

Table 4. Characteristics of barley varieties reported in this publication

Variety	Year released	Agent or origin	2- or 6-rowed	Awn type	Maturity	Plant height	Straw strength	Leaf rust ²	Stem rust ²	Powdery mildew ²	Barley	Leaf blight ²	Loose smut ²	Covered smut ²	Ergot ²	Scald ²	Net blotch ²	Spot blotch ²
											yellow dwarf ²							
Belford	1943	Washington State University	6	hooded	medium	tall	Poor											
Bestford	2003	Western Plant Breeders	6	hooded	late	tall												
Bowman	1984	NDSU	2	S-awned	early	med-short	Medium		S				S				S-MS	MS-S
Chopper	1993	Wisconsin Ag Experiment Station																
Conlon	1996	NDSU	2	S-awned	early	med-short				R								
Dillon	2000	Westbred	6	hooded			Good									S	MS	MS
Drummond	2000	North Dakota State University	6	S-awned	early	med-short												
Harrington	1986	University of Sask	2	R-awned	very-late	medium	Med-Weak		S				S				MS	S
Haybet	1989	Montana Agricultural Experiment Station	2	hooded	early	medium	Poor											
Hays	2003	Montana Agricultural Experiment Station	2	hooded	medium	med-short									S			
Horsford	1880	F.H. Horsford, Charlotte, Vermont	6	hooded	medium								S	S	S			
Logan	1995	NDSU - ARS	2	S-awned	medium	medium	Good	S	S	R	S		S			S	MR	MR
Moravian 37	2000	Coors Brewing Company	2	R-awned	med-late	med-short			S				S			S	S	S
Rawson	2005	NDSU	2	R-awned	medium	medium	Medium		S				S				MS	MR
Robust	1983	Minnesota	6	awned	early	medium												
Stockford	2005	Westbred	2	hooded	medium	medium		-		-	S							
Valier	1999	Montana Agricultural Experiment Station	2	R-awned	medium	medium												
Washford	1997	Washington State University Agricultural Research Center/Idaho Agricultural Experiment Station	6	hooded	mid-late		Fair						S					
Westford	1988	Westbred	6	hooded	late	tall	Good	MR	S	MR	MR	MR			S			

¹ A slight level of ergot may be found in hooded barleys in some areas. This is caused by the inability of the plant to completely fertilize all florets. Any non-fertilized floret tends to stay open which allows fungus spores to enter the florets. S-awned = smooth awned. R-awned = rough awned

² Disease ratings: S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant.

Table 5. Characteristics of oat varieties report in this publication.

Variety	Year released	Agent or origin	Kernel color	Height	Straw strength ¹	Maturity	Stem rust ¹	Crown rust ¹	Barley yellow dwarf ²
AC Assiniboia	1995	Can. Proven Seed	Red	med	strong	late	S	R	T
AC Ronald	2001	Can. Proven Seed	White	m short	v strong	late	S	R	T
Derby	1988	University of Saskatchewan	White	m tall	weak	medium	S	S	
Ebeltoft	1999	NDSU	White	tall	strong	very late	S	MR/MS	S
Ensiler	1992	Wisconsin Ag Exp Station							MT
Everleaf 114	2005	Pulse, USA	Black	med	strong	medium+	R/MR	MS	T
Everleaf 126	2005	Pulse, USA	Black	med	strong	very late	MR/MS	MR	T
Forage Plus	2003	Wisconsin Ag Exp Station		tall	strong	late			
HiFi	2001	NDSU	White	tall	strong	late	MR/MS	R	T
Jerry	1994	NDSU	White	tall	strong	medium	S	MS	MT
Killdeer	2000	NDSU	White	med	strong	medium	S	MS	MT
Maverick	2002	Idaho & Montana Ag Exp Station	White	short					
Monico	2001	Idaho, Montana, and Colorado Ag Exp Sta.	White	tall		medium			
Morton	2001	NDSU	White	tall	v strong	late	S	R	MT
Otana	1977	Montana Ag Exp Station	White	m tall	m weak	late	S	S	T
Paul	1994	NDSU	Naked	v tall	strong	late	R	R/MR	T
Souris	2006	NDSU	White	med	strong	medium	MS	R	MS
Stark	2004	NDSU	Naked	tall	m strong	late	R	MR/MS	T
Whitestone	1994	NDSU	White	short	strong	late	S	MS	MT

¹ Straw strength: m weak = moderately weak, m strong = moderately strong, v strong = very strong

¹ Stem and crown rust ratings: S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant

² Barley yellow dwarf ratings: S = susceptible, MS = moderately susceptible, MT = moderately tolerant, T = tolerant

Table 6. Characteristics of selected cereals, triticale, emmer, and spelt reported in this publication.

