

FORAGE CROP INVESTIGATIONS - ONTARIO

1970 Report on Field Trials of Varieties and Mixtures



Research Station, Ottawa

Experimental Farm, Kapuskasing

Experimental Farm, Thunder Bay

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. Copies of this report may be obtained from the chairman of the committee.

Included in this report are data from trials established at the seven research stations listed on the cover. Where appropriate, some data from previous years are included. However, in most cases, all data on a particular variety, mixture or management practice are not included and so the data should not be considered as complete.

In 1970, no tests were conducted on the following species; birdsfoot trefoil, red clover, white clover, meadow fescue. Variety trials in these species are conducted whenever new promising varieties are brought to the attention of the committee.

The Ontario Forage Crops Committee is made up of personnel from the Canada Department of Agriculture, Ontario Department of Agriculture and Food, the University of Guelph, and representatives of the Canadian Seed Trade Association and the Canadian Seed Growers Association. This committee assumes the responsibility for preparing recommendations for farm use in forage varieties and management. In addition, the committee assumes responsibility for co-ordinating research on forage crops in Ontario.

The committee has prepared a booklet entitled "Variety Testing Procedures" which may be obtained from the chairman.

B.R. Christie, Chairman,
Ontario Forage Crops Committee,
c/o Department of Crop Science,
Ontario Agricultural College,
University of Guelph,
Guelph, Ontario.

Alfalfa Testing in Ontario

Seven research stations in Ontario conduct provincial alfalfa trials. The range in latitude of these stations is from 42° 26' to 49° 25' and in longitude from 75° 42' to 89° 15'.

The testing program currently in use is to seed each variety at six or seven locations in each of two successive years. This provides, 27 months after the first seeding, two years of yield data from the first seeding and one year's data from the second seeding. In addition, wilt tests are undertaken at Ottawa and hardiness tests at Guelph and Ottawa. From these several sets of data on evaluation of yield potential, wilt reaction, and hardiness becomes available in a period of a little over two years.

All plantings are broadcast-seeded, usually without a cover crop, at the rate of 10-12 lb. per acre, six replicates being used in a randomized complete block design. Soil tests are taken and plots are fertilized on the basis of recommendations made by the Soils Department of the Ontario Agricultural College.

Date of seeding and of harvesting varies with the locality. Southern Ontario stations normally obtain three cuts per season, those in Northern Ontario two cuts: Plots are normally harvested in the first flower stage.

The varieties recommended for Ontario are Vernal, Iroquois, Titan, Narragansett, Saranac, Alfa, Du Puits, and Glacier. No new varieties were added to the list in 1970.

Varieties Under Provincial Test

Early			Standard		
1967	1969	1970	1967	1969	1970
<u>seeding</u>	<u>seeding</u>	<u>seeding</u>	<u>seeding</u>	<u>seeding</u>	<u>seeding</u>
Du Puits	Saranac	Saranac	Vernal	Iroquois	Iroquois
Saranac	DuPuits	Warrior	Narragansett	Vernal	Vernal
Mega	RP 38, Anchor	RP 38	Iroquois	ATRA 50	ATRA 50
Europe	WL 306	WL 306	WL 202	ATRA 55	ATRA 55
FD 100	NK 150, Thor	NK 150	WL 210	De Kalb 123	De Kalb 123
NK 508	Promor	Promor	522	(FFC)	Weevlcheck, Syn W
NK 510	De Kalb 153	De Kalb 153	525		Dominor
		WL 308	RP 25, Titan		K8-607
		Superstan	Norseman		(KO - 6)
		TX 202	Scout		(WL 215)
		MX 82	Roamer		WL 216
		BW 9	TG - 2		WL 217
		(Team)*			
		Tempo			
		(BW 13)			

* Those varieties shown in brackets are seeded only at selected stations.

In addition to the varieties listed above seeded at 6-7 localities, a number of others have been seeded elsewhere. This includes a group of late varieties being grown at New Liskeard and at Guelph and a group of Teweles hybrids at Guelph.

Tests Extant

- 1967 Seeding: - early type at Ottawa
 - BW series at Ottawa
 - standard type at Ottawa
 - standard at Kapuskasing
 - standard and late at New Liskeard
- 1969 Seeding: - early type at Ridgetown, Guelph, Ottawa, Thunder Bay, Kapuskasing
 - standard type - as above
 - late type at New Liskeard, Guelph
 - Teweles hybrids at Guelph
- 1970 Seeding: - standard and early type tests at Ridgetown, Guelph, Ottawa, Kemptville, Thunder Bay, Kapuskasing, New Liskeard

Wilt tests at Ottawa
 Hardiness tests at Ottawa and Guelph

Early Type Alfalfa, 1969 Seeding

Southern Ontario Stations

1970 Yields in Pounds of D.M. per acre

	Ridgetown (1015)				Guelph (2531)			
	Cut 1	Cut 2	Cut 3	Total	Cut 1	Cut 2	Cut 3	Total
	June 12	July 15	Sept. 1	1970	June 12	July 22	Aug. 27	1970
Saranac	4884	3289	3004	11,177	4022	2462	2658	9142
Du Puits	5105	3598	3129	11,832	4350	2574	2798	9723
R.P. 38	5079	3495	2980	11,554	3920	2518	2724	9162
WL 306	4928	3390	3150	11,468	3727	2398	2324	8449
NK 150	5043	3514	3064	11,621	3923	2579	2652	9153
Promor	5309	3480	3085	11,874	3992	2603	2486	9080
De Kalb 153	4758	3265	3013	11,036	3703	2259	2317	8278
Mean	5015	3432	3060	11,508	3947	2484	2565	8998
C.V.	7	6	4	4	11	7	11	6
L.S.D. 5% level	N.S.	N.S.	N.S.	533	N.S.	213	342	678

	Ottawa (4060)			
	Cut 1	Cut 2	Cut 3	Total
	June 18	Aug. 5	Oct. 8	1970
Saranac	4590	3115	1543	9248
Du Puits	4756	2892	1476	9123
R.P. 38	4595	3054	1353	9002
WL 306	4687	2958	1455	9099
NK 150	3960	2870	1492	8323
Promor	4910	2948	1447	9306
De Kalb 153	4061	2984	1242	8288
Mean	4508	2974	1429	8913
C.V.	12	11	15	7
L.S.D. 5% level	660	N.S.	N.S.	758

Early Type Alfalfa, 1969 Seeding

Northern Ontario Stations

1970 Yields in Pounds of D.M. per acre

	Thunder Bay (7035)			Kapuskasing (6477)*		
	Cut 1 July 7	Cut 2 Aug. 17	Total 1970	Cut 1 July 23	Cut 2 Aug. 28	Total 1970
Saranac	4169	2501	6670	1870	1522	3392
Du Puits	3830	2584	6414	1579	1446	3026
R.P. 38	3971	2545	6516	1855	1805	3661
W.L. 306	4014	2340	6354	1362	1305	2667
N.K. 150	3967	2642	6609	1193	1245	2439
Promor	3741	2656	6397	925	1026	1952
De Kalb 153	4271	2391	6662			
Mean	3994	2522	6517	1464	1391	2856
C.V.	7	5	5	42	27	34
L.S.D. 5% level	336	141	N.S.	N.S.	N.S.	N.S.

New Liskeard, 1967 Seeding (8001)

	1968 Total	1969 Total	1970 Cut 1 July 16	1970 Cut 2 Aug. 19	1970 Total	1968-69-70 mean
Vernal	10,459	5619	4619	1902	6521	7533
Cayuga	10,688	6207	4272	1953	6224	7706
Iroquois	11,308	6048	5303	2072	7375	8244
Norseman	11,764	-	4623	1562	6185	-
Du Puits	10,077	6133	4299	1913	6212	7474
Saranac	10,123	5683	4336	1804	6140	7315
Glacier	10,153	5716	4774	1825	6600	7490
Mean	10,653	5901	4604	1862	6465	7627
C.V. %		6	13	11	11	
L.S.D. 5% level		N.S.	N.S.	N.S.	N.S.	

* Severe winter damage

Summary - Early Type Alfalfa, 1969 Seeding

Yield in pounds D.M. per acre

	1970, Cut 1				Mean
	Ridgetown	Elora	Ottawa	Thunder Bay	
Saranac	4884	4022	4590	4169	4416
Du Puits	5105	4350	4756	3830	4510
RF 38	5079	3920	4595	3971	4391
WL 306	4928	3727	4687	4014	4339
NK 150	5042	3923	3960	3967	4223
Promor	5308	3992	4910	3741	4488
De Kalb 153	4757	3703	4060	4271	4198
Mean	5015	3948	4508	3995	4367
C.V.	7	11	12	7	10
L.S.D.	N.S.	N.S.	660	336	N.S.

1970, total					
Saranac	11,177	9142	9249	6670	9059
Du Puits	11,832	9723	9124	6414	9273
RP 38	11,554	9162	9003	6516	9058
WL 306	11,468	8449	9100	6354	8843
NK 150	11,621	9153	8323	6609	8926
Promor	11,874	9080	9306	6397	9164
De Kalb 153	11,036	8278	8288	6662	8566
Mean	11,509	8998	8913	6517	8984
C.V.	4	6	7	5	6
L.S.D.	533	678	758	N.S.	293

Standard Type Alfalfa, 1969 Seeding

Southern Ontario Stations

1970 Yields in Pounds of D.M. per acre

Ridgetown (1016)

Guelph (2532)

	Cut 1 June 12	Cut 2 July 15	Cut 3 Sept. 1	Total 1970	Cut 1 June 19	Cut 2 July 22	Cut 3 Aug. 31	Total 1970
Iroquois	4590	3110	2597	10,298	4142	2363	2143	8648
Vernal	4887	3047	2295	10,229	4478	2349	1971	8799
ATRA 50 (520)	5163	3362	2847	11,372	4308	2402	2147	8857
ATRA 55	4755	3617	2871	11,243	4049	2277	2111	8437
De Kalb 123	4420	3238	2598	10,256	4257	2108	2048	8413
F.F.C.					4497	2361	2029	8887
Mean	4763	3274	2641	10,679	4288	2309	2074	8673
C.V.	10	5	5	5	8	6	6	4
L.S.D. 5% level	N.S.	183	155	623	N.S.	167	N.S.	N.S.

Ottawa (4059)

	Cut 1 June 17	Cut 2 Aug. 5	Cut 3 Oct. 8	Total 1970
Iroquois	4847	3254	1809	9910
Vernal	4843	3373	1622	9839
ATRA 50	4831	3186	1730	9121
ATRA 55	4205	3621	1806	10,259
De Kalb 123	4819	3319	1713	9851
Mean	4709	3350	1736	9796
C.V.	10	15	8	8
L.S.D. 5% level	N.S.	N.S.	N.S.	N.S.

