

PROGRESS REPORT
**FORAGE CROP
INVESTIGATIONS**
1958

FORAGE CROP PRODUCTION



Field Husbandry Department
Ontario Agricultural College
Guelph

FORAGE PROGRESS REPORT 1958

The data from all O.A.C. trials are compiled in this report for use of members of the Field Husbandry Department and those associated with the testing programs. Data from co-operative trials at Kemptville and Ridgetown are included in summary form so that all information will be collected together for interpretive purposes.

This report is not complete but does contain the main data collected from current projects and those completed in 1958.

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(Year refers to year trial was seeded, and number in brackets is experiment number)

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HAY-PASTURE MIXTURES 1956 (304) EARLY CUT-GROUP

LBS. DRY MATTER PER ACRE

Mixture	1957 Season Total	1958					2 year Average
		Hay Jun.20	Aftermath			Season Total	
			Jul.23	Sep.8	Total		
DuPuits + Climax	9720	3892	2560	1617	4177	8069	8895
+ Frode	8880	3419	2438	1557	3995	7414	8147
+ Lyon	9860	3421	2566	1444	4010	7431	8646
DuPuits + Lad. + Climax	9620	3109	2162	1315	3477	6586	8103
+ Frode	9060	3260	2114	1278	3392	6652	7856
+ Lyon	9000	3020	1866	8872	2738	5758	7379
DuPuits + Las. + Climax	9800	4005	2270	1706	3976	7981	8891
+ Frode	9100	3348	2235	1455	3690	7038	8069
+ Lyon	9420	3481	2347	1544	3891	7372	8396
DuP + Las. + Cl. + Fr.	9340	2954	2130	1417	3547	6501	7921
+ Fr. + Ly.	9480	3388	2308	1592	3900	7288	8384
+ Cl. + Ly.	9360	3551	2155	1561	3716	7267	8314
Ver. + Las. + Cl. + Ly.	8700	2536	1241	738	1979	4515	6608
A + R + T + O + B	8560	2645	1376	984	2360	5005	6783
A + R + T	9340	2738	1419	942	2361	5099	7220
R + T	7300	1935	0	0	0	1935	4618

524
39
90

448
342
790
39

552
342
894

HAY-PASTURE MIXTURES 1956 (304) MEDIUM CUT-GROUP

LBS. DRY MATTER PER ACRE

Mixture	1957 Season Total	1958					2 year Average
		Hay Jun.27	Aftermath			Season Total	
			Jul.31	Sep.8	Total		
Vernal + Climax	8800	3549	1951	1229	3180	6729	7765
+ Frode	8440	3420	2059	1253	3312	6732	7586
+ Lyon	9260	3785	2240	1340	3580	7365	8313
Vernal + Lad. + Climax	9020	3235	1783	1124	2907	6142	7581
+ Frode	8660	3141	2033	1188	3221	6362	7511
+ Lyon	9400	3329	2210	1441	3651	6980	8190
Vernal + Las. + Climax	9180	2847	1305*	900*	2205*	5052	7116
+ Frode	8260	2061	1159	618	1777	3838	6049
+ Lyon	9200	2986	1396	770	2166	5152	7176
Ver. + Las. + Cl. + Fr.	9340	3385	1750	1038	2788	6173	7757
+ Fr. + Ly.	9060	3097	1720	952	2672	5769	7415
+ Cl. + Ly.	9940	4245*	1910	1129	3039	7284	8612
A + R + T + O + B	9360	2543	1719	1150	2869	5412	7386
A + R + T	10020	3548	1956	1205	3161	6709	8365
R + T	7920	2428	260	0	260	2688	5304

* average of two replications only

HAY-PASTURE MIXTURES 1956 (304) LATE CUT-GROUP

LBS. DRY MATTER PER ACRE

Mixture	1957 Season Total	1958				Season Total	2 year Average
		Hay Jul.8	Aftermath		Total		
			Aug.7	Oct.28			
Empire + Essex	5740	3360	1274	0	1274	4634	5187
+ Can. Brome	4160	2445	744	0	744	3189	3675
Vernal + Can. Brome	6640	4691	1812	1115	2927	7618	7129
+ Lyon	7660	5089	1981	1234	3215	8304	7982
+ S-48	7960	5196	2262	1066	3328	8524	8242
Ver. + S-48 + Lyon	7940	5125	1808	1248	3056	8181	8061
Ver. + Las. + Cl. + Lyon	8240	4275	1216	1105	2321	6596	7418
A + R + T + O + B	7300	4473	1418	1116	2534	7007	7154
A + R + T	7820	4505	1426	1047	2473	6978	7399
R + T	6660	2997	65	0	65	3062	4861

HAY-PASTURE MIXTURES 1956 (304) EARLY CUT. % COMPOSITION 1957

Mixture	Alfalfa			Red Clover		Orchard		Timothy		Brome		Ladino
	Common	Vernal	DuPuits	Common	Lasalle	Common	Frode	Common	Climax	Common	Lyon	
<u>June 18</u>												
DuP + Cl.			44.2						55.8			
+ Frode			61.3				38.7					
+ Lyon			47.3								52.7	
+ Lad. + Cl.			35.8						57.2			7.0
+ Fr.			43.5				48.9					7.6
+ Las. + Cl.			29.8		31.0				39.2			
+ Fr.			37.6		24.7		37.7					
+ Ly.			29.3		34.2						36.5	
DuP+Las+Cl+Fr.			28.3		34.8		13.0		23.9			
+Fr+Ly.			33.3		28.1		24.3				14.3	
+Cl+Ly.			22.9		37.9				27.2		12.0	
Ver+ Las+Cl+Ly.		14.5			47.6				24.9		13.0	
A+R+T+O+B	15.8			40.7		20.6		13.8		9.1		
A+R+T	14.1			40.8				45.1				
R + T				45.0				55.0				
<u>July 23</u>												
DuP + Cl.			80.8						10.2			
+ Fr.			61.8				38.2					
+ Ly.			90.7								9.3	
+ Lad. + Cl.			73.7						15.4			10.8
+ Fr.			52.5				41.9					5.6
+ Ly.			79.1								12.5	8.4
+ Las. + Cl.			73.0		16.0				11.0			
+ Fr.			46.5		10.3		43.2					
+ Ly.			68.0		18.8						13.2	
DuP+Las.+Cl.+Fr.			51.6		20.5		25.9		2.0			
+Fr.+Ly.			53.2		14.5		29.5				2.8	
+Cl.+Ly.			63.3		22.2				8.6		5.9	
Ver.+Las.+Cl.+Ly.		26.9			56.6				7.3		9.2	
A + R + T + O + B	17.4			49.6		28.1		1.7		3.2		
A + R + T	26.8			55.4				17.8				
R + T				79.5				20.5				
<u>October 1</u>												
DuP + Climax			93.7						6.3			
+ Frode			72.5				27.5					
+ Lyon			97.0								3.0	
+ Lad. + Cl.			85.7						7.2			7.1
+ Fr.			62.7				34.2					3.1
+ Ly.			93.8								2.2	4.0
+ Las. + Cl.			87.6		5.9				6.5			
+ Fr.			63.4		5.0		31.6					
+ Ly.			87.2		8.2						4.6	
DuP+Las.+Cl.+Fr.			62.9		8.3		27.8		1.0			
+Fr.+Ly.			64.8		6.7		27.7				0.8	
+Cl.+Ly.			78.2		12.4				5.8		3.6	
Ver.+Las.+Cl+Ly.		47.5			33.4				11.7		7.4	
A + R + T + O + B	30.2			32.6		35.2		1.0		1.0		
A + R + T	47.2			37.0				15.8				
R + T				83.7				16.3				

65.7

HAY-PASTURE MIXTURES 1956 (304) MEDIUM GROUP. % COMPOSITION 1957

Mixtures	Alfalfa		Red Clover		Orchard		Timothy		Brome		Ladino
	Common	Vernal	Common	Lasalle	Common	Frode	Common	Climax	Common	Lyon	
<u>June 25</u>											
Vernal + Climax		37.0						63.0			
+ Frode		62.4				37.6					
+ Lyon		39.5								60.5	
Ver. + Lad. + Cl.		24.0						63.2			12.8
+ Fr.		41.3				44.9					13.8
+ Ly.		40.8								54.2	5.0
Ver. + Las. + Cl.		13.3		51.0				35.7			
+ Fr.		11.5		65.1		23.4					
+ Ly.		9.1		48.9						41.9	
Ver.+ Las.+ Cl. + Fr.		13.9		48.0		14.8		23.3			
+ Fr. + Ly.		14.7		39.8		30.0				15.5	
+ Cl. + Ly.		11.2		46.6				24.8		17.4	
A + R + T + O + B	8.4		38.2		32.6		11.0		9.8		
A + R + T	11.0		43.6				45.4				
R + T			42.3				57.7				
<u>August 12</u>											
Vernal + Climax		82.9						17.1			
+ Frode		71.6				28.4					
+ Lyon		78.2								21.8	
Ver. + Lad. + Cl.		48.5						35.3			16.2
+ Fr.		51.7				36.3					12.0
+ Ly.		69.0								23.3	7.7
Ver. + Las. + Cl.		30.2		48.4				21.4			
+ Fr.		29.9		37.5		32.6					
+ Ly.		35.3		42.3						22.4	
Ver.+ Las.+ Cl. + Fr.		38.7		30.4		24.2		6.7			
+ Fr. + Ly.		31.3		34.6		29.6				4.5	
+ Cl. + Ly.		34.6		38.8				14.3		12.3	
A + R + T + O + B	20.5		52.9		20.5		2.7		3.4		
A + R + T	29.2		45.3				25.5				
R + T			73.3				26.7				
<u>October 11</u>											
Vernal + Climax		91.5						8.5			
+ Frode		77.2				22.8					
+ Lyon		88.1								11.9	
Ver. + Lad. + Cl.		66.1						13.7			20.2
+ Fr.		61.4				28.5					10.1
+ Ly.		78.0								11.7	10.3
Ver. + Las. + Cl.		66.2		18.3				15.5			
+ Fr.		56.0		12.9		31.1					
+ Ly.		66.3		17.8						15.9	
Ver.+ Las.+ Cl. + Fr.		59.0		13.0		25.7		2.3			
+ Fr. + Ly.		48.5		13.8		34.7				3.0	
+ Cl. + Ly.		62.9		15.4				11.5		10.2	
A + R + T + O + B	45.4		17.4		33.8		1.3		2.1		
A + R + T	61.8		18.7				19.5				
R + T			60.8				39.2				

HAY-PASTURE MIXTURES 1956 (304) LATE CUT. % COMPOSITION 1957

Mixtures	Alfalfa		Red Clover		Timothy			Brome		Common Orchard	Empire Trefoil	
	Common	Vernal	Common	Lasalle	Common	Climax	Essex	S-48	Common			Lyon
<u>July 10</u>												
Empire + Essex + Can.Br.							65.8		60.9		34.2	
Ver. + Can. Br.		55.3							44.7		39.1	
+ Lyon		50.3								49.7		
+ S-48		47.3						52.7				
Ver.+S-48 + Ly.		56.0						no		44.0		
Ver+Las+Cl.+Ly.		14.4		45.5		26.1		S48		14.0		
A + R + T +O + B	17.6		32.5		13.8			sown	10.6		25.5	
A + R + T	10.9		46.3		42.8							
R + T			40.0		60.0							
<u>September 16</u>												
Empire + Essex + Can.Br.							27.1		35.8		72.9	
Ver. + Can. br.		66.4							33.6		64.2	
+ Lyon		71.3								28.7		
+ S-48		86.7						13.3				
Ver.+ S-48 + Ly.		67.2						no		32.8		
Ver+Las+Cl.+Ly.		34.9		36.7		13.4		S48		15.7		
A + R + T + O+B	29.4		35.5		5.6			sown	7.1		22.4	
A + R + T	25.0		47.1		27.9							
R + T			55.9		44.1							

HAY-PASTURE MIXTURES 1956 - KEMPTVILLE

	1957			Hay Jun.17	1958				2 year Mean 1957-58
	Hay Jun.20	Amth. Aug.7	Total		Aftermath			Season Total	
					Jul.30	Sep.9	Total		
Vernal + S-48	5429	1508	6937	4090	2319	1420	3739	7829	7383
+ Can. Brome	5251	1137	6388	4882	1849	1405	3254	8136	7262
+ Lyon	5394	1063	6457	6411	1595	1306	2901	9312	7885
Ver.+Las.+Ly. + Cl.	5460	924	6384	6352	1433	1067	2500	8852	7618
+Fr. + Cl.	5198	1129	6327	5052	1667	1232	2899	7951	7139
+Fr. + Ly.	5586	1025	6611	5516	1524	1126	2650	8166	7389
Red Cl. + Tim.	5321	1160	6481	4737	0	809	809	5546	6014
Alf. + Red + Tim.	5646	1404	7050	4333	2309	1525	3834	8167	7614
A + R + T + Or.+ Br.	5390	1208	6598	5131	1965	1359	3324	8455	7527

HAY-PASTURE MIXTURES 1955, NEW LISKEARD (308). LBS. D.M./ACRE

Mixture	1956			1958
	July 25	Aug. 31	Total	July 18
A + R + Al + T + B	17450	5610	23060	3952
A + R* + Al + T + B	17588	4826	22414	3551
A + R* + Al + T + B				
+ F	19446	5491	24937	3904
A + R + T + B + O	18898	5389	24287	2882
A + R** + T + B + O	19144	4898	24042	3287
Empire + T + B	17413	2909	20322	4323
A + R + T	17912	5053	22965	3779
A + R + B	17225	4872	22097	3878

* 2 lbs. double cut + 2 lbs. single cut

** 3 lbs. single cut

HAY-PASTURE MIXTURES 1955, NEW LISKEARD (308)

% COMPOSITION

	Mixture Number							
	1	2	3	4	5	6	7	8
	July 10, 1956							
Vernal	40.3	37.4	35.2	22.3**	35.3	4.6	37.8**	32.9
Red Clover	19.0	30.4	41.2	18.9**	40.2	18.6	24.7**	11.0
Alon	0.5	1.1	0.8			1.1		
Empire						5.9		
Medon	3.5	2.4	1.6	0.2**	0.6	9.5	6.0**	
Oron				19.3**	10.8			
Can. Brome	36.5	27.1	15.1	15.8**	12.1	55.0		49.6
Mefon			5.9					
Weeds*		1.5			0.8	5.2	6.4**	6.4
Total Legume	59.8	68.9	77.2	41.2**	75.5	30.2	62.5**	43.9
	July 18, 1958							
Vernal	45	40	41	43	50		55	43
Red Clover								
Alon								
Empire						48		
Medon	25	31	20	28	23	28	45	
Oron				11	10			
Can. Brome	29	29	26	25	23	24		58
Mefon			13					

* twitch grass

** 3 replicates only

SUMMARY (308):

The trial was harvested in two years only - the first crop year when red clover would make its major contribution and in the third crop year when residual effects and longer-term assessment could be made. The main observations are:

1. Empire trefoil established, survived and produced well even though winter killing reduced orchardgrass stands in this trial and in adjacent strain trials. The yield and hay quality were excellent in the third crop year.
2. Bromegrass established and produced well in combination with alfalfa and red clover. It and timothy appear to be the most suitable grasses for hay-pasture mixtures in the area.
3. Orchardgrass did not thrive. It was vigorous in seedling and first crop year, then thinned severely and the plants remaining in the third year were weak. The two mixtures containing orchard had less ground cover in the third year than other mixtures.
4. Meadow fescue was severely affected by jointworm and this plus the stemmy herbage produced indicate it is not as good as timothy or brome.
5. No important advantage resulted from the use of single-cut red clover as partial or complete replacement of double-cut red clover.

