NOT FOR PUBLICATION

PROGRESS REPORT

FORAGE CROP INVESTIGATIONS

1958

BREEDING AND STRAIN TESTING

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.

CONTENTS

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

ALFALFA STRAIN TRIAL, 1955 (501), C16, O.A.C.

YIELDS IN TONS D.M. PER ACRE

	1956			1957			1958				
	Hay	Amth.	Total	Hay	Amth.	Total	Jul.3	Aug.11	Oct.16	Amth.	Total
Vernal	2.07	1.80	3.87	1.66	1.36	3.02	1.36	.70	.79	1.49	2.85
DuPuits	2.12	2.43	4.55	1.86	1.49	3.35	.14	.16	.04	.20	.34
Ranger	1.77	1.78	3.55	1.69	1.44	3.13	.96	.70	.63	1.33	2.29
Grimm	1.76	1.52	3.28	1.81	1.10	2.91	.18	.23	.12	.35	.53
Ont. Varieg.	1.95	1.91	3.86	1.79	1.45	3.24	.25	.30	.19	.49	.74
Rhizoma	1.92	1.56	3.48	1.90	1.44	3.34	.40	.38	.23	.61	1.01
Narragansett	1.96	1.89	3.85	1.95	1.28	3.23	.42	.43	.20	.63	1.05
Ladak	1.86	.98	2.84	1.61	.76	2.37	.54	.54	.31	.85	1.39
Buffalo	1.75	2.07	3.82	1.54	1.25	2.79	.79	.57	.65	1.22	2.01
Atlantic	1.94	1.79	3.73	1.70	1.26	2.96	.71	.58	.50	1.08	1.79
A 225	1.86	1.72	3.58	1.49	1.14	2.63	.93	.62	.73	1.35	2.28
A 226	1.78	1.88	3.66	1.65	1.31	2.96	.94	.69	.86	1.55	2.49
Socheville	2.06	2.33	4.39	1.75	1.21	2.96	.23	.23	.08	.31	.54
Danish	2.02	2.16	4.18	1.90	1.27	3.17	.11	.05	.02	.07	.18
Argentina	1.74	1.91	3.65	1.33	1.26	2.59	.87	.73	.75	1.48	2.35
Caliverde	1.38	2.01	3.39	.99	.98	1.97	.37	.48	.31	.79	1.16
Mean	1.87	1.86	3.73	1.66	1.25	2.91	.57	.46	.40	.86	1.43
L.S.D. 0.05	.15	.08	.18	.24	N.S.	.57	.25	.22	.15		
C.V.	6	3	3	10	24	14	30	31	27		

ALFALFA STRAIN TRIAL, 1955 (501) C16, O.A.C.

	Yields in tons D.M. per acre						Ranking			Spring survival* in %	
	1956-7 Totals			1956-8 Totals							
	Hay	Amth.	Total	Hay	Amth.	Total	'56-'57	'58	'56-'58	1957	1958
Vernal	3.72	3.16	6.88	5.08	4.65	9.73	6	1	1	65	55
DuPuits	3.98	3.92	7.90	4.12	4.12	8.24	1	15	8	90	8
Ranger	3.46	3.22	6.68	4.42	4.55	8.97	8	4	3	70	43
Grimm	3.56	2.62	6.18	3.74	2.97	6.71	14	14	14	85	14
Ont. Varieg.	3.74	3.36	7.10	3.99	3.85	7.84	4	12	11	85	16
Rhizoma	3.82	2.98	6.80	4.22	3.59	7.81	7	11	12	85	10
Narragansett	3.90	3.18	7.08	4.32	3.81	8.13	5	10	9	80	18
Ladak	3.46	1.74	5.20	4.00	2.59	6.59	16	8	15	65	31
Buffalo	3.28	3.32	6.60	4.07	4.54	8.61	11	6	4	65	43
Atlantic	3.64	3.04	6.68	4.35	4.12	8.47	9	7	7	85	38
A 225	3.34	2.88	6.22	4.27	4.23	8.50	13	5	6	40	55
A 226	3.42	3.18	6.60	4.36	4.73	9.09	10	2	2	65	55
Socheville	3.80	3.54	7.34	4.03	3.85	7.88	2	13	10	80	19
Danish	3.92	3.42	7.34	4.03	3.49	7.52	3	16	13	90	5
Argentina	3.06	3.18	6.24	3.93	4.66	8.59	12	3	5	40	46
Caliverde	2.36	2.98	5.34	2.73	3.77	6.50	15	9	16	15	35
Mean	3.52	3.12	6.64	4.10	3.97	8.07				74	31

* The percentages were based on the fraction: $\frac{\text{Number of living plants}}{\text{Number of living + number of dead plants}}$

ALFALFA STRAIN TRIAL, 1955 (501)

COMMENTS

1. This experiment was seeded on sloping land and as a result the lower two replicates were under a much greater drainage stress than the upper two.

2. Establishment was good; the test as a result was valid.

3. Caliverde and Argentina were thinned out very considerably by cold weather during the winter of 1955-6, i.e., the winter following establishment.

4. In the first crop year, 1956, there was an unusually long, open autumn. This permitted varieties of doubtful winterhardiness to prepare for winter. Thus winter damage that year to DuPuits was unusually light. On the other hand Vernal and Ladak suffered considerably from heaving. Thus in the second crop year, 1957, DuPuits outyielded Vernal as did Rhizoma and Narragansett.

5. During the second crop year bacterial wilt was weakening susceptible plants and stands of susceptible varieties were badly thinned out by the spring of 1958. Yields in this year were a reflection primarily of wilt reaction and to a lesser extent of hardiness.

6. DuPuits was in first place for the first two years outyielding Vernal in this test by one ton, Socheville by half a ton over the 2-year period.

7. Vernal was in first place over the 3-year total, outyielding DuPuits by one and a half tons, Ranger by three quarters of a ton and Grimm by three tons. Its persistence and relatively high yield in the third crop year accounted for its superiority.

8. Ontario Variegated, Rhizoma and Narragansett gave satisfactory performances for two years but faded badly in the third year.

9. The Argentina strain, after losing half its plants in the first winter, rallied strongly in succeeding years. It presumably was wilt resistant.

10. Of the synthetic strains A 226 appeared quite promising.

ALFALFA VARIETIES (DUPUITS TYPE) 1956, GUELPH. LBS. D.M./ACRE
OF ALFALFA + ORCHARD

	1958					2 year Average		
	Cut 1	Cut 2	Cut 3	Total 2 & 3	Season Total	Cut 1	After.	Total
Hay	June 25	July 30	Sept.9					
Alfa	3549	2085	1383	3468	7017	4330	4056	8386
DuPuits	3466	2079	1408	3487	6953	4282	4026	8308
Cardinal	3466	2082	1357	3439	6905	4068	3995	8063
Vern.+ DuP	3244	1981	1357	3338	6582	4128	3632	7760
Can.Grimm	3390	1956	1268	2224	5614	4638	2821	6859
Vernal	2817	1682	1073	2755	5572	3839	2803	6642
Silage	June 17	July 23	Sept.9					
Alfa	3634	2087	1228	3315	6949	4166	4181	8347
DuPuits	3504	2024	1242	3266	6770	4005	4298	8303
Cardinal	3482	2292	1230	3522	7004	3985	4193	8178
M-53	3495	1967	1141	3108	6603	4063	4119	8182
Can.Grimm	3539	1836	1154	2990	6529	3993	3487	7480
Vernal	3141	1550	924	2474	5615	3796	2984	6780
Pasture	May 27	July 15	Sept. 9					
Alfa	2410	1820	1497	3317	5727	2356	4065	6421
DuPuits	2375	1888	1488	3376	5751	2299	3973	6272
Cardinal	2419	1926	1504	3430	5849	2324	3903	6227
Vern.+ DuP.	2344	1839	1482	3321	5665	2352	3813	6165
Can.Grimm	2323	1586	1427	3013	5336	2180	3338	5518
Vernal	2061	1509	1308	2817	4878	2166	3240	5406

ALFALFA VARIETIES (DuPUITS TYPE) 1956 (302). % ALFALFA 1958

	1957				1958		
	Cut 1	Cut 2	Cut 3	Cut 4	Cut 1	Cut 2	Cut 3
HAY							
Alfa	64	76	87	89	58	91	91
DuPuits	52	75	81	87	53	86	91
Cardinal	57	75	81	89	55	89	91
Vernal + DuPuits	58	73	78	88	52	90	92
Can. Grimm	51	68	80	85	57	85	90
Vernal	64	61	75	79	46	83	89
SILAGE							
Alfa	63	75	81	90	71	90	91
DuPuits	58	66	79	89	67	88	90
Cardinal	56	71	79	90	66	91	92
M-53	59	69	78	89	66	88	90
Can. Grimm	52	59	67	88	61	86	88
Vernal	60	62	72	84	55	86	88
PASTURE							
Alfa	72	80	62	79	79	89	85
DuPuits	66	71	55	81	76	89	87
Cardinal	63	69	59	84	78	90	85
Vernal + DuPuits	69	70	60	84	77	90	87
Can. Grimm	62	64	53	78	74	84	84
Vernal	67	64	56	77	77	87	86

CO-OPERATIVE ALFALFA HAY-PASTURE TRIALS, 1956 (308).

Purpose and Procedure: see 1957 Forage Production Report.

Results 1958:

1. Winterhardiness and stands.

In Bruce, in Stormont and in Peterborough counties the stands of DuPuits were reduced. In Stormont county plants of this variety remained only where manure was present. In Peterborough and Bruce counties the stands were reduced from last year but were rated as fair stands. Stands of Vernal and Can. Common alfalfa were all rated as good except for some winter-killing of Vernal in Stormont county. The stands of these two varieties in Bruce county had not been reduced from the previous year.