Standard Type Alfalfa, 1969 Seeding

Northern Ontario Stations

1970 Yields in Pounds of D.M. per acre

	Thunder Bay (7035)			Kapuskasing (6452)*		
	Cut 1	Cut 2	Total	Cut 1	Cut 2	Total
	July 7	Aug. 17	1970	July 23	Aug. 28	1970
Iroquois	4168	2460	6627	1379	1180	2559
Vernal	4430	2623	7053	1404	1230	2633
ATRA 50	4152	2555	6707	732	857	1589
ATRA 55	4122	2595	6717	1377	1022	2399
De Kalb 123	3775	2482	6257	757	786	1543
Mean	4129	2542	6672	1129	1015	2144
C.V.	7	5	5	68	43	56
L.S.D. 5% level	359	N.S.	408	N.S.	N.S.	N.S.

New Liskeard, 1969 Seeding, late series

	Cut 1	Cut 2	Total
	July 16	Sept. 1	1970
Saranac	3181	2444	5625
Vernal	3478	2338	5806
Ladak	3380	2127	5507
Norseman	3438	2122	5560
Beaver	3658	2137	5795
Roamer	3680	1891	5571
Teton	3481	2338	5819
Travois	3557	2034	5591
Mean	3482	2178	5660
C.V. %	6	9	5
L.S.D. 5% level	N.S.	292	N.S.

* Severe winter injury

Summary - Standard Type Alfalfa, 1969 Seeding

Yields in pounds of D.M. per acre

	1970, Cut 1				
	Ridgetown	Elora	Ottawa	Thunder Bay	Mean
Iroquois	4590	4142	4847	4168	4437
Vernal	4887	4478	4843	4430	4660
ATRA 50	5163	4308	4206	4152	4457
ATRA 55	4755	4049	4831	4122	4439
De Kalb 123	4419	4257	4819	3775	4318
Mean	4763	4245	4709	4129	4462
C.V.	10	8	10	7	9
L.S.D.	N.S.	N.S.	N.S.	359	N.S.

	1970, total				
Iroquois	10,298	8648	9910	6627	8871
Vernal	10,228	8799	9839	7053	8980
ATRA 50	11,372	8857	9122	6707	9014
ATRA 55	11,243	8437	10,259	6717	9164
De Kalb 123	10,256	8413	9851	6257	8694
Mean	10,680	8631	9796	6672	8945
C.V.	5	4	8	5	6
L.S.D.	623	N.S.	N.S.	408	N.S.

Early Type Alfalfa, Ottawa, 1967 Seeding

Yield in Puonds of D.M. per acre

Test 4036

	1968 Total	1969 Total	1970 Cut 1 June 16	1970 Cut 2 July 29	Total	1968-70 Mean
Du Puits	5251	6648	2995	2262	5257	5719
Saranac	5744	6367	3179	2404	5583	5898
Mega	5302	6551	2874	2278	5152	5668
WL 303	5349	7261	3387	2571	5958	6189
WL 305	5267	6429	3057	2244	5301	5666
Cl 40	5214	6556	2761	2163	4924	5455
OD 25	4870	6952	2685	2204	4889	3570
BW 9	5479	6275	3069	2359	5428	5727
BW 3	4903	6281	2439	1898	4337	5174
BW 1	5214	6472	3060	2265	5325	5671
Mean	5259	6456	2951	2265	5216	5644
C.V. %		8	6	9		
L.S.D. @ 5%		N.S.	263	285		

Test 4037

	1968 Total	1969 Total	1970 Cut 1 June 16	1970 Cut 2 July 29	Total	1968-70
Du Puits	6256	7594	3527	2215	5742	6531
Saranac	6633	8207	3716	2294	6010	6950
Mega	6753	7942	3624	2208	5832	6842
Europa	6298	7604	3527	2152	5679	6527
FE-100	5921	7551	3644	2033	5677	6386
NK 508	6680	6982	3170	1974	5144	6269
NK 510	5933	7749	3709	2452	6160	6614
Mean	6355	7662	3560	2190	5750	6589
C.V. %		8	8	10		
L.S.D. @5%		N.S.	338	262		

Standard Type Alfalfa, 1967 Seeding

Ottawa and Kapuskasing

Yields in pounds of D.M. per acre

Ottawa

	1968 Total	1969 Total	Cut 1 June 16	1970 Cut 2 July 29	Total	1968-70 Mean
Vernal	6803	7532	3186	2188	5374	6566
Narragansett	6581	7969	4302	2191	5593	6714
Iroquois	7249	7812	3424	2236	5659	6907
WL 202	7108	7566	3501	2158	5659	6778
WL 210	6984	7888	3334	2158	5492	6788
Pioneer 522	6863	7606	3299	2241	5540	6670
Pioneer 525	6907	7802	3168	2221	5339	6699
RP 25	6713	7563	3317	2216	5533	6603
Norseman	5854	6232	2944	1930	4874	5653
Scout	6494	7606	3167	2178	5345	6482
Roamer	6256	6254	2952	1951	4903	5804
TG-2	6677	7509	3761	2107	5868	6685
Mean	6707	7445	3288	2148	5436	
C.V. %		8	9	11		
L.S.D.		738	333	N.S.		

Kapuskasing

	1968 Total	1969 Total	Cut 1 July 15	1970 Cut 2 Aug. 27	Total	1968-70 Mean
Vernal	8041	6438	1656	1099	2755	5745
Narrangansett	7741	7578	2015	1308	3323	6214
Iroquois	7848	7455	2273	1703	3976	6426
WL 202	8021	6827	2024	1399	3424	6090
WL 210	7438	6535	1947	1328	3275	5749
Pioneer 522	7604	6136	1569	1014	2583	5441
Pioneer 525	7710	6749	1820	1355	3175	5878
RP 25	7769	6826	1903	1332	3235	5935
Norseman	7197	6331	2010	1313	3323	5617
Scout	7340	6769	1869	1319	3188	5766
Roamer	7136	6014	1613	1230	2843	5331
TG-2	6493	7759	1877	1229	3206	5819
Mean	7528	6785	1882	1310	3192	
C.V.	7	9	19	19	17	
L.S.D.		664	N.S.	296	640	

Late Type Alfalfa, 1969 Seeding

Guelph, Test 2533

1970 Yields in pounds of D.M. per acre

	June 23	July 27	Sept. 2	Total 1970
Beaver	5300	2472	1633	9404
Vernal	5592	2688	1994	10275
Travois	5464	2401	1576	9441
Teton	5460	2522	1936	9919
Roamer	5804	2137	1278	9219
Norseman	5610	2265	1508	9384
Ladak	5033	2364	1445	8842
Mean	5466	2407	1624	9498
C.V.	8	9	6	5
L.S.D.	N.S.	255	108	527

Teweles Hybrids, 1969 Seeding

Guelph, 2534

1970 Yields in pounds of D.M. per acre

	June 19	July 23	Aug. 27	Total 1970
T1	3823	2273	2545	8643
T2	4208	2441	2553	9203
T3	4308	2492	2350	9150
T4	4393	2525	2573	9492
T5	4638	2692	2563	9894
T6	4217	2546	2482	9246
Saranac	4663	2504	2384	9552
Vernal	4896	2534	2029	9460
Mean	4393	2501	2435	9330
C.V.	7	8	6	4
L.S.D.	374	172	178	483

Wilt Test, Ottawa 1970

Varieties listed in order of
decreasing resistance to bacterial wilt

O.D.-17	1.07	Saranac	1.56	W.L. 308	1.91
O.R.-16	1.12	De Kalb 123	1.57	O.H.-5	1.94
O.R.-5	1.16	O.H.-1	1.62	W.L. 306	1.97
B.W.-13	1.19	Iroquois	1.64	Promor	1.97
O.R.-24	1.23	O.H.-6	1.72	O.H.-3	1.99
O.D.-6	1.29	Anchor	1.73	Tempo	2.02
O.D.-25	1.32	K8-607	1.74	Warrior	2.05
N5-150(Thor)	1.33	Superstan	1.75	O.H. 4	2.05
Weevlcheck	1.36	ATRA 50	1.78	M.X. 82	2.08
Titan	1.42	B.W.-9	1.81	De Kalb 153	2.15
Vernal	1.42	ATRA 55	1.81	Dominor	2.38
O.E.D.-4	1.44	W.L. 217	1.87	O.H.-2	2.42
W.L. 215	1.52	W.L. 216	1.89	T.X. 202	2.48
				Team	2.48

O.D. Ottawa synthetics of Du Puits origin
O.R. Ottawa synthetics of Rhizoma origin
O.H. Ottawa male-sterile derivatives

Wilt Test, Ottawa, 1969

Varieties listed in order of decreasing resistance to bacterial wilt.

Variety Name	% Infection	Variety Name	% Infection	Variety Name	% Infection
OD-17	15	W.L.-306	43	T ₃	53
FFR-Syn. W	17	R.P.-38 (Anchor)	44	Scout	53
OD-6	25	Promor	44	N ₂ -510	53
ATRA-55	28	D.K.-153	45	525	55
Beaver	28	D.K.-123	47	W.L.-303	55
Norseman	31	Titan	47	T ₅	60
N ₅ -150	31	W.L.-305	49	Mego	61
OR-16	35	Roamer	49	T ₂	64
Vernal	35	W.L.-202	51	T ₄	64
OR-24	36	522	51	Du Puits	65
Saranac	36	ATRA-50	51	Glacier	69
OD-25	39	W.L.-210	52	Ada	72
Iroquois	40	N ₀ -508	52	T ₆	76
				T ₁	81

Alfalfa - Hardiness Index of Varieties and Strains
as measured by fall regrowth, 1970
Ottawa, Canada

<u>1969 Planting</u>			<u>1970 Planting</u>		
Variety	No. of Plants	Hardiness Index	Variety	No. of Plants	Hardiness Index
Iroquois	17	5	Iroquois	20	6
Atra 50	18	5	Atra 50 (520)	20	6
DuPuits	17	4	B.W. 9	21	4
W.L. 303	18	4	W.L. 216	21	5
W.L. 210	18	5	W.L. 308	21	5
Promor	19	4	Promor	20	4
DeKalb 153	18	4	DeKalb 153	20	4
W.L. 305	18	4	M.X. 82	20	4
DeKalb 123	17	5	DeKalb 123	21	5
522	19	5	Team	18	5
Glacier	14	5	Weevlchek	19	6
W.L. 306	19	4	W.L. 306	21	5
R.P. 38 (Anchor)	19	4	T.X. 202	19	5
Titan	17	5	Dominor	19	5
W.L. 202	17	6	W.L. 217	20	4
N.K. 508	16	4	Tempo	21	5
Norseman	15	8	Warrior	21	5
Atra 55	18	4	Atra 55	21	6
525	17	5	W.L. 215	21	6
Beaver	17	7	Superstan	21	5
Scout	17	5	K8 607	21	5
N.K. 510	18	4	Anchor	21	5
Vernal	19	6	Vernal	21	6
N5 150	16	4	N5 150	20	5
Roamer	15	7	Saranac	21	5
Saranac	18	4			