CO-OPERATIVE BROMEGRASS HAY-PASTURE TRIALS

Purpose and Procedure: see 1957 report.

Results 1958:

1. Winterhardiness and stands.

All stands were rated as good and no winterkilling was observed in 1958.

2. Characteristics of varieties.

Lyon brome grass was leafier than common brome grass but did not appear to be much more vigorous. Lyon brome grass appeared to be much coarser than common brome at all locations.

3. Yield and botanical composition.

Yields were not reported from all of the tests. It would appear from the estimated yields that there was little difference in production between either variety of brome grass or timothy (Mixtures 3, 4 and 5). A slight increase in yield resulted when red clover was replaced with ladino. There was little difference between the production obtained from the simple mixture of alfalfa-brome and where ladino had been added to the mixture.

CHARACTERISTICS OF TWO VARIETIES OF BROMEGRASS IN SIMPLE MIXTURES
AT FIVE LOCATIONS IN ONTARIO DURING 1958

County	Date 1958	LYON BROME			COMMON BROME			CLIMAX TIMOTHY	
		Winter* injury	Leafi- ness*	Vigor*	Winter* injury	Leafi- ness*	Vigor*	Winter* injury	Vigor*
Middlesex ¹⁾	6/18	0	-	7.0	0	-	7.0	0	6.0
Brant	6/18	0	8.0	7.0	0	7.5	6.5	0	5.0
Kuron	6/12	0	8.5	7.0	0	8.0	7.0	0	6.5
Victoria ²⁾	6/12	0	7.0	10.0	0	6.0	8.0	0	7.5
Lenfrew	6/24	0	5.0	7.0	0	5.0	7.0	0	6.0
Average		0	7.1	7.4	0	6.6	7.1	0	6.2

1) poor initial stand

2) differentially fertilizer

* scale 1 - least; 10 - most.

YIELD AND BOTANICAL COMPOSITION OF FIVE MIXTURES CONTAINING VARIETIES OF BROMEGRASS
AT FIVE LOCATIONS IN ONTARIO DURING 1958

County	Date 1958	1				2			3				4				5				Pasture days
		Yield	Comp.			Yield	alf	Comp. br.	Yield	alf	lad	Lyon	Yield	alf	red	Can br.	Yield	alf	Comp.		
			red	tim																	
Middlesex	6/18	2) 0.50	15	10	75	2) 0.50	40	60	2) 0.50	35	T	65	2) 0.50	40	T	60	2) 0.75	45	T	55	9.5
Irant	6/18	2) 2.0	45	T	55	2) 2.0	45	55	2) 1.50	30	T	70	2) 1.50	30	T	70	2) 1.25	25	T	25	-
Huron	6/20	1.89	40	5	55	1.79	55	45	1.87	35	0	65	1.57	30	0	70	1.86	55	0	45	-
	1) 8/20	0.80	-	-	-	0.8	-	-	0.80	-	-	-	0.80	-	-	-	0.8	-	-	-	-
Victoria	6/12	2) 0.75	40	20	40	2) 0.75	75	25	2) 0.50	50	5	45	2) 0.50	45	5	50	2) 1.00	50	0	50	-
Rerfrew	6/24	2) 1.25	60	10	3) 15	2) 1.25	60	40	2) 1.25	75	5	20	2) 1.00	30	20	3) 15	2) 1.00	40	20	3) 20	-
Average		1.37	40	9	48	1.26	55	45	1.12	45	2	53	1.01	35	5	53	1.17	43	4	49	

1) crop consisted mainly of alfalfa.

2) estimated yields

3) quack grass proportion high

HAY AND SILAGE MIXTURE DIVERSITY TRIAL, 1957 (305)

The available species and varieties differ in maturity, spring vigor, rate of recovery after cutting and in fall vigor. These different features might be utilized to introduce diversity into the hay and silage mixture program for a farm and result in better average hay quality over the whole hay acreage and better distribution of aftermath pasture.

This experiment is designed to (1) compare several mixtures for early hay or silage, medium hay and late hay with a view toward selecting the best mixture for each cutting stage, (2) compare hay yield and quality where a series of mixtures are used rather than a single mixture over the whole hay acreage, and (3) compare the distribution and total amount of aftermath where a series of mixtures are used rather than a single mixture.

The following mixtures were seeded in 1957 at Guelph.

<u>Mixture Number</u>	<u>Components and Rates</u>
1	DuPuits 10 + Frode 6
2	DuPuits 10 + Lincoln 10
3	DuPuits 10 + Climax 6
4	Vernal 5 + DuPuits 5 + Frode 6
5	Vernal 8 + Lasalle 2 + Frode 6
6	Vernal 10 + Frode 6
7	Vernal 10 + Lincoln 10
8	Vernal 10 + Climax 6
9	Vernal 10 + S-48 6
10	Viking 5 + Climax 5
11	Empire 5 + S-48 5
12	Lasalle 6 + Alsike 2 + Climax 6
13	Can. Grimm 7 + Can. Red 3 + Com. Timothy 6
14	Vernal 8 + Lasalle 2 + Climax 4 + Lincoln 6

HAY AND SILAGE MIXTURE DIVERSITY TRIAL 1957 (305). D.M./ACRE 1958

	EARLY GROUP						MEDIUM GROUP					
	Jun.20	Aftermath				Season Total	Jun.27	Aftermath				Season Total
		Jul.22*	Sep.9	Oct.28	Total			Jul.30*	Sep.9	Oct.28	Total	
IuP + Frode	5370	2963	2188	966	6177	11487	6220	3490	2333	875	6698	12918
+ Lincoln	5819	3008	1989	981	5978	11797	5686	3023	1913	872	5808	11494
+ Climax	5681	3006	2120	997	6123	11804	5908	3265	2293	967	6525	12433
Ver. + DuP + Frode	5572	2771	2042	859	5672	11244	6878	3286	2211	719	6216	13094
+ Las. + Frode	5789	2314	1932	290	4536	10325	6371	2657	1921	124	4702	11073
+ Frode	5616	2332	1826	300	4458	10074	6037	2628	1665	125	4418	10455
Ver. + Lincoln	5948	2330	1867	332	4529	10477	6409	2952	1994	104	5050	11459
+ Climax	5974	2242	2097	451	4790	10764	5992	2668	1844	118	4630	10622
+ S48	5358	2338	1896	397	4631	9989	6189	2809	1914	141	4864	11053
Viking + Climax	2448	1647*		1025	2672	5120	3347	2534*		1471	4005	7352
Empire + S48	1125	1397*		1413	2810	3935	1649	2489*		806	3295	4944
Las. + Als. + Climax	4786	1788	1627	323	3738	8524	5313	2075	1119	390	3584	8897
A + R + T	5501	2239	1805	154	4198	9699	5922	2732	1768	113	4613	10535
Ver. + Las. + Cl. + Linc.	5910	2172	1972	332	4476	10386	5486	2431	1674	99	4204	9690
		* cut August 10						* cut August 22				

HAY AND SILAGE MIXTURE DIVERSITY TRIAL 1957 (305). D.M./ACRE 1958

LATE GROUP

	Jul. 8	Aftermath			Season Total
		Aug.5*	Oct.22	Total	
DuPuits + Frode	6013	2541	2129	4670	10683
+ Lincoln	5737	2475	1913	4388	10125
+ Climax	6049	2947	1924	4871	10920
Ver. + DuP + Frode	6348	2454	2076	4530	10878
Ver. + Las. + Frode	6031	1732	2126	3858	9889
Ver. + Frode	6041	1986	2157	4143	10184
Ver. + Lincoln	6909	2369	1848	4217	11126
+ Climax	6150	2124	1975	4099	10249
+ S48	5919	2085	1740	3825	9744
Viking + Climax	4240	2809*	595	3404	7644
Empire + S48	2724	2375*	89**	2464	5188
Las. + Als. + Climax	5224	1377	2222	3599	8823
A + R + T	5448	2096	1970	4066	9514
Ver. + Las. + Cl. + Linc.	6697	1972	1935	3907	10604

* cut September 9

** mean based on 5 plots only

PROVINCIAL HAY-PASTURE MIXTURES - GOOD DRAINAGE 1957. SERIES A

AVERAGE YIELD FROM FOUR LOCATIONS 1958*

No.	Mixture	Pounds of dry matter per acre		
		Hay	Aftermath	Total
4	Vernal 10, Lincoln 10	5748	3660	9408
9	Vernal 10, Climax 6	5072	3647	8719
3	Vernal 8, Lasalle 2, Climax 6	5073	3709	8782
1	Vernal 8, Lasalle 2, Climax 4, Lincoln 6	5415	3775	9190
2	Vernal 8, Lasalle 2, Climax 4, Orchard 3	5096	3631	8727
7	Vernal 8, DuPuits 2, Climax 6	4878	4097	8975
8	Vernal 5, DuPuits 5, Climax 4, Lincoln 6	5429	4403	9832
10	Vernal 6, Lasalle 4, Climax 2, Lincoln 5, Orchard 4	5024	3482	8506
5	Vernal 6, Lasalle 3, Climax 5, Lincoln 6, Ladino 1	5243	3520	8763
6	Vernal 5, Lasalle 3, Climax 3, Lincoln 5, Orchard 2, Alsike 1, Ladino 1	4803	3401	8204

* Kemptville, Ottawa, New Liskeard and Guelph

PROVINCIAL HAY-PASTURE MIXTURES - GOOD DRAINAGE 1957. SERIES A. SUMMARY OF DRY MATTER YIELDS AND
LEGUME COMPOSITION. FIRST CROP HAY 1958

	Region															
	A Ridgetown		B Guelph		C Appleton Douglass Kemptville Ottawa								D N. Liskeard		E Kapuska-sing	
	Jun. 10	%*	Jun. 25	%*	Jul. 10	%*	Jul. 4	%*	Jun. 24	%*	Jun. 24	%*	Jul. 17	%*	Jul. 15	%*
Ver. + DuP + Cl.	4505	45	6839	75	2420	40	3480	50	4112	-	4618	99	3943	93	1733	75
Ver. + DuP + Cl. + Linc.	5073	60	7292	74	3100	60	3540	45	5569	-	4579	89	4275	88	1900	75
Ver. + Las. + Cl.	4669	57	7154	71	2620	75	3080	50	4489	-	4580	99	4067	96	1461	75
Ver. + Las. + Cl. + Linc.	5312	53	7405	71	3420	70	3740	50	5539	-	4511	87	4206	94	1440	50
Ver. + Las. + Cl. + Or.	5323	52	7327	68	3140	75	2840	50	4323	-	4540	71	4195	97	1724	70
Ver. + Las. + Cl. + Linc. + Or.	4286	57	6659	58	2520	60	3160	50	4342	-	4975	66	4118	95	2481	70
Ver. + Linc.	5006	58	7599	51	2220	60	3060	50	6366	-	4716	87	4312	94	1432	65
Ver. + Cl.	4650	57	7470	70	3060	80	3600	50	4236	-	4355	98	4228	93	1534	70
Ver. + Las. + Cl. + Linc. + Lad.	4543	50	6603	60	3280	90	3440	50	5564	-	4813	84	3991	92	1746	60
Ver. + Las. + Cl. + Linc. + Orch. + Als. + Lad.	3868	43	5847	63	2460	75	3520	50	4885	-	4473	73	4009	92	2419	70
Rhiz. + Las. + Cl. + Linc. + Or.	-	-	-	-	-	-	-	-	-	-	-	-	4127	87	2424	45
Rhiz. + Alta. + Cl. + Als.	-	-	-	-	-	-	-	-	-	-	-	-	4186	93	3014	80
Rhiz. + Las. + Cl. + Linc.	-	-	-	-	-	-	-	-	-	-	-	-	4037	93	1949	65
Average	4724		7019		2824		3346		4942		4616		4130		1947	
L. S. D. 0.05	N.S.		794		-		-		631		N.S.		N.S.		954	
C.V.	9.1		7.8		-		-		8.8		7.3		5.3		46.3	

* percent total legume

PROVINCIAL HAY-PASTURE MIXTURES FOR AREAS OF GOOD DRAINAGE. SERIES A. SUMMARY OF DRY
MATTER YIELDS. TOTAL AFTERMATH 1958.