2. Characteristics of Varieties.

At two locations DuPuits showed more vigour than Vernal. In Peterborough and Stormont counties where the stands of DuPuits had been reduced and the tests were under adverse conditions of drought this variety exhibited lower vigour than either Vernal or Canadian common. In general DuPuits was much coarser than either of the other two varieties.

3. Yield and botanical composition.

Yields have not been reported on all tests. Estimated yields indicate that DuPuits produced more hay and aftermath than either Vernal or Canadian variegated alfalfa. The per cent composition indicated that DuPuits was not too competitive for common orchardgrass. Orchardgrass appeared to be the dominant specie in all mixtures. Alfa alfalfa (Bruce county) was very vigorous and was the major component of the mixture but was rated as coarser than DuPuits.
Ladino was present only in small amounts.

CHARACTERISTICS OF THREE VARIETIES OF ALFALFA IN SIMPLE MIXTURES IN ONTARIO DURING 1958

County		DU PUITS			VERNAL			CAN. VARIEGATED		
		Winter* injury	Coarse-ness*	Vigor*	Winter* injury	Coarse-ness*	Vigor*	Winter* injury	Coarse-ness*	Vigor*
Kent (2)	6/10	-	-	-	-	-	-	-	-	-
Haldimand	6/18	0	9	10	0	6	5	0	7	6
Bruce	6/12	2	7.5	7	3	4.5	5	1	8.5	8.5
Peterboro	6/17	2	8	5	0	5	7	0	6	7
Stormont	6/25	6	10	6	3	8	8	0	8	8
		2.5	8.6	7.0	1.5	5.8	6.2	0.2	7.2	7.4

* scale. 1 = least; 10 = most.

(1) Alfa substituted for Can. variegated

(2) Seeded later than other tests - stand DuPuits 30%, Vernal 20%, Canadian 0.

YIELD AND BOTANICAL COMPOSITION OF MIXTURES CONTAINING VARIETIES OF ALFALFA DURING 1958.

County	Harvest Date	DU PUITS				VERNAL				CAN. VARIEGATED			
		Yield (tons)	% composition			Yield (tons)	% composition			Yield (tons)	% composition		
			alf.	lad.	orch.		alf.	lad.	orch.		alf.	lad.	orch.
Kent[1]	6/10	1.34	10	T	60	1.16	5	T	60	1.39	5	T	60
	7/8	1.22	-	-	-	1.05	-	-	-	1.06	-	-	-
Haldimand	6/18	-	60	T	40	-	50	T	50	-	40	T	60
Bruce	6/12	1.50[4]	30	T	70	1.25[4]	45	T	55	1.75[4]	70[2]	T	30
Peterboro	6/17	-	25	T	75	-	25	10	65	-	25	10	65
Stormont	6/25	1.50[4]	10	T	90	1.00[4]	40	5	45	1.25[4]	40	T	60
Average		1.39	29	T	67	1.12	33	3	55	1.23[3]	36	2	55

1) 30-40% of field consisted of alsike

2) Alfa substituted for Can. Variegated

3) Alfa excluded from average yield

4) estimated yields

ALFALFA SEED LOTS, 1956 (306)

	G. No.	1957 Total	1958 July 8	1958 August	1958 Total	2 year Average
Can. Grimm	688	5630	3904	1544	5448	5539
Vernal	690	5623	3867	1537	5404	5514
Washington Common	705	5353	3375	1356	4731	5042
N.Dakota Grimm	704	5229	3245	1562	4807	5018
Can. Grimm	694	5152	3646	1381	5027	5090

ALFALFA VARIETIES 1956, KEMPTVILLE. LBS. D.M./ACRE
OF ALFALFA + CLIMAX

Variety	1958					2 year Average		
	Hay	Aftermath			Season			
	Jun.23	Jul.31	Sept.	Total	Total	Hay	After.	Total
M-50	4667	2591	1802	4393	9060	5119	3791	8910
M-53	4479	2664	1720	4384	8863	5126	3597	8723
Vernal	4866	2496	1525	4021	8887	5208	3526	8734
DuPuits	4561	2556	1815	4371	8932	4886	3606	8492
Alfa	4461	2572	1563	4135	8596	5127	3259	8385
Cardinal	4473	2530	1328	3858	8331	4968	3249	8217
Can.Grimm	4000	2557	1635	4192	8192	5630	3244	7874
S.C.3503	4620	1595	408	2003	6623	4897	2090	6987
Mean	4516	2445	1474	3919	8435	4995	3295	8290
L.S.D. 0.05	N.S.	376	376	3.66	422			
C.V.	8.1	10.5	17.4	6.5	3.5			

ALFALFA VARIETIES 1953, KEMPTVILLE. TONS D.M./ACRE.
PURE STANDS

Varieties	1958					4 year Average 1954-1958		
	Hay	Aftermath						
	Jun.19	Jul.29	Sep.8	Total	Total	Hay	After.	Total
Vernal	1.87	.96	.56	1.52	3.39	2.54	1.62	4.16
DuPuits	1.06	.85	.46	1.31	2.37	2.07	1.75	3.82
Rhizoma	1.50	.93	.41	1.34	2.85	2.30	1.68	3.98
Narragansett	1.68	.85	.50	1.35	3.03	2.29	1.66	3.95
Ranger	1.62	.95	.55	1.50	3.12	2.12	1.67	3.79
Grimm	1.44	.72	.31	1.03	2.48	2.12	1.50	3.62
Ladak	1.78	.70	.37	1.07	2.84	2.29	1.27	3.56
Mean	1.56	.85	.45	1.30	2.87	2.24	1.59	3.84
L.S.D. 0.05	.28	.21	N.S.	.35	.51			
C.V.	11.8	16.5	26.9	17.7	11.6			

ALFALFA STRAIN TRIAL, 1958 (509) O.A.C. 2C.
YIELD IN POUNDS D.M. PER ACRE, OCT.30,
HEIGHT IN INCHES SEPTEMBER 2.*

Strain	Yield	Height	Strain	Yield	Height
A 242	1944	13	N.Y.B.	1516	13
N.Y.C.	1846	13	Ladak	1439	11
DuPuits	1843	15	Saskatoon IV	1413	11
Alfa	1799	15	Rambler	1376	10
DuPuits + Vernal	1797	15	Saskatoon V	1368	10
Cardinal	1748	15	Saskatoon I	1366	11
A 223	1742	14	Rhizoma	1348	10
A 224	1723	11	Viking Trefoil	1340	7
A 600	1698	11	Ranger	1321	13
A 216	1698	13	A 248	1318	11
A 234	1690	12	Atlantic	1284	12
N.Y.A.	1685	13	Saskatoon III	1283	11
A 239	1642	13	Williamsburg	1275	14
A 225	1627	14	A 253	1263	10
Vernal	1576	11	Buffalo	1243	13
Purdue C	1572	10	Tuna	1169	10
Narragansett	1542	13	Grimm	1103	11
Saskatoon II	1517	13	S-Dakota H	855	5
Mean	1499 lb.	11.9 in.			
L.S.D. 0.05	192				
0.01	254				
C.V.	9.1				

* All the alfalfa strains were cut back on July 23. The heights represent 6 weeks' growth, the yield 3 months' growth. The Viking birdsfoot trefoil was not cut back during the summer.

ALFALFA VARIETY TEST FOR SOILS OF FAIR OR VARIABLE DRAINAGE 1956 (309)

1958 (?)

Co-operative project of the Field Crops Branch, Field Husbandry Department, O.A.C.; and county Soil and Crop Improvement Associations.

Region A: Essex, Lambton, Welland, Lincoln.

Region B: Wentworth, Halton, Manitoulin, Bruce, N.Simcoe, Durham, Lennox and Addington.

Region C: Grenville, Dundas, Glengarry.

Region D: N. Wellington, Dufferin.

Region E: Parry Sound, Rainy River.

Region F: Temiskaming, Cochrane S.

Purpose

(1) Alfalfa is the best legume in Ontario where it can be grown successfully. There is a problem in growing it on soils with variable drainage or which are only fair in drainage. There is some evidence that certain varieties may be more suitable than others on such fields; and the main purpose of this project is to determine if this is the case. The information from this project will be combined with the results from experiment stations as the basis for variety recommendations.

(2) Birdsfoot trefoil also offers promise either alone or combined with alfalfa in timothy mixtures on such fields. Two such mixtures will be evaluated in this project.

(3) Two new alfalfa varieties, DuPuits and Alfa, are distinctly different in growth habit from the standard varieties. We wish to see how these will perform compared with the standard varieties under these drainage conditions.

The comparisons to be made are:

Narragansett (10)* + Climax (6) - Narragansett is a variety from the U.S. which is highly recommended for "tough alfalfa fields" in New York State.

Rhizoma (10) + Climax (6) - Rhizoma is a Canadian variety which has persisted exceptionally well in pastures in Ontario and in other difficult situations for alfalfa.

* seeding rate in pounds per acre

Canadian Grimm (10)*+ Climax (6) - Canadian Grimm is unpedigreed Canadian produced seed.

DuPuits (10) + Climax (6) - DuPuits is a French variety now recommended for special situations in Southern Ontario on well drained soils. We do not know how widely this variety is adapted in Ontario; this test will help provide part of the answer.

Alfa (10) + Climax (6) - Alfa is a new variety from Sweden under test now. It is supposed to be more winter hardy than DuPuits. We wish to check on its hardiness and ability to withstand these drainage conditions.

Ranger (10) + Climax (6) - Ranger is the variety in greatest seed supply.

Vernal (10) + Climax (6) - Vernal is the recommended variety at present for this drainage situation. We wish to know if any of those above are better.

Vernal (4) + Viking (3) + Climax (6) - Viking is the best hay-type birdsfoot trefoil variety. It may be of use in alfalfa mixtures on such soils. We wish to see if it will stay in areas of poorer drainage in the field than will alfalfa.