Grouping by Hardiness Classes

<u>1969 Planting</u>	<u>1970 Planting</u>
Norseman -----3	Iroquois, Atra 50, Weevlchek, }-6
Beaver, Roamer -----7	Atra 55, W.L. 215, Vernal }
W.L. 202, Vernal -----6	W.L. 216, W.L. 308, W.L. 306, }
Iroquois, Atra 50, W.L. 210 }-----5	DeKalb 123, Team, K8 607, }
DeKalb 123, 522, Glacier, }	T.X. 202, Dominor, Tempo, }
Titan, 525, Scout }	Anchor, Warrior, Superstan, }
DuPuits, W.L. 303, Promor, }	Saranac, N5 150, }
DeKalb 153, W.L. 305, }	
W.L. 306, Anchor, N.K. 508 }-----4	B.W. 9, Promor, DeKalb 153, }
Atra 55, N.K. 510, N5 150, }	M.X. 82, W.L. 217 }
Saranac	

Hardiness Studies

	Fall Regrowth			Injured Plants	Injured and Dead Plants	
	Height in inches, 1969 Seeding			Spring, 1970, Ottawa	May 1, 1970, Guelph	
	Guelph 1970	Guelph 1969	Ottawa 1969		Dead	Injured
Du Puits	10.9	7.7	7.5	3	0	8
NK 150	10.5	6.1	7.0	2	4	14
WL 306	10.5	7.1	7.7	7	3	27
RP 38	10.1	6.1	6.5	3	0	9
Scout	9.9	6.0	7.2	3	2	21
NK 508	9.8	5.2	6.0	4	1	17
Promor	9.8	6.3	7.7	2	7	22
NK 510	9.7	5.8	7.7	2	3	13
Iroquois	9.5	5.0	6.2	4	2	25 <i>Iroquois</i>
WL 303	9.3	5.8	7.7	3	6	28
Saranac	9.2	5.8	6.2	3	0	12 <i>Saranac</i>
522	9.1	5.3	7.0	4	2	16
De Kalb 153	9.0	5.2	7.7	5	4	44
ATRA 55	8.9	5.4	7.5	3	10	31
WL 305	8.8	5.6	7.2	3	3	22
525	8.7	5.8	6.2	3	0	11
WL 210	8.3	5.7	7.2	2	1	31
Glacier	8.3	5.2	5.5	5	2	8
ATRA 50	8.2	4.9	7.2	4	10	24
Titan	8.1	4.8	6.2	3	2	8
FFR	7.9	5.2			0	9
De Kalb 123	7.9	4.7	7.2	5	10	37
Vernal	7.8	4.5	5.5	5	0	7 <i>Vernal</i>
WL 202	7.7	5.1	5.0	3	0	7
Beaver	5.6	4.0	4.7	3	0	9
Roamer	4.8	3.5		4	0	10
Norseman	4.0	3.3	4.7	5	0	13

BROMEGRASS

We have four varieties on the recommended list in Publication 296. Baylor, Saratoga and Redpatch are recommended above all other varieties while Lincoln, also a southern brome grass variety is also listed. There are around 3,500 acres of inspected seed fields reported for these varieties in 1970.

In previous meetings we suggested that Magna - a southern-northern higher seed yielding variety would be added to the recommended list when seed was available for farmer purchase. There were 740 acres of Magna seed fields inspected in 1970.

In Table 1, BSX an F₁ hybrid from Dr. Christie's program and Blair, a Rudy Patrick variety gave the highest mean yields. Blair has a good record in forage yield but the company has not pushed Blair because of low seed yield. The recommended varieties Baylor, Saratoga, Redpatch, Lincoln yield similarly along with Ott.-D₁ higher seed yielding selection from Redpatch. Magna yield was 7-800 lbs. less in mean yield than the recommended varieties at Guelph. Carlton and two northern brome selections 6733 and 6363 are low yielding.

Table 2 - At Thunder Bay the four year means are similar in yielding ability all along the line. The 7-800 lb. advantage that the southern bromes had at Guelph does not occur. Baylor has, however, been consistently high at this northern station.

Table 3 - At New Liskeard the three year means agree closely with the situation at Thunder Bay. No meaningful differences in yield occur at this station.

Table 4 - At Kapuskasing the three recommended varieties are well up the list with Guelph 2 and 6733 yielding well. Magna is about 500 lbs. lower on the average.

The original idea of recommending Magna was the lack of southern type brome seed in Ontario. It does not come up to the yields of Baylor, Saratoga or Redpatch. The meeting is now open to discussion regarding the correct procedure with regard to Magna.

W.R. Childers

GUELPH, ONT.

BROME PERFORMANCE TRIAL 1968

Yield in dry matter lbs/acre

Variety	Cut 1	1970 Cut 2	Total	1969 Total	2 Yr. Mean
Br.Sx.-No.1	6615a	2978 de	9593abc	11177a	10358
Blair	6692a	3282abcde	9974a	11092a	10533
Lincoln	6166abcd	3032 cde	9198abcd	10651ab	9925
Baylor	6458ab	3328abcd	9786ab	10561ab	10174
Redpatch	6202abcd	3486ab	9688ab	10520ab	10104
Saratoga	5844 bcd	3678a	9522abcd	10482ab	10002
Ott.Syn.D1	6423abc	3238 bcde	9661ab	10155abc	9908
Br.Sx.-No.2	6042abcd	3168 bcde	9210abcd	9935 bc	9573
6363	5784 bcd	3244abcde	9027 bcd	9897 bc	9462
Magna	6112abcd	2885 e	8997 bcd	9664 bc	9331
PSG--(Syn.2)	5572 b	3454abc	9029 bcd	9657 bc	9343
6733	5753 cd	2999 de	8752 d	9594 bc	9173
Carlton	5812 bcd	3080 bcde	8892 cd	9294 c	9093
S.E.	205.08	132.36	253.76	322.91	
C.V.	8.21	10.07	6.66	7.75	

B.R. Christie

THUNDER BAY, ONT.

BROME GRASS PROVINCIAL HAY TEST 1966

Yield in dry matter lbs/acre

Variety	Cut 1	1970 Cut 2	Total	1969 Total	1968 Total	1967 Total	4 Yr. Mean
Carlton	3831	3091 bc	6922 cd	6156ab	6203abc	6985	6567
Magna	3838	3258 bc	7096 bcd	6110abc	6023abc	7587	6704
S-6363	3856	3329abc	7185abcd	6064abc	6146abc	7607	6751
S-6733	3953	3660ab	7613ab	5954abc	5872abc	6915	6589
Guelph Syn.2	3513	3069 bc	6582 d	5605 c	5622 c	7311	6280
Brandon 988	4018	3511abc	7529abc	6427a	5727 bc	7142	6706
" 1000	4089	3393abc	7482abc	6134ab	5722 bc	7209	6637
Baylor	3991	3846a	7837a	5804 bc	6472a	7741	6964
Saratoga	3596	3482abc	7079 bcd	5709 bc	6298ab	6833	6480
Redpatch	3922	2949 c	6872 cd	6096abc	6203abc	7578	6687
Syn. D1	3737	3232 bc	6969 bcd	5817 bc	6386a	7309	6620
C.V.	8.73	13.16	7.04	6.50			
S.E.	N.S.	179.90	206.93	158.95			

W.B. Towill

NEW LISKEARD, ONT.

BROME GRASS VARIETY TEST 1967

Yield in dry matter lbs/acre

Variety	1970 1 Cut	1969 1 Cut	1968 1 Cut	3 Yr. Mean
S-6733	4219	5696a	6373	5429
Carlton	4388	5587a	4045	4673
Brandon 988	4056	5537a	6168	5254
Saratoga	4347	5494a	5663	5168
Blair	4270	5354ab	6583	5402
Magna	4293	5295ab	6525	5371
Redpatch	4302	5228ab	6774	5435
Ott.Syn.D	4305	4975	5811	5030
Brandon 986	4349	4934	6279	5187
Guelph Syn.2	4054	4886	6503	5148
S.E.	N.S.	148.54		
C.V.	5.14	6.87		

A. Skepasts

KAPUSKASING, ONT.

BROME GRASS VARIETY TRIAL 1966

Yield in dry matter lbs./acre

Variety	1970 Means		Total	1969 Total	1968 Total	1967 Total	4 Year Mean
	Cut 1	Cut 2					
S6324	4035	3606	7642	10592	9237	6574	8511
S6325	3951	3542	7494	10439	9292	6211	8359
S6363	3850	3470	7320	10338	9165	6350	8293
S6733	3692	3412	7105	10499	10106	7341	8763
Guelph Syn 2	4256	3784	8041	11303	9500	6830	8918
Brandon 988	4233	3675	7909	10506	9542	6796	8688
Brandon 1,000	4212	3781	7993	10813	9431	6074	8578
Baylor	4179	3485	7664	11418	9763	6759	8901
Saratoga	4071	3594	7666	10298	9770	7239	8743
Redpatch	4575	3630	8205	10699	9931	6552	8847
Syn D-1	4030	3465	7495	10934	9549	----	9326*

C.V. (%) 13.00 9.29 7.84

L.S.D. N.S. N.S. N.S.

* 3 year mean

Exp. 2663

Brome Performance Trial, 1968.

Guelph

Yield and Digestibility - Cut 1, 1969

<u>Variety</u>	<u>Yield</u> (lbs./acre) (Cut 1) 69'	<u>I.V.D. 69'</u> (%)	<u>Yield 70'</u> Cut 1	<u>I.V.D. 70'</u>
	(June 26)		June 11	
SX-1	7900	58.5	6610	62.1
Blair	8020	56.6	6690	62.8
Lincoln	7590	57.3	6170	62.3
Baylor	7800	54.8	6460	60.3
Redpath	7320	58.8	6200	62.7
Saratoga	7130	61.7	5840	63.7
Ott. Syn. D.	7160	58.3	6420	63.0
SX-2	7000	-	6070	66.0
6363	6680	60.4	5780	63.6
Magna	7010	61.1	6080	65.4
B.S.G.-1 (Syn. 2)	6550	60.0	5580	65.2
6733	6720	61.2	5750	65.3
Carleton	6060	62.1	5810	65.5
Mean	7150	59.2	6110	63.7
C.V. (%)	9.2	2.4	8.2	2.1
L.S.D. (5%)	760	1.6	580	1.6

ONTARIO CROP RECOMMENDATION COMMITTEE 1970
SUPPLEMENTARY TABLE FOR EVALUATION OF MAGNA BROME GRASS

ONTARIO

1968

Dry Matter lbs/acre

Variety	Ottawa	Kemptville	Kapuskasing	Guelph	New Liskeard	Ft. William	Mean 6 Station Years
Saratoga	7366	9299	9770	8454	5663	6298	7808
Redpatch	7214	9731	9931	7835	6774	6203	7948
Magna	5323	9556	9292	7733	6525	6023	7409
Baylor				9763		6472	

SUPPLEMENTARY TABLE FOR EVALUATION OF MAGNA BROME GRASS

QUEBEC

Dry Matter kg/hectare

Variety	Macdonald Coll. 1969	Lennoxville 1969	66-69	*Laval		La Pocatiere 66-69
				Pasture 1969	Hay 1969	
Saratoga	6811	11285	7725	5168	8737	10412
Baylor	6977	11546		5506	8864	9996
Redpatch	6756	10672	7782	5092	8196	11568
Magna	6423	10425	7336	4909	8032	

*Pasture 4 cuts

TIMOTHY

The varieties Climax and Champ are on the recommended list as published in 1970. By special request the variety Milton was considered at the 1970 planning meeting in February and a motion passed to put Milton on the list in 1971.