Composition	Region							
	A Ridgetown*	B GuelphØ	C Appleton Douglass Kemptville* OttawaØ				D New Liskeard#	E Kapuskasing*
Ver. + DuP + Cl.	3203	5584			Aug. 27 2938	5593	2272	982
Ver. + DuP + Cl. + Linc.	3671	6246			3214	5943	2210	856
Ver. + Las. + Cl.	3316	4766			2766	5097	2207	752
Ver. + Las. + Cl. + Linc.	3296	4873			2446	5629	2152	720
Ver. + Las. + Cl. + Or.	3410	4726			2188	5400	2211	742
Ver.+ Las.+ Cl.+ Linc.+ Or.	2942	4440			1846	5270	2370	820
Ver. + Linc.	3306	4783			2378	5338	2140	678
Ver. + Cl.	3030	4760			2678	5107	2044	800
Ver.+Las.+Cl.+Linc.+Lad.	3002	4706			2262	4997	2117	687
Ver.+Las.+Cl.+Linc.+Or.+Als.+ Lad.	2349	4571			1928	5072	2034	742
Rhiz. + Las.+ Cl.+ Linc.+ Or.							2073	679
Rhiz. + Alta. + Cl. + Als.							1892	572
Rhiz. + Las. + Cl. + Linc.							1989	853
Average	3153	4947			2489	5344	2156	760
L. S. D. 0.05	N.S.				344			
C. V.	10.4				9.5			25.5

* one aftermath harvest only
Ø total of 3 aftermath harvests
average of 2 replications

PROVINCIAL HAY-PASTURE MIXTURES FOR AREAS OF GOOD DRAINAGE. SERIES A. SUMMARY OF DRY MATTER

YIELDS.

SEASONAL TOTALS

Composition	Region							
	A Ridgetown	B Guelph	C				D N.Liskeard	E Kapuskasing
			Appleton	Douglass	Kemptonville	Ottawa		
Ver. + DuP + Cl.	7708	12422	2420	3480	7300	10211	6215	2716
Ver. + DuP + Cl. + Linc.	8744	13538	3100	3540	8783	10519	6485	2716
Ver. + Las. + Cl.	7985	11920	2620	3080	7255	9677	6274	2213
Ver. + Las. + Cl. + Linc.	8608	12556	3420	3740	7986	9640	6358	2161
Ver. + Las. + Cl. + Orch.	8733	12053	3140	2840	6511	9939	6406	2466
Ver. + Las. + Cl. + Linc. + Or.	7229	11099	2520	3160	6189	10245	6488	3301
Ver. + Linc.	8312	12381	2220	3060	8744	10053	6452	2109
Ver. + Cl.	7680	12330	3060	3600	6914	9460	6272	2334
Ver. + Las. + Cl. + Linc. + Lad.	7545	11309	3280	3440	7825	9811	6108	2433
Ver. + Las. + Cl. + Linc. + Or. + Als. + Lad.	6217	10418	2460	3520	6813	9544	6043	3220
Rhiz. + Las. + Cl. + Linc. + Or.							6200	3102
Rhiz. + Alta. + Cl. + Als.							6078	3585
Rhiz. + Las. + Cl. + Linc.							6026	2802
Average	7876	11975	2824	3346	7432	9910	6338	2707
L. S. D. 0.05	N.S.	968			693	N.S.		904
C.V.	8.9	5.5			6.4	4.6		33.6

PROVINCIAL HAY-PASTURE MIXTURES, 1957. FAIR DRAINAGE. SERIES A.

AVERAGE YIELD FROM THREE LOCATIONS*

No.	Mixture	Pounds of dry matter per acre		
		Hay	Aftermath	Total
9	Lasalle 6, Alsike 2, Climax 6	4429	2331	6760
1	Vernal 6, Lasalle 3, Ladino 1, Climax 5, Lincoln 6	4173	2240	6413
2	Vernal 2, Lasalle 5, Alsike 2, Climax 6	4446	2343	6789
3	Vernal 3, Lasalle 5, Alsike 2, Climax 4, Orchard 2, Meadow Fescue 3	4342	2407	6749
4	Vernal 3, Lasalle 5, Ladino 1, Alsike 1, Climax 3, Orchard 2, Lincoln 5	4166	2383	6549
5	Vernal 4, Viking 3, Climax 6	4045	2736	6781
15	Viking 5, Alsike 1, Climax 5	3929	1443	5372
11	Empire 5, Alsike 1, Climax 5	3910	1520	5430
13	Viking 5	3025	2043	5068
8	Viking 5, Climax 5	3399	1904	5303
6	Viking 5, Lincoln 8	3354	1940	5294
7	Viking 5, Lincoln 5, Climax 2	3468	1583	5051
12	Viking 5, Reed Canary 6	2796	1740	4536
14	Empire 5	3497	1148	4645
10	Empire 5, Climax 5	3829	1170	4999

* Eau Claire, Kemptville and Guelph

PROVINCIAL HAY-PASTURE MIXTURES FOR AREAS OF FAIR DRAINAGE, 1957. SERIES A.

SUMMARY OF DRY MATTER YIELDS AND LEGUME COMPOSITION. FIRST CROP

HAY 1958

Mixture	Pounds of Dry Matter per acre					
Composition	Region					
	B		C		F	
	Eau Claire	Guelph	Kemptville	Williamstown	Kapusksasing	
	July 31 %	June 26 %	June 27 %	July 8 %	July 15 %	
Ver., Las., Cl., Linc., Lad.	4754 45	3605 54	4161	4520 100	3436	
Ver., Las., Als., Cl.	4760 50	4624 63	3955	4640 80	3880	
Verr., Las., Als., Cl., Or., M.Fescue	4830 50	4140 41	4055	6100 60	3932	
Ver., Las., Lad., Als., Cl., Or., Brome	4466 45	3906 39	4125	5360 75	3983	
Vernal, Viking, Climax	4474 60	4000 40	3662	4060 90	1537	
Lasalle, Alsike, Climax	4996 50	4137 55	4155	4580 70	3646	
Viking	4552 75	2770 92	1754	3340 100	772	
Viking, Climax	4946 55	3028 43	2222	3840 60	1043	
Viking, Lincoln	4328 65	3033 48	2701	4120 50	1543	
Viking, Lincoln, Climax	4882 75	3015 36	2506	4060 10	1171	
Viking, Alsike, Climax	4956 65	4103 66	2729	4380 60	1597	
Viking, Reed Canary	4262 65	2065 56	2060	4160 60	683	
Empire	4179 45	4500* 87	1812	3520 100	441	
Empire, Climax	4551 65	4802* 52	2135	3520 100	1099	
Empire, Alsike, Climax	4550 50	3882* 62	3298	3980 85	2098	
Average	4632	3690	3022	4279	2057	
L.S.D.	444	665	604			
C.V.	6.5	12.7	14.0			

* Empire plots harvested July 10, 1958

4. Field 19: The general-purpose hay-pasture mixture for well-drained land was seeded in 1957 for reassessment. This was:

Vernal 8
Redon 2
Medon 4
Lincoln 6

The production and legume-grass
balance was good in the first
crop year.

O.A.C. FARMS, HAY-PASTURE MIXTURES.

1. Auld Farm (Field 2), 1956.

Three acre blocks.

DuPuits 10 + Can. Brome 10
Can. Grimm 10 + Can. Brome 10
Vernal 10 + Can. Brome 10
Vernal 10 + S-37 8 orchard
Vernal 10 + Frode 8 orchard

DuPuits survived and produced same as in plot trials. The legume-grass balance was good in contrast to that found in one plot trial. The Frode and S-37 performed same as in plot trials. Good on all sections of the field.

2. Kay Farm, 1957.

Vernal 8
Redon 2
Medon 4
Lincoln 6

Vernal 8
Redon 2
Medon 6

Vernal 10
Lincoln 10

These were to compare with similar seedings on Brampton farm. All three were good in first crop year, and none better than Vernal + Lincoln.

3. Mixtures seeded in 1958.

1. Edinburgh Road Field
Vernal 8 + Ladino 1 + Brome 6 + Timothy 4
2. Back of New Field Husbandry Experimental Area (#67)
Vernal 10 + Brome 6 + Timothy 4
3. Auld Farm (25 acres)
Vernal 8 + Lasalle 2 + Brome 6 + Timothy 4
4. Kay Farm - 12 adres by barn
Alfalfa 8 + Ladino 1 + Brome 6 + Timothy 4
5. Kay Farm - 20 acres right of barn
Vernal 6 + Viking 3 + Timothy 6
6. Kay Farm - 14 acres behind big house
Vernal 12 + Ladino 1 + Brome 6 + Timothy 4

BIRDSFOOT TREFOIL VARIETY MIXTURES FOR EARLY AND LATE HAY - 1956

Objectives:

1. To determine the distribution of aftermath pasture production from early (Viking) and late (Empire) maturing hay mixtures.
2. To ascertain the influence upon distribution and production of selected varieties of three species of grass when used with the early and late maturing varieties of birdsfoot trefoil.
3. To study the effect of soil drainage on the distribution and production of these mixtures.

Procedure:

1. Locations: A. O.A.C. Guelph, seeded May 1956 in London loam.
B. Brampton farm, seeded May 1956 on Haldimand clay.
C. Kemptville Agricultural School, seeded May 1956.

2. Design: Randomized complete block design - four replications.

3. Mixtures: A. Early maturing mixtures.

Viking 7# *

Viking 7# + Climax timothy 5# *

Viking 7# + S-48 timothy 5# *

Viking 7# + Can. bromegrass 8#

Viking 7# + Lyon bromegrass 8#

Viking 7# + Frode orchardgrass 5# *

Empire (G701) 7# *

Empire (G701) 7# + Climax timothy 5# **

Empire 7# + Climax timothy 5#

Lasalle 7# + Climax timothy 5#

- B. Late maturing mixtures.

Empire 7# *

Empire 7# + Climax timothy 5# *

Empire 7# + Essex timothy 5# *

Empire 7# + S-48 timothy 5# *

Empire 7# + Can. bromegrass 8# *

Empire 7# + Lyon bromegrass 8#

Viking 7# + Climax timothy 5#

Vernal 7# + Climax timothy 5#

Lasalle + Vernal + Climax timothy 5#

Vernal + Viking + Climax + Can. bromegrass **

Lasalle + Viking + Climax **

* components of test at Kemptville

** included in Kemptville test and not at Guelph or Brampton locations.

4. Management: Each group was harvested as hay followed by aftermath pasture. The hay crop was removed on the basis of the maturity of the main legume of each group, i.e. Viking and Empire. The aftermath was harvested as pasture when the birdsfoot trefoil had attained a height of 6 to 8 inches. At Kemptville all mixtures were removed as hay followed by aftermath hay.

Comments:

The rains during June 1957 delayed hay harvest at both Guelph and Brampton. The dry period encountered after this harvest restricted growth. Three cuts were obtained from both early and late mixtures at the Guelph location but only two were harvested at Brampton. The Brampton test had established quite well during 1956. The presence of excess water, however, in the fall and winter and eventually the formation of ice sheets over various parts of the testing area resulted in a variable plant stand in the spring of 1957. Plots containing Empire were the least variable in stand. The order in which the legume crops appeared to be able to withstand these conditions was Empire, Viking, Vernal alfalfa and Lasalle red clover. Little difference was observed between the latter two legumes in their ability to withstand flooding and ice sheet formation. Even though Empire and in some cases Viking were able to live in these low sections the spring growth was slow and the production low. Frode orchardgrass was severely damaged. Both varieties of brome grass appeared to have equal ability to withstand these conditions. The growth was slow and the forage production of these two varieties was low in the low areas of the plots. The varieties of timothy used appeared to be able to produce fairly well under these conditions.

BIRDSFOOT TREFOIL VARIETY MIXTURES FOR EARLY HAY - BRAMPTON 1956

LEGUME COMPONENT IN POUNDS OF DRY MATTER PER ACRE 1957-58

	1957			1958		
	Hay Jun.27	After. Aug.28	Total	Hay Jun.23	After. Aug.8	Total
Viking	2913	742	3655	1808	733	2541
Viking - Climax	2170	353	2523	569	582	1151
- S48	1591	441	2032	570	617	1187
Viking - Can.Brome	1535	353	1888	241	490	731
- Lyon	1837	509	2346	264	329	593
- Frode	1680	459	2039	289	422	711
Empire (G701)	2147	294	2441	1896	382	2278
Empire - Climax	1272	154	1426	994	242	1236
Empire (G701) - Climax	1088	177	1265	732	221	953
Lasalle - Climax	2466	426	2892	52	•	52

BIRDSFOOT TREFOIL VARIETY MIXTURES FOR EARLY HAY - BRAMPTON 1956

YIELD IN POUNDS OF DRY MATTER PER ACRE 1957-58

(HALDIMAND CLAY)

	1957			1958			Average 1957-58
	Hay Jun.27	After. Aug.28	Total	Hay Jun.23	After. Aug. 8	Total	
Viking	3274	1003	4306	2260	733	2993	3650
Viking - Climax	4019	705	4663	2474	647	3121	3892
- S48	3617	678	4306	1965	686	2651	3479
Viking - Can.Brome	3743	560	4241	1505	551	2056	3149
- Lyon	4176	808	4978	2639	568	3207	4093
Viking - Frode	3360	917	4208	1806	669	2475	3342
Empire (G701)	2788	426	3126	2154	398	2552	2839
Empire - Climax	3634	349	4001	2924	291	3215	3608
Empire (G701) - Climax	3509	402	3855	2614	260	2874	3365
Lasalle - Climax	4652	609	5174	1747	264	2011	3593
L.S.D. 0.05	616	246	686	402	88		
C.V.	9.8	26	9.3	13	12		