Viking (5) + Climax (5) - A long-term mixture. We wish to compare its production with a straight alfalfa mixture and the Vernal - Viking - Climax mixture above on such fields.

Start seeding on this side with own seed to set drill using Alfalfa (10)* + Timothy (6)	1 acre	1 acre	1 acre	1 acre	1 acre	1 acre	1 acre	1 acre	1 acre
	DuPuits (10) + Climax (6)	Alfa (10) + Climax (6)	Can.Grimm (10) + Climax (6)	Ranger (10) + Climax (6)	Rhizoma (10) + Climax (6)	Narragansett (10) + Climax (6)	Vernal (10) + Climax (6)	Vernal (4) + Viking (3) - Climax (6)	Viking (5) + Climax (5)
	1	2	3	4	5	6	7	8	9

* seeding rate in pounds per acre

RED CLOVER SEED LOTS (T.T.T.) 1956

Seed Lot G. No.	Description	% of Lasalle			% Ground cover
		June 20	July 29	Total	June 1958
Lasalle					
819	Cert. 1	94	114	101	51
832	Reg. 1 Alberta grown	100	103	101	70
738	Reg. 1	99	106	101	33
743	Reg. 1 Alberta grown	102	97	101	70
742	Cert. 1 Alberta grown	105	85	99	58
706	Reg. 1 Check in research plots 1956	99	94	97	70
British Double Cut					
818	22,400 lbs. importation	95	120	103	48
737	4,200 lbs. "	91	113	98	51
703		91	111	97	23
720	*	96	99	97	16
724	30,240 lbs. importation	95	100	96	24
734	33,000 " " *	90	107	95	23
739	43,646 " "	91	101	95	38
725	30,000 " "	92	101	94	21
748	34,000 " " *	86	104	91	18
726	89,000 " "	87	95	89	22
Canadian					
736	3,000 lbs.	107	121	111	59
639	Simcoe Co. grown	103	129	111	66
740	Ont. grown 1,800 lbs.	110	110	110	59
756	Blend E. Ont. 1954 crop	108	114	110	36
638	Simcoe Co. grown	101	123	108	66
647	Bulk Simcoe, York, Grey	100	126	108	61
746	Victoria & Peter. Co. 22,000 lbs.	102	118	107	41
727	Bulk W. Ont.	101	119	106	66
636	Simcoe Co. grown	96	126	105	64
820		101	110	104	71
754	Blend E. Ont. 1954 crop	102	107	104	36
747	Blend 30 Central Ont.growers 40,000 lbs.	95	122	103	60

Seed Lot G. No.	Description	% of Lasalle			% Ground cover
		June 20	July 29	Total	June 1958
751	Blend 9 E. Ont. growers 3,000 lbs.	95	122	103	39
741	Ont. grown 150 lbs.	99	114	103	39
643	York Co. grown	93	123	102	53
762	Blend 2 local lots. New Liskeard	120	61	102	46
823		98	106	101	56
761	Single growers. E. Ont.	94	114	100	44
642	York Co.	90	118	99	59
648	Blend Grey, Bruce, Huron, Well.	90	118	98	38
645	Blend Simcoe, Dufferin, Grey	91	111	97	50
821	Paisley district. 2,000 lbs.	81	130	96	58
730	New Liskeard area	101	80	95	56
753	Renfrew, Single grower's lot.	87	108	94	45
758	Blend 20 growers. E. Ont. 9,000 lbs.	92	99	94	46
723		92	96	93	44
700		98	84	93	9
732		88	106	92	20
755	E. Ont. Single growers lot	85	105	91	59
749	Ottawa variety. Blend 8 growers	83	108	90	51
763	Earlton & Verner Blend 4,800 lbs.	90	90	90	38
759	Blend E. Ont. growers. 40,000 lbs.	82	107	89	59
752	Blend, 5 E. Ont. growers. 5,500 lbs.	79	107	88	36
824		83	99	88	48
831	Manitoulin. One grower many generations	101	39	82	16
830	" " " " "	99	33	79	12
B. Trefoil					
692	Viking	88	82	86	88

* Imported from same British seed firm

RED CLOVER SEED LOTS 1956, GUELPH. SUMMARY

	No. Seed Lots	D.M: Yield as % of Lasalle 1957			% Ground Cover June 1958
		June 20	July 29	Total	
Lasalle	6	100	100	100	59
Canadian	32	95	106	98	51
British	10	91	105	96	28
Viking trefoil	1	88	82	86	88

RED CLOVER SEED LOTS, 1956, KEMPTVILLE

	Number Seed Lots	Yield as % of Lasalle in First Crop Year, 1957	% survival into Second Crop year 1958
Lasalle	1	100	5
Canadian red	9	89	1
British red	2	69	1

GUELPH - SEEDED IN 1953 - TONS D.M./ACRE

	1954	1955	2 year Total
Lasalle	3.33	1.17	4.50
Can. Red /	2.88	.37	3.25
British			
Dorset Marl	3.14	.10	3.24
English Broad	2.78	.10	2.88
Essex Late	2.52	.15	2.67

/ composite of 5 seed lots of Canadian grown double-cut red clover.

BRITISH DOUBLE CUT RED CLOVER STRAIN TRIAL, 17C, 1956

	1957			1958			1957-8 Total		
	Hay June 18	Amth. July 29	Total 1957	Hay June 24	Amth. Aug.5	Total 1958	Hay	Amth.	Total
Lasalle	1.86	1.00	2.86	.97	.66	1.63	2.83	1.66	4.49
Common	1.43	1.25	2.68	.71	.40	1.11	2.14	1.65	3.79
Essex	1.46	1.27	2.73	.46	.33	.79	1.92	1.60	3.52
Cotswold	1.49	1.30	2.79	.48	.24	.72	1.97	1.54	3.51
Garton's	1.38	1.31	2.69	.39	.23	.62	1.77	1.54	3.31
Donath's	1.37	1.22	2.59	.40	.25	.65	1.77	1.47	3.24
Scottish	1.39	1.18	2.57	.42	.23	.65	1.81	1.41	3.22
Dorset	1.35	1.09	2.44	.41	.20	.61	1.76	1.29	3.05
Viking B.T.	1.10	1.13	2.23	1.65	2.50	4.15	2.75	3.63	6.38
Mean*	1.47	1.20	2.67	.53	.32	.85	2.00	1.52	3.52
L.S.D. 0.05	.11	.19	.10	.19	.11				
C.V.	5	11	4	24	12				

* Red Clover only

BRITISH SINGLE CUT RED CLOVER STRAIN TRIAL, 17C, 1956

1957-8 YIELDS IN TONS D.M. PER ACRE

	1957			1958	1957-8
	Hay June 25	Amth. Aug.19	Total 1957	July 18	Total
Leon	2.21	.98	3.19	1.39	4.58
Montgomery	2.00	.83	2.83	1.19	4.02
Cornish	2.05	.68	2.73	.64	3.37
Mammoth	1.93	.60	2.53	.81	3.34
Cotswold	1.73	.56	2.29	.98	3.27
Essex	1.72	.51	2.23	.76	2.99
Viking B.T.	1.46	1.59	3.05	3.65	6.70
Mean*	1.94	.69	2.63	.96	3.59
L.S.D. 0.05	.15	.14	.11	.31	
C.V.	7	12	4	19	

* Red Clover only

COMMENTS

1. All British double cut strains were much inferior to Lasalle.

2. Most of the difference arose in the second crop year when Lasalle outyielded the British varieties by approximately a ton.

3. Leon outyielded all British single cut types, the difference averaging about a ton, spread fairly evenly over the two years.

4. Viking birdsfoot trefoil outyielded the best red clover strains by about two tons and the red clover mean by about three tons. This superiority was caused almost entirely by the difference in the second crop year results, i.e., by the greater persistence of the trefoil.

5. Double cut means differed very little from single cut means. Greater differences existed in the seasonal patterns of the two types.

6. Summary: British red clover is lower yielding and less persistent than Canadian-grown non-pedigreed or Lasalle. It can only be recommended when there is a shortage of North American-grown red clover.

RED CLOVER STRAIN TRIAL, 1958 (510)

Strain	Chromosome Number	Origin
Sv.034	Tetraploid	Svalof, Sweden.
Sv.045	"	" "
Ulva	"	Sweden
Ultuna	"	Sweden
Rea	"	Weibullsholm, Sweden
Tetra Merkur	"	Sweden
T. Resistenta x T. Ultuna	"	Uppsala, Sweden
T. Hersnap x T. Ultuna	"	" "
T. Merkur x T. Ultuna	"	" "
Merkur	Diploid	Svalof, Sweden
Hermes	"	" "
Silo	"	" "
Resistenta	"	Weibullsholm, Sweden
Altaswede	"	Canada
Lasalle	"	"
Canadian Common	"	"

BIRDSFOOT TREFOIL STRAIN TRIAL, O.A.C., 16C, 1955 (502)

YIELDS OF D.M. IN TONS PER ACRE

	1956-7 Mean			1958		
	Hay	Amth.	Total	Hay	Amth.	Total
Viking	1.47	1.11	2.58	.70	1.22	1.92
Roskilde	1.55	1.04	2.59	.61	1.13	1.74
Zoar	1.29	1.28	2.57	.72		
Italian	1.26	1.26	2.52	.80	1.15	1.95
French	1.20	1.25	2.45	.74		
Granger	1.22	1.22	2.44	.62		
Guilderland	1.23	1.09	2.32	.67		
Montour	1.23	1.05	2.28	.65		
Empire	1.38	.82	2.20	.48	1.08	1.56
Hudson	1.05	.55	1.60	.04		
Mean	1.29	1.07	2.36	.66*	1.14	1.79
L.S.D. 0.05				.19	.09	
0.01				.26	N.S.	
C.V.				21.8	5.2	

* Hudson was disregarded in the calculation of this mean only.

