambda-cyhalothrin 4.9 CS	NS	0.25-0.50 mL/L	0.08	45
<b>VI</b>	<b>Thrips</b>				
52.	Emamectin benzoate 05 SG	NS	0.22 g/L	0.05	25
53.	Fipronil 80 WG	NS	0.05-0.0625 g/L	0.005	75 (only one application before flowering stage)
54.	Spinetoram 11.7% SC	S	300 mL/ha	0.5	10
55.	Spinosad 45% SC	NS	250 mL/ha	0.5	15
56.	Cyantraniliprole 10 OD	S	0.70 mL/L	1.5	60
<b>VII</b>	<b>Mealybugs</b>				
57.	Buprofezin 25 SC	NS	1.00-1.50 mL/L	0.01	65
58.	Methomyl 40 SP	S	1.25 g/L	0.01	75 (only one application before flowering stage)
59.	Clothianidin 50% WDG	S	500 g/ha	0.70	60 (for use as soil drenching)
60.	Spirotetramat 15.31% w/w OD	S	700 mL/ha	2.0	60
<b>VIII</b>	<b>Jassids</b>				
61a.	Clothianidin 50% WDG	S	500 g/ha	0.700	60 (for use as soil drenching)
<b>IV</b>	<b>Mite</b>				

Sr. No.	Chemical recommended for major disease & pest	Nature of chemical	Dose on formulation basis	EU MRL (mg/kg)	Pre-harvest Interval (PHI in days)
62.	Abamectin 1.9% (w/w) EC	Limited systemic; Translaminar action	0.75 mL/L	0.01	30
63.	Bifenazate 22.6% SC	NS	500 mL/ha	0.70	30
60a.	Spirotetramat 15.31% w/w OD	S	700 mL/ha	2.0	60
<b>V</b>	<b>Plant Growth Regulators</b>				
63.	Hydrogen cyanamide 50 SL	S	30-40 mL/L	0.01	90-120
64.\$	Forchlorfenuron (CPPU) 0.1% L	S	1-2 ppm	0.01	60
65.	Gibberellic acid (GA <sub>3</sub> ) Technical	S	100 ppm (Cumulative Usage)	No MRL Required	PHI not applicable
66.	1-Naphthyl acetic acid 4.5% L	S	100 ppm	0.06	15
67.	Chlormequat chloride 50 SL	S	600-1000 ppm	0.05	-
<b>VI</b>	<b>Herbicides</b>				
68.	Paraquat dichloride 24 SL	NS	5 mL/L	0.02	-

NS = Non-systemic, S = Systemic

\*. Resistance in downy mildew based on Cys b gene (G143A) against QoI fungicides (Fenamidon, Azoxystrobin, Famoxadone, Kresoxim methyl, Pyraclostrobin and Trifloxystrobin), cellulose synthase gene (*PvCesA3*) against CAA fungicides (Dimethomorph, Iprovalicarb and Mandipropamid) and resistance in powdery mildew based on *CYP51* gene (14 $\alpha$ -demethylase) against triazole fungicides (Penconazole, Hexaconazole, Myclobutanil, Flusilazole, Difenconazole, Tetraconazole) have been detected in India from major grape growing areas. Use of formulations containing these fungicides should be minimized and avoided during high risk periods.

\$. Application of Forchlorfenuron (CPPU) should be avoided after 65 days of pruning or after 6-8 mm berry size is attained to reduce the chances of detections.

#### Note

- All the doses mentioned above are for high volume sprayers, where normal spray volume is 1000 L/ha. Spray volume can however be changed as per the efficiency of sprayers used. However, the amount of each pesticide based on its active ingredient recommended for 1 ha area on the basis of 1000 L spray solution should be strictly maintained to ensure bio-efficacy and to minimize pesticide residues.
- Recommended PHI will be valid only if two applications of an agrochemical are given per fruiting season at the interval of 7-15 days at recommended dose except in case of special mention in table.
- If any of the pesticide found ineffective in controlling the targeted diseases or pests, it is advised not to give repeated applications of the formulation since it may lead to residue issues and increase the resistance population of targeted pathogen or insects.
- The information provided in this document is of advisory nature. The responsibility of usage of chemicals for the management of any of the above pests and diseases and compliance of the produce to the EU-MRL requirement will rest with the growers.

- Since risk of more than one pest may overlap, if appropriate insecticide is used, control of non-targeted pest can be achieved. Compliance for dose, number of applications and PHI as recommended for target pest is essential and should be strictly adhered.

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