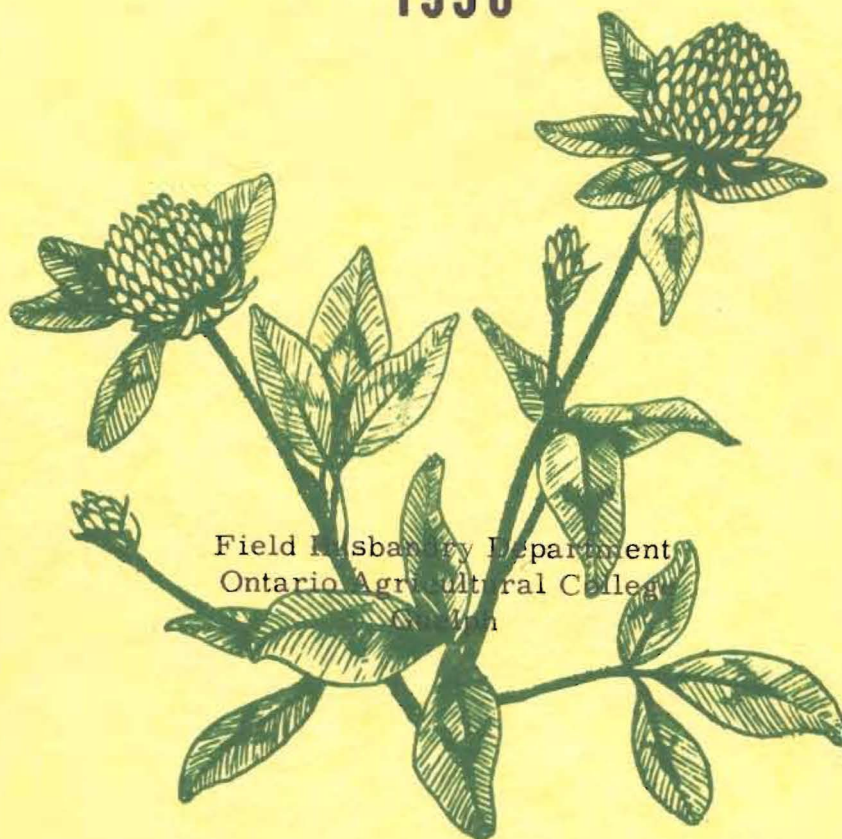


B. E. Hoamby

PROGRESS REPORT
FORAGE CROP
INVESTIGATIONS

BREEDING AND VARIETY TESTING

1956



Field Husbandry Department
Ontario Agricultural College
Guelph, Ontario

FORAGE PROGRESS REPORT 1956

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 to-gether for interpretive purposes.

This report is not complete but does contain the main data collected from current projects and those completed in 1956.

CONTENTS

Page No.

(year refers to year trial was seeded)

Alfalfa Strain Trials

Guelph 1953	1
Kemptville 1953	2
Hespeler 1954	3
Guelph 1955	4
Alfalfa management, Arkell 1954	5

Red Clover Strain Trials

Guelph 1954	8
Guelph 1955	9
Kemptville 1953	12
Red Clover and Timothy, Guelph, 1954	13
Guelph 1956	14

Birdsfoot Trefoil Strain Trials

Guelph 1954	16
Kemptville 1953	17
Guelph 1955	18
Guelph 1956	19

Timothy Strain Trials

Guelph 1953	20
Kemptville 1953	21
Guelph 1956	22

Brome-grass Strain Trials

Guelph 1953	23
Kemptville 1953	25
Guelph 1955 (Hay-Pasture)	26
Guelph 1955 (Pasture)	27
Brome-alfalfa variety interaction, Guelph 1956	29
Brome type test (seed lots), Guelph 1956	30

Orchard grass Strain Trials

Regional trials 1953	31
Guelph 1955 (Hay-Pasture)	32
Guelph 1955 (Pasture)	33
Guelph 1956	33

Meadow and Tall Fescue Strain Trials

34

Rape and Kale Varieties

36

Strain Trials

Alfalfa Strain Trial, O.A.C., 10C, 1953

Table 1 1956 Yields and Stands

Varieties	Yield in tons D.M. per acre					Plants per sq. ft. May 9
	Hay July 4	Aug. 21	Aftermath Oct. 26	Total	Season total	
Ontario Variegated	1.15	.65	.06	.71	1.85	1.3
Narragansett	1.80	.86	.11	.96	2.76	1.5
Grimm	1.25	.42	.00	.42	1.67	1.3
Vernal	2.21	1.37	.32	1.69	3.91	1.7
M - 50	.47	.19	.03	.21	.68	0.3
Du Puits	.64	.22	.03	.24	.88	0.6
Grimm x Du Puits	.32	.18	.01	.19	.51	-
Ranger	1.28	.86	.26	1.12	2.40	0.9
Ladak	1.70	.93	.06	.99	2.69	1.3
Rhizoma	1.46	.73	.06	.79	2.25	1.5
A224 Utah	1.77	1.13	.13	1.26	3.03	1.3
Mean	1.28	.68	.10	.78	2.06	
L.S.D. - 0.05	.63	.34	.17	.36	.94	
- 0.01	.85	.46	.22	.49	1.27	
C.V.	34.0	35.0	6.0	32.0	32.0	

Comments:

1. The performance of Vernal was outstandingly good.
2. The broad-crowned type, exemplified by Narragansett, showed a higher survival value than the narrow-crowned type.
3. The decline in yield during the 1956 season, i.e., from spring till fall, was greater in wilt-susceptible varieties than in wilt-resistant varieties.
4. Du Puits in this its third crop year was too badly decimated to be of economic significance.

Alfalfa Strain Trial, Kemptville, 1953

Table 2 1956 Yields in Tons D.M. per Acre

Varieties	Hay July 6	Aug. 14	Aftermath Oct. 5**	Total	Seasonal total
Vernal	2.53	0.53	0.72	1.25	3.78
Rhizoma	2.32	0.61	1.10	1.71	4.03
Du Puits	2.24	0.58*	1.16	1.72	3.96
Narragansett	2.20	0.57	0.96	1.53	3.73
Ranger	2.13	0.61	1.23	1.84	3.97
Ladak	2.12	0.39	0.54	0.93	3.05
Grimm	2.11	0.53	0.85	1.38	3.49
Mean	2.23	0.55	0.93	1.48	3.71
L.S.D. - 0.05	N.S.	0.10			
C.V.	9.2	12.1			

* Du Puits cut Aug. 8, others on Aug. 14.

** 2 replicates.

Table 3 1955-56 Yields in Tons D.M. per Acre

Varieties	1955			1956	1955-56
	Hay June 16	Aftermath Sept. 14*	Seasonal total	July 6	Total
Vernal	2.02	.57	2.59	1.79	4.38
Rhizoma	2.00	.44	2.44	1.75	4.19
Narragansett	1.73	.48	2.21	1.53	3.74
Ladak	1.98	.58	2.56	1.14	3.70
Grimm	1.67	.48	2.15	1.22	3.37
Ranger	1.72	.46	2.18	1.15	3.33
Du Puits	1.78	.48	2.26	0.37	2.63
Mean	1.84	.50	2.34	1.28	3.62
L.S.D. - 0.05		.07		.32	
- 0.01	N.S.	.10		.44	
C.V.	12.8	9		16.8	

* 3 replicates only

<u>Ranking</u>	
<u>1955 Total</u>	<u>1956 Total</u>
Vernal	Vernal
Ladak	Rhizoma
Rhizoma	Narragansett
Du Puits	Grimm
Narragansett	Ranger
Ranger	Ladak
Grimm	Du Puits

Comments:

1. The soil in the testing area was sandy loam.
2. Establishment was somewhat uneven.
3. Growth in 1955 was, to some extent, irregular and patchy.
4. There were indications of boron deficiency.
5. By midsummer of 1956 growth was so uneven that the test was abandoned.
6. Vernal was the top yielder in both years.
7. The broad-crowned types showed better survival under the rather unfavourable conditions of the test than did the narrow-crowned types.

