PROJECT TITLE: 2001 Cereal forage species, variety and seeding rate studies.

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OBJECTIVES:
Determine the forage production potential of spring and winter cereal grain species and varieties under dryland conditions in central Montana. Determine the optimum spring cereal seeding rates for maximum forage production.

METHODS:
Entries are seeded in RCB arrangement in 4-5' x16' plots with 1' row spacing. Plots are typically harvested with a self-propelled 4'wide plot forage harvester equipped with scale. Fertilize at about 2/3 rate of N as would be used for grain production.

RESULTS:
Cereal forage yields were respectable considering the low precipitation levels received over the past year. Fall 2000 and early spring seeded crops on tilled soils experienced severe and multiple soil blasting and seedling burial. Therefore, the data presented here is not sufficient to make extensive inferences or comparisons amongst varieties or species.

Valier, awned feed barley, had the top forage yield in the preliminary cereal forage trial (Table 9). Haybet and Westford had inferior grain yields levels compared to other barley varieties in the preliminary cereal forage trial (Table 10). Yield results of several winter and spring cereal forage species are presented in tables 11 through 17. Spring seeded winter cereals produced inferior forage yields relative to Lewis barley seeded at the same time. However two facultative type triticale produced forage yields similar to the Lewis barley (Table 18). The optimum seeding rate for spring cereals for forage appears to be in the 17 to 21 seeds per square foot range. These are results from a single year with below average precipitation and extremely high evaporative demand. Therefore, avoid making extensive inferences from this data. Fall seeded winter cereals and spring seeded spring cereals had similar levels of forage production (see Table 20). Spelt produces a highly palatable hay, grain and straw. Twenty-two winter spelt lines have been evaluated for grain and forage production at various Montana Ag Research Centers. In the fall of 2000, two nurseries were seeded under tilled fallow in hopes of more accurately classifying the winter hardiness of these lines. The traditional winter- kill from freeze drying of the soil around the crown was not readily apparent. However, extensive plant kill occurred due to the spring soil blasting and burial. Presumably it was the winter weak that succumbed to extra stress. The winter spelt lines evaluated here are definitely inferior to Tiber HRWW.

FUTURE PLANS:
We will continue evaluating spring and winter cereal grain varieties and development lines for forage production potential. Cereal forages are becoming a mainstay in many forage production and livestock operations through out Montana. There are frequent inquiries for information on production methods and variety and species performance.

Table F 9 2001Preliminary spring cereal forage yield evaluation.
ExpSCFPYT Central Agricultural Research Center, Moccasin, Montana.

Variety	Species	1-Jul Stand	Plant Ht	Heading Date	27-Jul Harvest DM cntnt	27-Jul Harvest DM Yld
		%	"	d of y	%	t/a
Valier	barley	98	26	185	68.6	3.633
Haybet	barley	100	34	182	72.8	3.574
BZ598-227	barley	99	29	183	60.9	3.214
BZ598-230	barley	98	28	183	71.0	3.142
Lewis	barley	100	27	183	72.8	3.135
MT981061	barley	100	30	185	64.8	3.047
Bestford	barley	98	34	183	59.7	3.004
BZ598-257	barley	99	28	182	60.5	2.912
BZ598-254	barley	98	28	182	59.2	2.893
MT981063	barley	100	25	185	59.0	2.892
BZ598-241	barley	99	27	185	51.9	2.770
Westford	barley	98	27	183	57.7	2.682
Goosewheat	barley	99	33	181	65.5	2.475
Red1	triticale	98	35	178	52.0	3.297
Red2	triticale	98	36	178	49.4	2.811
Trical270	triticale	98	43	181	48.0	2.442
KoldingB	triticale	97	34	187	43.3	2.272
OVERALL MEAN		98.63	30.82	182.7	59.8	2.953
CV (S/MEAN) %		0.843		0.914		11.92
LSD(0.05 by)		0.383		2.778		0.5855

Seeded: 24-Apr-01 Emergence: May 4 one leaf.
Harvest: 2 dates 27-Jul
Fertilizer: 50 lbs 20-20-20 w/seed and 130 lbs urea fall applied (60lbs N/a).
data file: FBSCFPYT

