

FORAGE CROP INVESTIGATIONS - ONTARIO

1966 Report on Field Trials of Varieties and Mixtures



Research Station, Ottawa

Experimental Farm, Kapuskasing

Experimental Farm, Fort William

Kemptville Agricultural School, Kemptville

Ontario Agricultural College, University of Guelph, Guelph

Western Ontario Agricultural School, Ridgetown

Demonstration Farm, New Liskeard

FOREWORD

This report has been prepared by the members of the Ontario Forage Crops Committee. It is intended for the use of members of that committee as well as for others interested in the forage program in Ontario.

Included in this report are the data from trials established to evaluate varieties and mixtures. These data cannot be considered in most cases as a complete evaluation of a particular variety or mixture, as only those data summarized to November 1, 1966, are included. Field trials are being conducted continuously and data from several years and several trials are necessary to assess the potential value of any variety in Ontario agriculture.

The Ontario Forage Crops Committee is made up of personnel from the Canada Department of Agriculture, Ontario Department of Agriculture, and the Ontario Agricultural College, University of Guelph. The committee assumes the responsibility for the evaluation and subsequent recommendation of varieties and mixtures in Ontario. The chairman of the Ontario Forage Crops Committee is Dr. E. E. Gamble, Head of the Crop Science Department, Ontario Agricultural College, University of Guelph, Guelph, Ontario.

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Rec varieties 1966 : Vernal Saranac
Narragansett, DuPuits, Alfa, Glacier, Moja
^{by}
~~W.R.~~ res.

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ALFALFA

The decision to test varieties in Ontario that have wilt resistance will remove a large group of varieties from our testing program. This years recommendations and the 1967 plantings will be presented with this view in mind.

NEW VARIETIES

WL303 - An 8-clone variety which is intermediate in winter hardiness, wilt resistance and maturity. Comparable to Flemish types in yield.

WL305 - Wilt resistance and recovery similar to WL303.

CL25 - A 7-clone synthetic from Vernal. Equal to Vernal in wilt resistance and fall dormancy but reported to exceed Vernal yields by 5-15%.

RP25 - A strain composed of vigorous lines selected from Vernal. Wilt resistance intermediate.

RECOMMENDATIONS

Flemish Types

Of the two Flemish types (Saranac and Apex) possessing wilt resistance, only Saranac has sufficient wilt resistance to warrant recommendation for licensing. Apex will remain under test and receive another wilt test in 1967. Saranac yields from four locations (6,5,1 and 1 years data respectively) indicate it is comparable to DuPuits.

Standard Types

Nine standard types are listed as being wilt resistant. Three are new entries which have been included in trials at Guelph this spring and it is suggested that they be seeded at another location in 1967 (these varieties are CL25, RP25 and Scout). Of the other six (Vernal, Cayuga, Progress, Beaver, Pioneer 525 and W.R. Narragansett) sufficient data are available to suggest performance trials of W.R. Narragansett and Pioneer 525. Cayuga and Beaver were found to be no better than Vernal in performance and farm trials in previous years. Wilt resistance of Progress and Cayuga (both reported to be low) will be assessed before either one is recommended for licensing.

ALFALFA - FLEMISH VARIETIES -- TESTED, 1966

A. Provincial Screening Trials

B. Performance Trials

Variety	Year Seeded:	1962	1963	1964	1965		1963		1965		
	Exp. No.:	6001	1003	3001	1001	2592	7003	3002 (Hay)	3003 (Pasture)	7001 (Hay)	7002 (Pasture)
DuPuits		x	x	x	x	x	x	x	x	x	x
Alfa			x	x	x	x	x	x	x	x	x
Glacier		x	x				x	x	x	x	x
Mega		x	x								
Tuna		x	x							x	x
Warrior (N.K. 507)		x	x								
N. K. 508		x									
Eynsford		x									
A9H		x	x								
F. D. 100			x								
Saranac				x	x	x	x			x	x
Stride (C. L. 35)				x	x	x					
Apex (R. P. 33)				x	x	x	x				
Europa					x	x					
Omega					x	x					
N. K. 510					x	x					
Flandria						x					

Exp. No.

Location

1001, 1003

Ridgetown

2592

Guelph

3001, 3002, 3003

Kemptville

6001

Kapuskasing

7001, 7002, 7003

Fort William

Alfalfa—Standard Varieties—Tested 1966

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A. Screening Trials

Variety	<u>Year Seeded</u>		<u>1964</u>	<u>1965</u>		
	<u>Exp. No.</u>	<u>6001</u>		<u>1003</u>	<u>1002</u>	<u>2591</u>
Vernal		x	x	x	x	x
Narragansett						x
Rhizoma		x				
Beaver		x				
Progress (CL10)		x				
Pioneer 525			x		x	
Arnim			x		x	
Mark <u>II</u>				x	x	
W. L. 202				x	x	
Multileaf				x	x	
CI30				x	x	
Cayuga					x	x

B. Performance Trials

<u>1963</u>		<u>1964</u>	
<u>3002</u>	<u>3003</u>	<u>7001</u>	<u>7002</u>
<u>(Hay)</u>	<u>(Pasture)</u>	<u>(Hay)</u>	<u>(Pasture)</u>

x	x	x	x
x	x	x	x
		x	x
x	x	x	x

Exp. No.

Location

1002, 1003	Ridgetown
2591	Guelph
3001, 3002, 3003	Kemptville
6001	Kapuskasing
7001, 7002, 7003	Fort William

SUMMARY OF YIELDS
(D.M. lb./Acre)

STANDARD TYPE PERFORMANCE TRIALS

Wilt resistant mean comparisons

Location 1)	HAY			
	<u>G</u>	<u>K</u>	<u>R</u>	<u>V</u>
Seeding year	61	63	63	63
Data years	62-63	64-66	64-66	64-65
Vernal**	9470	9439	10388	8462
Cayuga*	9190	9791	11156	7769

- 1) G = Guelph * - low wilt resistance
 K = Kemptville ** - high wilt resistance
 R = Ridgetown
 V = Verner

WILT REACTION OF A SELECTED GROUP OF VARIETIES

VARIETY	PERCENTAGE RESISTANCE RELATIVE TO VERNAL = 100%	ACTUAL % INFECTION
Vernal	100	17
Narr. W.R.	100	16
Pioneer - 525	100	16
Saranac	92	24
W.L. - 202	92	24
Scout	86	29
R.P. -25	86	29
W.L. -305	80	34
W.L. -303	77	36
C.L. -40	63	48
Mark II	61	49
Apex	57	53
DuPuits	49	59
W.L. -210	36	70

SUMMARY OF YIELDS
(D.M. lb./Acre)

FLEMISH TYPE SCREENING TRIALS

Wilt resistant mean comparisons

Location 1)	<u>G</u>	<u>K</u>	<u>G</u>	<u>K</u>	<u>G</u>	<u>W</u>	<u>R</u>
Seeding year	60	60	64	64	65	65	65
Data years	61-65	61-63	65	65-66	66(1 cut)	66	66
DuPuits	7620	7390	8002	8064	4740	3386	10427
Saranac**	7820	8070	8116	7885	5030	3175	10376
Apex*				7558	4710	3515	11257

1) G = Guelph
K = Kemptville
W = Fort William
R = Ridgetown

* - low wilt resistance
** - high wilt resistance

SUMMARY OF YIELDS
(D.M. lb./Acre)

STANDARD TYPE SCREENING TRIALS

Wilt resistant mean comparisons

Location 1)	<u>G</u>	<u>G</u>	<u>K</u>	<u>C</u>	<u>V</u>	<u>R</u>	<u>G</u>	<u>K</u>	<u>W</u>	<u>G</u>	
Seeding year	60	62	62	62	62	63	64	64	65	65	
Data years	61-65	63-64	63-64	63-66	63-65	64-65	66 ²⁾	65	65-66	66	66 ³⁾
Vernal**	7370	10820	7200	5269	6542	9705	3917	7680	8328	2893	4610
Cayuga*	7308						7437		3097		4400
W.R. Narragansett**	7290										
Beaver**				4919	6177						
Pioneer 525**							3843	8166			4490
Progress*		10690	7780	4930		9579	3658				

1) G = Guelph R = Ridgetown * low wilt resistance
 K = Kemptville W = Fort William ** high wilt resistance
 C = Kapuskasing
 V = Verner

- 2) 2nd and 3rd cuts only
- 3) 1st cut only

MEAN YIELDS OF FLEMISH VARIETIES IN 1966 SCREENING TRIALS

Variety	6001 (1962)		1003 (1963)		3001 (1964)		1001 (1965)		2592(1965)	7003 (1965)	
	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Cut 1	Total
DuPuits	930	1490	2209	3558	3050	6050	4864	10,427	4740	2498	3386
Alfa			1941	3192	2880	5580	5588*	11,135	4670	2532	3219
Glacier	1340	2470*	1806	3166					-	2362	3212
Mega	1810*	3290*	2256	3615					-	-	-
Tuna	2360*	4410*							-		
Warrior(NK507)	1700*	3630*	2209	3770					-		
NK 508	2010*	4060*							-		
Eynsford	1160	2350*							-		
A9H	1280	2440*	1893	3137					-		
FD 100			1749	2885	-	-	-	-	-	-	-
Saranac					3170	6110	4835	10,376	5030*	2477	3175
Stride(CL35)					2400	4900	4820	10,214	4340 ^a	-	-
Apex (RP33)					3140	5660	5850*	11,257	4710	2719	3515
Europa					-	-	5351*	10,671	4360 ^a	-	-
Omega							5280*	10,652	4540		
NK 510							4883	10,089	4480		
Flandria							-	-	4780		

* Significantly more than DuPuits)

^a Significantly less than DuPuits)

Based on L.S.D. (5% level)

Mean Yields of Flemish Varieties in 1966 Performance Trials

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Variety	Hay Management				Pasture Management			
	3002 ('63)		7001 ('64)		3003 ('63)		7002 ('64)	
	<u>Cut 1</u>	<u>Total</u>	<u>Cut 1</u>	<u>Total</u>	<u>Cut 1</u>	<u>Total</u>	<u>Cut 1</u>	<u>Total</u>
DuPuits	4020	7320	4420	5070	1750	3380	2050	4290
Alfa	4600*	8310	4500	5150	1900	3880*	2010	4360
Glacier	4390	7980	4470	5230	1890	4330*	1970	4400
Mega				-			-	-
Tuna			4410	4890			1850	4100
Saranac			4250	4800			1870	4170

* Significantly more than DuPuits) based upon L.S.D. (5% level)
 ° " less ")

MEAN YIELDS OF STANDARD VARIETIES IN 1966 SCREENING TRIALS

Variety	Exp. No. and Year of Seeding										
	6001 (1962)		1003 (1963)		3001 (1964)		1002 (1965)		2591('65)	7003 (1965)	
	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Cut 1	Total
Vernal	2540	4820	2230	3920	3630	6560	5100	10,200	4610		
Warragansett	-	-	-	-			-	-	4270 ^a		
Rhizoma	2240	4000 ^a	-	-			-	-			
Beaver	2410	4320	-	-	-	-			-		
Progress	2220	4240	2000	3660	-	-			-		
Pioneer			2250	3840	3730	7300			4490		
Arnim			1674	2850	3110	6590			4590		
Mark II			-	-	-	-	5100	10,180	-		
W.L. 202							5260	10,560	4680		
Multileaf							5020	10,320	4300 ^a		
CL 30							4340	9,310 ^a	4200 ^a		
Cayuga							-	-	4400		

* Significantly more than Vernal)

^a Significantly less than Vernal) Based upon L.S.D. (5% level)

MEAN YIELDS OF STANDARD VARIETIES IN 1966 PERFORMANCE TRIALS

Variety	<u>Hay Management</u>				<u>Pasture Management</u>			
	3002 (1963)		7001 (1964)		3003 (1963)		7002 (1964)	
	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total
Vernal	5090	8,820	4270	4830	2190	5550	1970	4120
Narragansett	4860	11,050	4500	5030	2040	5510	1840	4090
Beaver	-	-	4250	4590	-	-	1690	3550
Cayuga	4860	9090	4150	4450 ^a	2280	5770	1690	3580

* Significantly more than Vernal)
) based on L. S. D. (5% level)
^a Significantly less than Vernal)

Exp. 2591. Alfalfa Screening Trial, 1965.

Guelph

Variety	Yield - 1966 Cut 1
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(June 23)

WL 202	4680
Vernal	4610
Arnim	4590
Pioneer 525	4490

Cayuga	4400
Multileaf	4300
Narragansett	4270
CL 30	4200

DuPuits	3910
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L.S.D. (5%)	280
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C.V. (%)	7.8
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Exp. 2592 - Alfalfa Screening Trial, 1965

Guelph

Variety	Yield - 1966 Cut 1
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(June 22)

Saranac	5030
Flandria	4780
DuPuits	4740
Apex (R.P. 33)	4710
Alfa	4670

Omega	4540
N.K. 510	4480
Europa	4360
C.L. 35	4340

Vernal	4920
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L.S.D. (5%)	270
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C.V. (%)	7.0
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Exp. 7001 Alfalfa Varieties + Timothy HayFort William

Variety	<u>Yield--1966</u>		Total
	Cut 1 (July 8)	Cut 2 (Aug. 25)	
01 Vernal	4270	560	4830
02 Narraganset	4500	530	5030
03 Cayuga	4150	300	4450
04 Dupuits	4420	650	5070
05 Alfa	4500	650	5150
06 Glacier	4470	760	5230
07 Tuna	4410	480	4890
08 Saranac	4250	550	4800
09 Bever	<u>4250</u>	<u>350</u>	<u>4590</u>
L.S.D.	NS	80	330
C.V. (%)	6.2	18.9	8.2

ALFALFA VARIETIES

Exp. 7002

Fort William

Management - Pasture (seeded with Climax timothy)

<u>Variety</u>	<u>Cut 1</u> (June 10)	<u>Cut 2</u> (July 19)	<u>Cut 3</u> (Aug.26)	<u>Total</u>
Glacier	1970	1970	470	4400
Alfa	2010	1890	460	4360
DuPuits	2050	1810	430	4290
Saranac	1870	1890	420	4170
Tuna	1850	1940	330	4110
Vernal	1970	1820	340	4120
Narragansett	1840	1880	370	4090
Cayuga	1690	1620	260	3580
Beaver	1690	1640	230	3550
L.S.D. (5%)	N.S.	N.S.	70	N.S.
C.V. (%)	13.0	9.0	23.3	15.0

EXP. 7003 ALFALFA SCREENING TRIAL, 1965

FORT WILLIAM

1966 Yields in lb. D.M. per Acre

	Cut 1 July 6	Cut 2 Aug. 12	Total
Vernal	2203	690	2893a
Narragansett	2529	691	3220a
Alfa	2532	687	3219a
DuPuits	2498	888	3386a
Cayuga	2321	776	3097a
Glacier	2362	850	3212a
R.P. 33	2719	796	3515a
Saranac	2477	698	3175a

Remarks -

Fertilizers: Spring 1965 - Broadcast 300# 11-48-24
 Fall 1965 - " " "

Spring 1966 - 300# 8-32-32 + 1% Boron
 Fall 1966 - Sept. 300# of 0-0-60 +
 300# 0-45-0

All eight varieties established on a pure stand basis at Fort William in 1965, survived the winter of 1965-66 with no losses attributable to extreme low temperatures or early spring fluctuations which may dislodge the root system or give rise to critical icing conditions over the plant stand.

