

CLUBROOT PATHOTYPE TESTING

- WHEREAS:** Canola production generates over \$7 billion in revenues in the Province of Alberta annually, is adversely impacted by clubroot;
- WHEREAS:** Clubroot surveillance and pathotype testing completed by the University of Alberta Clubroot Research Team led by Dr. Strelkov is the only testing of its kind being done in Western Canada, and is used to inform the Industry, Alberta Agriculture and Forestry and producers;
- WHEREAS:** The unbiased, world recognized testing conducted by the University of Alberta has been vital to the agricultural industry in breeding canola cultivars resistant to the ever-evolving number of pathotypes being found in Alberta agricultural fields;
- WHEREAS:** Alberta Agriculture and Forestry recently denied a Canadian Agricultural Partnership (CAP) Project funding application which would allow this extremely important research to continue;

THEREFORE BE IT RESOLVED

THAT ALBERTA'S AGRICULTURAL SERVICE BOARDS REQUES

the Province of Alberta commit to consistent and sustainable funding for the Clubroot Surveillance and Pathotype Monitoring conducted by the University of Alberta.

SPONSORED BY: Big Lakes County

MOVED BY: _____

SECONDED BY: _____

CARRIED: _____

DEFEATED: _____

STATUS: Provincial

DEPARTMENT: _____

BACKGROUND

Clubroot was first found infecting a canola crop in 2003 in Sturgeon County. Since that time, much has been learned about clubroot with a great deal of this knowledge coming from the efforts of the research team at the University of Alberta, led by Dr. Strelkov.

In 2009, the first clubroot resistant cultivar was released and by 2013, the resistance had been overcome by a new pathotype. "Pathotypic Shift", selected for by the very resistance used to safeguard canola crops had been positively identified. The number of known pathotypes within Alberta fields ballooned from 8 to our present-day total of 22 separate pathotypes. A new Canadian Clubroot Differential set was developed, primarily by Dr. Strelkov and his team to allow for the differentiation of the new pathotypes.

In 2017, clubroot was positively identified in the Peace Region of Alberta for the first time. Big Lakes County was fortunate to be offered pathotype testing by the University of Alberta research team and sent 20 samples to their lab. Of those samples, 3 novel resistance breaking pathotypes were discovered.

Due to the "clubroot free" status enjoyed by Big Lakes County producers until 2017, clubroot resistant cultivars were not being deployed in the field in any great numbers. In 2018, that changed with over 95% of producers utilizing the technology. Big Lakes County was again invited to submit samples for pathotype testing to the University of Alberta. 2 novel resistance breaking pathotypes were discovered on the 5 submitted samples.

Clubroot is a quickly evolving pathogen that requires an integrated management approach to deal with. If no pathotype testing is available for these samples, Alberta Agriculture and Alberta Producers will only have part of the picture. To protect our canola industry and agriculture, pests must be taken seriously.

On October 18, 2019, Dr. Strelkov informed Big Lakes County that the University of Alberta Clubroot team would have to pause on pathotype testing as the Canadian Agricultural Partnership grant application they submitted jointly with Alberta Canola had been turned down. The reasoning given in the denial was that comprehensive networks already exist on the topic of clubroot. Currently, the University of Alberta Clubroot team is the only team conducting in depth, specific to Alberta research on this pathogens pathotypes. The research has informed agronomists, commissions, Alberta Agriculture and the World. The work being done at the University of Alberta is of vital importance to the future of the canola industry in Alberta and needs to continue, unimpeded.

Pathotype Classification CCD	
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Differential Host

ECD 2	Turnip (<i>B.rapa</i>)
ECD 5	Chinese cabbage (<i>B. rapa</i> var. <i>pekinensis</i>) 'Ghanaat',
ECD 6	The fodder rapes (<i>B.napus</i>) 'Nevin'
ECD 8	'Giant Rape' selection
ECD 9	New Zealand resistant rape
ECD 10	The rutabaga (<i>B. napus</i> var. <i>napoobrassica</i>) 'Wilthemsburger'
ECD 11	Cabbage (<i>B. oleracea</i> var. <i>capitata</i>) 'Badger Shipper'
ECD 13	Cabbage 'Jersey Queen'
Brutor	Spring Oilseed rape
Laurentian	rutabaga
Mendel	Winter oilseed rape, CR cultivar (<i>B. napus</i>)
Westar	open pollinated spring canola (<i>B. napus</i>)
45H29	CR Hybrid Canola (<i>B. Napus</i>)

Testing completed and results compiled by Dr. Stephen Strelkov,
Victor Manolli, Sheau-Fang Hwang and Keisha Hollman- 2019

Percentage of field area infested by clubroot in Alberta by county