A new province wide test was established in the spring of 1967 to test new varieties of special interest. The results can be noted on page I17. The new varieties which appear promising in this summary are Itasca from Minnesota and L-84 (Toro) from Italy. Toro is an earlier type with good aftermath recovery. Kampe II, Barmoti and Bounty are similar and approximately 500 lbs. D.M. less than the 3 highest varieties. Our new policy of establishing province wide tests every year may favour varieties which are quick to establish but we do get an immediate cross-province yield comparison.

The lower section of the table on I17 gives summary data from Guelph, Thunder Bay and Kapuskasing where screening trials for timothy have been undertaken to discover new promising varieties that can be considered for the provincial trial.

I recommend that based on these data no changes or additions be made for 1971, however, Itasca and Toro appear promising and the 1971 results may support the consideration of these at that time.

We have been requested to consider the support of two varieties at this time

1. Barmoti
2. Topaz

Supplementary table on these two varieties occur on page I16. We will discuss the possible support of the varieties now.

W.R. Childers

ONTARIO TIMOTHY HAY TRIAL - 1969

RIDGETOWN, ONT.

Yield in dry matter pounds per acre

Variety	1970		Total
	Cut 1	Cut 2	
	Means		
Climax	5607 b	3496ab	9104a
Bounty	5193 c	3281 b	8475 b
L-84	5694 b	3715a	9409a
Kampe II	5155 c	3005 c	8161 c
Barenza	4869 c	2703 d	7573 d
Itasca	5805a	3534ab	9339a
C.V.(%)	4.18	6.92	2.94
L.S.D. (0.05)	268	270	304

A. McLaren

Exp. 2670

TIMOTHY PERFORMANCE TEST 1968

GUELPH, ONT.

Yield in dry matter lbs/acre

Planted 1968 6 reps.

Variety	1970		Total	1969* Total	2 Yr. Mean
	Cut 1	Cut 2			
	Means				
Champ	6950	1943	8894a	8683a	8788
Spath	7124	1360	8485ab	8028abc	8256
Climax	6924	1493	8418ab	8654a	8536
Landsberger	6723	1646	8370abc	8215ab	8292
Topaz	6916	1192	8109 bc	8364a	8236
Bounty	6692	1228	7921 bc	7843abc	7882
Labelle	6557	1318	7875 bc	7998abc	7936
Drummond	6720	995	7715 c	7271 c	7493
Barenza	6836	839	7676 c	7407 bc	7541
C.V.(%)	7.47	17.87	6.48	8.07	
L.S.D. (0.05)	N.S.	278	617		

*2 Cuts

B.R.Christie

ONTARIO TIMOTHY VARIETY TRIAL 1969

GUELPH, ONT.

Yield in dry matter lbs/acre

Variety	1970		Total
	Cut 1	Cut 2	
	Means		
Bounty	7174	2186 c	9360ab
Barenza	6942	1697 d	8640 bc
Kampe II	7080	1851 d	8931ab
Climax	7212	2726 b	9939a
Itasca	6862	2826 b	9688a
L-84	6446	3182a	9628a
59-67	6480	1297 e	7778 c
C.V.(%)	9.63	11.73	8.56
L.S.D.(0.05)	N.S.	311	922

B.R. Christie

ONTARIO TIMOTHY VARIETY TRIAL - 1969

KEMPTVILLE, ONT.

Yield in dry matter lbs/acre

Planted 1969

Variety	1970		Total
	Cut 1	Cut 2	
	Means		
Itasca	5633a	3365ab	8999a
Barenza	5465ab	2473 c	7939 bc
Kampe II	4595 c	2788 bc	7383 c
Bounty	4851 bc	2856 bc	7707 c
L-84	5205abc	3662a	8868ab
Climax	5135abc	3311ab	8447ab
C.V.(%)	8.42	11.73	7.29
L.S.D.(0.05)	653	543	903

C. Moore

ONTARIO TIMOTHY HAY TEST 1969

OTTAWA RESEARCH STATION

Yield in dry matter lbs/acre

<u>Variety</u>	<u>1970 Cut 1</u>
Itasca	3385
Barenza	3464
Kampe II	3195
L-84	3363
Vetrovsky	3389
Melusine	3120
Climax	3222
Bounty	3242
C.V.	6.82%
L.S.D.	N.S.

W.R. Childers

TIMOTHY AND BIRDSFOOT TREFOIL TRIAL 1969

OTTAWA RESEARCH STATION

Yield in dry matter lbs./acre

Variety			1970 Cut 1
Champ			2001 ef
Bounty			2125 ef
Labelle			2153 ef
Climax			1700 f
Leo			3223 bcd
Maitland			3038 cd
Viking			2687 de
Empire			3383abcd
Champ	x	Leo	3807ab
Champ	x	Maitland	3419abcd
Champ	x	Viking	3827ab
Champ	x	Empire	3848ab
Bounty	x	Leo	3350abcd
Bounty	x	Maitland	3517abc
Bounty	x	Viking	3344abcd
Bounty	x	Empire	3779abc
Labelle	x	Leo	3965ab
Labelle	x	Maitland	3344abcd
Labelle	x	Viking	3381abcd
Labelle	x	Empire	4089a
Climax	x	Leo	3767abc
Climax	x	Maitland	3356abcd
Climax	x	Viking	3833ab
Climax	x	Empire	3754abc

W.R. Childers

TIMOTHY HAY VARIETY TEST 1967

THUNDER BAY, ONT.

Yield in dry matter lbs./acre

Planted 1967

Variety	1970 Means		Total	1969 Total	1968 Total	1967 Total	4 Year Mean
	Cut 1	Cut 2					
Clair	5073ab	2666a	7739a	5401a	5279a	810	4807
Climax F-2	5051ab	2218 bc	7269ab	5249ab	3979 bc	913	4352
TM60-101	5260a	2003 bcd	7264ab	5269ab	4186 bc	1042	4440
Climax	4781abc	2359ab	7141ab	5222abc	4038 bc	1263	4416
Bounty	4953ab	2107 bc	7061ab	4931abcd	4130 bc	939	4265
Champ	4773abc	2202 bc	6976 b	4784 bcd	4119 bc	721	4150
Cub	4702 bc	2266 b	6968 b	4781 bcd	3843 cd	860	4113
Topaz	4594 bc	2216 bc	6810 b	4970abcd	4279 b	1196	4314
Erecta	4744abc	2042 bcd	6787 b	5354a	3937 bc	966	4261
TM60-104	4564 bc	2202 bc	6767 b	4730 cd	3956 bc	828	4070
Heidemij	4674 bc	2042 bcd	6717 b	4956abcd	4130 bc	963	4191
Labelle	4846ab	1783 cd	6629 b	5070abcd	3423 de	949	4018
Panther	4710 bc	1913 bcd	6624 b	4563 d	3131 ef	590	3727
Tiger	4545 bc	2019 bcd	6564 bc	4658 d	2967 f	577	3691
Lofar	4281 c	1668 d	5949 c	3983 e	2820 f	819	3393

C.V. (%) 8.43 15.53 7.82

L.S.D.(0.05) 462 379 622

W.B. Towill

ONTARIO TIMOTHY VARIETY TRIAL 1969

THUNDER BAY, ONT.

Yield in dry matter lbs./acre

Variety	1970 Means		Total
	Cut 1	Cut 2	
Climax	4641	2187ab	6829abc
Bounty	4376	1884 bc	6260 c
L-84	4822	2439a	7261a
Kampe II	4385	2224a	6609abc
Barenza	4496	1811 c	6307 bc
Itasca	4742	2327a	7069ab
C.V. (%)	10.39	12.36	8.91
L.S.D. (0.05)	N.S.	315	713

W.B. Towill

ONTARIO TIMOTHY VARIETY TRIAL 1969

NEW LISKEARD, ONT.

Yield in dry matter lbs./acre

Seeded 1969

Variety	1970
	Mean
Variety	Cut 1
L-84	4356
Climax	4337
Itasca	4255
Barenza	4252
Bounty	4026
Kampe II	3781
C.V.	11.88%
L.S.D. (0.05)	N.S.

A. Skepasts

KAPUSKASING, ONT.

TIMOTHY HAY TRIAL - 1964

Yield in dry matter pounds per acre

1970

Variety	Cut 1 Means	Cut 2	Total
Climax Check	3973abc	1740	5713
Bounty	4123ab	1961	6085
Climax	4207a	2111	6319
Clair	3574 d	2122	5696
Milton	4077abc	2367	6444
Labelle	4008abc	2157	6166
Essex	3729 cd	2224	5953
Astra	3965abc	2079	6044
Champ	4039abc	2328	6367
Drummond	3837abcd	2212	6049
Wisc.T-1	3809 bcd	2556	6366
C.V.(%)	5.1	12.22	6.23
L.S.D.	342	N.S.	N.S.

J.M. Wauthy

Expt. 6026-A

KAPUSKASING, ONT.

TIMOTHY HAY TRIAL 1964

Yield in dry matter lbs/acre

1970

Variety	Cut 1	Cut 2	Cut 3	Cut 4	Total
	M e a n s				
Climax Check	1262	1107	1043 c	454	3867
Bounty	1244	1107	1168 bc	778	4298
Climax	1479	1148	1041 c	744	4414
Clair	1458	821	1474a	476	4229
Milton	1566	1102	1013 c	995	4677
Labelle	1388	1210	1016 c	803	4419
Essex	1300	1059	1257 b	626	4243
Astra	1355	1030	1034 c	625	4045
Champ	1240	1162	1146 bc	479	4029
Drummond	1078	1032	1065 bc	666	3842
Wisc.T-1	1459	1285	979 c	1060	4784
C.V.(%)	12.06	13.72	10.08	35.47	9.58
L.S.D.	N.S.	N.S.	191	N.S.	

J.M. Wauthy

KAPUSKASING, ONT.