Of particular interest in 1966 was the outstanding performance of R.P.-33 (Apex) at Fort William. This seedling exhibited an earliness and vigor equal to most Flemish varieties tested. As in the past, considerable success has been attained growing the Flemish type alfalfas at Fort William on a short-term basis. As wilt is not a problem, the added early spring vigor, ability to harvest early and quick aftermath recovery are important assets of importance in northern areas.

In the first hay cut taken July 6th, superior yield returns were noted for R.P.33, Narrangansett and Alfa. Of the Flemish types grown, Glacier netted the lowest returns in the main hay crop. Saranac alfalfa demonstrated a greater yield potential than either Glacier, Cayuga or Vernal. In aftermath production, DuPuits and Glacier were noteworthy, followed by R.P.33 and Cayuga. Total seasonal production for the year ranged from a low of 2892.0 pounds dry matter for Vernal, up to 3516.3 pounds for R.P.33, with most Flemish types producing yields of over 3200.0 pounds this year.

W.B. Towill

EXP. 1002 ALFALFA STANDARD SCREENING TRIAL, 1965

RIDGETOWN

1966 Yields in lb. D.M. per Acre

	Cut 1		Cut 2		Cut 3		Total
	Yield	% Legume	Yield	% Legume	Yield	% Legume	
Narragansett Mark II	5097	69	2964	68	2116	66	10177
W.L. 202	5256	74	3034	70	2265	71	10555
C.L. 30	4335	71	2612	63	2366	63	9313
Multileaf	5015	69	3103	70	2205	69	10323
Vernal	5101	75	2840	67	2256	68	10197
L.S.D. 5%	N.S.		212		125		780
1%			289		170		-

Yields are of pure stands and the % legume was obtained from a 5 ft. wide strip of Lincoln brome overseeded at the end of the plots.

EXP. 1001 ALFALFA FLEMISH SCREENING TRIAL, 1965

RIDGETOWN

1966 Yields in lb. D.M. per Acre

	Cut 1		Cut 2		Cut 3		Total
	Yield	% Legume	Yield	% Legume	Yield	% Legume	
N.K. 510	4883	75	2993	74	2166	63	10089
Saranac	4835	81	3138	78	2416	78	10376
Alfa	5588	83	3086	77	2400	78	11135
Omega	5280	84	3019	70	2388	73	10652
C.L. 35 (Stride)	4820	80	3086	78	2306	73	10214
DuPuits	4864	78	3048	77	2409	75	10427
R.P. 33 (Apex)	5850	76	3113	69	2215	61	11257
Europa	5351	83	3068	73	2331	73	10671
L.S.D. 5%	346		N.S.		133		N.S.
1%					180		

Yields are of pure stands and the % legume was obtained from a 5 ft. wide strip of Lincoln brome overseeded at the ends of the plots.

A.D. McLaren

EXP. 1003 ALFALFA SCREENING TRIAL, 1963

RIDGETOWN

1966 Yields in lb. D.M. per Acre

	Cut 2		Cut 3		Total
	lb.	% Legume	lb.	% Legume	
A-9-H	1893	71	1244	47	3137
Warrior	2209	77	1561	64	3770
Vernal	2231	66	1686	55	3917
Alfa	1841	72	1351	55	3192
Glacier	1806	65	1360	50	3166
Mega	2256	74	1359	61	3615
F.D. 100	1749	73	1136	56	2885
Progress	2005	68	1653	59	3658
Pioneer 525	2254	68	1589	63	3843
Tuna	2221	69	1574	66	3795
Arnim	1674	73	1174	62	2848
DuPuits	2209	78	1349	59	3558
L.S.D. 5%	N.S.		362		
1%			-		

First cut yields not available.
 Yields are of pure stands and the % legume was obtained from
 5 ft. wide strip of Lincoln brome overseeded at the end of
 the plots.

A.D. McLaren

ALFALFA STRAIN TRIAL, KEMPTVILLE, 1964 SEEDING EXP. 3001

Yield of alfalfa in lb. D. M. per acre

	1965		1966					
	Hay	A ⁹ math.	Total	Cut 1	Cut 2 July 20	Cut 3 Aug.30	Cut 2 & 3 Summer	Total Season
DuPuits	4450	5625	10075	3050	1221	1781	3002	6050
Alfa	4531	5142	9673	2880	1009	1695	2704	5580
Stride	4113	5221	9334	2400	931	1572	2503	4900
Saranac	4569	5091	9660	3170	1041	1900	2941	6110
Apex	4502	4954	9456	3140	863	1655	2518	5660
Pioneer 525	4503	5268	9771	3730	1381	2192	3573	7300
Arnem	4511	5629	10140	3110	1381	2099	3480	6590
Vernal	4348	5008	9356	3630	1036	1891	2927	6560
Mean								
L. S. D.				N. S.	N. S.	N. S.		N. S.
C. V.				18.4	33.6	22.0		20.9

ALFALFA PERFORMANCE TRIAL, 1963

Exp. 3002

Location: Kemptville

<u>Variety</u>	<u>Cut 1</u> (June 23)	<u>Cut 2</u>	<u>Cut 3</u>	<u>Total</u>
DuPuits	4020	1370	1930	7320
Alfa	4600	1650	2060	8310
Glacier	4390	1430	2160	7980
Vernal	5090	1390	2340	8820
Cayuga	4860	1570	2660	9090
Narragansett	4860	3630	2560	11050
L. S. D. (5%)	390	N. S.	N. S.	1430
C. V. (%)	10.0	73.0	21.6	19.4

ALFALFA PERFORMANCE TRIAL, 1963

Exp. 3003.

Location - Kemptville

Management: Pasture

Variety	Yield			Total	% Brome	% Winterkilling
	Cut 1	Cut 2	Cut 3			
	(June 6)	(July 20)	(Aug.24)		(June 1)	(June 1)
DePuits	1750	870	760	3380	67.2	70.8
Alfa	1900	1040	940	3880	66.7	67.5
Glacier	1890	1230	1210	4330	49.2	44.2
Vernal	2190	1730	1630	5550	40.1	25.0
Cayuga	2280	1860	1630	5770	45.0	20.0
Narragansett	2040	1820	1650	5510	49.2	35.8
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L. S. D. (5%)	160	260	160	420		
C. V. (%)	9.7	22.1	14.8	10.6		

ALFALFA VARIETY TEST, 1962

Exp. 6001

Kapuskasing

Yield - Lbs. of D.M./Acre--1966

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u> (Sept.19)	<u>Total</u>
Vernal	2540 a	2280	4820
Rhizoma	2240 ab	1760	4000
Beaver	2410 ab	1910	4320
C.L.10 (Progress)	2220 ab	2020	4240
Tuna	2380 ab	2030	4410
NK 508	2010 abc	2050	4060
NK 507	1700 bcd	1930	3630
Mega	1810 bcd	1480	3290
Glacier	1340 cde	1130	2470
A9H	1280 cde	1160	2440
Eynsford	1180 de	1170	2350
DuPuits	930 e	560	1490
L. S. D.		400	760
C. V.		20.5	18.3

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DESCRIPTION OF NEW STRAINS

For a description of Viking, Empire, Leo, Mansfield, Roskilde, Douglas, Fargo, Composite, and Barr, see page B5, 1964 Report.

Granger - European type, slightly less hardy than Viking. Developed in Oregon.

Cascade - similar to Granger. Developed in Washington.

Dawn - Empire type bred for greater resistance to root rot. Developed in Missouri.

Wallace - a strain showing better than average adaptation to conditions of poor drainage. Developed in Nova Scotia.

MC-H-64 - A "European-type" strain developed by Dr. Bubar from an introduction originating in the Soviet Union.

F.C. 35375 - This strain is otherwise known as Douglas.

RECORD OF BIRDSFOOT TREFOIL VARIETY TESTING IN ONTARIO 1961--66

1961

Six strains were seeded at Ottawa and at Verner. These were managed as hay and as pasture. At the termination of the test in 1964, the relative yields based on Empire were as follows:

Ottawa: Douglas - 108; Viking - 107; Leo - 106; Mansfield - 105; Roskilde - 102; Empire - 100.

Verner: Viking - 123; Roskilde - 123; Leo - 118; Douglas - 115; Mansfield - 114; Empire - 100.

1962

Four strains were seeded at Kapuskasing both in pure stands and with timothy. The tests were managed for hay, and for pasture. At the conclusion of the pasture test in 1965, and at the end of 1966, for the hay section, the relative yields were:

Pasture: Viking - 111; Leo - 105; Empire - 100; Roskilde - 85.

Hay: Viking - 102; Empire - 100; Leo - 99; Roskilde - 86.

1963

Seven strains were seeded at Guelph and at Lambton (Ridgetown sub-station) and these were managed as hay and as pasture. Flooding and icing occurred at both stations in the winter of 1964-5. Leo and Empire survived these conditions better than Viking and Composite. Deleting certain items that are known not to represent a valid production figure the relative standings were as follows:

Ridgetown: Leo - 112; O.A.C. Composite - 108; Empire - 100; Fargo - 99; Viking - 98; Barr - 90; Douglas - 88.

Guelph: Leo - 105; O.A.C. Composite - 101; Empire - 100; Barr - 100; Fargo - 100; Viking - 98; Douglas - 94.

Four strains were seeded at Kemptville and at the completion of the test in 1966 relative yields were:

Viking - 109; Empire - 100; Leo - 100; Douglas - 100.

1964

No seeding.

1965

Management studies designed to improve testing techniques were seeded at Kapuskasing, Ottawa, and Guelph. Establishment at all three locations was unsatisfactory and all three tests were abandoned.

1966

At Ottawa, a management trial (5091) involving Empire, Viking, and Leo was established. Hay and pasture managements were scheduled. Also at Ottawa a strain trial (5092) conducted under pasture management and involving the strains Empire, Viking, Leo, Wallace, Roskilde, Fargo, MC-H-64, and F.C. 35375 was established.

Leo Pedigreed Seed Production

In early 1966, 300 pounds of Foundation Leo seed were distributed among six commercial seed companies for seeding in 1966. The first crop of Certified seed from these plantings will be harvested in 1967 and will probably amount to 5,000-10,000 pounds.

A further supply of Foundation seed amounting to several hundred pounds was harvested in 1966.

Birdsfoot Trefoil Variety Trial, Kapuskasing, 1962 Seeding
Yield of D.M. in lb. per acre

Exp. 6004

Pure Stand	1963		1964		1965		July 13	1966 - Hay Sept. 20	Total
	Hay	Pasture	Hay	Pasture	Hay	Pasture			
Empire	4464	2953	4432	5490	1870	575	3910	1564	5474
Leo	5619	4454	4882	4285	1794	641	2456	1191	3647
Viking	5700	4198	4660	5530	1288	430	2512	1840	4352
Roskilde	3666	1902	4445	4505	1446	638	2213	1207	3420
Mean	4862	3376	4607	4952	1599	571	2773	1450	4223
Trefoil + Timothy									
Empire	5122	3033	5024	5657	2200	1115	3433	1502	4935
Leo	5618	4009	5117	5384	2247	973	3176	1163	4339
Viking	5830	3678	5650	6072	1740	900	3162	1910	5072
Roskilde	4332	2448	4778	5411	2030	1041	3086	1512	4598
Mean	5226	3292	5142	5631	2054	1007	3214	1522	4736

Birdsfoot Trefoil Strain Trial, Guelph, 1963 Seeding

Yield of trefoil-timothy on lb. D.M. per acre, and percent legume

Early or Pasture Management Series

Strain	1964			Sept. 2 Lb.	1965		Cut 1	1966		Total
	May 28 Lb. %	July 10 Lb.	Total Lb.		Total Lb. %	Cut 2				
Viking	3250 27	2320	1517	7087	5931 56	1600	1790	3390		
Composite	3224 32	2673	1521	7418	6623 62	1590	1880	3470		
Douglas	3056 26	2555	1544	7155	5568 43	1880	1370	3250		
Empire	3115 16	2210	1572	6897	5752 56	1860	1750	3610		
Leo	3241 19	2382	1282	6905	6357 67	1750	1640	3390		
Fargo	3016 11	1912	1506	6434	5473 57	1590	1550	3140		
Barr	3119 30	2465	1539	7123	5710 53	1920	1530	3450		
Mean	3145	2359	1497	7001	5823					

Yield of Trefoil--Timothy in lb. D.M. per acre

Late or Hay Management Series

Strain	1964			1965			1966		
	Cut 1 June 18	Aftermath	Total lb.	Cut 1 June 9	Aftermath	Total lb.	Cut 1	Aftermath	Total lb.
<u>Early Group:</u>									
Viking	6.102	2.230	8.332	2.264	3.256	5.520	2650	1940	4590
Composite	6.032	2.538	8.570	2.270	3.472	5.742	2090	2190	4280
Douglas	6.137	2.386	8.523	2.204	3.154	5.358	2120	1700	3820
Mean	6.090	2.385	8.475	2.246	3.294	5.540			
<u>Late Group:</u>									
				June 21					
Empire	6.144	3.337	9.481	3.603	2.764	6.367	1690	2730	4420
Leo	6.310	2.638	8.948	3.953	3.210	7.163	2590	2050	4640
Fargo	6.216	3.423	9.639	3.609	2.809	6.418	1520	2860	4380
Barr	5.902	2.030	7.932	3.004	3.329	6.333	2150	2250	4400
Mean	6.143	2.857	9.000	3.542	3.028	6.570			

Yield of Trefoil-Timothy in lb. D.M. per acre, and percent legume in the mixture

Late or Hay Management Series

Strain	1964					1965	1966					1964-66 Mean lb.
	June 19		July 20		Total		June 30		August 26		Total	
	lb.	%	lb.	%	lb.	lb.	lb.	%	lb.	%	lb.	
Viking	3407	66	1912	84	5319	3738	5010	93	1463	95	6473	5896
Composite	3569	75	2098	84	5667	3278	5336	93	1805	95	7141	6404
Douglas	2672	50	1717	83	4389	2801	4637	83	1505	94	6142	5265
Empire	3454	72	1772	83	5226	4557	5664	88	1211	94	6875	6050
Leo	4199	82	2173	83	6372	3969	5711	93	1538	94	7249	6810
Fargo	3050	57	1842	85	4892	4299	5680	94	1079	95	6759	5825
Barr	2769	61	2028	85	4797	2754	4541	91	1749	95	6290	5543
Mean	3303		1935		5238	3628	5225		1478		6704	5970

BIRDFOOT TREFOIL STRAIN TRIAL, RIDGETOWN, 1963 Seeding Exp. 1006

Yield of trefoil-timothy in lb. D.M. per acre, and percent legume in the mixture

Early or Pasture Management Series

Strain	1964					1965		1966					1964-6
	June 10 lb.	%	July 15 lb.	%	Total lb.	Total lb.	%	June 24 lb.	%	August 26 lb.	%	Total lb.	Mean lb.
Viking	2379	61	1853	83	4232	2848	89	4718	95	1810	94	6528	4539
Composite	3157	73	2355	83	5512	2543	81	5360	68	2116	83	7485	5180
Douglas	2019	58	1863	78	3882	2191	69	4575	67	1757	90	6332	4135
Empire	2291	53	1852	82	4143	2817	89	4819	70	1982	85	6801	4587
Leo	2282	73	2185	84	5167	3259	96	4813	97	2010	86	6823	5083
Fargo	2235	59	1963	82	4198	3126	89	4966	80	1931	86	6897	4740
Barr	2238	57	1943	74	4181	1693	50	4609	53	1755	93	6364	4079
Mean	2472		2002		4474	2639		4838		1909		6747	4620

BIRDSFOOT TREFOIL PERFORMANCE TRIAL

Kemptville 1963 Seeding

Exp. 3004.5

Yield of Trefoil - Timothy in lb. D.M. per acre

Strain	1964 Total	1965 Total	June 24	1966 *		
<u>Hay Management:</u>						
Empire	6.006	8.621	4757	752		
Leo	6.435	7.673	5326	1027		
Viking	6.934	8.710	4497	1363		
Douglas	6.037	7.869	4742	1046		
<u>Pasture Management:</u>						
			June 14	*	Oct. 6	Total
Empire	6.205	6.685	2829	752	1167	4748
Leo	6.243	5.957	3160	1027	1072	5259
Viking	6.622	7.288	2923	1363	1016	5302
Douglas	6.162	6.776	2991	1046	810	4847

* Mean of second cut hay and pasture.