Variety	Approval or release date	Agent or Origin	Awn-type	Leaf diseases ¹	WSMV ¹	Ergot risk	Height	Chaff	Maturity ²
Triticale									
Buxom	1995	Elliot Plant Breeding	Awned			Medium	tall		early
Lazer		Elliot Plant Breeding	Awned			High	tall		
Maxlee	2004	Elliot Plant Breeding	Awned						v late
Parade	2004	Elliot Plant Breeding	Awned						v late
Samberely	2004	Elliot Plant Breeding	Awned						v late
Standswell	1998	Elliot Plant Breeding	Awned			High	tall		medium
Red 1									
Trical 2700	1993	Resource Seeds	Awned				med-tall	white	medium
Emmer									
Lucile	1999	Montana State University	Awned	MR	S	Low	med-tall	white	late
Spelt									
SK3P	2005	Montana State University	Awnless	MR	S	Low	med-tall		late

¹ Disease ratings: S = susceptible, MR = moderately resistant.

² Maturity: v late = very late.

Table 7. Selected winter-type cereals; rye, spelt, triticale, and wheat; reported in this publication.

Variety	Release date	Origin or Agent	Awn-type	Leaf diseases	Stem strength	Height	Winter survival ¹	Maturity
Rye								
Muskateer	1980	Canada	Awned	NA	Medium	Tall	Excellent	Med-early
Rymin	1973	MN	Awned	NA	Strong	Tall	Excellent	Late
Spelt								
Frank	2000	MT	Awnless	NA	Medium	Tall	Fair	Late
Triticale								
Boreal	2000	Elliot Plant Breeding/Pulse USA	Awned		Strong	Tall	Good	
Frostat	1999	Elliot Plant Breeding/Legume Logic	Awnless		Strong	Tall	Fair	
Windrift	2000	Elliot Plant Breeding/Pulse USA	Awned		Strong	Tall	Good	
Wheat								
Elkhorn	1995	ND	Awned	MR	Medium	Medium	Excellent	Medium
Jerry	2001	ND	Awned	MR	Strong	Medium	Excellent	Medium

¹ Winter survival Poor - based on comparison within species Poor = below average, Fair = average, Good = better than average, Excellent = no or little winter-kill

Table 8. Warm-season forage varieties reported in this publication.

Variety	Year released	Origin or Agent	Maturity ¹	Height ²	Lodging
Japanese millet					
Common			medium	short-med	Good
Pearl millet					
Mil Hy 300			med-late	med-tall	Good
PP102M		Albertlea Seed House	med-late	med-tall	Good
Tifleaf 3		USDA-ARS GA	med-late	short	Good
Proso millet					
Cerise	1976	Nebraska Agricultural Experiment Station	v early	medium	fair
Foxtail millet					
Manta		South Dakota	early	medium	Good
Golden German			late	medium	Good
Sorghum-sudan					
Grazex II	1990	Sharp Bros. Seed Co./Buffalo Brand	med-late	Tall	Good
Highland Sweet		Croplan Genetics	med-late	Tall	Good
Nutri+ BMR		Production Plus + Seeds	med-late	Tall	Good
Sweetleaf II			med-late	Tall	Good
Sudan grass					
Piper	1951	Wisconsin Agriculture Experiment Station	med-late	Tall	Good

¹ Maturity: v early = very early, med-late = medium late.

² short-med = short to medium, med-tall = medium to tall.

Table 9. Characteristics of selected annual legumes reported in this publication.

Variety	Year released	Agent or origin	Growth habit	Flower	Cotyledon	Seed coat	Maturity	Vine length	Lodging	Powdery mildew ¹	Mycosph aerella blight ¹	Fusarium wilt ¹	Seed size	
Field Pea														
Forager	2003	Wyoming Agricultural Experiment Station/Nebraska Agricultural Experiment Station/Legume Logic	Indeterminate	Vine	Purple	Yellow	Green-brown	Early	Tall	Poor	MR	NA	NA	Medium
Journey	2002	ProGene LLC/Legume Logic	Indeterminate	Vine/full leaf	White	Green	Green	Late	Tall	Poor	MR	MR	NA	Medium
Arvika		Legume Logic	Indeterminate	Vine/full leaf	Purple	Yellow	Purple-brown	Late	Tall	Poor	MR	NA	NA	Small
Admiral	2002	DanESCO/Legume Logic	Determinate	Semi-leafless	White	Yellow	White	Early	Medium	Good	R	MS	MS	Medium
Kibir	2007	Elliot Plant Breeding/Legume Logic	Indeterminate	Vine/full leaf	Purple	Yellow	Purple-brown	Late	Tall	Poor	MR	NA	NA	Small
Sonata		Pulse USA									R			
Trapper		Canada	Indeterminate	Vine/full leaf	White	Yellow	White	Late	Tall	Poor	S	S	S	Small
Lentil														
Indianhead		Saskatchewan Agriculture and Food	Indeterminate	NA	Purple	Yellow	Black	Medium	Short	Fair				Small

¹ Disease ratings: S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant.