TIMOTHY HAY VARIETY TRIAL 1967

Yield in dry matter lbs/acre

Variety	1970			1969 Total	1968 Total	3 Yr. Mean
	Cut 1	Cut 2 Means	Total			
TM60-104	4296abc	2809	7106ab	10381 bcd	9435 bcdef	8974
TM60-101	4725a	2684	7409a	10555 bcd	10500a	9488
Topaz	4380ab	2491	6872ab	9990 cde	8982 def	8615
Tiger	4140 bcd	2329	6469ab	9148 ef	9560 bcdef	8392
Cub	4173 bcd	2421	6595ab	9603 de	8741 f	8313
Panther	4160 bcd	2398	6558ab	9812 de	9190 cdef	8520
Lofar	3867 cd	3023	6891ab	8491 f	9470 bcdef	8284
Climax	4424ab	2305	6730ab	11190ab	10299ab	9406
Bounty	4274abc	2618	6892ab	10986abc	10268ab	9382
Champ	4248abcd	2591	6839ab	10246 bcd	9780abcde	8955
Labelle	4447ab	2742	7189ab	10212 bcd	9859abcd	9087
Climax F-2	4409ab	2621	7031ab	11556a	10031abc	9539
Heidemi j	4250abcd	2338	6589ab	10184 bcd	9251 cdef	8675
Erecta	4213 bcd	1979	6193 b	10892abc	8888 ef	8658
Clair	3766 d	2536	6303 b	10357 bcd	8838 ef	8499
C.V.(%)	6.13	18.27	7.48	7.33	7.3	
L.S.D.	301	N.S.	586			

J.M. Wauthy

KAPUSKASING, ONT.

TIMOTHY PASTURE TRIAL 1964

Yield in dry matter lbs/acre

Variety	1970				Total
	Cut 1	Cut 2	Cut 3 Means	Cut 4	
Drummond	1180a	1177	1036 b	558	3953
Climax Check	1150a	1213	952 bc	1000	4317
Ott. P-2	1232a	1163	871 bc	680	3948
Heidemij	657 b	962	1915a	389	3925
Ott. P-1	1238a	988	836 c	1106	4170
King	734 b	1098	1889a	636	4358
Ott. P-3	1325a	1003	1015 b	670	4015
Climax	1241a	1098	903 bc	1071	4315
C.V.(%)	11.36	17.06	7.49	40.17	11.25
L.S.D.	218	N.S.	154	N.S.	N.S.

J.M. Wauthy

KAPUSKASING, ONT.

ONTARIO TIMOTHY HAY TRIAL 1969

Yield in dry matter lbs/acre

Variety	1970			1969* Total	2 Yr. Mean
	Cut 1	Cut 2 Means	Total		
Itasca	4343	3515	7858	3087	5472
Barenza	4166	2354	6521	2649	4585
Kampe II	3958	2712	6671	3052	4861
Climax	4119	3093	7212	3204	5208
Bounty	4188	3062	7251	2723	4987
L-84	3815	3620	7436	2900	5168

*1969 - 1 cut only

1970 Fertilization

Treatment No.1 - 75 N/lb/A

Treatment No.2 - 150 N/lb/A

J.M.Wauthy

SUPPLEMENTARY TABLE RE BARMOTI TIMOTHY

1970

Variety	Ridgetown	Guelph	Kemptville	Ottawa	Thunder Bay	New Liskeard	Kapuskasing	7 Station Years Mean
Climax	9401	9939	8447	3222	6829	4337	7212	7055
Barmoti	7573	8640	7939	3464	6307	4252	6521	6385

SUPPLEMENTARY TABLE RE TOPAZ TIMOTHY

Variety	Mean						17 Station Year Mean
	2 Year Guelph	4 Year Thunder Bay	3 Year Kapuskasing	3 Year Ottawa	3 Year Agronomy Ottawa	2 Year Agronomy Ottawa	
Climax	8536	4416	9406	6209	4262	4013	6140
Topaz	8236	4314	8615	5438	4528	3771	5817

SUMMARY OF TIMOTHY DATA 1970

Variety	Ridgetown	Guelph	Kemptville	Ottawa	Thunder Bay	New Liskeard	Kapuskasing	7 Station Mean
Climax	9104	9939	8447	3222	6829	4337	5208	6726
Bounty	8475	9360	7707	3242	6260	4026	4987	6293
L-84	9409	9628	8868	3363	7261	4356	5168	6864
Kampe II	8161	8931	7383	3195	6609	3781	4861	6132
Barmoti	7573	8640	7939	3464	6307	4252	4585	6108
Itasca	9339	9688	8999	3385	7069	4255	5472	6886

Variety	2 Yr. Mean	4 Yr Mean Thunder Bay	Hay		3 Year Mean
	Guelph		Kapuskasing	Hay	Hay
Champ	8788	4150	6367	4029	8955
Spath	8256				
Climax	8536	4416	6319	4414	9406
Landsburger	8292				
Wis.T-1			6366	4784	
Topaz	8236	4314			8615
Essex			5953	4243	
Bounty	7882	4265	6085	4298	9382
Astra			6044	4045	
Labelle	7936	4018	6166	4419	9087
Milton			6444	4677	
Drummond	7493		6049	3842	
Barmoti	7541				
Clair		4807	5696	4229	8499
Lofar		3393			8284
Climax F2		4352		3867	9539
TM60-104		4070			8974
TM60-101		4440			9488
Cub		4113			8313
Erecta		4261			8658
Heidemij		4191			8675
Panther		3727			8520
Tiger		3691			8392

Timothy

Summary of 1970 Yields from 1969 Seedings

<u>Variety</u>	<u>A</u>	<u>B</u>
Climax	5130	5000
Bounty	4960	4800
L - 84	5060	4940
Kampe II	4810	4730
Barmoti	5010	4810
Itasca	5240	5010
Mean	5030	4880
C.V. (%)	8.9	9.4
L.S.D. (5%)	260	N.S.

- A. Results from 4 reps. at 6 locations -
Ridgetown, Guelph, Kemptville, Ottawa,
Thunder Bay, New Liskeard.
- B. Results from 6 reps. at 5 locations -
Ridgetown, Guelph, Ottawa, Thunder Bay,
New Liskeard.

Total Yield - For Locations* with Two Cuts

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Total</u>
Climax	5740	2950	8690
Bounty	5650	2640	8300
L - 84	5650	3320	8970
Kampe II	5420	2590	8010
Barmoti	5620	2250	7870
Itasca	5860	3060	8920
Mean	5660	2800	8460
C.V. (%)	8.9	10.3	7.0
L.S.D. (5%)	N.S.	420	200

* Ridgetown, Guelph, Kemptville, Thunder Bay.

Exp. 2670: Timothy Performance Trial

Guelph

<u>Variety</u>	<u>Date Cut July 69'</u>	<u>Yield (Cut 1) 69'</u>	<u>I.V.D. 69'</u>	<u>Date Cut</u>	<u>Yield (Cut 1) 70'</u>	<u>I.V.D. 70'</u>
Champ	1	6110	63.7	June 30	6950	59.4
Climax	4	6520	62.4	July 2	6930	60.0
Drummond	7	5410	66.4	July 4	6720	61.2
Labelle	7	6120	63.3	July 4	6560	58.8
Bounty	7	6000	63.3	July 4	6690	59.8
Topaz	4	6420	63.6	July 2	6920	60.4
Barenza	4	5600	66.6	July 2	6840	61.9
Landsberger	1	6050	64.1	June 30	6720	60.1
Spath	4	5900	64.5	July 2	7130	60.4
Mean		6020	64.2		6830	60.2
C.V.		8.9	1.7		7.5	1.9
L.S.D.		620	1.2		N.S.	1.32

ONTARIO CROP RECOMMENDATION COMMITTEE

1970

SUPPLEMENTARY TABLE FOR THE EVALUATION OF BARENZA TIMOTHY

QUEBEC

Dry matter kg/hectare

Varieties	Lennoxville	Laval		Mean 3 Station Years
	1969 Hay	1969 Hay	Pasture	
Climax	10960	9408	5320	8562
Barenza	10307	8115	4832	7751

TOPAZ

The variety Topaz has been requested for our consideration for recommendation for licensing and use in Ontario.

Breeder - Danish Company

Characteristics - A hay type five days earlier than Climax, later than Champ. Tall leafy good aftermath recovery.
At Thunder Bay, Mr. Towill was impressed with the aftermath and total forage production of this variety. Its total yield at locations both in Ontario and Quebec indicate good yielding capacity.

ONTARIO CROP RECOMMENDATION COMMITTEE

1970

HAY

SUPPLEMENTARY TABLE FOR THE EVALUATION OF TOPAZ TIMOTHY QUEBEC

Dry Matter kg/hectare						Mean
Variety	L'Assomption 1968-69	La Pocatiere 1967-69	Normandin 1968-69	Laval 1969	Lennoxville 1969	9 Station Years
Climax	9780	5951	4148	9408	10960	8045
Topaz	9754	5421	4101	9237	9692	7621

PASTURE

SUPPLEMENTARY TABLE FOR THE EVALUATION OF TOPAZ TIMOTHY QUEBEC

Dry Matter kg/hectare				Mean
Variety	La Pocatiere 1967-69	Normandin 1968-69	Laval 1969	6 Station Years
Climax	3693	4056	5320	4356
Topaz	3663	3893	4876	4040

ORCHARD GRASS

There are three varieties on the recommended list published in 296. Frode and Tardus II medium early, and Rideau a later maturing variety. The variety Kay was recommended for licensing by this Committee in 1969 but seed will not be available until the fall of 1971. Approximately 1200 lbs. of seed was planted in the spring of 1970.

The province-wide test of orchard grass reported from 7 stations is summarized in Table II. The new late variety N-177 from Northrup King and the variety K are in first and second place for mean yield for late varieties. Rideau, Bumper and OSG-5 are similar. The three early varieties FFR-1 (Hallmark), Ottawa P-1 and OSG-7 are similar. No change recommended for 1971.

In the lower section of H-11, the data are similar to the 7 station average.

The Committee has been requested to consider three new varieties in which companies desire support for licensing.

1. - Napier - Early variety from Rudy Patrick.
2. - OSG-7 - Early variety from the University of Guelph.
3. - OSG-5 - Late variety from the University of Guelph.

W.R. Childers

RIDGETOWN, ONT.

ONTARIO ORCHARD GRASS TEST 1969

Yield in dry matter lbs/acre

1970

Variety		Cut 1	Cut 2	Total
Rideau		3326 de	3571	6898 cde
F.F.R.Syn E	E	3399 de	3969	7369 bcd
O.S.G.-7	E	3484 d	3757	7241 bcde
O.S.G.-5		3381 de	3490	6872 de
Ott.P-1	E	3900 c	3495	7396 bc
Kay		4198 b	3455	7654ab
Bumper		3244 e	3569	6813 e
N-177		4405a	3395	7801a
C.V.		4.45	9.0	5.44
L.S.D.		195.74	N.S.	463.39

A. McLaren

GUELPH, ONT.
 ONTARIO ORCHARD GRASS TEST 1969
 Yield in dry matter lbs/acre
 1970

Variety	Cut 1	Cut 2	Total
Rideau	5266 c	3463ab	8729 b
F.F.R.Syn.E. E	5907 b	3659a	9565a
Kay	5432 c	3250 bc	8682 b
O.S.G.-7 E	6553a	3211 bc	9764a
Bumper	4971 c	2791 d	2762 c
O.S.G.-5	4965 c	3006 cd	7972 c
N-177	5400 c	3198 bc	8598 b
Holstenkamp	4976 c	3163 bcd	8139 bc
C.V.	8.4	9.95	4.98
L.S.D.	535.07	374.42	567.42

B.R. Christie

KEMPTVILLE, ONT.