RED CLOVER

The most recent data from trials of double-cut red Clover were summarized in the 1964 report. A screening trial composed of Lakeland, Dollard, Ottawa, Sl23, Hungaropoli, Gloria and Viola was established at Ottawa this spring. Hungaropoli is a Hungarian tetraploid, Gloria and Viola are diploids from Poland and Sl23 is a diploid from England.

The varieties recommended in 1965 were Lasalle, Dollard and Lakeland. Ottawa, which is about equal to Lakeland in yield will be recommended as soon as seed supplies become available. Seed of Ottawa is being increased but there will not be sufficient seed until at least 1969. Seed supplies of Lasalle are low and will continue to decline.

WHITE CLOVER VARIETIES

One Station (Fort William) provided data for 1966. No new trials were established in 1966. It is suggested that further seed production trials be established to evaluate the potential of Ottawa syn A.

Analysis indicated no significant differences in total yields at Fort William. Adjustment for % legume may show a significant difference between Merit and White Dutch.

Summary data indicate small differences between Merit, Syn A and Syn B which may or may not be significant although Merit has had a consistently higher yield than the two synthetics.

No change in variety recommendations is suggested for 1966. Seed supplies of Merit will only be fair.

SUMMARY OF WHITE CLOVER VARIETY YIELDS

(D.M. in Lb./A.)

Location Data years Variety	1962 Seeding				1964 Seeding	Total 63-66 Mean
	Guelph 63-64 Mean	Kapuskasing 63-64 Mean	Ottawa 63	Verner 63	Ft. William 65-66 Mean	
Ott. Syn. A	5867	3251	4231	994	1980	3265
Ott. Syn. B	5775	3141	4475	1114	1931	3287
Merit	6473	3735	4554	1168	2075	3601
Calif. Cert.	6350	3378	4249	1127	2000	3421
White Dutch	5815	3180	3880	1006	2038	3184

WHITE CLOVER TRIAL, FORT WILLIAM, 1964 SEEDING

	1965	Cut 1 June 9	1966		% Legume	1965-66 Mean
	2 cuts		Cut 2 July 20	Total		
Merit	1457	1109	1584	2693a	60.6	2075
Ottawa Syn. A	1310	1105	1544	2649a	56.0	1980
Ottawa Syn. B	1274	1131	1456	2587a	54.5	1931
White Dutch	1586	1153	1338	2491a	42.0	2038
Calif. Cert.	1323	1127	1550	2677a	51.3	2000

Remarks:

Fertilizer application - 1966-S-300#8-32-32+1% boron
 1966-June 10 - 300# 8-32-32
 1966-F- 300# 8-32-32

Stands of white clover established at Fort William in 1964 have been unable to withstand the invasion of native grasses and weeds, with the result performance in terms of yield must be assessed mindful of such contamination. Attempts to eliminate grasses and such weeds as daisies, sheeps sorrell and hemp nettle with available herbicides was unsuccessful due to its effect upon the legume.

Of the five entries tested on a sandy loam soil at Fort William, the variety Merit was the most outstanding, with its early vigor and aftermath recovery, it was able to compete with other plant competition more successfully. This agrees with its yield performance in 1965, when 1457 pounds dry matter was recorded. In 1966, in two clippings, 2692 pounds of forage were harvested, of which over 60% was legume. On the other hand, total production for California Certified in 1966 was 2678 pounds, of which only 51% was contributed by the legume crop. White Dutch Clover established well in 1964, however, two years later stands were thin and unproductive. In both test years, Synthetic A was slightly superior to Synthetic B in yield performance.

W.B. Towill

Exp. 3006

WHITE CLOVER VARIETY TEST, 1964, Kemptville

Yield--Lbs. of D. M./Acre -- 1966

<u>Variety</u>	<u>Cut 1</u> (June 27)
Merit	3210
Ottawa Syn. A	3120
Ottawa Syn. B.	3090
California Certified	3060
White Dutch	2950
L. S. D. (5%)	N. S.
C. V.	8.2

BROMEGRASS

Summary

The data collected in 1966 does not warrant any change in the recommended list for 1967. Therefore, we continue to recommend Redpatch and Saratoga, then Lincoln and Fischer as alternate southern type varieties. The commercial Canadian brome will be available in quantity should the seed supply of the southern varieties be scarce.

The "new" Carlton variety from Saskatoon should be tested throughout our stations to see if it yields better than old Carlton. If so, we could perhaps change our recommendation regarding Canadian Commercial. There doesn't seem to be much difference in performance among the southern type brome varieties. Seed has not been available of the Auchenbach variety for several years. There are seed fields in western Canada producing certified seed of Lincoln and Fischer.

W.R. Childers

RIDGETOWN

F₁

Bromegrass test seeded 1963 - 3 yr. summary in lbs. D.M./acre

Variety	1966 Season			Total	Seasonal Totals			3 yr. Means
	June 23	August 4	Sept. 1		1964	1965	1966	
Saratoga	6108	1537	1504	9149	9705	8939	9149	9264
Lincoln	6349	1545	1542	9436	10049	9293	9436	9593
Redpatch	6772	1488	1512	9772	9536	9000	9772	9436
Blair	6843	1424	1493	9760	9893	9094	9760	9582
Sac	6553	1406	1491	9450	9344	8725	9450	9173
Means	6525	1480	1568	9513	9705	9010	9513	9409
L.S.D. 5%	N.S.	N.S.	N.S.	N.S.		N.S.	N.S.	

Comment: These results show a lack of significant difference when Bromegrass varieties are tested with alfalfa.

BROME VARIETY PERFORMANCE TRIAL

Exp. 3007

Kemptville

Yield - Lbs. of D.M./Acre, 1966

<u>Variety</u>	<u>Cut 1</u> (June 17)	<u>Cut 2</u> (Aug. 2)	<u>Total</u>
1. Redpatch	3480	3780	7260
2. Lincoln	3560	2840	6400
3. Saratoga	3560	2830	6390
4. Sac	3530	2730	6260
L.S.D.	N.S.	N.S.	
C.V.	7.6	42.9	

Exp. 6007 Bromegrass Variety Test Kapuskasing

Yield - Lbs. of D.M./Acre - 1966

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u> Sept. 19	<u>Total</u>
Saratoga	2270	1180	3450
Lincoln	2995	980	3975
Redpatch 2	3043	1130	4173
Carlton	3246	910	4156
Fischer	3370	1350	4720
Wis. 55	2973	910	3883
Sac. (Wisc. 81)	3140	1210	4350
	L.S.D. N.S.	N.S.	N.S.
	C.V. (%)	30.0	16.7

Exp. 7006 BROME VARIETIES + ALFALFA MIXTURES, HAY Fort William

Yield - Lbs. of D.M./acre - 1966

Variety	Cut 1 (July 7)	Cut 2 (Aug.25)	Total
1. Blair (R.P.100)	4980	670	5650
2. Redpatch	4930	500	5430
3. Ottawa Syn. D.	4830	580	5410
4. S. 6325	4810	550	5360
5. Lincoln	4730	540	5270
6. Sac.	4710	560	5270
7. S-6324	4670	510	5180
8. Saratoga	4600	580	5180
	—	—	—
L.S.D.	N.S.	N.S.	N.S.
C.V. (%)	4.4	22.3	6.6

OTTAWA RESEARCH STATION
(Forage Section)

Test Brome Syn. Test

Planted 1965

Plot size 5' x 20', 4 replications

Fertilization 200 lbs. of 33% nitrogen in spring.
100 " " " " after first cut

Entries (13)	Pounds D.M. per acre		Total
	1st cut	2nd cut	
Syn. A-1	5092	1399 abc	6491
A-2	5444	1487 abc	6931
A-3	5609	1525 ab	7134
Syn. B-1	4867	1440 abc	6307
B-2	5617	1298 bc	6915
B-3	5519	1496 ab	7015
Syn. C-1	5548	1286 bc	6834
C-2	5850	1654 ab	7504
C-3	5716	1493 ab	7209
Syn.2-S-6325	6202	1168 c	7370
Syn.2-S-5824	5748	1456 abc	7204
Saratoga	5943	1717 a	7660
Lincoln	5936	1495 ab	7431
	N.S.	95.22	N.S.
C.V.	10.13	13.08	9.38

BROME SYNTHETIC TRIAL, 1965

Exp. 2644

Guelph

Yield - Lbs. of D. M./Acre, 1966

<u>Variety</u>	<u>Cut 1</u> (June 27)	<u>Cut 2</u> (Aug. 17)	<u>Total</u>
1. Syn. A-1	7370	1330	8700
2. Lincoln	7610	1030	8640
3. Syn. C-1 (Redpatch)	7400	1150	8550
4. Syn. B-2	7360	1170	8530
5. Syn. C-3 (Redpatch)	7240	1230	8470
6. Syn. B-1	7150	1310	8460
7. Syn. C-2 (Redpatch)	7150	1280	8430
8. Saratoga	6990	1320	8310
9. S-5824 Syn. 2	7290	1020	8310
10. S-6325 Syn. 2	7260	970	8230
11. Syn. A-3	6670	1290	7960
12. Syn. A-2	6690	1240	7930
13. Syn. B-3	6620	1230	7850
L. S. D.	N. S.	140	N.S.
C. V.	10.6	10.2	9.4

Meadow Fescue

No trials of meadow fescue were harvested in 1966.

B. R. Christie

Co-ordinator

Orchardgrass Varieties

A total of 34 varieties and strains were tested in at least one location in Ontario in 1966, and some varieties were tested in four locations.

No variety or strain consistently outyielded Frode, Tardus II & Rideau, so no change in the recommended list is suggested.

All data available on certain varieties is summarized on page H-4. These are the varieties which have been most extensively tested, and are as follows:

1. Coxa--appears to be slightly higher in yield than Frode, but is of the same maturity and general appearance.
2. Latar--is usually 5-7 days later than Frode. In the field, it can be identified by its light green colour. Latar frequently outyields Frode in the first harvest year, but in succeeding years the yield is usually lower.
3. Matycka--This variety is of the same maturity as Frode, but is often lower in yield. It is very susceptible to frosting.
4. Pennlate--Usually 5-7 days later than Frode and equal in yield.

B. R. Christie

Co-ordinator

Orchardgrass Varieties - Tested in 1966

H-2 a

Year of Seeding Exp. No.	1963	1964				1965	
	1004	2638	2639	7008	7009	2646	5004
Frode	x	x		x	x	x	x
Rideau	x	x	x	x	x	x	x
Tardus II	x	x	x	x	x		
Aries						x	x
Boone						x	x
Bumper							x
Coxa	x		x	x			
Dorise		x					
Heidemij		x					
Latar			x	x	x		
Motycka	x		x	x	x		
O.G.P.-1							x
O.S.G.-1						x	x
O.S.G.-3						x	x
O.S.G.-4						x	x
O.S.G.-5		x				x	x
O.S.G.-6						x	x
O.S.G.-7						x	x
O.S.G.-8						x	x
Ottawa 100				x	x		
Ottawa Strain K				x	x		
Pajberg III		x					
Pajberg Milka		x					
Pennlate	x		x	x	x		
Pennmead		x					
61.23		x					
S-345		x					
Sceempter		x					
Sv. 01009		x					
Taurus						x	x
Trifolium Early		x					
Va 58- V-1		x					
Vertas		x					
Wisc. 52						x	x

<u>Exp. No.</u>	<u>Location</u>
1004	Ridgetown
2638, 2639, 2646	Guelph
5004	Ottawa
7008, 7009	Fort William

Origin of Orchardgrass Varieties and Strains

H-2b

<u>Variety</u>	<u>Breeder</u>	<u>Entered by</u>
Aries	Vilmorin-Andrieux, France	Ont. Seed Cleaners & Dealers
Boone	Kentucky Agr. Exp. Sta., U.S.A.	Coordinator
Bumper(Ottawa 5)	Research Station, Ottawa	Breeder
Coxa	O.J. Olsen&Son Ltd., Hammenhog, Sweden	Hogg& Lytle Seeds
Dorise	D.J. Van der Have, Netherlands	Breeder
Frode	Swedish Seed Ass'n Svalof	Hogg& Lytle Seeds
Heidemy	D.J. Van der Have, Netherlands	Breeder
Hercules	Research Station, Ottawa	Breeder
Karo	Central Bureau, Netherlands	Breeder
Motycka	Central Board of Plant Breeding, Poland	Ontario Seed Cleaners & Dealers
Napier (R.P.300)	R.R. Kalton, Rudy-Patrick Res. Centre, Iowa	Breeder
O.G.P.--1	Research Station, Ottawa	Breeder
O.S.G.-1,2,3,4,5,6,7,8	Crop Science Dept. O.A.C., Guelph	Breeder
Pajberg III	Pajbjergfonden, Borkop, Denmark	Breeder
Pajberg Milka	" "	Breeder
Pennlate	Penn. Agr. Exp. Sta., U.S.A.	Coordinator
Pennmead	" "	Coordinator
Rideau	Research Station, Ottawa	Breeder
6L.23	Gebr. van Engelen, Netherlands	Ont. Seed Cleaners & Dealers
S-345	Welsh P.B. Station	Coordinator
Sceempter	Zwaan & der Wiljes, Netherlands	Ont. Seed Cleaners & Dealers
Sv. 01009	Swedish Seed Ass'n Svalof	Hogg& Lytle Seeds
Tardus II	W. Weibull, Sweden	Ont. Seed Cleaners & Dealers
Taurus	Vilmorin-Andrieux France	Ont. Seed Cleaners & Dealers
Trifolium II (Early)	A/S Trifolium Fro Kobenhavn-Valley, Denmark	Breeder
Va 58-V-1	Virginia Agr. Exp. Sta., U.S.A.	Coordinator
Vertas	Gebr. van Engelen, Netherlands	Ont. Seed Cleaners & Dealers
Wisconsin 52	Wisc. Agr. Exp. Sta., U.S.A.	Coordinator