Table F10 2001 Cereal forage preliminary barley variety grain yield evaluation.
Exp SCFPre Central Agricultural Research Center, Moccasin, MT

ID	Stand	Plant Height	Head Date	Grain Yield	Test ** Weight	Seed Size		
						Plump	Regular	Thin
	%	inches	days	bu/a	lbs/bu	%	%	%
MT981063	99.7	25.0	187.0	52.4	43.2	31.4	42.5	26.1
BZ598-254	98.3	27.0	181.7	50.9	38.1	52.8	33.5	13.8
MT981061	98.7	29.0	183.0	52.8	40.8	34.2	37.8	28.0
BZ598-227	99.3	28.0	189.0	57.1	42.4	65.3	26.0	8.7
Haybet	100.0	27.0	182.7	43.3	42.5	1.0	17.5	81.5
BZ598-241	98.7	23.0	185.0	48.8	43.1	62.1	29.3	8.6
Lewis	97.7	27.0	183.0	55.8	48.2	37.3	36.5	26.3
Westford	96.7	23.0	185.7	44.3	38.7	76.8	18.6	4.6
MT981060	99.3	25.0	185.3	57.5	42.8	15.2	38.0	46.8
BZ598-257	97.3	27.0	182.0	47.6	37.7	50.6	34.3	15.2
Bestford	97.0	31.0	184.3	51.0	-	55.6	30.3	14.1
BZ598-230	97.0	25.0	182.3	55.1	41.4	43.1	38.2	18.6
Average	98.3	26.4	184.3	51.4	41.7	43.8	31.9	24.3
CV (s/mean)'	0.8		1.0	9.4		28.6	20.0	28.4
LSD (0.05)	1.4		3.1	8.2		21.2	10.8	11.7

Seeded: 24-Apr-01 Seed Rate: 50 lbs/a Harvested: 30-Jul Previous Crop: Fallow
Emergence: 1 leaf 04-May Fertilizer: 50 lbs 20-20-20-10 w/seed, 67 lbs N fall 2000 topdress.
Pesticides: 1.5 pts Bronate 11-May. Precipitation: 729"
** Test weight: Some test weight data was lost due to electronic device would not record unusually low test wieghts and a mechanical test weight was not run prior to dumping samples.
Near duplicate nursery harvested for forage yield.

Table 11 2001 Spring cereal forage museum spring wheat varieties preliminary evaluation.
Exp SCFPre01 Central Agricultrual Research Center Moccasn Montana.

Variety	Entry	Stand	Plant Ht	Head Date	Anthesis Dry Mat.	Anthesis D.M. Yld	27-Jul Dry Mat.	27-Jul D.M. Yld	7DAH Harvest
	#	%	"	d of y	%	t/a	%	t/a	mn/d/yr
RedBobs	7	98	35.7	176	33.5	2.434	66.3	2.426	7/3/2001
Huston	2	98	31.7	184	37.3	2.455	54.3	2.078	7/10/2001
Fortuna	8	98	33.0	179	31.4	2.211	61.9	2.223	7/6/2001
PurpleStraw	6	97	28.0	191	37.1	2.099	47.3	1.716	7/17/2001
McNeal	9	97	29.0	180	34.7	2.47	57.1	2.183	7/10/2001
PacificBlueStem	1	99	35.3	187	38.4	3.109	54.1	2.472	7/13/2001
Defiance	4	97	35.0	182	37.2	2.329	58.6	2.206	7/10/2001
BlueChaff	5	99	28.3	191	44.9	2.774	48.3	1.877	7/17/2001
Supreme	3	98	35.7	176	28.2	2.063	62.6	2.025	7/3/2001
OVERALL MEAN =		97.78	32.41	182.9	35.86	2.438	56.72	2.134	
CV (S/MEAN) %		0.72	7.039	0	10.43	15.92		11.25	
LSD(0.05 by t)		1.224	3.948	0	6.475	0.672		0.4157	

Seeded: 24-Apr-01 Emergence: May 4 one leaf. Harvest: 7 DAH and July 27
Fertilizer: 50 lbs 20-20-20 w/seed and 130 lbs urea fall applied (60lbs N/a).
data file: fbscfmuz

Table F 12 2001 Spring cereal forage variety trial on tilled fallow.
Exp SCF0701 Central Agricultural Research Center, Moccasin, Montana.