BIRDSFOOT TREFOIL VARIETY MIXTURES FOR LATE HAY - GUELPH 1956

LEGUME COMPONENT IN POUNDS OF DRY MATTER PER ACRE 1957-58

	1957				1958		
	Hay Jun.28	Aftermath		Total	Hay Jul. 8	Pasture Sept.2	Total
		Aug.25	Nov. 1				
Empire	2317	1757	93	4167	2794	1162	3956
Empire - Climax	1105	1240	31	2376	2854	1283	4137
- Essex	1007	1392	48	2447	2212	1220	3432
- S48	944	1371	31	2346	2023	1568	3591
Empire - Can. Brome	1244	953	66	2263	2688	1010	3698
- Lyon	1161	1079	7	2247	2623	1157	3780
Viking - Climax	1255	1845	382	3482	3015	2097	5112
Vernal - Climax	2262	3094	1093	6449	4172	2829	6001
lasalle - Climax	2863	1916	41	4820	3801	515	4316

BIRDSFOOT TREFOIL VARIETY MIXTURES FOR LATE HAY - GUELPH 1956

YIELD IN POUNDS OF DRY MATTER PER ACRE 1957-58

(GUELPH LOAM)

	1957				1958			Average 1957-58
	Hay Jun.28	Aftermath		Total	Hay Jul.8	After. Sep.2	Total	
		Aug.25	Nov.1					
Empire	3859	2422	93	5574	2941	1347	4288	4931
Empire - Climax	4424	2082	128	6631	4660	1655	6315	6473
- Essex	4146	1923	154	6223	4538	1501	6039	6131
- S48	3696	1913	393	5729	4373	1873	6246	5988
Empire - Can. Brome	3604	1621	33	5258	3840	1496	5336	5297
- Lyon	5010	1875	94	6997	4373	1746	6119	6558
Viking - Climax	5161	2190	457	7823	5026	2431	7457	7640
Vernal - Climax	5925	3767	1174	10978	6069	3188	9257	10118
Lasalle - Climax	5728	3807	142	9677	5336	1145	6481	8079
L.S.D. 0.05	787	432	-	503	437	650		
C.V.	11.9	12.1		5.0	7	24	14	

BIRDFOOT TREFOIL VARIETY MIXTURES FOR EARLY HAY - GUELPH 1956

LEGUME COMPONENT IN POUNDS OF DRY MATTER PER ACRE 1957-58

	1957				1958			
	Hay Jun.19	Pasture		Total	Hay Jun.20	Pasture		Total
		Jul.31	Nov.1			Aug.5	Oct.21	
Viking	1965	1323	636	3924	2876	2287	876	6039
Viking - Climax	902	944	510	2356	1337	2095	830	4262
Viking - S48	1156	943	639	2738	1273	2323	1196	4792
Viking - C.Brome	785	889	356	2030	1295	1915	1122	4332
Viking - Lyon	1192	770	406	2369	1331	1933	874	4138
Viking - Frode	878	472	256	1606	653	1192	770	2616
Empire (G701)	1729	850	373	2952	2480	1654	302	4436
Empire - Climax	804	253	450	1507	1229	1472	602	3303
Empire (G701) - Climax	1020	217	417	1654	1221	1517	555	3293
Lasalle - Climax	2652	1663	249	4564	861	676	74	1611

BIRDSEED TREFOIL VARIETY MIXTURES FOR EARLY HAY - GUELPH 1956

YIELD IN POUNDS OF DRY MATTER/ACRE 1957-58

(GUELPH LOAM)

Mixture	1957				1958				Average 1957-58
	Hay Jun.19	Aftermath		Total	Hay Jun.20	Aftermath		Total	
		Jul.31	Nov.1			Aug.5	Oct.21		
Viking	3275	1960	723	5957	2912	2772	1068	6752	6355
Viking - Climax	5010	1294	789	7129	3819	2660	1257	7737	7433
- S48	4205	1217	1122	6543	3394	2733	1407	7534	7039
Viking - C.Brome	4424	1361	630	6415	3701	2786	1275	7761	7088
- Lyon	4500	1436	718	6809	3944	2578	1181	7703	7256
Viking - Frode	2684	1330	594	4608	2750	2030	1085	5865	5237
Empire (G701)	2660	1134	578	4372	2577	2169	413	5159	4766
Empire - Climax	4638	563	835	6035	3512	1996	872	6380	6208
Empire (G701) - Climax	4208	527	795	5529	3490	1989	781	6260	5895
Lasalle - Climax	5304	2289	512	8105	4050	1502	194	5746	6926
L.S.D. 0.05	628	354	95	408	474	-	-	900	
C.V.	10.6	18	23	16	10	-	-	9	

BIRDSFOOT TREFOIL MIXTURES FOR LATE HAY BRAMPTON* 1956

LBS. OF DRY MATTER PER ACRE

Mixture	1957			1958
	Hay July 10	Aftermath Sept.30	Total 1957	Aftermath Aug.22
Empire	2659	973	3752	238
Empire + Climax	4286	1076	5382	202
+ Essex	3972	1045	5106	292
+ S-48	3846	901	4874	237
Empire + Can. Brome	2609	819	3461	315
+ Lyon	3219	1119	4414	219
Viking + Climax	4464	1253	5833	440
Vernal + Climax	3930	1207	5242	683
Lasalle + Climax	5137	1216	6598	130
L.S.D. 0.05	844	N.S.	978	
C.V.	12.8	22.9	11.4	

* three replications only

BIRDSFOOT TREFOIL MIXTURES FOR LATE HAY BRAMPTON 1956

LEGUME COMPONENT IN LBS. D.M./ACRE 1957-58

Mixture	1957			1958
	Hay July 10	Pasture Sept. 30	Total	Pasture Aug. 22
Empire	1258	718	1976	198
Empire + Climax	1569	592	2161	113
+ Essex	1470	604	2074	169
+ S-48	1100	554	1654	140
Empire + Can. brome	955	493	1448	145
+ Lyon	1329	606	1935	101
Viking + Climax	1768	746	2514	308
Vernal + Climax	1533	857	2390	615
Lasalle + Climax	3216	772	3988	4

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES 1956

Objectives:

1. To compare the production of Viking birdsfoot trefoil mixtures with the standard red clover -timothy mixtures.
2. To determine the influence of other legumes on the production of Viking birdsfoot trefoil.
3. To ascertain the effect of seeding rates of Viking in simple mixtures and with red clover.

Design: Randomized complete block - 4 replications.

Procedure:

1. Locations:
 1. O.A.C. Guelph, London loam, 1956
 2. Brampton farm, Haldimand clay, 1956.
2. Mixtures:
 - Viking 7
 - Viking 7 + Climax 5
 - Viking 4 + Climax 5
 - Viking 7 + Climax 5 + Can. brome 5
 - Viking 7 + Vernal 4 + Climax 5
 - Viking 7 + Lasalle 2 + Climax 5
 - Viking 4 + Lasalle 2 + Climax 5
 - Viking 7 + Alsike 2 + Climax 5
 - Viking 7 + Ladino $\frac{1}{2}$ + Climax 5
 - Lasalle 7 + Climax 5
 - Can. Red. 7 + Climax 5
3. Management: Hay and aftermath pasture
Hay - Viking (25-50% bloom)
Aftermath pasture (6-8" tall)
4. Data:
 1. Yields of dry matter
 2. Pounds of legume component
 3. Stand counts (Guelph only - July 1958 and July 1958)

Comments:

1. Establishment -

Brampton - This test established well and fair to good stands were obtained of Viking and other legumes. An ice sheet formed over part of the test (one replicate) and resulted in weakening the stand of other legumes but not Viking.

Guelph - This test established well and excellent stands of Viking and the other legumes were present.

2. First crop year

Brampton - Alsike, red clover and ladino had disappeared from the test by August 1957. Viking was present and was vigorous.

Guelph - Alsike, red clover, ladino and alfalfa were very vigorous during 1957 and Viking was not contributing.

3. Second crop year

Brampton - No alsike, ladino or red clover was present. Viking, and to a lesser extent alfalfa, was present. This test was plowed in the fall of 1958.

Guelph - Lasalle, ladino, alfalfa and alsike were very high in vigor in all cuts. Viking was seriously reduced. This test was lost as a result of the construction of a drainage ditch.

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES. GUELPH 1956.

POUNDS OF DRY MATTER 1957 and 1958

	1957			1958			Two Year Average
	Hay	After.	Total	Hay	After.	Total	
Viking 7	3162	1958	5120	2864	3032	4896	5008
Vik.7 - Cli.5	5192	2055	7247	3818	2350	6168	6708
Vik.4 - Cli.5	4795	1898	6693	4039	2082	6162	6407
Vik.7 - Cli.5- Br.5	4630	1597	6227	3890	2079	5969	6098
Vik.7 - Ver.4 - Cli.5	5452	3125	8577	4410	3020	7438	8008
Vik.7 - Las.2 - Cli.5	4457	2588	7045	4936	1610	6546	6796
Vik.4 - Las.2- Cli.5	5777	2680	8451	4615	1686	6302	7380
Vik.7 - Als.2-Cli.5	5140	1908	7048	4061	577	4637	5843
Vik.7 - Lad. $\frac{1}{2}$ - Cli.5	4447	2553	7000	4052	2065	6117	6559
Lasalle 7 - Climax 5	5572	2690	8265	4824	1978	6802	7534
Can.Red 7 - Climax 5	5112	3787	8899	4993	1915	6908	7905
L.S.D. 0.05	120		481	422	369	604	
C.V.	15.6		13.7	6.3	12.9	6.7	

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES - GUELPH 1956

LEGUME COMPONENTS IN POUNDS OF D.M./ACRE. 1957-58

	1957		1958	
	Hay	Aftermath	Hay	Aftermath
Viking 7	2909	1679	2177	1440
Viking 7 + Climax 5	924	566	1260	1688
Viking 4 + Climax 5	384	484	744	1230
Viking 7 + Climax 5 + Brome 5	1042	658	1362	1343
Viking 7 + Vernal 4 + Climax 5	436(491)*	500(1094)*	617(1544)*	93(2303)*
Viking 7 + Las.2 + Climax 5	89(2407)*	48(1318)*	296(1974)*	0(747)*
Viking 4 + Las.2 + Climax 5	0(2195)*	19(1466)*	185(1892)*	0(784)*
Viking 7 + Als.2 + Climax 5	0(1953)*	108(609)*	244(772)*	0(108)*
Viking 7 + Lad. $\frac{1}{2}$ + Climax 5	44(489)*	0(1431)*	0(2229)*	66(714)*
Lasalle 7 + Climax 5	0(2843)*	0(1587)*	0(2653)*	0(1081)*
Can. red 7 + Climax 5	0(2249)*	0(2070)*	0(2497)*	0(752)*

* lbs. of other legumes

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES - BRAMPTON 1956.

Mixtures		Yields in lbs. of D.M.						
		1957			1958			Total 1957-58
		Hay	Aftermath	Total	Hay	Aftermath	Total	
Viking 7		2785	1680	4715	2115	921	3035	7750
Viking 7 + Climax		3252	1883	5135	2189	720	2909	8044
Viking 4 + Climax		2844	1373	4335	2027	688	2715	7050
Vik. + Cli. + Brome		3440	1400	4840	2618	666	3284	8124
Vik.7 + Las. + Cli.		3753	1708	5460	2423	798	3221	8681
Vik.4 + Las. + Cli.		3379	1405	5233	2161	705	2866	8099
Vik. + Alsike + Cli.		4118	1728	5845	2527	705	3232	9077
Vik. + Ladino + Cli.		3558	1548	5105	2209	652	2861	7966
Vik. + Vernal + Cli.		3628	2133	5760	2901	875	3776	9536
Lasalle + Cli.		4020	1223	5243	2161	258	2419	7662
Com.Red + Climax		3670	983	4653	1776	141	1917	6570
L.S.D.	.05	318	487	642		127	412	
	.01	429	657			172	555	
C.V.		8.8	21.8	8.8		13.6	9.8	

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES - BRAMPTON 1956

LEGUME COMPONENT IN POUNDS OF DRY MATTER PER ACRE 1957-1958

Mixtures	1957		1958	
	Hay	Aftermath	Hay	Aftermath
Viking 7	1949	1368	1850.6	863
Viking 7 - Climax 5	1593	1279	656.7	648
Viking 4 - Climax 5	230	852	582.7	653
Viking 7 - Climax 5 - Brome 5	1685	924	654.5	616
Viking 7 - Vernal 4 - Climax 5	1278(816)*	712(903)*	32.6(1196.6)*	557(207)*
Viking 7 - Las.2 - Climax 5	1050(1200)*	1229(0)*	787.4(0)*	738(0)*
Viking 4 - Las.2 - Climax 5	493 (520)*	901(0)*	513.2(0)*	645(0)*
Viking 7 - Alsike 2 - Climax 5	1548(1421)*	1177(0)*	694.9(0)*	652.1(0)*
Viking 7 - Lad. $\frac{1}{2}$ - Climax 5	1280(82)*	978(0)*	662.7(0)*	611(0)*
Lasalle 7 - Climax 5	2182	718	23.2	0
Can.Red 7 - Climax 5	1138	578	22.2	17

* lbs. of other legumes

VIKING BIRDSFOOT TREFOIL IN HAY-PASTURE MIXTURES - GUELPH 1956

LEGUME PLANT STAND PER SQUARE FOOT

Mixture	Viking		Other legume	
	July 1957	July 1958	July 1957	July 1958
Viking 7	5.3	3.5	-	-
Viking 7 + Climax 5	5.1	5.1	-	-
Viking 4 + Climax 5	4.0	3.4	-	-
Viking 7 + Climax 5 + Brome 5	5.1	4.1	-	-
Viking 7 + Vernal 4 + Climax 5	3.8	3.7	2.5	-
Viking 7 + Lasalle 2 + Climax 5	0.4	0.4	3.0	2.5
Viking 4 + Lasalle 2 + Climax 5	0.4	0.5	3.5	3.5
Viking 7 + Alsike 2 + Climax 5	0.3	-	2.7	-
Viking 7 + Ladino $\frac{1}{2}$ + Climax 5	0.7	0.2	2.9	4.2
Lasalle 7 + Climax 5	-	-	5.3	3.9
Can. Red 7 + Climax 5	-	-	-	3.0

CO-OPERATIVE BIRDSFOOT TREFOIL HAY-PASTURE TRIALS

Purpose and Procedure: see 1957 report.