ORCHARD VARIETIES—YIELD, lbs. of D.M./acre—1966

H-3

Variety	1004 (1963)		2638 (1964)		2639 (1964)		7008 (1964)		7009 (1964)		2646 (1965)		5004 (1965)	
	1st cut	Total	1st cut	Total	1st cut	Total	1st cut	Total	1st cut	Total	1st cut	Total	1st cut	Total
FRODE	6154	9802	6570	7820			2970	3310	3120	4340	6430	9290	2116	5349
RIDEAU	5661 ^a	9277 ^a	6580	7240 ^a	5530	7350	3260*	3760*	3040	3960	5960 ^a	7990 ^a	2813	5759
TARDUS II	6138	9791	5330 ^a	6750 ^a	5060	7000	3040	3410	3070	4260				
ARIES											3450 ^a	7210 ^a		
BOONE											5530 ^a	9030	2393	5689
BUMPER													3577*	6367
COXA	5881	9609			5220	7290	3300*	3710*	3220	4460				
DORISE			6610	7730										
HEIDELIJ			7030	7730										
IATAR					5070	6840	3080	3490	2960	3810				
MOTYCKA	5736 ^a	9348 ^a			4530	6620	2740 ^a	3180	2800	3810				
O.G.P.-1													3293*	6641
O.S.G.-1											5710 ^a	8450 ^a	3266*	6249
O.S.G.-3											5330 ^a	8110 ^a	2947*	5943
O.S.G.-4											5160 ^a	7810 ^a	3340*	6700
O.S.G.-5			6190	6530 ^a							6810	8280 ^a	3116*	5934
O.S.G.-6											6010 ^a	7990 ^a	3078*	5135
O.S.G.-7											4970 ^a	8330 ^a	3340*	7036
O.S.G.-8											6060	8450 ^a	3004*	6207
OTTAWA 100							3180*	3750*	2770	3700				
OTTAWA STRAENK							3470*	3840	3310*	4100				
PAJBERG MILKA			5870 ^a	7190 ^a										
PENNIATE	6009	9605			5320	7080	3560*	4060	2880*	3850				
PENNMEAD			6870	8380*										
61.23			5840 ^a	6900 ^a										
S-345			4890 ^a	6000 ^a										
SCEEMPTER			5650 ^a	7000 ^a										
SV. 01009			5730 ^a	6730 ^a										
TAURUS											4430 ^a	7410 ^a		
TRIFOLIUM EARLY			5860 ^a	7140 ^a										
VA. 58-V-1			5570 ^a	7140 ^a										
VERTAS			5390 ^a	6760 ^a										
WISC. 52											5340 ^a	8330 ^a	3198*	6266

PAJBERG III

4990^a 6500^a

* Significantly above Frode)
) based upon L.S.D. (5% level)
a Significantly below Frode)

SUMMARY OF ALL YIELD DATA ON CERTAIN VARIETIES UNDER TEST, 1966

H-4

Comparisons	Pasture			Hay + Aftermath Pasture (alone)				Hay + Aftermath Pasture (Legume)			
	No. Locations	No. Test Years	Total Yield	No. Locations	No. Test Years	Cut 1	Total Yield	No. Locations	No. Test Years	Cut 1	Total
Frode Tardus II	4	13	5520 5330	3	17	4220 4080	6660 6470	5	17	4450 4550	7450 7470
Frode Rideau	4	10	5810 5540	3	13	4400 4340	7300 6900	4	15	4420 4450	7150 7260
Frode Copa	1	1	3790 4180	2	2	3960 3920	6460 6540	3	5	5580 5650	8740 8970
Frode Latar	4	9	6040 5860	3	10	3800 4190	7420 7100	4	11	3760 3730	6220 6240
Frode Motycka	-	--		2	7	4090 3770	6220 6020	3	5	5580 5490	8740 8700
Frode Pennlate	2	7	6710 6610	2	3	3770 3830	6190 6060	4	19	4390 4440	7430 7430
Frode O.S.G.-5	-	--		2	4	4620 5000	7120 6850	-	--		

ORCHARDGRASS TRIALS - SEEDED 1966

H-5

VARIETY	GUELPH	KEMPTVILLE	OTTAWA
Frode (Certified)	x	x	x
Hercules (Certified)	x		x
Karo (Certified)	x		
Napier (Certified)	x	x	x
O.S.G.-2 (Syn. 1)	x		
O.S.G.-3 (Syn. 1)	x		
O.S.G.-4 (Syn. 1)	x		
O.S.G.-6 (Syn. 1)	x		
O.S.G.-7 (Syn. 1)	x		
O.S.G.-8 (Syn. 1)	x		
Ottawa P-1 (Syn. ?)	x		
Ottawa 5 (Syn. 1)	x	x	x
(Bumper)			
Pajberg III (Certified)		x	x
Pennlate (Certified)	x		
Rideau (Certified)	x	x	x
Trifolium II (Certified)		x	x
Va. 58-V-1 (Syn. 2)		x	x

W. O. A. S. 1966

H-6

Orchardgrass Performance Trial

Seeded 1963

<u>Variety</u>	<u>Lbs./A. % Legume</u>		<u>Lbs./A. % Legume</u>		<u>Lbs./A. % Legume</u>		<u>Total</u>
Tardus II	6138	76	1868	80	1785	63	9791
Rideau	5661	73	1925	78	1691	55	9277
Motycka	5736	82	1840	72	1772	51	9348
Coxa	5881	78	1914	74	1814	56	9609
Pennlate	6009	70	1848	84	1748	59	9605
Frode	6154	76	1857	74	1791	57	9802
L.S.D. @5%	341		N.S.		N.S.		332
@1%	---						---
C.V.	4.8%		8.4%		5.2%		2.9%

Exp. 2633 Orchardgrass Preliminary Report, 1954

H-7

Variety	Cut 1		Cut 2 (Sept. 2)	Total	Vigour 1)		Relative stand		Date	
	Date	Yield			May 17	May 31	May 17	%Grass 2)	Hooded	Anthesia
			(May 17)	(May 17)	(May 17)	(June)	(June)			
Trifolium Early	June 16	5860	1280	7140	3.0	3.0	100	50	11	16
Va-58-V-1	"	5570	1570	7140	3.5	2.0	85	60	12	16
Hardus II	"	5330	1420	6750	4.0	3.0	95	50	13	16
Pajberg III	"	4990	1510	6500	1.5	2.0	80	50	13	17
S-345	"	4890	1110	6000	3.5	4.0	85	50	9	16
Heidemy	June 20	7030	700	7730	4.0	5.0	100	30	16	21
Pennmean	"	6870	1510	8380	2.0	1.0	90	50	17	19
Dorise	"	6610	1120	7730	4.5	5.0	80	40	17	21
Prode	"	6570	1250	7820	4.0	3.0	90	50	14	18
Pajberg Milka	"	5870	1320	7190	2.5	3.0	90	40	15	20
61.23	"	5840	1060	6900	5.5	7.0	90	50	17	23
Sv. 01009	"	5730	1000	6730	7.0	6.0	70	35	17	22
Sceempter	"	5650	1350	7000	3.0	3.0	100	30	17	22
Vertas	"	5390	1370	6760	5.0	6.0	90	40	17	23
Rideau	June 20	5960	1300	7260						
O.S.G-5	"	5220	790	6010						
Rideau	June 23	6580	660	7240	5.0	6.0	100	50	19	23
O.S.G.-5	June 27	6190	340	6530	4.0	5.0	100	60	21	27
L.S.D.		630	340	560						
C.V.		10.8	28.6	8.0						

1) Vigour Rating: 1(good) to 9 (poor)

2) % grass in 5' strip overseeded with Du Puits. Du Puits at first flower stage on June 22.

Exp. 2639 Orchardgrass Performance Trial, 1964Yield - Lbs. of D.M./Acre, 1966Location - Guelph

Variety	Cut 1 (June 16)	Cut 2 (Sept. 1)	Total	Date Headed
1. Rideau	5530	1820	7350	June 20
2. Coxa	5220	2070	7290	June 13
3. Pennlate	5320	1760	7080	June 17
4. Tardus II	5060	1940	7000	June 13
5. Latar	5070	1770	6840	June 18
6. Motycka	4530	2090	6620	June 13
L.S.D.	280	N.S.	330	
C.V.	5.1	14.6	5.4	

Exp. 2646

Orchard Strain Trial 1965

Location - Guelph

Variety	Yield - Lbs. D.M./Acre 1966					Vigour ¹ (May 26)	Relative Stand (May 26)	Date Headed June
	Cut 1 Date	Yield	Cut 2	Cut 3	Total			
1 Frode	June 21	6430	1710	1150	9290	4.8	90	June 15
2 Boone	" 17	5530	2100	1400	9030	4.2	90	" 13
3 O.S.G.1	" 17	5710	1670	1070	8450	3.0	90	" 13
4 " 8	" 21	6060	1680	710	8450	5.2	90	" 16
5 " 7	" 17	4970	2010	1350	8330	4.0	88	" 13
6 Wisc. 52	" 17	5340	1950	1040	8330	4.5	90	" 13
7 O.S.G.5	" 27	6810	1180	290	8280	3.8	86	" 23
8 " 3	" 17	5330	1910	870	8110	4.0	88	" 13
9 " 6	" 21	6010	1470	510	7990	4.5	88	" 16
10 Rideau	" 23	5960	1390	640	7990	6.0	90	" 19
11 O.S.G.4	" 17	5160	1760	890	7810	2.5	84	" 13
12 Taurus	" 21	4430	1820	1160	7410	9.0	90	" 16
13 Aries	" 17	3450	2090	1670	7210	5.0	85	" 13
L.S.D.		390	220	210	540			
C.V.		8.8			7.3			

¹ Vigour rating: 1 (good) to 9 (poor)

Note: The varieties Aries and Taurus suffered some winter damage, and were the only varieties which did show such damage. These varieties are probably not sufficiently hardy for Ontario conditions.

Exp. 5004 - Guelph Orchard Grass Variety Test.

Location - Ottawa Research Station (Forage Section)

Plots - 5 ft. x 20 ft.

Date seeded - 1965

Fertilization - 200 lbs. 33% spring 1966
100 lbs. 33% after first cut 1966

Entries (15)	D.M. lbs./acre First Cut	D.M. lbs./acre Second Cut	2 cut Total
O.S. G. 7	3340 a	3696	7036
" " " 4	3340 a	3360	6700
O.G. P-1	3293 a	3348	6641
Bumper	3577 a	2790	6367
Wis. 52	3198 a	3068	6266
O.S. G. 1	3266 a	2983	6249
" " " 5	3004 ab	3203	6207
" " " 3	2947 ab	2996	5943
" " " 5	3116 ab	2818	5934
Rideau	2813 abc	2946	5759
Boone	2393 abc	3296	5689
Frode	2116 c	3233	5349
O.S. G. 6	3078 ab	2857	5135
Aries	Dead*	Dead*	--
Taurus	Dead*	3162	--
C.V.	15.87	11.91	

* Severe winter killing.

Remarks: Aries and Taurus were severely winterkilled, no 1st cut was taken.

Frode also showed considerable winterkilling, as reflected in lowest first cut yield.

Test - Orchard Grass Strain Test

Location - Ottawa Research Station (Forage Section)

Plots - 5 ft. x 20 ft., 5 rows 1 ft. apart.

Date Seeded - May 5, 1966

Fertilization - 300 lbs. of 8-16-16 before planting.

Cut - Sept. 26, 1966

<u>Entries</u>	<u>D.M. lbs./acre</u> <u>1 cut</u>	<u>Mean Stand</u> <u>(Oct. 28/66)</u>
O.G. K-C	2438 b	95
Bumper	2661 b	96
O.G. PI	3292a	96
Rideau	3195a	95
Frode	3470a	95
O.S.G. 5	2750 b	94
Pennlate	3302a	95
Hercules	3412a	97
C.V.	10.47	

Remarks - This is the first time we have cut orchard grass in the establishment year. It will be interesting to see the comparative rating with succeeding yearly yields.

Exp. 7008Location--
Fort WilliamORCHARDGRASS VARIETY + VERNAL ALFALFA

- as mixture for Hay.

Variety	Yield - 1966		
	Cut 1 (June 29)	Cut 2 (Aug. 17)	Total
1. Pennlate	3560	500	4060
2. Ottawa Strain K.	3470	370	3840
3. Rideau	3260	500	3760
4. Ottawa 100	3180	560	3750
5. Coxa	3300	410	3710
6. Latar	3080	420	3490
7. Tardue II	3040	370	3410
8. Motycka	2740	440	3180
9. Frode	2970	340	3310
	----	---	----
L.S.D.	150	N.S.	260
C.V.	5.7	6.0	8.9

Exp. 7009Location -
Fort WilliamORCHARD VARIETY TRIAL, 1964Yield - Lbs. of D.M./acre,
1966 - Hay

Variety	Cut 1 (June 28)	Cut 2 (Sept. 2)	Total
Coxa	3220	1250	4460
Frode	3120	1230	4340
Tardus II	3070	1190	4260
Ottawa Strain K.	3310	780	4100
Rideau	3040	920	3960
Pennlate	2880	970	3850
Latar	2960	840	3810
Motycka	2800	1010	3810
Ottawa 100	2770	930	3700
	----	----	----
L.S.D.	170	240	250
C.V.	7.0	27.0	7.5

TIMOTHY SUMMARY

At this time there are no changes in the recommended list of timothy from Bull. 296.

Some interesting highlights in the tests were observed, however in the different areas of testing. At Fort William 0296 gave an excellent yield in 1966 but on a two year average was only 20 pounds higher than Champ. At Kapuskasing, Heidemij and King led the pasture test, a season which was cool and wet seemed to stimulate these varieties. Whereas, in southern Ontario, at Guelph, page 1-9 their aftermath yields were extremely low. It may be advisable to test these varieties at Fort William and New Liskeard to see how they perform throughout the northern section of the province.

In the screening trials at Guelph and Ottawa, Climax was in first place at Ottawa and last place at Guelph. The 0296 early variety was in first place at Guelph and 14th place at Ottawa. These wide differences due to location may reflect local temperature and moisture differences and if they are consistent over a three year period, we may have to make more specific recommendations as to areas of adaptation in the province.

At Guelph, page 1-5, all the late timothy varieties outyielded those cut before June 27. Whether this is a seasonal effect is not certain but the sudden inception of high temperature just after cutting could cause a setback.