Table 4 1956 Yields in Tons D.M. per Acre

Varieties	Hay	Aftermath		Total	Seasonal total
	June 27	Aug. 20	Oct. 17		
Du Puits	2.12	1.65	.78	2.43	4.55
Socheville	2.06	1.57	.75	2.33	4.39
Danish	2.02	1.50	.66	2.16	4.19
Vernal	2.07	1.33	.47	1.80	3.87
Ont. Variegated	1.95	1.34	.57	1.91	3.87
Narragansett	1.96	1.38	.52	1.89	3.85
Buffalo	1.75	1.42	.65	2.07	3.82
Atlantic	1.94	1.29	.50	1.80	3.73
A226 Syn. 1	1.78	1.32	.56	1.88	3.66
de la zona	1.74	1.31	.60	1.91	3.65
A225 Syn. 4	1.86	1.22	.49	1.72	3.58
Ranger	1.77	1.31	.47	1.78	3.55
Rhizoma	1.92	1.26	.31	1.56	3.48
Caliverde	1.38	1.34	.68	2.02	3.39
Grimm	1.76	1.19	.34	1.53	3.28
Ladak	1.86	0.98	0	0.98	2.84
Mean	1.87	1.34	.52	1.86	3.73
L.S.D. - 0.05	.15	.07	.04	.08	.18
- 0.01	.21	.09	.05	.11	.24
C.V.	5.6	3.7	5.0	3.2	3.4

Comments:

1. Caliverde and de la zona, originating in California and Argentina, respectively, suffered approximately 50% winter-kill during the winter of 1955-56.
2. On September 26, the variety heights given in inches were as follows:

Socheville	20	Ont. Varieg.	15	Narragansett	10
Du Puits	20	Buffalo	15	Vernal	8
Danish	18	A 226	12	Grimm	8
Caliverde	17	Ranger	12	Rhizoma	5
de la Zona	15	Atlantic	11	Ladak	3
		A 225	10		

Alfalfa Management, Arkell, 1954.

History of Treatments, 1956.

1. No fertilizer was applied in 1956.
2. Stand counts were taken in May and September.
3. Cutting dates were July 10, Aug. 23, Sept. 25, and Oct. 16.

Comments:

1. Vernal led the other three by a comfortable margin under most of the management treatments. It was quite outstanding in its ability to withstand the hardships of the four-cutting treatment. The yield of Du Puits was relatively good when properly managed as under the three-cut treatment but it, like the other winter-susceptible variety, Ranger, suffered greatly when cut in September.
2. Greatest yields were obtained in 1956 when the alfalfa in the previous year and in the current year was cut three times a year. The four-cut treatment resulted in the lowest yield.
3. The addition of phosphorus to the soil was of little discernable benefit. The alfalfa did benefit by the addition of potash, the increase over the check being proportional to the amount applied. The results achieved by the application of barnyard manure were equivalent to those obtained by the addition of a double application of phosphorus and potash.
4. Detailed data are provided in Tables 5 and 6.

F₁ - Check

F₂ - f. manure

F₃ - Potash

F₄ - Phosphorus

F₅ - F₃ + F₄

F₆ - 2 (F₃ + F₄)

C₂ - cut each year in June, August

C₃ - cut each year in June, August, late October

C₄ - cut each year in June, August, September, late October

September, 1956, Stands and 1956 Forage Yields in an
Table 5 Alfalfa Management Trial Seeded in 1954

	Plants per sq. ft.		Percentage of original stand		Forage yield in tons D.M. per acre			
	C ₂	C ₄	C ₂	C ₄	C ₂	C ₃	C ₄	Mean
Grimm	7.8	5.9	40	27	2.66	2.86	2.44	2.65
Ranger	6.6	5.3	28	20	2.53	3.09	2.18	2.60
Du Puits	6.8	3.8	29	16	2.73	3.26	2.22	2.73
Vernal	8.2	8.0	38	36	2.90	3.27	2.90	3.03
Mean	7.4	5.7	34	25	2.70	3.12	2.43	2.75
Check	7.3	4.6	32	19	2.54	2.76	1.83	2.37
F. manure	-	-	-	-	2.98	3.55	2.78	3.10
K ₂ O	7.7	7.5	36	33	2.58	3.07	2.53	2.72
P ₂ O ₅	6.4	5.7	30	23	2.46	2.76	2.16	2.46
K ₂ O + P ₂ O ₅	8.0	5.2	36	23	2.71	3.17	2.52	2.80
2(K ₂ O + P ₂ O ₅)	-	-	-	-	2.96	3.42	2.78	3.05

C₂- cut two times in 1955 and in 1956

C₃- cut three times in 1955 and in 1956

C₄- cut four times in 1955 and in 1956

F. manure - 9 tons manure, March 1955, Sept. 1955

K₂O - 116 lb. per acre of 60% muriate of potash, March, Sept.

P₂O₅ - 174 lb. per acre of 20% superphosphate, March, Sept.

Table 6

1956 Yields in Tons D.M. per Acre

	F1				F2			
	C2	C3	C4	Mean	C2	C3	C4	Mean
Du Puits	2.61	3.03	1.66	2.43	3.05	3.55	2.22	2.94
Ranger	2.57	2.85	1.72	2.38	2.82	3.53	2.64	2.99
Vernal	2.72	2.77	2.28	2.59	3.20	3.72	3.44	3.39
Grimm	2.26	2.39	1.65	2.10	2.84	3.40	3.16	3.08
F-C Mean	2.54	2.76	1.83		2.98	3.55	2.78	
Fert. Mean				2.37				3.10

	F3				F4			
	C2	C3	C4	Mean	C2	C3	C4	Mean
Du Puits	2.54	3.26	2.76	2.85	2.60	2.67	1.75	2.34
Ranger	2.37	3.16	2.34	2.62	2.38	2.85	1.92	2.38
Vernal	2.72	3.20	2.72	2.88	2.58	2.73	2.59	2.63
Grimm	2.69	2.65	2.31	2.08	2.30	2.78	2.39	2.49
F-C Mean	2.58	3.07	2.53	2.55	2.46	2.76	2.16	
Fert. Mean				2.72				2.46

	F5				F6			
	C2	C3	C4	Mean	C2	C3	C4	Mean
Du Puits	2.76	3.28	2.36	2.80	2.81	3.77	2.57	3.05
Ranger	2.42	2.99	2.04	2.48	2.66	3.16	2.40	2.74
Vernal	2.92	3.52	3.23	3.23	3.27	3.70	3.34	3.43
Grimm	2.74	2.90	2.48	2.70	3.12	3.04	2.82	2.99
F-C Mean	2.71	3.17	2.52		2.96	3.42	2.78	
Fert. Mean				2.80				3.05