ONTARIO ORCHARD GRASS TEST 1969

Yield in dry matter lbs./acre

Variety		1970		Total
		Cut 1	Cut 2	
N-177		4753ab	2318	7072a
Bumper		3769 d	2160	5930 b
O.S.G. 5		4211 cd	2204	6416ab
Kay		4380 bc	2249	6631ab
Ott. P-1	E	4967a	2325	7294a
O.S.G. 7	E	4776ab	2495	7272a
F.F.R. Syn	E E	4599abc	2527	7126a
Rideau		4379 bcd	2249	6629ab
C.V.		7.42	16.26	7.95
L.S.D.		489.28	N.S.	794.96

C. Moore

OTTAWA, ONT.

FORAGE SECTION

ORCHARD GRASS STRAIN TEST 1966

Yield in dry matter lbs./acre

Variety		1970 1 cut	1969 Seasonal Total	1968 Seasonal Total	1967 Seasonal Total	1966 Seasonal Total	5 Yr. Mean
Kay		1785ab	4124	6403	6477	2438	4245
Bumper		1474 cd	3059	5445	5677	2661	3663
Ott. P-1	E	1945a	3902	7209	7045	3292	4679
Rideau		1553 bc	3541	6786	5733	3195	4162
Frode	E	1546 bc	4103	6757	6462	3470	4468
O.S.G. 5		1234 d	2912	5276	6047	2750	3644
Pennlate		1636 bc	3591	6978	6576	3302	4417
Hercules	E	1716abc	3412	6533	6299	3412	4274

C.V. 13.06

S.E. 85.90

W.R. Childers

OTTAWA, ONT.

FORAGE SECTION

ORCHARD GRASS HAY TEST 1968

Yield in dry matter lbs./acre

Variety		1970 Cut 1 Mean	1969 2 Cuts Total	2 Yr. Mean
N-1-77	L	2865a	6015	4440
Masshardy	L	2257 b	5500	3879
Bumper	L	2445ab	5670	4057
Kay	L	2799ab	6381	4590
Frode	E	2339ab	5437	3888
O.S.G.-5	L	2258 b	5589	3924
Rideau	L	2333ab	5213	3773
Ott. P-1	E	2890a	5523	4206
Pennlate	L	2696ab	5910	4303
*O.S.G. 9	E	2320	5419	3869

C.V. 15.26

S.E. 173.29

* O.S.G. 9 in three Reps. only

W.R. Childers

OTTAWA, ONT.

FORAGE SECTION

ONTARIO ORCHARD GRASS TEST 1969

Yield in dry matter lbs./acre

Variety		1970 1 Cut
Ott. P-1	E	2105
Rideau		1923
N-177		3102
O.S.G.-5		2335
Bumper		2168
FFR Syn. E	E	2548
Kay		2771
O.S.G.-7	E	2393
C.V.		23.58
L.S.D.		N.S.

* Rep 1 in this test was winter-killed and losses due to winter injury were prevalent throughout the remaining 5 Reps.

W.R. Childers

Exp. 7028

THUNDER BAY, ONT.

ORCHARD GRASS VARIETY TRIAL 1967

Yield in dry matter lbs./acre

Variety	1970		Total	1969 Total	1968 Total	3 Yr. Mean
	Cut 1	Cut 2				
N-1-77	4320	1800	6120abc	5832 c	1634abc	4528
Masshardy	3786	1885	5671 c	6376ab	1631abc	4559
Bumper	3968	1829	5797 bc	6573a	1516 bcd	4629
Kay	4517	1963	6481ab	6179abc	1647abc	4775
Frode	3802	2026	5829 bc	5940 bc	1774ab	4514
O.S.G.-5	4442	2179	6622a	6105abc	1295 cd	4674
Rideau	4181	2012	6194abc	5943 bc	1784ab	4640
Ottawa P-1	4208	2171	6379ab	6084abc	2038a	4831
Pennlate	4361	2014	6376ab	6535a	1144 d	4833
C.V.	13.34	13.22	8.51	6.15	15.54	
S.C.	N.S.	N.S.	214.09	155.11	144.16	

W.B. Towill

THUNDER BAY, ONT.

ONTARIO ORCHARD GRASS TEST 1969

Yield in dry matter lbs./acre

Variety	Cut 1	1970	Total
		Cut 2	
Rideau	3493	2464 bc	5956 b
F.F.R. Syn E E	3813	2758a	6572a
O.S.G.-7 E	3601	2513ab	6114 b
O.S.G.-5	3864	2381 bc	6244ab
Ott. P-1 E	3702	2437 bc	6138 b
Kay	3854	1980 d	5833 b
Bumper	3858	2209 cd	6067 b
N-177	3805	2258 bc	6064 b
C.V.	7.7	8.92	5.61
L.S.D.	N.S.	248.56	402.82

W.B. Towill

NEW LISKEARD, ONT.

ONTARIO ORCHARD GRASS TEST 1969

Yield in dry matter lbs./acre

Variety		1970 Cut 1
N-177		3638
Bumper		3677
Kay		3627
O.S.G.-5		3683
O.S.G.-7	E	3613
F.F.R. Syn.	E E	3621
Rideau		3633
Ott. P-1	E	3748
C.V.		10.97
L.S.D.		N.S.

A. Skepasts

KAPUSKASING, ONT.

ONTARIO ORCHARD GRASS HAY TRIAL 1969

Yield in dry matter lbs./acre

Variety	1970 Means		Total
	Cut 1	Cut 2	
N-177	3129	2660	5789
Bumper	3074	3044	6119
Kay	3032	2979	6012
O.S.G. 5	2794	2996	5790
O.S.G. 7	3034	3458	6493
F.F.R. Syn. E	2808	3316	6125
Rideau	2607	3121	5728
Ott. P-1	3116	3120	6236

J.M. Wauthy

QUEBEC

H11

SUPPLEMENTARY TABLE RE O.S.G. 5

Yield in dry matter kil/hectare

Variety	L'assomption 1967-69	La Pocatiere 1967-69	Laval 1969	Lennoxville 1969	Macdonald College 1968-69	Mean 10 Station Years
Rideau	7759	5325	4550	Hay Pasture 8961 5700	6791	6514
O.S.G. 5	7307	4963	4483	9294 5914	6545	6418
Frode E	7264	5227	5205	8699 6158	7245	6633

ONTARIO

SUPPLEMENTARY TABLE RE O.S.G. 5

Yield in dry matter lbs/acre

Variety	Ridgetown 1970	Guelph 1970	Kemptville 1970	Ottawa 1966-70	Ottawa 1969-70	Ottawa 1970	Thunder Bay 1968-70	Thunder Bay 1970	New Liskeard 1970	Kapuskasing 1970	- Mean 16 Station Years
Rideau	6898	8729	6629	4162	3773	1923	4640	5956	3633	5728	5207
O.S.G. 5	6872	7972	6416	3644	3924	2325	4674	6244	3683	5791	5154
Frode E				4468	3888		4514				

ONTARIO

SUPPLEMENTARY TABLE RE O.S.G. 7

Yield in dry matter lbs/acre

1970

Variety	Ridgetown	Guelph	Kemptville	Ottawa	Thunder Bay	New Liskeard	Kapuskasing	Mean 6 Station Years
Rideau	6898	8729*	6629	1923	5956	3633	5728	5128
O.S.G. 7	7241	9764	7272	2393	6114	3613	6493	5521
P.O. 1	7396	-	7294	2105	6138	3748	6237	5486

*Guelph was not used in determining the 6 year mean.

ONTARIO

H13

SUMMARY OF ORCHARD GRASS TEST

1970

Variety	Ridgetown	* Guelph	Kemptville	Ottawa	Thunder Bay	New Liskeard	Kapuskasing	6 Station Mean	7 Station Mean
Rideau	6898	8729	6629	1923	5956	3633	5728	5127	5642
Kay	7654	8682	6631	2771	5833	3627	6012	5421	5887
O.S.G.5	6872	7972	6416	2335	6244	3683	5790	5224	5616
Bumper	6813	7762	5930	2168	6067	3677	6119	5129	5551
N-177	7801	8598	7072	3102	6064	3638	5789	5578	6091
O.S.G.7	7241	9764	7272	2393	6114	3613	6493	5521	6127
Ott.P-1	7396		7294	2105	6138	3748	6236	5486	
FFR Syn.H*	7369	9565	7126	2548	6572	3621	6125	5560	6132

Variety	3 Yr Mean Thunder Bay	5 Yr Mean Ottawa	2 Yr Mean	10 Yr Mean
Rideau	4640	4162	3773	4192
Kay	4775	4245	4590	4537
O.S.G.5	4674	3644	3924	4081
Bumper	4629	3663	4057	4116
Ott.P-1	4831	4679	4206	4572
Frode	4514	4468	3888	4290
Mashardy	4559		3879	
Pennlate	4833	4417	4303	4518
N-177	4528		4440	
Hercules		4274		

*Hallmark - bred by FFR

Orchardgrass

Summary of 1970 Yields from 1969 Seedings

First Cut

	<u>A</u>	<u>B</u>	<u>C</u>
Rideau	3930	3710	3690
Kay	4280	4100	3820
O.S.G.-5	3970	3810	3570
Bumper	3940	3640	3400
N-1-77	4310	4180	3970
O.S.G.-7	4210	4110	3570
Att. P-1	-	-	3690
FFR Syn E	4190	4090	3720
Mean	4130	3950	3640
C.V. (%)	8.5	9.5	9.7
L.S.D. (5%)	200	210	220

- A. Results from 6 reps., at 4 locations -
Ridgetown, Guelph, Thunder Bay, New Liskeard.
- B. Results from 4 reps. at 6 locations -
same as in in A plus Kemptville and Ottawa.
- C. Results from 4 reps. at 5 locations -
Ridgetown, Kemptville, Ottawa, Thunder Bay,
New Liskeard.

Total Yield - For Locations* with Two Cuts

<u>Variety</u>	<u>Cut 1</u>	<u>Cut 2</u>	<u>Total</u>
Rideau	4160	2870	7030
Kay	4520	2730	7250
O.S.G.-5	4160	2810	6970
Bumper	3970	2700	6670
N-1-77	4610	2840	7450
O.S.G.-7	4680	2930	7610
P-1	-	-	-
FFR Syn E	4490	3230	7720
Mean	4370	2870	7240
C.V. (%)	8.3	10.6	6.6
L.S.D. (5%)	250	220	340

* Locations: Ridgetown, Guelph, Kemptville,
Thunder Bay

Exp. 2684 Orchardgrass Hay Trial, 1969

Guelph

I.V.D. - 1970

<u>Variety</u>	<u>Cut (June)</u>	<u>I.V.D. (%)</u>
Rideau	12	63.8
F.F.R. Syn. E	8	-
Starain K	12	66.3
O.S.G. - 7	8	-
Bumper	16	64.5
O.S.G. -5	19	64.5
N-1-77	16	63.2
Holstenkamp	19	<u>64.7</u>

Mean	64.5
C.V. (%)	2.1
L.S.D. (5%)	1.6

Exp. 2664 Orchardgrass Performance Trial, 1968.

