Manitoba rapeseed disease survey 1978-1980

S.R. Rimmer[1] and R.G. Platford[2]

In 1980 we initiated a new surveying system involving the collaboration of agricultural representatives in a specific region of Manitoba. The data from this and our own survey are compared with the surveys of 1978/1979. Disease incidence in rapeseed in these years has been slight.

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En 1980, nous avons initie un nouveau systeme d'inventaire impliquant'la collaboration des representants agricoles dans une region specifique du Manitoba. Les donnees de cet inventaire et du nôtre sont comparees avec les inventaires de 1978/1979. L'incidence de maladie dans le Colza a ete peu élevé au cours de ces années.

Introduction

Rapeseed disease surveys have been conducted annually in Manitoba for about the last ten years (1,3,4). Generally, the survey has been conducted primarily in the region west of Winnipeg out to Brandon and northwest up to the Swan River Valley. The areas south and east of Winnipeg, the area southwest of Brandon, and the Interlake region have been neglected. In 1980, in an attempt to obtain a more representative sample, we experimented with a new procedure. This involved the cooperation of the agricultural representatives in the S.W. region of the province who, in addition to our own sampling, shipped collections of rapeseed to the MDA plant pathology laboratory where they were examined by us.

Methods

Plants were collected on the survey by sampling fields along the highways. Plants were sampled by walking into the field about 10 metres and then taking a plant every two metres until 25 plants were collected. Agricultural representatives were requested to sample five fields in their own region in this manner. Plants were individually rated for Alternaria grey leaf spot on the siliques, Sclerotinia stem rot on the stems, white rust/staghead and downy mildew, root rot and aster yellows. Ratings for Alternaria were based on percentage silique infection as follows: = 0 - 1% (trace) = 1, 1 - 5% (slight) = 2, 5 - 10% (moderate) = 3, 10% + (severe) = 4. Ratings for white rust/staghead were based on number of terminal stagheads per plant (2).

Results & Discussion

Since there are 10 agricultural representatives in Crop Districts 1, 2, and 3, (Fig. 1) we could have received from this area 50 samples of 25 plants each. In fact, 34 samples were submitted to us. These samples were compared to the samples we collected in this area and included in the over-all disease survey. These additional samples collected by agricultural representatives biases the 1980 survey for Manitoba heavily towards the south west region of the province. However, this area has not been sampled adequately in previous years. No samples were obtained from crop districts 7,9,10,11, or 12. The survey was conducted in the first week of September (Fig. 1) - a week or so later than usual - yet because of the very dry spring, even at this date very few fields were ready to swathe. Some fields were still in early or full bloom. Some fields were mixtures of ***Brassica napus*** and ***B. campestris*** where farmers had resown with ***B. campestris*** (due to poor emergence and flea beetle damage) fields earlier sown to *B.* ***napus.*** Samples from the agricultural representatives were received from the middle of September until the beginning of October and some of these samples were frost damaged.

Fig. 1 shows the route taken for the disease survey. Numbers on the map indicate Manitoba Crop Districts. In order to compare our sampling with that of an independent sample, Tables 1, and 2, compile information for 1978-1980 of the rapeseed acreage in Manitoba. These tables were prepared from data published by the Canadian Cooperative Wheat Producers. The acreage of each of the commonly grown varieties and types of rapeseed is shown in hectares and in proportion to the whole. Note that *B.* ***campestris*** (turnip rape) accounted for about 25% of the total in 1980 (Table 1). This proportion has increased in the last three years, though the total 'acreage has fluctuated considerably. The samples we collected in 1980 consisted of 36% *B.* ***campestris*** fields. Table 2 gives the proportion of *B.* ***napus*** to *B.* ***campestris*** for groups of crop districts. The S.W. region (crop districts 1,2,3) had 20% of the acreage sown to turnip rape. Our own samples consisted of 29% turnip rape from this area, again a higher proportion than the data from the Cooperative Survey. The S.W. region had 27% of Manitoba's rape production. The! highest proportion of turnip rape production was in crop region 11.12. - the Interlake district. This area has not been surveyed in recent years, but as the disease situation may be different on ***B. campestris*** than on ***B. napus*** this is an area that should be surveyed.

Table 3 presents the results of the disease surveys for 1978-1980 on ***B. napus.*** In 1980, 40 samples were examined, 16 in the field and 24 submitted by agricultural representatives.

[1] Department of Plant Science, University of Manitoba

[2] Manitoba ,Department of Agriculture, Ag. Services Complex.

