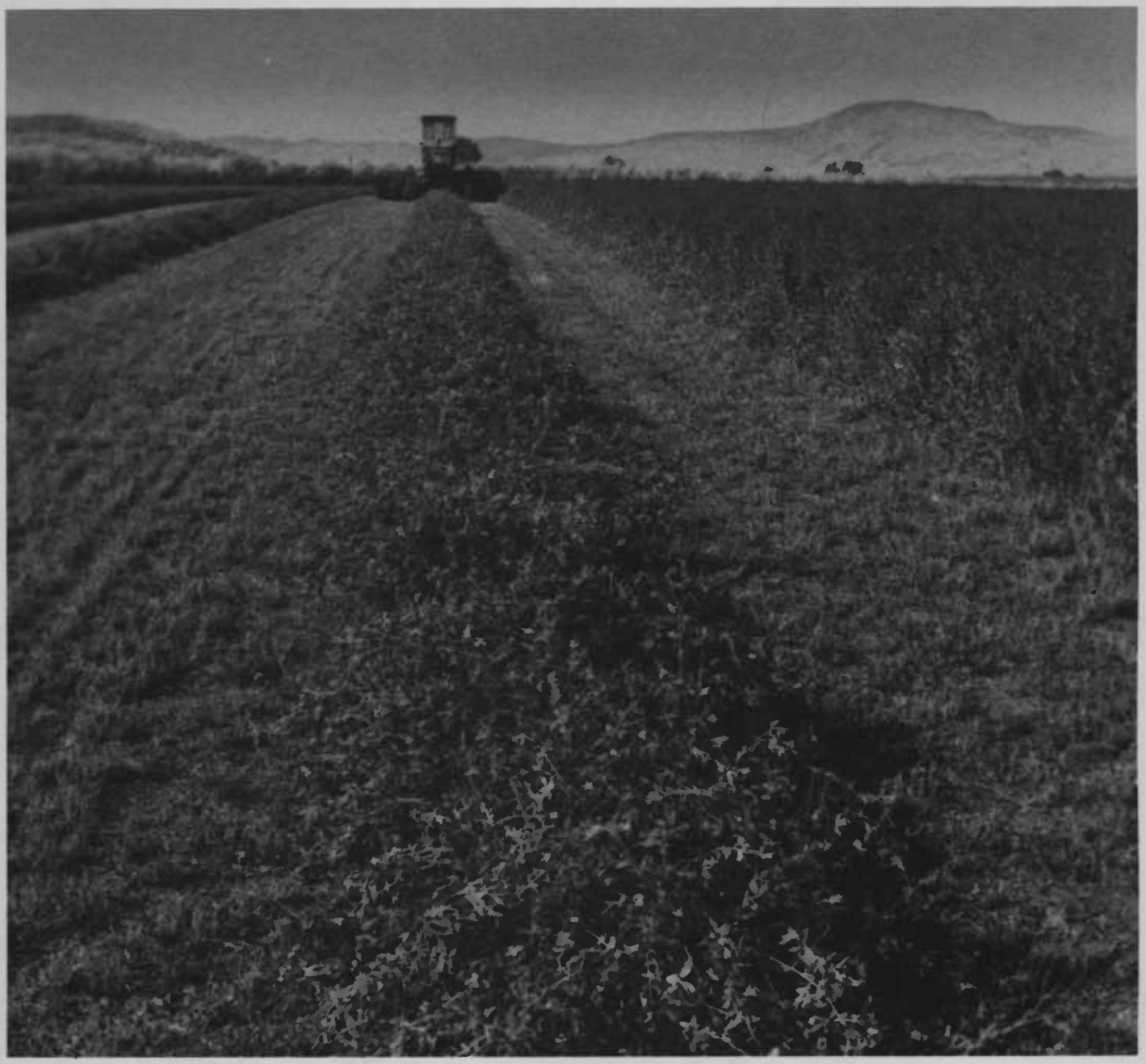
Selecting Alfalfa Varieties for the Pacific Northwest



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Many alfalfa *(Medicago sativa,* L.) varieties are available from private and public plant breeders. The number on the market makes it impossible to test all varieties in all years. Yield trials are conducted annually at widely distributed Pacific Northwest locations to assure timely, unbiased information on adapted alfalfa varieties.

Currently, trials are being conducted at several locations in Oregon, Washington, and Idaho as cooperative efforts between the university Extension Services and their associated Agricultural Experiment Stations.

The proper selection of alfalfa varieties for new alfalfa hay plantings is important as establishment costs increase. Variety selection involves choosing a variety that is well suited to the soil, climatic conditions, and the area of the Pacific Northwest in which it will be planted.

Although variety selection can deal with some adverse conditions, do not look at this as a way of avoiding the basic requirements for alfalfa: a deep, well-drained soil with near-neutral pH, supplied with moderate levels of phosphorus, potassium, sulfur, and the minor essential elements. Adequate nitrogen is supplied by well-nodulated plants.

If wet or acid soil conditions predominate, consider other crops such as birdsfoot trefoil, big trefoil, or a grass-legume pasture.

The sections that follow discuss these selection criteria: use of certified seed, winter hardiness, disease resistance, insect resistance, nematode resistance, and yield potential.