				Variety
	C2	C3	C4	Mean
Du Puits	2.73	3.26	2.22	2.73
Ranger	2.53	3.09	2.18	2.60
Vernal	2.90	3.27	2.90	3.03
Grimm	2.66	2.86	2.44	2.65
F-C Mean	2.70	3.12	2.43	2.75

L. S. D. - 0.05	Varieties	0.20
	Fertilizers	0.19
	Cuttings	0.07

Strain Trials

Red Clover Strain Trial, O.A.C., 17D, 1954

Table 7 1955-56 Yields in Tons of D.M. Per Acre

Varieties	1955		1956			1955-6	
	Hay June 15	After. *	Hay June 27	After. Aug. 15	Season total	Hay	Total
Dollard	3.08	A-4	.77	.14	.91	3.85	3.99
LaSalle	2.94	A-2	.92	.34	1.26	3.86	4.20
Ottawa	3.06	A-4	.77	.39	1.16	3.83	4.22
Redon B	3.30	B-8	.68	.17	.85	3.98	4.15
Pennscott	3.07	A-1	.28	.12	.40	3.35	3.35
Common	3.13	B-9	.19	.10	.29	3.32	3.42
Redon I	3.04	B-7	.52	.21	.73	3.54	3.77
Kenland	3.27	A-2	.19	.08	.27	3.46	3.54
Wisconsin	3.10	B-6	.77	.27	1.04	3.87	4.14
Leon	3.25	C-10	.91	.08	.99	4.16	4.24
Thomas ++	3.18	D-12					
Altaswede ++	3.14	D-11					
Alaskland ++	2.50	D-12					
Mean	3.13		.60	.19	.79	3.73	3.92
L.S.D. - 0.05	N.S.		.16	.08	.22		
- 0.01	N.S.		.21	.11	.30		
C.V.	10.1		18	29	19		

* Visual grading

++ Badly infested with alsike.

Comments:

1. The 1955-6 totals are misleading owing to the fact that no yield data are available for 1955 aftermath. When consideration is given to the 1955 aftermath gradings it will be seen that the position of Pennscott, LaSalle, Dollard and Ottawa, and Kenland will be improved while that of Redon, Common, Wisconsin and more particularly of Leon will show relative deterioration. On this basis LaSalle will be revealed as the best variety as a perennial and Pennscott as a biennial red clover. The latter also deserves consideration as a green manuring crop.
2. Photographs and lantern slides showing the perennial habit of LaSalle are available for classroom and extension purposes.

Table 8

1956 Yields in Tons D.M. Per Acre

Varieties	Hay June 28	Aftermath Aug. 20	Seasonal total
Dollard	2.06	1.04	3.10
LaSalle	2.27	1.23	3.50
Ottawa	1.92	1.18	3.10
Redon	2.20	1.13	3.33
Pennscott	1.84	1.02	2.86
Common I	2.01	1.11	3.12
Purdue	2.11	1.14	3.25
Kenland	1.75	.90	2.65
Wisconsin M.R.	2.02	1.11	3.13
Wisc. P'cross	1.95	1.18	3.13
Common II	1.82	1.11	2.93
Bogle I	1.94	1.09	3.03
Bogle II	1.81	1.15	2.96
Emerson	1.75	.99	2.74
Mean	1.96	1.11	3.07
L.S.D. - 0.05	.23	N.S.	.36
- 0.01	.31	N.S.	.49
C.V.	8	12	8

Comments:

1. The Canadian varieties LaSalle, Dollard, Ottawa and Redon as in previous tests, outyielded most of the American varieties, (Wisconsin excluded) and common red clover.

Table 9 1956 Yields in Tons D.M. Per Acre

Varieties	July 5	Aftermath Aug. 20	Seasonal total
Alaskland	2.27	-	2.27
Mammoth	2.02	-	2.02
Thomas	2.35	-	2.35
Leon	2.25	-	2.25
Redon	2.05	.99	3.04
N. Ontario	2.15	-	2.15
N. Ontario I	1.89	.88	2.77
Mean	2.14	.94	2.41
L.S.D. - 0.05	.20	N.S.	.11
- 0.01	.27	N.S.	.15
C.V.	6	9	27

Comments:

1. With the exception of Redon and N. Ontario I, the varieties behaved as a true single-cut type and remained in the vegetative stage throughout the summer, following the first cut in July.
2. The double-cut types consistently outyielded the single-cut types in this their first crop year.

Table 10 1956 Yields in Tons D.M. Per Acre

Varieties	Hay June 28	Aftermath Aug. 20	Seasonal total
Dunbar	2.01	1.28	3.29
Brampton 1954 A	2.10	1.20	3.30
Commercial	1.98	1.23	3.21
Brampton 1953	2.15	1.13	3.28
Idaho 1952	2.07	1.18	3.25
Brampton 1954 B	2.00	1.24	3.24
Brampton 1954 C	2.05	1.27	3.32
Mean	2.05	1.22	3.27
L.S.D. - 0.05	N.S.	N.S.	N.S.
- 0.01	N.S.	N.S.	N.S.
C.V.	6	6	6

Comments:

1. These seven strains may be arranged into four groups on the basis of flowering. The groups are separated by an interval of 1 - 2 days and commercial is the earliest.

Commercial	Br. 1954C Idaho 1952	Br. 1954B Dunbar	Br. 1954A Br. 1953
------------	-------------------------	---------------------	-----------------------

Br. 1954 C - cut for hay June 25, for seed Sept. 20, 1954
 Br. 1954 B - cut for hay June 10, for seed Sept. 20, 1954
 Br. 1954 A - no hay removed, crop left for seed
 Br. 1953 - cut for hay in June, for seed in Sept., 1953

Regional Red Clover Strain Trial, Kemptville, 1953

Table 11

Summary of Yields in Tons D.M. Per Acre

Varieties	1954			1955					1956	2 Yr. Total 1954-1955		
	Hay	After.	Total	Hay	Aftermath		Total	Season total	Hay	Hay	After.	Total
					1	2						
Dollard	2.10	1.64	3.74	1.94	.11	.42	.53	2.47	1.41	4.04	2.17	6.21
Ottawa	2.16	1.63	3.79	1.69	.27	.42	.69	2.38	1.07	3.85	2.32	6.17
Redon	2.29	1.18	3.47	2.03	0	.32	.32	2.35	1.01	4.32	1.50	5.82
Pennscott	2.08	1.52	3.60	1.51	.28	.39	.67	2.18	.41	3.59	2.19	5.78
LaSalle	2.05	1.41	3.46	1.66	.21	.42	.63	2.29	1.24	3.71	2.04	5.75
Common	2.08	1.34	3.42	1.23	.30	.21	.51	1.74	.61	3.31	1.85	5.16

Table 12 1955-6 Yields in Tons D.M. Per Acre

Varieties	1955			1956		
	Hay June 16	After. Sept. 10	Season total	R.C.	Hay Mixture Tim.	Total
Timothy +						
LaSalle	3.14	0.54	3.68	.57	1.43	2.00
Redon	3.16	0.32	3.48	.56	1.44	2.00
Pennscott	3.46	0.28	3.74	.25	1.77	2.02
Common	3.28	0.30	3.58	.17	1.80	1.97
Mean	3.26	0.36	3.62	.39	1.61	2.00
L.S.D. - 0.05	N.S.	N.S.	N.S.	.20	N.S.	N.S.
- 0.01	N.S.	N.S.	N.S.	.29	N.S.	N.S.
C.V.	8.0	7.5	11.0	32	15	10

Table 12A Relative stands of legumes at different dates
based on the stand of commercial clover.

