

FORAGE CROP INVESTIGATIONS - ONTARIO

1967 Report on Field Trials of Varieties and Mixtures



Research Station, Ottawa

Experimental Farm, Kapuskasing

Experimental Farm, Fort William

Kemptville College of Agricultural Technology, Kemptville

New Liskeard College of Agricultural Technology, New Liskeard

Ontario Agricultural College, University of Guelph, Guelph

Ridgetown College of Agricultural Technology, Ridgetown

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, 1967, 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. B. R. Christie, Crop Science Department, Ontario Agricultural College, University of Guelph, Guelph, Ontario.

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Alfalfa Recommendations

The proposal that no change in varietal recommendation be made was approved by the Committee. Thus the list of recommended varieties remains Vernal, Narragansett, DuPuits, Alfa, Glacier, Mega, and Saranac.

It was further decided that encouragement should be given for an increase in acreage of the Flemish-type alfalfas, and that Saranac should receive a stronger recommendation than formerly.

The performance of Mark II being no different from that of Narragansett, it was decided that only if the price and availability of seed made it desirable would Narragansett be replaced on the recommended list by Mark II.

Among the newer varieties that appeared from several years' data to have possibilities for Ontario were Iroquois and Apex.

Exp. 1001

Alfalfa Strain Trial, Ridgetown, 1965 Seeding

3

		<u>Yield in lb. D.M. per acre</u>								
		1966			1967					
		<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	<u>Total</u>	<u>June 23</u>	<u>July 31</u>	<u>Sept. 6</u>	<u>Total</u>	<u>Rank</u>
NK 510	01	4883	2993	2166	10,089	5977	3087	1417	10,481	6
Saranac	02	4835	3138	2416	10,376	6380	3570	2252	12,202	1
Alfa.	03	5588	3086	2400	11,135	6173	2970	1465	10,608	4-5
Omega	04	5280	3019	2383	10,652	5339	2765	1444	9,548	8
CL 35 (Stride)	05	4820	3086	2306	10,214	5977	2845	1380	10,202	7
DuPuits	06	4864	3048	2409	10,427	6120	2926	1561	10,607	4-5
R.P. 33 (Apex)	07	5850	3113	2215	11,257	6617	3439	1824	11,880	2
Europa	08	5351	3068	2331	10,671	6281	3000	1552	10,833	3
Mean		5184	3069	2329	10,603	6108	3075	1612	10,795	
L.S.D. 5%		346	N.S.	133	N.S.	308	460	400	825	
C.V. %						6	13	21	7	

Exp. 1002

Alfalfa Strain Trial, Ridgetown, 1965 Seeding

4

std. type.

		<u>Yield in lb. D.M. per acre</u>									
		1966			1967						
		<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	<u>Total</u>	<u>Rank</u>	<u>June 23</u>	<u>July 31</u>	<u>Sept. /6</u>	<u>Total</u>	<u>Rank</u>
Mark II	01	5097	2964	2116	10,117	4	5465	3375	2116	10,956	4
W.L. 202	02	5256	3034	2265	10,555	1	5555	3448	2211	11,214	3
C.L. 30	03	4335	2612	2366	9,313	5	5974	3560	2475	12,009	2
Multileaf	04	5015	3103	2205	10,323	2	6379	3528	2228	12,135	1
Vernal	05	5101	2840	2256	10,197	3	5446	3298	2200	10,944	5
Mean		4961	2911	2242	10,113		5764	3442	2246	11,452	
L.S.D. 5%	N.S.	212	125	780			367	195	100	489	
C.V. %							7	5	4	4	

Percent Stand, Sept. 4, 1967

NK 510 53
 Saranac 88
 Alfa 56
 Omega 45
 Stride 47
 DuPuits 51
 Apex 70

Europa 49
 Mark II 79
 WL 202 84
 CL 30 83
 Multileaf 83
 Vernal 85

Exp. 2501

Alfalfa, Standard Type, Strain Trial, Guelph, 1966 Seeding

(4)

		<u>Yield in lb. D.M. per acre</u>			
		1967			
		<u>June 21</u>	<u>July 27</u>	<u>Total</u>	<u>Rank</u>
Vernal	01	3860	2080	5940	9
Cayuga	02	3970	2050	6020	7
Pioneer 525	02	4060	2050	6110	5
W.L. 202	04	4180	2050	6230	2
C.L. 25	05	3860	1950	5810	10
Mk II	06	4320	2040	6360	1
R.P. 25	07	4100	2070	6170	3
W.L. 210	08	3860	2200	6060	6
Iroquois	09	4020	1980	6000	8
Multiple-leaf	10	4100	2050	6150 <i>new = 6085</i>	4

Exp. 2502

Alfalfa, Early Type, Strain Trial, Guelph, 1966 Seeding

(3)

		<u>Yield in lb. D.M. per acre</u>			
		1967			
		<u>June 21</u>	<u>July 27</u>	<u>Total</u>	<u>Rank</u>
Saranac	01	4300	1850	6150	5
Scout	02	4000	1900	5900	6
W.L. 305	03	3600	2100	5700	7-8
Vernal	04	3800	1900	5700	7-8
DuPuits	05	4500	2000	6500	2
W.L. 303	06	4300	2150	6450	3
Apex	07	4500	2150	6650	1
C.L. 40	08	4100	2100	6200	4

Comments: The test area was trisected by ditching operation. Results are, accordingly, less reliable.

Exp. 3001

Alfalfa Strain Trial, Kemptville, 1964 Seeding

		1965					1966					1967				1965-7
		Cut 1	Cut 2	Cut 3	Total	Rank	Cut 1	Cut 2	Cut 3	Total	Rank	Cut 1	Cut 2	Total	Rank	Mean
Vernal	01	4348	2006	3002	9356	7	3630	1036	1891	6560	3	5436	3743	9179	2-3	8365
Apex	02	4502	2092	2862	9456	6	3140	863	1655	5660	7	5429	3749	9178	2-3	8098
Saranac	03	4569	2257	2834	9660	5	3170	1041	1900	6110	4	5318	4036	9354	1	8371
Pioneer 525	04	4503	2228	3040	9771	3	3730	1381	2192	7300	1	5220	3612	8832	4	8634
DuPuits	05	4450	2486	3139	10075	2	3050	1221	1781	6050	5	5146	3026	8172	7	8099
Alfa.	06	4531	2132	3010	9673	4	2880	1009	1695	5580	6	5420	3403	8823	5	8025
Arnim	07	4511	2519	3110	10140	1	3110	1381	2099	6590	2	4993	3380	8373	6	8388
Stride	08	4113	2268	2953	9334	8	2400	931	1572	4900	8	4524	2712	7236	8	7175
Mean		4440	2248	2994	9683		3139	1108	1848	6094		5186	3458	8643		8140
L.S.D. (.05)							N.S.	N.S.	N.S.	N.S.		549	494	1293		
C.V. (%)							18	33	22	21		10	14	10		

Alfalfa Strain Trial, Fort William, 1964 Seeding, Sown with Timothy

Exp. 7001

Yield of D.M. in lb. per acre

Hay Management		1965	1966				1967				1966-7
			July 8	Aug. 25	Total	Rank	July 25	Aug. 31	Total	Rank	Mean
Vernal	01	-	4270	560	4830	6	917	354	2271	5	3500
Narragansett	02	-	4500	530	5030	4	2056	505	2561	3	3795
Cayuga	03	-	4150	300	4450	9	1881	299	2180	7	3315
DuPuits	04	-	4420	650	5070	3	1788	127	1915	9	3492
Alfa.	05	-	4500	650	5150	2	1966	226	2192	6	3671
Glacier	06	-	4470	760	5230	1	1821	246	2067	8	3648
Tuna	07	-	4410	480	4890	5	2242	416	2658	2	3769
Saranac	08	-	4250	550	4800	7	2116	285	2401	4	3600
Beaver	09	-	4250	350	4590	8	2321	350	2671	1	3620
Mean			4358	537	4893		2012	312	2324		3608
L.S.D. (.05)			N.S.	80	330		357	148	N.S.		
C.V. (%)			6	19	8		21	40	20		

Alfalfa Strain Trial, Fort William, 1964 Seeding, Sown with Timothy

Exp. 7002

Yield of D.M. in lb. per acre

Pasture Management		1965	1966				1967				1966-7	
			June 10	July 19	Aug. 26	Total	Rank	June 23	Aug. 11	Total	Rank	Mean
Vernal	01 -		1970	1820	340	4120	5	1864	508	2372	2	3246
Narragansett	02 -		1840	1880	370	4090	7	1951	672	2623	1	3356
Cayuga	03 -		1690	1620	260	3580	8	1621	568	2189	4	2834
DuPuits	04 -		2050	1810	430	4290	3	1564	402	1966	8	2128
Alfa.	05 -		2010	1890	460	4360	2	1632	426	2058	7	3209
Glacier	06 -		1970	1970	470	4400	1	1711	512	2223	3	3211
Tuna	07 -		1850	1940	330	4110	6	1586	584	2170	5	3140
Saranac	08 -		1870	1890	420	4170	4	1507	446	1953	9	3061
Beaver	09 -		1690	1640	230	3550	9	1562	536	2098	6	2824
Mean			1882	1828	368	4074		1664	517	2181		3128
L.S.D. 5%			N.S.	N.S.	70	N.S.		156		311		
C.V. %			13	9	23	15		11	30	12		

Saranac vs DuPuits

Yield Comparison of Saranac and DuPuits for first 2 Harvest Years

Location	<u>Ridgetown</u>		<u>Guelph</u>			<u>Kemptville</u>		<u>Fort William</u>		
Year Seeding	1965	1960	1964	1965	1966	1960	1964	1964	1964	
Exp. No.	1001	--	--	2592	2502	--	3001	7001	7002	
Years Harvested	<u>(1966-67)</u>	<u>(1961-62)</u>	<u>(1965)</u>	<u>(1966)</u>	<u>(1967)</u>	<u>(1961-62)</u>	<u>(1965-55)</u>	<u>(1966-67)</u>	<u>(1966-67)</u>	<u>Mean</u>
DuPuits	10,520	7630	800	4740	6500	6690	8060	3490	3130	6550
Saranac	11,290	7700	8120	5030	6150	7030	7880	3600	3060	6690

Yield Comparison of Saranac and DuPuits for 3rd or more Harvest Years

Location	<u>Guelph</u>	<u>Kemptville</u>		
Year Seeded	1960	1960	1964	
Exp. No.	--	--	3001	
Years Harvested	<u>1963-65</u>	<u>1963</u>	<u>1967</u>	<u>Mean</u>
DuPuits	6170	8800	8170	7100
Saranac	7070	10150	9350	8140

Vernal vs Cayuga

	Guelph				Ridgetown Kemptville				Verner	Fort William			
Seeding year	60	61	61	64	66	63	60	62	63	63	64	64	65
Harvest years	61-6	62-3	62-3	65	67	64-6	61-3	63-4	63-6	64-5	66-7	66-7	66
Vernal	7370	9470	8720	7680	5940	10388	7650	7200	9439	8462	3550	3246	2893
Cayuga	7308	9190	8920	7437	5020	11156	8030	7780	9791	7769	3315	2884	3097

Apex vs Stride vs DuPuits

Location	R	G	G	K	W
Year Seeded	65	64	65	64	65
Test No.	1001	--	2592	3001	7003
Year Data	<u>66-7</u>	<u>65</u>	<u>66</u>	<u>65-7</u>	<u>66</u>
Apex:	11,570	8200	4710	8100	3520
Stride	10,210	7850	4340	7160	
DuPuits	10,520	8000	4740	8100	3390
Mean for R-65		for Apex	9270		
G-64		Stride	8290		
K-64		DuPuits	8890		

Alfalfa Data from New York State*

Below are given in modified form some extracts taken from the 1965 and 1966 Report of Alfalfa Nurseries, Eastern Alfalfa Improvement Conference.

Summary of Alfalfa Yields in Four New York Stations (see P. 15)

Yields in tons per acre @ 12% moisture

	1963	1964	1965	1963-5
	1st year	2nd year	3rd year	3 year mean
Multiple-leaf	4.91	5.05	5.22	5.05
Mk. II	4.87	4.72	4.54	4.70
Narragansett	4.66	4.67	4.40	4.57
Cayuga	4.50	4.67	4.95	4.70
Vernal	4.63	4.35	4.27	4.41

A Comparison of Narragansett and Mk. II (see P. 16)

Seedings made in 1961, 1962, 1963

	1st year	2nd year	3rd year	4th year cut 1
Mark II	4.57	4.64	4.03	1.86
Narragansett	4.39	4.62	4.07	1.84

A total of 80 trial harvest years of information show the following production advantages of WRN over Narragansett and Vernal in tons per acre. (P. 59)

Production Year

1	2	3	4	5	
+0.08	+0.27	+0.34	+0.25	+0.23	WRN over Vernal
+0.07	-0.05	+0.06	+0.23	+0.67	WRN over Narragansett
35	21	17	8	4	Number of trials used in the comparison

*Reprinted through the kind permission of Dr. C.C. Lowe, Cornell University.

Exp. 4090

Alfalfa Pasture Test
Ottawa, 1966 Seeding

Yield of D.M. in lb. per acre

	<u>1967</u>			
	<u>June 8</u>	<u>July 5</u>	<u>July 27</u>	<u>Total</u>
Nalfa #1	3274	2166	1209	6649
ii 53-6	3394	2056	1112	6562
Rhizoma	3183	2224	1028	6435
Nalfa #2	3059	2173	1129	6361
Vernal	3226	2079	883	6188
DuPuits	2844	2323	981	6148
Beaver	3262	2101	773	6136
Mean	3178	2160	1016	6354
C.V.				5%

Flemish Alfalfa Strain Trial
Ottawa, 1967 Seeding

Yield of D.M. in lb. per acre

	<u>1967</u>	
	<u>1967</u>	<u>October 11</u>
OD-25		1821
BW-9		1773
CL-40		1502
WL-303		1607
Mega		1789
Saranac		1866
DuPuits		1860
WL-305		1584
BW-3		1554
BW-1		1574
Syn. 2		1450
Mean		1671
C.V.		11%
L.S.D. 5%		261

Comments: cut back June 29, July 13

List of Experiments in ProgressRidgetown

- 1965 Seeding, Flemish-type Strain Trial, Exp. 1001.
NK 510, Saranac, Alfa, Omega, Stride, DuPuits, Apex, Europa.
- 1965 Seeding, Standard-type, Strain Trial, Exp. 1002.
Narragansett, WL 202, CL 30, Multileaf, Vernal.
- 1967 Seeding, Flemish alfalfa Screening Trial.
WL 303, WL 305, CL 40, OD 25, BW 9, BW 3, BW 1, DuPuits, Saranac, Mega
- 1967 Seeding, Flemish-type Provincial Trial
NK 508, FD 100, Europa, NK 510, DuPuits, Saranac, Mega
- 1967 Seeding, Standard-type Strain Trial.
Pioneer 522, Pioneer 525, WL 202, WL 210, Norseman, Scout, RP 25, Roamer,
Narragansett, Iroquois, TG 2, Vernal.