Variety	Species	Trt	Stand	Plant HT	Heading Date	7 DAH DM cntnt	7 DAH DM Yld	15-Jul-01 DM cntnt	15-Jul-01 DM Yld	7 DAH Harvest
		#	%	"	d of y	%	t/a	%	t/a	d
Otana	oat	2	98	35	179	0.351	2.164	0.381	1.900	7/10/2001
Haybet	barley	12	99	28	180	0.336	2.838	0.467	2.831	7/6/2001
Washford	barley	1	98	27	184	0.403	3.315	0.401	2.380	7/13/2001
Pronghorn	triticale	6	98	39	170	0.218	1.640	0.449	2.462	6/27/2001
SK3P	spelt	7	98	43	181	0.417	2.761	0.423	2.253	7/10/2001
93ST59	SW/SP	14	98	39	177	0.292	2.276	0.438	2.000	7/3/2001
Westford	barley	11	97	31	184	0.356	2.855	0.357	2.092	7/13/2001
Logan	barley	13	98	30	178	0.278	2.731	0.393	2.497	7/3/2001
Triple Crown	oat	10	85	32	187	0.343	2.673	0.393	1.901	7/13/2001
Paul	oat	4	98	33	179	0.352	2.046	0.392	1.890	7/10/2001
Lewis	barley	8	99	30	187	0.431	3.720	0.465	2.561	7/13/2001
Lucile	emmer	3	99	35	181	0.396	2.939	0.401	2.392	7/10/2001
Goosewheat	barley	9	99	27	176	0.264	2.450	0.407	2.173	7/3/2001
MH981060	barley	5	100	25	189	0.509	2.860	0.443	2.637	7/16/2001
Means			97.5	32.43	180.8	0.353	2.662	0.415	2.284	
CV (s/mean) %			6.182		2.099	5.447	12.58	0	11.83	
LSD(0.05 by t)			10.12		6.371	0.0323	0.5622	0	0.5835	

Seeded: 24-Apr-01 one leaf 4 May. Fert: 50 lbs 20-20-20 w/seed and 130 lbs urea fall applied (60lbs N/a).

Table F 13 2001 Spring cereal forage variety trial on No-till Recrop SE4.
Exp SCF0701 Central Agricultural Research Center, Moccasin, Montana.

Variety	Species	Trt	STAND	Plant HT	Heading Date	7 DAH DM cntnt	7 DAH DM Yld	15-Jul-01 DM cntnt	15-Jul-01 DM Yld	7 DAH Harvest
		#	%	"	d of y	%	t/a	%	t/a	d
Otana	oat	2	98	29	180	36.9	1.782	49.6	1.752	07/10/01
Haybet	barley	12	98	22	180	27.0	1.526	50.4	1.738	07/06/01
Washford	barley	1	96	21	187	37.5	1.645	47.9	1.533	07/13/01
Pronghorn	triticale	6	96	36	171	23.5	1.216	46.5	1.676	06/27/01
SK3P	spelt	7	96	38	178	42.8	1.661	49.6	1.709	07/10/01
93ST59	SW/SP	14	97	31	177	28.4	1.378	48.7	1.598	07/03/01
Westford	barley	11	96	24	187	35.7	1.336	44.2	1.583	07/13/01
Logan	barley	13	97	24	174	28.3	1.439	49.6	1.703	07/03/01
TripleCrown	oat	10	96	26	188			43.4	1.492	07/16/01
Paul	oat	4	96	27	180	35.2	1.613	45.3	1.464	07/10/01
Lewis	barley	8	98	23	187	41.9	2.095	49.6	1.75	07/13/01
Lucile	emmer	3	97	31	185	44.2	1.858	47.5	1.654	07/13/01
GooseWheat	barley	9	98	21	176	24.2	1.148	46.9	1.564	07/03/01
MH981060	barley	5	98	19	189			48.2	1.825	07/16/01
Mean			97	26.6	181.4	33.8	1.558	47.7	1.646	
CV (s/mean) %			0.95		0.23	6.34	10.63		8.66	
LSD(0.05 by t)			1.548		0.6829	3.63	0.281		0.2384	

Seeded: 24-Apr-01 Fertilizer: 50 lbs 20-20-20 w/seed and 130 lbs urea fall applied (60lbs N/a).
data file: FBSCF701 July 15 harvest was with Almaco. Other dates were hand cut 36" of row.