Results 1958:

1. Winterhardiness and stands.

In Lincoln county the whole test was rated as poor upon establishment. In Lambton, Durham and Carleton counties the stands of Viking were rated as good and appeared to be the same whether timothy or brome grass was included in the mixture. When Vernal alfalfa was added to the mixture the stands of Viking were lower in each of these tests. In Durham county it was observed that Vernal was not productive in the low spots of the field or in the dead furrows and Viking was colonizing these areas. Lasalle had disappeared from the stands in Lambton county and was very poor in Durham county. Lasalle was still productive in Carleton county.

2. Characteristics.

Viking appeared more vigorous when seeded alone than when combined with timothy or brome grass. The vigor of Viking when in mixtures with Vernal alfalfa was equivalent to that when it was combined with timothy or brome grass.

3. Yield and botanical composition.

Yields were not reported. Estimated yields indicated that there was little difference in production between the mixtures where Viking and Lasalle were included with Vernal alfalfa and timothy. Viking-Climax mixture produced more hay than did Lasalle-Climax at the Durham county location but not in Carleton county. Yields from Viking in mixtures with Climax or Canadian brome grass were not different. The weed population when Viking was seeded alone was high.

YIELD AND BOTANICAL COMPOSITION OF VIKING BIRDSFOOT TREFOIL IN MIXTURES IN
ONTARIO DURING 1958

County	Date 1958	Lasalle + Climax			Viking + Climax			Viking		Viking + Can. Brome			Vernal + Viking + Climax				Vernal + Lasalle + Climax			
		% Comp.			% Comp.			% Comp.		% Comp.			% Comp.				% Comp.			
		Yield	R.C.	Tim.	Yield	B.T.	Tim.	Yield	B.T.	Yield	B.T.	Brome	Yield	Alf.	B.T.	Tim.	Yield	Alf.	R.C.	Tim.
Lambton	6/10	-	0	95	-	5	90	-	90		40	60	-	35	5	60	-	50	T	50
Durham	6/17	0.25 ¹⁾	T	95	1.50 ¹⁾	45	55	1.50 ¹⁾	90	1.50 ¹⁾	40	60	1.75 ¹⁾	35	35	30	1.50 ¹⁾	55	5	45
Carleton	6/24	2.00 ¹⁾	25	75	1.75 ¹⁾	10	90	1.00 ¹⁾	75	1.75 ¹⁾	10	90	1.75 ¹⁾	20	5	75	2.25 ¹⁾	50	T	50
Average		1.12	8	85	1.62	20	78	1.25	85	1.62	30	63	1.75	30	15	55	1.87	51	2	48

1) estimated yield

CHARACTERISTICS OF VIKING BIRDSFOOT TREFOIL IN MIXTURES
IN ONTARIO 1958

County	Date 1958	WITH CLIMAX		WITH CAN. BROMEGRASS		ALONE		WITH VERNAL-CLIMAX		WITH LASALLE	
		stand* (B.T.)	Vigor*	Stand* (B.T.)	Vigor*	Stand* (B.T.)	Vigor*	Stand* (B.T.)	Vigor*	Stand* (B.T.)	Vigor*
Lambton	6/10	7	8	7	9	8	10	6	8	0	-
Lincoln	6/18	1	-	2	-	1	-	1	-	1	-
Durham	6/17	8	7	8	8	8	7	5	7	1	8
Carleton	6/24	9	6	9	6	9	7	7	7	6	8
Average		6.2	7.0	6.5	7.6	6.5	8.0	4.8	7.3	2.6	8.0

* Scale 1 - poor; 10 - excellent.

RATES AND DATES OF GRASS HERBICIDE ON MIXTURE OF ALFALFA-RED CLOVER-
TIMOTHY. BRAMPTON 1957-58.

Chemical			Total yield in lbs.	lbs. of components			
				alfalfa	red clover	timothy	weeds
Fall	Dalapon	6.5	2228	1747	0	306	175
		5.0	952	447	0	310	195
		3.5	886	284	4	338	260
		2.0	1519	1266	0	72	181
Spring	Dalapon	6.5	1156	932	0	224	0
		5.0	1495	1397	0	0	98
		3.5	1491	1387	0	102	0
		2.0	1567	—*	—	—	—
Fall	A.T.A.	7.0	1006	259	76	305	366
		5.0	1229	415	0	346	467
		3.0	881	659	8	119	95
		1.0	509	60	29	240	180
Spring	A.T.A.	7.0	1004	0	0	1004	0
		5.0	754	0	0	754	0
		3.0	945	0	0	945	0
		1.0	1324	156	39	1129	0
Check			1476	1145		231	60

* no record

FALL MANAGEMENT OF ALFALFA-BROME - PRELIMINARY (25A). 1956 SEEDING

Date of final cutting 1957	Dry Matter 1958			% Brome	
	July 3	August 22	Total	July 3	August 22
August 13	6562	2974	9536	33.3	12.9
October 16	6329	3962	10291	7.8	3.5
October 25	6005	3 140	9 145	13.6	5.4

Note: This was a filler area seeded in 1956 and harvested as hay + one aftermath (August 13) cut in 1958. The fall cuttings were at $1\frac{1}{2}$ " height. Brome % was lower because of effect on general vigor including number of tillers per plant.

FALL MANAGEMENT OF ALFALFA-BROME - PERLIMINARY (32A). 1957 SEEDING

Date of final cutting 1957	Dry Matter 1958			% Brome	
	July 7	August 20	Total	July 7	August 20
August 14	6267	4889	11156	31.9	19.4
October 15	6441	3822	10263	43.3	11.7
October 25	6165	2745	8910	28.6	10.6

OAT VARIETIES FOR HAY, 1958, KEMPTVILLE. JULY 17, 1958.

	<u>LBS. D.M./ACRE</u>	<u>% D.M.</u>
I.H. 3929-85	3013	20.5
Roxton	3010	20.1
I.H. 3929-24	2931	21.9
Rodney	2794	21.0
Victory	2656	18.7
M.S. 2105	2512	21.3

ORCHARDGRASS vs. BROMEGRASS IN A BEEF PASTURE MIXTURE

R.P.O. F.H. 13-2

Co-operative with Animal Husbandry.

Objectives: As outlined in 1956 report

Procedure: As outlined in 1956 report with the exception that all blocks were sprayed in the spring of 1957 with 2,4-D at 16 oz. per acre to remove the alfalfa. Five steers averaging about 592 pounds were placed in each plot on May 26 and removed on September 19. Growth of the pure stands of grasses was fair to good. Late frost and drought during the mid-summer reduced the production. The production was utilized by the animal population quite well. During the drought season the pastures were slightly overgrazed.

Results: The results of these two species in beef pasture for 1955 and 1956 are summarized in 1956 report. Measurements of growth and consumption for 1957 of orchard and brome grass are shown in Table 1. Beef gains and pasture days are shown in Table 2.

Table 1: GROWTH AND CONSUMPTION OF BROME AND ORCHARDGRASS IN BEEF PASTURES (TONS D.M./ACRE) 1957.

	Growth		Consumption	
	Brome	Orchard	Brome	Orchard
Up to May 16	0.64	0.54	-	-
May 16 to July 3	1.90	2.06	0.75	0.76
July 3 to Aug.11	1.35	1.10	0.36	0.13
Aug.11 to Sept.6	1.07	0.91	0.50	0.46
Season Total	4.96	4.61	1.61	1.35
Percent consumed			33.7	29.1

Table 2: BEEF YIELDS AND PASTURE DAYS PER ACRE OF BROME AND ORCHARDGRASS IN BEEF PASTURES DURING 1957.

	lbs. beef per acre		lbs. gain per day		Total pasture days	
	Brome	Orchard	Brome	Orchard	Brome	Orchard
1957	1.16	1.12	1.21	1.16	116	116
Diff.	+ .04		+ .05			

There was little difference in total production between brome and orchardgrass during 1957.

There was more brome grass consumed than orchardgrass which appeared to be reflected in the lbs. of beef per acre and daily gain of the steers.

BIRDSFOOT TREFOIL MIXTURES FOR PASTURE 1954. TONS OF D.M./ACRE

	1955	1956	1957			1958				4 year Ave.
	Total	Total	Jun.19	Aug.26	Total	Jun.12	Jul.24	Sep.2	Total	
Empire +										
Meadow Fescue	3.40	3.58*	2.23	0.76	2.99	1.08	0.59	0.96	2.63	3.15
Can. brome	3.12	2.33*	2.21	0.72	2.93	0.93	0.62	0.91	2.46	2.71
Orchard	2.35	2.89*	1.84	0.85	2.69	1.11	0.71	1.13	2.95	2.72
Medon timothy	3.25	3.49*	2.31	0.71	2.02	1.00	0.53	1.16	2.69	2.87
Tim. + Orch. + Brome + Fescue	3.25	2.40★	2.21	0.79	2.99	1.05	0.65	1.14	2.84	-
Tim. + Orch. + Brome	1.77*	1.77★	2.06	0.85	2.91	1.18	0.76	1.31	3.25	-
Tim. + Orch. + Fescue	2.87	1.83★	2.34	0.84	3.18	1.16	0.64	1.27	3.07	-
Orch. + Brome + Fescue	2.08*	1.94★	2.10	0.85	2.95	1.11	0.70	1.20	3.01	-
Alf. + Empire + Tim. + Br. + Fescue	3.51	4.14	2.09	0.89	2.98	1.03	0.75	1.45	3.23	3.47
Alf. + Red.Cl. + Tim. + Or. + Br.	2.94	3.28	1.89	0.92	2.81	1.04	0.61	1.26	2.91	2.99

* one aftermath cut only

★ hay only

EMPIRE BIRDSFOOT TREFOIL MIXTURES FOR PASTURE GUELPH 1957

POUNDS OF DRY MATTER 1958

Empire 5 and	June 12	July 22	Sept. 8	Total
Can. Brome 9	1921	1248	983	4152
Lincoln	2465	1472	1288	5225
Lyon	2443	1291	1065	4799
Ave.	2276	1337	1112	4725
Com. orchard 6	1362	1059	1222	3643
Frode	1476	1250	1315	4041
S37	1293	1561	1339	4193
Ave.	1377	1290	1292	3959
Com. Timothy 5	1754	1566	1340	4660
Climax	1514	1439	1191	4144
S48	1688	1571	1221	4481
Ave.	1652	1525	1250	4428
Com. Meadow Fescue	1707	1384	1213	1304
Mefon	1828	1357	1095	4280
S215	1994	1374	1486	4854
Ave.	1843	1371	1264	4478
Reed Canary 6	1604	1695	1253	4552
VERNAL 10 plus				
Can. Brome 10	5109	2607	1813	9529
Com. Orchard	4426	2377	1630	8433
Com. Timothy	5055	2630	1931	9616
Com. Meadow Fescue	5370	2543	1991	9904
Com. Reed Canary	4980	2719	1902	9601
Ave.	4988	2575	1854	9417
L.S.D. 0.05	745	372	372	1266
0.01	989	492	492	1673
C.V.	20	15	19	16

EMPIRE BIRDSFOOT TREFOIL MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF COMPONENTS PER ACRE 1958

Empire 5# with	June 12		July 22		Sept. 8	
	legume	grass	legume	grass	legume	grass
Can. brome	731	1190	874	374	650	333
Lincoln	674	1791	1075	397	767	521
Lyon	844	1599	942	349	557	508
Average	750	1526	964	373	658	454
Com. orchard	348	1014	646	413	572	650
Frode	412	1064	850	400	660	655
S-37	462	831	1093	468	660	679
Average	407	969	863	427	631	661
Com. timothy	788	966	1175	391	844	496
Climax	593	921	1079	360	702	489
S-48	700	988	1163	408	726	495
Average	694	958	1139	386	757	493
Com. Meadow fescue	545	1162	1163	221	896	317
Mefon	685	1143	1167	190	723	372
S-215	667	1327	1154	220	966	520
Average	632	1211	1161	210	861	403
Reed Canary	770	834	681	1014	671	582
Vernal 10# with						
Can. brome	3078	2031	2164	443	1413	400
Com. orchard	2622	1804	1997	380	1015	615
Com. timothy	4210	845	2314	316	1660	271
Com. Meadow fescue	3412	1958	2390	153	1905	86
Com. Reed canary	4033	947	2175	544	1352	550
Average	3471	1517	2208	367	1469	385

VIKING BIRDSFOOT TREFOIL MIXTURES FOR PASTURE - GUELPH 1957

POUNDS OF DRY MATTER 1958

Viking 5 and	Jun.12	July 9	August 12	Oct. 20	Total
Can. Brome	1692	1035	824	1688	5239
Lincoln	2607	997	934	1890	6428
Lyon	2189	856	794	1741	5580
Ave.	2163	963	851	1773	5729
Com. Orchard	1632	943	733	1696	5004
Frode	1678	1091	937	1818	5524
S37	1568	1265	965	2029	5827
Ave.	1626	1099	878	1848	5451
Com. Timothy	1854	871	890	1919	5534
Climax	1758	988	934	1851	5531
S48	1817	1236	980	1866	5899
Ave.	1809	1032	935	1879	5654
Com. Meadow Fescue	1576	967	938	1714	5195
Mefon	2012	1121	896	1856	5885
S215	1758	1046	922	1881	5607
Ave.	1782	1045	919	1817	5562
Reed Canary	1797	1291	1059	1768	5915
VERNAL 10 plus					
Can. Brome 10	4831	1636	1292	1703	9462
Com. Orchard	4464	1530	1296	1881	9171
Com. Timothy	4506	1561	1280	1847	9194
Com. Meadow Fescue	4679	1555	1444	1755	9433
Com. Reed Canary	4571	1687	1525	1749	9532
Ave.	4610	1654	1367	1787	9358
L.S.D. 0.05	551	344	378	146	1097
0.01	729	455	500	192	1449
C.V.	150	20	26	6	12

