Alfalfa Variety Selection

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Today, more than 230 named varieties of alfalfa are recognized throughout the United States and Canada. In addition, many 'brands' and 'blended' alfalfas are offered for sale to producers.

BRAND - a trademark used to identify the distributor of a particular product. A 'brand' is neither a variety designation nor a part of a variety name. The 'brand' name preceeds the variety name and may be applied to many different varieties or kinds of crops. A 'brand' may be a single variety, common alfalfa or a blend. Example: Prairie brand alfalfa-variety Dakota.

BLEND - a mixture of seed lots within or between varieties but is not the same as a variety. A 'blend' may consist of two seed lots of the same variety with different germination percentages mixed together or may be a mixture of varieties prepared for different geographic areas.

Only 33 alfalfa varieties were recognized prior to 1955. These varieties were developed primarily by public plant breeders located at state universities. Private plant breeders have become more actively involved in alfalfa breeding programs in recent years. During the late '50's private plant breeders developed approximately 20 percent of the available varieties. Presently, about 75 percent of the available varieties are being developed by private industry.

Early varietal development efforts were directed primarily towards incorporating winterhardiness and bacterial wilt resistance. Today, varieties are being developed which possess multiple pest resistance (resistance to various insects and diseases) by using a diversity of germplasm sources. In North Dakota, producers should give major consideration to winterhardiness and forage yield. Diseases and insects, although generally not a problem, may require attention in localized areas and under irrigation throughout the state.

Selected alfalfa varieties from North Dakota Agricultural Experiment Station forage yield tests are listed in Table 1. The varieties are ranked according to their winterhardiness, whether a hay or pasture type and bacterial wilt resistance. The variety developer and/or distributor of seed is also provided. Irrigated yields at Carrington are provided in Table 2.

Bacterial wilt is generally not a problem in North Dakota. It may be a problem on riverbottom areas or under irrigation where alfalfa has been grown previously. Since most varieties available are resistant to bacterial wilt, growers should select wilt-resistant varieties for use under both dryland and irrigation. Leaf spotting diseases appear more common than bacterial wilt. However, available varieties are only tolerant or possess moderate levels of resistance to these diseases. The varieties Ladak, Ramsey, Teton and Travois possess moderate to high resistance to common leaf spot. A severe infection of leaf spotting diseases may cause a premature leaf drop from the plant.

Phytophthora root rot resistant varieties are available for use under special soil-water conditions. The varieties Advantage, Agate, Apollo II, Armor, Arrow, Blazer, Challenger, Dart, Duke, G7730, Oneida, Phytor, Thunder, Trident, Wrangler and 120 posses high resistance to this disease. Root rot can be a problem on poorly drained or high water table soils. There is no advantage in growing a root rot resistant variety on well drained soils. All alfalfa varieties are killed easily by flooding or standing water.

Insect resistance has been incorporated into several alfalfa varieties. Resistance to the alfalfa weevil, a problem in localized areas of western North Dakota, has been incorporated into the variety Weevilchek. Varieties are not available with a high level of weevil resistance. In addition, many varieties possess resistance to feeding by aphids and leafhoppers. These insects are generally held in check by natural predators in North Dakota.

Winterhardiness varies among varieties. All alfalfa varieties will winterkill or sustain winter-injury regardless of winterhardiness level during cold, open winters, and if fall harvest management is not

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Table 1. Characteristics of Selected Alfalfa Varieties, Developer or Distributor and Average Relative Yield as a Percent of the Yield of the Variety Vernal Under Dryland Conditions at North Dakota Agricultural Experiment Stations (1959-1986).