The Champ variety yielded first at Kemptville, in one case at Ottawa, and was second at Fort William. This variety does give better 2nd cut yields but the totals in most tests are quite similar.

Drummond, a later variety, recommended in Quebec, was consistently lower in most tests in Ontario.

W.R. Childers
Ottawa Research Station

FORT WILLIAM

I1

Experimental Farm

Variety	D.M. Lbs./Ac.	D.M. Lbs./Ac.	2 Yr. Av.	
	1965	1966		
T-1 (Wis.)	1752a	2934.55 cd	2343.27	3
Climax	1714ab	2898.45 cde	2306.22	6
Labelle	1661abc	3007.68 bc	2334.34	5
Astra	1629abc a	3041.17 bc	2335.08	4
Drummond	1580abcd	2591.53 f	2085.76	9
Bounty	1546 bcd	2678.75 def	2112.37	8
Essex	1498 cd	2647.77 ef	2072.88	10
Champ	1489 cd	3256.87ab	2377.43	2
P-3	1468 cd	3130.13abc	2299.06	7
0296	1455 c	3328.27a	2391.63	1
Date cut	July 12	June 22		

Remarks -

In 1966, timely rains were more the exception rather than the rule, with the result grass yields were lower than hoped for with only one harvest recorded. Shower activity in early June promoted the growth of grass, making possible the harvest of hay in the order of 2951.13 pounds of dry matter per acre. The return of warm dry weather throughout the month of July held crop growth at a virtual standstill with no possibility of securing additional fodder from the aftermath.

In 1966, it was of interest to note the satisfactory performance of line 0296, a hay type bred by the Hogg and Lytle Co., possessing earliness and vigor. In the first hay year, 0296 gave a disappointing return compared to other varietal entries. Under the deficient soil moisture conditions experienced in 1966, the wide-leafed variety Champ and Ottawa P-1 yielded well. Astra ranked fourth in total hay produced, somewhat lower than one year previously. Differences as between Bounty, Essex and Drummond were small in the second crop year.

Over the past two-year period, total production was greatest for 0296 with some 4793 pounds dry matter produced. Champ ranked second with 4745 pounds, followed closely by the varieties Astra, Wisconsin, T-1, Labelle and Climax. Drummond and Essex Timothy produced only 4171 and 4145 total pounds over the two-year period 1965-1966.

OTTAWA RESEARCH STATION
(Forage Section)

Test 5003-C - Timothy Variety Test

Planted 1965

Plot size 5' x 20'

Fertilization 200 lbs. of 33% nitrogen, spring.
100 lbs. of 33% summer after first cut.

Entries (10)	June 28/66	Sept. 28/66	Total	Rank
	DM lbs/Ac. 1 cut	DM lbs/Ac. 2 cut		
Labelle	3804ab	1836 bc	5640	5
Bounty	4014a	1617 bc	5631	6
Champ	2980 e	2461a	5441	7
Wis. T-1	2907 e	1806 bc	4713	10
Astra	3179 cde	2138 b	5317	8
Essex	3915ab	1804 bc	5719	2
Drummond	3051 de	1840 bc	4891	9
Climax	3759ab	1953 bc	5712	3
Milton	3637abc	2060 b	5697	4
Clair	3499 bcd	2696a	6195	1
C.V.	10.13	12.73		

Remarks: A dry cool spring was followed by rains in June, consequently severe lodging occurred which hampered the harvesting operation. High temperatures in July delayed regrowth which was below average.

OTTAWA RESEARCH STATION
(Forage Section)

Test 5002-B - Timothy Variety Test

Planted 1965

Plot size 5' x 20' - 6 reps.

Fertilization - 200 lbs. 33% nitrogen, spring
100 lbs. 33% after first cut.

Entries (10)	Yield Dry Matter in lbs./acre		Total	Rank
	1 cut June 28/66	2 cut Sept.28/66		
Labelle	4337a	1558 d	5895	8
Bounty	4548a	1675 d	6223	2
Champ	3743 bc	2310ab	6053	5
Wis. T-1	3650 c	1724 d	5374	9
Astra	4115abc	1804 cd	5919	7
Essex	4237ab	1709 d	5946	6
Drummond	3614 c	1526 d	5140	10
Climax	4436a	1619 d	6055	4
Milton	4049abc	2080 bc	6129	3
Clair	4246ab	2456a	6702	1
C.V.	10.55	13.56		

Remarks: A cool dry spring was followed by adequate rains in early June. All plots were severely lodged to the extent that regrowth was delayed and areas of the sward were killed.

OTTAWA RESEARCH STATION
(Forage Section)

Test 5001 - Timothy Variety Test

Planted 1964

Plot size 5' x 20'

Fertilization 1965 - 300 lbs. of 8-16-16 spring

1966 - 200 lbs. of 33% nitrogen, spring.

Entries (8)	Yield Dry Matter in lbs./acre				
	1 cut 1965 Mean	2 cut 1965 Mean	Seasonal 1965 Mean	1 cut 1966 Mean	2 yr. Total
Labelle	3626a	2920ab	6571a	5100	11,671
Bounty	3522a	2891 b	6246a	5198	11,444
Champ	3807a	3654a	7460a	4945	12,405
Wis. T-1	3652a	2724 b	6377a	4940	11,317
Astra	3698a	2735 b	6433a	5085	11,518
Essex	3453a	2222 b	5674a	5290	10,964
Drummond	3494a	2487 b	5814a	5310	11,124
Climax	4050a	2606 b	6656a	5623	12,279
C.V.	11.35	22.48	15.00	8.09	N.S.D.

Exp. 2643 Timothy Performance Trial, 1965Location--GuelphYield--lbs D.M./acre, 1966

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u> (Aug. 17)	<u>Cut 3</u> (Oct. 12)	<u>Total</u>
1. Essex	6970(July 5)	1110	650	8730
2. Ottawa 7 (Bounty)	6670(July 5)	930	680	8280
3. Wis T-1	5920(July 5)	1240	960	8120
4. Ottawa 1(LaBelle)	6410(July 5)	1000	640	8050
5. Drummond	6310(July 5)	860	800	7970
6. Ottawa P-1(Champ)	5880(June 23)	1370	560	7810
7. Climax	6110(June 27)	790	730	7630
8. Astra	<u>5690</u> (June 27)	<u>730</u>	<u>760</u>	<u>7180</u>
L.S.D. (5%)	400	220	200	410
C.V. (%)	7.7			6.7

Exp. 3008 Uniform Timothy Variety Test K.A.S.Yield--lbs D.M./acre--1966

<u>Variety</u>	<u>Cut 1</u> (June 28)	<u>Cut 2</u> (Oct. 7)	<u>Total</u>
1. Champ (Pl)	5480	2820	8300
2. Climax	5700	2530	8230
3. T.1 (Wisconsin)	5600	2140	7740
4. T. 41 (Astra)	5330	2310	7640
5. LaBelle	5190	2250	7440
6. Essex	5010	2140	7150
7. Bounty (7)	5010	2120	7130
8. Drummond	<u>4670</u>	<u>2010</u>	<u>6680</u>
L.S.D. (5%)	440	180	440
C.V. (%)	10.1	9.7	7.1

Exp. 6003 Timothy Hay Variety Test, Kapuskasing

<u>Variety</u>	July 8	Aug. 16	<u>Total</u>
	<u>Cut 1</u>	<u>Cut 2</u>	
Climax	3874	1560	5434
T.I.	4060	1230	5290
Essex	3803	1440	5243
Labelle	3797	1350	5147
Astra	3669	1390	5059
Milton	3395	1660	5055
Champ	3062	1880	4942
Drummond	3691	1100	4791
Clair	2690	2060	4750
Bounty	3294	1260	4554
*Climax Check	3397	1180	4577
L.S.D.	119.87	150	
C.V.	10.26	13.1	

*Mr. MacVicar's breeder seed.

Exp. 6002 Timothy Pasture, Kapuskasing

	June 21	July 26	
<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Total</u>
King	1791	2530	4321
Heidemij	1687	2520	4207
Climax	2307	1630	3937
Ott. P.2	2225	1510	3735
Champ	2228	1480	3708
*Climax Check	2058	1340	3398
Drummond	1960	1680	3640
Ott. P.3	2102	1520	3622
L.S.D.	57.51	156	170
C.V. (%)	7.17	10.6	5.3

* Mr. MacVicar's breeder seed.

Trial 88, Timothy Screening for Hay with 5' Strip Vernal Alfalfa
1966

General Information:

Location: Boyce's Farm, Central Experimental Farm,
Ottawa
Soil Type: Rideau Clay, Land spot phase
Experimental Design: Randomized blocks, 4 replications.
Plot Size: Seeded 5.25' x 20', harvested 14' x 2'.
Seeding Rate: 10 lbs. per acre.
Seeding Date: May 23, 1964.
Sampling for D.M.: One 500 gram sample per plot per cut.
Project Leader: D.R. Gibson.

Results:

Performance of Timothy Varieties for Hay
(Yield of dry matter in pounds per acre)

Varieties	1966 Mean one cut
Climax	4585a
T.M. 60-104	4554ab
Barenza	4442abc
T.M. 60-101	4364abc
S. 352	4344abc
T.M. 60-100	4321abc
Heidemij	4306abc
Vanadis	4286abc
T.M. 60-102	4267abc
Omnia	4216abcd
T.M. 60-103	4170abcd
Erecta	4142abcd
Astra	4134abcd
O.296	4018abcd
Kampe II	4014abcd
T.M. 59-50	3936 bcde
Weibulls T.59	3831 cde
Combi	3741 cde
Lofar	3508 def
Scempter	3395 ef
King	3045 f
Significance	S.
S.E.M.	518 lbs.

Comments:

Exp. 2640 Timothy Screening Trial, 1964, Guelph

Variety	Date	Yield -- 1966			Total
		Cut 1	Cut 1	Cut 2	
				(Sept. 2)	
1. O296	June 20	7270	1070		8340
2. Lafar	June 30	7400	560		7960
3. Barenga	June 22	7330	570		7900
4. TM-60-101	June 28	6930	690		7620
5. Astra	June 26	6860	730		7590
6. Kampe II	June 22	6910	660		7570
7. Vanadis	June 22	6730	740		7470
8. S-352	June 22	6810	600		7410
9. Erecta	June 29	6630	640		7270
10. TM-60-100	June 28	6870	390		7260
11. TM-60-104	June 26	6570	540		7110
12. Heidemij	June 24	6770	220		6990
13. TM-60-103	June 30	6680	300		6980
14. Omnia	June 26	6410	500		6910
15. TM-60-102	June 26	6150	530		6680
16. Combi	July 10	5850	680		6530
17. King	July 8	5870	630		6500
18. TM-59-50	June 28	5980	460		6440
19. WT. 59	June 24	5730	520		6250
20. Sciempster	July 4	5470	710		6180
21. Climax	June 24	5560	500		6060
L.S.D. (5%)		480	150		470
C.V. (%)		17.8			7.3

OTTAWA RESEARCH STATION
(Forage Section)

TEST - Provincial Timothy Screening Test

LOCATION - Ottawa Scott's Field

Date Seeded - May 5, 1966

Plots - 5' x 20', 5 rows 1 ft. apart

Fertilization - 300 lb. 8-16-16 before seeding.

<u>ENTRIES</u> (13)	<u>MEAN STAND</u>
1 Tiger	88
2 Pecora	94
3 Lofar	91
4 O296 Eros	96
5 TM60-101	93
6 TM60-100	88
7 Bounty	92
8 Champ	97
9 Labelle	92
10 Heidemij	95
11 Drummond	96
12 Climax	96
13 Topaz	96

Stand notes taken October 28, 1966.

OTTAWA RESEARCH STATION
(Forage Section)

TEST - Timothy for Pasture

LOCATION - Ottawa Scott's Field

Date Seeded - May 5, 1966

Plots - 5' x 20', 5 rows 1 ft. apart

Fertilization - 300 lbs. of 8-16-16 before planting.

<u>ENTRIES</u> (§)	<u>MEAN STAND</u>
1 Tiger	81
2 Champ	85
3 Self 3-9	82
4 Self 3-2	85
5 Heidemij	88
6 King	78
7 Climax	90
8 Drummond	84

Stand notes taken October 28/66

Test 101 - Timothy for Pasture

Location: Ottawa (Scott Field #4)

Date Seeded: May 7, 1966.

Entries (9): 211 - Astra
212 - Bounty
213 - Champ
214 - Clair
215 - Climax
216 - Drummond
217 - Essex
218 - Milton
219 - Tiger

Fall Condition: Stands ranged from fair to good on
October 17, 1966.

Test 104 - Timothy for Seed

Location: Ottawa (Boyce Field)

Date Seeded: May 21, 1966

Entries (9):
317 - Astra
318 - Bounty
319 - Champ
320 - Clair
321 - Climax
322 - Drummond
323 - Essex
324 - Milton
325 - Tiger

Fall Condition: For some reason both Astra and Bounty have poor stands consistently in all replicates. All other entries showed good to excellent stands on October 17, 1966

Test 105 - Timothy for Pasture

Location: Ottawa (Boyce Field)

Date Seeded: May 21, 1966

Entries (8):
339 - Tiger
340 - Champ
341 - S-3-9
342 - S-3-2
343 - Heidemij
344 - King
345 - Climax
346 - Drummond

Fall Condition: Two replicates in this trial were subjected to heavy run off water damage, but the other four replicates have quite uniformly good stands on October 17, except for two entries.

Test 106 - Timothy for Hay

Location: Ottawa (Boyce Field)

Date Seeded: May 21, 1966

Entries: (13)

326	-	Tiger
327	-	Pecora
328	-	Lofar
329	-	O 296
330	-	TM-60-101
331	-	TM-60-100
332	-	Bounty
333	-	Champ
334	-	Labelle
335	-	Heidemij
336	-	Drummond
337	-	Climax
338	-	Topaz

Fall Conditions: Stands vary from fair to good, but wild white clover must be controlled in a few plots observed October 17, 1966.

Test 112 - Timothy for Seed

Location: Ottawa (Booth North Field)

Date Seeded: August 31, 1966

Entries (9): 287 - Astra
288 - Bounty
289 - Champ
290 - Climax
291 - Climax F2
292 - Drummond
293 - Essex
294 - Milton
295 - Tiger

Fall Condition: Observations made on October 17, 1966
showed plot stands to vary between
fair and good.

Test 113 - Timothy for Pasture

Location: Ottawa (Booth North Field)

Date Seeded: August 31, 1966

Entries (9):
278 - Astra
279 - Bounty
280 - Champ
281 - Climax
282 - Climax F2
283 - Drummond
284 - Essex
285 - Milton
286 - Tiger

Fall Condition: Observations made on October 17, 1966
showed plot stands to vary from fair
to good.

OTHER GRASSES

One test of Reed Canarygrass and one test of Tall Fescue varieties were conducted in 1966.

The reed canarygrass test was seeded at Kapuskasing in 1962, alone and with Empire birdsfoot trefoil. The variety Frontier has performed as well as Common.