VIKING BIRDSFOOT TREFOIL MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF COMPONENTS PER ACRE 1958

Viking 5# and	June 12		July 9		August 12		October 20	
	legume	grass	legume	grass	legume	grass	legume	grass
Can. brome	619	1073	718	317	520	304	1232	456
Lincoln	971	1636	806	191	618	316	1096	794
Lyon	657	1532	614	242	504	290	1166	575
Average	749	1414	713	250	547	304	1164	609
Com. orchard	428	1204	665	278	351	382	882	814
Frode	510	1168	717	374	459	478	1127	691
S-37	551	1017	928	337	468	497	1055	974
Average	496	1129	770	329	426	452	1021	827
Com. timothy	683	1171	673	198	595	295	1228	691
Climax	619	1139	741	247	603	331	1296	555
S-48	707	1110	881	355	602	378	989	877
Average	669	1140	765	267	600	335	1171	708
Com. Meadow fescue	654	922	806	161	796	142	1303	411
Mefon	836	1176	935	186	740	156	1225	631
S-215	643	1115	885	161	737	185	1204	677
Average	711	1071	875	170	758	161	1244	573
Reed Canary	841		923		710		1033	
Vernal 10# and								
Can. brome	3056	1775	1303	333	948	344	1413	290
Com. orchard	2616	1848	1282	248	830	466	1072	809
Com. timothy	3198	1308	1310	251	973	307	1330	517
Com. Meadow fescue	3180	1499	1408	147	1249	195	1527	228
Com. Reed canary	3024	1547	1394	293	1179	346	1347	402
Average	3015	1595	1339	255	1036	332	1337	449

VIKING-BROMEGRASS MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF DRY MATTER PER ACRE 1958

Viking 5# and		June 3	July 9	August 12	October 29	Total
Can. brome	6	2155	1714	1227	1262	6358
	9	2487	1662	1222	1301	6672
	12	2264	1530	1233	1249	6276
	15	1820	1342	1327	1260	5749
	18	2051	1497	1199	1273	6020
	Average	2155	1548	1242	1269	6211
Lincoln	6	2921	1767	1408	1555	7651
	9	3098	1613	1462	1497	7670
	12	3089	1570	1160	1430	7249
	15	2942	1431	1355	1450	7178
	18	3115	1566	1342	1484	7507
	Average	3033	1589	1345	1483	7443
Saratoga	6	3010	1731	1361	1394	7496
	9	2605	1525	1303	1424	6857
	12	2833	1431	1373	1398	7035
	15	2880	1361	1293	1383	6917
	18	2643	1145	1367	1426	6581
	Average	2794	1438	1339	1405	6977
Average	6	2696	1737	1332	1404	7168
	9	2730	1600	1329	1407	7065
	12	2728	1510	1255	1359	6853
	15	2547	1378	1325	1365	6615
	18	2603	1402	1303	1394	6703
	Average	2660	1526	1309	1386	6881
L.S.D. Var.		752	N.S.	N.S.	N.S.	407
5% Rates		N.S.	176	N.S.	N.S.	179
C.V.		11	10	13	7	7

VIKING-BROMEGRASS MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF COMPONENTS PER ACRE

Viking 5# and		June 3		July 9		August 12		October 29		Total	
		B.T.	Grass	B.T.	Grass	B.T.	Grass	B.T.	Grass	B.T.	Grass
Can. brome	6	928	1227	1158	556	788	439	875	387	3749	2609
	9	1051	1436	1247	415	812	410	913	388	4023	2649
	12	912	1352	1266	264	720	513	927	322	3825	2451
	15	743	1077	635	707	800	527	912	348	3090	2659
	18	781	1270	1019	438	752	447	947	326	3499	2481
Average		883	1272	1065	476	774	467	915	354	3637	2570
Lincoln	6	1253	1668	1541	226	851	557	1060	495	5705	2946
	9	1255	1843	1187	426	882	580	985	512	4309	3361
	12	1235	1854	1075	475	667	493	916	514	3893	3336
	15	1029	1913	692	739	789	566	965	485	3475	3703
	18	1136	1979	1041	525	829	513	1003	481	4009	3498
Average		1182	1851	1107	478	804	542	986	497	4078	3368
Saratoga	6	1255	1755	972	759	701	660	905	487	3833	3663
	9	949	1656	992	533	719	584	934	490	3594	3263
	12	985	1848	1016	415	717	656	919	479	3637	3398
	15	826	2054	782	579	662	631	886	497	3156	3761
	18	721	1922	494	651	664	703	973	453	2852	3729
Average		947	1847	851	588	694	647	923	480	3414	3563
Average	6	1156	1540	1223	514	780	552	947	457	4106	3063
	9	1085	1645	1142	458	805	524	943	464	3975	3091
	12	1044	1684	1119	391	701	554	921	438	3785	3067
	15	866	1681	703	675	750	575	921	444	3240	3375
	18	879	1724	851	551	748	555	974	420	3452	3250
Average		1006	1655	1008	518	757	552	941	445	3712	3169

EMPIRE-BROMEGRASS MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF DRY MATTER PER ACRE 1958

Empire 5# and		June	July	September	Total
Can. brome	6	2246	3186	1166	6598
	9	1926	2969	1286	6181
	12	1934	2755	1235	5924
	15	2068	2653	1197	5918
	18	1738	2486	1239	5463
	Average	1982	2810	1220	6012
Lincoln	6	2455	2737	1318	6510
	9	2654	2647	1389	6690
	12	2454	2427	1322	6203
	15	2696	2463	1136	6295
	18	2848	2353	1104	6305
	Average	2602	2660	1372	6634
Saratoga	6	2488	2888	1411	6787
	9	2653	2671	1458	6782
	12	2630	2607	1328	6565
	15	2476	2544	1341	6361
	18	2764	2589	1304	6657
	Average	2621	2559	1257	6437
Average	6	2397	2937	1299	6632
	9	2411	2762	1383	6556
	12	2339	2596	1295	6230
	15	2413	2553	1224	6191
	18	2450	2476	1221	6147
	Average	2402	2665	1284	6351
L.S.D. Var.		468	522	457	
5% Rate		N.S.	286	N.S.	N.S.
C.V.		14	9	25	20

EMPIRE-BROMEGRASS MIXTURES FOR PASTURE, GUELPH, 1957

POUNDS OF COMPONENTS PER ACRE

Empire 5# and		June 3		July 27		September 29		Total	
		B.T.	Grass	B.T.	Grass	B.T.	Grass	B.T.	Grass
Can. brome	6	899	1347	2239	947	754	412	3892	2706
	9	789	1139	2192	777	786	500	3767	2416
	12	713	1221	2046	709	811	424	3570	2354
	15	683	1385	1952	701	731	466	3366	2552
	18	602	1136	1892	594	877	362	3371	2092
	Average	737	1246	2064	746	792	433	3593	2424
Lincoln	6	943	1512	2150	587	753	565	3846	2664
	9	819	1835	1989	658	738	651	3546	3144
	12	900	1554	1857	570	767	555	3524	2679
	15	692	2004	1967	496	519	626	3178	3126
	18	913	1935	1884	469	633	471	3430	2875
	Average	853	1768	1969	556	682	574	3505	2898
Saratoga	6	902	1586	1992	896	695	716	3589	3198
	9	803	1850	1866	805	762	696	3431	3351
	12	679	1951	1909	698	690	638	3278	3287
	15	793	1683	1562	982	703	638	3058	3303
	18	843	1921	1892	797	655	649	3390	3367
	Average	804	1798	1844	836	701	667	3349	3301
Average	6	915	1148	2127	810	734	564	3776	2522
	9	803	1608	2016	747	762	616	3581	2971
	12	764	1576	1937	658	756	539	3457	2773
	15	723	1691	1827	727	651	577	3201	2995
	18	786	1664	1889	620	722	494	3397	2778
	Average	798	1537	1959	712	725	558	3482	2808

EMPIRE-BROMEGRASS MIXTURES FOR PASTURE, 1957

PLANTS PER SQUARE FOOT (FALL, 1958)

Brome seeding rate lbs.	Can.brome		Lincoln		Saratoga		Average	
	B.T.	Brome	B.T.	Brome	B.T.	Brome	B.T.	Brome
6	15	19	17	21	20	16	17	19
9	16	19	16	20	17	18	16	19
12	13	23	19	26	19	22	17	24
15	11	20	14	24	16	21	14	22
18	16	20	10	25	11	25	12	27
Average	14	20	15	23	16	20		

		B.T.	Brome
L.S.D.	Var.	2.0	2.9
	rates	1.9	3.6
C.V.		30	26

EMPIRE-BROMEGRASS MIXTURES FOR PASTURE, 1957

ROOT WEIGHTS OF PLANTS PER SQUARE FOOT (GMS.) (FALL 1958)

Brome seeding rate in lbs.	Can. brome		Lincoln		Saratoga		Average	
	B.T.	Brome	B.T.	Brome	B.T.	Brome	B.T.	Brome
6	4.06	11.17	4.08	11.40	4.16	10.23	4.10	10.93
9	3.45	12.80	4.01	10.25	3.67	10.97	3.71	11.34
12	4.42	14.50	4.12	13.64	3.91	13.00	4.15	13.71
15	4.51	11.89	4.45	12.11	3.71	10.64	4.21	11.21
18	3.90	14.60	3.09	14.62	2.88	13.86	3.29	14.36
Average	4.07	12.99	3.95	12.41	3.67	11.74		

EMPIRE-BROMEGRASS MIXTURES FOR PASTURE, 1957

NUMBER OF GRASS TILLERS PER SQUARE FOOT (FALL 1958)

Brome seeding rate in lbs.	Can. brome	Lincoln	Saratoga	Average
6	74.1	71.5	75.1	73.6
9	96.8	63.0	84.6	81.5
12	102.1	77.3	82.3	87.2
15	105.3	78.6	83.1	89.0
18	103.3	100.0	97.1	100.1
Average	96.3	78.1	84.5	

L.S.D. Var. 23.4
Rates 28.2

C.V. 28

ALFALFA-EMPIRE MIXTURES FOR PASTURE - KAINES 1958

YIELDS OF DRY MATTER IN LBS./ACRE. 1958

Seeding Rates		Vernal				Narragansett				Grimm			
		Total	Components			Total	Components			Total	Components		
Alf.	Trefoil		Alf.	B.T.	Grass		Alf.	B.T.	Grass		Alf.	B.T.	Grass
3	3	1619	459	229	578	1502	361	194	520	1513	235	263	490
	6	1672	448	278	618	1523	486	330	455	1605	146	362	559
	9	1582	359	394	488	1488	488	261	461	1610	174	510	466
		1624	421	300	563	1504	445	261	478	1576	185	378	505
6	3	1749	638	204	530	1503	381	175	653	1357	324	112	565
	6	1670	528	286	505	1577	349	237	615	1505	286	303	592
	9	1796	513	283	584	1492	332	256	578	1484	179	313	605
		1738	560	257	540	1524	354	223	615	1449	263	243	587
9	3	1649	542	93	620	1511	487	140	536	1498	368	108	556
	6	1687	493	238	607	1397	437	192	517	1557	345	242	570
	9	1767	496	363	545	1472	467	190	501	1568	230	312	643
		1701	511	231	591	1460	463	174	518	1541	314	220	590
Ave.		1688	497	263	591	1496	421	219	537	1522	254	280	561

PASTURE MIXTURES SEEDED ON O.A.C. FARMS

1. O.A.C. Farm (Field H2) 1956
Empire (8) + S-48 (8)
2. O.A.C. Farm (Field S3) 1956
 (1) Empire 8 (2) Viking 8
 Can. brome 8 Can. brome 8
3. O.A.C. Farm (Field 1A)
 DuPuits (5)
 S-100 (2)
 S-143 (8)
4. Poultry pasture 1958.
 Ladino 4 + Lincoln 10

OAT VARIETIES AND FORAGE ESTABLISHMENT - 1958

R.P.O. F.H. 33-17

Location: Section C - Range 18

Objectives: (1) To determine the effect of the following oat characteristics on the establishment of two legumes.

- i - early vs. late varieties
- ii - low vs. high stoolers and stool maturity
- iii - light vs. heavy rate of seeding.

(2) To ascertain if these oat characteristics effect vigorous Vernal alfalfa seedlings in a similar manner as less vigorous Empire birdsfoot trefoil seedlings.

(3) To grade and tag legume seedlings at about six weeks of age and observe their longevity by means of periodic counts throughout their first year.

Methods: (1) Oat varieties and characteristics.
Branch - late - low stooler
Rodney - late - normal stooler
Clintland - early - low stooler
Shield - early - normal stooler

- (2) Seeding rates used.
Oats - 1 bu. and $2\frac{1}{2}$ bu. per acre.
Vernal - 12 lbs. per acre.
Empire - 5 lbs. per acre.
Oat varieties seeded at rate given, but slight adjustments made to give uniform number of kernels of all varieties per foot of row.
- (3) Oats counted soon after emergence to provide data for number of main oats. Counted at heading time or prior to cutting for culm numbers for stool index.
- (4) Legume seedlings tagged on 4 areas per plot 6 by 24 inches across the oat rows. Seedlings graded at about 6 weeks of age (2-3 inches high) into small, medium, and large seedlings. Seedlings tagged with colored wires and chicken leg bands.
- (5) Seedlings to be counted when tagged at 6 weeks of age; at shot blade of oats; at oat harvest; in late fall; spring of first hay year.
- (6) Hay yields to be taken in first year.