Guelph

- 1966 Seeding, Standard-type Strain Trial, Exp. 2501.
Vernal, Cayuga, Pioneer 525, WL 202, CL 25, Mark II, RP 25, WL 210, Iroquois,
Multileaf.
- 1966 Seeding, Flemish-type Strain Trial, Exp. 2502.
Saranac, Scout, WL 305, Vernal, DuPuits, WL 303, Apex, CL 40.

Kemptville

- 1964 Seeding, Flemish-type Strain Trial, Exp. 3001.
DuPuits, Alfa, Saranac, Stride, Apex, Vernal, Pioneer 525, Arnim.

Ottawa

- 1966 Seeding, Pasture Trial.
Nalfa #1, M 53-6, Nalfa #2, Rhizoma, DuPuits, Vernal, Beaver.
- 1967 Seeding, Flemish-type Screening Trial, Test 4036.
WL 303, WL 305, CL 40, OD 25, BW 9, BW 3, BW 1, DuPuits, Saranac, Mega.
- 1967 Seeding, Flemish-type Provincial Trial, Test 4037.
NK 508, FD 100, Europa, NK 510, DuPuits, Saranac, Mega.
- 1967 Seeding, Standard-type Provincial Trial, Test 4038.
Pioneer 522, Pioneer 525, WL 202, WL 210, Norseman, Scout, RP 25, Roamer,
Narragansett, Iroquois, TG 2, Vernal

Fort William

- 1964 Seeding, Screening Trial with timothy, Hay, Exp. 7001.
Vernal, Narragansett, Cayuga, DuPuits, Alfa, Glacier, Tuna, Saranac, Beaver.
- 1964 Seeding, Screening Trial with timothy, Pasture, Exp. 7002.
Vernal, Narragansett, Cayuga, DuPuits, Alfa, Glacier, Tuna, Saranac, Beaver.

New Liskeard

- 1967 Seeding, Screening trila.
Norseman, Iroquois, DuPuits, Vernal, Saranac, Cayuga, Glacier.

Kapuskasing

- 1967 Seeding, Flemish-Type Screening Trial - Hay
WL303, WL305, CL40, OD25, BW-9, BW-3, BW-1, DuPuits, Saranac, Mega.
- 1967 Seeding, Flemish-Type Provincial Trial
NK508, FD100, Europa, NK510, DuPuits, Saranac, Mega.
- 1967 Seeding, Standard-Type Provincial Trial
Pioneer 522, Pioneer 525, WL202, WL210, Norseman, Scout, RP25, Roamer,
Narragansett, Iroquois, TG-2, Vernal.

Brief Identification of Some Alfalfa Strains

- CL 10 - Progress. Similar to Vernal.
CL 25 - DeKalb 123. Vernal type, moderate wilt resistance.
CL 30 - DeKalb 153. Intermediate in maturity and in wilt resistance.
CL 35 - Stride. Early type, wilt susceptible.
CL 40 - Flemish type, moderate wilt resistance
- Pioneer 522 - finer, later, hardier than Pioneer 525, good wilt resistance.
Pioneer 525 - slightly earlier than Vernal, wilt resistant equal to Vernal.
- RP 25 - vigorous lines from Vernal, moderate wilt resistance.
RP 33 - Apex. Early, wilt susceptible.
- WL 202 - Vernal type with good wilt resistance.
WL 210 - Intermediate in maturity, some wilt resistance.
WL 303 - Early, moderate wilt resistance.
WL 305 - Early, moderate wilt resistance.
- NK 510 - Early type.
NK 508 - Intermediate in maturity.
- Scout - slightly earlier than Vernal, some wilt resistance.

Ottawa entries

- TG 1 - standard maturity, moderate resistance to wilt, tolerant of frequent clipping.
CR 1 - A creeping rooted strain with improved aftermath recovery rate.
BW 1 - Flemish type selected for resistance to wilt.
BW 3 - Intermediate maturity, selected for resistance to wilt.
OD 25 - A 25-clone, wilt resistant, DuPuits type synthetic.
Nalfa #1 - Second generation material resulting from a cross between Rhizoma and 36 clones tolerant of excess soil moisture. Standard maturity, not wilt resistant.
Syn. 2 - A 2-clone synthetic. Flemish type with high wilt resistance and high seed set.

Alfalfa Seeding - Flemish Type

Location, Seeding Year, Test Number

	<u>Ridgetown</u>			<u>Guelph</u>	<u>Kemptville</u>	<u>Ottawa++++</u>		<u>Fort William**</u>		<u>New Liskeard+++</u>	<u>Kapuskasing</u>	
	<u>1965</u>	<u>1967</u>	<u>1967</u>	<u>1966</u>	<u>1964</u>	<u>1967</u>	<u>1967</u>	<u>1964</u>	<u>1964</u>	<u>1967</u>	<u>1967</u>	<u>1967</u>
	1001			2502	3001*	4036	4037	7001	7002			
DuPuits	X	X	X	X	X	X	X	X	X	X	X	X
Alfa	X				X			X	X			X
Glacier								X	X			
Mega	X	X	X			X	X			X		
Saranac	X	X	X	X	X	X	X	X	X	X	X	X
Tuna								X	X		X	X
Apex	X			X	X							
Stride	X				X							
FD 100		X										
Europa	X	X					X					X
NK 508		X					X					X
NK 510	X	X					X					X
WL 302			X	X		X						X
WL 305			X	X		X					X	
CL 40			X	X		X					X	
BW 1,3, &9			X			X					X	
OD 25			X			X					X	
Vernal Check				X	X			X	X			

*See also 3001 in the standard-type series

**See also 7001, 7002 in the standard-type series

+++See also standard-type series

++++See Ottawa seeding, 1966

Alfalfa Seeding - Standard Type
Location, Seeding year, Test Number

	<u>Ridgetown</u>		<u>Guelph</u>	<u>Kemptville</u>	<u>Ottawa</u>		<u>Verner</u>	<u>Fort William</u>	<u>New Liskeard</u>	<u>Kapuskasing</u>
	<u>1965</u>	<u>1967</u>	<u>1966</u>	<u>1964</u>	<u>1967</u>	<u>1966</u>	<u>1967</u>	<u>1964</u>	<u>1967</u>	<u>1967</u>
	1002		2501	3001	4038	*		7001	7002	
Vernal	X	X	X	X	X		X	X	X	X
Narragansett		X			X		X	X	X	X
Mark II	X		X							X
Iroquois	X	X	X		X		X			
Multileaf	X		X							
Norseman		X			X		X		X	X
Scout		X	X		X		X			X
RP 25		X	X		X		X			X
CL 25			X							
CL 30	X									
Pioneer 522		X			X		X			X
Pioneer 525		X	X	X	X		X			X
WL 202	X	X	X		X		X			X
WL 210		X	X		X		X			X
Roamer		X			X		X			X
TG 2		X			X		X			X
Beaver								X	X	
Cayuga			X					X	X	
Arnim				X						

*See Ottawa seeding, 1966

ONTARIO FARM FORAGE TRIALS 1967 SUMMARY

Alfalfa - 1966 Vernal - Saranac - Apex Comparison (1968 - 10 locations)

Durham, Essex, Grenville, Kent, Lennox and Addington, Peel, Russell, Waterloo, Victoria (2 locations).

In almost all cases Saranac rated equal or better than Vernal. Apex was considered equal to vernal by most co-operators. 2 locations reported Vernal superior in winter-hardiness.

Apex would seem to be intermediate between Vernal and Saranac in rate of growth.

1966 DuPuit - Saranac - Apex Comparison (1968 - 8 locations)

Dufferin, Halton, Northumberland, Oxford, Simcoe N., Welland (2 locations), Wellington.

Saranac and Apex are perhaps a little less rapid in growth and regrowth than DuPuit as well as a little later in maturity. Preference of co-operators runs DuPuit and Saranac about equal and Apex a little less popular.

1966 Vernal - Saranac Comparison (1968 - 5 locations)

Hastings, Ontario (2 locations), Prince Edward and Victoria.

Saranac is equal or superior to Vernal in all locations.

1965 Vernal - Saranac - DuPuit Comparison (1968 - 2 locations)

Frontenac and Peterborough.

Saranac and DuPuit are rated as equal to or superior to Vernal in stand, rate of growth and yield. Saranac is intermediate between Vernal and DuPuit in maturity.

1963 DuPuit - Glacier Comparison (1968 - 5 locations)

Bruce, Dufferin, Durham, Oxford, York.

Glacier was preferred in 4 out of 5 locations. Winterhardness was a factor in the choice. Yield differences were not noticeable and Glacier appeared a little later in maturity than DuPuit.

1963 Vernal - Beaver - Cayuga Comparison (1968 - 5 locations)

Durham, Grey, Huron, Peel, Victoria.

1963 Vernal - Beaver - Cayuga Comparison (Cont'd.)

Cayuga was rated as equal to Vernal in most locations in respect to stand, rate of growth, yield, winterhardiness, etc. Beaver was rated as inferior to both Vernal and Cayuga in half the locations, and no co-operator picked Beaver as first choice.

Birdsfoot Trefoil1964 Empire - Leo - Viking Comparison (1968 - 4 locations)

Bruce, Grey, Victoria and Wellington.

In all locations Leo compares favourably with Empire as regards rate of growth and yield, as well as winterhardiness. Viking stand and yield is down in some locations and this may be due to lack of winterhardiness. In one location (Victoria) cattle grazed Viking and Leo plots in preference to Empire.

1961 Empire - Empire/Viking - Empire/Vernal Comparison (1968 - 11 locations)

Dufferin, Frontenac, Haldimand, Huron, Lambton, Leeds, Lincoln, Simcoe S., Waterloo, Welland and York.

38 comparisons were seeded originally. As the alfalfa killed out (management or winterkill) many of the plots were ploughed down. In most of the locations still down, Vernal has been replaced by Empire. In Eastern Ontario trefoil killed out in several locations due to two successive hard winters.

Farmer preference is based largely on programme rather than plant performance. Under a hay regime, Vernal/Empire was first choice followed by Viking/Empire. Once the alfalfa disappeared, plots were ploughed. Under pasture conditions, Empire is clearly first choice of most co-operators. In one location (Huron County) Vernal alfalfa is still flourishing under a pasture programme that never lets flowers develop.

BIRDSFOOT TREFOIL

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- B-0 - Variety recommendation
- B-1 - Exp. 6004, Kapuskasing, 1962 Seeding
- B-2 - Exp. 7021, 7022, Fort William, 1967 Seeding
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- B-3 - Exp. 4091, Ottawa, 1966 Seeding, Strain Trial Management
- B-4 - Exp. 4092, Ottawa, 1966 Seeding, Hay and Pasture
- B-5 - List of experiments
- B-6 - List of experiments continued

Variety Recommendations

No change was proposed. Empire and Viking remain the recommended varieties. Leo was considered satisfactory for forage production but because of the difficulties encountered in the production of both Foundation and Certified seed it was not included in the list of recommended varieties.

Exp. 6004

Birdsfoot Trefoil Strain Trial, Kapuskasing, 1962 Seeding

Yield of D.M. in lb. per acre

Hay Management																	
Pure Stand	1963		1964				1965		1966				1967			1963-7	
		Rank	July 8	Aug. 27	Total	Rank		Rank	July 13	Sept. 20	Total	Rank	July 17	Sept. 25		Rank	
Empire	4464	3	3652	790	4442	3-4	1870	1	3910	1564	5474	1	1924	2934	4858	1	4142
Viking	5700	1	3526	1134	4660	2	1288	4	2512	1840	4352	2	2150	2040	4190	2	4038
Morshansk	5619	2	4006	876	4882	1	1794	2	2456	1191	3647	3	2245	1863	4108	3	4010
Roskilde	3666	4	3560	885	4445	3-4	1446	3	2213	1207	3420	4	2279	1760	4039	4	3403
Mean	4862		3686	921	4607		1599		2773	1450	4223		2149	2149	4298		3898
Trefoil and Timothy																	
Empire	5122	3	4256	786	5024	3	2200	2	3433	1502	4935	2	2535	2431	4966	2	4449
Viking	5830	1	4484	1166	5650	1	1740	4	3162	1910	5072	1	2226	2403	4629	3-4	4584
Morshansk	5618	2	4319	798	5117	2	2247	1	3176	1163	4339	4	2680	1945	4625	3-4	4389
Roskilde	4332	4	3847	931	4778	4	2030	3	3086	1512	4598	3	3113	2050	5163	1	4180
Mean	5226		4226	961	5142		2054		3214	1522	4736		2638	2207	4845		4400

Exp. 7021
7022

Birdsfoot Trefoil Strain Trial, Fort William, 1967 Seeding

Yield of D.M. in lb. per acre

Test 7021 Hay Management		<u>September 7</u>	<u>1967</u>	<u>Rank</u>
Leo	01	1534		2
MCH-66	02	1450		6
Empire	03	1465		5
Viking	04	1529		3
Wallace	05	1400		7
Westriver	06	1478		4
Syn-1, Royal	07	1984		1
Mean		1549		
L.S.D.		148		
C.V.		8%		

Test 7022 Pasture Management		<u>September 7</u>	<u>Rank</u>
Leo		1582	3
MCH-66		1468	6
Empire		1462	7
Viking		1549	5
Wallace		1567	4
Westriver		1610	2
Syn-2, Royal		2031	1
Mean		1610	
L.S.D.		206	
C.V.		11%	

Exp. 8001 Birdsfoot Trefoil Strain Trial, New Liskeard, 1967 Seeding

Fall Vigor Ratings as of October 23

5-most vigorous, 1-least vigorous

Leo	3.3
MCH-66	2.0
Empire	4.0
Viking	3.0
Wallace	4.3
Westriver	3.3
Syn. 2-Royal	3.0