BIRDSFOOT TREFOIL STRAIN TRIAL - O.A.C. - 1955. YIELDS OF DRY MATTER IN TONS PER ACRE

Variety	1956			1957				1958		
	Hay Jun.29	After. Aug.16	Total	Hay Jun.17	Aftermath Jul.19	Aftermath Sept.1	Total	Hay	After.	Total
Viking	1.30	0.99	2.29	1.64	0.74	0.49	2.87	0.70	1.22	1.92
Roskilde	1.50	0.95	2.45	1.60	0.65	0.49	2.85	0.61	1.13	1.74
Zoar	1.14	1.16	2.30	1.44	0.81	0.60	2.74	0.72		
Italian	1.21	1.17	2.38	1.32	0.78	0.57	2.67	0.80	1.15	1.95
French	1.13	1.15	2.27	1.27	0.79	0.56	2.62	0.74		
Granger	1.17	1.16	2.33	1.27	0.75	0.52	2.54	0.62		
Guilderland	1.17	1.02	2.19	1.28	0.67	0.49	2.44	0.67		
Montour	1.09	0.93	2.02	1.36	0.72	0.46	2.54	0.65		
Empire	1.59	1.05	2.64	1.17	-	0.58	1.75	0.48	1.08	1.56
Hudson	1.13	0.82	1.95	0.98	-	0.27	1.25	0.04		
Average	1.23	1.04	2.33	1.33	0.59	0.50	2.42	0.66*	1.15	1.79
L.S.D. 0.05	.12	.12	.17	.14	.06	.15	.23	.19	.09	-
C.V.	6.5	7.6	5.0	7.0	8.0	20.0	7.0	21.8	5.2	-

* Hudson not calculated in mean

Variety	1956-1957 mean			1956-57-58 mean		
	Hay	After.	Total	Hay	After.	Total
Viking	1.47	1.11	2.58	1.08	1.16	2.29
Roskilde	1.55	1.04	2.59	1.08	1.08	2.26
Zoar	1.29	1.28	2.57			
Italian	1.26	1.26	2.52	1.03	1.20	2.23
French	1.20	1.25	2.45			
Granger	1.22	1.22	2.44			
Guilderland	1.23	1.09	2.32			
Montour	1.23	1.05	2.28			
Empire	1.38	0.82	2.20	0.93	0.90	1.88
Hudson	1.05	0.56	1.60			
Average	1.29	1.07	2.36	1.03	1.11	2.17

COMMENTS

Establishment for this test was good.

In the first crop year, 1956, it was cut twice only and considerable aftermath was left unharvested in October. Also in this year Empire was cut two weeks later than the other varieties.

In 1956 Roskilde and Viking excelled in the first hay crop but the other European type varieties overcame this lead during the season and differences between European types were not significant.

In 1957, the second crop year, Viking and Roskilde again led the others both in the hay crop and in the total for the season. Empire was significantly lower than most of the European type varieties.

In 1958 all varieties were harvested for hay but only four for aftermath. Empire and Hudson were again inferior in yield.

SUMMARY AND CONCLUSIONS

There was little to choose between Viking, Roskilde and Italian in this test. The first two, being a little later, outyielded the Italian in the first cut, but were in turn outyielded in the aftermath.

Granger seldom showed to advantage.

Empire was lower in yield than the European types.

Hudson, a diploid strain of L. tenuis, was lower yielding than any other variety throughout the test.

Of the non-registered strains derived from unselected European stocks, only Zoar equalled Viking in performance.

BIRDSFOOT TREFOIL STRAIN TRIALS, 17C, 1956 (505)(506)

1957-58 YIELDS IN TONS D.M. PER ACRE

European test	1957					1958			1957-58 Total		
	Hay	Aftermath			Total	Hay	Amth.	Total	Hay	Amth.	Season
	Jun.17	Jul.19	Sept.5	Total		Jul.3	Aug.28				
F_2 hybrid	1.50	0.63	0.83	1.46	2.96	1.47	1.08	2.55	2.97	2.54	5.51
European	1.12	0.78	0.71	1.49	2.61	1.42	1.25	2.67	2.54	2.74	5.28
Mansfield	1.03	0.69	0.61	1.30	2.33	1.33	1.11	2.44	2.36	2.41	4.77
Cascade	.99	0.70	0.67	1.37	2.36	1.21	1.14	2.35	2.20	2.51	4.71
Viking	.91	0.63	0.50	1.13	2.04	1.21	0.95	2.16	2.12	2.08	4.20
Viking*	1.46			1.59	3.05	1.65	1.75	3.40	3.11	3.34	6.45
Mean	1.11	0.68	0.66	1.35	2.46	1.33	1.10	2.43	2.44	2.45	4.89
L.S.D. 0.05	0.23	0.09	0.12	0.07	0.09	0.12	0.10	0.10			
C.V.	13	9	12	10	4	6	6	6			
Gershoy hybrids											
G 898-900	1.85	0.63	0.85	1.48	3.33	1.71	1.14	2.85	3.56	2.62	6.18
G 901-904	1.93	0.62	0.86	1.48	3.41	1.50	1.03	2.53	3.43	2.51	5.94
G 905-907	1.60	0.57	0.88	1.45	3.05	1.35	1.02	2.37	2.95	2.47	5.42
G 909-910	1.65	0.63	0.86	1.49	3.14	1.26	1.01	2.27	2.91	2.50	5.41
Mean	1.76	0.61	0.86	1.47	3.23	1.45	1.05	2.50	3.21	2.52	5.73
L.S.D. 0.05	N.S.	N.S.	N.S.	N.S.	N.S.	0.11	N.S.	0.10			
C.V.	14	10	9	9	14	5	7	3			

* Adjusted data from the red clover strain trial on the same range.

COMMENTS

In the European test, but not in the other, establishment was irregular and the Viking plots in particular were patchy. The "European" plots, although not perfect, were considerably better. These empty spots had a more serious effect in the first crop year than in the second and as a result the Gershoy hybrids are outstandingly superior in 1957 but not in 1958. For comparisons some data are shown which have been drawn from an adjacent area where the establishment, made in the same year, was very good.

The Gershoy hybrids are later in maturity than the European types and hence they provide a heavier yield on the first cut and a lighter one on the aftermath. The first two groups represent advanced generation hybrids between European types and 4n L. tenuis. The third group includes Empire x 4n L. tenuis hybrids. It is noted that these hybrids of Empire derivation have better aftermath yields than is common with Empire itself.

BIRDSFOOT TREFOIL STRAIN TRIALS, 1957 (507)(508)

1958 YIELDS IN POUNDS D.M. PER ACRE

O.A.C., 7C	Hay June 19	Aftermath Aug.11	Aftermath Oct.21	Aftermath Total	Total 1958
Viking	3600	3130	1940	5070	8670
Roskilde	3200	2850	1900	4750	7950
Cascade	2960	2850	2010	4860	7820
Mansfield	2980	2740	2000	4740	7720
Otofte	2980	2780	1860	4640	7620
Granger	3050	2720	1700	4420	7470
European	2850	2820	1700	4520	7370
Tana	2980	2700	1670	4370	7350
Empire	2980	2830	1510	4340	7320
Mean	3070	2820	1810	4630	7700
L.S.D. 0.05	380	240	200	80	280
0.01	N.S.	N.S.	260	100	360
C.V.	8	6	7	3	7

Kaine Farm	Hay July 10	Aftermath Aug.26	Total 1958
European	3100	1900	5000
Roskilde	3300	1580	4880
Otofte	3260	1580	4840
Cascade	2940	1860	4800
Tana	2960	1780	4740
Viking	3040	1640	4680
Mansfield	2940	1680	4620
Empire	3100	1120	4220
Granger	2260	1720	3980
L. tenuis	3880	1380	5260
Mean	3080	1630	4710
L.S.D. 0.05	560	N.S.	N.S.
0.01	760	N.S.	N.S.
C.V.	13	23	16

COMMENTS

The 7C test had solid stands throughout whereas in the Kaine test stands were less regular as the high C.V. indicates.

The ranking at the two locations were distinctly different and it is doubtful whether the intra-strain variability at Kaines could account for this in its entirety.

BIRDSFOOT TREFOIL STRAINS, KEMPTVILLE, 1953. PURE STAND PLANTING

TONS D.M./ACRE

	1954	1955	1956	1957	1958	3 year Mean 1954-1956	5 year Mean 1954-1958
Viking	2.56	3.83	2.33	2.29	1.69	2.91	2.54
European	2.89	3.35	2.24	1.93	1.69	2.83	2.42
Empire	2.22	3.95	2.37	1.97	1.83	2.85	2.47

TREFOIL VARIETIES 1956, KEMPTVILLE. TONS D.M./ACRE

Variety	Trefoil + Climax 1957			1958			1957-1958 Mean		
	Hay Jul.2	After Aug.19	Total	Hay Jul.3 +9	After Aug.26 & Sep.9	Total	Hay	After	Total
Empire	6560	2440	9000	5136	2154	7290	5848	2297	8145
Viking	5520	3320	8840	4007	2473	6479	4764	2896	7660
Mansfield	4920	3340	8260	4233	2515	6748	4577	2927	7504
Hybrid	5500	2840	8340	4571	1991	6562	5036	2415	7451
G701	6520	2700	9220	4970	1917	6887	5745	2308	8053
G765	4960	3420	8380	3816	2496	6312	4388	2958	7346
G770	4400	3180	7580	4095	2456	6551	4248	2818	7066
Mean	5480	3040	8520	4404	2286	6690	4944	2660	7604
L.S.D. 0.05	840	480	1000	510	344	422			
C.V.	10.3	10.7	7.8	7.8	10.2	4.4			

BIRDSFOOT TREFOIL SEED LOTS - 1956

Objectives:

The objectives of this study were to evaluate various commercial lots of imported commercial birdsfoot trefoil for (1) type, (2) production, and (3) winterhardiness.