Table F 14 2001 Uniform spring cereal forage variety/species trial dry matter yields.
Exp SCF2001 Central Agricultural Research Center, Moccasin, Montana.

Variety	species	Dickinson	Dry Matter MoccFallow	Matter MoccRCrop	Yield Bozeman	Kalispell	Average
		t/a	t/a	t/a	t/a	t/a	t/a
93-ST-5-9	spwhtxspelt	3.30	2.000	1.598	2.860	2.405	2.433
Goosewheat	barley	X	2.173	1.564	2.583	2.265	
Haybet	barley	3.10	2.831	1.738	3.457	2.202	2.666
Lewis	barley	3.20	2.561	1.75	3.227	2.122	2.572
Logan	barley	2.30	2.497	1.703	3.520	2.031	2.410
Lucille	emmer	3.50	2.392	1.654	2.943	2.031	2.504
MT 981060	barley	X	2.637	1.825	3.687	1.998	
Otana	oat	3.00	1.900	1.752	2.657	1.972	2.256
Paul	oat	3.20	1.890	1.464	2.497	1.947	2.200
Pronghorn	triticale	3.50	2.462	1.676	2.553	1.942	2.427
SK3P spelt	spelt	3.30	2.253	1.709	2.730	1.876	2.374
Triple Crown	oat	3.30	1.901	1.492	2.850	1.838	2.276
Washford	barley	2.60	2.380	1.533	3.040	1.789	2.268
Westford	barley	3.30	2.092	1.583	2.680	1.645	2.260
Conlon	barley	2.60					
Robust	barley	2.10					
Stander	barley	2.10					
Foster	barley	2.70					
Stark	barley	2.70					
Celsia	oat	3.00					
Forage Plus	oat	3.70					
Mammoth	oat	3.00					
Triple	oat+pea	3.00					
TrplCrwn/Crnval	oat+pea	2.90					
Triple Crwn/Trppr	oat+pea	2.90					
Sandro	triticale	4.10					
Gazelle	spr rye	3.70					
Trial Mean		3.0	2.284	1.646	2.950	1.645	
C.V. %		11.3	11.83	8.66	9.6	9.0	
LSD .05		0.5	0.5835	0.2384	0.47	0.259	
Seeded:			24-Apr	24-Apr	2-May		
Harvested:			15-Jul	15-Jul	12-Jul		

Table F15 2001 Winter cereal forage trial in SE4 fallow
ExpWCF Central Agricultural Research Center, Moccasin, Montana

	3-May Plt Count	Stand	Head Date	Anthesis Dry Mat	AnthesisYld Yield	13-Jul Dry Mat	13-Jul Yield	Anthesis Harvest D
	Pts/m	%	d of y	%	t/a	%	t/a	
FROSTAT	47	90	172	26.8	1.882	38.7	1.894	6/29/2001
A	37	92	171	28.6	2.082	34.0	1.843	6/29/2001
B	37	91	170	28.6	1.363	35.7	1.829	6/27/2001
KT940874	40	94	173	28.8	1.847	41.7	1.805	6/29/2001
RAH173-F	36	88	172	27.7	1.745	36.3	1.638	6/29/2001
KT98SRT3	36	94	173	29.0	2.532	41.0	1.701	7/3/2001
NORSTAR	43	83	176	30.5	1.942	34.0	1.414	7/3/2001
DERK	47	90	173	31.5	2.599	35.3	2.083	7/3/2001
S86-375	34	88	175	29.3	2.229	38.0	1.467	7/3/2001
SROB 632	38	82	177	30.8	2.529	52.3	1.606	7/6/2001
FRANK	37	75	185	41.7	2.823	28.7	1.38	7/10/2001
KT960033	39	86	175	34.1	2.772	49.0	1.772	7/3/2001
Mean	39.25	87.81	174.4	30.61	2.195	38.72	1.703	
CV (S/MEAN) %	0	8.209	0.5467	6.902	18.84	22.32	17.82	
LSD(0.05 by t)	0	12.21	1.615	3.578	0.7003	14.63	0.5138	

Table F16 2001 Winter cereal forage yield at maturity on fallow NW3.
WCF 01 Central Agricultural Research Center, Moccasin, Montana.