Birdsfoot Trefoil Strain Trial ManagementOttawa, 1966 Seeding

Yield of D.M. in lb. per acre

<u>Management</u>	<u>Cut to 1 inch</u>			<u>Cut to 4 inches</u>		
	June 13	July 26	1967	June 13	July 27	1967
Early = Viking at 10% bloom						
Viking	3004	3810	6814	2398	3702	6100
Leo	2888	3900	6788	2384	3470	5854
Empire	2415	4087	6502	2103	3717	5820
Medium = Leo at 10% bloom						
Viking	4681	2739	7420	4076	2645	6721
Leo	4499	2540	7039	3974	2532	6506
Empire	4981	2480	7461	4020	2347	6367
Late = Empire at 10% bloom						
Viking	5157	2137	7294	4083	2231	6314
Leo	5375	2337	7712	4328	1846	6174
Empire	4876	1799	6675	4660	1827	6487

Mean Yields for Variety, Time of Harvest, and Stubble Height

	<u>Cut 1</u>	<u>Cut 2</u>	<u>Total</u>
Variety mean			
Viking	3900	2877	6777a
Leo	3908	2771	6679a
Empire	3842	2710	6552a
Mean	3883	2786	6669
Time of Harvest mean			
Early	2532	3781	6313b
Medium	4372	2547	6919a
Late	4747	2030	6777ab
Mean	3883	2786	6669
Stubble Height mean			
1 inch	4208	2870	7078a
4 inch	3558	2702	6260b
Mean	3883	2786	6669

Expt. 4092

Birdsfoot Trefoil Strain TrialOttawa, 1966 Seeding

Yield of D.M. in lb. per acre

Management and Variety	1967		<u>Total</u>
	<u>June 8</u>	<u>July 5</u>	
Pasture			
Viking	2318	2588	4906
MC-H-64	2146	2715	4861
Roskilde	2191	2643	4834
FC 35375	2430	2397	4827
Leo	2170	2628	4798
Fargo	1792	2674	4466
Empire	1742	2721	4463
Wallace	<u>1995</u>	<u>2352</u>	<u>4347</u>
Mean	2098	2590	4688
Hay	<u>June 21</u>	<u>July 27</u>	<u>Total</u>
Viking	2813	1437	4250
MC-H-64	2291	1755	4046
Roskilde	2476	1198	3674
FC 35375	2524	1240	3764
Fargo	2459	1137	3597
Empire	2436	1046	3482
Wallace	<u>2664</u>	<u>1015</u>	<u>3679</u>
Mean	2523	1261	3784

List of Birdsfoot Trefoil Strain and Strain Management Trials

Ridgetown

- 1967 Seeding as Hay and as Pasture
Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn.

Guelph

- 1967 Seeding for Hay - test 2505
Viking, Leo, Empire, MCH, Wallace, O.A.C. Syn., six Cornell strains, two Virginia strains, Iowa 3019, OACCl, S.V. Leo, N6-128, P 15456.
- 1967 Seeding for Pasture - test 2506
Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn., N6-128, P 15456, Dawn.
- 1967 Seeding for Strain Trial Management Study
Viking, Leo, Empire

Ottawa

- 1966 Seeding for Pasture - 4092P
Viking, Leo, Empire, MCH, Wallace, Fargo, Roskilde, FC 35375
- 1966 Seeding For Hay - 4092H
Viking, Empire, MCH, Wallace, Fargo, Roskilde, FC 35375
- 1966 Seeding for Strain Trial Management - test 4091
Viking Leo, Empire; three dates of cutting; two stubble heights.
- 1967 Seeding as Hay and as Pasture
Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn. 1, and/or O.A.C. Syn. 2.

Verner

- 1967 Seeding for Hay
Viking, O.A.C. Syn. 1, O.A.C. Syn. 2, MCH-66, Leo, Wallace, Westriver, Empire.

Williamstown

- 1967 Seeding for Hay
Viking, O.A.C. Syn. 1, and/or O.A.C. Syn. 2, MCH-66, Leo, Wallace, Westriver, Empire.

Fort William

1967 Seeding as Hay - test 7021

Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn.

1967 Seeding as Pasture - test 7022

Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn.

New Liskeard

1967 Seeding

Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn.

Kapuskasing

1962 Seeding for Hay - test 6004

Viking, Empire, Morshansk, Roskilde - alone and with timothy.

1967 Seeding for Hay

Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn. 1.

1967 Seeding for Pasture

Viking, Leo, Empire, MCH, Wallace, Westriver, O.A.C. Syn. 2.

Identification of New Strains

Cornell Strains - hay type trefoil

Virginia Strains - hay type trefoil

Iowa 3019 - hay type

N6 128 - sponsored by Northrup-King, Empire trefoil

P 15456 - from Washington State, Empire type

Dawn - an Empire type from Missouri

OACC1 - leafy, hay type

S.V. Leo - a composite of lines out of Leo with increased seedling vigor.

Red Clover

Data are reported for three red clover trials, two of which were established in 1967. Any change in recommendations should await the completion of these trials.

Varieties Under Test - 1967

Location:	Ottawa	Ottawa	Fort William
Year of Seeding:	1966	1967	1967
<u>Variety</u>	<u> </u>	<u> </u>	<u> </u>
Dollard	X	X	X
Gloria	X		
Hungaropoli	X	X	X
Lakeland	X	X	X
OM-44		X	X
Ottawa	X	X	X
S123	X		
Viola	X		

Red Clover Preliminary Yield Test

Location - Central Experimental Farm, Ottawa, Ontario.

Date seeded - May 27, 1966.

Rate of seeding - 10 lbs. per acre

Plot size - 5 ft. x 10 ft.

Time of cutting - 1st cut, June 29, 1967

2nd cut, July 26, 1967

3rd cut, September 1, 1967

300 pounds per acre of a 5-20-20 fertilizer were applied to the plots in the spring of 1967.

Notes taken in May showed a 30 to 40% reduction of stand in replication 4 due to winter injury.

All yields listed in pounds per acre of dry matter.

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	<u>Total</u>
Dollard	6650	1040 c	1540 a	9120 a
Ottawa	5950	2010 a	1140 b	9100 a
Hungaropoli	7020	1450 b	420 c	8890 ab
Gloria	6540	1110 bc	460 c	8210 abc
Lakeland	5210	1260 bc	1360 ab	7820 bc
S123	5740	450 d	1610 a	7790 bc
Viola	6040	1020 c	590 c	7640 c
Differences C.V. (%)	N.S.	Sig. 18.9	Sig. 19.4	Sig. 8.9

Red Clover Provincial Trial

Location - Central Experimental Farm, Ottawa.
 Date seeded - May 29, 1967
 Rate of seeding - 10 lbs. per acre
 Plot size - 5 ft. x 20 ft.
 Time of cutting - 1st cut, July 13th. Because of a heavy infection of powdery mildew no yield was taken at this time. The variety Hungaropoli was particularly susceptible. This accounts for its low yield.
 2nd cut, September 1st. Yields taken.

<u>Variety</u>	<u>Yield</u>
Lakeland	2690 a
Ottawa	2630 a
Dollard	2500 a
OM-44	1970 b
Hungaropoli	930 c
S.E.	102
C.V. (%)	11.7

Annual Project SummationYear - 1967Exp. 7019 - Red Clover Varietal Trial - PastureGeneral Information

Location - Fort William, Ontario

Soil Type - Sandy loam

Experimental design - Randomized Block; six replicates

Plot size - 5' x 20'

Size sample harvested - 24" x 18.0'

Variety - 5 varieties

Fertilizers - 2 tons Lime/acre 24#N - 96# P₂O₅ - 96# K₂O + 3%
Boron/Ac. in spring, none application
fall, minus Boron and Lime

Pesticides - dates and rates

- (a) Herbicides)
- (b) Insecticides) Nil
- (c) Fungicides)

Seeding date - May 30, 1967

Harvest date - September 6, 1967

Previous crop - Fallow

Seeding method - Broadcast - no Companion crop

Harvest method - Plot - Forage Harvester

Remarks

An initial sampling of red clover plots in this year of establishment showed the varieties Lakeland and Ottawa were equal in yield performance followed by Dollard and the Strain OM 44. As in past trials, Lakeland generally excels in the year of establishment due to its superior vigor and leafiness of the plants, however, yields decline to the level produced by Dollard or Lasalle in subsequent years. The tetraploid Hungaropoli appeared to lack vigor in this year of establishment, with the result growth was lacking at time of cutting on September 6th.

This trial will be continued in 1968 to secure productivity potential of all entries under a pasture management regime.

Exp. 7019Prov. Red Clover Trial, 1967Fort William
Cut Sept. 6/67

<u>Entries</u>	<u>Cut 1</u>	<u>% legume</u>	<u>Height (ins.)</u>
Lakeland	2650	97	16
Ottawa	2470	97	17
Dollard	2280	97	15
OM 44	2210	97	14
Hungaropoli	1890	97	14
Mean	2300		
L.S.D.	136		
C.V.	6.92%		

White Clover

Only one trial of white clover was conducted in 1967.

Exp. 7020 - White Clover Varietal Trial - PastureGeneral Information

Location - Fort William, Ontario

Soil Type - Sandy loam

Experimental design - Randomized block; six replicates

Plot size - 5' x 20'

Size sample harvested - 24" x 18.0'

Variety - 4 varieties

Fertilizers - 2 Tons Lime/Ac. 24# N - 96# P_2O_5 - 96# K_2O + 3% Boron/Ac.
in spring; Same application in Fall, minus boron and Lime.

Pesticides: dates and rates

- (a) Herbicides)
- (b) Insecticides) Nil
- (c) Fungicides)

Seeding date - May 30, 1967

Harvest date - September 6, 1967

Previous crop - Fallow

Seeding method - Broadcast - no companion crop

Harvest method - Plot - Forage Harvester

Remarks

As in the past, crop production trials conducted at Fort William, the variety Merit demonstrated excellent vigor and plant development. This variety outyielded California-certified, and Ottawa Synthetic A by but a small margin in this establishment year, with all crop stands rated equal as to percent legume. Idaho-common was unimpressive in this year of establishment, with plants failing to display the vigor and growth of other varieties under test.

No change in current recommendations for northwest Ontario is recommended this year.

Fort William Experimental FarmExp. 7020 - White Clover Varietal Trial - Pasture - 1967

Variety	Yield in	Percent	Height
	Lbs. D.M./Ac.	Legume	Inches
	1967	1967	1967
Ottawa Syn.A.	1640	97%	10.5
Merit	1870	97%	11.0
Idaho-Common	1280	97%	8.7
Calif. Cert.	1680	97%	10.3
Mean	1620		
L.S.D. (5%)	90		
C.V. (%)	6.5		

BROME GRASS DISCUSSION

In brome grass, variations in total season yield are not high. Saratoga and Redpatch are presently recommended for Ontario.

Of the newer strains, Baylor appears to yield well at Ottawa and Fort William.

We have no information on seed available for these southern brome grass varieties at this time.

Perhaps the most sensitive area in research should be the improvement of seed production. In correspondence with Canadian seed companies growing brome grass in the west, they indicate that sometimes fields 10 miles apart will give 300 pounds per acre and 25 pounds per acre, respectively. They do not know what causes these seed failures in southern brome grass. This happens equally in Saratoga and Redpatch.

Perhaps new locations for seed production of southern brome grass should be surveyed. Dr. Robert Knowles will report seed production of strains later in the fall and this may give us some leads to differences in variety seed yields. Seed yields will be available for S6733 and Guelph Syn. 2 which will be available for comparison at a later date.

There are no changes in recommendations.

OTTAWA RESEARCH STATION

Forage Section

Brome Syn. Test

In D/M pounds per acre

Variety	4 Reps			1967
	Cut 1	Cut 2	Total	Cut 1
Syn. A-1	5092	1399abc	6491	4548
A-2	5444	1487abc	6931	4934
A-3	5609	1525ab	7134	5219
Syn. B-1	4867	1440abc	6307	5486
B-2	5617	1298 bc	6915	5065
B-3	5519	1496ab	7015	4884
Syn. C-1	5548	1286 bc	6834	5387
C-2	5850	1654ab	7504	5664
C-3	5716	1493ab	7209	5339
Syn.2-S- 6325	6202	1168 c	7370	5203
Syn.2-S- 5824	5748	1456abc	7204	4886
Saratoga	5943	1717a	7660	5821
Lincoln	5936	1495ab	7431	5669
C.V.	N.S. 10.13	95.22 13.08	N.S. 9.38	N.S. 11.31

Fertilization: 1966 - 200 pounds 33% nitrogen in spring
 100 pounds 33% nitrogen after first cut

1967 - 100 pounds 33% nitrogen in spring.

GUELPH

Experiment 2644 Brome Synthetic Trial

In D/M pounds per acre

Variety	<u>1966</u>			<u>1967</u>			2 year Total
	Cut 1 June 27	Cut 2 Aug. 17	Total	Cut 1 June 20	Cut 2 Aug. 11	Total	
Syn. A-1	7370	1330	8700	5590 cd	2267	7857	16557
Lincoln	7610	1030	8640	6157 ab	2468	8625	17265
Syn.C-1 (Redpatch)	7400	1150	8550	6195 a	2398	8593	17143
Syn.B-2	7360	1170	8530	5739abcd	2315	8054	16584
Syn.C-3 (Redpatch)	7240	1230	8470	5750abcd	2464	8214	16684
Syn. B-1	7150	1310	8460	5976abc	2431	8407	16867
Syn.C(Red- patch)	7150	1280	8430	5451cd	2469	7920	16250
Saratoga	6990	1320	8310	5908abc	2676	8584	16894
S-5824 Syn.2	7290	1020	8310	5629bcd	2399	8028	16338
S-6325 Syn.2	7260	970	8230	5588cd	2330	7918	16148
Syn. A-3	6670	1290	7960	5573 cd	2511	8084	16044
Syn. A-2	6690	1240	7930	5262 d	2408	7670	15600
Syn. B-3	6620	1230	7850	5659abcd	2357	8016	15866
L.S.D.	N.S.	140	N.S.		N.S.		
C.V.	10.6	10.2	9.4		8.2%		

Exp. 2650

BROME SYNTHETIC TRIAL, 1966

Guelph

Yield - 1967

<u>Entry</u>	<u>Cut 1</u>	<u>Cut II</u>	<u>Total</u>
Syn. A-1	5590	2270	7860
Syn. A-2	5260	2410	7670
Syn. A-3	5570	2510	8080
Syn. B-1	5890	2430	8410
Syn. B-2	5740	2320	8060
Syn. B-3	5660	2360	8020
Syn. C-1 (Redpatch)	6200	2400	8600
Syn. C-2	5450	2470	7920
Syn. C-3	5750	2460	8210
Lincoln	6160	2470	8630
Saratoga	5910	2680	8590
S-5824, Syn. 2	5630	2400	8030
S-6325, Syn. 2	5590	2330	7920
X	5729		
C.V.	5.76	8.2	
L.S.D.	335	N.S.	