In the tall fescue trial, the highest yield was obtained from Fawn in 1966. This variety was bred by the Oregon Agricultural Experiment Station. In the breeding program there was some selection for increased palatability.

B. R. Christie
Co-ordinator

EXP. 2647--Tall Fescue Performance Trial, 1965LOCATION--Guelph

<u>Variety</u>	<u>Yield--Lbs. of DM/acre--1966</u>			<u>Total</u>
	<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	
1. FAWN	5260	1510	1170	7940
2. OREGON L	5450	1600	870	7920
3. OREGON I	5620	1200	910	7730
4. ALTA	4740	1520	1370	7630
5. OTTAWA SYN. A	4770	1810	1010	7590
6. OREGON A	4780	1430	890	7100
7. MANADE	3910	171	1470	7090
8. KENWELL	4970	1150	560	6680
9. STEINACHER	4830	770	270	5870
L.S.D. (5%)	410	180	330	570
C.V. (%)	10.0	-----	-----	10.8

EXP. 6006--Reed Canary Test, Hay, 1962

LOCATION--Kapuskasing

<u>VARIETY</u>	<u>Yield--lbs. of DM/acre--1966</u>			<u>Ave. Yield</u>
	<u>Cut 1</u> (July 14)	<u>Cut 2</u> (Sept. 13)	<u>Total</u>	<u>1963-1966</u>
1.SYN. 1 + EMPIRE	3400	2760	6160	5740
2.COMMON + EMPIRE	3280	2620	5900	5770
3.FRONTIER + EMPIRE	3020	2750	5770	5700
4.SYN. 2 + EMPIRE	3120	2460	5580	5450
5.SYN. 3. + EMPIRE	2820	2520	5340	5210
6.COMMON	3030	2280	5310	4950
7.SYN. 3	2910	2350	5260	4420
8.FRONTIER	2840	2360	5200	5060
9.SYN. 1	2640	2170	4810	4890
10.SYN. 2	2490	2090	4580	4810
L.S.D.	220	220	360	
C.V. (%)	-----	8.7	6.5	

Status of Trials

Mixture and Managements

1. Growth Curves.

Eight stations are cooperating in this trial in an attempt to determine the effect of locations on the growth, development and digestibility of two varieties of each of alfalfa and trefoil.

Data concerning the pounds of dry matter, percent leaf, pounds of beef, percent digestible dry matter, pounds of digestible dry matter, percent crude protein and pounds of crude protein at 7 cutting dates during the first growth are being gathered at each location for a period of 3 years. Each set of the above data is being analyzed over the seven cutting dates within each variety, each year.

Of the eight locations only Ridgetown has completed the required number of years of testing. Kemptville, Guelph, Verner and Fort William have one more year's data to obtain. Ottawa and Alfred have two years data to obtain. Kapuskasing will harvest a test in 1967.

It is proposed that the growth curve trials be discontinued after 1967.

Status of Provincial

Growth Curves

	1964	1965	1966	1967
Ridgetown	data	data	data	
Guelph	data		data	data
Kemptville	data		data	data
Ottawa		data		data
Verner	data	data		data
Alfred		data		data
Kapuskasing				data
Fort William		data	data	data
No. location/year	4	5	4	7

2. Mixture--Management Trials.

Six locations are cooperating in this trial in the attempt to determine the effect of locations on cutting schedules as they influence dry matter, and digestible dry matter production of alfalfa and alfalfa-grass mixtures.

Two systems of cutting management using the criteria; late bud and 25 percent bloom are being tested using DuPuits and Vernal alfalfas alone and in mixtures with timothy, orchard and brome grass. Data are being collected on the yield and quality of forage being produced prior to the onset of the fall rest period and also the residual harvested in late fall.

Three consecutive years data are required from one seeding. Ridgetown and Kemptville have completed these requirements. Guelph has two more years data from the 1965 seeding. Fort William has one years data to gather. The tests at Alfred and Verner were discarded. The 1964 seeding at Kemptville has one years data to collect.

Status of Provincial
Mixture Managements

	Year of Seeding	No. of Years completed	No. of Years to completion
Ridgetown	1963	3	0
Guelph	1963	1 test discarded	
	1965	1	2
Kemptville	1963	3	0
	1964	2	1
Verner	1965	1	-
Alfred	1964	1	-
Ft. William	1964	2	1

Title: Hay-growth curves of alfalfa and trefoil, 1964. (Revised Feb. 1965)

Purpose: To determine the effect of locations on the growth, development, and digestibility of alfalfa and trefoil and to ascertain the role played by leafiness on the digestibility and protein levels of varieties of these species.

Procedure: 1. Species and Varieties

- 1. DuPuits alfalfa 10 lb./acre
- 2. Vernal alfalfa 10 lb./acre
- 3. Viking trefoil 8 lb./acre
- 4. Empire trefoil 8 lb./acre

2. Cutting Heights and Schedule

Cutter bars of the mowers used should be set so as to clip the forage not less than 2-2½ inches above ground.

Depending on location, harvesting should begin in the spring on one of the calendar dates shown below and continue for the next six consecutive dates. The criterion for determining the exact date in spring to begin the harvest will be that date when the vegetation is the closest to 3-4 inches high.

May 7	June 4	July 5
May 17	June 14	July 15
May 26	June 24	July 26

3. Plot Size and Design

Each replication is to consist of 7 individual plots (one for each cutting date) and be of a size of 5' x 20'. A split plot design will be used with species forming the main split and varieties receiving the most precision. Four replications shall be used.

4. Seedings, Stand and Duration

Trials are to be conducted on the first crop year of excellent stands only. New seedings are required for each of 3 years. Seed will be supplied by the Crop Science Department, O.A.C. Establishment should be made without a companion crop and sprayed with a mixture of 2,4-DB (18 oz./acre) + dowapon (5 lb./acre) in 30 gallons of water when the legumes are in the first true leaf stage. If the stand is low in vigor or plant stand, the test should not be conducted.

5. Soils and Fertility

Trials should be seeded on well drained "top producing alfalfa soils". Use 500 pounds of 0-20-20 fertilizer on establishment and an additional 500 pounds in the fall of the seedling year.

6. Samples for Digestion and Protein Analysis

Two samples are required from each plot at each harvest, each weighing approximately 250 grams of dry matter. One sample can be the per cent dry matter sample that is normally taken during the harvest and this one can be either chopped or long material. The second sample must be unchopped material as leaf will be separated from the stem. Both samples can be dried. When all samples have been collected they can be shipped to the coordinator by express.

7. Data and Data Processing

All yield will be calculated and analysis will be made by I.B.M. at the University of Guelph computer centre. Uniform field record sheets will be provided to facilitate this process. Columns are provided on the sheets for plot identification, green plot and green and dry sample weight. Space is allotted for the estimated botanical composition, stage of development and height of the legume. One copy of the data should be retained at each station and the second sent to the coordinator. Each trial must be identified by number and they are listed below:

<u>Location</u>	<u>Year of Seeding</u>			
	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>
Ridgetown	4911	4912	4913	
Guelph	4901	4902	4903	4904
Kemptville	4921	4922	4923	
Ottawa		4931	4932	4933
Verner	4941	4942	4943	
Fort William		4951	4952	4953
Kapuskasing		4961	4962	4963

8. Notes to be Taken

1. Height. The height of the legumes should be taken prior to each harvest.
 2. Botanical composition. The per cent legume, grass, and weeds should be recorded prior to each harvest.
 3. Date of spring growth. The date when growth begins should be recorded.
 4. Weather records. The maximum and minimum temperatures and rainfall should be obtained for the whole year.
 5. Stage of development. The stage of development of the legume should be recorded prior to each harvest. Use the numbered classification. Record the date of occurrence of early, medium, and late bud for each variety of each species.
9. All data and all dried samples should be shipped to the coordinator as soon as possible after the last date of harvest.

PROVINCIAL HAY GROWTH TRIAL - 1964

Ridgetown

1965 Harvest

Date of harvest	Stage at harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre
<u>DUPUITS</u>							
May 7	11	21	1192	71.5	852	----	----
17	21	52	2787	57.3	1597	73.4	2046
27	22	79	4177	43.8	1830	69.2	2891
June 4	22	85	4681	46.2	2163	69.0	3230
14	31	99	6101	43.1	2630	67.0	4088
24	51	115	7263	37.7	2738	63.2	4590
July 5	51	115	6509	37.6	2447	61.3	3990
<u>VERNAL</u>							
May 7	11	17	829	79.7	661	----	----
17	21	44	2901	61.6	1787	72.4	2100
27	21	67	4283	46.4	1987	66.0	2827
June 4	22	75	4396	47.6	2093	68.8	3024
14	23	88	6100	41.3	2519	66.8	4075
24	42	110	6627	33.7	2233	63.8	4228
July 5	51	121	6165	36.1	2226	61.6	3798

PROVINCIAL HAY GROWTH TRIAL - 1963

Ridgetown

1964 Harvest

Date of harvest	Stage of harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. leaf per acre	% D.D.M.	Lbs. D.D.M. per acre	% C.P.	Lbs. C.P. per acre
<u>DUPUITS</u>									
May 11	12	45	2147	59.3	1273	76.3	1690	26.6	571
	21	62	3517	47.3	1664	72.7	2557	22.2	781
	29	73	4168	45.8	1909	68.4	2851	18.6	775
June 9	23	84	5076	40.2	2041	63.2	3208	17.0	863
	19	92	5555	38.3	2128	61.0	3388	15.6	867
	29	113	6437	34.7	2234	56.6	3643	14.5	933
July 10	52	110	6296	33.9	2134	53.0	3337	13.7	863
<u>VERNAL</u>									
May 11	12	40	2154	62.3	1342	74.6	1607	26.8	577
	21	58	3312	48.3	1600	70.8	2345	21.9	725
	29	71	4641	43.2	2005	68.0	3156	18.9	877
June 9	23	82	5427	41.2	2236	62.0	3364	17.2	933
	19	94	5624	36.7	2064	59.6	3351	16.2	911
	29	117	6239	32.6	2044	56.8	3544	14.6	911
July 10	52	108	6132	30.7	1883	54.0	3311	13.7	840

PROVINCIAL HAY GROWTH TRIAL - 1963

O.A.C.

1964 Harvest

Date of harvest	Stage of harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre	% C.P.	Lbs. C.P. per acre
<u>DUPUITS</u>									
May 5	12	17	808	79.5	642	72.7	587	32.6	263
19	12	51	2654	56.5	1500	74.9	1988	26.2	695
29	13	62	3512	47.8	1679	70.4	2472	21.2	745
June 8	22	70	4397	42.8	1882	67.2	2955	17.7	778
19	33	76	4860	38.7	1881	63.2	3071	16.3	792
July 1	41	85	4736	36.5	1729	58.2	2756	14.5	687
14	51	71	4711	34.3	1616	54.3	2558	15.3	721
<u>VERNAL</u>									
May 11	12	27	1716	74.6	1280	79.4	1362	31.0	532
22	13	47	2927	56.5	1654	74.9	2192	27.7	811
June 2	21	61	3964	49.6	1966	72.0	2854	20.1	797
16	23	68	4256	39.6	1685	64.9	2762	17.5	745
26	41	77	4880	38.1	1859	61.0	2977	15.8	771
July 7	42	88	5315	34.4	1828	57.9	3077	14.9	792
20	51	119	5009	29.2	1463	53.5	2678	14.6	731
<u>VIKING</u>									
May 12	11	16	634	91.6	581	78.7	499	30.6	194
26	22	38	3057	59.6	1822	73.8	2256	22.9	700
June 5	23	42	4097	56.6	2319	71.8	2942	18.0	737
16	42	42	4443	47.2	2097	64.4	2861	16.0	711
26	42	54	4442	43.2	1919	64.4	2860	15.6	693
July 7	51	62	5217	42.3	2207	62.3	3250	15.1	788
20	52	69	4686	43.5	2038	59.3	2779	13.3	623
<u>EMPIRE</u>									
May 19	12	20	917	70.7	648	78.2	717	26.8	246
29	13	35	2200	59.6	1311	73.8	1623	22.7	499
June 8	21	44	3673	46.7	1715	71.7	2633	18.7	687
19	23	47	4566	41.8	1909	66.5	3036	16.7	763
July 1	31	62	4854	41.4	2010	62.7	3043	15.8	767
14	51	74	5222	38.1	1990	57.6	3007	14.9	778
20	52	81	5449	37.1	2022	60.6	3302	15.6	850

PROVINCIAL HAY GROWTH TRIAL - 1963

Kemptville

1964 Harvest

Date of harvest	Stage of harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre	% C.P.	Lbs. C.P. per acre
<u>DUPUITS</u>									
May 11	12	41	1648	70.1	1155	71.0	1170	26.6	438
21	21	56	2926	51.7	1513	73.2	2142	24.7	723
June 1	22	74	4010	45.2	1813	69.1	2771	20.8	834
10	31	89	4451	46.3	2061	65.9	2933	17.4	775
22	41	91	5576	36.3	2024	62.6	3490	15.6	870
July 6	42	97	5222	38.0	1984	56.7	2901	12.7	663
14	51	--	5238	38.2	2001	53.4	2797	14.3	749
<u>VERNAL</u>									
May 11	12	38	1830	72.5	1327	76.2	1394	30.2	553
21	13	53	3073	54.4	1672	74.2	2280	26.0	799
June 1	21	66	4293	49.2	2112	69.8	2996	20.9	897
10	23	81	4694	42.9	2014	66.1	3102	18.0	845
22	41	89	5465	38.9	2126	59.5	3252	14.5	792
July 6	42	97	5162	32.5	1678	56.2	2901	13.1	676
14	51	--	5371	37.7	2025	55.9	3002	13.0	698
<u>VIKING</u>									
May 11	21	20	512	85.6	438	72.6	372	29.8	153
21	22	33	515	71.5	368	73.4	378	24.2	125
June 1	23	43	3325	58.1	1932	68.4	2274	19.0	632
10	33	53	3859	54.2	2092	66.8	2578	18.6	718
22	42	64	4957	41.6	2062	64.4	3192	15.9	788
July 6	51	58	4191	40.3	1689	59.4	2489	13.1	549
14	52	--	4191	39.1	1639	58.7	2460	12.7	532
<u>EMPIRE</u>									
May 21	12	25	1287	78.6	1012	73.8	949	25.5	328
June 1	21	38	3260	62.8	2047	73.2	2386	24.8	808
10	22	53	3841	54.9	2109	68.6	2635	19.9	764
22	34	64	4957	39.8	1973	64.0	3172	17.8	882
July 6	42	74	4835	36.1	1745	60.5	2925	16.0	774
14	42	--	5429	34.2	1857	57.9	3143	15.5	842
24	51	--	4754	32.2	1531	53.1	2524	12.3	585