Procedure:

1. Location: One test was seeded at Guelph on section D, range 16, on June 16, 1956.

2. Experimental design and components: Seven pounds per acre of light sources of commercial "European type" birdsfoot trefoil were included in a randomized complete block experiment with four replication. Registered No.1 seed of Viking and Empire were seeded and served as the check varieties.

Guelph assec. No.	Source of Seed
G. 435	France - H.A. Macdonald (Cornell)
G. 436	Italy - H.A. Macdonald (Cornell)
G. 701	European - Doughty & McFarlane Com. #1
G. 765	France - Ontario Seed Cleaners & Dealers Com. #1
G. 767	France - Hogg & Lytle (Loiseau Freres) Com. #1
G. 770	Europe - K. MacDonald, Ottawa (Hogg & Lytle)
G. 769	Europe - Ritchie Feed & Seed Co.
G. 692	Viking - Stanford Seed Reg. #1.
G. 702	Empire - Doughty & McFarlane Reg. #1
G. 843	Hungary - Hogg & Lytle (Kerr)

3. Management and evaluation: Vigor ratings and stage of maturity were recorded prior to hay harvest. The growth habit and the presence of "off types" in each seed source were noted. The time of hay and aftermath hay harvest was gauged on the basis of per cent bloom.

Comments

1. Trueness to type: Of the eight commercial "European type" seed lots tested only G.701 exhibited a growth habit similar to Empire. This seed lot resulted in plants which were slow starting in the spring and late maturing. The aftermath was not as vigorous as Viking or other European seed lots. No "off type" plants, i.e. Empire type, were noted within any of the eight sources.

2. Winterhardiness: There was no apparent major differences in winterkilling among the seed lots.

3. Yields: None of the seed lots used, exclusive of G.701 which was harvested later, yielded as much first crop hay as did the Viking variety.

   In the aftermath crop seed lot G. 767 produced more forage than Viking. Other seed lots were similar in yield to the Viking variety.

   Generally all the "European" seed lots exhibited as much or more vigour in the aftermath than Viking. Seed lot G.843 originating in Hungary was about 7 days earlier than Viking or other seed lots.

SUMMARY OF DATA COLLECTED FROM EIGHT SOURCES OF COMMERCIAL BIRDSFOOT TREFOIL DURING 1957

Acc. Number	Source	Yield in lbs. of D.M.			May 29			July 4	
		Hay	Aft.	Total	H*	Maturity	Vigor/	Off types	Vigor/
G 435	France	2528	2910	5438	E	Bud	7.0	0	3.1
G 436	Italy	2823	3025	5828	E	Bud	8.3	0	4.1
G 767	France	2820	3178	5998	E	Bud	8.8	0	5.0
G 769	Europe	2415	2788	5203	E	Bud	7.0	0	3.5
G 765	France	2710	3083	5793	E	Bud	7.3	0	3.9
G 770	Europe	2828	2993	5821	E	Bud	7.0	0	4.3
G 843	Hungary	2623	2858	5481	E	1st Flower	8.0	0	3.6
	Viking (Registered seed)	3203	2848	6051	E	Bud	8.5	0	3.1
G 701	Europe°	3043	-	3043	D	Veg.	2.0	0	-
	Empire° (Registered seed)	2638	-	2638	D	Veg.	1.3	0	-
L.S.D.	0.05	287	250	262			-		-
	0.01	391	340	350			-		-
C.V.		7.1	5.7	3.2			21.4		25.7

* H - growth habit. E - European. D - Domestic or Empire.

/ Data transformed prior to analysis

° Harvested later than European types aftermath not harvested.

CORRELATION STUDIES IN BIRDSFOOT TREFOIL

In the period 1957-58 three seedling vigor tests were conducted; one in the greenhouse in 1957, a second in the greenhouse in 1958 and a third one on range 3C. Progenies were graded for vigor at intervals and in some instances weights were taken. The following list shows some of the correlations obtained.

1957 greenhouse grades	vs. 1957 greenhouse yields	.84
" " "	" seed weight	.67
" " "	" 1958 greenhouse grades	.44
" " "	" field grades	.27
1957 greenhouse yields	vs. 1958 greenhouse yields	.50
" " "	" field grades	.34
" " "	" seed weight	.51
1958 greenhouse grades	vs. 1958 greenhouse yields	.55
" " "	" field grades	.25
" " "	" seed weight	.44
1958 greenhouse yields	vs. field grades	.29
" " "	" seed weight	.39
1958 field grades	vs. seed weight	.49

COMMENTS:

From the point of view of a breeder the following correlations were of greatest interest.

(i) seed weight and vigor rating - average .53

(ii) seed weight and yield - average .45

(iii) grades and yields - average .70

(iv) greenhouse grades and field grades - average .26

Since there is a reasonably good correlation between seed weight on the one hand and seedling vigor and yield on the other it seems possible that seed size may be used as a preliminary screening technique. Plants with small seeds, being unlikely to produce vigorous or high yielding progeny, may then be discarded without further testing and this without heavy loss of good germ plasm .

The good correlation between seedling vigor and plant weight is encouraging in view of the fact that in grading for seedling vigor height is usually the determining factor whereas in yield height and bushiness are both important.

The correlation between greenhouse gradings and field gradings was low. To some extent this was due to the following circumstances. In the field the 49 progenies were a part of a population of several hundred and their gradings were probably telescoped between the ranges 3 to 7 whereas in the greenhouse the range was 1 to 9.

Exp. 3

TIMOTHY VARIETIES, 1956, GUELPH. VERNAL + TIMOTHY IN TONS D.M./ACRE

Strain	1957			1958					2 year Average		
					Aftermath						
	Hay	After	Total	Hay Jul.2	1 Aug.1	2 Oct.28	Total	Season Total	Hay	After	Total
Medium cut											
Common	5718	3122	8840	5977	2371	1569*	3940	9917	5848	3531	9379
Climax	5454	3005	8459	5972	2408	1575	3983	9955	5713	3494	9207
Essex	5211	3212	8423	5691	2518	1569*	4087	9778	5451	3650	9101
S-48	5378	3113	8491	5680	2429	1562	3991	9671	5529	3552	9081
S-51	5436	3031	8468	5685	2385	1569*	3954	9639	5561	3493	9054
Drummond	5230	2922	8153	5376	2442	1569*	4011	9387	5303	3467	8770
Late Cut				Jul.11	Aug.14	Oct.28					
Common	5256	2268	7524	6146	1624	1745*	3369	9515	5701	2819	8520
Climax	4958	2353	7311	6076	1594	1719	3313	9389	5517	2833	8350
Essex	4913	2334	7247	6152	1665	1745*	3410	9562	5533	2871	8404
S-48	5225	2344	7568	5856	1702	1770	3472	9328	5540	2908	8448
S-51	4594	2478	7072	5955	1713	1745*	3458	9413	5275	2968	8243
Drummond	5257	2459	7716	5801	1554	1745*	3299	9100	5529	2879	8408
Mean											
Medium cut	5405	3068	8472	5730	2425	1569	3994	9724	5568	3531	9099
Late cut	5034	2373	7406	5998	1642	1745	3387	9385	5516	2880	8396

* not cut. Mean of Climax and S-48 used to estimate total season yield

TIMOTHY VARIETIES 1956, GUELPH. QUALITY DATA AT HAY STAGE (FIRST CUT). TIMOTHY GROWN WITH VERNAL

Strain	% Timothy in Mixture		% Crude Protein	
	1957	1958	1957	1958
Medium cut				
Common	65.4	37.4	9.0	6.9
Climax	70.6	32.9	8.9	7.1
Essex	55.5	24.8	9.2	7.6
S-48	59.3	22.9	9.5	8.5
S-51	52.5	22.4	9.8	8.4
Drummond	59.0	22.6	9.4	8.5
Late cut				
Common	55.9	40.1	8.4	5.8
Climax	56.8	38.1	9.0	6.1
Essex	54.0	36.3	9.1	7.6
S-48	53.7	29.4	9.1	7.7
S-51	54.6	27.1	8.9	7.2
Drummond	58.1	34.0	8.7	7.7
Mean				
Medium cut	60.4	27.2	9.3	7.8
Late cut	55.5	34.2	8.9	7.0

GRASS VARIETIES 1956, KEMPTVILLE - LBS.D.M./ACRE
OF VERNAL + GRASS

Variety	1957	1958			2 year Average Hay (June)
	June 25	June 18	Sept.10	Total	
Timothy					
Common	4199	4245	1249	5494	4222
Climax	4041	4421	1242	5663	4231
Essex	3741	3790	1299	5089	3765
S-48	3511	3795	1097	4892	3653
S-51	3697	3837	1205	5042	3767
Mean	3838	4018	1218	5236	3928
Brome					
Saratoga	5054	5848	1519	7367	5451
Achenbach	5003	6374	1500	7874	5688
Lyon	4980	6130	1497	7627	5555
Can.Brome	4394	4494	870	5364	4444
Mean	4858	5711	1347	7058	5285
Orchard					
Pennlate	3495	3524	1980	5504	3510
Frode	3446	3329	1943	5272	3388
Danish	3414	3153	1569	4722	3284
Hercules	3145	3408	1571	4979	3277
S-37	2894	2309	1943	4252	2602
Mean	3279	3145	1801	4946	3212

1959

June 19	Sept. 25
5,308	4,564
5,560	4,674
5,106	4,212
5,265	4,190
5,426	4,320
4,017	1,443
4,087	1,445
4,314	1,225
3,695	1,250
3,840	1,434

CO-OPERATIVE TIMOTHY HAY-PASTURE TRIALS

Purpose and Procedure: see 1957 Forage .Production Report.