Varieties	September 1955	June 1956	October 1956
LaSalle	1.6	3.5	4.5
Redon	1.5	3.5	3.0
Pennscott	1.8	1.2	1.4
Commercial	1.0	1.0	1.0

Comments:

1. The more perennial habit of LaSalle was demonstrated.
2. The deficit of red clover in some varieties was compensated for, with respect to weight, by the extra timothy. However the 1956 aftermath of Pennscott and Commercial would be less than that of LaSalle and Redon.

New Seedings, O.A.C., 16C, 1956

1. Double Cut British Strains.

In this experiment were 6 British varieties along with LaSalle and Canadian commercial. Viking birdsfoot trefoil was also included for the sake of comparison over a 2-year period. The strains were:

Dorset Marl	LaSalle
Essex Broad	Canadian
Cotswold	Viking
English common - (Garton)	
English common - (Donath)	
Scottish	

2. Single Cut British Strains

The seven varieties included were as follows:

Cotswold Late	Leon
Essex Late	Mammoth
Cornish Marl	Viking
Montgomery	

Table 13 1956 Yields in Tons D.M. Per Acre

Varieties	June 11	July 10	Aug. 14	Total
West. Comp. L	.50	1.03	.58	2.11
Iowa L.	.67	.96	.58	2.21
Pilgrim	.59	1.01	.57	2.17
Oregon L.	.60	.99	.58	2.17
California L.	.55	1.08	.61	2.24
Idaho L.	.54	.95	.57	2.06
Montana L.	.38	1.05	.58	2.01
P O C 3	.53	.99	.56	2.08
Kersey	.63	.97	.57	2.17
Polyploid	.12	.94	.66	1.72
Morso	.51	.82	.41	1.74
New Zealand	.59	.94	.50	2.04
Lodi	.44	.93	.45	1.82
S - 100	.51	1.01	.51	2.03
Commercial	.35	.83	.41	1.59
Common	.31	.83	.32	1.46
Pathfinder	.45	1.00	.35	1.80
Mean	.49	.96	.52	1.96
L.S.D. - 0.05	.22	N.S.	.07	.37
- 0.01	.31	N.S.	.10	.50
C.V.	21.4	9.4	6.4	8.8

Comments:

1. Only two replicates were cut. The others, having been invaded by grasses, were discarded.
2. Ladino types usually outyielded the white clovers.
3. The pedigreed strains were superior to the non-pedigreed types.
4. The English strains, S - 100 and Kersey performed very satisfactorily.

BIRDSFOOT TREFOIL

Birdsfoot Trefoil Strain Trial, O.A.C., 17D, 1954

Table 14

1956 Yields in Tons D.M. Per Acre

Varieties	1955					1956			Total 1955-56		
	Hay June 14	July	Aftermath Sept.	Total	Total	Hay June 27	After. Aug. 18	Total 1956	Hay	After.	Season
Viking	1.24	0.46	1.16	1.62	2.86	1.35	0.91	2.26	2.59	2.53	5.12
European	0.78	0.49	1.05	1.54	2.32	1.09	1.02	2.11	1.87	2.56	4.43
Empire	0.53	0.20	0.96	1.16	1.69	1.10	0.72	1.82	1.63	1.88	3.51
Mean	0.85	0.38	1.06	1.44	2.29	1.18	0.88	2.06	2.03	2.32	4.35
L.S.D. - 0.05	0.22	0.17	0.11	0.21	0.70	0.18	0.10	0.21			
- 0.01	0.33	0.26	0.17	0.32	1.05	0.27	0.14	0.32			
C.V.	14.7	25.9	6.1	8.5	8.8	8.8	2.0	6.0			

Comments:

1. The area was somewhat weedy in 1955 but in 1956 the trefoil had, to a large extent, crowded these weeds out. The blue grass which had invaded the second tier of plots in 1955 was also being held in check by the trefoil.

Table 15 1953-6 Yields in Tons D.M. Per Acre

Varieties	Hay	Aftermath 1	Aftermath 2	Aftermath total	Season total
1953					
Viking	1.55	0.47	----	0.47	2.02
European	1.62	0.70	----	0.70	2.32
Empire	1.48	0.16	----	0.16	1.64
1954					
Viking	1.32	1.24	----	1.24	2.56
European	1.06	1.16	----	1.16	2.22
Empire	1.64	1.25	----	1.25	2.89
1955					
Viking	2.00	0.68	1.15	1.83	3.83
European	2.12	0.76	1.07	1.83	3.95
Empire	2.02	----	1.33	1.33	3.35
1956					
Viking	1.61	0.64	0.28	0.72	2.33
European	1.33	0.73	0.31	1.04	2.37
Empire	1.78	0.31	0.15	0.46	2.24
3 year mean 1954-1956					
Viking	1.64	----	----	1.26	2.91
European	1.50	----	----	1.34	2.85
Empire	1.81	----	----	1.01	2.83

Birdsfoot Trefoil Strain Trial, O.A.C., 16C, 1955

Table 16

1956 Yields in Tons D.M. Per Acre

Varieties	Hay June 29	Aftermath Aug. 16	Total
*Empire	1.59	1.05	2.64
Roskilde	1.50	.95	2.35
Viking	1.30	.99	2.29
Italian	1.21	1.17	2.38
Granger	1.17	1.16	2.33
Zoar.	1.14	1.16	2.30
French	1.13	1.15	2.27
Guilderland	1.17	1.02	2.19
Montour	1.09	.93	2.02
Hudson	1.13	.82	1.95
Mean	1.23	1.04	2.33
L.S.D. - 0.05	.12	.12	.17
- 0.1	.17	.16	.23
C.V.	6.5	7.6	5.0

* Empire was cut 2 weeks later than the other varieties in replicates 2, 3, 4.

Comments:

1. Ranking for aftermath recovery, July 11: Italian, Granger, French, Zoar, Montour, Guilderland, Viking, Roskilde, Hudson, Empire.
2. Ranking for percent bloom, Aug. 14: Montour and Guilderland, 35 - 50%; Granger and Hudson, 25 - 35%; French, Viking and Italian, 20 - 30%; Zoar, Empire and Roskilde, 5 - 15%.
3. There was considerable aftermath on the field in October, the ranking being the same as on July 11. Had this been cut, it would have placed Italian, French and Granger above Viking and Roskilde. The year's yield for Empire would have altered very little. The actual heights on Sept. 26 were as follows:

8-9"
Granger
French
Italian
Zoar

6"
Viking
Roskilde
Montour
Guilderland

3"
Empire
Hudson

Granger 125%
French 75%
Italian 60%
Zoar 50%

French 40%
Roskilde 35%
Viking 10%
Empire 5%

Birdsfoot TrefoilNew Seedlings

Two small tests were seeded on 17C. One was a variety strain trial, the other a group of lines derived from crossing doubled Lotus tenuis with natural tetraploid strains. Establishment was variable.