Design: Double split plot - 6 reps. Plots 18 ft. long - 6 ft. wide.

OAT VARIETIES AND FORAGE ESTABLISHMENT

R.P.O. F.H. 33-17

LOCATION: Guelph

DATE SEEDED: April 19, 1958.

Oat Variety	Oats-Seeding (bu./acre)	Oat Yields (lb./ac.)	Oat Heights (inches)	Main Stems (per ft. of row)	Oat Stools (per ft. of row)	Stooling Index	Late Green Stools (per ft. of row)	Establishment June 6 (plants/sq. ft.)		Establishment Sept.30 (plants/sq. ft.)	
								Alfalfa	Trefoil	Alfalfa	Trefoil
Branch	1	3623	49.8	11.3	21.0	2.11	0	25.8	17.7	18.7	23.3
	2½	3518	47.8	22.3	22.7	1.10	0	24.0	16.7	18.3	22.7
	Ave.	3570	48.8	16.8	21.8	1.60	0	24.9	17.2	18.5	23.0
Rodney	1	3528	49.3	10.3	22.8	2.24	0	25.2	18.8	19.7	20.1
	2½	3525	47.9	20.6	24.9	1.29	0	25.8	19.7	20.5	26.2
	Ave.	3526	48.6	15.4	23.8	1.76	0	25.5	19.2	20.1	23.1
Clintland	1	3409	41.5	10.6	22.4	2.53	0.37	25.0	20.5	19.7	23.7
	2½	3538	39.1	18.6	21.8	1.22	0.48	28.2	17.8	21.3	24.0
	Ave.	3473	40.3	14.6	22.1	1.87	0.42	26.6	19.1	20.5	23.8
Shield	1	3604	43.7	10.2	27.7	3.11	1.70	28.7	20.0	20.5	20.8
	2½	3082	43.2	17.9	24.4	1.34	1.12	26.2	18.3	14.8	24.5
	Ave.	3343	43.4	14.0	26.0	2.22	1.41	27.4	19.1	17.6	22.6
I.S.D.(0.05) Rates		N.S.	N.S.	2.4	N.S.	0.4	-	N.S.		N.S.	
Varieties		N.S.	1.4	N.S.	1.8	0.3	-	N.S.		N.S.	
Rates x varieties		N.S.	N.S.	N.S.	2.6	0.5	-	N.S.		N.S.	
Species		-	-	-	-	-	-	2.3		0.9	
Species x rates		-	-	-	-	-	-	N.S.		1.2	
Species x rates x varieties		-	-	-	-	-	-	N.S.		2.5	
C.V.		7.8	3.6	13.3	9.3	18.3	-	23.7		10.1	

COMPANION CROP MANAGEMENT

I.P.O. 33-14

ESTABLISHMENT - Plants/sq.ft.

OUTLINE: In 1956 report.

HAY YIELD: tons/acre

LOCATION: Guelph

	1956 Seeding		1957 Seeding		1958 Seeding		1956 Seeding - 1957 Hay			1957 Seeding 1958 Hay	
	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	First Cut	Legume Component	Total Yield	First Cut*	Legume Component
Oats cut 10" left	12.2	18.7	20.2	12.8	18.2	10.6	2.60	0.69	3.93	1.99	0.86
Oats cut 24" left	13.4	17.6	21.4	10.8	18.8	9.3	2.75	0.73	4.05	1.93	0.86
Oats cut 24" removed	14.2	20.2	21.6	13.1	18.1	9.5	2.60	0.62	3.94	1.89	0.85
Oats - Hay	13.7	21.4	24.9	12.6	21.6	12.1	2.58	0.93	3.87	2.05	1.10
Oats - 14" Grain	15.0	20.2	23.9	11.7	19.9	9.9	2.86	0.91	4.22	2.10	1.27
Oats - Grain	14.2	19.2	22.6	9.1	18.8	10.4	2.61	1.07	4.09	2.12	1.34
Barley	17.4	13.4	23.2	7.0	20.3	6.2	2.48	1.23	4.01	2.13	1.50
Mixed Grain	-	-	25.4	10.5	20.1	8.4	-	-	-	2.01	1.37
No companion	20.2	20.2	23.8	11.6	21.2	8.6	2.83	0.60	4.21	2.06	1.00
L.S.D. 0.05	4.5	4.3	N.S.	2.8	N.S.	3.1	N.S.	0.29	N.S.	N.S.	0.15
C.V.	20.4	15.6	12.8	16.7	23.6	28.4	7.9	23.2	6.2	8.1	11.2

* no second cut due to lack of moisture

COMPANION CROP MANAGEMENT

Yields in Year of Establishment

	1957 Seeding	1958 Seeding
Oats pasture (24")	0.92	1.12
Oats hay	2.14	2.31
No companion hay	1.49	1.97
Oats 14" grain	2396	3780
Oats 7" grain	2278	3792
Barley	2368	2691
Mixed grain	2568	3331

$$\frac{2.04}{2} = 1.02$$

$$\frac{4.45}{2} = 2.225$$

$$\frac{3.46}{2} = 1.73$$

$$\frac{4196}{2} = 3088$$

$$\frac{6070}{2} = 3035$$

$$\frac{5059}{2} = 2529$$

$$\frac{5899}{2} = 2949$$

SEEDLING ESTABLISHMENT STUDIES - BRAMPTON

R.P.O. 33 series

Comments:

All spring seeded establishment studied failed to grow at Brampton in 1958. All tests were seeded by April 25, however, prolonged dry weather failed to provide sufficient moisture for the establishment of the oat companion crop and the forage seedings.

The precipitation for April at Brampton was 1.37 inches of which .80 fell on April 6; May, .88 inches the heaviest of which was .29; June, 1.42 inches, the heaviest being .61 on June 25; July, 2.38 of which 1.53 inches fell on July 3-5. This latter rainfall plus a rain on September 17 of 1.76 inches were the only beneficial rains obtained throughout the growing season.

The dry weather gave very poor hay yields. The 1958 hay data has been added to the tables which follow.

Some establishment tests on winter wheat are not included in this report due to complete failure in 1958.

RATE OF SEEDING OATS

R.P.O. F.H. 33-3. HAY YIELD - tons/acre. OUTLINE: in 1954 report.

LOCATION: Brampton.

Seeding Rate (bu. per acre)	1957 Oat Yields (bu. per acre)	1957 Seeding - 1958 Hay Yields		
		First Cut	Legume Component	Total Yield
7" drills - 1	32.1	1.87	1.45	2.49
1½	39.1	1.96	1.51	2.59
2	38.1	1.82	1.57	2.42
2½	35.2	1.81	1.42	2.44
3	39.0	1.90	1.59	2.48
14" drills - 1	24.4	1.68	1.32	2.32
1½	25.3	1.75	1.32	2.35
Average	33.3	1.83	1.46	2.44
L.S.D. (0.05)	8.9	N.S.	0.21	N.S.
C.V.	18.3	9.0	12.4	7.6

METHODS OF SEEDING WITH A GRAIN DRILL

R.P.O. F.H. 33-8

ESTABLISHMENT: Plants/sq. ft.

OUTLINE: In 1956 report.

HAY YIELD: tons/acre

LOCATION: Brampton

Treatments	1956 Seeding		1957 Seeding		1956 Seeding - 1957 Hay			1957 Seeding - 1958 Hay		
Alfalfa Brome Soils	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	First Cut	Legume Component	Total Yield	First Cut	Legume Component	Total Yield
Before hoe, shallow	10.5	4.7	23.0	9.0	1.84	1.17	2.78	1.39	1.18	1.95
After hoe, shallow	8.5	8.1	27.7	8.6	1.72	1.01	2.54	1.54	1.31	2.07
After hoe, shallow, pack	10.1	8.3	27.3	8.5	1.64	0.92	2.50	1.70	1.41	2.29
After hoe, shallow, harrow	10.9	8.5	27.0	8.0	1.77	1.24	2.72	1.72	1.42	2.26
After hoe, regular	5.0	5.1	25.9	7.3	1.30	0.77	1.94	1.69	1.37	2.25
With oats, shallow	8.4	7.1	30.6	8.7	1.71	1.12	2.58	1.69	1.44	2.22
With oats, regular	-	-	27.3	10.4	-	-	-	1.49	1.27	2.00
With oats, regular, harrow	10.1	4.7	30.0	6.1	1.75	1.20	2.59	1.66	1.39	2.23
Band, shallow	7.4	7.3	28.5	9.1	1.63	0.98	2.40	1.62	1.35	2.19
After hoe, broadcast, harrow	-	-	21.3	16.4	-	-	-	1.46	1.15	1.91
L.S.D. 0.05	2.4	1.1	5.4	3.1	N.S.	N.S.	0.37	0.22	N.S.	0.21
C.V.	18.8	10.4	14.3	23.5	12.7	21.7	9.9	9.5	11.9	6.6

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BAND SEEDING

R.P.O. F.H. 33-13

ESTABLISHMENT: Plants/sq. ft.

OUTLINE: In 1956 report.

HAY YIELD: tons/acre

LOCATION: Brampton

Treatments	1956 Seeding		1957 Seeding		1956 Seeding - 1957 Hay			1957 Seeding - 1958 Hay		
	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	First Cut	Legume Component	Total Yield	First Cut	Legume Component	Total Yield
Band	8.4	5.4	24.0	8.2	1.88	1.14	2.55	1.41	1.13	1.96
Band 2" above	9.9	5.1	-	-	1.88	1.08	2.50	-	-	-
Band $\frac{1}{2}$ " below	8.8	5.8	-	-	2.02	1.19	2.73	-	-	-
Band, harrow	9.3	7.9	24.1	7.4	2.06	1.11	2.78	1.74	1.44	2.32
Band, pack	10.3	6.0	23.0	8.8	2.04	1.24	2.77	1.48	1.23	2.01
Band, 16" drills	10.5	8.1	24.9	6.7	1.90	0.96	2.59	1.37	1.09	1.92
Band, no oats	10.5	11.5	26.9	8.3	2.34	1.22	3.03	1.48	1.04	2.00
Broadcast, pack	-	-	23.9	6.1	-	-	-	1.52	1.30	2.14
Broadcast, harrow	12.5	6.3	25.5	6.8	2.14	1.31	2.90	1.52	1.29	2.16
L.S.D. (0.05)	N.S.	2.2	N.S.	1.5	N.S.	N.S.	0.31	N.S.		N.S.
C.V.	21.2	21.3	15.9	14.0	9.3	21.5	7.9	14.4		10.9

SEEDBED FIRING AND COVERAGE

H.P.O. F.H. 33-15

ESTABLISHMENT: Plants/sq. ft.

OUTLINE: In 1956 report.

HAY YIELD: tons/acre

LOCATION: Brampton

Treatments	1956 Seeding		1957 Seeding		1956 Seeding - 1957 Hay			1957 Seeding - 1958 Hay		
	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	First Cut	Legume Component	Total Yield	First Cut	Legume Component	Total Yield
Pack before	11.2	6.7	23.4	6.8	1.92	1.27	2.81	1.76	1.48	2.45
Pack after	13.3	7.9	24.3	6.7	2.15	1.54	3.09	1.95	1.56	2.68
Pack before and after	16.2	7.9	32.6	7.2	2.24	1.64	3.20	1.90	1.51	2.57
Pack before, harrow after	15.2	8.4	28.3	7.8	2.24	1.34	3.19	1.83	1.44	2.51
Harrow	12.7	7.2	28.6	10.4	2.13	1.48	3.05	1.93	1.39	2.55
Band	9.9	7.9	23.6	7.5	1.98	1.30	2.84	1.86	1.61	2.57
Chains	10.5	6.2	27.8	7.4	1.94	1.29	2.82	1.94	1.51	2.66
Check	10.3	7.8	26.8	6.6	2.03	1.31	2.87	1.94	1.49	2.62
L.S.D. (0.05)	2.9	N.S.	4.3	1.7	N.S.	0.25	0.33	N.S.	N.S.	N.S.
C.V.	16.1	14.8	25.2	32.8	9.1	12.1	7.6	9.6	11.6	8.8

FALL SEEDING FORAGE CROPS ON WINTER WHEAT

R.P.O.: F.H. 33-10

ESTABLISHMENT: Plants/sq. ft.

OUTLINE: In 1956 report.

