Forage Cultivar Trials

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FORAGE CULTIVAR TRIALS

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FOREWORD

This report is the eleventh for a special series of field trials conducted by the Agriculture Canada Research Station at Beaverlodge in cooperation with Alberta Agriculture.

The objective of this program is to provide relative information on seed production capability and general adaptability of named foreign cultivars of perennial grasses and legumes in northern Alberta. The information assists the Canadian forage seed industry in the development of production contracts and seed export markets. Emphasis is on crops economically suitable for the region which currently form part of Canada's forage seed export industry.

The following test sites were selected to represent the major agronomic soils of the region.

1. Beaverlodge A. Research Station (SE-1-72-10-W6th)

   Dark Gray Solod (Esher clay) to Dark Gray Luvisol (Hythe fine loam).

2. Beaverlodge B. Foster Farm (SE-25-71-10-W6th)

   Near Beaverlodge, Alberta. Orthic Humic Gleysol (Goose fine loam to Codner clay).

3. Fort Vermilion. Experimental Farm (NW-13-108-13-W5th)

   Dark Gray Luvisol (Leith coarse loam) to Orthic Gray Luvisol (Culp coarse loam).

A - Replicated Trials

Data presented in this section has been collected from stands established at the various test sites described.

Plots comprise of four rows, 30.5 cm (1 foot) apart, 6.1 metres (20 feet) long, and are replicated 4 times. Weeds are controlled by mechanical and chemical means. Plots are fertilized annually in the autumn.

Seed and herbage (dry matter) yields are expressed as actual production per hectare and as a percent of a designated (*) standard. The Least Significant Difference at the 5% level is also presented for each test. Winter survival is shown by a hardiness scale of 0 to 9, with 9 being the best.

B - Screening Trials

Data presented in this section has been collected from screening trials established at the Beaverlodge Research

Station. The purpose of these trials is to determine which cultivars should be tested at the various test sites of Part A.

Plots comprise of two rows, 30.5 cm (1 foot) apart, 6.1 metres (20 feet) long, and are replicated 3 times. Plot maintenance is the same as for Part A.

Seed yields are expressed as actual production per hectare. Winter hardiness is shown by a hardiness scale of 0 to 9, with 9 being best. Cultivars rated above 5 in hardiness will be considered for further testing in Part A.

C - Summary of Seed Yields

This section contains a summary of forage seed yield data collected from the various test sites established in northern Alberta. Only those cultivars registered in Canada and cultivars eligible for certification under the OECD scheme are listed.

Environmental data prepared by Mr. Peter Mills, Beaverlodge Research Station.

The author acknowledges the contributions of the following people to the program: T. Cramer, A. Heggelund, C. Martin, C. Probst, F. Swanson, K. White and J. Woods.

Evaluation of this publication and suggestions for improvements will be greatly appreciated and should be directed to:

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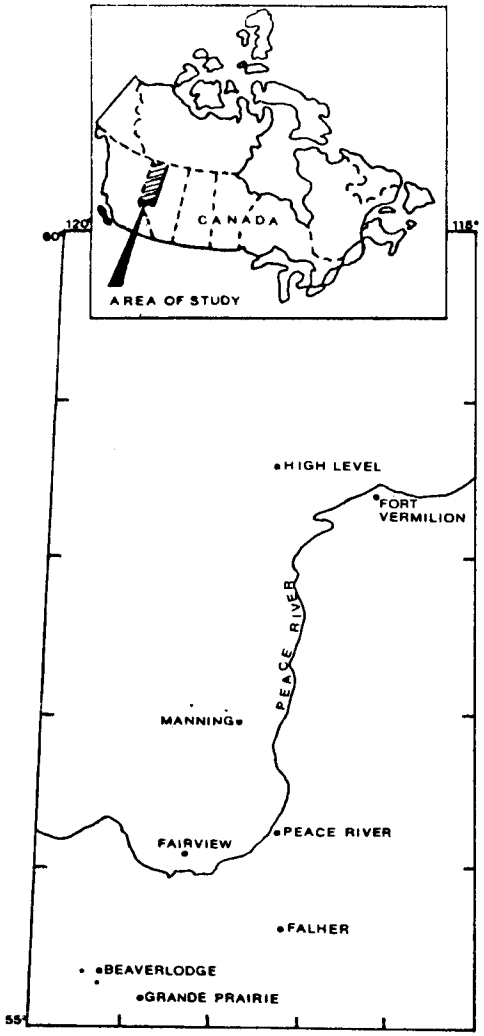
Cover Photo: Farm scene courtesy of the Alberta Photograph Library



ENVIRONMENTAL DATA FOR SELECTED SITES IN THE STUDY AREA

		Beaverlodge		Fairview		Fort Vermilion	
		1951-80	1988	1951-80	1988	1951-80	1988
Growing Degree Days Above 5°C	May - Aug	988.8	1038.8	1078.0	1116.9E	1110.3	1143.0
Total Hours	Annual	2125.5		2059.9		2106.9	
Bright Sun	May - Aug	1111.8	1044.8	1060.3	977.8	1134.9	776.7E
Total Precip. (mm)	Annual	467.0		446.6		382.5	
	May - Aug	235.2	239.6	236.8	412.3	201.7	419.5
Temperature (°C)							
Mean	Annual	1.6		1.3		-1.2	
	May - Aug	13.0	13.4	13.7	13.8	13.9	14.1
Mean Maximum	Annual	7.0		6.3		4.5	
	May - Aug	19.2	20.1	19.6	19.2	20.5	20.0
Mean Minimum	Annual	-3.7		-3.6		-6.9	
	May - Aug	6.7	6.8	7.8	8.4	7.4	8.6
Photoperiod -	June 22	17:25		17:38		18:18	
Last Spring Frost	(0°C)	May 24	May 15	May 19	May 4	May 28	May 10
First Fall Frost	(0°C)	Sep 7	Sep 10	Sep 16	Sep 17	Sep 3	Sep 10
Frost Free Period	(days)	105	117	119	135	97	122