	3-May Plt count	STAND	Head Date		Dry Matter Basis Bndl27Jul	Grain27Jul
	plts/m	%	d of y		t/a	lbs/a
KT98SRT3	44.3	98.0	170		3.710	4004
Kolding B	35.7	97.7	167	facultative	3.416	3660
KT940874	33.0	97.7	166		3.190	3610
KT960033	38.0	98.3	168		3.146	3547
RAH173-F	36.7	98.0	166		3.241	3522
KoldingA	24.7	97.0	169	facultative	2.918	3421
TriCal 102	**38.0**	**97.7**	**169**		**3.142**	**3362**
FROSTAT	41.3	97.7	167		3.440	3277
NORSTAR	36.7	97.7	165	is June 14	3.367	3127
S86-375	43.0	98.3	167		2.798	2885
FRANK	30.0	95.3	169		2.519	2761
SROB 632	39.3	97.0	168		2.213	1657
Means	36.72	97.53	167.6		3.092	3236
CV (S/MEAN) %	14.48	1.323	1.225		11.91	12.9
LSD(0.05 by t)	9.001	2.184	3.475		0.6234	707.1

July 27, 2001 Bundles were weigh and threshed -so the grain yield comes from the bundles.
Data:FBWCFNW.DBF(DBF

Table F17 2001 Winter cereal forage harvest date x yield results from NW3.
Exp WCF01 Central Agricultural Research Center, Moccasin, Montana.

	15-May	15-May	1-Jun	1-Jun	15-Jun	15-Jun	Anth DM	AnthYld
	%	t/a	%	t/a	%	t/a	%	t/a
FROSTAT	19	0.338	30	1.24	24	2.084	27	2.467
KT98SRT3	19	0.3633	30	1.553	22	2.205	28	3.233
NORSTAR	23	0.209	32	1.087	26	1.579	28	2.900
SROB 632	20	0.3407	31	1.233	25	1.785	30	3.200
FRANK	22	0.1453	26	0.6433	24	1.267	33	3.667
Means	20.54	0.28	29.69	1.15	23.94	1.78	29.26	3.09
CV (S/MEAN)	3.173	12.270	6.384	21.750	3.104	15.370	7.417	24.570
LSD(0.05 by	1.23	0.06	3.57	0.47	1.40	0.52	4.09	1.43

Table F18 2001 Yield performance of spring seeded winter cereal forage nursery.
EXPWCFSS Central Agricultural Research Center, Moccasin, Montana.

ID	Variety	Trt	2-Jul Short Plts	2-Jul Tall Plts	8-Aug Plt Ht	2-Jul DM Yld	18-Aug DM Yld	Total DM Yld	first cut 2 dates
		#	"	"	"	t/a	t/a	t/a	t/a
T98	FROSTAT	1	8	22	6	0.330	0.047	0.571	0.601
KTA	"A" KOLDING KT982230	2	30	30	12	0.670	0.120	1.836	1.981
CFWPB	S86-375	9	8	7	11	0.444	0.060	0.504	0.484
KT30	KT940874-8002	4	6	24	8	0.314	0.056	0.371	0.386
T35	RAH173-F93	5	11	23	22	0.455	0.429	1.557	1.446
KT98-30	KT98SRT30	6	18	18	22	0.566	0.311	1.642	1.580
WW2	NORSTAR	7	5	5	6	0.242	0.038	0.322	0.269
TD01	DERK's Tri Cal	8	8	8	6	0.295	0.026	0.357	0.577
WCF4	SROB 632	10	10	10	4	0.381	0.000	0.561	0.644
WCF9a	Frank	11	8	8	6	0.225	0.038	0.342	0.514
98KT7	KT960033	12	5	20	20	0.250	0.225	0.536	0.502
Lewis	Lewis	13	32	32	4	2.059	0.000	2.059	2.000
KTB	"B" KOLDING "B" BULK	3	30	30	4	0.795	0.161	1.993	1.921
OVERALL MEA						0.559	0.1160	0.9731	0.9926
CV (S/MEAN)						56.51	160.60	24.26	24.81
LSD(0.05byt						0.6953	0.406	0.5143	0.415

Seeded: _ _-April-2001 July 2 cutting height was 2". Sickle hit numerous rocks and jammed.
August 18 cutting height was 3".
Selected short growing plants to hand cut at 1 " height on August 18.