Test #1

European
Cascade
Viking
Mansfield
F2 hybrids

Test #2

European x 4n L. tenuis
Empire x 4n L. tenuis
4n L. tenuis intercrosses

Nursery

A nursery of approximately 2600 plants was established on 9D. The number in each variety was as follows:

Viking	- 483	Empire	- 742
Italian	- 276	Mansfield	- 1144

Comments:

1. A few plants were destroyed by millipeds.
2. All plants were rated three times for vigor in 1956.
3. Approximately 190 selections were made purely on the basis of vigor ratings. Cuttings were made of each of the 190 selections and these were transferred to the greenhouse, the original plants being left in situ.
4. Seed was collected from each selection.
5. The selections were classified by type, the basis being posture and stem size. The data taken on flowering date was considered unreliable.

Timothy Strain Trials

Final data were collected on seedlings made in 1953 in pure stand at Guelph and Kemptville. Climax was 6.7% leafier than common timothy and approximately 5 days later in blooming. The British varieties S-48 and S-51 although lower in dry matter yield are promising. Both were considerably later than Climax and considerably leafier and might have a place in mixtures for late cut hay or where higher quality is desired.

The severe drought of 1955 caused some thinning in the stands of S-48 and S-51 at Guelph indicating that these are less drought tolerant than Climax.

Timothy Strains, Guelph 1953. Tons D.M. per Acre

Variety	Hay				Aftermath				Hay + Aftermath			
	1954	1955	1956	Mean	1954	1955	1956	Mean	1954	1955	1956	Mean
Climax	3.58	4.12	3.42	3.71	0.56	0.43	0.74	0.58	4.14	4.55	4.16	4.28
Medon	3.67	4.44	3.26	3.79	0.61	0.48	0.67	0.59	4.28	4.92	3.93	4.37
Milton	3.85	4.20	3.31	3.79	0.54	0.50	0.74	0.59	4.38	4.69	4.05	4.37
S-48	2.92	4.01	3.10	3.34	0.38*	0.37	0.48	0.41	3.31*	4.38	3.57	3.75
S-51	3.06	3.82	3.09	3.32	0.48*	0.45	0.60	0.51	3.54*	4.27	3.69	3.83
Common	3.66	3.96	3.17	3.60	0.59	0.47	0.80	0.62	4.25	4.43	3.97	4.21
Mean	3.46	4.09	3.22	3.59	0.53	0.45	0.67	0.55	3.98	4.54	3.89	4.14
L.S.D. 0.05	0.57	0.43	N.S.		0.20		0.12		0.65		0.37	
C.V.	11.7	7.3	5.7		28.8		11.5		11.8		6.2	

* mean over 3 replicates

+ mean over 2 replicates

Timothy Strains Kemptville, 1953. Tons D.M. per Acre

Variety	Hay				Aftermath			Hay + Aftermath		
	1954	1955	1956	Mean	1954	1955	Mean	1954	1955	Mean
Climax	2.15	3.54	2.78	2.82	1.17	.61	.89	3.32	4.15	3.74
Medon	1.89	3.16	2.43	2.49	1.16	.48	.82	3.05	3.64	3.35
Milton	2.09	3.06	2.59	2.58	1.08	.42	.75	3.17	3.48	3.32
S-48	1.84	2.95	2.34	2.38	1.09	.34	.72	2.93	3.29	3.11
Common	1.95	3.29	2.45	2.56	1.50	.52	1.01	3.45	3.81	3.63
Mean	1.98	3.20	2.52	2.57	1.20	.47	.84	3.18	3.67	3.43
L.S.D. 0.05	N.S.	N.S.	N.S.		N.S.	N.S.		N.S.		
C.V.	11.3	8.9	10.9		16.7	38.3		10.4		

Summary - % Leafiness of Timothy Strains

Strain	Guelph 1953			Guelph 1952	Hespeler 1954	Bowmanville Obser* vation Rows 1954 1955
	1954	1955	1956	1955	1955	
S-48		60.7	47.1		82.9	
S-51		62.6	45.9			
Climax	51.8	49.5	40.7	43.9	70.4	46.3
Medon	51.3	44.5		43.4		44.7
Milton	40.0		38.0			
Common	41.4	41.5	38.9	37.2	64.4	37.9
Drummond				52.8		

Summary - Leafiness of Varieties at Guelph. Two Year
Mean 1955-1956

	% Leaf	Tons D.M./Ac. June	Lbs. leaves per acre	Lbs. leaves per ton of hay
S-48	53.9	3.56	3838	1078
S-51	54.3	3.46	3758	1068
Climax	45.1	3.77	3401	902
Common	40.2	3.57	2870	804

Summary - Climax vs. Common Timothy

Variety	3 yr. ave. Guelph		Ave. of $\frac{\%}{5}$ Leaf crop years 3 tests
	Tons/ac.	% Leaf	
Climax	4.3	47.3	46.4
Common	4.2	40.6	39.4

Timothy Strain Trial, 1956

The following varieties were seeded at Guelph in 1956.

<u>Variety</u>	<u>Origin</u>
Climax	C.E.F., Ottawa
Common	Composite of 5 lots
S-48	Aberystwyth
S-51	"
Drummond	Macdonald College
Essex	Cornell

These were overseeded with Vernal alfalfa and will be managed as (1) medium cut hay and (2) late cut hay followed by one cut of aftermath as hay.

Brome Strain Trial 1953 at Guelph. Tons Dry Matter per Acre.

