



**Annexure-5**

Revision date: 20<sup>th</sup> October, 2017

**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	40 (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	800-1000mL/ha	6.0 + 3.0	34
10.*	Dimethomorph 50 WP + Mancozeb 75 WP as tank mixture	S+NS	0.5 to 0.75 g/L + 2.0 g/L	3.0 + 5.0	66
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+61.25WP	S+NS	2.25 g/L	2.0 + 1.0	55
14.*	Famoxadone 16.6 % + Cymoxanil 22.1 % SC	S+NS	500 mL/ha	2.0 + 0.3	27
15.*	Kresoxim methyl 44.3 SC	S	600-700 mL/ha	1.0	30

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)
16.*	Pyraclostrobin 5% + Metiram 55% 60WG	S+NS	1.5-1.75 kg/ha	1.0+5.0	34
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	1500g/ha	3.0 + 5.0	66
20.	Copper Sulphate 47.15% + Mancozeb 30% WDG	NS	5000g/ha	50.0 + 5.0	66
21.*	Dimetomorph 12% +Pyraclostrobin 6.7% WG	S + S	1500mL/ha	3.0 + 1.0	55
<b>II</b>	<b>Powdery Mildew</b>				
22.*	Penconazole 10 EC	S	0.50 mL/L	0.2	50
23.*	Hexaconazole 5EC	S	1.0 mL/L	0.01	60
24.*	Myclobutanil 10 WP	S	0.40 g/L	1.0	30
25.*	Flusilazole 40 EC	S	25 mL/200L	0.01	60
26.*	Difenoconazole 25EC	S	0.50 mL / L	3.0	45
12a.*	Azoxystrobin 23 SC	S	494 mL / ha	3.0	7
15a.*	Kresoxim methyl 44.3 SC	S	600-700 mL/ha	1.0	30
27	Sulfur 40 SC, 55.16 SC, 80 WP, 80 WDG, 85 WP	NS	3.0 mL, 3.0 mL, 2.50 g, 1.87-2.50 g, 1.50-2.0 g/L, respectively	50.0	15
28.*	Tetraconazole 3.8EW	S	0.75 mL/L	0.5	30
29.*	Tebuconazole 50% + Trifloxystrobin 25% WG	S+S	0.175g/L	0.5+3.0	34
30.*	Fluopyram 200+Tebuconazole 200SC	S+S	0.563mL/L	1.5+0.5	60
31.	Metrafenone 50% SC	S	250mL/ha	7.0	22
32.	Fluxapyroxad 25% + Pyraclostrobin 25% SC	S+S	200mL/ha	3.0 +1.0	60
33.*	Boscalid 25.2% + Pyraclostrobin 12.8% w/w WG	S +S	500-600 mL/ha	5.0 +1.0	55
<b>III</b>	<b>Anthracnose</b>				
2a.	Propineb 70 WP	NS	3.0 g/L	1.0	40

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3a.	COC 50 WP	NS	2.5 g/L, 2.40 g/L	50.0	42 (avoid using after fruit set)
34.	Carbendazim 50 WP, 46.27 SC	S	1.0 g/L, 1.0 mL/L	0.30	50
35.	Thiophanate methyl 70 WP	S	0.71- 0.95g/L	0.1	50 (Use of Thiophanate methyl should be avoided after flowering stage)
30a.	Fluopyram 200+Tebuconazole 200SC	S+S	0.563mL/L	1.5+0.5	60
19a	Azoxystrobin 8.3% + Mancozeb 66.7% WG	S+NS	1500g/ha	3.0 + 5.0	66
20a	Copper Sulphate 47.15% + Mancozeb 30% WDG	NS+NS	5000g/ha	50.0 + 5.0	66
36	Carbendazim 12% + Mancozeb 63% WP	S+NS	1500 g/ ha	0.30+5.0	66
<b>IV</b>	<b>Flea beetle</b>				
37.	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)
38.	Lambda-cyhalothrin 4.9 CS	NS	0.25-0.50 mL/L	0.2	30
<b>V</b>	<b>Thrips</b>				
39.	Emamectin benzoate 05 SG	NS	0.22 g/L	0.05	25
40.	Fipronil 80 WG	NS	0.05-0.0625 g/L	0.005	75(only one application before flowering stage)
38a.	Lambda-cyhalothrin 4.9 CS	NS	0.25-0.50 mL/L	0.2	30
<b>VI</b>	<b>Mealybugs</b>				
41.	Buprofezin 25 SC	NS	1.00-1.50 mL/L	1.0	40
42.	Methomyl 40 SP	S	1.25 g/L	0.01	75 (only one application before flowering stage)
<b>VII</b>	<b>Plant Growth Regulators</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)
43.	Hydrogen cyanamide 50 SL	S	30-40 mL/L	0.01	90-120
44.\$	Forchlorfenuron (CPPU) 0.1% L	S	1-2 ppm	0.01	60
45.	Gibberellic acid (GA3) Technical	S	100 ppm (Cumulative Usage)	5.00	7
46.	1-Naphthyl acetic acid 4.5% L	S	100 ppm	0.06	15
47.	Chlormequat chloride 50 SL	S	600-1000 ppm	0.05	PHI data not available
<b>VIII</b>	<b>Herbicides</b>				
48.	Paraquat dichloride 24 SL	NS	5 mL/L	0.02	PHI data not available

NS = Non-systemic, S = Systemic

\*. Resistance in downy mildew based on Cys b gene (G143A) against QoI fungicides (Fenamidone, 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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