Table 10. Planting and harvest date/growth stage for annual forages.

Location	Year	----- Winter Cereals -----		----- Spring Cereals -----		- Annual legumes -		---- Warm-season cereals ----	
		Planting	Harvest	Planting	Harvest	Planting	Harvest	Planting	Harvest
Carrington	2004 ^a	19-Sep	Rye: flowering Triticale: flowering Wheat: flowering Spelt: milk	18-May	Oat: milk Barley, awned: 4 days post heading, awnless: soft dough Triticale: headed/flowering	-	-	4-Jun	Proso: heading Barley: soft dough Oat: milk Others: vegetative
	2004 ^b	-	-	18-May	Awned: 4 days post heading Awnless: soft dough	-	-	-	-
	2005 ^a	29-Sep	Rye: flowering Triticale: flowering Wheat: flowering Spelt: milk	17-May	Oat: milk Barley, awned: 4 days post heading, awnless: soft dough Triticale: flowering	-	-	2-Jun	Proso: heading Barley: soft dough Oat: milk Others: vegetative
	2005 ^b	-	-	29-Apr	Awned: 4 days post heading Awnless: soft dough	-	-	-	-
	2006 ^a	-	-	18-May	Oat: milk Barley, awned: 4 days post heading, awnless: soft dough	18-May	5-Jul	29-May	Proso, German & Foxtail: heading Others: vegetative
	2006 ^b	-	-	20-Apr	Awned: 4 days post heading Awnless: soft dough	-	-	-	-
Dickinson	2004 ^a	-	-	23-Apr	Soft dough	-	-	-	-
	2004 ^b	-	-	23-Apr	Soft dough	-	-	-	-
Hettinger	2004	-	-	5-Apr	14-Jul	-	-	-	-
	2005	-	-	4-Apr	11-Jul	-	-	-	-
	2006 ^a	29-Sep	26-Jun	17-Apr	26-Jun	-	-	-	-
	2006 ^b	-	-	11-May	3-Jul	-	-	-	-
Langdon	2005	-	-	16-May	late milk/ early dough	-	-	31-May	early heading/ headed
	2006	-	-	9-May	Oat: milk Barley: soft dough	-	-	31-May	early heading/ headed
Minot	2004	-	-	4-May	22-Jul	-	-	3-Jun	16-Sep
	2005	-	-	17-May	26-Jul	-	-	16-Jun	8-Sep
	2006	-	-	26-May	3-Aug	-	-	7-Jun	3-Aug
Williston	2004	-	-	10-May	Barley: 21-Jul Oat: 21-Jul & 27-Jul	-	-	-	-
	2005	-	-	23-May	Barley: 26-Jul Oat: 19-Jul	-	-	-	-
	2006	-	-	16-May	12-Jul	16-May	12-Jul	-	-

^{ab} Corresponds to trials summarized in annual forage tables.

Table 11. Cool-season spring-seeded cereal forage yields in tons per acre.