Variety	Hay					Aftermath					Hay + Aftermath				
	1954	1955	1956	2 Yr. Mean	3 Yr. Mean	1954	1955	1956	2 Yr. Mean	3 Yr. Mean	1954	1955	1956	2 Yr. Mean	3 Yr. Mean
+ Lyon	4.83	4.10	3.08	4.46	4.00	0.64	0.48	1.33	0.56	0.82	5.48	4.58	4.41	5.03	4.82
N.Y.H.	4.38	4.14	3.35	4.26	3.96	0.62	0.45	1.29	0.54	0.79	5.00	4.58	4.64	4.79	4.74
+ Fischer	4.39	4.19	3.46	4.29	4.01	0.49	0.41	1.20	0.45	0.70	4.88	4.60	4.66	4.74	4.71
+ Southland	4.75	4.08	3.44	4.42	4.09	0.64	0.50	1.40	0.57	0.85	5.39	4.58	4.84	4.98	4.70
Elsberry	3.97	3.88	3.46	3.92	3.77	0.76	0.53	1.30	0.64	0.86	4.74	4.40	4.76	4.57	4.63
+ Achenbach	4.28	4.02	3.21	4.15	3.83	0.67	0.40	1.27	0.54	0.78	4.95	4.42	4.48	4.68	4.62
+ Lincoln	4.30	4.00	3.23	4.15	3.84	0.64	0.41	1.26	0.52	0.77	4.94	4.40	4.49	4.67	4.61
* Martin	3.94	4.09	3.36	4.02	3.78	0.58	0.44	1.27	0.51	0.76	4.52	4.53	4.63	4.52	4.56
+ Lancaster	4.34	4.17	3.18	4.26	3.89	0.44	0.32	1.03	0.38	0.59	4.78	4.49	4.21	4.64	4.47
Br. 3	4.05	3.88	3.08	3.96	3.67	0.63	0.38	1.26	0.50	0.76	4.68	4.25	4.34	4.46	4.42
Saratoga	3.83	3.76	3.34	3.80	3.64	0.66	0.42	1.23	0.54	0.77	4.49	4.18	4.57	4.34	4.41
Homesteader	3.94	4.00	3.06	3.97	3.67	0.56	0.36	1.11	0.46	0.68	4.50	4.36	4.17	4.43	4.34
* Manchar	4.02	3.72	3.08	3.87	3.61	0.50	0.38	1.28	0.44	0.72	4.52	4.11	4.36	4.32	4.33
Mandan 404	3.76	3.95	3.06	3.86	3.59	0.41	0.42	1.31	0.42	0.71	4.17	4.38	4.37	4.28	4.31
B.-in.-12	3.93	3.54	3.04	3.74	3.50	0.51	0.38	1.22	0.44	0.70	4.44	3.92	4.26	4.18	4.20
* S-4088	3.49	3.44	2.92	3.46	3.28	0.36	0.35	1.11	0.35	0.61	3.86	3.80	4.03	3.83	3.89
* Can. Brome	3.48	3.27	2.82	3.38	3.19	0.39	0.37	1.01	0.38	0.59	3.87	3.64	3.83	3.76	3.78
* Parkland	3.34	3.31	2.71	3.32	3.12	0.35	0.35	1.01	0.35	0.57	3.69	3.66	3.72	3.68	3.69
* Superior	3.21	3.22	2.90	3.22	3.11	0.33	0.40	1.01	0.36	0.58	3.54	3.62	3.91	3.58	3.69
Mean	4.01	3.83	3.15	3.92	3.66	0.54	0.41	1.20	0.47	0.71	4.55	4.24	4.35	4.39	4.36
L.S.D.-0.05	0.56	0.56	0.26	0.59	0.52	0.20	N.S.	0.11	0.20	0.25	0.64	0.64	0.38	0.70	0.67
-0.01	0.75	0.75	0.35	0.79	0.69	0.27	N.S.	0.15	0.26	0.33	0.86	0.86	0.51	0.93	0.89
C.V.	10.0	10.2	5.9	7.5	5.8	26.2	23.8	6.6	21.3	14.1	9.8	10.5	6.2	7.9	6.2
Mean															
Northern (*)	3.58	3.51	2.96	3.54	3.35	0.42	0.38	1.12	0.40	0.64	4.00	3.89	4.08	3.95	3.99
Southern (+)	4.48	4.09	3.27	4.28	3.94	0.59	0.42	1.25	0.50	0.75	5.07	4.51	4.52	4.79	4.65

Brome Strains 1953. Seedling Vigor, Spring Vigor and
Disease Ratings

	Fall Vigor in Seedling Year*	Spring Vigor		Disease+
	<u>15/10/53</u>	<u>28/4/54*</u>	<u>24/5/56+</u>	<u>6/9/56</u>
+ Lyon	3.0	3.0	2.5	1.8
N.Y.H.	1.0	1.9	1.0	2.3
+ Fischer	2.2	2.8	2.0	1.3
+ Southland	1.5	1.1	1.0	1.8
Elsberry	1.8	2.0	1.5	1.3
+ Achenbach	2.5	2.8	1.2	1.3
+ Lincoln	1.8	2.6	1.5	1.5
* Martin	3.8	4.0	2.7	4.3
+ Lancaster	4.8	4.9	3.5	1.5
Br. 3	2.5	5.4	2.7	2.5
Saratoga	1.2	2.1	1.0	2.3
Homesteader	4.0	4.5	2.2	3.0
* Manchar	3.0	4.2	1.5	3.5
Mandan 404	6.0	7.4	3.0	4.0
B. in -12	6.5	5.2	2.5	2.8
* S-4088	6.8	7.6	3.7	4.0
* Can. Brome	7.2	7.5	3.5	4.3
* Parkland	8.5	8.8	4.7	2.8
* Superior	8.2	7.8	4.5	3.5
Mean - Northern (*)	6.2	6.6	3.4	3.7
- Southern (+)	2.6	2.9	2.0	1.5

* 1 (good) to 10 (fair)

+ 1 (good) to 5 (fair). Disease principally H. bromi

Brome Varieties 1953. Hay Quality Data

Variety	% Leaf		Coarsoness Rating*		% Crude Protein	
	1955	1956	1955	1956	1955	1956+
Lyon	38.5	38.3	3	2	8.4	8.8
Southland	37.9	42.0	4	4	7.7	8.2
Saratoga	-	43.1	-	3	-	8.0
Achenbach	39.7	43.9	4	4	7.4	8.5
Fischer	-	38.9	-	5	-	7.8
Lincoln	-	40.3	-	2	-	7.9
Parkland	41.2	-	1	-	8.3	-
S-4088	-	36.8	-	1	-	9.2
Can. Brome	37.7	39.8	2	1	8.1	9.3
L.S.D.-0.05	-	-	-	-	N.S.	N.S.
C.V.	-	-	-	-	10.6	13.3

* 1 (fine) to 5 (moderately coarse)

+ 2 samples per plot

Brome Varieties Kemptville, 1953. % Crude Protein

	1954	1955
Fischer		6.6
Achenbach	7.6	6.9
Can. Brome	9.9	7.8

Brome Strains at Kemptville (1953) Seeding . Tons D.M. per Acre.

Variety	Hay					Aftermath			Hay + Aftermath		
			2 Yr. 3 Yr.					Mean			Mean
	1954	1955	1956	Mean	Mean	1954	1955	1954-55	1954	1955	1954-55
Achenbach	2.55	2.76	2.25	2.66	2.52	1.00	.78	.89	3.55	3.54	3.54
Fischer	2.49	2.91	2.29	2.70	2.56	.94	.78	.82	3.43	3.69	3.56
Can. Brome	2.18	2.49	2.11	2.34	2.26	.88	.55	.72	3.06	3.04	3.05
L.S.D.-0.05	N.S.	N.S.	N.S.			N.S.	N.S.		N.S.	N.S.	
C.V.	11.0	21.7	9.5			18.4	22.0		10.3	21.2	

Table 1:- Bromegrass Strains (Hay-Pasture) 1955. Lbs. D.M./Acre in 1956.

Variety	Hay	Aftermath			Seasonal
	July 6	Aug. 15	Oct. 29	Total	Total
Brome + Alfalfa (Lbs. D.M./Acre)					
Lyon	4998	1979	1269	3248	8246
Achenbach	4576	1727	1272	2999	7575
Southland	4885	2095	1267	3362	8247
Can. Common	3923	1711	1152	2863	6786
Saratoga	4724	2061	1315	3376	8100
Mean	4621	1915	1255	3170	7790
Brome Component (Lbs. D.M./Acre)					
Lyon	2414	91	51	142	2556
Achenbach	2256	92	36	128	2384
Southland	2628	86	52	138	2766
Can. Common	1860	74	20	94	1954
Saratoga	2324	175	54	229	2553
Mean	2296	104	43	147	2443

Table 2:- Bromegrass Strain Trial (Hay-Pasture) 1955. % Composition - 1956.

Variety	July 6	Aug. 15	Oct. 29	Aftermath Average
Lyon	48.3	4.6	4.0	4.3
Achenbach	49.3	5.3	2.8	4.1
Southland	53.8	4.1	4.1	4.1
Can. Common	47.4	4.3	1.7	3.0
Saratoga	49.2	8.5	4.1	6.3
Mean	49.6	5.4	3.3	4.4

Table 1:- Bromegrass Strains (Pasture), 1955
Lbs. D.M./Acre in 1956.