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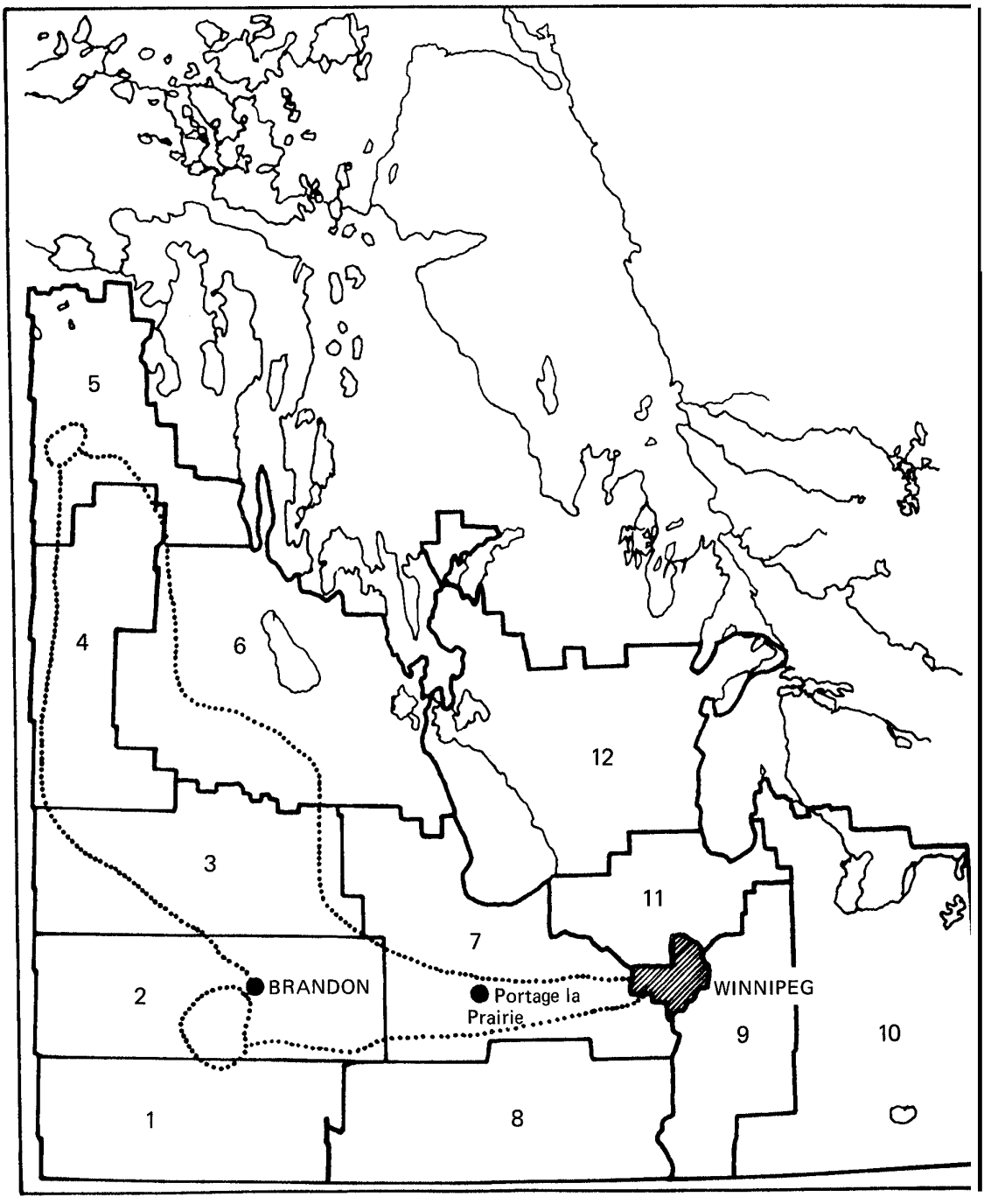

Fig. 1 1980 Rapeseed survey

Grey leaf spot (caused by *Alternara spp.)* was the most prevalent, occurring in all fields and on 92% of the plants. **A** few samples were moderately to severely infected but overall the disease severity (1.2) was only a trace amount. Nevertheless this is the highest level it has been for the last three years. Other diseases were observed including foot rot, aster yellows and *Sclerotinia* stem rot but these occurred at very low levels in only a few fields.

The results for *B. campestris* are given in Table 4. Grey leaf spot was again the most prevalent disease, occurring in 100% of the samples on **93%** of the plants. Again the

average disease severity amounted to only a trace (1.2). White rust (staghead) and downy mildew were also commonly present but again at very low levels (1.1 and 0.4 respectively).

Diseases, then, were not a problem on rapeseed in 1980. Little disease has, in fact, occurred in the last three years but weather conditions during this period have not been favourable. No blackleg was observed in any of the samples and it seems that Manitoba is still free of this disease.

