Annex 1: Overview of findings of plant protection residues in 12 samples of conventionally produced mandarins / clementines / satsumas (CVUAS 2025)

Sample Designation	**Substance**	**Amount in Whole Fruit (Peel + Flesh) [mg/kg]**	**Amount in Fruit Flesh [mg/kg]**
1 Satsuma Spain	Acetamiprid	0.002	0.002
	Hexythiazox	0.005	
	Imazalil	0.003	
	Lambda-Cyhalothrin	0.003	
	Phosphonic Acid	2.3	0.77
	Pyrimethanil	0.008	
	Pyriproxyfen	0.076	
	Pyriproxyfen-4-Hydroxy	0.009	
2 Mandarin South Africa	Azoxystrobin	1.6	0.047
	Azoxystrobin Acid	0.045	
	Fludioxonil	3.6	0.072
	Imazalil	0.002	
	Perchlorate	0.01	
	Phosphonic Acid	0.013	0.011
	Pyrimethanil	0.001	
	Pyriproxyfen	0.01	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.05	0.068
	Spirotetramat-Enol-Glycoside, metabolite	0.045	0.066
	Tebuconazole	0.002	
	Thiabendazole	0.36	0.025
	5-Hydroxy-Thiabendazole	0.011	
	TFA	0.043	
3 Clementine Spain	Acetamiprid	0.004	
	Acetamiprid metabolite IM-2-1	0.001	
	Flonicamid (sum of Flonicamid, TFNA and TFNG expressed as Flonicamid)	0.013	0.006
	Hexythiazox	0.008	
	Imazalil	1.8	0.1
	Imazalil metabolite FK411	0.13	0.027
	Metalaxyl	0.004	
	Phosphonic Acid	0.36	0.25

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Sample Designation	Substance	Amount in Whole Fruit (Peel + Flesh) [mg/kg]	Amount in Fruit Flesh [mg/kg]
	Pyridaben	0.006	0.002
	Pyrimethanil	0.14	
	Pyriproxyfen	0.01	
	Spirotetramat-Enol-Glycoside, metabolite	0.013	0.004
	Triclopyr	0.002	
4 Mandarin South Africa	2,4-D, sum	0.47	0.013
	Azoxystrobin	0.03	0.001
	Fludioxonil	1.7	0.042
	Imazalil	1.6	0.59
	Imazalil metabolite FK411	0.13	0.064
	Malathion (sum of Malathion and Malaoxon expressed as Malathion)	0.012	
	Metalaxyl	0.001	
	Phosphonic Acid	6.6	5.9
	Pyrimethanil	1.6	0.039
	Pyriproxyfen	0.002	
	Spirotetramat and Spirotetramat-Enol (sum of), expressed as Spirotetramat	0.036	0.034
	Spirotetramat-Enol-Glycoside, metabolite		0.048
	Thiabendazole	0.7	0.53
	5-Hydroxy-Thiabendazole	0.034	0.013
	TFA	0.15	0.12
5 Mandarin South Africa	2,4-D, sum	0.46	0.009
	Azoxystrobin	0.014	
	Imazalil	0.4	0.046
	Imazalil metabolite FK411	0.051	0.008
	Malathion (sum of Malathion and Malaoxon expressed as Malathion)	0.005	
	Phosphonic Acid	0.039	0.036
	Prothiophos	0.004	
	Pyrimethanil	0.95	0.007
	Pyriproxyfen	0.001	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.013	0.012

Sample Designation	Substance	Amount in Whole Fruit (Peel + Flesh) [mg/kg]	Amount in Fruit Flesh [mg/kg]
	Spirotetramat-Enol-Glycoside, metabolite	0.038	0.04
	Thiabendazole	0.53	0.031
	5-Hydroxy-Thiabendazole	0.004	
	TFA	0.071	0.056
6 Satsuma Spain	Acetamiprid	0.001	0.002
	Hexythiazox	0.006	
	Imazalil	0.52	0.06
	Imazalil metabolite FK411	0.024	0.003
	Phosphonic Acid	0.03	0.045
	Pyridaben	0.003	
	Pyrimethanil	0.017	
	Pyriproxyfen	0.025	
	Pyriproxyfen-4-Hydroxy	0.003	
	Spirotetramat-Enol-Glycoside, metabolite	0.007	0.008
	Trimethylsulfonium Cation	0.008	0.007
7 Mandarin South Africa	Azoxystrobin	0.72	0.036
	Azoxystrobin Acid	0.016	
	Fludioxonil	3.2	0.04
	Imazalil	0.001	
	Perchlorate	0.008	
	Phosphonic Acid	0.013	0.023
	Pyrimethanil	0.002	
	Pyriproxyfen	0.002	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.031	0.014
	Spirotetramat-Enol-Glycoside, metabolite	0.068	0.036
	Tebuconazole	0.002	
	Thiabendazole	0.26	0.049
	5-Hydroxy-Thiabendazole	0.015	
	TFA	0.074	0.071
8 Clementine Spain	Acetamiprid	0.002	0.002
	Acetamiprid metabolite IM-2-1	0.001	0.003
	Fenpyroximate	0.008	