PROVINCIAL HAY GROWTH TRIAL - 1964

Ottawa

1965 Harvest

Date of harvest	Stage at harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre
<u>DUPUITS</u>							
May 6	11	14	162	83.1	135	80.3	130
18	21	52	2424	58.7	1423	76.2	1847
28	22	80	3881	41.6	1615	69.8	2709
June 4	23	84	4243	39.9	1693	71.1	3017
15	32	88	4276	38.2	1633	67.9	2903
24	42	93	4197	31.6	1326	64.5	2707
July 5	52	90	3950	44.2	1746	65.5	2587
<u>VERNAL</u>							
May 6	11	13	158	84.1	133	81.1	128
18	21	42	2367	64.3	1522	77.9	1844
28	21	64	3879	44.7	1734	72.7	2820
June 4	22	71	5180	38.3	1984	72.4	3750
15	31	76	4788	37.2	1781	69.6	3332
24	42	77	4409	34.0	1499	64.3	2835
July 5	51	77	4235	24.6	1054	64.8	2777
<u>VIKING</u>							
May 18	22	21	729	83.8	611	77.1	562
28	31	39	1744	61.4	1071	72.4	1263
June 4	32	41	3116	55.2	1720	70.7	2203
15	42	46	2623	56.8	1490	69.7	1828
24	52	48	3075	48.5	1491	69.5	2137
July 5	53	46	3306	47.4	1567	71.8	2374
14	53	46	3320	48.9	1623	68.8	2284
<u>EMPIRE</u>							
May 18	13	18	273	90.4	247	81.6	223
28	21	36	1737	63.5	1103	76.8	1334
June 4	22	42	2771	54.3	1505	76.7	2125
15	32	50	3570	46.9	1674	73.6	2628
24	42	55	3904	48.1	1878	72.3	2823
July 5	52	48	3912	44.0	1721	69.1	2703
14	53	49	4978	43.2	2151	67.8	3375

PROVINCIAL HAY GROWTH TRIAL - 1964

Verner

1965 Harvest

Date of harvest	Stage at harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre
<u>DUPUITS</u>							
May 26	13	26	859	60.8	522	79.9	686
June 4	22	40	1566	57.2	896	76.3	1195
14	23	57	2556	44.8	1145	69.1	1766
24	31	66	3095	34.5	1068	64.2	1987
July 5	34	65	3527	32.5	1146	62.5	2204
14	42	66	3992	30.8	1230	61.6	2459
24	51	66	3750	33.1	1241	57.6	2160
<u>VERNAL</u>							
May 26	13	24	1546	63.0	974	80.0	1237
June 4	21	39	2275	48.8	1110	77.4	1761
14	23	59	3325	38.8	1290	68.5	2278
24	32	70	4104	35.5	1457	63.7	2614
July 5	34	68	4271	30.4	1298	63.1	2695
14	42	67	4503	27.4	1234	60.6	2729
24	51	64	3981	21.6	860	57.7	2297
<u>VIKING</u>							
May 26	22	15	1290	70.4	908	75.3	971
June 4	23	27	953	68.2	650	75.1	716
14	31	34	1747	59.9	1046	71.4	1247
24	42	47	2769	41.7	1155	66.6	1844
July 5	51	46	3196	34.2	1093	65.3	2087
14	52	43	3277	33.9	1111	60.8	1992
24	52	41	3583	41.9	1501	62.2	2229
<u>EMPIRE</u>							
May 26	12	11	495	71.5	354	81.9	405
June 4	21	18	656	63.2	415	80.9	531
14	23	28	1335	54.6	729	77.4	1033
24	32	44	2473	47.1	1165	69.7	1724
July 5	41	46	3201	42.3	1354	64.3	2058
24	51	50	4699	31.4	1475	60.7	2852

PROVINCIAL HAY GROWTH TRIAL - 1963

		Verner					1964 Harvest		
Date of harvest	Stage of harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre	% C.P.	Lbs. C.P. per acre
<u>DUPUITS</u>									
May 20	12	41.8	1788	65.4	1169	77.0	1377	26.7	477
30	13	55.3	3093	54.3	1680	72.1	2230	21.4	662
June 9	21	63.0	4208	47.6	2003	68.0	2861	18.2	766
19	23	74.0	4882	46.3	2260	66.4	3242	17.6	859
29	41	93.0	5848	43.9	2567	58.6	3427	15.1	883
July 9	42	89.0	6383	41.6	2655	58.2	3715	14.2	906
18	51	86.0	6175	37.1	2291	55.3	3414	14.1	871
<u>VERNAL</u>									
May 20	12	39.0	2154	67.7	1458	78.4	1689	27.9	601
30	13	50.0	3597	58.0	2086	74.7	2687	21.8	784
June 9	21	59.0	4658	49.5	2306	69.7	3247	18.5	862
19	23	67.0	5982	46.0	2751	67.0	4010	17.6	1053
29	41	81.0	6508	41.8	2720	59.6	3279	16.0	1041
July 9	42	85.0	6892	39.1	2695	58.8	4052	14.4	992
18	51	84.0	6951	35.7	2482	55.8	3879	14.1	980
<u>VIKING</u>									
May 20	21	19.0	1066	87.5	933	79.6	848	25.3	270
30	22	31.0	2301	72.9	1677	76.9	1869	20.2	465
June 9	23	34.0	3283	61.6	2022	72.2	2390	16.5	542
19	41	42.0	4103	56.0	2298	70.0	2872	14.9	611
29	51	52.0	4706	50.4	2372	63.3	2979	13.4	631
July 9	52	55.0	5279	42.1	2223	62.9	3320	12.1	639
18	53	54.0	5559	40.6	2257	62.3	3463	11.6	645
<u>EMPIRE</u>									
May 30	21	24.0	1259	76.1	958	81.6	1027	24.1	303
June 9	22	27.0	2208	65.6	1448	76.8	1696	19.5	431
19	23	35.0	3155	56.5	1783	73.5	2319	16.6	524
29	41	51.0	4477	51.4	2301	64.6	2892	15.2	681
July 9	42	55.0	5174	44.0	2277	61.9	3203	12.3	636
18	51	59.0	5764	37.3	2150	60.5	3487	12.0	692
29	52	55.0	5870	36.8	2160	58.4	3428	11.1	652

PROVINCIAL HAY GROWTH TRIAL - 1964

Alfred

1965 Harvest

Date of harvest	Stage at harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre
<u>DUPUITS</u>							
May 20	12	19	310	66.7	207	76.8	238
31	22	36	911	61.3	558	72.8	663
June 9	31	49	1679	55.2	927	70.9	1190
18	32	59	2365	----	----	----	----
28	34	73	2973	45.3	1347	62.7	1864
July 8	51	76	3743	37.6	1407	60.5	2265
19	52	81	4053	38.6	1564	60.2	2440
<u>VERNAL</u>							
May 20	12	20	567	70.0	397	77.6	440
31	22	33	1241	62.8	779	75.1	932
June 9	31	46	1828	56.8	1038	71.5	1307
18	32	57	2438	----	----	----	----
28	41	67	3318	48.5	1609	63.5	2107
July 8	42	72	4077	40.2	1639	63.2	2577
19	51	75	3994	39.1	1562	61.3	2448

PROVINCIAL HAY GROWTH TRIAL - 1964

Fort William

1965 Harvest

Date of harvest	Stage at harvest	Height cms.	Lbs. D.M. per acre	% Leaf	Lbs. Leaf per acre	% D.D.M.	Lbs. D.D.M. per acre	
<u>DUPUITS</u>								
June 4	12	NO DATA	657	61.3	403	74.3	488	
14	21		1368	53.3	729	73.2	1001	
24	23		1768	46.0	813	67.1	1186	
July 5	31		2326	45.6	1061	62.7	1458	
15	31		2311	39.4	911	57.1	1320	
26	32		2541	34.4	874	54.4	1382	
Aug. 6	33		2099	35.7	749	52.4	1100	
<u>VERNAL</u>								
June 4	12		734	59.8	439	75.4	553	
14	13	1369	52.0	712	72.6	994		
24	23	1936	45.9	889	67.1	1299		
July 5	31	2606	37.3	972	62.0	1616		
15	31	3075	38.7	1190	59.9	1842		
26	32	2972	34.1	1014	57.3	1703		
Aug. 6	33	2369	35.3	836	54.2	1284		
<u>VIKING</u>								
June 14	23	1443	60.4	872	74.3	1072		
24	34	2370	55.5	1315	69.0	1635		
July 5	41	3716	48.6	1806	66.3	2464		
15	52	4461	41.9	1869	62.7	2797		
26	52	4551	38.3	1743	63.6	2894		
Aug. 6	52	4539	38.0	1725	60.9	2764		
16	53	5115	43.8	2240	62.0	3171		
<u>EMPIRE</u>								
June 14	21	1221	61.0	745	74.3	907		
24	23	2182	53.6	1170	69.4	1514		
July 5	32	3603	46.3	1668	65.1	2346		
15	51	4484	41.3	1852	62.5	2803		
26	51	4863	35.3	1741	62.7	3049		
Aug. 6	51	5361	30.6	1640	59.6	3195		
16	52	6126	38.5	2359	59.6	3651		

Title: Cutting management systems for alfalfa mixtures.

Purpose: To determine the effect of location on the total season yield, the distribution of production throughout the year, the yield, digestibility and persistence of pure stands of alfalfa and alfalfa-grass mixtures when harvested under two different harvesting schedules.

Procedure: 1. Design and Plot Size

A split-split plot design will be used. Cutting schedules will form the major split and alfalfa varieties the second. Four replications with plots of 5' x 20' will be used.

2. Cutting Height Schedules

Mowers should be set so as to cut the vegetation at 2-2½ inches above ground level. Two maturity groups of mixtures are used: 1) DuPuits and 2) Vernal. The mixtures within any one group should be harvested when the pure stand of alfalfa in each maturity group reaches the designated stage of development for cutting.

1. Late bud stage (appearance of the first flower on alfalfa plots. Two or three harvests can be obtained prior to the first fall frost depending upon location.
2. 25% bloom (when 25% of the stems in the plot have at least one flower). Two harvests can be obtained prior to the first fall frost

Regrowth of forage after the last harvest from each of the above cutting schedules should be left until growth has ceased and fall dormancy has set in. The residue on all plots should be harvested leaving a 3 inch stubble. This will occur in October in Southern Ontario and earlier (late September or early October) in Northern Ontario.

3. Mixtures

1. DuPuits 10 lbs.
2. DuPuits 10 lbs. + Saratoga 10 lbs.
3. DuPuits 10 lbs. + Frode 8 lbs.
4. Vernal 10 lbs.
5. Vernal 10 lbs. + Saratoga 10 lbs.
6. Vernal 10 lbs. + Climax 6 lbs.

4. Seed and Duration of Trials

Seed will be supplied by the Crop Science Department for plots 5' x 20'. Each station should complete three consecutive years of harvest on each stand. The four replicated trials should be used.

5. Soils and Fertility

Trials should be seeded only in well drained "top producing alfalfa soils" under levels of high fertility. A composite soil sample should be removed from the test area before establishment and in the fall of the seeding year and each fall thereafter. These samples should be sent in to the coordinator for processing.

Establishment

Use 500 pounds of 0-20-20 fertilizer on establishment and a further 500 pounds in the fall of the seeding year.

Maintenance

Maintenance applications of fertilizer will be required each spring. The specific fertilizer requirement for each test will be determined on the basis of soil analysis.

6. Weed Control and Establishment

Establishment

No companion should be used when establishing this test. The test should be sprayed with 18 ounces of 2,4-DB in 30 gallons of water per acre when the alfalfa is $1\frac{1}{2}$ to 2 inches tall.

Maintenance

Little or no weed control should be needed due to the fertility levels used. If a few weeds are visible they should be spuded out of the stand. If the weeds become a major problem, apply 2,4-DB at 18 ounces per acre in September but not during the growing season.

7. Sampling

One sample is required from each plot at each harvest date for the duration of the trial for digestibility and protein analysis. The sample taken for the purpose of the determination of per cent dry matter can be used for this purpose. Make certain that the amount of dry matter is about 500 grams.

8. Data and Data Processing

All yield and per cent composition calculations and analysis will be made by I.B.M. at the University of Guelph computer centre.

Field record sheets will be provided. Columns are provided on these sheets for plot identification, green plot and green and dry sample weight. In addition, space is allocated for the estimated per cent composition of the mixture, stage of development of the grass and legume and height of the legume. These data should be taken from each plot at each harvest date. One copy of these data should be retained by each cooperator. Another copy should be sent to the coordinator.

Experiment numbers are listed below.

Ridgetown	4893	Verner	4897
Guelph	4892	Fort William	4898
Kemptville	4895	Kapuskasing	4899
Ottawa	4896		

9. Notes to be Taken

1. Height. The height of alfalfa in centimeters should be taken prior to harvest. The average height of stems from five locations within each plot is adequate.
 2. Botanical composition. The per cent legume, grass and weed should be estimated for each plot.
 3. Plant stand counts of alfalfa. Alfalfa plant counts should be taken in the spring (May) and October of each crop year. Two counts each of one square foot per plot are adequate. These data can be recorded on the space allowed on the field record sheets.
 4. Stage of development. The stage of development of the legume and the grass in each plot should be recorded prior to each harvest. Use the numbered classification.
10. Data and samples should be sent to the coordinator after the last harvest of each year.

PROVINCIAL ALFALFA MIXTURE - MANAGEMENT TRIALS

Yields of Dry Matter Per Acre

Total Season Yield

Mixture	Stage of Harvest	Ridgetown			Guelph		Kemptonville					Verner	Alfred	Fort William		
		1964	1965	1966	1964	1966	1964	1965	1966	1965	1966	1966	1964	1965	1965	1966
DuPuits	Late Bud	11367	10198	9675	10740	9044	8871	7132	2715	8757	4283	9081	9878	4866	4287	4188
+Saratoga		11889	9228	9215	11033	8509	9711	9209	3719	9195	6118	10028	9624	5416	4518	3898
+Frode		11796	10075	9449	11235	8550	8725	8311	3918	6986	5775	7549	8893	4835	2375	3508
DuPuits	25%	10421	9172	6749	11242	9169	10720	10112	4730	10271	7303	9357	9298	6164	4716	5096
+Saratoga	bloom	11047	8978	7300	12211	8888	11757	11063	6398	11387	8624	9945	9395	6829	4302	5082
+Frode		11243	9155	7370	12060	8915	11571	11446	4544	10117	8760	9165	8737	5616	2782	3577
Vernal	Late Bud	10353	8620	8640	11367	8166	8126	9205	6473	9483	7330	7855	9913	5805	4594	4811
+Saratoga		10920	9030	9673	10308	8007	7924	10265	7901	9550	7976	9376	9761	6264	3338	4176
+Climax		11311	8147	8240	11301	8562	7821	9846	7994	9048	7723	8436	9589	6035	4023	4124
Vernal	25%	10619	8826	5127	10721	7858	9689	11995	7069	10543	8913	7671	9511	6857	5352	5378
+Saratoga	bloom	11024	8416	6167	11408	8587	12033	13078	8697	11036	8750	10813	9078	7372	5410	4752
+Climax		10645	8903	5052	10976	8465	10384	11766	8442	10944	8955	8110	9230	7656	4912	5020
Years of seeding;		1963	1964		1963	1965	1963			1964		1965	1963	1964	1964	

PROVINCIAL ALFALFA MIXTURE -- MANAGEMENT TRIAL

Location: W. O. A. S.