Table 1. Manitoba Rapeseed Production 1978-80 Hectarage and percentage of each variety,

	1978		1979		1980	
Variety	%	Hectares (,000s)	%	Hectares (,000s)	%	Hectares (,000s)
Brassica napus						
Altex					3.7	11.9
Midas	26.7	113.5	6.0	33.9		
Oro	2.0	8.6				
Regent			41.3	234.0	47.0	152.2
Tower	54.3	230.9	29.2	165.6	21.3	69.2
Zephyr	1.2	5.1				
	84.2	358.1	76.5	433.6	72.0	233.3
Brassica campestris						
Candle			2.1	12.0	9.8	31.6
Span	1.9	8.0	0.6	3.4		
Torch	13.7	58.1	20.6	116.7	15.8	51.2
	15.6	66.1	23.3	132.1	25.6	82.8
Other (High Erucic)	0.2	1.0	0.2	1.4	2.4	7.9
	100.0	425.2	100.0	567.0	100.0	324.0

Table 2. Manitoba Rapeseed Production 1978-80. Percentage of Brassica Campestris and *Brassica Napus* by Crop Districts,

	1978				1979				1980			
Crop Districts	Camp.	Napus	%+	Hect.*	Camp.	Napus	%+	Hect.*	Camp.	Napus	%+	Hect.*
1,2,3	12	88	30.3	129	15	85	26.9	152	20	78	27.1	88
4, 5, 6	16	84	25.8	110	30	70	27.4	155	27	73	22.5	73
7	18	82	15.3	65	14	86	17.5	99	26	73	20.1	65
8	11	88	19.2	82	15	84	18.7	106	24	68	20.4	66
9, 10	17	80	1.9	8	33	64	2.1	12	28	72	2.2	7
11, 12	35	65	7.5	32	67	33	7.4	42	43	56	7.7	25
Total	16	84	100.0	426	23	77	100.0	566	26	74	100.0	324

+% production of total

* Hectarage in ,000s.

Table 5 compares the data obtained from samples in the field by us to those submitted by the agricultural representatives. Only samples from related areas were compared. The data are very similar except that the severity of grey leaf spot is higher (1.9, 1.5 compared to 1.2) for samples submitted by the agricultural representatives. This probably reflects the later sampling date of these collections (2-4 weeks later than the survey samples) and during this period disease build up occurred. This data encourages us that this form of sampling is as effective as our own field sampling, and probably is a better sampling method statistically than our own. We are limited by the number of samples we can handle this way but it will be continued as the larger sample overall is more representative and this method permits us to sample areas we are unable to visit.

Table 3. Manitoba Rapeseed Disease Survey 1978–1980. *B. napus.* –Summer rape

	1978			1979			1980		
Disease	% Fields	% Plants	Severity	% Fields	% Plants	Severity	% Fields	% Plants	Severity
Grey Leaf Spot	92	*30*	0.3	68	47	0.5	100	92	1.2
Foot & Root Rots	16	3	–	–	–	–	10	4	–
Sclerotinia Stem Rot	12	4	0.1	–	–	–	5	2	–
Aster Yellows	16	1	–	–	–	–	10	4	–
No. of Fields Surveyed	?			18			16 24 (Ag. Reps.)		

Table 4. Manitoba Rapeseed Disease Survey 1978–1980 *B. campestris* – Summer Turnip rape

	1978			1979			1980		
Disease	% Fields	% Plants	Severity	% Fields	% Plants	Severity	% Fields	% Plants	Severity
Grey Leaf Spot	75	25	0.5	75	36	0.1	100	93	1.2
Root and Foot Rots	12	0.5	–	14	2	–	13	5	–
Staghead White Rust	87	7	0.2	88	67	1.2	86	62	1.1
Sclerotinia Stem Rot	–	–	–	–	–	–	–	–	–
Aster Yellows	12	*0.5*	–	–	–	–	–	–	–
Downy Mildew	25	5	–	75	52	0.8	100	38	0.4
No. of fields surveyed	8			*7*			14 9 (Ag. Reps.)		

Table 5. Manitoba Rapeseed Disease Survey 1980 Crop Districts 1,2,3

	Fields sampled by GP, SRR			Fields sampled by Ag. Reps.		
	% Fields	% Plants	Severity	% Fields	% Plants	Severity
B. campestris						
Grey Leaf Spot	100	99	1.2	100	99	1.9
Staghead White Rust	100	65	1.2	100	49	1.0
B. napus						
Grey Leaf Spot	100	95	1.2	100	99	1.5

Literature Cited

1. Bernier, C.C. 1971. Diseases of rapeseed in Manitoba in 1971. Can. Plant Dis. Surv. 52: 108.
2. Harper, F.R. and V.J. Pittman. 1974. Yield loss by *B. campestris* and *B. napus* from systemic stem infection by *Albugo cruciferarum*. Phytopathology 64: 408-410.
3. Platford, R.C. and C.C. Bernier. 1972. Diseases of rapeseed in Manitoba in 1972. Can. Plant Dis. Surv. 53: 61.
4. Platford, R.G. and C.C. Bernier. 1975. Diseases of rapeseed in Manitoba in 1973-74. Can. Plant Dis. Surv. 55: 75.