E = Estimated Data

TABLE OF CONTENTS

REPLICATED TRIALS

Red Fescue

Test Site: Beaverlodge Research Station
Seeding Year: 1986

Cultivar	Origin	Hardiness	Height (cm)	Date Ripe 1987	Date Ripe 1988	Seed Yield kg/ha 1987	Seed Yield kg/ha 1988	% of Boreal 1987	% of Boreal 1988
Accent	(3) Netherlands	9.0	60	Jul 13	Jul 17	506	289	51	37
B 7733	(3) Canada	9.0	59	Jul 13	Jul 18	1019	866	102	112
Boreal *	(3) Canada	9.0	60	Jul 13	Jul 18	999	771	100	100
Ceres	(3) Netherlands	9.0	58	Jul 14	Jul 15	349	309	35	40
Claudia	(3) Netherlands	9.0	54	Jul 11	Jul 17	440	252	44	33
Logro	(4) Ireland	9.0	48	Jul 10	Jul 14	73	346	7	45
Szarvasi 58	(2) Hungary	9.0	63	Jul 13	Jul 18	540	666	54	86
Terhi	(3) Finland	9.0	64	Jul 13	Jul 18	765	806	77	105
Victor	(3) Netherlands	9.0	58	Jul 13	Jul 17	700	668	70	87
Mean						613.9	552.5		
L.S.D. (P = .05)						198.8	306.9		

(1) Rhizomes absent or rudimentary
(2) Slender rhizomes
(3) Strong rhizomes
(4) Unclassified

Red Fescue

Test Site: Beaverlodge B (Foster Farm)
Seeding Year: 1986

Cultivar	Origin	Hardiness	Height (cm)	Date Ripe 1987	Date Ripe 1988	Seed Yield kg/ha 1987	Seed Yield kg/ha 1988	% of Boreal 1987	% of Boreal 1988
Accent	(3) Netherlands	9.0	53	Jul 14	Jul 18	424	153	54	31
B 7733	(3) Canada	9.0	50	Jul 13	Jul 18	751	571	96	114
Boreal *	(3) Canada	9.0	51	Jul 13	Jul 20	781	499	100	100
Ceres	(3) Netherlands	9.0	50	Jul 15	Jul 18	194	100	25	20
Claudia	(3) Netherlands	9.0	48	Jul 12	Jul 18	289	135	37	27
Logro	(4) Ireland	9.0	40	Jul 10	Jul 14	64	188	8	38
Szarvasi 58	(2) Hungary	9.0	56	Jul 13	Jul 17	657	338	84	68
Terhi	(3) Finland	9.0	56	Jul 13	Jul 20	680	364	87	73
Victor	(3) Netherlands	9.0	53	Jul 13	Jul 18	493	334	63	67
Mean						493.2	297.9		
L.S.D. (P = .05)						214.6	228.8		

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Red Fescue

Test Site: Beaverlodge Research Station
Seeding Year: 1986

Cultivar	Origin	Herbage Yield (DM)					
		Cut 1		Cut 2		Total	
		(t/ha)	% of Boreal	(t/ha)	% of Boreal	(t/ha)	% of Boreal
Accent	(3) Netherlands	1.84	74	1.40	99	3.24	83
B 7733	(3) Canada	2.74	110	1.47	104	4.21	108
Boreal *	(3) Canada	2.49	100	1.42	100	3.91	100
Ceres	(3) Netherlands	1.44	58	0.85	60	2.29	59
Claudia	(3) Netherlands	1.88	76	1.34	94	3.22	82
Logro	(4) Ireland	1.44	58	0.71	50	2.15	55
Szarvasi 58	(2) Hungary	2.88	116	1.83	129	4.72	121
Terhi	(3) Finland	3.26	131	1.99	140	5.25	134
Victor	(3) Netherlands	2.45	98	1.07	75	3.52	90
Mean		2.27		1.34		3.61	
L.S.D. (P = .05)		0.68		0.53		1.01	

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Red Fescue

Test Site: Beaverlodge B (Foster Farm)
Seeding Year: 1986

Cultivar	Origin	Herbage Yield (DM)					
		Cut 1		Cut 2		Total	
		(t/ha)	% of Boreal	(t/ha)	% of Boreal	(t/ha)	% of Boreal
Accent	(3) Netherlands	1.05	93	2.09	107	3.15	102
B 7733	(3) Canada	1.73	153	2.19	112	3.92	127
Boreal *	(3) Canada	1.13	100	1.95	100	3.08	100
Ceres	(3) Netherlands	0.77	68	1.71	88	2.48	81
Claudia	(3) Netherlands	0.95	84	2.31	118	3.25	106
Logro	(4) Ireland	0.44	39	1.05	54	1.49	48
Szarvasi 58	(2) Hungary	1.86	165	2.22	114	4.08	132
Terhi	(3) Finland	1.52	135	2.55	131	4.07	132
Victor	(3) Netherlands	1.06	94	1.87	96	2.92	95
Mean		1.17		1.99		3.16	
L.S.D. (P = .05)		0.52		0.53		0.89	

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(4) Unclassified