Variety	June 5	July 10	Aug. 14	Oct. 29	Total
Brome + Legume					
Lyon	1359	2792	1806	1575	7532
Achenbach	1408	2504	1731	1333	6976
Southland	1347	2365	1835	1511	7058
Can. Brome	1202	2549	1877	1355	6983
Saratoga	1176	2215	1704	1400	6495
Mean	1298	2485	1791	1435	7009
Brome Component					
Lyon	681	533	42	33	1289
Achenbach	615	198	28	21	862
Southland	862	407	53	39	1361
Can. Brome	542	701	148	56	1447
Saratoga	642	647	130	70	1489
Mean	668	497	80	44	1290

Table 2:- Bromegrass Strains (Pasture), 1955. Percentage Composition in 1956.

Variety	June 5	July 10	Aug. 14	Oct. 29
Alfalfa				
Lyon	24.3	16.9	22.6	23.2
Achenbach	33.9	19.6	21.3	24.5
Southland	16.6	14.3	22.8	19.1
Can. Common	32.4	20.8	25.0	21.3
Saratoga	27.8	21.6	23.5	17.9
Mean	27.0	18.6	23.0	21.2
Ladino				
Lyon	25.6	64.0	75.1	74.7
Achenbach	22.4	72.5	77.1	73.9
Southland	19.4	68.5	74.3	78.3
Can. Common	22.5	51.7	67.1	74.6
Saratoga	17.6	49.2	68.9	77.1
Mean	21.5	61.2	72.5	75.7
Brome				
Lyon	50.1	19.1	2.3	2.1
Achenbach	43.7	7.9	1.6	1.6
Southland	64.0	17.2	2.9	2.6
Can. Common	45.1	27.5	7.9	4.1
Saratoga	54.6	29.2	7.6	5.0
Mean	51.5	20.2	4.5	3.1

Alfalfa-Brome Varieties 1956. Production in Seedling Year (1956)

Variety	Lbs. per acre. September 3				% Composition of D.M.		
	Alfalfa	Brome	Alf. + Br.	Stubble + Weeds	Alfalfa	Brome	Stubble + Weeds
Vernal + Saratoga	1548	322	1870	308	71	15	14
+ Wisc. 55	1630	238	1868	340	74	5	21
+ Can. Brome	1582	205	1787	354	74	9	17
+ Lyon	1569	187	1756	436	71	9	20
+ S-4,75	1588	178	1766	442	72	8	20
+ Wisc. 63	1542	178	1720	482	70	8	22
+ Achenbach	1631	20	1651	623	70	1	29
Du Puits + Saratoga +	2477	210	2587	292	86	7	7
+ Can. Brome	2715	111	2826	164	90	4	6
+ Lyon	2563	55	2618	162	92	2	6
Alfa + Lyon	2006	127	2133	356	81	5	14
Rambler + Lyon	520	323	843	792	33	20	47
Can. Var. + Can. Brome	1516	222	1738	395	71	10	19
+ Lyon*	1815	145	1960	296	79	6	15
Du Puits +	2738	-	-	163	95	-	5
	<u>Legume</u>	<u>Grass</u>	<u>Leg. + Grass</u>		<u>Legume</u>	<u>Grass</u>	
Vernal + Climax	1700	77	1777	425	77	1	19
Viking + Frode	318	1031	1349	464	18	56	26

+ mean of 3 replicates;

* mean of 5 replicates; remainder mean of 6 replicates.

Bromegrass Type Test, 1956

<u>Entry</u>	<u>Seed Lot</u>	<u>Blotter</u> <u>Germ. %</u>
G-712	Can. Brome	69 corrected
G-677	"	21 "
G-678	"	59 "
G-679	"	70 "
G-680	"	57 "
G-681	"	50 "
G-828	"	67 "
G-841	"	62 "
G-682	Lyon	89 "
G-841	Can. Brome	62 not corrected
G-677	"	21 corrected

Summary - Regional Uniform Orchard Strain Trials. Tons D.M. per acre.

Strain	Hay			Aftermath			Hay + Aftermath			Hay
	1954	1955	Mean	1954	1955	Mean	1954	1955	Mean	1956
Kemptville, 1953 seeding										
Hercules	1.30	1.56	1.43	1.34	0.74	1.04	2.64	2.30	2.47	0.96
Oron	1.41	2.31	1.86	1.17	0.86	1.02	2.58	3.17	2.88	1.01
Danish	1.13	1.60	1.36	1.24	0.74	0.99	2.37	2.34	2.36	0.83
S-26	0.68*	2.00	1.34	1.25*	0.73	0.99	1.93*	2.73	2.33	0.70
Common	1.20	2.26	1.73	1.22	0.72	0.97	2.42	2.98	2.70	0.93
Mean	1.14	1.95		1.24	0.76		2.39	2.70		0.89
Guelph, 1953 seeding										
Hercules	2.90	2.58	2.74	0.38	0.56	0.47	3.28	3.14	3.21	-
Oron	2.52	2.40	2.46	0.35	0.55	0.45	2.87	2.95	2.91	-
Danish	2.54	2.91	2.72	0.37	0.60	0.48	2.91	3.51	3.21	-
S-26	1.96	2.10	2.03	0.42	0.55	0.48	2.38	2.65	2.52	-
Common	2.58	2.86	2.72	0.39	0.56	0.48	2.97	3.42	3.20	-
Mean	2.50	2.57		0.38	0.56		2.88	3.13	3.02	-
Hespeler, 1954 seeding										
Hercules	-	1.09	-	-	***	-	-	-	-	-
Oron	-	1.08	-	-	-	-	-	-	-	-
Danish	-	1.17	-	-	-	-	-	-	-	-
S-26	-	1.03	-	-	-	-	-	-	-	-
Common	-	1.15	-	-	-	-	-	-	-	-
Mean										

* mean over 2 replicates

** severe drought resulted in practically no aftermath growth

Orchard Strains (Hay-Pasture) Guelph, 1955. Yield in Pounds D.M./Acre in 1956
(Mean 2 replicates)

<u>Strain</u>	<u>Source</u>	<u>% Blotter Germ.</u>	<u>Hay June 26</u>	<u>Aftermath Aug. 17</u>	<u>Season Total</u>	<u>Aftermath Rating** Oct. 17</u>
Past. Lab. I	Penn. State, Early Syn.	50	3667	2494	3080	4
Common	Composite 5 lots	75	3478	2647	3062	4
Oron	O.A.C.	80	3682	2310	2996	4
Past. Lab. II	Penn. State, Med. Syn.	60	3122	2564	2843	1
Hercules	C.E.F. Ottawa	75*	3274	2366	2820	4
Potomac	U.S.D.A.	75	3106	2391	2748	4
Weibull H-11	Weibull Seed Co., Sweden	75*	3196	2232	2714	4
Past. Lab. III	Penn. State, Late Syn.	55	3378	2017	2700	4
Frode	Svalof, Sweden	60	3156	2091	2624	3
Tammisto	Finland	74	3007	2130	2568	5
S-26	Aberystwyth	60	2638	2222	2430	2
K-46	Weibull, Sweden	72	2773	2068	2420	4
S-37	Aberystwyth	68	2275	2548	2412	2
Tardus II	Weibull, Sweden	84	2835	1865	2350	3

* seed lots received late, no germination test; assumed value.