Cut 1: June 27
 Cut 2: Aug. 11

KEMPTVILLE

Test 3016 - Brome Variety Test, 1967

In D/M pounds per acre

Variety	Aug. 11/67
	Cut 1
Blair	5341
Syn. 6733	5489
B.S.G.I. (Syn. 2)	5528
Br. 986	4966
O.P.-6325	6343
Redpatch	5170
Br. 988	4996
Saratoga	5062
Ott. Syn. D	5532
Carlton	5378
L.S.D.	N.S.
C.V.	18.1

KAPUSKASING

Brome Variety Test

In D/M pounds per acre

Variety	Cut June 30	Cut Sept. 22	Total
S6733	3669 a	3672 ab	7341 a
Saratoga	3370 a	3869 a	7238 a
B.S.G.I. (Syn. 2)	3314 a	3516 ab	6830 ab
(Brandon) 988	3298 a	3498 ab	6796 ab
Baylor	3302 a	3457 abc	6759 ab
S6324	3538 a	3069 bc	6573 ab
Redpatch	3285 a	3267 abc	6552 ab
S6363	3478 a	2872 c	6349 ab
S6325	2698 b	3513 ab	6211 b
(Brandon) 1000	2607 b	3467 abc	6074 b
S.E.	139.30	188.	250.28

OTTAWA RESEARCH STATION

Agronomy Section

Test 100 for Hay - Brome Grass

In D/M pounds per acre

1967

Variety	June 21 Cut 1	Aug. 26 Cut 2	Total
Baylor	5453	1801	7254 a
Saratoga	5471	1763	7234 a
Redpatch	5302	1628	6930 a
Syn D-1	5375	1081	6456 b
Syn. #1	5085	1355	6440 b
S. 6324	5141	1292	6433 b
S. 6325	5274	1018	6292 bc
S. 6363	5132	1098	6230 bc
S. 6733	5086	1075	6161 c
988	4861	955	5816 d
G.M.			6524
C.V.			6.7%

Fort William

Exp. 7007 - Provincial Brome Grass Trial for Hay

In D/M pounds per acre

Variety	July 19/67 Cut 1	Aug. 19/67 Cut 2	Total
S6324	4954 cd	2031	6985
S6325	5684 ab	1903	7587
S6363 Syn. 2	5599 abc	2008	7607
S6733 Syn. 1	5096 bcd	1819	6915
B.S.G.I. Syn. 2	5351 abcd	1960	7311
988 (Brandon)	5092 bcd	2050	7142
1000 (Brandon)	5209 bcd	2000	7209
Baylor	5923 a	1818	7741
Saratoga	4740 d	2093	6833
Redpatch	5538 abc	2040	7578
Syn. D1 Ottawa	5302 abcd	2007	7309
S.E.	212.56	65.03	
C.V.	9.79	8.06	

FORT WILLIAM

Exp. 7006 - Brome Varieties + Alfalfa Mixtures, Hay

In D/M pounds per acre

Variety	1966			1967	
	July 7 Cut 1	Aug. 25 Cut 2	Total	July 25 Cut 1	2 year Total
Blair(R.P.100)	4980	670	5650	3270	8920
Redpatch	4930	500	5430	3108	8538
Ott. Syn. D.	4830	580	5410	2997	8407
S.6325	4810	550	5360	3132	8492
Lincoln	4730	540	5270	3044	8314
Sac.	4710	560	5270	3142	8412
S-6324	4670	510	5180	3279	8459
Saratoga	4600	580	5180	3094	8274
L.S.D.	N.S.	N.S.	N.S.	N.S.	
C.V.	4.4	22.3	6.6	11.45%	

KAPUSKASING

Experiment 6007 - Brome grass Variety Test

In D/M pounds per acre

Variety	<u>1966</u>			<u>1967</u>			2 year total
	Cut 1	Cut 2 Sept.19	Total	Cut 1 July 12	Cut 2 Aug.30	Total	
Saratoga	2270	1180	3450	3156	3013 ^{bc}	6178	9629
Lincoln	2995	980	3975	3079	3091 ^{ab}	6170	10145
Redpatch	3043	1130	4173	3574	3186 ^{ab}	6750	10923
Carlton	3246	910	4156	3740	3043 ^{ab}	6783	10939
Fischer	3370	1350	4720	3374	3267 ^a	6641	11361
Wis. 55	2973	910	3883	3327	3015 ^{bc}	6342	10225
Sac. (Wisc. 81)	3140	1210	4350	3516	2880 ^c	6396	10746
L.S.D.	N.S.	N.S.	N.S.	N.S.		N.S.	
C.V.		30.0	16.7				

KAPUSKASING

Brome - Pasture Test

In D/M pounds per acre

Variety	Cut 1	Cut 2	Cut 3	Total for season
Ott. Syn.C.	934	1520	1876 ab	4330
Lincoln	704	1531	1784 b	4019
Carlton	894	1599	1661 b	4154
Saratoga	832	1428	1668 b	3928
Fischer	893	1553	1997 a	4443

ONTARIO FARM FORAGE TRIALS1967 SUMMARYBrome Grass1967 Red Patch - Saratoga Comparison (1968 - 18 locations)

Almost all seedings were with a nurse crop. About half a dozen locations report a thin stand in the fall, and some of these will probably be ploughed next spring or fall.

1964 Red Patch - Saratoga - Lincoln Comparison (1968 - 5 locations)

Dufferin, Northumberland, Ontario, Peel, York.

In comparison with Saratoga, both Lincoln and Red Patch were equal in most co-operators observations. The only difference commented upon, was that Lincoln and Red Patch recovery was a little slower than Saratoga.

Orchardgrass Varieties - 1967

A total of 40 strains of orchardgrass were tested at one or more locations in 1967 (See Page H-2). Tests were conducted at four locations in 1967.

Yields from those tests which have been harvested for two or more yields, are summarized on page H-4. For three additional tests only one year's data are available, and these have not been included in this summary.

With regard to the results of 1967 tests and those conducted previously, the following comments can be made:

- 1) Frode and Tardus II are performing equally well. Differences between these varieties in various individual tests do not seem to consistently favour either variety.
- 2) The relative performance of Frode and Rideau seems to depend upon the time of cutting. When cut according to maturity in June, the yields are about equal (e.g. Exp. 2638, page H-4). When cut at given date in June, Frode appears superior (e.g. Exp. 7009, page H-4).
- 3) The following varieties have been tested for at least two years at more than one location and can be classified on the basis of yields as follows:
 - (a) Superior to Frode: Coxa, Boone, Va58-V-1, Wisc. 52.
 - (b) Equal to Frode: Pennlate
 - (c) Inferior to Frode: Aries, Latar, Motycka, Taurus.Latar is later in maturity than Frode, and might be classed as equal.
- 4) The following varieties are being tested at only one location, and appear worthy of further testing: Dorise, Heidemij, Sceempter.
- 5) The following varieties have been tested at one location, and results indicate that they have little potential for Ontario: S-345, 61.23, Vertas.

For the other varieties and strains, final evaluation will depend upon their future performance in tests already established. No comments have been made with regard to strains of Ontario origin.

No requests for the licensing of any variety have been received.

Therefore, it is recommended that the orchardgrass variety recommendations for 1968 be the same as those for 1967.

B.R. Christie,
Co-ordinator.

Orchardgrass Strains Tested - 1967

Year of seeding Exp. No.	1964 2638	1964 2639	1965 2646	1966 2651	1966 3015	1965 5004	1966 No ?	1964 7003	1964 7009	1966 4093
<u>Variety</u>										
Frode	X	X	X	X	X	X	X	X	X	X
Rideau	X	X	X	X	X	X	X	X	X	X
Tardus II	X	X						X	X	
Aries			X			X				
Doone			X			X				
Bumper (Ott.50)						X	X			X
Coxa		X						X	X	
Dorise	X									
Heidemij	X									
Hercules				X			X			X
Karo				X						
Latar		X						X	X	
Motycka		X						X	X	
Napier				X	X					X
O.G.K-C							X	X	X	
O.G.P-1				X		X	X			
Ott. 5(Dumper)				X	X					
Ott. 100								X	X	
O.S.G. -1			X			X				
-2				X						
-3			X	X		X				
-4			X	X		X				
-5	X		X			X	X			
-6			X	X		X				
-7			X	X		X				
-8			X	X		X				
Pajberg Milka	X									
Pajberg III	X				X					X

Year of Seeding:	1964	1964	1965	1966	1966	1965	1966	1964	1964	1966
Exp. No.	2638	2639	2646	2651	3015	5004	No.?	7008	7009	4093

Pennlate		X		X			X	X	X	
Pennmead	X									
Sceempter	X									
Sv. 01009	X									
S-345	X									
61.23	X									
Taurus			X			X				
Trifolium Early	X									
Trifolium II					X					X
Va. 5C-V-1	X				X					X
Vertas	X									
Wisc. 52			X			X				

Summary of Orchardgrass Trials Harvested Two or More Years
Mean Yield - lbs. D.M./Acre

Exp. No.	2638		2639		2646		5004		7008		7009	
Year	1965-67		1965-67		1966-67		1966-67		1966-67		1966-67	
Variety	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total	Cut 1	Total
Frode	4910	7230			5620	8890	2490	5320	1920	2520	3210	5150
Rideau	5250	7290	5280	8020	5350	8000	2570	5510	2260	2880	3020	4740
Tardus II	4660	7130	4890	7790					2020	2660	3080	4980
Aries					3850	8130						
Boone					5210	8920	2760	5980				
Bumper							3010	5840				
Coxa			5130	8300					2140	2760	3110	5070
Dorise	5150	7510										
Heidemij	5000	7040										
Latar			5190	7930					2120	2600	2880	4530
Motycka			4500	7450					1810	2400	2880	4650
Ott. K-C									2660	3200	3560	5170
O.C. P-1							3300	6390				
Ott. 100									2320	3210	3120	4750
O.S.G. -1					5480	8740	3270	6320				
-3					5200	8400	3070	6150				
-4					5250	8250	3300	6530				
-5	4930	6840			6520	8690	2760	5750				
-6					6250	8830	2990	5580				
-7					5000	8630	3210	6720				
-8					5330	8140	3030	6310				
Pajberg Milka	4560	6940										
Pajberg III	4420	6840										
Pennlate			5360	8090					2360	3080	2800	4580
Pennmead	5300	7980										
Sceempter	4630	7170										
Sv. 01009	4690	6840										
S-345	4000	6560										
61.23	4450	6730										
Taurus					3780	7020	--	--				
Trifolium Early	4870	7230										
Va 58-V-1	4870	7540										
Vertas	4620	6980										
Wisc. 52					5360	8600	3070	5990				

Exp. 2638 Orchardgrass Screening Trial. 1964 Guelph
Yield - lbs. of D.M./Acre 1967

Variety	Cut 1		Cut 2 (July 27)	Cut 3 (Sept. 5)	Total
	Date	Yield			
1. Pennmead	June 16	6260*	1820	1470	9560*
2. Va. 58-V-1	June 16	5770*	1840*	1610*	9220*
3. S-345	June 14	4930	2420*	1510	8860*
4. Trifolium Early	June 16	5630*	1780	1430	8840*
5. Tardus II	June 16	5420*	1720	1440	8580*
6. Dorise	June 16	5410*	1740	1400	8560*
7. Sceempter	June 16	5100	1820*	1520	8440*
8. Pajberg III	June 16	5290*	1590	1460	8330*
9. Vertas	June 19	5540*	1340 a	1420	8300*
10. Rideau	June 19	5270*	1400 a	1510	8190
11. Pajberg Milka	June 16	5060	1510 a	1510	8080
12. 61.23	June 19	5100	1670	1310	8070
13. Frode	June 16	4810	1650	1410	7870
14. Herdemij	June 16	4810	1620	1270	7700
15. S.V.O. 1009	June 19	4950	1120 a	1460	7540
16. O.S.G. 5	June 26	4720	1400 a	1190 a	7320 a
Mean		5260	1650	1430	8340
C.V. (5)		6.6	8.4	11.02	5.03
L.S.D. (.05)		350	140	159	427

* Sig. above Frode (L.S.D. 5% level)

a Sig. below Frode (L.S.D. 5% level)

Exp. 2638 Orchardgrass - Provincial Screening Trial, 1964. GuelphNotes - 1967

Variety	Vigour ¹⁾		% Grass ²⁾ in Alfalfa (June 13)	Maturity ³⁾	
	May 18	June 6		(June 13)	(June 16)
1. Pennmead	3.25	2.0	30	3.65	4.2
2. Va. 58-V-1	4.0	2.5	30	3.2	4.2
3. S-345	4.25	4.25	30	4.2	4.3
4. Trifolium Early	4.25	2.75	25	4.1	4.2
5. Tardus II	5.0	4.0	20	3.65	4.2
6. Dorise	5.0	5.25	10	3.2	4.2
7. Sceempter	5.0	4.75	20	3.2	4.2
8. Pajberg III	3.5	2.75	30	4.1	4.2
9. Vertas	6	6.25	10	3.1	4.1
10. Rideau					
11. Pajberg Milka	3.75	4.0	30	4.1	4.2
12. 61.23	6.25	6.5	10	3.15	3.2
13. Frode	4.75	4.25	25	4.1	4.2
14. Heidemy	5.0	4.5	10	3.2	4.2
15. Sv. 01009	7.0	5.5	10	3.1	4.1
16. O.S.G. - 5	7.0	6.5	40	2.3	3.1

1) 1 (good) to 9 (poor)

2) % grass in 5' strip overseeded with alfalfa

3) Maturity ratings: 3.1 = Heads emerging
 3.2 = Completely headed
 4.1 = Some anthers visible
 4.2 = Anthesis
 4.3 = Anthesis completed

On June 16, Du Puits was in late bud stage.

Exp. 2638

Orchardgrass Screening Trial, 1964O.A.C.

Cut 1 - 1966

<u>Variety</u>	<u>Date Cut</u> ¹⁾	<u>% D.D.M.</u>	<u>Yield-lb/acre</u>	
			<u>D.M.</u>	<u>D.D.M.</u>
Pajberg III	June 20	63.0*	4990 a	3140
Trifolium Early	June 16	62.7*	5860 a	3674
Tardus II	June 16	62.0*	5330 a	3300
Sv. 01009	June 20	61.8*	5730 a	3540
61.23	June 20	61.6*	5840 a	3600
Vertas	June 20	61.3*	5390 a	3300
S-345	June 16	61.2*	4890 a	2990 a
Sceempter	June 20	60.5*	5650 a	3418
Dorise	June 20	60.3*	6610	3990
O.S.G. - 5	June 27	60.0*	6190	3710
Va. 58-V-1	June 16	59.6*	5570 a	3320
Heidem	June 20	59.0*	7030	4150
Pajberg Milka	June 20	58.8	5870 a	3450
Pennmead	June 20	58.6	6870	4030
Frode	June 20	57.6	6570	3780
Rideau	June 23	56.9	6580	3740
L.S.D. (5%)		1.2	630	780

* Sig. above Frode

a Sig. below Frode

1) Each variety cut at its date of anthesis.