Sample Designation	Substance	Amount in Whole Fruit (Peel + Flesh) [mg/kg]	Amount in Fruit Flesh [mg/kg]
	Hexythiazox	0.019	
	Imazalil	0.53	0.031
	Imazalil metabolite FK411	0.071	0.003
	Lambda-Cyhalothrin	0.17	0.001
	Pyridaben	0.001	
	Phosphonic Acid		0.016
	Pyrimethanil	0.026	
	Pyrimethanil metabolite 2-Amino-4,6-Dimethylpyrimidine	0.007	
	Pyriproxyfen	0.053	
	Pyriproxyfen-4-Hydroxy	0.006	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.009	0.007
	Spirotetramat-Enol-Glycoside, metabolite	0.044	0.021
9 Mandarin South Africa	Azoxystrobin	0.57	0.018
	Fludioxonil	0.002	
	Imazalil	2	0.37
	Imazalil metabolite FK411	0.15	0.066
	Malathion (sum of Malathion and Malaoxon expressed as Malathion)	0.02	
	Methoxyfenozid	0.026	
	Orthophenylphenol (OPP)	4.8	0.076
	OPP metabolite 2-Phenylhydroquinone	0.093	
	Phosphonic acid		0.012
	Pyrimethanil	0.003	
	Pyriproxyfen	0.001	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.056	0.089
	Spirotetramat-Enol-Glycoside, metabolite	0.24	0.23
10 Clementine Spain	Hexythiazox	0.022	
	Lambda-Cyhalothrin	0.06	
	Phosphonic Acid	0.036	0.015

Sample Designation	Substance	Amount in Whole Fruit (Peel + Flesh) [mg/kg]	Amount in Fruit Flesh [mg/kg]
	Pyriproxyfen	0.022	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.027	0.018
	Spirotetramat-Enol-Glycoside, metabolite	0.025	0.015
11 Clementine Spain	Acetamiprid	0.006	0.005
	Acetamiprid metabolite IM-2-1	0.003	0.003
	Hexythiazox	0.009	
	Imazalil	1.6	0.11
	Imazalil metabolite FK411	0.15	0.032
	Lambda-Cyhalothrin	0.037	
	Phosphonic Acid	3.8	1.1
	Pyridaben	0.004	
	Pyrimethanil	0.12	0.001
	Pyriproxyfen	0.036	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat	0.009	0.008
	Spirotetramat-Enol-Glycoside, metabolite	0.01	0.007
	Thiabendazole	0.025	
	5-Hydroxy-Thiabendazole	0.002	
	Triclopyr	0.004	
12 Mandarin South Africa	Azoxystrobin	0.49	0.034
	Azoxystrobin Acid	0.008	
	Fludioxonil	1.1	0.022
	Hexythiazox	0.002	
	Malathion (sum of Malathion and Malaoxon expressed as Malathion)	0.001	
	Phosphonic Acid	0.16	0.15
	Propiconazole	0.002	
	Pyrimethanil	0.98	0.022
	Pyriproxyfen	0.002	
	Spirotetramat and Spirotetramat-Enol (sum), expressed as Spirotetramat		0.003
	Spirotetramat-Enol-Glycoside, metabolite	0.011	0.015

Sample Designation	Substance	Amount in Whole Fruit (Peel + Flesh) [mg/kg]	Amount in Fruit Flesh [mg/kg]
	Sulfoxaflor	0.03	0.036
	Sulfoxaflor metabolite X11719474	0.011	0.007
	Tebuconazole	0.002	
	Thiabendazole	0.17	0.025
	5-Hydroxy-Thiabendazole	0.011	0.002