Guelph

Yield and Digestibility - Cut 1, 1969.

<u>Variety</u>	<u>Date Cut</u> (June)	<u>Yield</u> (lbs/acre)	<u>I.V.D.</u> (%)
1. N-1-77	26	5750	66.2
2. Masshardy	26	5050	67.2
3. Bumper	26	4210	68.3
4. Strain K	16	4900	67.3
5. Frode	16	3820	69.4
6. O.S.G.-5 (Syn. 2)	26	4960	70.4
7. Rideau	26	5040	66.6
8. Ottawa P-1	9	3930	71.5
9. Pennlate	26	5260	62.5
10. Chantemille	26	2250	69.9
11. Clatsop	26	2190	69.8
Mean		4310	68.1
C.V. (%)		12.6	2.0
L.S.D. (5%)		1210	1.4

OSG-5 - CALLANDER

Breeder - Dr. Bert Christie
Method - 6-clone synthetic
Origin of Material- Introductions unknown origin.
Characteristics - Lateness, winter-hardiness and vigour, slightly later than Rideau.
Breeders seed - Will be produced by the seed companies concerned.
Utilization - Late maturity - vigour and digestibility of this strain indicates it can be recommended for pasture mixtures and hay-pasture mixtures (BRC).

Two seed companies request that this variety be supported for licensing by the Ontario Forage Crops Committee. Supporting data accompanied both submissions, from Guelph and Ottawa only. We have prepared supplementary Tables of data for 1970 and other available tests.

On Page H₁₁ we have a comparison of Rideau OSG-5 and Frode from five stations which indicate a similar yielding ability in the three cases.

On Page H₁₁, a similar Table of supplementary data from Ontario indicate that OSG-5 and Rideau yield similarly, the 16 station means yield 5154 and 5207 respectively.

The meeting is open for discussion regarding supporting OSG-5 for licensing and subsequent placing on the recommendation list when seed becomes available.

W.R. Childers

OSG 7 - INA

Breeder - Dr. Bert Christie

Method - Polycross progeny of one clone. One hundred plants selected phenotypically and clones maintained for the production of breeders seed. Original clone was an introduction from U.S.A.

Description- Medium maturity similar to Frode. Breeders seed will be produced by the company requesting licensing.

Supplementary table for OSG-7 and 12 indicates that this strain is similar to PO-1 an early strain from Ottawa. The data forwarded by the company indicate that this strain is equal to Frode in the four test years at Guelph and yielded higher at Ottawa.

The question from a breeding standpoint is, will a one-clone synthetic lose yield in subsequent generations both for seed and forage yield, The meeting is open to discussion.

W.R. Childers

Other grasses

F.S. Warren
Coordinator

Yield data for 1970 were received for four of the original seven uniform tests seeded in 1967 as well as for a 4 entry test seeded in 1969 at Elora (Table 1). Yields differed greatly between locations but differences between entries were not significant at any location.

A new reed canarygrass test seeded at Ottawa in 1970 compares 7 entries in rows and plots. It includes a strain from Saskatoon and 3 from Beaverlodge. In seeding year production plots outyielded rows by more than three times (Table 2).

Grove reed canarygrass, a 4 clone synthetic developed at the Ottawa Research Station was licensed for sale April 2, 1970.

A request was received by the Ontario Forage Committee to support a license application for the variety Rise. Rise is a 10 clone synthetic selected at the Rudy-Patrick Research Center, Ames, Iowa. Yield performance has been slightly better than Frontier and Grove in 18 test years in Ontario (Table 3). In vitro digestibility of Rise averaged 4 percentage points higher than Frontier cut on the same date at Ottawa and total D.D.M. was over 200 lb/a. greater. Other plant characteristics were all acceptable. These data indicate that the license application should be supported by the Committee.

Table 1. Reed canarygrass - Total production of varieties and strains in Ontario tests, 1970.

A. Hay tests - D M lb/a.

Location	New Lisk.	Elora	Kemptville
Test No	8301	2675	
No. of cuts	1	2	2
Variety			

Rise	4894	13453	10320
Frontier	5036	12733	10126
Grove	4636	12190	10617
Syn G	4743	-----	10459
S. 6982	4808	11993	10433
Mean	4823	12592	10393
C.V. (%)	7.44	6.88	7.04
LSD (0.05)	N.S.	N.S.	N.S.

A.V. Skepasts

J.D. Curtis

B. Pasture tests - D M lb/a.

	New Lisk.	Thunder Bay	5 locations
	8302	7018	
	2	2	

Rise	6272	6605	8309
Frontier	5973	6319	8037
Grove	6023	6114	7916
Syn G	6031	5906	-----
S. 6982	5280	5891	7681
Mean	5916	6167	7978
C.V. (%)	7.17	8.44	
LSD (0.05)	N.S.	N.S.	

A.V. Skepasts

W.B. Towill

Table 2. Reed canarygrass - Seeding year production of varieties and strains grown in rows and plots, Agronomy Section, O.R.S. 1970.

Variety	Rows D.M. lb/a.	Plots D.M. lb/a.
Frontier	578	1451
S. 7358	543	1477
Grove	553	1622
Syn. G	545	1865
BL. 661	561	2073
BL. 662	510	1750
BL. 663	510	1723
Mean	543	1709
L.S.D. 5%	N.S.	386.5
C.V. %	35.0	15.2

D.R. Gibson

Table 3. Reed canarygrass - Average annual production of selected varieties in Ontario tests, 1967-70.

<u>A. Hay tests</u> - D M lb/a.						
Location	Ottawa	New Lisk.	Kempt.	Kapus.	Elora	
Test No.	4041	8301	3017	6051	2675	
No. of years	2	3	3	1	1	
variety						
Rise	3766	5817	7963	3174	13453	
Frontier	4008	5819	7626	3225	12733	
Grove	4080	5476	8322	3033	12190	
<u>B. Pasture Tests</u> - D M lb/a.						
	Ottawa	New Lisk.	Thunder Bay	Mean		
	4042	8302	7018	all tests		
	2.	2	4	18		
Rise	2588	6270	5862	6112		
Frontier	2480	6011	5563	5933		
Grove	2608	6027	5161	5862		

Silage
lbs/ac

Specie	Variety	7" Rows	14" Rows	21" Rows	Ave.
Oats	OA-123-1	8533	6960	6284	7259
Oats	OA-125-4	9035	8113	7584	8244
Oats	Dorval	9159	8233	7699	8364
S. Wheat	Opal	8519	7170	5748	7146
Barley	Champlain	7768	7335	6623	7242
Ave.		8603	7562	6788	

Grain
lbs/ac

Specie	Variety	7" Rows	14" Rows	21" Rows	Ave.
Oats	OA-123-1	2637	2847	2706	2730
Oats	OA-125-4	3207	3089	2959	3085
Oats	Dorval	3477	2980	3239	3232
S. Wheat	Opal	3233	2695	1959	2629
Barley	Champlain	3266	3248	2906	3140
Ave.		3164	2972	2754	

Straw
lbs/ac

Specie	Variety	7" Rows	14" Rows	21" Rows	Ave.
Oats	OA-123-1	5104	4623	4017	4581
Oats	OA-125-4	5489	4776	4588	4951
Oats	Dorval	5852	5124	4380	5119
S. Wheat	Opal	5351	5284	3938	4858
Barley	Champlain	4225	3730	3630	3862
Ave.		5204	4707	4111	

Exp. 4703

QUALITY OF CEREAL SILAGE 1970 GUELPH

Lbs D.M. Per Acre

W-87

Row Widths	Opal Spring Wheat			Dorval Oats			Champlain Barley		
	alone	with Peas	with Alfalfa	alone	with Peas	with Alfalfa	alone	with Peas	with Alfalfa
7"	7904	7294	7649	8877	6661	8423	7147	7019	7236
14"	7191	6415	6877	8864	7381	8108	6949	6690	6555
21"	6282	5996	5680	8384	6219	7194	6313	5847	6060
Total	21377	19705	20206	26125	20261	23725	20409	19556	19851
Ave.	7126	6568	6735	8708	6754	7908	6803	6519	6617

Exp. 4703

QUALITY OF CEREAL SILAGE 1970 GUELPH

Per cent Botanical Composition

Cut No.	Cereal		Legume		7" Rows		14" Rows		21" Rows	
	Specie	Variety	Specie	Variety	Cereal	Legume	Cereal	Legume	Cereal	Legume
1	Spring Wheat	Opal	+ Peas	Century	76.8	22.6	58.1	41.4	35.2	64.7
		Opal	+ Alfalfa	Saranac	99.8	0.1	95.2	1.3	94.4	4.9
	Oats	Dorval	+ Peas	Century	49.1	50.9	43.3	56.6	36.3	63.1
		Dorval	+ Alfalfa	Saranac	99.7	0.15	97.8	0.0	98.2	1.1
	Barley	Champlain	+ Peas	Century	80.3	19.7	60.5	39.3	59.6	40.4
		Champlain	+ Alfalfa	Saranac	99.9	0.0	98.7	0.4	97.9	1.2

Exp. 4702, 4703

ROW WIDTH OF CEREALS FOR FORAGE
QUALITY OF CEREAL SILAGE 1970 E. R. S.Lbs D.M. Per Acre
(Pure Cereals Only)

Row Widths	Opal Spring Wheat			Dorval Oats			Champlain Barley		
	Exp. 4702	Exp. 4703	Ave.	Exp. 4702	Exp. 4703	Ave.	Exp. 4702	Exp. 4703	Ave.
7"	8519	7904	8211	9159	8877	9018	7768	7147	7457
14"	7170	7191	7180	8233	8864	8548	7335	6949	7142
21"	5748	6282	6015	7699	8384	8041	6623	6313	6468
Ave.	7146	7126	7136	8364	8708	8536	7242	6803	7022

NITROGEN ON GRASSES
THUNDER BAY

Treatment No.	Nitrogen lbs/ac	Date of Application
1	75	spring
2	100	spring
3	125	spring
4	150	spring
5	37.5	spring after- math
6	50.5	spring after- math
7	62.5	spring after- math
8	75	spring after- math
9	50	spring & fall
10	0	spring & fall