Comparison of Frode, O.S.G. - 5 and Rideau

<u>Variety</u>	<u>Date Cut</u>	<u>% D.D.M.</u>	<u>Yield</u>	
			<u>D.M.</u>	<u>D.D.M.</u>
Frode	June 20	57.6 c	6570 a	3780 a
O.S.G. - 5	June 20	64.7 a	5220 b	3380 a
Rideau	June 20	61.6 b	5960 a	3670 a
Frode	June 20	57.6 b	6570 a	3780 a
O.S.G. - 5	June 27	60.0 a	6190 a	3710 a
Rideau	June 23	56.9 b	6580 a	3740 a

Exp. 2638Orchardgrass Screening Trial, 1964, GuelphCut 1, 1967

<u>Variety</u>	<u>Date Cut</u>	<u>% D.D.M.</u>	<u>Yield-lb/acre</u>	
			<u>D.M.</u>	<u>D.D.M.</u>
S-345	June 14	62.0*	4930	3060
O.S.G. - 5	June 26	61.9*	4720	2920
Pajberg Milka	June 16	58.6	5060	2970
Dorise	June 16	58.4	5410*	3160
Sceempter	June 16	58.4	5100	2980
Heidemij	June 16	58.3	4810	2800
Frode	June 16	58.2	4810	2800
Tardus II	June 16	58.2	5420*	3150
Pajberg III	June 16	57.9	5290*	3060
61.23	June 19	57.9	5100	2950
Trifolium Early	June 16	57.7	5630*	3250*
Vertas	June 19	57.6	5540*	3190
Pennmead	June 16	57.4	6260*	3590*
Sv. 01009	June 19	57.1	4950	2830
Rideau	June 19	56.6	5270*	2980
Va. 58-V-1	June 16	56.1a	5770*	3240*
Mean		58.3	5260	3060
C.V. %		2.01	6.6	
L.S.D. (.05)		1.7	350	410

* Sig. above Frode (5% level)

a Sig. below Frode (5% level)

Exp. 2638

Orchardgrass Screening Trial, 1964.Cut 2, 1967

<u>Variety</u>	<u>% D.D.M.</u>	<u>Yield in lb/acre</u>	
		<u>D.M.</u>	<u>D.D.M.</u>
Pajberg III	66.9	1590	1060
61.23	66.6	1670	1110
Trifolium Early	65.5	1730	1170
O.S.G. - 5	65.2	1400 a	910
Frode	65.0	1650	1070
Rideau	65.0	1400 a	910
Heidemij	64.8	1620	1050
Pajberg Milka	64.6	1510 a	980
Sv. 01009	64.6	1120 a	720 a
Tardus II	64.3	1720	1110
Va. 53-V-1	64.1	1840*	1180
Sceempter	64.1	1820*	1170
Vertas	63.7	1340 a	850
Dorise	62.7	1740	1090
Pennmead	61.9 a	1820*	1130
S-345	59.9 a	2420*	1450*
Mean	64.3	1650	1060
C.V. (%)	3.1	8.4	
L.S.D. (.05)	2.9	140	280

*Sig. above Frode (L.S.D. 5% level)

aSig. below Frode (L.S.D. 5% level)

Comments: For the first cut, differences among varieties in digestibility were significant in both years. However, there appears to be a large variety x year interaction. Only two strains, S-345 and O.S.G. - 5 were higher in digestibility than Frode in both years. These varieties were cut as close as possible to anthesis. Environmental differences in each year, as they affected the date of anthesis may have contributed to the large interaction.

The digestibilities of the varieties in the second cut showed little relationship to those of Cut 1.

Exp. 2639Orchardgrass - Provincial Performance Trial, 1964Guelph

<u>Variety</u>	<u>Yields - lbs. D.M./acre - 1967</u>			<u>Total</u>
	<u>Cut 1</u> (June 23)	<u>Cut 2</u> (July 27)	<u>Cut 3</u> (Sept. 5)	
Coxa	5540	1810*	1630	8990*
Pennlate	5600	1420	1550	8580
Frode	5390	1520	1570	8480
Latar	5070	1730*	1440a	8240
Rideau	5180	1520	1480	8180
Tardus II	5130	1460	1570	8160
Motycka	4820a	1710*	1280a	7820a
Mean	5250	1600	2650	8350
C.V. (%)	7.9	11.4	9.3	5.52
L.S.D. (.05)	350	150	120	380

*Sig. above Frode (L.S.D. 5% level)

aSig. below Frode (L.S.D. 5% level)

Exp. 2646Orchardgrass Strain Trial, 1965GuelphYields - 1967

<u>Entry</u>	<u>Date</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Cut 3</u>	<u>Cut 4</u>	<u>Total</u>
		<u>Yield</u>	(July 26)	(Aug. 31)	(Oct. 23)	
O.S.G. - 6	June 19	6480*	1600a	1470	110a	9660*
O.S.G. - 5	June 26	6220*	1420a	1460a	0a	9100
Aries	June 16	4240	2000*	1820*	990*	9050
O.S.G. - 1	June 16	5250	1740	1780*	250a	9020
O.S.G. - 7	June 16	5020	1900*	1630	370	8920
Wisc. 52	June 16	5380	1670	1640	180a	8870
Doone	June 14	4880	1690	1730*	500*	8300
O.S.G. - 3	June 16	5070	1680	1680	260a	8690
O.S.G. - 4	June 16	5340	1570a	1560	210a	8680
Frode	June 16	4810	1740	1580	360	8490
Rideau	June 19	4740	1780	1440a	50a	8010
O.S.G. - 8	June 19	4600	1650	1460a	110a	7820
Taurus	June 16	3130a	1820	1330a	340	6620a
Mean		5030	1710	1580	290	8590
C.V.		20.7	6.8	7.17	25.94	11.92
L.S.D.		1060	120	110	80	1010

*Sig. above Frode (L.S.D. 5% level)

aSig. below Frode (L.S.D. 5% level)

Exp. 2646Orchard Strain Trial, 1965GuelphMiscellaneous Notes - 1967

<u>Variety</u>	<u>Vigour</u> ¹⁾ (May 18)	<u>Maturity</u>		<u>% stand</u> (May 18)
		<u>June 13</u>	<u>June 16</u>	
1. O.S.G. - 6	4.75	3.1	4.1	90
2. O.S.G. - 5	4.25	2.3	3.1	75
3. Aries	3.25	4.1	4.2	80
4. O.S.G. - 1	4.00	4.1	4.2	80
5. O.S.G. - 7	3.25	3.2	4.2	90
6. Wisc.	3.00	4.1	4.2	90
7. Boone	3.00	4.2	cut	90
8. O.S.G. - 3	4.50	4.1	4.2	80
9. O.S.G. - 4	3.25	4.1	4.2	70
10. Frode	4.75	3.2	4.2	95
11. Rideau	5.75	3.1	3.2	90
12. O.S.G. - 8	4.00	3.1	4.1	85
13. Taurus	7.50	3.1	4.2	85

¹⁾ Vigour rating: 1(good) to 9(poor)

Exp. 2651Orchardgrass Strain Trial, 1966EloraYield - lbs. D.M./Acre 1967

<u>Entry</u>	<u>Cut 1</u> (June 27)	<u>Cut 2</u> (Aug. 1)	<u>Cut 3</u> (Sept. 7)	<u>Total</u>
1. O.S.G. - 8	5740*	2510*	1260	9510
2. Bumper	5270	2210	1300	8780
3. O.S.G. - 7	5250	2270	1100	8620
4. Napier	5050	2320	1240	8610
5. Rideau	4730	2500*	1360	8590
6. O.S.G. - 6	4870	2280	1360	8510
7. Pennlate	5190	2130	1150	8470
8. O.S.G. - 2	4590	2430*	1410	8430
9. Frode	4940	2110	1330	8380
10. O.S.G. - 4	5080	2160	1070	8310
11. Ott. P-1	4790	2080	1140	8010
12. Karo	4420	2210	1220	7850
13. O.S.G. - 3	4890	1810 ₂	1120	7820
14. Hercules	4160 ₂	2030	1150	7340
Mean	4296	2216	1230	8370
C.V. (%)	6%	5	9%	
L.S.D.	640	220	N.S.	

In this experiment, only two replication were harvested.

Exp. 2651Orchard Strain Trial, 1966EloraMiscellaneous Notes - 1967

<u>Variety</u>	<u>Vigour¹⁾</u> (May 19)	<u>Maturity²⁾</u> (June 19)
1. O.S.G. - 8	2.5	4.2
2. Bumper	4.0	4.2
3. O.S.G. - 7	3.5	4.1
4. Napier	4.5	4.2
5. Rideau	3.5	4.2
6. O.S.G. - 6	2.5	4.2
7. Pennlate	4.5	4.2
8. O.S.G. - 2	5.0	4.2
9. Frode	5.0	4.3
10. O.S.G. - 4	4.5	4.2
11. Ottawa P-1	5.0	3.2
12. Karo	6.0	4.2
13. O.S.G. - 3	4.5	4.2
14. Hercules	5.5	4.3

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

2) Maturity Ratings: 3.2 Completely headed
 4.1 Some anthers visible
 4.2 Anthesis
 4.3 Anthesis completed

Exp. 3015Orchardgrass Variety Trial, 1966K.A.S.

<u>Entry</u>	<u>Yields - 1967</u>		<u>Total</u>
	<u>Cut 1</u>	<u>Cut 2</u>	
1. Rideau	4290	5460	9750
2. Frode	4640	5100	9740
3. Pajberg III	4590	5020	9610
4. Va. 58-V-1	4570	4950	9520
5. Bumper	4720	4610	9330
6. Trif. II	4620	4510	9130
7. Napier	4780	4290	9070
Mean	4600	4850	
C.V. (%)	19.16	14.1	
L.S.D. (.05)	N.S.	N.S.	

Exp. 5004Orchardgrass Variety Test, 1965Ottawa Research Sta.
Forage SectionPlots 5' x 20'

Dry Matter Pounds per Acre

Entries	1967			1966	2 yr. Mean
	Cut 1 June 1	Cut 2 Aug. 29	Seasonal Total	Seasonal Total	Seasonal Total
1. O.S.G. - 7	3076	3331a	6407a	7036	6722
2. O.S.G. - 4	3268	3098ab	6366a	6700	6533
3. O.G.P. - 1	3297	2847abc	6144abc	6641	6393
4. O.S.G. - 1	3268	3114ab	6382a	6249	6316
5. O.S.G. - 8	3063	3348a	6412a	6207	6310
6. O.S.G. - 3	3195	3152ab	6347a	5943	6145
7. Wisc. 52	2949	2772bc	5721abcd	6266	5994
8. Boone	3122	3150ab	6271ab	5689	5980
9. Bumper	2441	2880abc	5320d	6367	5844
10. O.S.G. - 5	2399	3136ab	5559bcd	5934	5747
11. O.S.G. - 6	2907	3112ab	6019abcd	5135	5577
12. Rideau	2319	2937ab	5255d	5759	5507
13. Frode	2871	2426cd	5297d	5349	5323
14. Taurus	2145	3231ab	5376cd	-	-
15. Aries	1591	2289d	3880e	-	-
S.E.	457.32	157.32	243.87		
C.V.	32.74	10.52	8.4		

Exp. 5004Guelph Orchardgrass Variety TestOttawa Research Sta.
Forage SectionDate Seeded 1965Plots 5' x 20'Fertilization 200 lbs. 33% spring 1966
100 lbs. 33% after first cut 1966

<u>Entries (15)</u>	<u>D.M. lbs./acre</u> <u>First cut, 1966</u>	<u>D.M. lbs./acre</u> <u>Second cut, 1966</u>	<u>2 cut</u> <u>Total, 1966</u>
O.S.G. - 7	3340a	3696	7036
O.S.G. - 4	3340a	3360	6700
O.G. P-1	3293a	3348	6641
Bumper	3577a	2790	6367
Wisc. 52	3198a	3068	6266
O.S.G. - 1	3266a	2983	6249
O.S.G. - 8	3004ab	3203	6207
O.S.G. 3	2947ab	2996	5943
O.S.G. - 5	3116ab	2818	5934
Rideau	2813abc	2946	5759
Boone	2393abc	3296	5689
Frode	2116c	3233	5349
O.S.G. - 6	3078ab	2857	5135
Aries	Dead*	Dead*	--
Taurus	Dead*	3162	--
C.V.	15.87	11.91	

Cont'd ...

* 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.

Orchardgrass Strain Test

Ottawa Research Sta.
Forage Section

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

Seeded May 5, 1966

Dry Matter Pounds per Acre

<u>Entry</u>	<u>1967</u>			<u>1966**</u>	<u>2-yr. mean</u>
	<u>Cut 1</u> <u>June 16</u>	<u>Cut 2</u> <u>Aug. 29</u>	<u>Seasonal</u> <u>Total</u>	<u>Seasonal</u> <u>Total</u>	<u>Seasonal</u> <u>Total</u>
O.G. P-1*	3741	3305	7045	3292a	5169
Pennlate	3313	3264	6576	3302a	4939
O.G.KC	3151	3326	6477	2438b	4458
Frode*	3243	3220	6462	3470a	4966
Hercules*	3063	3236	6299	3412a	4856
O.S.G. - 5	2518	3529	6047	2750b	4399
Rideau	2613	3119	5733	3195a	4464
Bumper	2643	3033	5677	2661b	4169
S.E.	105.43	78.04	483.77	--	
C.V.	8.50	5.87	18.26	10.47	

*Medium Early Strains

** 1 Cut (Sept. 26, 1966) only, during establishment year.

Orchardgrass Strain Test

Ottawa Research Sta.
Forage Section

Plots 5' x 20' - 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>
1. Frode	3470a	95
2. Hercules	3412a	97
3. Pennlate	3302a	95
4. O.G. P-1	3292a	96
5. Rideau	3195a	95
6. O.S.G. - 5	2750b	94
7. Bumper	2661b	96
8. O.G. K-C	2438b	95
C.V.	10.47	

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

Annual Project SummationYear - 1967Exp. 7008 Orchardgrass + Vernal Alfalfa (Hay Mixture)General Information -

Location	- Fort William, Ontario			
Soil Type	- Sandy loam			
Experimental design	- Randomized block; 6 replicates			
Size sample harvested	- 24" x 18"			
Variety	- 9 varieties			
Fertilizers	- 2 tons lime	N	P ₂ O ₅	K ₂ O
		30%	145%	140%
				spring and fall

Pesticides - dates and rates:

- (a) Herbicides)
 (b) Insecticides) Nil
 (c) Fungicides)

Seeding date - June 2, 1964
 Harvest date - July 6 and August 31
 Previous crop - Fallow
 Seeding Method - Broadcast - No companion crop
 Harvest Method - Plot - Forage Harvester

Remarks -

Orchardgrass varieties sown in mixture with Vernal Alfalfa has not yielded as well as Orchardgrass established under pure stand over the past two-year period. As a matter of interest, the average yield for all varieties of this grass (grown in pure stand) in 1966 and 1967 was 4032 and 5659 pounds per acre. In mixture with alfalfa, average yields for the same period were 3612 and 2011 pounds respectively. The decrease in yields when in mixture is largely attributable to the failure of alfalfa to compete with this vigorous growing specie in the north, and losses of the legume in the second and third hay year. Winter killing of legumes and orchardgrass in the winter of 1966-67 also caused severe losses which directly affected the productivity of the various entries.