LOCATION: Brampton

Seeding Method	1956 Seeding*		1957 Seeding*		Seeding Method	1956 Seeding*		1957 Seeding*	
	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.		Trefoil Estab.	Timothy Estab.	Trefoil Estab.	Timothy Estab.
Band 8"	6.7	4.5	25.4	10.9	Band 8"	0.4	5.0	0.7	10.1
Band 16"	4.0	1.5	23.7	7.4	Band 16"	0	7.0	0.6	12.7
Broadcast - 1956	5.6	5.0	-	-	Broadcast, harrow	0	1.0	0.5	10.6
Broadcast, harrow	5.3	2.5	21.6	16.7	Drilled	0	1.0	1.0	4.2
Broadcast by hand, harrow	6.4	4.0	22.0	14.2	Broadcast in spring	1.7	1.0	0.4	1.0
Broadcast in spring	4.1	1.0	2.7	1.7					
Drilled - 1957	-	-	24.7	9.5					
I.S.D. (0.05)	2.0	-	7.6	7.1	L.S.D. (0.05)	-	-	0.4	3.7
C.V.	33.0	-	25.4	46.6	C.V.	-	-	41.2	29.1

* establishment determined the succeeding fall

MANAGEMENT PRACTICES ON NEW SEEDINGS

R.P.O. 33-11 ESTABLISHMENT: Plants/sq. ft. OUTLINE: In 1956 report

HAY YIELD: tons/acre

LOCATION: Brampton

Management	1956 Seeding		1957 Seeding		1956 Seeding - 1958 Hay Yield	
	Alfalfa Estab.	Brome Estab.	Alfalfa Estab.	Brome Estab.	First Cut*	Legume Component
Clip early, left	8.0	5.0	29.0	6.5	0.81	0.30
Clip early, remove	8.0	5.7	30.3	8.7	0.77	0.35
Clip early, remove, fertilize	7.8	4.2	30.3	7.8	0.94	0.43
Clip late, left	8.3	5.8	26.5	6.9	0.78	0.30
Clip late, remove	8.5	5.2	26.5	5.9	0.79	0.34
Unclipped	6.8	5.4	31.3	6.8	0.89	0.32
L.S.D. (0.05)	N.S.	1.3	N.S.	1.9	N.S.	N.S.
C.V.	17.0	13.0	17.5	18.0	13.1	30.8

* no second cut in 1957 or yield in 1958 due to lack of moisture

ESTABLISHMENT OF BIRDSFOOT TREFOIL IN FALL GRAINS, 1957

EMPIRE PLANTS PER SQUARE FOOT

Date of seeding	No companion crop			Fall barley			Fall Wheat			Average August 1958			No comp. crop	Comp. crop
	August 1958		Average	August 1958		Average	August 1958		Average	August 1958				
	Inoc.+	N.I.*		Inoc.	N.I.		Inoc.	N.I.		Inoc.	N.I.	Average		
November, 1957 (broadcast)	3.0	7.0	5.0	9.9	7.2	8.6	5.6	7.3	6.5	6.2	7.2	6.7	5.0	7.5
March, 1958 (broadcast)	9.9	8.5	9.2	5.6	6.1	5.9	6.3	4.2	5.3	6.9	6.3	6.6	9.2	5.6
May, 1958 (drilled)	2.7	4.3	3.5	8.6	5.9	7.3	8.6	5.1	6.8	6.7	5.1	5.9	3.5	7.1
Average	5.2	6.6		8.1	6.4		6.8	5.6		6.6	6.2	6.4		

+ seed inoculated

* seed not inoculated

BIRDSFOOT TREFOIL ESTABLISHMENT WITH HERBICIDES AND COMPANION CROP

KAINE FARM, 1958

Companion Crop	Harvest	Herbicide	Row Width			
			7"		14"	
			Plant stand*	Yield	Plant stand*	Yield
Oats	Grain	M.C.P. (4 oz.)	3.5	100 bu.	6.1	62 bu.
	Grain	-	11.2	73 bu.	8.6	53 bu.
	Pasture	M.C.P. (4 oz.)	13.6	1545 lb.	8.1	1384 lb.
	Pasture	-	6.6	1836 lb.	4.7	2059 lb.
None	-	2,4-D	<u>Plant Stand*</u>			
	-	2,4-DB	6.0			
	-	M.C.P.	9.6			
	-	M.C.P.-B	6.4			
	-	Dalapon	7.3			
	-	Dalapon + 2,4-DB	6.3			
None	-	Check	7.1			
			4.3			

* birdsfoot trefoil plants per square foot

EFFECT OF ROW WIDTH AND RATES OF SEEDING ON THE SEED YIELD
IN TIMOTHY

R.P.O. F.H. 14-3

OUTLINE: 1955 report.

COMMENTS:

The data collected in this study are presented in the tables which follow. The test was completed in 1958 and will be published. The extremely dry season of 1958 was probably one of the chief factors for lower seed yields in that year.

TIMOTHY SEED YIELDS IN POUNDS PER ACRE

Seeding rate lbs./acre	Row Width					4 year Average	Means			
	7"	14"	21"	28"	35"		1955	1956	1957	1958
2½	197.8	287.7	305.8	342.1	307.8	288.2	363.7	319.0	309.8	160.4
5	197.9	285.6	302.2	336.6	306.9	285.8	337.3	329.1	318.0	159.1
7½	202.5	290.9	304.6	317.8	299.2	283.0	343.5	321.3	312.8	154.5
10	189.2	280.7	297.1	332.4	306.1	281.1	321.3	324.7	319.3	159.1
4 year Average	196.8	286.2	302.4	332.2	305.0	284.5	341.4	323.5	314.9	158.3
1955	278.4	352.2	382.5	358.2	335.8					
1956	243.8	361.0	335.9	357.1	319.7					
1957	189.0	307.1	295.5	412.8	370.2					
1958	76.3	124.6	195.8	200.7	194.3					

L.S.D. (0.05)	Rates	Row Widths	Rates x Row Widths	C.V.
4 year average	N.S.	50.3	N.S.	4.9
1955	23.3	58.2	N.S.	9.1
1956	N.S.	53.5	N.S.	9.4
1957	N.S.	45.6	N.S.	11.5
1958	N.S.	75.2	N.S.	12.7

FERTILE CULM NUMBERS PER SQUARE FOOT IN TIMOTHY

Seeding rate lbs./acre	7"	14"	21"	28"	35"	3 year Average	1956	1957	1958
2½	38.9	54.6	41.7	39.6	34.6	41.9	51.3	51.0	24.4
5	39.7	48.7	43.1	39.9	32.7	40.8	49.2	46.5	26.4
7½	40.1	59.1	40.5	40.3	34.1	42.8	49.9	48.6	25.7
10	41.0	54.6	39.2	39.2	34.5	41.7	48.9	52.2	24.0
3 year average	39.9	54.2	41.1	39.7	34.0	41.8	49.8	49.6	25.1
1956	54.4	64.9	48.2	44.8	36.8				
1957	40.9	69.2	47.8	46.3	43.2				
1958	24.2	23.2	27.3	28.3	22.6				

L.S.D. (0.05)	Rates	Row Widths	Rates x Row Widths	C.V.
3 year average	N.S.	3.1	N.S.	8.0
1956	N.S.	10.7	N.S.	9.7
1957	N.S.	8.6	N.S.	15.4
1958	N.S.	N.S.	5.9	14.1

LENGTH OF PANICLE IN CMS. - TIMOTHY

Seeding rate lbs./acre	Row Width						Means		
	7"	14"	21"	28"	35"	3 year Average	1956	1957	1958
2½	6.8	7.2	7.6	7.5	7.8	7.4	7.0	8.1	7.1
5	6.4	7.0	7.1	7.4	7.8	7.1	6.8	7.6	7.0
7½	6.7	6.9	7.2	8.3	7.7	7.4	6.9	7.9	7.1
10	6.9	6.8	7.0	7.7	7.7	7.2	6.8	7.8	7.2
3 year average	6.7	7.0	7.2	7.7	7.7	7.3			
1956	6.5	6.8	6.8	7.1	7.1		6.9		
1957	6.7	7.3	7.7	8.8	8.6			7.8	
1958	6.9	6.8	7.2	7.1	7.5				7.1

<u>L.S.D. (0.05)</u>	<u>Rates</u>	<u>Row Widths</u>	<u>Rates x Row Widths</u>	<u>C.V.</u>
3 year average	N.S.	0.25	N.S.	4.5
1956	N.S.	0.32	N.S.	4.3
1957	N.S.	0.85	0.88	6.7
1958	N.S.	N.S.	N.S.	6.1

WEIGHT OF 1000 SEEDS IN MG. - TIMOTHY

Seeding Rate lbs./acre	7"	14"	21"	28"	35"	4 year Average	1955	1956	1957	1958
2½	331.7	339.5	353.3	350.3	377.3	350.4	327.2	363.2	359.9	352.4
5	339.5	334.5	349.2	363.8	369.4	351.3	326.9	366.6	356.4	355.3
7½	337.7	343.8	351.2	364.1	366.2	352.6	327.2	367.0	358.6	357.8
10	344.9	341.5	358.2	364.1	360.5	353.8	336.9	364.6	358.1	356.0
4 year average	338.4	339.8	353.0	360.6	368.3	352.0	329.6	365.3	358.2	355.4
1955	304.4	317.8	330.8	352.2	342.7					
1956	346.3	351.0	370.8	367.3	363.6					
1957	346.0	344.7	359.0	371.3	370.3					
1958	357.2	346.3	352.3	351.6	369.3					

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L.S.D. (0.05)	Rates	Row Widths	Rates x Row Widths	C.V.
4 year average	N.S.	2.3	N.S.	2.8
1955	N.S.	15.9	N.S.	5.4
1956	N.S.	16.9	N.S.	4.9
1957	N.S.	9.4	N.S.	6.2
1958	N.S.	20.0	N.S.	3.1

PERCENT ESTABLISHMENT IN SOIL - TIMOTHY

Seeding rate lbs./acre	Row Width						Means			
	7"	14"	21"	28"	35"	4 year Average	1955	1956	1957	1958
2½	72.2	69.9	75.0	69.9	71.5	71.7	62.3	68.6	76.6	79.3
5	74.0	71.2	73.3	70.6	70.4	71.9	60.6	73.8	75.4	77.9
7½	74.9	69.9	71.1	68.2	67.4	70.3	62.0	69.2	70.6	79.4
10	75.5	67.4	67.2	72.0	71.0	70.6	62.5	70.6	70.6	79.1
4 year average	74.1	69.6	71.6	70.2	70.1	71.1				
1955	65.6	63.3	63.8	55.1	61.1		61.8			
1956	73.0	66.0	72.5	72.5	68.7			70.5		
1957	78.2	72.0	71.5	74.5	70.2				73.3	
1958	79.8	77.0	78.8	78.7	80.2					78.9

L.S.D. (0.05)	Rates	Row widths	Rates x row widths	C.V.
4 year average	N.S.	N.S.	N.S.	3.0
1955	N.S.	N.S.	N.S.	9.7
1956	N.S.	N.S.	N.S.	7.3
1957	N.S.	Sig.	N.S.	9.5
1958	N.S.	N.S.	N.S.	4.7

SEEDLING HEIGHT 45 DAYS AFTER SEEDING - TIMOTHY

Seeding rate lbs./acre	7"	14"	21"	28"	35"	4 year Average	1955	1956	1957	1958
2½	11.0	10.9	9.5	11.4	11.8	10.9	17.0	9.6	9.0	7.9
5	11.7	10.9	10.8	11.0	10.9	11.1	17.0	10.4	8.9	8.0
7½	12.0	11.2	11.1	11.4	10.1	11.1	18.3	9.7	8.9	7.9
10	11.2	11.4	11.1	10.8	9.9	10.9	17.1	10.1	8.7	7.7
4 year average	11.5	11.1	10.6	11.1	10.7	11.0	17.3	9.9	8.8	7.9
1955	17.9	17.6	16.1	18.6	16.5					
1956	10.0	9.7	9.8	10.2	10.0					
1957	9.7	9.7	8.5	8.0	8.1					
1958	8.3	7.3	8.0	7.8	8.0					

<u>L.S.D. (0.05)</u>	<u>Rates</u>	<u>Row widths</u>	<u>Rates x Row Widths</u>	<u>C.V.</u>
4 year average	N.S.	N.S.	1.09	6.0
1955	N.S.	N.S.	N.S.	14.4
1956	N.S.	N.S.	N.S.	9.7
1957	N.S.	0.62	N.S.	6.7
1958	0.24	N.S.	0.53	4.0

CORRELATION OF SOME PLANT CHARACTERS IN TIMOTHY

	1955	1956	1957	1958
Seed yield - Head length	-	+0.536*	+0.804**	+0.601**
- Culm number	-	+0.029	+0.075	+0.389
- Weight 1000 seeds	+0.438*	+0.240	+0.654**	+0.115
- Seedling height	+0.009	-0.064	-0.716**	-0.044
- Germination	-0.243	-0.216	-0.358	-0.068
Head length - Culm number	-	-0.444*	-0.194	-0.062
- Weight 1000 seeds	-	+0.468*	+0.681**	+0.498*
- Seedling height	-	-0.249	-0.735**	-0.038
- Germination	-	-0.041	-0.208	+0.373
Culm number - Weight 1000 seeds	-	-0.757**	-0.385	-0.365
- Seedling height	-	-0.261	+0.396	+0.245
- Germination	-	-0.217	-0.240	-0.438*
Weight 1000 seeds - Seedling height	+0.098	-0.037	-0.724**	+0.139
- Germination	-0.547*	+0.025	-0.236	+0.522*
Seedling height - Germination	-0.383	+0.361	+0.442*	-0.015

necessary value of r .444 : 561

METHODS OF SEED HARVEST - VIKING BIRDSFOOT TREFOIL - 1957

1958 DATA

	lbs. seed per acre	% Germination		
		Soft	Dead	Hard
Direct combine	195	20.5	4.7	74.8
Coiled - threshed later	226	38.9	0.2	60.9
Windrow - pick up combine - same day	162	22.4	7.4	70.2
" - " " " - next morning (12-14 hrs.)	143	19.7	9.2	71.1
" - " " " - 1 day (24 hrs.)	174	27.4	6.0	66.6
" - " " " - 2 days (48 hrs.)	141	30.0	3.3	66.7

RATES AND DATES OF GRASS HERBICIDES ON BIRDSFOOT TREFOIL, BRAMPTON, 1957-58

YIELD OF DRY MATTER IN POUNDS PER ACRE 1958

Chemical	Total yield in lbs./acre	lbs. of components/acre (D.M.)			Maturity
		B.T.	Timothy	Weeds, stubble, etc.	
Fall Dalapon 6.5	415	257	0	158	Mature seed
5.0	508	356	10	142	" "
3.5	533	456	19	58	" "
2.0	497	156	136	205	" "
Average	488	306	41	141	
Spring Dalapon 6.5	445	153	172	120	Full flower
5.0	370	236	65	65	" "
3.5	493	211	189	91	" "
2.0	656	68	533	55	" "
Average	541	167	240	83	
Fall A.T.A. 7.0	544	0	74	470	Veg.
5.0	838	23	298	517	"
3.0	802	5	177	620	"
1.0	661	8	586	67	"
Average	711	9	284	419	
Spring A.T.A. 7.0	979	61	918	0	Veg.
5.0	871	12	859	0	"
3.0	842	31	796	15	"
1.0	810	0	778	32	"
Average	876	26	838	12	
Check	702	88	548	66	Veg.