NITROGEN ON GRASSES
THUNDER BAY, 1970
1b DM/AC

TRT.	June 25	Brome June 30	Total	June 19	Orchard Aug. 6	Total	June 24	Reed Canary Aug. 6	Total	June 30	Timothy Aug. 25	Total
1	3711	1245	4956	2016	1308	3323	4175	2260	6435	3870	349	4219
2	3604	1412	5016	2405	1510	3915	4550	2762	7312	3837	322	4159
3	3184	1353	4537	2495	1602	4097	4213	2747	6960	3360	442	4302
4	4106	1551	5657	2408	1608	4017	4204	2573	6777	4042	508	4550
5	3714	1551	5265	1902	2029	3931	4227	2573	6800	3693	506	4199
6	3321	1628	4948	1977	2058	4035	4014	2925	6939	3547	451	3998
7	2772	1349	4121	2104	1839	3944	3775	2811	6587	3657	441	4098
8	3669	1415	5084	2314	1823	4136	4204	2885	7089	3760	401	4161
9	3302	1228	4530	2484	1109	3594	4231	2375	6606	3829	406	4235
10	2507	796	3304	2037	760	2797	2888	1021	3909	3055	304	3359
L.S.D.	N.S.	364	1218	N.S.	376	N.S.	652	522	990	441	N.S.	551
C.V. (%)	19.6	18.5	17.7	21.1	15.6	16.2	11.0	14.4	10.4	8.1	27.8	9.1

NITROGEN ON GRASS
KAPUSKASING, 1970
1b DM/AC
-QUACK GRASS-

1b/ac	N ₂	July 21
0	0	3273
0	180	3627
0	90	3178
50	0	2940
50	90	3765
80	180	3877
100	90	3840
100	0	3475
100	180	3501
200	180	3627
200	90	3532
200	0	3551
LSD		N.S.
C.V.	%	24.95

NITROGEN ON GRASSES
KAPUSKASING, 1970
1b DM/AC
TOTAL SEASON YIELDS

Lbs. Nitrogen/A		Brome	Orchard	Reed Canary	Timothy
Cut 1	Cut 2				
0 "	0 "	1947	1570	3589	2077
0 "	60 "	2857	2383	5772	3088
0 "	120 "	4642	3300	6470	4350
0 "	180 "	5031	4058	7761	5166
60 "	0 "	3811	3082	5131	3957
60	60	5593	4288	7270	5334
60	120	6720	5134	7629	6537
60	180	6951	5370	8490	6817
120	0	5376	4560	6042	5933
120	60	6719	5509	7652	6774
120	120	6537	5743	8343	6868
120	180	6738	5760	8685	6785
180	0	5842	4807	5930	5693
180	60	6888	5791	7829	6616
180	120	6923	6131	8218	6421
180	180	7170	6047	9069	6105
LSD		742	475	1079	757
C.V.	%	9.26	7.23	10.6	9.6

NITROGEN ON GRASSES
NEW LISKEARD, 1970
lbs D₁₅/AC
TOTAL SEASONAL YIELD

N ₂	(lbs/ac)		Brome July 14	Orchard July 14	Reed Canary July 14	Timothy July 14
	P	K				
100			3567	1685	3254	1874
50		50	3909	3063	4568	4924
50	50	50	3868	3483	5586	4538
50			4540	3510	5708	4410
LSD			N.S.	N.S.	1530	1260
C.V.				32.04	12.32	12.31

FERTILIZER ON GRASSES
KAPUSKASING, 1970
1b DM/AC
SEASON TOTAL

N	1b/ac P	K	Total
0	0	0	969
0	0	60	1183
0	0	120	913
0	11	0	1183
0	11	60	1409
0	11	120	1396
0	22	0	1096
0	22	60	1182
0	22	120	1223
60	0	0	3404
60	0	60	3657
60	0	120	4274
60	11	0	5659
60	11	60	6021
60	11	120	6115
60	22	0	5772
60	22	60	6060
60	22	120	6181
120	0	0	3637
120	0	60	3984
120	0	120	3461
120	11	0	6853
120	11	60	7348
120	11	120	6769
120	22	0	6706
120	22	60	7297
120	22	120	8038
	LSD		916
	C.V.		10.7

1970 WEATHER RECORDS
TEMPERATURE (°F)

		APR.	MAY	JUNE	JULY	AUG.	SEPT.
HARROW	MAX.	56.2	68.8	76.3	79.5	80.1	73.4
	MIN.	38.0	50.7	58.3	62.8	61.6	56.7
RIDGETOWN	MAX.	55.4	68.1	76.2	79.1	80.6	72.3
	MIN.	37.7	49.6	57.3	62.9	61.0	55.6
LONDON	MAX.	55.0	66.7	75.1	79.0	80.7	70.6
	MIN.	34.5	45.3	51.5	59.5	55.2	50.1
GUELPH	MAX.	53.6	64.9	73.9	78.0	77.7	68.1
	MIN.	33.4	44.2	52.1	57.8	54.7	49.4
ELORA	MAX.	51.9	64.4	73.0	77.4	77.5	69.0
	MIN.	32.3	43.6	52.0	57.5	54.3	49.7
SMITHFIELD	MAX.	54.8	64.8	73.7	77.6	79.2	69.5
	MIN.	33.2	43.8	51.9	59.0	57.3	51.6
KEMPTVILLE	MAX.	52.8	64.7	75.6	79.5	77.2	67.3
	MIN.	32.9	45.5	53.1	58.5	56.2	50.1
OTTAWA	MAX.	51.4	64.2	75.2	79.8	79.1	67.0
	MIN.	32.8	44.6	53.7	60.2	58.2	50.6
NEW LISKEARD	MAX.	46.1	58.9	71.5	77.3	76.6	63.5
	MIN.	27.5	35.1	42.7	48.3	54.4	45.3
KAPUSKASING	MAX.	42.4	52.2	70.0	76.1	72.6	59.9
	MIN.	22.7	33.3	44.4	52.9	51.1	43.3
GORE BAY	MAX.	47.5	56.3	70.1	73.9	74.7	64.1
	MIN.	29.5	40.9	50.3	59.2	57.8	51.3
FORT FRANCES	MAX.	44.5	56.0	75.8	81.5	77.8	66.2
	MIN.	27.7	37.9	53.7	57.9	51.5	45.4
THUNDER BAY	MAX.	45.8	53.9	70.8	79.2	77.8	64.3
	MIN.	25.5	34.8	44.9	53.6	50.9	42.2

WEATHER RECORDS
DEPARTURE OF 1970 GROWING SEASON
TEMPERATURE (°F)

		APR.	MAY	JUNE	JULY	AUG.	SEPT.
Harrow	MAX	+1.1	+1.7	-1.7	-2.8	-0.6	+0.1
	MIN	+1.3	+3.0	-0.3	-0.3	-0.3	+2.4
Ridgetown	MAX	+1.8	+2.8	-1.0	-3.2	+0.2	-0.3
	MIN	+1.5	+3.2	+0.5	+1.4	+0.8	+1.7
London	MAX	+2.3	+1.7	-0.4	-1.5	+1.8	-0.1
	MIN	+0.4	+1.2	-2.7	+0.8	-2.4	-0.2
Guelph	MAX	+2.3	+1.0	-0.4	-1.3	0.0	-1.7
	MIN	+0.1	+0.6	-1.2	+0.4	-1.3	+0.3
Smithfield	MAX	+3.3	+1.4	+0.3	-1.1	+1.4	+1.0
	MIN	+0.7	+1.0	-1.3	+0.9	+0.3	+2.9
Kemptville	MAX	+0.5	-1.8	-0.8	-1.9	-1.9	-2.6
	MIN	+0.1	+1.7	-0.5	+0.6	+0.7	+2.3
Ottawa	MAX	+1.1	-1.2	+0.2	-0.1	+0.9	-1.3
	MIN	+0.4	+0.9	+0.2	+2.3	+2.6	+2.5
New Liskeard	MAX	-1.2	-3.7	-1.5	-0.2	+1.3	-1.6
	MIN	+3.2	-1.2	-5.3	-4.9	+3.8	+2.1
Kapuskasing	MAX	-0.3	-5.3	+0.7	+1.9	+1.1	-0.6
	MIN	+0.6	-1.7	-2.2	+0.9	+0.8	+0.9
Gore Bay (A)	MAX	+0.5	-3.5	+0.2	-1.9	+0.1	-0.5
	MIN	-0.3	-0.1	-1.0	+1.2	0.0	+0.9
Fort Frances	MAX	-4.5	-7.0	+3.6	+3.2	+2.8	+1.8
	MIN	-0.7	-2.7	+3.0	+1.6	-2.5	+0.9
Thunder Bay	MAX	+0.1	-4.7	+2.3	+4.0	+4.7	+1.3
	MIN	-0.4	+1.5	-1.2	+1.3	0.0	-0.4

1970 WEATHER RECORDS
PRECIPITATION (INS)

	APR.	MAY	JUNE	JULY	AUG.	SEPT.
HARROW	4.0	2.9	3.3	4.9	0.8	1.9
RIDGETOWN	3.7	1.8	3.7	3.8	0.8	2.7
LONDON	3.4	2.5	2.7	4.3	2.8	3.0
GUELPH	3.2	2.0	2.6	4.5	3.1	4.9
ELORA	2.7	3.5	1.9	3.9	2.2	5.7
SMITHFIELD	2.9	2.9	3.1	3.8	0.8	2.6
KEMPTVILLE	2.9	3.1	0.8	4.7	4.7	3.7
OTTAWA	1.9	2.5	1.0	4.2	1.9	4.1
NEW LISKEARD	1.5	4.5	4.3	M	1.3	2.2
KAPUSKASING	1.2	3.3	2.7	2.7	3.7	3.5
GORE BAY	2.4	4.8	2.7	7.7	1.7	8.3
FORT FRANCES	2.4	5.0	1.7	1.2	2.5	2.7
THUNDER BAY	4.2	5.7	1.9	3.7	1.6	3.4

PRECIPITATION (INS.)

	APR.	MAY	JUNE	JULY	AUG.	SEPT.
Harrow	+1.3	+0.2	+0.2	+2.4	-1.8	-0.4
Ridgetown	+0.6	-1.2	+0.9	+1.0	-1.8	+0.2
London	+0.2	-0.5	-0.4	+0.8	0.0	-0.4
Guelph	+0.5	-1.2	-0.4	+1.3	+0.1	+2.0
Smithfield	-0.9	-0.5	+0.7	+1.2	-2.4	-0.4
Kemptville	+0.2	+0.2	-1.8	+1.9	+1.8	+0.7
Ottawa	-0.8	-0.3	-2.1	+1.0	-1.4	+0.9
New Liskeard	0.0	+2.2	+1.1	M	-2.1	-1.5
Kapuskasing	-0.5	+0.8	-0.2	-0.4	+0.6	+0.4
Gore Bay	-0.2	+2.3	-0.1	+5.5	-0.6	+4.8
Fort Frances	+0.4	+2.3	-2.4	-2.6	-1.4	-0.6
Thunder Bay	+2.2	+2.9	-1.3	+0.7	-1.8	+0.2