As noted in the agronomic data presented, yields of Ottawa Strain K, Ottawa 100, Pennlate and Rideau, in mixture with Vernal alfalfa were outstanding in the first clipping. This fact attests to the early spring vigor, and leafiness of these newer varieties and strains, particularly Ottawa Strain K. The outstanding performance of the latter entry can also be attributed to its apparent superior winter hardiness over other varieties. In the aftermath stage of growth, Motycka, Frode, Coxa and Tardus II appeared to perform on par with the first clipping, however, Ottawa Strain K and Rideau, in particular, yielded proportionately less per acre. Total production in 1967 favored Ottawa 100, Ottawa Strain K, and Pennlate, sown in mixture with alfalfa.

The three-year average yields 1965-66-67 clearly show the superiority of Ottawa Strain K, Ottawa-100, Pennlate, and Rideau over most other entries in the test. It is recommended early consideration be given to the naming and licensing of Ottawa Strain K for recommendation as a variety worthy of inclusion in specific cropping programs in northwest Ontario.

Fort William Experimental Farm

Exp. 7008 Orchardgrass Varieties + Vernal Alfalfa (Hay) 1967

Variety	<u>Yld. Lbs. D.M./Ac.</u>		<u>Yld. Lbs. D.M./Acre</u>		Av. Yld.	% Grass	% Winterkill
	1965 Total	1966 Total	1967 Cut-1	1967 Cut-2	1965-66 -67	1967	1967
Ottawa Str. K + Vern.	2580	3840	1856*	697a	2553	2991	65.8 9.2
Ottawa 100 + Vern.	2116	3750	1456*	1218*	2674	2847	40.8 31.7
Pennlate + Vern.	2357	4060	1147*	944	2091	2836	50.8 27.5
Rideau + Vern.	2169	3760	1249*	755	2004	2644	52.5 21.7
Coxa + Vern.	2133	3710	970	834	1804	2549	44.2 29.2
Latar + Vern.	2268	3490	1151*	557a	1708	2489	60.2 21.7
Tardus II + Vern.	2088	3410	985	934	1919	2472	44.2 30.0
Frode + Vern.	2010	3310	856	880	1736	2352	46.7 30.0
Motycka + Vern.	1955	3180	879	737	1616	2250	39.2 29.2
Mean			1170	840			
L.S.D. (5%)	150	N.S.	170	170			
C.V. (%)	5.7	6.0	17.7	24.3			

*Sig. above Frode (5% level)

a Sig. below Frode (5% level)

1967: Cut 1 - July 6
Cut 2 - Aug. 31

Annual Project Summation

Year - 1967

Project 7009 - Orchardgrass Varietal Trial (Hay)

General Information

Location - Fort William, Ontario
Soil Type - Sandy loam
Experimental design - Randomized block, six replicates
Plot Size - 5' x 20'
Size sample harvested - 24" x 18.0"
Variety - 9 varieties

Fertilizers - 2 tons Lime	Spring and Fall applications		
	lbs.	N	P ₂ O ₅ K ₂ O
		36	145 140

following first clipping 96# N.

Pesticides - dates and rates:

- (a) Herbicides)
- (b) Insecticides) Nil
- (c) Fungicides)

Seeding date - May 26, 1964

Harvest date - July 10 and August 28

Previous crop - Fallow

Seeding method - Broadcast - no companion crop

Harvest method - Plot Forage Harvester

Remarks

In May, 1964 nine orchardgrass varieties were sown broadcast, without benefit of a companion crop, at Fort William, on a sandy-loam soil, characterized by its low fertility. By the end of 1964, all varieties were considered fairly well established, but lacking in growth due to nutritional deficiencies heretofore not apparent. In 1965, pure stands of Orchardgrass remained unthrifty, even though heavy applications of nitrogen were applied in the spring and early July. No hay cuts were secured in 1965 due to the lack of adequate growth over the entire test area. In 1966, 300# 8-32-16 and 218# 33-0-0 per acre were applied to pure hay stands in spring and late fall, with 364# 33-0-0 utilized after each clipping. Total yields for all varieties were measurably improved as a result, with such varieties as Coxa, Frode and Ottawa Strain K ranking highest in performance. In 1967, yields of Orchardgrass grown in pure stand ranged from 5256 pounds dry matter for Latar up to 6249 pounds per acre for Ottawa Strain K. Frode outyielded Tardus II, by a small margin in 1967, both of which excelled over Coxa, Motycka and Rideau. The Strain Ottawa 100 indicated excellent potential.

For the years 1966-67 average total production showed Ottawa Strain K equal to Frode and Coxa in yield performance. Winter-killing of Ottawa Strain K was considerably less than for Motycka, Rideau or Ottawa-100.

While it is recognized this specie is susceptible to winter injury and requires a wise management program for maximum fodder quality, it nevertheless has a place in northern agriculture as a special purpose crop, especially for use in intensive grazing regimes, and silage programs in areas of poor legume retention.

On the basis of information at hand, support must be given to the licensing of Ottawa Strain K. This strain has excelled in vigor, hardiness, and yield at Fort William in the past two-year period.

Fort William Experimental FarmProject 7009 - Orchardgrass Varietal Trial (Hay) - 1967

Variety	Yld. in lbs. D.M./Acre			Yld. in lbs. DM/Ac.			Av. Yld. Av.%		Stand Winterkill
	1966 Cut-1	1966 Cut-2	1966 Total	1967 Cut-1	1967 Cut-2	1967 Total	1966 1967	1967 1967	
Ottawa Str. K	3310*	780a	4090a	3809a	2440	6249	5170	75.0	10.3
Frode	3120	1230	4350	3296	2659	5955	5153	72.5	14.2
Coxa	3220	1250	4470	2991	2662	5663	5062	67.5	16.7
Tardus II	3070	1190	4260	3039	2615	5704	4982	69.2	15.0
Ottawa-100	2770a	930a	3700a	3472	2336a	5808	4754	61.7	18.3
Rideau	3040	920a	3960a	2995	2526a	5521	4741	62.5	18.3
Motycka	2800a	1010	3810a	2951	2529a	5480	4645	63.3	18.3
Pennlate	2880a	970a	3850a	2722a	2588	5310	4580	72.5	13.3
Latar	2960	840a	3800a	2803a	2453a	5256	4528	67.5	15.8
Mean				3130	2540				
L.S.D. (5%)	170	240	250	390	100				
C.V. (%)	7.0	27.0	7.5	15.1	4.8				

*Sig. above Frode (5% level)

aSig. below Frode (5% level)

1967: Cut 1 - July 10

Cut 2 - Aug. 28

Exp. 4093

Orchardgrass Test, 1966, Ottawa

Yield/acre - 1967

Variety	Hay			Pasture				% Stand
	Cut 1 (June 21)	Cut 2 (Aug. 24)	Total	Cut 1 (June 8)	Cut 2 (July 5)	Cut 3 (Aug. 25)	Total	
Va-58-V-1	3910	1580	5490	3180	1380	630	5190	85
Napier	3780	1520	5300	3260	1300	590	5150	88
Hercules	3700	1290	4980	3450	1190	570	5220	80
Bumper	3670	1200	4870	3070	1580	420	5070	80
Pajberg III	3430	1420	4840	2750	1290	520	4560	85
Frode	3590	1040	4640	3120	1300	400	4810	88
Rideau	3310	1180	4480	3270	1670	630	5570	85
Trifolium II	3130	1280	4410	2870	1140	490	4500	88
G.M.			4880				5010	
C.V.			19.3%				14.8%	

TIMOTHY DISCUSSION

We have considerable data available for the scrutiny of the Crop Recommendation Committee. The mean yields for 33 station years for 17 locations across Canada follow a similar pattern to those for Ontario.

A study of five varieties, Bounty, Champ, Climax, Labelle and Drummond at 14 locations demonstrated a variation of approximately one per cent. Differences in maturity are another factor and one of these varieties, namely Champ, has a higher aftermath production than the others as well as the highest seasonal yield.

Of the five variety comparisons in Ontario, only Astra, Drummond and possibly Bounty has sufficient seed available if the Committee desired recommendation at this time. There are approximately 8,000 pounds of certified Bounty available. Astra and Drummond are available for commercial sources.

For Champ there are approximately 3,000 pounds of foundation seed available for the Forage Seed Project from 1966 plantings. Labelle has 400 pounds of breeder seed and 5 acres for harvest in 1968.

I think we should hear from each location regarding the value of these varieties for their area. Should we describe any of these as potential new varieties for which we await seed supplies?

Screening Trials - The screening trial was planted in 1966 at Ottawa and a similar trial at Guelph has 2 year data. The most promising strain in the three tests was 0296. This strain was first at Guelph, table 17, first at the Forage Section, table 13 and second at the Agronomy Section. The highest yielding strains from these three tests could be tested in the provincial trial in 1968.

Strain Test - Tables 11 and 12 are part of a station test to compare Champ and the selfed progeny of two clones of Champ, 9 and 2. In table 11, 9-S₃ was slightly higher than Champ, whereas in table 12, S-3-2 was slightly higher than Champ. In both cases the differences were very slight but no inbreeding depression was observed and 9-S₃ gave approximately 400 pounds of seed per acre.

In table 18, seed yields of timothy varieties were taken at 3 tests of the Agronomy Section of the Ottawa Research Station. The variety Champ was lower than the general mean.

ONTARIO STATION MEANS

In D/M pounds per acre

Variety	Ottawa		Kemptonville	Kapus- kasing	Fort William	Guelph	Mean
	Forage Section	Agronomy Section					
Climax	5452	5182	8230	6631	3683	8902	6336
Champ	5482	5268	8300	6478	3770	9308	6434
Labelle	5156	-	7440	6213	3734	9330	6374
Astra	5156	4889	7640	6236	3631	8542	6015
Bounty	5261	5034	7130	5783	3607	9334	6025
Drummond	4803	4668	6680	5799	3420	9196	5761

1. Ottawa Forage Section - 6 station years
2. Ottawa Agronomy Section - 1967 (3 tests)
3. Kemptonville - 1966 only
4. Kapuskasing - 1966-67
5. Fort William - 1965-66-67
6. Guelph - 1966-67

OTTAWA RESEARCH STATION

Forage Section

Test 5002-B - Timothy Variety Test

Planted 1965 - Plot size 5' x 20'

In D/M pounds per acre

Variety	6 Reps			
	1966		Total	1967
	June 28 Cut 1	Sept. 28 Cut 2		June 27 Cut 1
Labelle	4337a	1558 d	5895	4296
Bounty	4548a	1675 d	6223	4232
Champ	3743 bc	2310ab	6053	4549
Wis. T-1	3650 c	1724 d	5374	3745
Astra	4115abc	1804 cd	5919	4160
Essex	4237ab	1709 d	5946	3864
Drummond	3614 c	1526 d	5140	3925
Climax	4436a	1619 d	6055	4190
Milton	4049abc	2080 bc	6129	4404
Clair	4246ab	2456a	6702	4384
C.V.	10.55	13.56		8.81

Fertilization - 200 pounds 33% nitrogen, spring 1966
 100 pounds 33% nitrogen, after first cut
 100 pounds 33% nitrogen, spring 1967.

Remarks: 1966 - 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.

1967 - Cool growing conditions in May, heavy rains in June, with a hot dry July and August.

OTTAWA RESEARCH STATION

Forage Section

Test 5003-G - Timothy Variety Test

Planted 1965 - Plot size 5' x 20'

In D/M pounds per acre

6 Reps				
	1966			1967
Variety	June 28 Cut 1	Sept. 28 Cut 2	Total	June 27 Cut 1
Labelle	3804ab	1836 bc	5640	4114
Bounty	4014a	1617 bc	5631	4023
Champ	2980 e	2461a	5441	4441
Wis. T-1	2907 e	1806 bc	4713	3986
Astra	3179 cde	2138 b	5317	4024
Essex	3915ab	1804 bc	5719	3652
Drummond	3051 de	1840 bc	4891	3739
Climax	3759ab	1953 bc	5712	4482
Milton	3637abc	2060 b	5697	4214
Clair	3499 bcd	2696a	6195	4583
C.V.	10.13	12.73		9.74

Fertilization - 200 pounds of 33% nitrogen, spring 1966
 100 pounds of 33% nitrogen, after first cut
 100 pounds of 33% nitrogen, spring 1967.

Remarks: 1966 - 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.

1967 - Cool growing conditions in May, heavy rains in June, followed by a hot, dry July and August.