Variety	Developer or Distributor	Bacterial Wilt Resistance[1]	Relative Yield - % of Vernal[2]					
			Dickinson	Fargo[3]	Hettinger	Minot	Streeter	Williston
VERY WINTERHARDY								
Drylander*	Agriculture Canada	R	98(3)	99(3)	125(3)	81(3)	102(4)	97(7)
Kane*	Agriculture Canada	R	118(6)	95(3)	96(3)	—	100(4)	—
Ladak	Intro. from India	MR	103(18)	99(51)	—	109(6)	—	96(10)
Maverick*	Sigco Research	R	—	101(6)	—	—	93(1)	—
Norseman	Barzen of Mpls. Inc.	R	102(12)	99(11)	107(3)	103(10)	94(4)	110(2)
Prowler*	Pride Seed Co.	R	—	—	118(3)	—	100(4)	—
Rambler*	Agriculture Canada	MR	104(3)	82(5)	—	—	—	86(2)
Ramsey	MN Ag. Exp. Stn. & USDA	R	97(6)	96(6)	96(3)	—	98(4)	84(3)
Rangelander*	Agriculture Canada	R	106(6)	—	104(3)	—	115(4)	—
Spredor 2*	Northrup King Co.	R	100(6)	93(3)	127(3)	—	101(4)	97(3)
Teton*	SD Ag. Exp. Stn.	MR	98(9)	87(10)	—	100(3)	—	84(5)
Travois*	SD Ag. Exp. Stn.	R	104(12)	90(25)	111(3)	96(6)	107(4)	—
WINTERHARDY								
Agate	MN Ag. Exp. Stn. & USDA	R	88(5)	92(6)	101(3)	—	101(4)	—
Baker	NB Ag. Exp. Stn. & USDA	R	98(6)	100(14)	100(3)	—	92(4)	99(2)
Blazer	Cenex-Land O'Lakes Seeds	R	—	98(9)	—	—	—	—
Iroquois	Cornell University	R	97(6)	103(11)	110(3)	96(6)	93(4)	91(3)
Ladak 65	MT Ag. Exp. Stn.	R	102(9)	99(5)	111(3)	98(12)	98(4)	101(2)
Nugget	Sigco Research	R	96(6)	97(8)	119(3)	101(10)	95(4)	92(3)
Oneida	Cornell University	R	—	101(6)	—	—	105(1)	—
Phytor	Northrup King Co.	R	—	102(3)	—	—	100(1)	—
Ranger	NB Ag. Exp. Stn. & USDA	R	97(15)	98(36)	101(3)	94(12)	90(4)	82(10)
Thunder	Sigco Research	R	—	102(3)	—	—	95(1)	—
Valor	Cenex-Land O'Lakes Seeds	R	—	101(9)	—	—	—	—
Vancor	Northrup King Co.	R	—	—	—	104(4)	—	—
Weevilchek	Cenex-Land O'Lakes Seeds	R	93(3)	96(8)	—	95(13)	94(1)	94(10)
120	DeKalb Pfizer Genetics	R	—	103(9)	—	98(4)	103(1)	—
524	Pioneer Hi-Bred Intl. Inc.	MH	100(6)	101(9)	107(3)	90(4)	104(4)	92(3)
526	Pioneer Hi-Bred Intl. Inc.	R	—	107(3)	—	—	—	—
545	Pioneer Hi-Bred Intl. Inc.	R	—	97(3)	—	—	—	—
629	Garst Seed Co.	R	—	108(3)	—	—	—	—
MOD. WINTERHARDY								
Advantage	DeKalb-Pfizer Genetics	R	—	101(6)	—	—	—	—
Apollo	Sigco Research	R	—	97(5)	—	—	—	90(3)
Armor	Sigco Research	R	—	97(3)	—	—	99(1)	—
Cimarron	Great Plains	R	—	112(3)	—	—	—	—
Classic	Cenex-Land O'Lakes Seeds	R	—	95(6)	—	100(4)	97(1)	83(3)
Defender	Northrup King Co.	R	—	—	—	80(4)	—	—
Drummor	Northrup King Co.	R	—	108(3)	—	—	—	—
Hi-Phy	Cenex-Land O'Lakes Seeds	R	—	95(6)	—	90(4)	—	73(3)
Marathon	Cargill Seeds	R	—	—	—	81(4)	—	—
Polar II	Pride Co., Inc.	R	—	101(3)	100(3)	—	102(4)	—
Preserve	Pride Seed Co.	R	—	106(3)	—	—	—	—
Primal	Pride Co., Inc.	R	—	97(3)	—	—	—	—
Saranac	Cornell University	R	99(3)	99(50)	—	104(3)	—	99(7)
Saranac AR	Cornell University	MR	—	99(9)	—	—	100(1)	—
Spectrum	Cenex-Land O'Lakes Seeds	R	—	—	—	98(4)	—	—
Thor	Northrup King Co.	R	98(9)	101(14)	104(3)	95(10)	93(4)	94(3)
Trident	PAG Seeds	R	—	94(3)	—	100(4)	—	—
Trumpetor	Northrup King Co.	MR	—	—	—	94(4)	—	—
130	DeKalb-Pfizer Genetics	R	—	96(6)	—	—	90(1)	—
532	Pioneer Hi-Bred Intl., Inc.	R	—	100(6)	96(3)	88(4)	92(4)	—
			Tons Dry Matter/Acre					
VERNAL (Winterhardy)	WI Agric. Exp. Stn.	R	2.01 (18)	4.25 (204)	1.92 (3)	3.04 (21)	3.70 (10)	1.40 (13)

* Pasture-type varieties.
[1]R = Resistance, MR = Moderate Resistance, S = Susceptible.
[2]( )number of station test years or observations.
[3]Average of first three production years only.