Table F19 2001 Spring cereal forage seeding rate evaluations
Exp SCSR Central Agricultural Research Center, Moccasin, Montana.

Variety	Species	Seeding Rate	Seeding Rate	Plant Ht.	Heading Date	Dry Content	Matter Yield
		seeds/sqft	lbs/a	inches	d of y	%	t/a
Otana	Oat	17	49	30	181.0	29.2	1.588
Otana	Oat	21	60	32	180.0	29.0	2.017
Otana	Oat	14	40	32	180.7	21.4	1.462
Otana	Oat	28	80	32	180.0	23.6	1.804
					180.4		1.718
Haybet	Barley	17	51	28	182.3	28.5	1.953
Haybet	Barley	21	63	30	182.0	27.3	1.995
Haybet	Barley	14	42	31	182.0	23.0	1.544
Haybet	Barley	28	83	28	182.7	27.3	2.037
					182.3		1.882
Westford	Barley	17	67	27	183.0	23.5	1.482
Westford	Barley	14	55	25	183.0	23.2	1.248
Westford	Barley	28	110	24	183.0	25.9	1.677
Westford	Barley	21	83	27	183.0	26.1	1.647
					183.0		1.514
Sunland	Triticale	14	54	31	180.0	24.9	1.331
Sunland	Triticale	21	80	32	179.7	25.5	1.458
Sunland	Triticale	17	65	32	179.7	26.3	1.425
Sunland	Triticale	28	107	32	179.7	26.3	1.476
					179.8		1.423
91002005	Triticale	17	37	32	181.0	27.4	1.460
91002005	Triticale	14	31	30	181.0	27.6	1.410
91002005	Triticale	28	62	31	181.0	30.8	1.573
91002005	Triticale	21	46	31	181.0	27.7	1.420
					181.0		1.465
SK3P	Spelt	14	41	37	180.3	29.8	1.385
SK3P	Spelt	17	50	37	180.3		1.465
SK3P	Spelt	21	62	37	179.7	32.0	1.525
SK3P	Spelt	28	83	38	179.3	25.6	1.265
					179.9		1.410
Overall Mean				31.13	181.1	26.79	1.569
			reps				
Six entries combined:		14	18		181.2		1.397
Six entries combined:		17	18		181.2		1.562
Six entries combined:		21	18		180.9		1.677
Six entries combined:		28	18		180.9		1.639

Seeded: 24-Apr-01 Double disk on tilled fallow. Harvest: 6-Jul-01
Each species/variety was seeded in a single separate block.
Ferrtilizer: Fall brdcst 60 lbs N/a and 50 lbs 20-20-20 w/seed

Table F20 2001 Winter cereal forage versus spring cereal forage SE4.
Exp WvsS Central Agricultural Research Center, Moccasin, Montana.

Variety	Species	3-May Plants	June Stand	Plant Ht.	Head Date	Anthesis ANTHDM	Anthesis YLDANTH	13-Jul Dry Mat	13-Jul Dry Mat
		#	%	"	d of y	%	t/a	%	t/a
Norstar	w wheat	36.0	83.3	40	175	34.4	3.085	49.0	2.250
Kold B	w triticale	36.6	90	37	170	25.6	2.727	47.0	2.370
92 E 005	w triticale	45.6	91	37	169	29.9	2.051	48.0	2.413
Frank	w. spelt	18.0	40.6	36	186	37.6	2.293	50.0	1.903
Otana	oat	32.0	92.6	33	185	37.7	2.080	42.0	1.891
Haybbet	barley	18.0	86	30	187	40.8	3.087	45.0	2.188
Westford	barley	25.3	91.6	29	187	34.8	2.386	40.0	2.113
Spr . Exp	triticale	41.0	97.3	35	177	32.0	2.482	42.0	2.101
SK3P	spr spelt	37.0	93.3	41	182	41.6	2.084	47.0	2.076
Mean		32.19	85.11	35.33	179.8	34.94	2.475	45.56	2.145
CV (S/MEAN) %		25.57	11.77	0	0.2907	13.38	25.03	0	10.17
LSD(0.05 by t)		14.24	17.34	0	0.9047	8.093	1.072	0	0.503