Results 1958:

1. Winterhardiness and stands.

Generally stands of timothy were good. No winterkilling occurred. In South Simcoe county the stand of Vernal was reduced in plots 1 and 2 (Climax and Common).

2. Characteristics of varieties.

Common timothy was rated in all locations as being coarser than Climax, S-48 and S-51. Both English varieties were much later than Climax. Similarly, common was slightly earlier than Climax. Climax was earlier than either S-48 and S-51. Little difference was noted between S-48 and S-51 at any of the locations.

3. Yield and botanical composition.

Yields were reported from one location only. However, from the estimated yields it appeared that Climax was slightly higher in yield at all locations. S-48 and S-51 were lower in production than the other two earlier varieties.

Generally, Climax and common timothy dominated the mixtures (69% timothy) whereas S-48 and S-51 contributed much less to their mixtures (average 29%) and the proportion of alfalfa was increased (average 66%). Ladino did not add much to any of the mixtures.

CHARACTERISTICS OF FOUR VARIETIES OF TIMOTHY IN SIMPLE MIXTURES AT FIVE LOCATIONS IN ONTARIO DURING 1958

County	Date	CLIMAX			COMMON			S-48			S-51		
		Winter* killing	Coarse- ness*	Mat- urity	Winter* killing	Coarse- ness*	Mat- urity	Winter* killing	Coarse- ness*	Mat- urity	Winter* killing	Coarse- ness*	Mat- urity
Peel	6/19	0	7	-	0	8	-	0	5	-	0	5	-
Elgin	6/18	0	6	early heading	0	8	fully headed	0	4	veg.	0	4	veg.
Simcoe	6/19	6	7	boot stage	6	8	early heading	0	5	veg.	0	5	veg.
Ontario[1)]	6/17	0	-	medium heading	0	-	fully headed	0	-	veg.	0	-	veg.
Prescott	6/25	0	6	early heading	0	8	fully headed	0	4	early boot	0	4	early boot
Average		0	6.5	-	0	8.0	-	0	4.5	-	0	4.5	-

1) Alfalfa with S-48 and S-51 thinner and less vigorous.

* scale 1 - least; 10 - most.

YIELD AND BOTANICAL COMPOSITION OF MIXTURES CONTAINING VARIETIES OF TIMOTHY DURING 1958

County	Date 1958	CLIMAX				COMMON				S-48				S-51				Pasture days per acre
		Yield tons	% composition tim.	alf.	lad.	Yield	% composition tim.	alf.	lad.	Yield	% composition tim.	alf.	lad.	Yield	% composition tim.	alf.	lad.	
Peel	6/19	0.50[1]	55	45	T	0.50[1]	55	45	T	0.25[1]	20	80	T	0.25[1]	20	80	T	-
Elgin	6/18	2.00	50	50	T	1.75	60	35	5	1.25	40	50	10	1.25	40	50	10	-
S. Simcoe	7/14	2.06	80	15	5	1.69	80	15	5	1.52	20	75	5	1.52	20	75	5	-
	9/23	-	-	-	-	-	-	-	-	1.12	-	-	-	1.12	-	-	-	-
Ontario	6/17	2.00	50	50	T	2.00	50	50	T	1.75	10	90	T	1.25	5	80	15	-
Prescott[2]	6/25	1.00[1]	75	25	-	0.75[1]	90	10	-	0.75[1]	60	40	-	0.75[1]	60	40	-	-
Average		1.51	62	37	1	1.34	67	31	2	1.10	30	67	3	1.01	29	65	6	

1) estimated yields

2) red clover substituted for alfalfa in all mixtures

BROME STRAINS (HAY-PASTURE), 1955. LBS. D.M./ACRE

Variety	1956-1957 average Hay	Aftermath	Total	1958 July 8
	Brome + alfalfa			
Saratoga	5255	3076	8331	5408
Lyon	5212	2980	8192	5211
Southland	5176	3003	8179	5220
Achenbach	5103	2703	7806	5300
Can. Brome	4392	2714	7106	4933
Mean	5028	2895	7923	5214
	Brome Component			
Saratoga	2572	362	2934	1868
Lyon	2396	171	2567	1525
Southland	2493	183	2676	1471
Achenbach	2749	156	2905	1955
Can. Brome	2144	163	2307	1519
Mean	2470	207	2677	1668
	Alfalfa component			
Saratoga	2683	2714	5397	3540
Lyon	2816	2809	5625	3686
Southland	2683	2820	5503	3749
Achenbach	2354	2547	4901	3345
Can. Brome	2248	2551	4799	3414
Mean	2558	2688	5246	3547

BROME VARIETIES IN ASSOCIATION WITH ALFALFA - GUELPH - 1956. LBS.D.M./ACRE OF ALFALFA + BROME

	1957					1958					2 year average		
	Hay	Aftermath			Season	Hay	Aftermath			Season	Hay	After	Total
	June	July	Aug.	Total	Total	Jul.3	Jul.31	Sep.2	Total	Total		(Total)	
Vernal - Saratoga	5220	3365	1326	4691	9911	6411	1975	1292	3272	9683	5816	3982	9798
Can.Brome	5332	3285	1280	4565	9897	6412	2006	1316	3322	9734	5872	3944	9816
Lyon	5354	3416	1423	4839	10193	6531	2141	1452	3593	10124	5943	4216	10159
Wisc.63	5675	3360	1394	4754	10429	7007	2004	1473	3477	10484	6341	4116	10457
Wisc.55	5023	3398	1368	4766	9789	6877	2106	1501	3607	10484	5950	4187	10137
S-4475	5540	3533	1298	4831	10371	6215	2037	1360	3397	9612	5878	4114	9992
Climax	5338	3204	1318	4522	9860	6813	2057	1213	3270	10083	6076	3896	9972
DuPuits -													
Saratoga	4995	3571	1694	5265	10260	5663	2262	1536	3798	9461	5329	4532	9861
Can.Brome	5498	3611	1768	5379	10877	5843	2369	1669	4038	9881	5671	4709	10379
Lyon	5286	3764	1821	5585	10871	6331	2356	1550	3906	10237	5809	4746	10554
DuPuits	4374	3535	1687	5222	9596	5384	1513	1055	2568	7952	4879	3895	8774
Alfa - Lyon	6110	3715	1696	5411	11521	6190	2392	1499	3891	10081	6150	4651	10801
Can.Grimm -													
Can.Brome	5177	3488	1322	4810	9987	6043	2254	1519	3773	9816	5610	4292	9906
Lyon	5539	3522	1307	4829	10368	6354	2313	1544	3857	10211	5947	4343	10290
Rambler - Lyon	6421	2016	463	2479	8900	5789	921	493	1414	7203	6105	1947	8052
Mean	5392	3386	1411	4797	10189	6258	2047	1365	3412	9670	5825	4105	9930
L.S.D. 0.05													
C.V.													

ALFALFA-BROME VARIETIES 1956 (202)

	% Grass				lbs. Grass				% Crude Protein in Grass Cut 1
	Cut 1	Cut 2	Cut 3	Mean	Cut 1	Cut 2	Cut 3	Total	
Vernal + Lyon	27.2	8.9	8.6	14.9	1776	191	125	2092	8.3
Achenbach	14.0	7.7	9.1	10.3	962	168	137	1267	7.6
Saratoga	52.3	20.2	18.3	30.3	3353	399	237	3989	6.9
Can. Brome	40.6	20.2	12.3	24.4	2603	405	162	3170	8.7
S-4475	50.3	21.7	14.4	28.8	3126	442	196	3764	8.6
Wisc.55	26.7	9.3	5.3	13.8	1836	196	80	2112	8.1
Wisc.63	45.4	20.0	15.7	27.0	3181	401	231	3813	7.5
Climax	41.8	8.2	8.5	19.5	2848	169	103	3120	7.4
DuPuits + Lyon	7.7	2.1	1.4	37.3	487	49	22	558	8.4
Saratoga	25.4	6.5	4.7	12.2	1438	147	72	1651	7.7
Can. Brome	15.5	5.0	3.0	7.8	906	118	50	1074	9.0
DuPuits	0.0	1.8	3.1	1.6	-	27	33	60	-
Alfa + Lyon	4.8	1.1	2.1	2.7	297	26	31	354	10.4
Rambler + Lyon	70.8	38.4	34.8	48.0	4099	354	172	4625	6.7
Can. Var + Can. Brome	44.1	22.1	9.9	25.4	2665	498	150	3313	8.2
Lyon	29.8	8.1	4.9	14.3	1893	187	76	2156	8.5
Viking + Frode	87.6	76.4	68.7	77.6	3923	506	309	4738	5.5

TOTAL PLOT YIELDS (LBS. D.M./ACRE) IN 1958 FOR BROME-ALFALFA MANAGEMENT TRIAL, 1957. (206)

		Cut 1 (June 26)	Cut 2 (July 21)	Cut 3	Cut 4 (Oct.30)
HAY	Vernal + Saratoga	5549	1968	*	1494
	Lincoln	5569	1964		1547
	Southland	5607	1987		1559
	Can. Common	5384	1984		1415
	S-4506	6253	2093		1561
	Climax	5736	2051		1569
	Frode	5782	2067		1601
	Vernal	5829	2036		1391
	DuPuits + Saratoga	5856	2563		1776
	Lincoln	5752	2630		1751
	Southland	6209	2629		1750
	Can. Common	6046	2685		1787
	S-4506	5885	2606		1739
	Climax	5719	2565		1721
	Frode	6111	2679		1855
	DuPuits	6069	2699		1752