GUELPH

Exp. 2643 - Timothy Variety Test

Planted 1965

In D/H pounds per acre

Variety	1966				1967				2 Yr. Mean
	Cut 1	Aug. 17 Cut 2	Oct. 12 Cut 3	Total	Cut 1	Aug. 17 Cut 2	Oct. 10 Cut 3	Total	
Essex	6970	1110	650	8730	7850a	1871 b	1240 b	10961	9846
Bounty	6670	930	680	8280	7463ab	1571 cd	1354ab	10388	9334
Wis. T-1	5920	1240	960	8120	7252ab	1751 b	1454a	10457	9288
Labelle	6410	1000	640	8050	7561ab	1856 b	1192 be	10609	9330
Drummond	6310	860	800	7970	7576ab	1498 d	1347ab	10421	9200
Champ	5880	1370	560	7810	7198ab	2928a	680 c	10806	9308
Climax	6110	790	730	7630	7248ab	1959 b	966 d	10173	8900
Astra	5690	730	760	7180	7022 b	1880 b	1003 cd	9905	8542
(SE)									
L.S.D.	400	220	200	410	237.91	85.22	59.40		
C.V.	7.7			6.7	6.12	10.91	12.6		

Date of 1st cut - 1966		1967
Essex	- July 5	July 12
Bounty	- " 5	" 12
Wis. T-1	- " 5	" 12
Labelle	- " 5	" 12
Drummond	- " 5	" 12
Champ	- June 23	" 6
Climax	- " 27	" 12
Astra	- " 27	" 12

OTTAWA RESEARCH STATION

Agronomy Section

Test 101 for Pasture - Timothy

In D/M pounds per acre

Variety	1967			Total
	June 12 Cut 1	Aug. 3 Cut 2	Sept. 8 Cut 3	
Clair	3118	1134	231	4483a
Astra	3187	691	403	4281 b
Climax	3132	639	379	4150 bc
Milton	2917	835	385	4137 c
Bounty	3055	710	285	4050 cd
Champ	3067	676	228	3971 d
Drummond	2921	785	260	3966 d
Tiger	2682	707	237	3626 f
Essex	2865	671	230	3766 e
G.M.				4048
C.V.				6.3%

KAPUSKASING

Timothy Variety Test for Hay

In D/M pounds per acre

Variety	<u>1966</u>			<u>1967</u>			2 Yr. Total
	Cut 1	Cut 2	Total	Cut 1	Cut 2	Total	
Climax	3874	1560	5434	4707	3122abc	7829ab	13263
T.1 Wis.	4060	1230	5290	4202	3020 bc	7222 bcd	12512
Essex	3803	1440	5243	4407	3144abc	7551abc	12794
Ott.1 Labelle	3797	1350	5147	4405	2873 bcd	7278 bcd	12425
Astra	3669	1390	5059	4480	2933 bcd	7413abcd	12472
Milton	3395	1660	5055	4643	3184abc	7827ab	12882
Ott. P.1 Champ	3062	1880	4942	4768	3247ab	8015a	12957
Drummond	3691	1100	4791	4251	2556 d	6807 d	11598
Clair	2690	2060	4750	4391	3474a	7865ab	12615
Ott. 7 Bounty	3294	1260	4554	4185	2827 bcd	7012 cd	11566
*Climax Check	3397	1180	4577	4502	2812 cd	7314 bcd	11891

* Mr. MacVicar's breeder seed.

FORT WILLIAM

Experiment 7005 Timothy Variety Test

In D/M pounds per acre

Variety	1965	1966	2 year Ave.	1967		Total	3 year total
	1 cut July 12	1 cut June 22		Cut 1 July 21	Cut 2 Aug. 28		
T-1 Wis.	1752 a	2935 cd	2343	4580 b	1603 d	6183	10870
Climax	1714ab	2898cde	2306	4810ab	1627 d	6437	11049
Labelle	1661abc	3008bc	2334	4711ab	1823bc	6534	11203
Astra	1629ab _{cd}	3041bc	2335	4500b	1722cd	6222	10892
Drummond	1580abc _d	2592 f	2086	4543 b	1544 d	6087	10259
Bounty	1546bcd	2679def	2112	4972a	1624 d	6596	10821
Essex	1498 cd	2648 ef	2073	4863ab	1591 d	6454	10600
Champ	1489 cd	3257 ab	2378	4526 b	2037 a	6563	11309
Ott. P-3	1468 cd	3130abc	2299	4622ab	1933ab	6555	11153
0296	1455 c	3328 a	2392	4102 c	1900abc	6002	10785
C.V.				6.12%	9.07%		

OTTAWA RESEARCH STATION

Agronomy Section

Test 112 for Hay - Timothy

In D/M pounds per acre

1967					
Early Group Cut July 4		Medium Group Cut July 7		Late Group Cut July 17	
<u>Variety</u>	<u>Yield</u>	<u>Variety</u>	<u>Yield</u>	<u>Variety</u>	<u>Yield</u>
Milton	6309	Climax	6174	Essex	6334
Champ	6258	Climax 'A'	6168	Tiger	5528
Astra	5845	Bounty	5858	Drummond	5207
G.M.					5965
G.V.					12.2%

OTTAWA RESEARCH STATION

Agronomy Section

Test 113 for Pasture - Timothy

In D/M pounds per acre

1967

Variety	June 19 Cut 1	Aug. 3 Cut 2	Total
Champ	4355	1219	5574 a
Climax	4168	1055	5223 b
Climax 'A'	4335	870	5205 b
Bounty	4247	948	5195 b
Milton	4213	923	5136 bc
Drummond	4244	587	4831 cd
Tiger	3915	742	4657 de
Astra	3394	1148	4542 de
Essex	3922	488	4410 e
G.M.			4975
C.V.			11.8%

KAPUSKASING

Timothy Pasture Test

In D/M Pounds per Acre

Variety	Cut 1	<u>1966</u>		Total	Cut 1	<u>1967</u>		Total	Total for 2 years
		Cut 2				Cut 2	Cut 3		
King	1791	2530		4321	1670e	2495a	1306b	5471c	9792
Heidemij	1687	2520		4207	1857de	2528a	1235b	5620bc	9827
Climax	2307	1630		3937	2180bc	1793b	1945a	5918ab	9855
Ott.P.2	2225	1510		3735	2366ab	1560b	1833a	5759ab ^c	9494
Champ	2228	1480		3708	2603a	1724b	1906a	6233a ^c	9941
*Climax check	2058	1340		3398	2040cd	1618b	1797a	5455c	8853
Drummond	1960	1680		3640	2059cd	1873b	1698a	5630bc	9270
Ott.P.3	2102	1520		3622	2530ab	1750b	1818a	6098ab	9720

OTTAWA RESEARCH STATION

Forage Section

Timothy Strain Test

In D/M pounds per acre

Variety	4 Reps		Total
	June 27/67 Cut 1	Sept. 8/67 Cut 2	
9-S ₃	4798	2110a	6908a
Champ	4706	2135 b	6841a
Climax	5224	1576 c	6800a
Heidemij	4982	1503 cd	6485a
Drummond	5399	995 de	6394a
2-S ₃	4527	1676 bc	6203ab
King	4200	905 e	5105 bc
Tiger	3658	849 e	4507 c
S.E.	376.39	123.39	424.94
C.V.	16.07	20.57	13.81

Fertilization - 100 pounds 33% Aeroprills, spring 1967.

Remarks - Tiger, or late strain, bred for maritime dykeland conditions. 9-S₃ and 2-S₃ inbred populations from 2 Champ clones. Interesting to note 9-S₃ was higher yielding than Champ.

This test was planted in 10 locations in 1966.

OTTAWA RESEARCH STATION

Agronomy Section

Test 105 for Pasture - Timothy

In D/M pounds per acre

1967

Variety	June 20 Cut 1	Aug. 16 Cut 2	Total
S-3-2	3019	2564	5583 a
Champ	3213	2202	5415 ab
S-3-9	3153	2137	5290 b
Climax	3279	1784	5063 c
Heidemij	3108	1449	4557 d
Drummond	2904	1458	4362 d
Tiger	2740	1211	3951 e
King	2594	860	3454 f
G.M.			4709
C.V.			8.8%

OTTAWA RESEARCH STATION

Forage Section

Timothy Screening Test

In D/M pounds per acre

6 Reps			
Variety	June 27 Cut 1	Sept. 8 Cut 2	Total
0296	5411abcd	2075ab	7486a
Champ	5205 bcd	2194a	7399ab
TM60-101	5643abc	1687 bc	7330ab
Climax	5955a	1364 cd	7319ab
Labelle	5427abcd	1685 bc	7112ab
Bounty	5713abc	1288 cde	7001abc
TM60-100	5821abc	1115 def	6936abc
Heidemij	5474abc	1201 cdef	6675 bcd
Tiger	5499abc	835 ef	6334 cd
Pecora	5229abcd	984 def	6213 d
Topas	4824 d	1373 cd	6197 d
Drummond	5450abcd	743 f	6193 d
Lofar	5141 cd	991 def	6132 d
S.E.	196.21	153.92	229.61
C.V.	8.82	29.94	8.28

Fertilization: 100 pounds of 33% Nitrogen, Spring 1967.

OTTAWA RESEARCH STATION

Agronomy Section

Test 106 for Hay - Timothy

In D/M pounds per acre

Variety	1967		Total
	June 20 Cut 1	Aug. 16 Cut 2	
Champ	3573	2600	6173 a
O.296	3470	2318	5788 ab
Topaz	4112	1420	5532 bc
Climax	3699	1644	5343 bcd
TM60-100	3423	1698	5121 cde
TM60-101	3497	1498	4995 def
Labelle	3268	1522	4790 efg
Tiger	3204	1440	4644 efgh
Drummond	3326	1213	4539 fgh
Heidemij	3298	1193	4491 gh
Bounty	3081	1347	4428 gh
Lofar	3075	1283	4358 gh
Pecora	3139	1084	4223 h
G.M.			4955
C.V.			11.6%

KEMPTVILLE

Test 3014 - Timothy Variety Test

In D/M pounds per acre

Variety	July 26/67	
	Cut 1	
Clair	3138a	
Climax F2	3101a	
Climax	3039ab	
Labelle	3018ab	
Bounty	2973abc	
Champ	2940abcd	
Erecta	2578	bcde
Topas	2548	bcde
Heidemij	2497	cde
Panther	2350	de
Cub	2297	e
Lofar	2177	e
Tiger	2096	e

FORT WILLIAM

Exp. 7023 - Timothy Variety Trial (Hay) 1967

In D/M pounds per acre

<u>Variety</u>	<u>Sept. 5</u> <u>Cut 1</u>
Climax	1263a
Topas	1196ab
TM60-101	1042abc
Erecta	966 bc
Heidemij	963 bc
Labelle	949 bc
Bounty	939 bc
Climax F2	913 bc
Cub	860 cd
TM60-104	828 cd
Lofar	819 cd
Clair	810 cd
Champ	721 cd
Panther	590 d
Tiger	577 d

GUELPH

Experiment 2640 Timothy Screening Trial

In D/M pounds per acre

Variety	1966				1967				2 yr. Total
	Date cut	Cut 1	Sept. 2 Cut 2	Total	Date cut	Cut 1	Aug. 25 Cut 2	Total	
Q296	June 20	7270	1070	8340	July 6	8171	2371	10542	18882
Lofar	" 30	7400	560	7960	" 12	6359	1203	7562	15522
Barenga	" 22	7330	570	7900	" 6	8149	1306	9455	17355
TM-60-101	" 28	6930	690	7620	" 10	7822	1929	9751	17371
Astra	" 26	6860	730	7590	" 10	6375	1523	7898	15488
Kampe II	" 22	6910	660	7570	" 6	8270	1416	9686	17256
Vanadis	" 22	6730	740	7470	" 6	7636	1672	9308	16778
S-352	" 22	6810	600	7410	" 6	7177	1664	8841	16251
Erecta	" 29	6630	640	7270	" 10	6664	1448	8112	15382
TM-60-100	" 28	6870	390	7260	" 10	7797	1672	9469	16729
TM-60-104	" 26	6570	540	7110	" 10	6836	1665	8501	15611
Heidemij	" 24	6770	220	6990	" 6	8132	1618	9750	16740
TM-60-103	" 30	6680	300	6980	" 12	7229	1436	8665	15645
Omnia	" 26	6410	500	6910	" 6	7577	1189	8766	15676
TM-60-102	" 26	6150	530	6680	" 10	8641	1870	10511	17191
Combi	July 10	5850	680	6530	" 27	8065	382	8447	14977
King	" 8	5870	630	6500	" 27	7151	289	7440	13940
TM-59-50	June 28	5980	460	6440	" 10	7554	1302	8856	15296
WT. 59	June 24	5730	520	6250	" 10	6181	1407	7588	13838
Sceempter	July 4	5470	710	6180	" 27	7931	243	8174	14354
Climax	June 24	5560	500	6060	" 10	7539	1932	9471	15531
L.S.D.		480	150	470		1007	215	980.76	
C.V.		17.8		7.3		13.44	15.3	11.02	

TIMOTHY TESTS FOR SEED PRODUCTION OTTAWA, 1967

Agronomy Section

In D/M pounds per acre

Variety	Test 104	Test 106	Test 112	Average
Heidemij	-	501a	-	501
Bounty	410a	496ab	279 bc	395
Labelle	-	458ab	-	458
Climax	402a	448abc	261 bcd	370
TM60-100	-	437abc	-	437
Drummond	391a	421abcd	216 cd	343
Topas	-	410 bcd	-	410
TM60-101	-	368 cde	-	368
O-296	-	346 de	-	346
Champ	268 c	341 de	248 bcd	286
Lofar	-	304 ef	-	304
Tiger	284 bc	283 ef	181 d	249
Pecora	-	256 f	-	256
Milton	366ab	-	314ab	340
Astra	362ab	-	384a	373
Essex	362ab	-	268 bcd	315
Clair	243 c	-	-	243
Climax "A"	-	-	321ab	321
G.M.	343	390	275	336
C.V.	21.06%	7.07%	28.17%	-

STATION YEARS MEAN

Variety	1965		1966		2 Year	
	Stations	Mean	Stations	Mean	Stations	Mean
Climax	15	5649	18	6652	33	6196
Champ	15	5817	18	6229	33	6315
Labelle	15	5532	18	6583	33	6105
Astra	15	5375	18	6377	33	5922
Bounty	15	5376	18	6386	33	5927
Wis. T-1	15	5275	18	6415	33	5897
Essex	15	5298	18	6034	33	5699
Drummond	15	5112	18	6120	33	5662

ONTARIO FARM FORAGE TRIALS1967 SUMMARYTimothy1967 Labelle - Champ - Climax Comparison (1968 - 8 locations)

The number of surviving plots will not be known until next year. No differences noted.

1965 Bounty - Climax Comparison (1968 - 2 locations)

Frontenac, Victoria.

Bounty noted as much leafier and later but seem to lack seedling vigour compared to Climax. Climax appeared the favourite because of its reliability. One co-operator suggested Bounty as an ideal timothy for trefoil mixtures because of its lateness and leafiness.

1964 Astra - Drummond - Climax Comparison (1968 - 3 locations)

Peel, Peterborough, Simcoe S.

Co-operators preferred Climax as a general rule since both Astra and Drummond stands and yields were lower. Differences noted were usually of small amounts.