Use of certified seed

Certified blue tag seed assures you that you are obtaining varietal purity and high quality seed. All certified seed must pass requirements for field history and previous cropping, have field inspections at the seedling and blossom stage, and conform to isolation requirements to reduce cross pollination from other varieties.

In addition, seed must pass tests for mechanical purity and germination and meet requirements for freedom from other crops, weed seeds, and inert material.

Winter hardiness

Alfalfa varieties are divided into six winter hardiness groupings: very winter hardy, winter hardy, moderately winter hardy, moderately non-winter hardy, non-winter hardy, and very non-winter hardy (table 1). Of these six classifications, the hardy and moderately hardy groupings are used most often in the Pacific Northwest.

Winter hardiness classifications are made by measuring plant regrowth 3 weeks after the final harvest in late summer or fall, or in early spring when varieties are beginning to show growth. The more dormant varieties are slower starting in the spring and have slower regrowth after cutting.

For these reasons, winter hardiness classification is extremely important in placing a ceiling on expected yields. Additional winter hardiness (above that needed to survive winter temperatures) will reduce potential yields. Conversely, inadequate hardiness will result in frost injury and poor winter survival.

Disease resistance

The most economical control measure for alfalfa diseases is the use of resistant varieties. Resistance levels of alfalfa varieties are listed in table 1. Several diseases affect alfalfa grown in the northwest. Those of primary importance are:

Bacterial wilt *(Corynebacterium insidiosum,* [McCull.] H. L. Jens.)
Fusarium wilt *(Fusarium oxysporum,* Schlecht, F. medicaginis [Weimer], Snyd, and Hans.)
Verticillium wilt *(Verticillium albo-atrum,* Reinke and Berth)
Phytophthora root rot *(Phytophthora megasperma,* Drechs.)

Bacterial wilt can be a problem in all parts of the Pacific Northwest where resistant varieties are not planted. Even when resistant lines are used, some plants may develop the disease, depending upon the level of disease resistance in that variety. You can often recognize bacterial wilt by a yellowish-brown discoloration of the woody cylinder of the tap root. Plants become stunted, and many yellow shoots have small cupped leaves.

Fusarium wilt (crown rot) is also a potential problem in the Pacific Northwest. You can recognize this wilt by brown to red streaks in the woody cylinder of the tap root.

Verticillium wilt is a relatively new fungus disease problem in U.S. alfalfa. It was first discovered in the Northwest in 1976. It has since been confirmed in the Columbia River Basin areas of both Washington and Oregon, and the Snake River Valley of Oregon and Idaho. It has also been reported several times in other parts of the Pacific Northwest and in Canada, New York, Minnesota, Pennsylvania, Wyoming, and Wisconsin.

Verticillium wilt is favored by the cool and humid conditions created by sprinkler irrigation. Symptoms begin as temporary wilting of upper leaves on warm days at the floral stage and progress to yellow blotchiness or yellow V-shaped segments of leaflets. Yellow to brown discoloration is usually present in the woody cylinder of the tap root.

Only a few varieties are now resistant to this disease, but rapid progress is being made in breeding varieties for resistance.

Phytophthora root rot is a water-mold (fungus) disease of alfalfa first found in irrigated fields in California in 1952. It is a serious disease in low, wet areas in many parts of the U.S. It is associated with poorly drained or heavily irrigated soils, and/or periods of excessive rainfall. Phytophthora causes yellowish to brown areas on the roots that turn into black rotted areas of the root and crown.

Select a variety that has the best resistance to the disease(s) for your soil moisture and management conditions.

For further information, consult the *Pacific Northwest Disease Control Handbook* (see "For further reading," page 3).

Insect resistance

Insect resistance ratings are listed in table 1. The major insects affecting alfalfa grown for hay in the Pacific Northwest, for which resistant varieties are available, are:

Alfalfa weevil *(Hypera postica)*
Pea aphid *(Acrythosiphon pisum)*
Spotted alfalfa aphid *(Therioaphis maculata)*
Blue alfalfa aphid *(Acynthosiphon kondoi)*

Alfalfa weevil. Alfalfa weevil is the most important insect pest of alfalfa in the U.S. Damage is done by the larvae, first in the growing tips and then on the foliage. You can avoid economic-injury levels of the insect by early cutting in some areas, but you will have to use resistant varieties in other areas.

Pea aphid. Very large populations of the bright green pea aphid may build up in cool wet seasons. Damage is caused by insects sucking plant juices, which results in plant wilt.

Spotted alfalfa aphid. Rows of dark spots on the back of light yellowish-green aphids distinguish this pest. Hot, dry conditions favor the development of this aphid in contrast to the pea aphid. Severe stunting and yellowing of plants occurs in established stands. Seedling stands may be killed.

The **blue alfalfa aphid** has been present in economic-injury levels on occasion in various regions of the Pacific Northwest, but it is not normally a problem to alfalfa production.

For further information, consult the *Pacific Northwest Insect Control Handbook* (see "For further reading," righthand column).

