

Evaluation of Fungal Populations in BC Cranberries as it Relates to Fruit Rot Incidence

Preliminary report

Frank L. Caruso, Black Veil Consulting/Washington State University

Three cranberry beds (cv Stevens) were sampled as they were in 2014: Richmond, Langley and Pitt Meadows. Three pre-harvest samples were made on August 6, August 31 and September 16. The third sample was a bulk sample, so that three post-harvest samples could be taken. Rotted berries were sorted from the samples, berries were counted and berries were selected for plating for the culturing of fungi on August 10, September 2, September 22, October 13 and November 3. A sixth and final sample will be processed on November 23. Fungi have thus far been identified from the first four samples; the fifth plates are currently incubating. The tables below show the amount of fruit rot in the three pre-harvest samples and the first two post-harvest samples:

Percent field rotted fruit

Bed #	August 10	September 2	September 22	Total
1	2.05	0.34	0.68	0.71
2	5.39	0.82	1.92	1.93
3	3.96	4.75	8.20	7.65

Percent storage rotted fruit

Bed #	October 13	November 3	November	Total
1	1.12	5.51		
2	13.26	48.27		
3	26.66	62.66		

The fungicides used in the three beds are shown below:

Fungicides used in each bed:

1 = Copper (3.5 lb/A) on 5/5; Quadris (0.4 L/A) on 5/31

2 = Mission (propiconazole) (120 ml/A) on 5/2; Copper (1.6 kg/A) on 5/9; Bumper (propiconazole) (115 ml/A) on 5/21; Quadris (0.4 L/a on 6/16; Bumper @ 115 ml/a on 7/16

3 = None

The bed with the greatest amount of fruit rot had no fungicides applied.

The following tables show the pathogenic fungi cultured from 100 healthy berries and whatever number rotted berries for the three beds up to this point:

Sample #1 – Healthy berries – August 10

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	24	8	48
Coleophoma	47	13	13
Colletotrichum	3	0	0
Fusicoccum	7	11	3
Phomopsis	0	50	5
Phyllosticta elongata	0	0	0
Physalospora	12	23	38
Yellow spreading	2	10	0
Sterile	19	9	12

Sample #2 – Healthy berries – September 2

Percent incidence

	#1	#2	#3
Allantophomopsis	20	3	24
Coleophoma	2	2	1
Colletotrichum	0	1	0
Fusicoccum	0	7	0
Phomopsis	0	43	1
Phyllosticta elongata	0	0	0
Physalospora	24	16	72
Yellow spreading	22	7	1
Sterile	45	26	9

Sample #3 – Healthy berries – September 22

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	30	9	23
Coleophoma	2	40	33
Colletotrichum	1	1	0
Fusicoccum	7	9	0
Phomopsis	1	21	7
Phyllosticta elongata	0	0	0
Physalospora	18	37	57
Yellow spreading	6	1	1
Sterile	31	12	6

Sample #4 – Healthy berries – October 13

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	23	11	35
Coleophoma	6	34	28
Colletotrichum	0	0	1
Fusicoccum	7	7	5
Phomopsis	1	24	3
Phyllosticta elongata	0	0	0
Physalospora	25	20	33
Yellow spreading	8	6	2
Sterile	22	10	12

Sample #1 – Rotted berries – August 10

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	0	0	0
Coleophoma	0	0	0
Colletotrichum	0	0	0
Fusicoccum	0	0	0
Phomopsis	0	0	0
Physalospora	0	0	0
Yellow spreading	0	0	0
Sterile	0	0	0

1 = 0 berries; 2 = 0 berries; 3 = 0 berries

Sample #2 – Rotted berries – September 2

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	0	0	32
Coleophoma	0	25	32
Colletotrichum	0	0	0
Fusicoccum	0	25	0
Phomopsis	0	25	14
Physalospora	0	50	68
Yellow spreading	0	0	0
Sterile	0	0	0

1 = 0 berries; 2 = 4 berries; 3 = 28 berries

Sample #3 – Rotted berries – September 22

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	52	2	0
Coleophoma	41	96	28
Colletotrichum	0	0	0
Fusicoccum	11	2	0
Phomopsis	4	0	4
Physalospora	22	2	8
Yellow spreading	0	0	0

1 = 27 berries; 2 = 50 berries; 3 = 50 berries

Sample #4 – Rotted berries – October 13

Percent incidence

Fungus	#1	#2	#3
Allantophomopsis	58	8	52
Coleophoma	24	88	30
Colletotrichum	0	0	0
Fusicoccum	11	2	0
Phomopsis	0	0	0
Physalospora	7	4	4
Yellow spreading	0	0	0
Sterile	18	4	20

1 = 45 berries; 2 = 50 berries; 3 = 50 berries

At this point, the predominant fungal pathogens in each bed are:

Bed #1 – Allantophomopsis, Physalospora, Coleophoma

Bed #2 – Phomopsis, Physalospora, Coleophoma

Bed #3 – Allantophomopsis, Coleophoma, Physalospora

The final data will be taken in mid-December. A final report will be written in early January which will summarize the 2015 results and compare them with the 2014 findings in these same beds. Comparisons of BC data will be made with similar fungal isolations from Stevens berries in Washington (three years) and Oregon (one year).