		(May 26)	(July 10)	(Aug.20)**	(Oct.30)
PASTURE	Vernal + Saratoga	4334	2108	1786	1861
	Lincoln	4340	2140	1733	1817
	Southland	4253	1956	1560	1845
	Can. Common	4187	2169	1820	1803
	S-4506	4087	2165	1540	1790
	Climax	4190	2060	1697	1941
	Frode	4006	2032	1551	2060
	Vernal	4244	2135	1768	1740
	DuPuits + Saratoga	4170	2691	1776	1913
	Lincoln	4290	2649	1915	1961
	Southland	4222	2795	2150	1986
	Can. Common	4287	2631	2148	1897
	S-4506	4330	3022	2015	1965
	Climax	4329	2572	1955	2007
	Frode	4243	2560	1901	2181
	DuPuits	4367	2735	2060	1949

* no yields taken because of variable growth due to drought

** only Reps 1-4 cut

% GRASS - BROME-ALFALFA MANAGEMENT TRIAL 1957

		Cut 1	Cut 2	Cut 3	Cut 4
HAY					
Vernal +	Saratoga	12.6	7.1		32.5
	Lincoln	10.9	4.6		27.5
	Southland	14.0	6.2		32.5
	Can. Common	9.4	7.5		19.0
	S-4506	7.9	7.0		20.7
	Climax	5.8	2.5		15.8
	Frode	8.9	15.8		47.7
Vernal		0.0	0.0		0.0
DuPuits +	Saratoga	2.7	1.4		2.3
	Lincoln	3.3	1.2		5.0
	Southland	1.8	1.0		2.0
	Can. Common	1.2	0.7		1.5
	S-4506	1.5	0.8		2.6
	Climax	1.1	0.5		0.0
	Frode	1.2	3.7		17.8
DuPuits		0.0	0.0		0.0
PASTURE					
Vernal +	Saratoga	12.1	8.7	4.4	25.3
	Lincoln	9.5	4.4	2.7	21.0
	Southland	10.8	5.6	5.4	28.3
	Can. Common	6.5	6.0	3.0	15.8
	S-4506	8.4	6.2	4.0	22.0
	Climax	7.9	9.2	3.3	20.8
	Frode	9.7	18.8	18.3	46.7
Vernal		0.0	1.9	0.0	0.0
DuPuits +	Saratoga	2.5	0.8	1.3	2.0
	Lincoln	1.9	0.6	1.3	1.5
	Southland	2.3	0.6	1.0	0.7
	Can. Common	8.5	0.9	0.7	0.8
	S-4506	1.5	1.1	0.7	2.0
	Climax	1.6	0.9	0.7	1.2
	Frode	2.3	0.5	4.1	22.5
DuPuits		0.0	0.2	0.0	0.0

LBS. GRASS

		Cut 1	Cut 2	Cut 3	Cut 4	Total All cuts	Total Cuts 1, 2 and 4
HAY							
Vernal +	Saratoga	684.2	155.0		487.0		1326
	Lincoln	566.1	90.0		413.0		1069
	Southland	732.7	120.0		502.0		1355
	Can. Common	486.9	147.5		263.0		897
	S-4506	481.8	145.4		322.0		949
	Climax	319.3	51.8		245.0		616
	Frode	492.7	326.9		762.0		1582
DuPuits +	Saratoga	161.5	34.3		40.0		236
	Lincoln	191.1	31.8		85.0		308
	Southland	112.3	24.2		34.0		171
	Can. Common	72.2	18.3		26.0		117
	S-4506	86.6	19.7		113.0		219
	Climax	61.0	12.4		3.0		76
	Frode	75.9	98.4		334.0		508
PASTURE							
Vernal +	Saratoga	518.4	164.2	64.1	478.0	1225	1161
	Lincoln	409.3	80.7	35.4	398.0	923	888
	Southland	451.7	83.6	50.8	531.0	1117	1066
	Can. Common	269.7	116.5	44.4	287.0	718	674
	S-4506	334.9	149.1	58.4	398.0	940	882
	Climax	322.0	142.4	36.2	410.0	911	875
	Frode	383.9	339.3	239.9	960.0	1923	1683
Vernal		0.0	38.6	0.0	0.0	39	39
DuPuits +	Saratoga	101.2	18.7	19.2	38.0	177	158
	Lincoln	77.3	14.7	21.5	31.0	145	123
	Southland	93.2	12.9	22.1	14.0	142	120
	Can. Common	35.9	21.8	14.9	15.0	88	73
	S-4506	63.9	27.7	12.7	38.0	142	129
	Climax	68.7	24.8	7.7	24.0	125	117
	Frode	96.0	113.4	67.1	506.0	783	716
DuPuits		0.0	4.7	0.0	0.0	5	5

TEST 207 - BROME-ALFALFA SEED RATE STUDY - 1957

	Plot yield Cut 1* Hay June 26	% Grass	Cut 2 July 21	% Grass	Cut 3 Oct.30	% Grass vis. estimate
Vernal - Can. Common 5	4803	10.5	1957	6.8	1431	22.5
Can. Common 10	4306	12.0	1885	7.5	1430	26.7
Lincoln 5	4140	13.9	1901	4.1	1493	28.4
Lincoln 10	4566	16.9	1880	7.0	1584	39.2
Saratoga 5	4636	13.6	1863	7.8	1533	32.6
Saratoga 10	4725	24.4	1818	10.7	1556	44.3

* 3 reps.

ORCHARD VARIETIES, GUELPH, 1956. LBS. D.M./ACRE (Total)

Variety	1958					1957 Total	2 year Average** 1957-1958
	Cut 1	Cut 2	Cut 3	Cut 4	Total		
Pasture Management	May 28	Jul.10	Aug.14	Oct.25			
DuPuits - S-37	2350	1974	1410	1822	7556	6694	7125
Frode	2556	1821	1291	1804	7472	6517	6995
Ladino - Frode	2153	1077	525	1355	5110	7397	6254
Common	2414		479	1322	5238	7224	6231
Pennlate	2248		487	1250	5008	7439	6224
Hercules	2154		483	1274	4934	7371	6153
S-37	1803	969	446	1530	4748	7399	6074
S-143	1695		486	1545	4749	7271	6010
Ott.100	1606		540	1241	4410	7182	5796
Silage Management	Jun. 7	Jul.10	Aug.14	Oct.25			
DuPuits - Common	4756	1293	1225	1692	8966	10705	9836
Hercules	4822	1373	1303	1688	9186	10443	9815
S-37	4707	1282	1318	1643	8950	10576	9763
Pennlate	4890	1269	1200	1426	8785	10597	9691
Frode	4692	1248	1218	1461	8619	10713	9666
Hay Management	Jun.25	Jul.30	Sep.2				
DuPuits - Frode	4776	2734	1473		8983	11087	10035
Vernal - Ott.100	4337	2212	1151		8200	9010	8605
Grasslands	4104	2258	1125		7487	9264	8376
Pennlate	4606	2125	1108		7839	8800	8320
Frode	4733	2051	1093		7877	8745	8311
Common	4448	1965	1049		7462	8917	8190
Hercules	4428	1991	1029		7448	8491	7970
S-37	3840	2171	1023		7034	8528	7781

** for 2 year average all varieties with ladino in pasture series given average yield value of 1023 lbs. in second cut

ORCHARD GRASS STRAIN TEST, 1956, (201) GUELPH

PERCENT GRASS

	Cut 1	Cut 2	Cut 3	Cut 4	Mean Cuts 1, 3 & 4
PASTURE					
Ladino + Frode	74.5	69.6	72.0	65.0	70.5
S-37	65.6	73.0	73.6	72.4	70.5
S-143	64.0		73.7	78.1	71.9
Ott.100	66.7		75.1	59.9	67.2
Common	80.3		75.3	70.2	75.3
Hercules	75.3		73.8	62.6	70.6
Pennlate	75.2		74.1	59.0	69.4
DuPuits + Frode	41.5	16.7	11.1	25.8	26.1
S-37	33.6	14.2	8.4	27.4	23.1
SILAGE					
DuPuits + Frode	30.8	5.0	18.2	34.0	
Hercules	35.2	6.1	13.8	31.9	
Pennlate	33.3	7.3	19.5	34.0	
S-37	19.6	4.3	12.5	48.0	
Common	33.8	7.3	13.9	34.5	
HAY					
Vernal + Frode	56.5	17.1	11.8		
S-37	43.3	17.7	9.8		
Ott.100	43.6	18.9	9.0		
Common	63.6	22.8	12.9		
Hercules	60.6	16.7	9.3		
Pennlate	58.5	16.7	10.8		
Grasslands	30.9	20.1	12.2		
DuPuits + Frode	49.7	11.4	7.4		

ORCHARD GRASS STRAIN TEST, 1956, (201) GUELPH

YIEID OF GRASS

	Cut 1	Cut 2	Cut 3	Cut 4	Seasonal Total 1, 3 & 4	1, 2, 3 and 4
PASTURE						
Ladino + Frode	1609	751	383	880	2872 2	3623
S-37	1182	707	324	1109	2615 6	3322
S-143	1084		357	1206	2647 5	
Ott.100	1071		403	744	2218 7	
Common	1934		359	928	3221 1	
Hercules	1629		353	794	2776 4	
Pennlate	1702		361	730	2793 3	
DuPuits + Frode	1054	299	141	466	1661	1960
S-37	777	268	115	493	1385	1653
SILAGE						
DuPuits + Frode	1446	64	211	488		2209 4
Hercules	1692	81	182	533		2488 2
Pennlate	1654	88	226	480		2448 3
S-37	944	59	167	781		1951 5
Common	1679	93	169	581		2522 1
HAY					1, 2 & 3	
Vernal + Frode	2736	353	132		3221 2	
S-37	1736	383	101		2220 7	
Ott.100	2191	441	104		2736 6	
Common	2915	445	137		3497 1	
Hercules	2653	333	102		3088 4	
Pennlate	2742	352	121		3215 3	
Grasslands	1308	457	139		1904 8	
DuPuits + Frode	2409	303	110		2822 5	

CO-OPERATIVE ORCHARDGRASS HAY-PASTURE TRIALS

Purpose and Procedure: see 1957 Forage Production Report.