Nematode resistance

Nematode resistance ratings are listed in table 1. The major nematodes affecting alfalfa grown in the Pacific Northwest are:

Alfalfa stem nematode *(Ditylenchus dipsaci* [Kuhn] Filipjev)
Root knot nematode *(Meloidogyne hapla,* Chitwood)

Alfalfa stem nematode. This is the most serious nematode on alfalfa. It is most frequently a serious pest in heavy soils and in areas of high spring rainfall. Sprinkler irrigation often produces conditions that favor infection. Stem nematodes are carried in water, so areas that reuse irrigation water often have widespread occurrence and continued reinfestation with this pest.

Plants infected with the alfalfa stem nematode have dead or distorted shoots and buds and living shoots that are swollen with shortened internodes. The nematode invades and kills stem buds, stunts growth, destroys the crown, and eventually kills the plant. Cool temperatures and high moisture conditions increase the activity of the nematode. Thus, most severe yield losses occur in first cuttings.

Several alfalfa varieties have been developed that are resistant to stem nematode. Rotation out of alfalfa for 3 years with nonhost crops gives good control, if irrigation water is not a serious source of infestation.

Root-knot nematode. Northern root-knot nematodes are found in several areas of the Pacific Northwest including the Willamette Valley, the Hermiston area, the Snake River Valley, and the Lakeview area in Oregon. Occasionally, significant losses during stand establishment of susceptible varieties may occur in these areas.

Nematodes feed and reproduce in the roots of alfalfa and cause small galls that resemble nodules. Heavy infections can cause severe seedling-stage stand reduction.

Resistance in available varieties ranges from 0 to approximately 50%. Several experimental lines have been reported to possess 75 to 100% resistance.

Yield potential

The most important selection criterion is yield potential in a particular area. Yield potential reflects breeding background and winter hardiness as well as disease, insect, and nematode resistance of alfalfa varieties.

Consider yield potential also on the basis of the length of rotation you desire. Short rotations may be best suited to fast-growing types; longer rotations may be better suited to somewhat slower establishment types with longer stand life.

Total or average yield over the length of the variety trials is thus a better predictor of variety suitability than data from 1 or 2 years.

Experiment Station and Extension Service staffs conduct alfalfa variety trials in a majority of the distinct climatic growing regions of the Pacific Northwest.

Data from these trials are available from Extension county agents, branch Experiment Station personnel, or state Extension forage specialists. Although results of field tests are continually updated, the proliferation of new varieties often means that you'll have to make your decision without data for your own area.

In such cases, determine the varietal suitability based upon winter hardiness; disease, insect, and nematode resistance; and variety trials that are available from other areas.

For further reading

Capizzi, Joe, and Glenn Fisher, eds., *Pacific Northwest Insect Control Handbook,* Pacific Northwest Extension Publication (Oregon State University, Corvallis, 1984). Revised annually; $15.00 a copy plus postage from Bulletin Mailing Office, Oregon State University, Corvallis, OR 97331, *or* Bulletin Dept., Cooperative Extension Service, Cooper Publications Bldg., Washington State University, Pullman, WA 99164-5912.

MacSwan, Iain C., and Paul A. Koepsell, eds., *Pacific Northwest Plant Disease Control Handbook,* Pacific Northwest Extension Publication (Oregon State University, Corvallis, 1984). Revised annually; $15.00 a copy plus postage from either of the two addresses in the preceding entry.

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest*[a]

