

Supplemental Table 2. Observations by quartile of conditional average treatment effects (CATE) of selected variables used in the generalized random forest for predicting pesticide active constituents applied for suppression of powdery mildew and their costs

Variables	N	Annual cost (USD)				Active constituents			
		Quantiles of CATE (%)				Quantiles of CATE (%)			
		1	2	3	4	1	2	3	4
Susceptibility to V6 strains									
0	25	20.00	16.00	20.00	44.00	8.00	16.00	48.00	28.00
1	94	15.96	21.28	22.34	40.43	1.06	5.32	37.23	56.38
2	31	25.81	25.81	19.35	29.03	3.23	22.58	22.58	51.61
3	145	23.45	29.66	25.52	21.38	11.72	42.07	26.90	19.31
4	153	32.68	23.53	28.10	15.69	57.52	22.22	15.03	5.23
5	10	60.00	10.00	20.00	10.00	60.00	30.00	0.00	10.00
Susceptibility to non-V6 strains									
0	130	42.31	11.54	22.31	23.85	56.92	20.00	15.38	7.69
1	93	16.13	21.51	21.51	40.86	1.08	5.38	36.56	56.99
2	21	19.05	28.57	14.29	38.10	0.00	9.52	23.81	66.67
3	145	23.45	29.66	25.52	21.38	11.72	42.07	26.90	19.31
4	69	14.49	40.58	36.23	8.70	33.33	28.99	26.09	11.59
Initial Strain									
Unknown	269	12.27	23.42	33.83	30.48	14.50	23.05	29.37	33.09
Non-V6-virulent	45	37.78	51.11	4.44	6.67	8.89	35.56	28.89	26.67
V6-virulent	144	47.22	18.06	14.58	20.14	50.00	25.00	16.67	8.33
Pruning thoroughness									
1	111	32.43	27.93	29.73	9.91	36.04	36.94	24.32	2.70
2	80	32.50	17.50	22.50	27.50	43.75	25.00	18.75	12.50
3	95	20.00	25.26	12.63	42.11	23.16	23.16	28.42	25.26

4	47	36.17	36.17	8.51	19.15	19.15	23.40	25.53	31.91
5	125	16.00	20.80	37.60	25.60	7.20	16.00	28.00	48.80
Network centrality									
Non-R6-cultivars May-June									
0	402	16.42	26.87	28.36	28.36	20.65	24.38	27.86	27.11
1	56	92.86	7.14	0.00	0.00	57.14	28.57	7.14	7.14
Non-R6-cultivars June-July									
0	416	18.27	26.92	27.40	27.40	20.19	25.72	27.16	26.92
1	42	100.00	0.00	0.00	0.00	73.81	16.67	7.14	2.38
Quadrant									
Northeast	92	66.30	28.26	4.35	1.09	34.78	31.52	22.83	10.87
Northwest	132	26.52	31.06	31.82	10.61	53.03	32.58	13.64	0.76
Southeast	139	15.11	15.11	20.14	49.64	4.32	15.11	28.78	51.80
Grower									
1	82	8.54	34.15	23.17	34.15	2.44	10.98	17.07	69.51
2	45	60.00	20.00	2.22	17.78	31.11	31.11	24.44	13.33
3	21	0.00	33.33	47.62	19.05	9.52	38.10	47.62	4.76
4	47	19.15	53.19	19.15	8.51	44.68	46.81	8.51	0.00
5	41	68.29	24.39	7.32	0.00	36.59	26.83	29.27	7.32
6	40	25.00	15.00	45.00	15.00	62.50	22.50	15.00	0.00
7	103	15.53	12.62	23.30	48.54	3.88	20.39	36.89	38.83
8	28	0.00	10.71	53.57	35.71	14.29	17.86	50.00	17.86
9	51	41.18	21.57	29.41	7.84	54.90	29.41	13.73	1.96
Year									
2014	103	66.99	33.01	0.00	0.00	36.89	33.01	17.48	12.62
2015	118	13.56	11.86	34.75	39.83	13.56	20.34	22.03	44.07
2016	112	17.86	35.71	31.25	15.18	39.29	25.89	22.32	12.50
2017	125	10.40	19.20	30.40	40.00	13.60	21.60	37.60	27.20