Yields of dry matter per acre

Years of harvest 1964-seeded 1953
1965 " 1954
1966

Mixture	Stage	Harvests prior to August 31									Harvest after			Season					
		1			2			3			Sept. 1			Total					
		1964	1965	1966	1964	1965	1966	1964	1965	1966	1964	1965	1966	1964	1965	1966			
Dupuits + Saratoga + Frode	Late bud	5380	5265	4325	3006	3267	2956	1174	1666		9560	10198	7281	1807		2394	11367	10198	9675
		6075	5266	4649	2732	2693	2365	1211	1269		10018	9228	7014	1871		2201	11889	9228	9215
		5909	5545	4808	2919	3005	2428	1162	1525		9990	10075	7236	1806		2213	11796	10075	9449
Dupuits + Saratoga + Frode	25% bloom	6087	5922	3863	2338	2226	973				8425	8148	4836	1996	1024	1913	10421	9172	6749
		6973	6035	4649	2102	1952	744				9075	7987	5393	1972	991	1907	11047	8978	7300
		6405	6035	4325	2670	2102	1136				9075	8137	5461	2168	1018	1909	11243	9155	7370
Vernal + Saratoga + Climax	Late bud	5074	5062	3956	2677	2368	2403	916	1190		8667	8620	6359	1686		2281	10353	8620	8640
		6568	5499	5536	2215	2182	1918	805	1349		9588	9030	7454	1332		2219	10920	9030	9673
		6064	5265	3940	2642	2121	2105	962	761		9668	8147	6045	1643		2195	11311	8147	8240
Vernal + Saratoga + Climax	25% bloom	6434	6108	3788	2276	1966	1339				8710	8074	5127	1909	752		10619	8826	5127
		7334	6057	4864	1962	1587	1303				9296	7644	6167	1728	772		11024	8416	6167
		6280	6260	3556	2358	1866	1496				8638	8126	5052	2007	777		10645	8903	5052

Dates of harvest

Dupuits	Late bud	6/9	6/4	6/21	7/15	7/12	7/21	8/26	8/26				10/19		9/2			
"	25% bloom	6/23	6/11	6/27	7/29	7/6	8/5						10/19	9/9	9/20			
Vernal	Late bud	6/9	6/7	6/21	7/15	7/12	7/21	8/26	8/26				10/19		9/20			
"	25% bloom	6/23	6/17	6/27	7/29	7/20	8/18						10/19	10/25				

PROVINCIAL ALFALFA MIXTURE - MANAGEMENT TRIAL

Location: O.A.C.

Yields of Dry Matter Per Acre

Years of harvest 1964 (seeded 1963)
1966 (" 1965)

Mixture	Stage	Harvests prior to August 31						Total		Harvest after September 1		Season Total		% harv. prior to September	
		1		2		3		1964	1966	1964	1966	1964	1966	1964	1966
		1964	1966	1964	1966	1964	1966								
DuPuits alone	Late	4651	4330	1853	1810	2444	1636	8948	7776	1792	*1268	10740	9044	83	86
+Saratoga	bud	4875	4686	1941	1547	2550	1435	9366	7668	1667	841	11033	8509	85	90
+Frode		5018	4606	1916	1363	2488	1532	9422	7501	1813	1049	11235	8550	84	88
DuPuits alone	25%	4938	5269	2953	1674			7891	6943	3351	2226	11242	9169	70	76
+Saratoga	bloom	5700	5629	3247	1193			8947	6822	3264	2066	12211	8888	73	77
+Frode		5518	5438	3193	1348			8711	6786	3349	2129	12060	8915	72	76
Vernal alone	Late	5720	5174	2165	1009	2401	*1689	10286	7872	1081	294	11367	8166	90	96
+Saratoga	bud	5464	5339	1711	979	2109	1461	9284	7779	1024	223	10308	8007	90	97
+Climax		5647	5215	2041	1071	2470	1891	10158	8177	1143	385	11301	8562	89	96
Vernal alone	25%	4951	+4935	3236	1800			8187	6735	2534	*1123	10721	7858	76	86
+Saratoga	bloom	5975	+5653	3018	1873			8993	7526	2415	1061	11408	8587	78	88
+Climax		4816	+5336	3542	1976			8358	7312	2618	1153	10976	8465	76	86

Dates of harvest:

DuPuits	Late bud	6/16	6/23	7/9	7/20	8/25	8/23			10/28	10/17
	25% bloom	6/19	6/30	7/20	8/3					9/16	10/3
Vernal	Late bud	6/16	6/24	7/14	7/25	8/28	8/31			10/28	10/26
"	25% bloom	6/24	7/4	7/30	8/19					10/1	10/17

* Stage - Early bud

+ Yields slightly low, especially Vernal alone - mower could not cut all of forage due to extreme lodging.

PROVINCIAL ALFALFA MIXTURE -- MANAGEMENT TRIAL, 1963

Location: K. A. S.

Yields of dry matter per acre

Years of harvest 1964
1965
1966

Mixture	Stage	Harvests prior to August 31									Harvest after September 1			Season Total					
		1			2			3			Total			Total					
		1964	1965	1966	1964	1965	1966	1964	1965	1966	1964	1965	1966	1964	1965	1966			
Dupuits + Saratoga + Frcde	Late bud	3433	2584	1796	1459	1833	416	2338	1622	503	7230	6039	2715	1641	1093		8871	7132	2715
		4407	3672	2677	1207	2477	448	2265	1607	594	7879	7756	3719	1832	1453		9711	9209	3719
		3694	2972	2572	1162	2111	649	2151	1670	697	7007	6753	3918	1718	1558		8725	8311	3918
Dupuits + Saratoga + Frcde	25% bloom	5476	5232	3451	3175	2534	565				8651	7766	4061	2069	2346	714	10720	10112	4730
		7381	6096	5251	2389	2323	464				9770	8419	5715	1987	2644	683	11757	11063	6398
		6425	5922	3465	2701	2791	408				9126	8713	3873	2445	2733	671	11571	11446	4544
Vernal + Saratoga + Climax	Late bud	3748	3541	3556	1145	2940	1316	2192		1601	7085	6481	6473	1041	2724		8126	9205	6473
		4357	4444	4516	854	2981	1500	1721		1885	6932	7425	7901	992	2840		7924	10265	7901
		3513	3805	4660	1043	3137	1520	1920		1814	6476	6942	7994	1345	2904		7821	9846	7994
Vernal + Saratoga + Climax	25% bloom	5571	6114	4555	2485	3336	1024				8056	9450	5579	1633	2545	1490	9689	11995	7069
		7817	6644	5470	2258	3633	1366				10075	10277	6836	1958	2801	1861	12033	13078	8697
		6396	5556	5022	2280	3456	1602				8676	9012	6624	1708	2754	1818	10384	11766	8442

Dates of harvest																	
Dupuits	Late bud	6/12	6/6	6/20	7/7	7/13	7/25	8/19	8/16	9/1			10/15	10/14			
"	25% bloom	6/19	6/22	7/5	7/22	7/22	8/5						10/15	10/7	10/6		
Vernal	Late bud	6/12	6/6	6/20	7/7	7/9	7/25	8/19		9/1			10/15	9/8			
"	25% bloom	6/19	6/22	7/5	7/22	8/4	8/5						10/15	10/7	10/6		

PROVINCIAL ALFALFA MIXTURE - MANAGEMENT TRIAL 1964

Location: K.A.S.

Yields of Dry Matter Per Acre

Years of harvest: 1965, 1966

Mixture	Stage	Harvests prior to August 31						Total		Harvest after		Season		% harv. prior	
		1		2		3		1965	1966	Sept. 1		1965	1966	1965	1966
		1965	1966	1965	1966	1965	1966			1965	1966				
DuPuits alone	Late	3073	1803	2038	804	2087	1149	7198	3756	1559	527	8757	4283	82	88
+Saratoga	bud	3922	3307	1724	727	1944	1384	7590	5418	1605	700	9195	6118	83	89
+Frode		2514	2573	1558	874	1590	1512	5662	4959	1724	816	6986	5775	81	86
DuPuits alone	25%	4982	4442	2881	1492			7863	5934	2408	1369	10271	7303	77	81
+Saratoga	bloom	6090	5374	2540	1667			8630	7041	2757	1583	11387	8624	76	82
+Frode		4595	5223	2444	1735			7039	6958	3079	1802	10117	8760	70	79
Vernal alone	Late	3703	3632	3081	1606		2092	6784	7330	2699		9483	7330	72	100
+Saratoga	bud	4175	4474	2599	1450		2052	6774	7976	2776		9550	7976	71	100
+Climax		3883	4723	2553	948		2052	6436	7723	2632		9048	7723	71	100
Vernal alone	25%	4933	5058	2080	2780			8013	7838	2530	1075	10543	8913	76	88
+Saratoga	bloom	6308	5710	2441	2097			8749	7807	2287	943	11036	8750	79	89
+Climax		5538	5108	2841	2817			8379	7925	2565	1030	10944	8955	77	88

Dates of harvest:

DuPuits	Late bud	6/7	6/21	7/13	7/25	8/16	8/25		10/14	10/21
"	25% bloom	6/22	7/6	7/29	8/8				10/7	10/13
Vernal	Late bud	6/7	6/21	7/22	7/25		9/1		9/6	
"	25% bloom	6/22	7/6	8/4	8/19				10/7	10/13

PROVINCIAL ALFALFA MIXTURE - MANAGEMENT TRIAL 1965

Location: K.A.S.

Yields of Dry Matter Per Acre

Year of harvest 1966

Mixture	Stage of development at each harvest	Harvests prior to August 31				Harvest after Sept. 1	Season Total	% harvested prior to September
		1	2	3	Total			
DuPuits alone	Late bud	3387 (6/17)	1827 (?)	2562 (9/1)	7776	1305 (10/21)	9081	86
+Saratoga		5099	1219	2424	8742	1286	10028	87
+Frode		3304	1152	2246	6702	847	7549	89
DuPuits alone	25% bloom	4996 (7/4)	2639 (?)		7685	1672 (10/13)	9357	82
+Saratoga		6565	1743		8308	1637	9945	84
+Frode		5402	1533		6935	2230	9165	76
Vernal alone	Late bud	3441 (6/17)	2265 (?)	2149 (9/1)	7855		7855	100
+Saratoga		5492	1962	1922	9376		9376	100
+Climax		4074	2088	2274	8436		8436	100
Vernal alone	25% bloom	4165 (7/4)	2607 (?)		6772	899 (10/13)	7671	88
+Saratoga		6206	2858		9064	1749	10813	84
+Climax		5015	2343		7358	752	8110	91

PROVINCIAL ALFALFA MIXTURE-MANAGEMENT TRIAL

Location: Verner

Yields of dry matter per acre

Year of harvest: 1964

Mixture	Designated stage of Development for each Harvest	Harvests Prior to Aug. 31			Total	Harvest After Sept. 1	Season Total
		1	2	3			
DuPuits alone	Late bud	5358 (6/23)	2603 (7/29)		7961	1917 (9/30)	9878
DuPuits + Saratoga		6056	1858		7914	1710	9624
DuPuits + Frode		4868	2208		7076	1817	8893
DuPuits alone	25% bloom	5018 (6/26)	2359 (8/5)		7377	1921 (9/30)	9298
DuPuits + Saratoga		5832	1834		7666	1729	9395
DuPuits + Frode		4885	2043		6928	1809	8737
Vernal alone	Late bud	5906 (6/23)	2465 (7/29)		8371	1542 (9/30)	9913
Vernal + Saratoga		7129	1538		8667	1094	9761
Vernal + Climax		5993	2138		8131	1458	9589
Vernal alone	25% bloom	5717 (6/26)	2319 (8/5)		8036	1475 (9/30)	9511
Vernal + Saratoga		6738	1386		8124	954	9078
Vernal + Climax		5780	2052		7832	1398	9230

PROVINCIAL ALFALFA MIXTURE-MANAGEMENT TRIAL

Location: Alfred

Yields of dry matter per acre

Year of harvest: 1965

Mixture	Designated stage of development for each harvest	Harvests prior to August 31				Harvest after September 1	Season Total
		1	2	3	Total		
DuPuits alone	Late bud	2212 (6/14)	2654 (7/22)	----	4866	----	4866
+ Saratoga		3049	2367	----	5416	----	5416
+ Frode		2429	2406	----	4835	----	4835
DuPuits alone	25% bloom	3151 (6/28)	3013	----	6164	----	6164
+ Saratoga		4009	2820	----	6829	----	6829
+ Frode		2948	2668	----	5616	----	5616
Vernal alone	Late bud	2729 (6/16)	3076 (7/30)	----	5805	----	5805
+ Saratoga		3735	2529	----	6264	----	6264
- Climax		3643	2392	----	6035	----	6035
Vernal alone	25% bloom	3549 (6/28)	3308 (8/16)	----	6857	----	6857
+ Saratoga		4418	2954	----	7372	----	7372
+ Climax		4822	2844	----	7656	----	7656

PROVINCIAL ALFALFA MIXTURE - MANAGEMENT TRIAL, 1964

Location: Fort William

Yields of Dry Matter Per Acre

Years of Harvest: 1965, 1966

Mixture	Stage	Harvests prior to August 31						Harvest after		Season		% harv. prior			
		1		2		3		September 1		Total		to September			
		1965	1966	1965	1966	1965	1966	1965	1966	1965	1966	1965	1966		
DuPuits alone	Late	2934	3605	11353	583			4287	4188			4287	4188	100	100
+Saratoga	bud	3413	3478	11105	420			4518	3898			4518	3898	100	100
+Frode		1514	3210	1861	298			2375	3508			2375	3508	100	100
DuPuits alone	25%	23168	33788	41548	1308			4716	5096			4716	5096	100	100
+Saratoga	bloom	23170	34047	41132	1035			4302	5082			4302	5082	100	100
+Frode		21885	32794	4897	783			2782	3577			2782	3577	100	100
Vernal alone	Late	3048	3955	1546	814			4594	4769			4594	4769	100	100
+Saratoga	bud	2887	3833	951	385			3838	4218			3838	4218	100	100
+Climax		2981	3723	1042	401			4023	4124			4023	4124	100	100
Vernal alone	25%	53882	64017	1470	71361			5352	5378			5352	5378	100	100
+Saratoga	bloom	54330	63985	1074	7767			5410	4752			5410	4752	100	100
+Climax		53884	64266	1028	7754			4912	5020			4912	5020	100	100

Dates of Harvest:

DuPuits	Late bud	6/25	6.28	8/23	8/2	1	Stage at harvest	-	10%	bloom
"	25% bloom	7/5	7/5	8/31	8/11	2	"	-	10%	"
						3	"	-	75%	"
Vernal	Late bud	6/25	6/28	8/23	8/2	4	"	-	75%	"
	25% bloom	7/5	7/5	8/31	8/11	5	"	-	10%	"
						6	"	-	50%	"
						7	"	-	10%	"