				Diseases									Insects				Nematodes	
Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
A-3	Embro			R			MR											
A-24[b]	Embro	1967	MH	S			S		LR	R	R	S						
A-38	Embro																	
A-54	Embro	1979	H	MR	MR		LR	R						R	MR			
A-57	Embro	1973	MH	LR			LR									LR		
A-59	Embro	1966	MH	MR	R		S		MR	LR	S							
A77	Weathermaster		H	MR														
Abunda Verde[b]	NK		NH		R		LR							R	R		LR	MR
Advantage	DeKalb/Pfizer	1981	MH		MR									MR	S			LR
Action[b, d]	Union		H															
African	AES	1945	NH	S											S			S
Agate	MN AES/USDA	1972	H	HR	HR		R	LR	LR	R	LR			LR	S		S	LR
Alfa I	NC + Calif.		MH	R	MR		R	R		LR		MR		HR	R			MR
Alfa II	Sweden	1966		S														
Algonquin	Canada	1973	H	HR	R		S											
Amador	NK	1976	MNH	S	R		R	S		MR		MR	S	S	MR		S	MR
Americana	Teweles	1973	MH	LR			S	S		LR			LR			LR		
Amstar (7905)	Cenex	1985	H	R	MR		S	MR								MR		
Anchor	NAPB	1971	H	R	MR	S	S	S	LR	MR	S	R		R	S		S	MR
Angus	Ag Canada	1974	MH	R				LR										
Anik	Canada	1975	VH	S														
Answer	NAPB	1978	MH	R	MR	S	HR	MR							S			
Apalachee	NC AES/USDA	1971	MH	S		S		LR	MR	LR	R		S			R	S	R
Apex[b]	NAPB	1965	MH	S		S	S		S	MR				R	S			
Apica (Canada 82)																		
Apollo[b]	NAPB	1975	MH	R	R	S	R	LR	LR	MR	LR	LR		LR	LR	R	LR	S
Apollo II	NAPB	1981	MH	R	R	MR	HR	LR	LR		MR	LR			MR			MR
Aquarius	Cal/West	1978	MH	HR	R	S	S	HR										
Arc	AES/USDA	1973	MH	MR	R		S	HR					MR	R			LR	LR
Ardiente	Ferry Morse	1975	NH	MR	R		LR	LR		MR		MR		LR	R		LR	S
Armor	NAPB	1981	MH	R	R		R	MR										
Arnim	Arnold Thomas	1965	H	S														
AS-13[b]	Ferry Morse	1969	NH															
AS-13R[b]	Ferry Morse	1975	NH	LR			R			LR		LR		LR	LR		LR	MR
AS-49[b]	Ferry Morse	1975	MH	MR		S	R	S		MR		MR		S	LR		S	R
AS-49R	Ferry Morse	1976	MH	MR	R	S	MR	LR		MR		LR		MR	R	S	LR	R
AS-60F[b]	Ferry Morse		H	R			LR	LR		MR		LR		LR	LR			LR
AS-63[b]	Ferry Morse		MH	R														
AS-67	Ferry Morse	1979	H	R	MR	LR	LR	MR	MR	MR		MR		MR	MR		MR	MR
AT-530	Arnold Thomas			MR							MR	MR		MR	MR			
Atlantic	NJ AES	1957		S	S													
Atlas	NAPB	1976	MH	R	R	S	S	R									S	MR
Atra-55	Arnold Thomas	1968	MH	R										S	S			
Aztec	Asgrow		MH	R										R	R			
Aztec II	Asgrow	1974	MH	R				LR						R	R			
Baker	NE AES/USDA	1976	H	R	R		S	LR		MR		LR	LR	R	R	R		
Baltic	Germany	1906																
Baltic, M	CO AES	1945																
Baron	NAPB	1982	MNH	MR	R		R	MR						HR	HR			
Beaver	Canada	1961	H	R														
Beltsville 72[c]	USDA/ARS	1972	MH	R				R										R
Big 10	Great Lakes	1983	H	HR	HR	S	R	MR		MR	MR				LR			
Blazer	Land O'Lakes	1978	H	HR	R		MR	LR	MR	MR				R	S	MR	S	R
Bonanza[b]	FFR	1966																
Bonus[b]	Cal/West	1971	MH	MR			S		MR	LR	LR			S	S		LR	LR
Buffalo	KS AES/USDA	1943	H	R														
CA7931-32 (WL 320)	WL, Inc.	1983	MH	R	R	MR	R	MR						MR	R	LR		MR
CA Com.-49	CA AES	1949	NH															
Caliente	Ferry Morse	1969	NH															

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

				Diseases									Insects				Nematodes	
Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
Caliverde	CA AES	1951	NH	R						R		R			S			
Cali-verde-65	CA AES	1965	NH	R														MR
Cardinal	NK	1963	MH	S						LR				R				
Cascade[b]	Cenex		MH	R	MR	S	MR	R						MR	R			
Cayuga	NY AES	1962	H	R			S	S	LR	R	S						S	LR
Challenger	Cargill Seeds	1983	MH	R	MR		R	R										
Cherokee	NC AES/USDA	1962	MH	LR			S	LR	S	S	LR					LR		
Chi-lean 21-5	AZ AES		NH															
Chimo	Teweles	1972	MH	R			S											
Chippewa	Jungs		MH	MR			MR	MR										
Cibola	UC AES	1982	MNH	S	HR		MR							R	HR		R	
Cimmarron	Great Plains		MH	R	HR		MR	HR		MR			R	R	R			
Citation	NAPB	1974	MH	R	MR	S	S	S		MR	LR			R	S		LR	LR
Classic	Cenex	1978	MH	R	R	S	LR	LR		MR					S	MR		
Cody	KS AES/USDA	1959	MH	R										R				
Condura 73	Continental			R			R	S		LR		LR		LR	R			R
Condura 74	Continental		MH	R	MR		R	R		LR		MR		R	R			MR
Conquest	Pioneer	1976	MH	MR			S	S							R			
Converde 95				S			S	S		S		R		R	R		LR	S
Corona	AK AES		MH	MR			MR	LR							MR			
Cossack	USDA (Russ.)	1907	VH	S														
Crecy			MNH	S														
CUF 101	CA AES	1976	NH	S	HR		MR			S		LR		HR	HR		S	S
Culver	IN/AIC	1959		R									LR		MR			
CV-55			H	R														
C/W 8	Cal/West	1978																
C/W 61[b]	Cal/West	1980	MH	R			LR	MR										
C/W 69[b]	Cal/West	1980	MH	R	R		LR	MR										
C/W 141	Cal/West	1983																
C/W 940 (Turbo)	Cal/West	1983	MH	R	R		R	MR							LR			
C/W-8015 (135)	Cal/West	1981	MH	R		MR	MR	MR							MR			
D-800	Dairyland		MH	MR													S	MR
Dawson[b]	NE AES/USDA	1966	H	R	R		S		LR	LR	S	S		R	R		S	LR
Decathlon	Cargill Seeds	1982	MH	HR	R	LR	MR	LR						R	R			R
Defender	NK	1980					MR							MR	LR			MR
Delta	MS AES/USDA	1966	MH															
Deseret	UT AES/USDA	1974	MH	R								R		S	S	R	S	R
Discovery	Americana		MH	MR														
Dominor	NK	1969	MH	MR			S	LR	S	LR	LR							
Dona Ana	NM AES	1983	MNH	MR	MR		HR	S						R	MR			
Drummor	NK	1983	MH	R	MR	S	R	MR		MR		MR	S		HR			MR
Drylander	Ag Canada	1971	VH	R														
DS 7801	Dairyland		MH	R			LR	LR										
Duke	NAPB	1981	H	R	MR		R	MR										

[a] This table of alfalfa characteristics represents all information currently available through company representatives, as well as from county, state, Extension, and research staffs. A **boldfaced** entry in the "Variety" column indicates a variety currently being used or recommended for use in the Pacific Northwest.