Variety	---- Carrington ----						Dickinson		----Hettinger----			Langdon		-----Minot-----			---- Williston ----			
	2004	2005		2006		2004	2005	2004	2005	2006	2005	2006	2004	2005	2006	2004	2005	2006		
Barley	a	b	a	b	a	b	a	b			a	b								
Bestford	-	4.1	-	3.4	-	2.6	1.1	-	2.1	2.4	2.0	-	-	-	-	-	-	-		
Bowman	-	-	-	3.3	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-		
Conlon	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-		
Drummond	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-		
Harrington	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-		
Haybet	3.5	3.6	2.9	3.0	3.0	2.6	1.4	1.3	-	3.7	2.3	-	2.1	4.3	3.2	3.6	2.6	3.1	2.7	1.6
Hays	3.8	3.6	3.0	3.6	3.9	2.5	1.2	1.2	-	-	-	1.4	2.2	5.0	2.8	4.3	-	3.3	3.0	1.7
Horsford	-	2.9	-	2.9	-	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
Logan	-	3.0	-	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Moravian 37	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Rawson	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	-	-	-	-
Robust	-	2.4	-	2.8	-	1.9	-	-	-	-	-	-	-	-	-	-	-	2.8	-	-
Stockford	-	-	-	-	-	-	-	-	4.0	2.3	-	-	-	-	-	-	-	-	-	-
Valler	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Westford	-	4.2	-	3.4	-	2.9	1.1	-	2.2	2.3	2.2	-	-	-	-	-	-	-	-	1.3
Oat																				
AC Assiniboia	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-
AC Ronald	-	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-
Ebeltoft	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-
Ensiler	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-
Everleaf 114	3.8	-	3.3	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Everleaf 126	4.3	-	3.6	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Forage Plus	4.3	-	3.8	-	-	-	-	1.3	-	-	-	-	3.0	-	2.5	4.5	-	3.2	2.7	-
HiFi	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-
Jerry	3.7	-	3.4	-	3.0	-	-	1.1	-	-	-	-	1.8	-	3.5	3.7	1.9	3.3	2.3	1.5
Killdeer	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-
Maverick	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Monico	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
Morton	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-
Otana	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Paul	4.0	-	3.6	-	3.5	-	1.5	1.2	-	-	-	-	4.4	-	-	2.2	-	-	-	1.3
Souris	-	-	-	-	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stark	-	-	4.1	-	3.4	-	-	1.3	-	-	-	-	4.6	-	-	2.5	-	-	-	1.3
Monida	-	-	-	-	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-
Triticale																				
Buxom	2.9	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lazer	2.7	-	1.9	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	0.34
Maxlee	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parade	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Red 1	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Trical 2700	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-
Samberely	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Standswell	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean	3.5	3.4	2.9	3.2	2.6	2.4	1.3	1.2	2.2	3.1	2.2	1.2	3.7	4.6	3.1	1.8	1.9	2.8	2.5	1.1
CV,%	6.9	12.4	11.4	6.1	11.8	10.3	15.5	18.0	11.8	13.8	7.8	21.0	14.9	9.9	23.2	25.3	25.3	8.0	13.7	16.3
LSD 0.05	0.3	0.6	0.5	0.3	0.4	0.3	0.3	0.3	NS	0.6	0.3	0.4	0.8	NS	NS	0.7	0.7	0.3	0.5	0.3

Table 12. Warm-season forage crop yield in tons per acre.

Variety	---Carrington---			Langdon		---Minot---	
	2004	2005	2006	2005	2006	2004	2006
Foxtail millet							
Manta	-	-	2.6	-	-	-	2.8
Golden German	-	-	3.7	-	-	-	2.4
Japanese millet							
Common Japanese	-	-	3.6	-	-	-	3.3
Pearl millet							
Mil-Hy 300	-	2.8	-	3.4	-	-	-
Common Pearl	2.4	-	-	-	-	-	1.6
Tifleaf	1.7	-	-	-	-	-	-
Proso millet							
Cerise	2.8	2.3	2.2	2.6	2.6	2.0	-
Common Red Proso	-	-	-	-	-	-	2.3
Sorghum-sudan							
Grazex II	-	-	3.9	-	4.1	-	2.5
Highland Sweet	-	3.4	-	4.4	-	2.5	-
Nutri+ BMR	-	3.3	4.4	3.6	-	-	2.4
NutriPlus	3.3	-	-	-	-	-	-
Sweetleaf II	-	3.9	-	-	-	-	-
Sudan grass							
Piper	4.4	4.1	3.9	4.4	3.5	2.3	2.6
Mean	5.6	3.0	3.1	3.7	3.1	2.1	2.2
CV,%	16.1	20.7	20.3	14.9	17.4	11.8	14.0
LSD 0.05	0.7	0.9	0.9	0.8	0.9	0.5	0.5

Table 13. Fall-seeded winter cereal forage yields in tons per acre.

Variety	2004	----- Carrington -----		2006	Hettinger
		2005	2005		2006
Triticale					
Boreal	-	-	3.5	1.9	-
Frostat	2.4	2.0	3.0	1.5	-
Windrift	-	-	3.2	1.9	-
Wheat					
Elkhorn	2.7	3.0	-	1.6	-
Jerry	-	-	-	1.7	-
Ransom	-	-	-	-	1.4
Willow Creek	-	-	-	-	1.7
Spelt					
Frank	3.6	3.0	-	2.6	-
Rye					
Muskateer	1.8	2.7	-	1.2	-
Rymin	-	-	-	1.3	-
Mean	2.6	2.7	2.5	1.8	1.2
CV,%	9.4	17.7	7.5	9.6	21.0
LSD 0.05	0.4	0.8	0.3	0.2	0.4

Table 14. Spring-seeded annual legume forage yield in tons per acre.

Variety	Carrington	Williston
	2006	2006
Pea		
Admiral	2.2	-
Arvika	1.9	0.8
Journey	1.7	-
Sonata	1.8	-
Lentil		
Indianhead	1.8	0.4
Mean	2.6	1.1
CV,%	11.8	16.3
LSD 0.05	0.4	0.3