Table 2. Relative yield of alfalfa varieties as a percent (%) of the variety vernal when grown under irrigation at Carrington, ND (1977-86).

Variety and winterhardiness	Relative Yield % of Vernal[2]
VERY WINTERHARDY	
Drylander	98(3)
Ladak	95(6)
Spredor	91(3)
WINTERHARDY	
Baker	97(6)
Blazer	102(3)
Iroquois	100(6)
Nugget	100(3)
Oneida	101(3)
Polar II	99(3)
Ranger	93(3)
Valor	100(3)
Weevilchek	100(6)
120	104(3)
524	104(3)
526	104(3)
629	102(3)
MODERATELY WINTERHARDY	
Advantage	101(3)
Apollo	102(3)
Cimarron	102(3)
Drummor	101(3)
Saranac AR	102(3)
Shenandoah	102(3)
Thor	96(6)
532	103(3)
Vernal (winterhardy)	4.64 Tons D.M./Acre (18 test years)

[2]( )Number of station test years or observations.

timely to prevent regrowth or permit sufficient regrowth before the first killing frost in the fall. Old stands are more susceptible to winterkill and/or injury than young stands. In general, short term stands or those less than four years of age are less likely to sustain severe winterkill or injury. Under irrigation moderately winterhardy varieties decline in yield following the third harvest year. If winter injury is a problem, the winterhardy varieties may also be affected, but to a lesser degree.

VERY WINTERHARDY varieties are characterized by slow regrowth following cutting and early fall dormancy. The slower regrowth usually delays the second harvest. Early fall dormancy often reduces the third harvest forage yield, a characteristic common in pasture-type alfalfas. Very winterhardy alfalfas should not be grown under a three-cut harvest management system if high third-cut harvest yields are to be obtained. WINTERHARDY varieties are about average in regrowth following harvest, fall regrowth and fall dormancy. MODERATELY WINTERHARDY varieties recover more rapidly following cutting than the more winterhardy varieties, are usually one to several days earlier in maturity, possess a later fall dormancy and grow taller in the fall than the more winterhardy varieties. Moderately winterhardy varieties are often referred to as being of the Flemish type due to the origin in northern France. NON-HARDY varieties or non-dormant fall growth type alfalfas, should not be grown for hay or pasture in North Dakota. Principal use should be for plow-down during the year of seeding.

FORAGE YIELDS

The forage yield of more than 50 different alfalfa varieties is provided in Tables 1 and 2 for dryland and irrigation, respectively. The relative yield of individual varieties is listed as a percent (%) of the forage yield of the variety Vernal. Forage yield in tons of dry matter per acre for the variety Vernal is provided at the bottom of each table. The number of station test years is shown in parenthesis () in the average column. Relative yield of varieties with three or more test years should provide a good indication of that variety's potential to produce in relation to the variety Vernal. Varieties with relative yields of 100 are equal to Vernal in forage yield. For example, the variety Ladak has averaged 99 percent of the yield of Vernal over a period of 51 station test years at the Fargo Agricultural Experiment Station. GROW THE VARIETY VERNAL OR SELECT VARIETIES FOR USE THAT POSSESS RELATIVE YIELDS EQUAL TO OR HIGHER THAN THE VARIETY VERNAL.

New varieties of alfalfa are being released annually. Variety developers often include new varieties in yield tests conducted by North Dakota Agricultural Experiment Stations. In addition, experimental lines intended for future releases are included. Table 3

Table 3. Recent alfalfa variety additions to North Dakota variety yield trials.

Variety	Developer or Distributor	Bacterial Wilt Resist.
WINTERHARDY		
Algonquin	Agriculture Canada	R
Arrow	Sigco Research	R
Elevation	Jacques Seed Co.	R
Endure	PAG Seeds	R
Heinrichs	Agriculture Canada	R
Mohawk	Cornell University	R
Sparta	Cenex-Land O'Lakes Seeds	R
MOD. WINTERHARDY		
Apica	Agriculture Canada	R
Challenger	Cargill Seeds	R
Decathlon	Cargill Seeds	R
DS-305	Dairyland Research	R

provides a listing of several varieties recently established in North Dakota variety yield trials. Consult the most recent North Dakota Crop Production Guide or contact your County Extension Agent for available yield data.

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