[b] These varieties have been discontinued.
[c] Experimental varieties, not available for commercial use.
[d] Blends.

Index of letter codes in the table

AN	Anthracnose
AW	Alfalfa weevil
BW	Bacterial wilt
CLS	Common leaf spot
DM	Downy mildew
FW	Fusarium wilt
H	Winter hardy
HR	Highly resistant to disease and insects (51% +)
LH	Leaf hopper
LLS	Lepto leaf spot
LR	Low resistance to disease and insects (6-14%)
MH	Moderately winter hardy
MNH	Moderately non-winter hardy
MR	Moderately resistant to disease and insects (15-30%)
NH	Non-winter hardy
PA	Pea aphid
PRR	Phytophthera root rot
R	Resistant to disease and insects (31-50%)
RKN	Root knot nematode
S	Susceptible to disease and insects (0-5%)
SAA	Spotted alfalfa aphid
SBS	Spring black stem
SN	Stem nematode
VH	Very winter hardy
VW	Verticillium wilt
WH	Winter hardiness

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

Variety	Brand	Year	WH	Diseases									Insects				Nematodes	
				BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
Duo-Alf			MH	R			S											
DuPuits[b]	NK	1940	MH	S		S	S	S					S	MR	S			MR
Eagle	O's Gold	1983	MH	HR	R	MR	MR	R						R	R			R
Endure	PAG Seeds	1983	H	R	R	R	R	MR							LR			
Epic	L. Peterson, Ltd.	1980	MH	HR	R		R	LR	MR	MR				R	LR	MR		R
Europa	Wallcott	1964		S														
Excalibur	Cal/West	1983	MH	R	HR	R	LR	MR		R	R				LR			
Expo	NAPB	1981	MH	R	MR		R	MR						MR	R			
El Unico	AZ AES	1967	NH															
Fame (Voris A-77)	NAPB																	
FD-100	Wallcott			S								R						
Ferax	U. Alberta	1941	VH	S														
Flamande				S														
Flandria				S														
Florida 66	FL AES	1967	NH															
Florida 77	FL AES	1979	NH		HR		LR	LR							HR			
Franck's	Langmeiler		MH	MR			S	S	LR	LR	S							
Fremont[b]	WY AES	1966		R														
Futura	Dairyland																	
Galaxy	NC + Calif.		NH	MR	MR		LR	LR				MR		MR				LR
Glacier[b]	NK	1963	MH	S			S	S	MR	R	LR							
Gladiator	NK	1973	H	R	MR	LR	S	LR		R	LR	MR	LR	R	S		S	R
Glory	Dairyland	1979	MH	R														
Granada	NAPB	1982	NH	S	R		R	S				LR		HR	HR		LR	S
Grimm	MN/AES (Germany)	1901	VH	S														
G-747	Funk		H	MR														
G-777	Funk	1976	MH	MR	LR		S		LR	MR	LR							
G-2815	Funk	1980	MH	HR	HR	S	MR	R		MR	MR	LR		R	MR			
G-2818	Funk	1982	H	R	R		MR	LR						R	R			
G-7730	NAPB	1980	MH	R	R		R	LR							S			
GT-13R Plus	Ferry-Morse		NH	LR	R		R			LR		LR		LR	R		MR	R
GT-55	Ferry-Morse		MH	R	R	LR	R	R	LR	LR		LR		MR	MR		LR	MR
GT-58	Ferry-Morse		MH	R	HR	LR	R	MR	LR	MR		MR		R	HR		MR	MR
Hairy Peruvian	Peru	1899	NH															
Hardigan	MI AES	1920	VH	S														
Hardistan	NE AES	1928	H	R														
Hawk	Green Thumb		MH	R	MR		R	MR		MR		LR		R	R		S	LR
Hayden	AZ AES	1970	NH				S			S		LR		S	R		LR	S
Haymaker[d]	Union	1970	MH	MR														
Haymor[b]	NK	1962	MH	MR			S	S	S	LR	S						LR	MR
Heinrichs																		
HH-18			H	R														
HH-31			MH	LR														
Hi-Phy	Cenex	1978	MH	R	R	S	MR	S	MR							LR	MR	
Hi-Tom 30			H	R														
Hi-Tom 70			MH	MR														
Honeoye	NY AES	1975	MH	MR	MR		S	S	LR	LR	LR				S			LR
Hunter River				S			S							S	S			S
IH 101	Ferry Morse		MH	R	MR	MR	R	R		LR		LR		MR	MR	LR	MR	LR
Indian	India	1913	NH															
Iroquois	NY AES	1966	H	HR	MR	S	S	LR	MR	S							LR	LR
Joaquin	Security		MNH	R			MR											
Joaquin II	Security	1968	NH	MR								S			R			
Jubilee	Cal/West	1980	MH	R	R	S	R	R		MR	LR	LR		R	R			
Kane	Ag Canada	1971	VH	R														
Kanza	KS AES/USDA	1968	MNH	R										R	R		S	LR
Kaw	France	1912	H	R														
Kayseri	UT AES/USDA	1975	MH	R								R		S	S	R	S	R
Klondike	Teweles	1971	MH	R														
Kn 33			MH															