OTHER GRASSES

Three tests of tall fescue and two tests of meadow fescue and one test of red fescue were conducted in 1967. In addition, five reed canarygrass tests were conducted.

No change in recommendations is suggested for 1968.

B. R. Christie,
Co-ordinator

Exp. 2647Tall Fescue Performance Trial, 1965 GuelphYield - lbs. D.M./Acre 1967

<u>Entry</u>	<u>Cut I</u> (June 20)	<u>Cut II</u> (Aug. 8)	<u>Cut III</u> (Sept. 8)	<u>Cut IV</u> (Oct. 23)	<u>Total</u>
1. Manade	4780	2880	1630	620	9910
2. Fawn (3 reps)	5260	2510	1410	460	9640
3. Alta	5080	2550	1490	430	9550
4. Ore. I	5530	2300	1090	490	9410
5. Ore. L	5340	2200	1260	440	9240
6. Ore. A	5150	2300	1250	400	9100
7. Ottawa Syn. A	4370	2800	1230	300	8700
8. Kenwell	4870	2180	1090	230	8370
9. Steinacher	4370	1040	710	220	6340

Mean Yield - 1966 '67

<u>Entry</u>	<u>Cut 1</u>	<u>Total</u>
1. Fawn	5,260	8,790
2. Oregon L	5,400	8,580
3. Alta	4,910	8,590
4. Oregon I	5,480	8,570
5. Manade	4,340	8,500
6. Ottawa Syn A	4,570	8,140
7. Oregon A	4,960	8,100
8. Kenwell	4,920	7,520
9. Steinacher	4,600	6,100

Experiment 2647 - Fall Fescue Performance Trial, 1965, GuelphNotes - 1967

<u>Variety</u>	<u>Vigour</u> ¹⁾ (May 18/67)
1. Stein	6.7
2. Marade	4.2
3. Kenwell	6.3
4. Alta	3.8
5. Fawn	3.7
6. Ott. Syn. A	5.2
7. Ore. A	5.0
8. Ore. I	5.0
9. Ore. L	5.2

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

<u>Exp. 2654</u>	<u>Meadow Fescue Performance Trial, 1966</u>			<u>Elora</u>
<u>Entry</u>	<u>Yield - lbs. D.M./Acre 1967</u>			<u>Total</u>
	<u>Cut 1</u> (June 27)	<u>Cut 2</u> (Aug. 11)	<u>Cut 3</u> (Oct. 24)	
1. Trader	5710	2600	770	9080
2. Mimer	5570	2370	890	8830
3. Cambi Hay	5380	2360	940	8680
4. Vertas Pasture	5180	2550	730	8660
5. Sequana	5200	2620	770	8650
C.V. (%)	7.9	4.2	15.45	
L.S.D.	N.S.	200	170	
Mean	5408	2512	820	8780

Tall Fescue 1967 - Test 4096 for Pasture

(Yield of D.M. in lb. per acre)

<u>Variety</u>	<u>% Stand</u>	<u>Cut 1 June 9</u>	<u>Cut 2 July 5</u>	<u>Cut 3 Aug. 24</u>	<u>Season Ave.</u>
Alta.	75	3215	1298	760	5273
Kenmont	77	2903	1349	864	5116
S.170	70	2796	1291	1012	5099
Common	75	3100	1327	631	5058
Manade	68	2341	1505	751	4597
K.31	57	2482	1179	806	4467
Syn. "A"	43	1747	1770	943	4460
Kenwell	55	2216	1388	818	4422

Tall Fescue 1967 - Test #4117 for Pasture

(Yield of D.M. in lb. per acre)

<u>Variety</u>	<u>% Stand</u>	<u>Cut 1 June 19</u>	<u>Cut 2 Aug. 3</u>	<u>Cut 3 Sept. 14</u>	<u>Season Ave.</u>
Kenmont	75	4806	1354	948	7108
Common 72	72	4749	1460	686	6895
Alta.	48	3048	2217	1319	6584
K.31	25	2474	1767	1256	5497
Syn. "A"	73	3203	1262	875	5340
Kenwell	48	2868	1169	84	4886

Red Fescue - 1967

(Yield of D.M. in lb. per acre)

<u>Test 4098</u>			<u>Test 4115</u>		
<u>Variety</u>	<u>% Stand</u>	<u>Cut 1 June 9</u>	<u>Variety</u>	<u>% Stand</u>	<u>Cut 1 June 15</u>
Olds	78	3773	Boreal	88	3331
Common	75	3771	Late Polyx	83	2271
Boreal	83	3588	Top "20"	77	2123
Pennlawn	82	3452	Duraturf	75	1961
Rainier	77	3305	Common	77	1875
Illahee	83	3264	S.59	78	1799
Duraturf	75	3201	Rainier	72	1610
S.59	--	2869	Syn. "A"	78	1238
Syn. "A"	67	2785			
Chewing's	72	2781			
Arctared	72	2644			

Meadow Rescue 1967 - Test 4102 for Pasture

(Yield of D.M. in lb. per acre)

Variety	% Stand	Cut 1 June 14	Cut 2 Aug. 3	Cut 3 Sept. 8	Season Ave.
Sequana	72	3543	1366	829	5738
Trader	78	3107	1612	702	5421
Vertas	63	3268	1199	844	5311
Ensign	80	3038	1502	675	5215
S.215	62	3312	1072	695	5079
R.V.P.	70	3594	1155	636	5052
Common	80	3169	1219	616	5004
Combi	70	3277	983	721	4981
Mimer	73	3488	781	519	4788

1967 Reed Canary Grass Test Williamstown for Pasture

(Yield of D.M. in lb. per acre)

Variety	Cut 1 June 19	Cut 2 July 31	Cut 3 September 26	Season Ave.
Frontier	3612	1598	926	6136
Syn. "A"	3592	1529	934	6055
Common	3690	1430	840	5960
Syn. "C"	3272	1579	893	5749
Syn. "E"	3396	1427	905	5728
Syn. "D"	3268	1473	905	5646
Syn. "G"	3349	1415	876	5640
Syn. "B"	3391	1397	807	5595
Syn. "F"	3176	1389	772	5337

Reed Canary Grass (Pasture) Ottawa 1966

Variety	Exp. 4094					Exp. 4109				Exp. 4110			
	% Stand	Cut 1 June 9	Cut 2 July 5	Cut 3 Aug. 24	Total	% Stand	Cut 1 June 19	Cut 2 Aug. 18	Total	% Stand	Cut 1 June 20	Cut 2 Sept. 14	Total
Syn. "D"	97	3530	1070	650	5240	50	3210	760	3980	47	8520	1230	9800
Syn. "E"	92	3820	1050	650	5510	55	3410	890	4300	43	8580	1200	9780
Syn. "F"	92	3510	1130	560	5190	38	2700	800	3490	17	8030	1230	9260
Syn. "G"	90	3420	1100	810	5330	48	3380	870	4240	40	7920	1240	9150
Frontier	90	3900	950	660	5510	45	3930	920	4850	35	7790	1430	9220
Common	82	3480	1130	860	5480	20	2410	1160	3560	12	7960	1290	9250
Ioreed	70	3290	900	760	5960	7	2370	1290	3660	18	7170	1420	8590

<u>Variety</u>	<u>Mean (3 Tests)</u>
Syn. E	6530
Frontier	6530
Syn. D	6340
Syn. G	6240
Common	6100
Ioreed	6070
Syn. F.	5980

Exp. 7018, 1967Reed Canary Grass PastureFort William
Cut Sept. 1/67.

<u>Entries</u>	<u>Cut 1</u>
1. Rise	2350
2. Frontier	2040
3. S-6982	1740
4. Ottawa Syn. G	1730
5. Ottawa Syn. F	1350
Total	9210
Mean	1842
L.S.D.	350.56
C.V.	17.47%

Reed Canary Grass, 1962KapuskasingPastureYield - lbs. D.M./Acre, 1967

<u>Alone</u>	<u>Entry</u> (June 22)	<u>Cut 2</u> (July 27)	<u>Cut 3</u> (Sept. 22)	<u>Total</u>
Syn. 1	2260	1990	2330	6570
Common	2130	1940	2280	6360
Syn. 2	2010	1940	2180	6130
Frontier	1930	1910	2120	5950
Syn. 3	1990	1720	2030	5750
<u>+ Empire Trefoil</u>				
Syn. 1	2440	1930	2290	6670
Common	2260	2020	2350	6600
Frontier	2710	1700	2160	6570
Syn. 2	2510	1910	2150	6510
Syn. 3	2000	2120	2200	6310
Differences:	*	N.S.	N.S.	N.S.

Fertility: 100 lbs. N. in spring
66 lbs. N. after Cut 1

<u>Alone</u>	<u>Entry</u>	<u>Ave. Yield - 1963-67</u>
Common		4270
Syn. 1		4160
Syn. 2		3880
Frontier		3830
Syn. 3		3680
<u>+ Empire Trefoil</u>		
Frontier		5160
Syn. 1		5120
Common		5110
Syn. 2		4850
Syn. 3		4750

Reed Canary Grass, 1962Kapuskasing

May		<u>Yield-lbs. D.M./Acre, 1967</u>			<u>Mean Yield 1963-67</u>
<u>Entry</u>		<u>Cut 1</u>	<u>Cut 2</u>	<u>Total</u>	
<u>Alone</u>					
Frontier		2490	3350	5790	5210
Syn. 3		2350	3300	5650	4670
Common		2360	3260	5620	5080
Syn. 1		2080	3090	5180	4950
Syn. 2		2100	3040	5140	4880
<u>+ Empire Trefoil</u>					
Common		2650	3320	5980	5810
Frontier		2480	3300	5820	5720
Syn. 1		2450	3320	5760	5740
Syn. 3		2420	3280	5700	5310
Syn. 2		2240	3070	5310	5420
Differences		N.S.	N.S.	N.S.	

Fertility: 100 lbs. N. in spring
 100 lbs. N. after Cut 1.

1967 PRECIPITATION DATA (In inches)

	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
Ridgetown	3.7	2.0	6.8	3.9	3.3	2.4	4.1
Guelph	4.3	1.7	6.9	2.3	1.7	2.8	3.9
Elora	-	1.5	6.7	2.3	3.4	2.2	3.7
Kemptville	3.0	2.2	3.9	4.4	2.3	3.9	3.3
Ottawa	2.6	2.2	5.3	3.1	3.1	4.6	3.9
New Liskeard	4.8	2.1	4.3	2.6	3.1	2.3	2.7
Kapuskasing	2.6	1.9	2.6	3.6	3.5	0.7	3.5
Fort William	3.3	1.1	3.6	2.1	2.9	1.1	1.9

1967 TEMPERATURE DATA

		<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
Ridgetown	Max.	53.9	58.9	79.8	76.5	75.6	68.7	56.8
	Min.	36.3	41.5	61.0	59.9	57.2	48.5	43.4
Guelph	Max.	51.8	56.6	77.6	74.7	73.2	68.6	55.2
	Min.	33.6	36.8	56.3	55.1	52.5	43.9	38.8
Elora	Max.	-	56.2	77.4	74.6	73.1	66.6	54.0
	Min.	-	36.4	55.5	53.9	51.8	43.9	38.3
Kemptville	Max.	51.6	59.2	78.2	79.6	77.1	72.0	56.1
	Min.	31.5	38.2	57.3	60.4	57.2	47.0	40.4
Ottawa	Max.	50.4	58.8	77.4	78.6	76.4	70.2	54.6
	Min.	32.3	38.5	57.4	60.0	57.0	48.5	39.9
New Liskeard	Max.	43.9	54.4	73.9	74.2	71.1	66.4	49.9
	Min.	24.0	33.5	49.5	53.0	48.1	42.4	35.8
Kapuskasing	Max.	40.0	53.4	71.0	70.9	68.8	64.0	46.6
	Min.	19.4	29.8	47.2	50.0	48.3	41.7	31.5
Fort William	Max.	45.5	54.0	68.3	73.8	72.4	66.6	49.5
	Min.	24.7	30.1	45.9	49.6	47.4	40.3	32.3

DEPARTURE OF 1967 GROWING SEASONFROM NORMAL (PRECIPITATION)

	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
Ridgetown	+0.6"	-1.0"	+4.0"	+1.1"	+0.7"	-0.1"	+1.4"
Guelph	+1.6"	-1.5"	+3.9"	-0.9"	-1.3"	-0.1"	+1.3"
Kemptville	+0.3"	-0.7"	+1.3"	+1.6"	-0.6"	+0.9"	+0.7"
Ottawa	-0.1"	-0.6"	+2.2"	-0.1"	-0.2"	+1.4"	+1.3"
New Liskeard	+3.3"	-0.2"	+1.1"	-0.9"	-0.3"	-1.4"	+0.1"
Kapuskasing	+0.9"	-0.6"	-0.3"	+0.5"	+0.4"	-2.4"	+1.1"
Fort William	+1.3"	-1.7"	+0.4"	-0.9"	-0.5"	-2.1"	-0.6"

DEPARTURE OF 1967 GROWING SEASON
FROM NORMAL (TEMPERATURES)

		<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
Ridgetown	Max.	+0.3	-6.4	+2.6	-5.8	-4.8	-3.9	-4.1
	Min.	+0.1	-4.9	+4.2	-1.6	-3.0	-5.4	-0.5
Guelph	Max.	+0.5	-7.3	+3.3	-4.6	-4.5	-1.2	-2.7
	Min.	+0.3	-6.8	+3.0	-2.3	-3.5	-5.2	-0.5
Kemptonville	Max.	-0.7	-7.3	+1.8	-1.8	-2.0	+2.1	-1.3
	Min.	-1.3	-5.6	+3.7	+2.5	+1.7	-0.8	+3.4
Ottawa	Max.	+0.1	-6.6	+2.4	-1.3	-1.8	+1.9	-1.3
	Min.	-0.1	-5.2	+3.9	+2.1	+1.4	+0.4	+2.4
New Liskeard	Max.	-3.4	-8.2	+0.9	-3.3	-4.2	+1.3	-4.1
	Min.	-0.3	-2.8	+1.5	-0.2	-2.5	-0.8	+1.5
Kapuskasing	Max.	-2.7	-4.1	+1.7	-3.3	-2.7	+3.5	-1.5
	Min.	-2.7	-5.2	+0.6	-2.0	-2.0	-0.7	-1.5
Fort William	Max.	-0.2	-4.6	-0.2	-1.4	-0.7	+3.6	-2.5
	Min.	-1.2	-6.2	-0.2	-2.2	-3.5	-2.3	-0.9