** 1 (good) to 5 (poor)

Note: Stand was fair and growth poor in 1956.

Orchard Strains (Pasture) 1955. Lbs. D.M./Acre up to
Mid-July in 1956

<u>Strain</u>	<u>June 11</u>	<u>July 13</u>	<u>Total</u>
Frode	1207	1082	2289
Weibul H-11	890	1229	2119
Pa. III	1154	1145	2299
S-143	584	1257	1841
Oron	1177	998	2175
Common	1254	1085	2339

Note: Stand was fair and growth poor in 1956.

Orchard Variety Trial Guelph 1956

<u>Pasture</u>	<u>Hay</u>
1. Ladino 2 + Frode 8.	15. Vernal 10 + Frode 8.
2. Ladino 2 + S-37 8.	16. Vernal 10 + S-37 8.
3. Ladino 2 + S-143 8.	17. Vernal 10 + Ottawa 100 8.
4. Ladino 2 + Ottawa 100 8.	18. Vernal 10 + Common 8.
5. Ladino 2 + Common 8.	19. Vernal 10 + Hercules 8.
6. Ladino 2 + Hercules 8.	20. Du Puits 10 + Frode 8.
7. Ladino 2 + Pa. III 8.	21. Vernal 10 + Pa. III 8.
8. Du Puits 10 + Frode 8.	22. Vernal 10 + Grasslands 8.

Silage

10. Du Puits 10 + Frode 8.
11. Du Puits 10 + S-37 8.
12. Du Puits 10 + Pa. III 8.
13. Du Puits 10 + Common 8.
14. Du Puits 10 + Hercules 8.

<u>Strain</u>	<u>Origin</u>
Hercules	C.E.F., Ottawa
P.L. 3	Penn. State Synthetic
Ottawa 100	C.E.F., Ottawa Synthetic
S-37	Aberystwyth
Coxa	Sweden
S-143	Aberystwyth
Frode	Svalof
Grasslands	New Zealand
Common	Composite of 5 lots

Meadow and Tall Fescue Varieties

A trial seeded in 1953 at Guelph in pure stand and cut twice each year as hay was completed in 1956. The tall fescues were more vigorous than the meadow fescues, commencing growth earlier in the spring, producing higher hay yields in June and much higher aftermath yields. They were considerably coarser in the stem but were not affected by crown rust to any extent whereas the meadow fescues were.

Alta was superior to Kentucky 31 in aftermath production. In the meadow fescues the only variety which should be further tested is S-53 which, although lower in yield at the hay stage in June than the other varieties, was considerably leafier averaging 13.1% more leaf than common fescue.

Compared with Medon timothy the best named variety of tall fescue was lower in yield in June, lower in % leafiness, had coarser stems but was higher in aftermath production, making it generally inferior as a variety for hay. The meadow fescue varieties averaged one ton lower in total yield than Medon and, except for S-53, were lower in % leafiness.

Fescue Strains 1953, Guelph. Tons D.M. per Acre

	Hay				Aftermath				Hay + Aftermath			
	1954	1955	1956	Mean	1954	1955	1956	Mean	1954	1955	1956	Mean
* Ensign	3.02	3.28	2.47	2.92	.35	.37	.53	.42	3.37	3.64	3.00	3.34
S-215	3.38	3.05	2.30	2.91	.33	.36	.46	.38	3.71	3.42	2.76	3.30
* Common	3.40	3.21	2.26	2.96	.23	.31	.41	.32	3.63	3.52	2.67	3.27
* Mefon	3.05	2.95	2.46	2.82	.26	.40	.52	.39	3.32	3.34	2.98	3.21
S-53	2.91	2.80	2.13	2.61	.28	.42	.51	.40	3.19	3.22	2.64	3.02
+ Ottawa 39	4.40	3.91	2.95	3.75	.53	.62	.76	.64	4.93	4.52	3.71	4.39
+ Alta	3.87	3.45	2.80	3.37	.73	.72	.88	.78	4.60	4.17	3.68	4.15
+ Ky. 31	3.83	3.29	2.81	3.31	.45	.60	.81	.62	4.28	3.89	3.62	3.93
Medon Tim.	3.88	4.13	3.10	3.70	.57	.48	.77	.61	4.45	4.61	3.87	4.31
Mean	3.53	3.34	2.59	3.15	0.42	0.48	0.63	.51	3.94	3.82	3.22	3.66
L.S.D. (0.05)	0.49	0.47	0.24	-	0.14	0.11	0.14	-	0.54	0.47	-	-
C.V.	9.8	9.6	6.5	-	23.8	16.3	15.9	-	9.5	8.7	-	-
Mean												
Meadow (*)	3.16	3.15	2.40	2.90	0.28	0.36	0.49	.38	3.43	3.50	2.89	3.27
Tall (+)	4.03	3.55	2.85	3.48	0.57	0.65	0.82	.68	4.60	4.19	3.67	4.15

Fescue Strains 1953, Guelph. % Leafiness

	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>Mean</u>
Common	40.0	37.3	42.3	39.9
Mefon	44.6	36.5	-	
Ensign	45.6	-	-	
S-53	52.6	49.0	57.4	53.0
S-215	41.8	37.6	-	
Alta	42.6	-	-	
Ky. 31	49.2	-	-	
Ottawa 39	41.6	47.0	-	
Medon timothy	51.6	45.4	55.0	50.7

Rape and Kale Varieties

R.P.O.: F.H. 13.

Objectives: As outlined in 1954 report.

Procedure: As outlined in 1954 report.

Results and Discussion:

The test was seeded on July 10th. A cool wet summer was favourable to the crop and high yields were obtained. The crop was harvested on November 7.

The 1956 season was the first year that the kale varieties yielded as much as some rapes. In the three year average, however, the kale varieties are much lower yielding. Gartons early giant rape again gave the highest yield of dry matter per acre. On its superior performance in these variety tests, this variety was licensed for sale in Canada.

Summary:

- (1) Rape and kale varieties yield very well in the favourable season of 1956.
- (2) From the performance of Gartons early giant rape in 1956 and in previous years, this variety was granted a license for sale in Canada.

Rape and Kale Yields in Tons per Acre

Variety	Green Weight	Green Weight 3 Yr. Mean	Percent Dry Matter 1956	Dry Matter 1956	Dry Matter 3 Yr. Mean
Gartons Early Giant Rape	22.9	24.5	13.3	3.03	2.76
Gartons English Rape	21.0	22.2	14.3	2.82	2.55
MacDonalds Dwarf Essex Rape	20.8	19.8	12.9	2.68	2.25
Sharpes Rape-Kale	20.3	20.8	12.8	2.56	2.25
Sharpes Hungry Gap Kale	20.7	19.2	13.6	2.83	2.34
Sharpes 1000 Headed Kale	23.5	19.0	12.4	2.90	2.25
Dunns Marrowstem Kale	25.8	-	10.8	2.79	-
Dunns 1000 Headed Kale	21.1	-	13.2	2.38	-
Gartons Marrowstem Kale	25.5	20.1	10.1	2.54	2.05
MacDonalds Marrowstem Kale	26.5	19.3	10.5	2.70	1.99
L.S.D. .05				.29	
.01				.40	
C.V.				6.2	