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

				Diseases									Insects				Nematodes	
Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
Kodiak 65	Asgrow	1973	MH	R										LR		LR		
Ladak	USDA	1910	VH	LR			S		LR	LR	S							
Ladak 65	MT	1964	H	R	LR		S	LR	S	S							S	LR
Lahontan	NV AES/USDA	1954	MH	MR		S	LR					S			R	R	S	R
Lancer	NK	1971		R									LR					
Lew	AZ AES	1974	NH												R			R
Liberty	NC AES/USDA	1975																
Macsel	U. Manitoba	1923	H															
Magnum	Dairyland	1979	MH	HR	R		S							R	R			
Marathon	Cargill Seeds	1974	MH	R	LR	S	S	S	LR	LR					S		S	R
Mark II	Cornell	1965	H	S						LR		S		S	S		MR	S
Matador		1976	NH	MR	R		LR					LR		S	HR			
Maverick	NAPB	1981	VH	R	MR		MR	S										
Maxidor	NK	1978			R		MR							HR	HR		LR	R
Maxim	Cenex	1983	MH	R	R	MR	MR	R						MR	R			R
Meeker-Baltic	CO AES	1915	H	S														
Mercury	NAPB	1981	MH	R	R		R	MR										
Mesa-Sirsa	AZ AES	1965																
Mesilla	NM AES	1967	MH	MR														
Milfeuil			MH	S			S	S	S									
Moapa	NV AES/USDA	1957	NH	S											MR		R	S
Moapa-69	NV AES/USDA	1969	NH	S											R		R	S
Multileaf	NY AES	1980					S											
Mustang				R														
MS-243[b]	Cenex		MH															
MX-82a			MH	R														
Narra-gansett[b]	RI AES	1946	H	S						LR		S			S	S	R	
Nemastan	Turkistan	1943	MR	R														R
NCW20	NC/OK AES/USDA	1975	MH	S				R					LR	MR	S			
ND 80	Garner		MH	HR	S										MR	HR		
NM 11-1	NM AES	1953		LR	LR										S			
Nomad	Burlingham	1941																
Norseman	Barzen MN	1964	VH	MR	MR		S		LR	MR								
Nugget[b]	NAPB	1974	H	R	MR	S	S	S						MR	S		S	HR
OAC Minto																		
Olympic	NAPB	1976	MH	R	R	S	S	R						MR	MR		LR	MR
Oneida	NY AES	1980	H	HR		S	R	S						S	S	MR		
Orchies	Cal approved	1963	MH	S														
Orestan	OR AES/USDA	1929	MH	MR					S	S							LR	LR
Orca	Union			S														
Othello						MR												
Pacer	Land O'Lakes	1975	MH	R	MR		LR	S	MR	LR				R	S	MR		LR
Pat 30	FMC			S														
Peace	Alberta, Canada	1975	H	S														
Peak	Land O'Lakes	1978	H	R	R		MR	S	MR	MR				R	S	LR	S	R

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H	Winter hardy
HR	Highly resistant to disease and insects (51% +)
LH	Leaf hopper
LLS	Lepto leaf spot
LR	Low resistance to disease and insects (6-14%)
MH	Moderately winter hardy
MNH	Moderately non-winter hardy
MR	Moderately resistant to disease and insects (15-30%)
NH	Non-winter hardy
PA	Pea aphid
PRR	Phytophthera root rot
R	Resistant to disease and insects (31-50%)
RKN	Root knot nematode
S	Susceptible to disease and insects (0-5%)
SAA	Spotted alfalfa aphid
SBS	Spring black stem
SN	Stem nematode
VH	Very winter hardy
VW	Verticillium wilt
WH	Winter hardiness