Results 1958:

1. Winterhardiness and stand

No killing had occurred during the 1957-58 winter and the plant stands of all varieties of orchardgrass was classed as good.

2. Vegetative characteristics.

Common orchardgrass was coarser and less leafy than Frode or S-37. The common orchardgrass was earlier in maturity than Frode and much earlier than S-37. Only a few seed heads were observed on S-37 at any of the locations.

3. Yield and botanical composition.

Yields from all of the locations were not reported but from those obtained and the estimated yields Frode appeared to outyield common orchardgrass. S-37 was lower in production than either Frode or common except in one location (North Simcoe). This high yield may have resulted from a different method of estimating the production.

In general, the orchardgrass was the largest component in the mixtures (62% orchard). In Oxford county the alfalfa was almost completely removed from the stand.

Two tests were pastured in the aftermath. No cattle preference for any variety was reported this year.

4. Co-operators' comments.

"I was very impressed with the appearance of Frode this year. It was leafier, softer, not as mature and yielded better than common. We could not see anything outstanding in the S-37 other than being a little later maturing".

"S-37 seems to be a little later maturing but produced more and better quality forage than Frode or common".

CHARACTERISTICS OF VARIETIES OF ORCHARDGRASS 1958.

County	Date 1958	FRODE			COMMON			S-37		
		Winter* injury	Coarse-ness*	Leafi-ness*	Winter* injury	Coarse-ness*	Leafi-ness*	Winter* injury	Coarse-ness*	Leafi-ness*
Essex	6/10	0	7	-	0	8	-	0	5	-
Oxford	6/18	0	8	7	0	9	6	0	7	8
N.Simcoe	6/12	0	9	8	0	10	5	0	6	9
Hastings	6/17 1)	-	-	-	-	-	-	-	-	-
Russell	6/25	0	6	8	0	8	7	0	5	8
Average		0	7.5	7.6	0	8.8	6.0	0	5.7	8.3

1) harvested before estimates could be taken

* scale 1 - least; 10 - most.

YIELD AND BOTANICAL COMPOSITION OF MIXTURES CONTAINING VARIETIES
OR ORCHARDGRASS DURING 1958

County	Date 1958	FRODE				COMMON				S-37				Pasture days per acre
		Yield	% composition			Yield	% composition			Yield	% composition			
			orch.	alf.	lad.		orch.	alf.	lad.		orch.	alf.	lad.	
Essex	6/10	-	65	30	5	-	60	35	5	-	60	30	10	-
Oxford	6/18	1.60	85	T	10	1.48	85	T	10	1.40	85	T	10	14.2
North Simcoe	6/12	1.84	60	40	T	1.20	60	40	T	2.25[1)]	40	55	5	-
	7/12	1.00	-	-	-	0.75	-	-	-	-	-	-	-	42
Hastings	6/17	-	-	-	-	-	-	-	-	-	-	-	-	-
Russell	6/25	1.25[2)]	50	45	5	1.25[2)]	55	40	5	1.00[2)]	45	45	10	-
Average		1.56	65	26	5	1.31	65	29	5	1.55	58	33	9	

1) harvested on a load basis (estimated weight per load 3000#, no. loads 4½)

2) estimated yield

PERENNIAL RYEGRASS STRAINS 1956, GUELPH, ROW PLANTING.

Strain	Lbs.D.M./acre 1957 July 2	Rel. Yield* 1958	Winter Survival 1957 %	Winter Survival 1958	Spring 1957 May 7	Vigor** 1958 May 5	% Rust Sept. 58
Ott.Syn.1	5192	3.2	95	Excellent	5.0	3.3	90
Ott.Syn.1A	5156	3.7	95	Fair	5.0	4.0	90
Pacific	4794	3.2	90	Fair	3.8	3.3	50
Perar	4317	3.0	90	Fair	3.0	2.7	50
Kent Indigenous	3415	2.2	75	Fair	2.5	1.7	0
Common	3408	1.2	80	Poor	1.5	1.2	5
S-24	3211	1.2	85	Poor	2.3	1.5	0
S-23	2959	3.0	55	Good	2.5	2.7	5
S-100	2351	2.5	55	Fair	1.3	2.5	0
L.S.D. 0.05	512						
C.V.	9.2						

* 5 = 200 lbs./acre

** 1 (low) to 5 (high). In 1957 range in height was 2"-6", in 1958 rating 5 = 3" and green.

Note: This test was poor throughout the year. Severe frost injury occurred in the spring and very little growth was made. No actual cuttings were made due to the poor growth. Very few seed stocks were established.

REED CANARY GRASS STRAINS 1956, GUELPH - YIELD DATA

Strain	1957			1957		2 year Average Hay (first cut)
	Hay June 21	Aftermath August 23	Total	Hay July 2	After. rating*	
Common	7861	2273	10134	4933	4	6397
Ioreed	7570	2456	10026	5163	5	6367
Ott.Syn.1	7657	1984	9640	4954	4	6306
Ott.1133-7	7740	2085	9824	4542	4	6141
Ott.Syn.2	7391	2026	9416	4539	4	5965
Ott.Syn.3	7289	1931	9219	4138	4	5714
L.S.D. 0.05	N.S.	296	N.S.			
0.01		397				
C.V.	6.8	13.7	6.9			

* 5 = approximately 2000 lbs.

REED CANARY GRASS STRAINS 1956, GUELPH - SPRING VIGOR AND MATURITY RATINGS RATINGS

Strain	Spring Vigor*		Anthesis Date(June)	
	1957 May 7	1958 May 6	1957	1958
Common	5	3.6	17	22
Ioreed	2	3.4	17	22
Ott.Syn.1	5	3.4	18	26
Ott.1133-7	4	3.7	18	23
Ott.Syn.2	3	3.7	19	24
Ott.Syn.3	3	3.5	20	28

* 1 (low) to 5 (high). In 1957 range in height was 6"-12"; in 1958 rating 5 = 8" height.

Note: All strains injured by spring frost in 1958.

RAPE AND KALE TEST

R.P.O. - F.H.13 Location: O.A.C., Sect.D - 5.

The results of date and rate of seeding studies conducted at Guelph in 1958 are given in the tables.

All stands were uneven. Dry weather was largely responsible for the stand variability. Consequently, analysis of the data was not completed or the results discussed.

The date and rate of seeding studies were modified split-plot designs with four replications.

DATE OF SEEDING RAPE AND KALE

Yield - tons d.m. per acre Date of harvest - Nov.11
Location - Guelph.

Variety	Date of Seeding						Average Yield
	June 5	June 18	July 3	July 15	July 29	August 11	
Dwarf Essex	3.17	1.58	2.27	2.05	1.44	0.97	1.91
Garton's Early Giant	3.41	2.69	2.32	2.32	1.64	1.16	2.26
Rape Average	3.29	2.13	2.29	2.18	1.54	1.06	
Dunns Marrowstem	4.58	3.97	*	1.40	1.26	0.75	2.39
Sharpes 1000 Headed	4.80	4.48	*	1.36	0.94	0.63	2.44
Kale Average	4.69	4.22	*	1.38	1.10	0.69	

ROW WIDTH AND RATE OF SEEDING GARTON'S EARLY GIANT RAPE

Date seeded - July 15 November 12
Location - Guelph

Row Width and Rate of Seeding	Yield - tons D.M. per acre	Row Width and Rate of Seeding	Yield - tons D.M. per acre
Broadcast - 2 lbs./acre	3.42	27" rows - ½ lb./acre	*
4 "	3.45	1 "	3.03
6 "	3.42	1½ "	2.57
8 "	3.24	2 "	3.14

* Stand Failure

REGIONAL RAPE AND KALE TESTS

During the past few years several new varieties of rape and kale have been under test at Guelph. Some have yielded very well. But in order to obtain information on the field performance of some of the more promising varieties, 19 field seedings were made in 1958 in the rape and kale area.

Each seeding consisted of about one acre of Garton's Early Giant rape, Dunns Essex Giant rape, Dwarf Essex rape, Dunns Marrowstem kale and Sharpes 1000 Headed kale. In the counties listed the following number of tests were made:-

Bruce	1
Grey	8
Dufferin	4
Huron	1
Perth	1
Wellington	4

1958 was a poor crop year for rape and kale. The summer was very dry in all areas and the establishment in most cases was uneven. Poor stands were more noticeable with the kales where the combination of the dry weather plus seed of low viability, had a marked effect.

All tests were visited in September. Most farmers returned a form which supplied observation data from their test.

A summary of these tests is as follows:

1. Seeding dates varied from July 7 to August 12, the average being July 16. From observations at Guelph and from the farm plantings, this average date is late for kale. Seeding 2-3 weeks early is preferred for this species. Early July seeding for rape is also best.

2. The rape varieties were ready to graze on October 1, the kales about October 20. Most fields had cattle on them by October 15. Many farmers believe, however, that cattle are often turned on rape too early in the season.

3. In all the fields visited, Garton's Early Giant rape looked more vigorous and higher yielding than the other rape varieties, and most farmers believed it yielded about 1½ times more. Garton's was the variety preferred by cattle and grazed first in 75% of the tests.

4. Essex Giant rape performed very similar to English broadleaf where the later was seeded. It was superior in most cases to Dwarf Essex but inferior to Garton's Early Giant.

5. With the exception of a few fields, the kales produced poor growth. They were palatable but were grazed after the rape crops were gone in nearly every case. On one farm, the kales were cut and fed to the milking cows. Marked increases in milk flow was noted and the palatability was excellent.

6. Marrowstem kale, in general, was preferred to the 1000 Headed type. Both types were resistant to frost.