Seeded: Fall: Spring: 24-Apr-01

Table F 21. 2001 Spelt winter survival nurseryin SE11.
Exp. SpeltWS Central Agricultural Research Center, Moccasin, MT

ID	Percent Stand	Plant Density	Plant Height	Heading Date	Forage Yield
	%	plt/3ft	inches	days	t/a
TIBER	**70**	**33**	30	**176**	1.04
MAVERICK	18	8	29	178	0.75
SAMMY	23	16	**28**	178	0.21
SAM-MY	5	**1**	30	181	0.31
COMET	35	6	30	177	0.58
SUNGOLD	53	13	32	181	0.82
TABASCO	38	12	31	181	0.36
1023-89-25	15	4	34	182	0.61
SAVA	**4**	4	34	179	0.33
SP949	45	23	30	**183**	1.02
NEW YORK	30	15	32	180	1.07
PI 508-B	23	12	30	181	0.63
BROWN SPELT	65	17	33	181	1.05
PI 320-6	65	14	32	178	**1.29**
PI 348-148	75	16	37	182	1.16
PI 348-159	75	32	34	**183**	1.05
PI 618 Braunschwe	85	21	34	182	1.28
Frank	**50**	**29**	**34**	**182**	**0.89**
BANGERTER	45	19	36	181	0.98
GR900	35	9	36	181	0.79
BATTING	32	12	**38**	181	**0.10**
ROQUIN	22	9	35	181	0.17
Average	41.1	14.6	32.4	180.2	0.8
CV (s/mean) %	61.9	58.4	10.5	1.0	44.9
LSD (cal by t)	ns	17.7	ns	3.8	0.6

Seeded: 10/4/2000
Fertilizer: 67 lbs N broadcast in fall of 2000; 50 lbs of 20-20-0 placed with the seed
Herbicide: Bronate at 1 1/2 pts/a on May 11, 2001
Growing season precipitation: 7.29 inches Crop year precipitation: 10.6 inches

Table 22 2001 Winter spelt variety grain and forage yield performance(NW3).
Exp. Wspelt Central Agricultural Research Center, Moccasin, Montana.

ID	Stand	Plant Density	Plant Height	Heading Date	Forage Yield	Grain Yield
	%	plt/3ft	inches	day	t/a	lbs/a
Tiber	96	33	31	**168**	3.5	2719
Maverick	94	20	35	**168**	3.74	3470
Sammy	82	19	33	169	3.45	3583
Sam (Sam-my)	91	**16**	36	173	3.25	3080
Comet	85	23	**28**	**168**	3.02	3237
Sungold	**78**	20	36	173	3.45	3576
Tabasco	90	**16**	37	173	2.87	2357
10238925	91	23	38	174	3.68	3463
Sava	83	18	33	173	3.52	**3632**
SP949	93	30	40	175	**3.99**	3375
PI508B	**97**	32	37	177	3.73	3262
Brown Spelt	93	26	38	174	2.88	2597
PI3206	95	32	40	177	3.65	3149
PI348148	95	21	40	176	3.22	2760
PI348159	**97**	**36**	41	177	3.75	3103
PI618Braunschwe	93	25	40	**180**	3.64	3148
SindelarLite	95	34	41	179	3.47	2765
Bangerter	87	22	42	179	3.81	3373
GR900	85	19	40	175	3.67	3454
Batting	90	18	**45**	175	2.74	**1992**
NewYork	**78**	19	42	178	**2.71**	2291
Rocquinn	91	28	40	176	2.78	2563
Average	90	24.2	37.8	174.4	3.4	3054
CV (s/mean) %	6	14.3	3.6	0.6	15.5	19.3
LSD (cal by t)	9	5.7	2.2	1.6	ns	968.8

Seeded: 4-Oct-00 on tilled fallow depth of 3/4 inch Harvest: 3-Aug-01
Fertilizer: 50 lbs of 20-20-20 w/ seed and 67 lbs of N broadcast fall 2000
Herbicide: Bronate 1.5pts/a 08-May-2001
Annual Precipitation: 10.6 inches