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

				Diseases									Insects				Nematodes	
Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
Perry	Nebraska	1979	H	R			S	LR				MR	LR	R	MR	MR		
Phytor	NK	1977	H	R	R		R			MR			S	S	S		S	LR
Pickstar																		
Pierce	NK	1982	NH	LR	R		R	S		LR		LR		R	R			R
Pike	NK	1981	MH	MR	R		R	S		R		R		R	MR			R
Polar 1	Pride	1974	H	R			LR		LR	MR	MR		S	S	S		LR	R
Polar II	Pride	1980	H	R	R		R						S		MR			
Preserve	Pride	1983	MH	R	R		MR	LR							HR			
Primal	Pride	1978	MH	HR	R	S	LR			R		MR	S	R	S			
Progress[b]	Cal/West	1962	H	MR			S			LR								
Promor[b]	NK	1967	MH	R			S	S	S	MR	MR	R	S		S			
Prowler	Pride	1980	VH	HR	MR		S	S					S	S	S			
Raidor	NK	1980	MH	R	MR	S	S	R		MR		MR	S	MR	LR			MR
Rambler	Canada	1955	VH	MR						S								
Ramsey[b]	MN AES/USDA	1972	VH	R			LR	MR	MR	R	MR	R					S	S
Range-lander																		
Ranger	NE AES/USDA	1942	H	LR	MR	S	S					LR		S	S		S	S
Reliance 80	Olds Seed		MH	R														
Rere				LR			LR							R	MR			
Resistador[b]	NK	1963	MH	MR		S	MR	S					S	MR	LR			S
Resistador II	NK	1975	MH	MR			LR			MR		MR		LR	R		S	R
Rhizoma	U. BC	1950	VH	S														
Riley	KS AES/USDA	1977	H	R				LR				MR		R	HR		S	LR
Rincon	NM AES	1978	NH	LR			S	S							R			
Roamer	Ag Canada	1966	VH	R														
Roverde	Teweles			R														
RS 209[b]	Ramsey		H	R	R		R	R		LR		LR		R	LR		S	S
Saranac	NY AES	1963	MH	R	R	S	S	S		LR		R						
Saranac AR	NY AES	1975	MH	LR	R		S	R										
SC-400			MH	R														
Scout[b]	FFR	1965	H	MR			S			R	R					R	MR	LR
SD 76				R	MR		MR	MR		LR		LR		R	R		MR	LR
Seagull	Greenthumb		MH	R	MR		R	MR		MR		MR		R	R		S	MR
Sevelra	Seven-L-Rch	1918	H															
Shenandoah	Great Plains		MNH	HR	HR		HR	HR		MR								MR
Sochevile N	N. France			S														
Sonora	AZ AES/USDA	1962																
Sonora-70	AZ AES/USDA	1970		S			S			S		S		S	LR		LR	S
Spectrum	Cenex	1981	MH	R	MR	S	R	LR						HR	HR	MR		
Spredor[b]	NK	1974																
Spredor II	NK	1980	VH	HR	MR		S	S					S	S	S			S
Stride[b]	Caladino	1965	MH	S			S		S	MR					S			
Summit	NC + Calif.		H	R	MR		MR	LR		LR		LR		R	R			R
Sunrise	NC + Hybrids	1979	H	R	MR		S	LR		LR		MR		S	R			LR
Superstan	Teweles		MH	R					MR	MR	LR							
Super-721	Cenex		MH	R	MR		LR	S										
Sverre	Arnold Thomas			S		R												
S 2-4			MH	R														
S-X-10	Sexauer	1973	MH	S	R		S			MR		MR				LR		
SX-418	Sexauer	1978		R			S											
Talent	OR AES/USDA	1940	MH	S								MR					LR	LR
Team	AES/USDA	1968	MH				S	R		MR			LR	R	S		LR	R
Tempo[b]	FFR	1969	MH	MR	R		S	S	LR	MR	LR						S	LR
Teton	SD	1958	VH	LR	MR		LR	LR	LR	R	S							
Thor	NK	1970	MH	HR	MR	S	S	S		MR		MR	S	LR	S		S	MR
Thunder	NAPB	1981	H	R	R		R	MR										
Titan[b]	NAPB	1968	H	HR	R	S	S	MR	R	R	LR			R				
Travois	SD	1963	VH	R	LR	S		MR	MR	R								
Trend	Dairyland		MH	MR														
Trek	Canada	1975	H	R														R
Trident	PAG Seeds	1978	MH	R	HR	S	HR	MR							MR			
Trifecta	CSIRO	1984	MNH				R	R							HR			

Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

Variety	Brand	Year	WH	Diseases									Insects				Nematodes	
				BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
Trout	Greenthumb																	
Trumpetor	NK	1981	MH	MR	R	MR	S	MR		MR		MR	S	MR	S			MR
Tuna	Hogg Lytle	1963		S														
Tundra	Dairyland		H	MR			MR											
Turbo (C/W 940)	Cal/West	1982	MH	R	R		R	MR							LR			
Turkistan	Turkistan	1898	H	S														
T3X-251	Teweles			R														
T3X-255	Teweles			R														
T4X-201	Teweles			R														
UC Cargo	UC AES	1975	NH	S	HR		MR			S		LR		LR	R		LR	R
UC Cibola	UC AES	1982	MNH	S	HR		MR							R	HR		R	
UC Salton	UC AES	1971	NH				LR								R			
Uinta	UT AES/USDA	1962	H	R								R					LR	S
Valador	NK	1978	NH				R	MR						S	R		MR	
Valor	Land O'Lakes	1974	H	R	MR		S	LR	MR	MR		R		R	S	MR	LR	LR
Vancor	NK	1980	H	R	MR		MR	R		MR		MR	LR	S	S	S		MR
Vangard	NAPB	1976	MH	MR	MR	S	S	R	LR	LR	R	LR		S	LR	LR	LR	LR
Variegated	France	1871																
Vernal	WI AES/USDA	1953	H	R	R	S	S	LR	LR	LR	LR	LR					R	MR
Vernema	WA AES/USDA	1981	MH	MR		MR	LR	S										R
Vertus						R												
Victoria	AK AES	1969	H	S						MR		MR						
Vista	Cal/West	1975	MH	MR			S	LR	LR	MR	LR						S	LR
Voris A-77	NAPB	1978	MH	R	R	S	MR	R										
VR-50			H	R			R	S										
Warrior[b]	NK	1970	MH	MR			S		LR	MR	S							
Washoe	NV AES/USDA	1965	MH	R		S	MR			S		S		R	R		S	R
Weevlchek[b]	FFR	1974	H	HR	MR		S	S	LR	LR	LR		LR	MR	MR			
Williams-burg	VA AES	1947	MH	S														
WL 200[b]	WL, Inc.			MR														
WL 202[b]	WL, Inc.	1962	H	R			S		LR	S	S			LR	LR			
WL 210[b]	WL, Inc.	1967	H	MR			S	S	LR	S	LR			LR	LR			
WL 214[b]	WL, Inc.	1967	H	R										LR	LR			
WL 215	WL, Inc.	1968	H	R	MR	LR	LR	LR	LR	LR	LR	MR	LR	LR	LR	LR	MR	LR
WL 216[b]	WL, Inc.	1971	MH	MR			S		LR	S	S		LR	MR				
WL 218[b]	WL, Inc.	1973		R	LR	MR	MR						LR	R				
WL 219	WL, Inc.	1975	MH	R	MR		LR	LR	LR	MR	MR	MR		HR	MR			LR
WL 220	WL, Inc.	1977	H	R	HR	LR	MR	LR		LR	LR	LR		HR	MR			LR
WL 221	WL, Inc.	1979	H	R	R		LR	S	LR	LR	LR			R	R			MR
WL 303[b]	WL, Inc.	1967	MH	MR										R	R			
WL 305[b]	WL, Inc.	1968	MH	R			S	LR	LR	LR	LR	LR		R	R	LR		
WL 306[b]	WL, Inc.	1969	MH	R			S	S	LR	LR	LR			R	R			
WL 307[b]	WL, Inc.	1971	MH	MR			S	LR	S		MR				MR			
WL 308[b]	WL, Inc.	1971	MH	MR			S		LR	LR	LR			LR		LR		
WL 309[b]	WL, Inc.	1972	MH	R	MR	LR	S	LR	LR	LR	LR	LR		R	R		LR	MR
WL 310	WL, Inc.	1974	MH	R	MR		LR	LR				LR		R	R	LR	S	R

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Table 1.—*Characteristics of alfalfa varieties for the Pacific Northwest (continued)*[a]

				Diseases									Insects				Nematodes	
Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
WL 311	WL, Inc.	1974	MH	R	MR		LR	LR	LR	MR	LR	LR		HR	R			LR
WL 312	WL, Inc.	1978	MH	R	HR	LR	MR	LR	LR	MR	MR	LR		R	R			MR
WL 313	WL, Inc.	1979	MH	HR	HR	MR	LR	MR		LR	LR	MR	LR	R	MR			MR
WL 314	WL, Inc.	1981	MH	R	R	LR	LR	MR		LR		LR		HR	R			HR
WL 315	WL, Inc.	1980	MH	R	R	MR	MR	LR	LR	LR	MR			R	MR	MR		MR
WL 316	WL, Inc.	1981	MH	MR	R	MR	LR	R	LR	LR	MR			R	R			MR
WL 318[b]	WL, Inc.	1974	MH	R	HR	LR	MR	MR	LR	LR	LR	MR		HR	R		S	LR
WL 320	WL, Inc.	1983	MH	R	R	MR	R	MR						MR	R	LR		MR
WL 321	WL, Inc.	1985	MH	R	R	LR	LR	MR						R	R			MR
WL 450	WL, Inc.	1972	MNH	MR	MR		MR	LR		LR	LR	MR		MR	R			R
WL 451	WL, Inc.	1972	MNH	R	MR		MR			LR		LR		LR	R		S	R
WL 501R[b]	WL, Inc.	1972	NH	MR										MR	R			
WL 504[b]	WL, Inc.	1970	NH															
WL 508[b]	WL, Inc.	1970	NH	S	MR		LR			LR		R		R	HR		HR	MR
WL 512	WL, Inc.	1976	NH	MR	R		MR	LR			LR	MR		R	HR		LR	LR
WL 514	WL, Inc.	1978	NH	MR	MR		LR	LR			MR	LR		R	R			LR
WL 515	WL, Inc.	1981	NH	LR	R		R							MR	R			MR
WL 600[b]	WL, Inc.	1972	NH									R		R	R			
WL So. Spec.	WL, Inc.	1982	MH	R	R		MR	LR		LR				R	R			MR
W-35[c]	WA AES/USDA		MH	MR		R												
W-37[c]	WA AES/USDA		MH	S		R												
Wrangler	NE AES/USDA	1984	H	R		MR	HR	MR						HR	HR	MR		
Yukon			H	R					R	MR								
Zia	NM AES	1958		MR														
88	Olds Seeds	1983	MH	R	R	R	MR	R			R				MR			
89	NAPB																	
117[b] (Armor)	DeKalb/ Pfizer		H	R														
120	DeKalb/ Pfizer	1978	H	HR	R		R	LR	MR	MR				R	S	LR		R
123	DeKalb/ Pfizer	1967	H	R	R		S		LR	R	LR	LR						
127[b]	DeKalb/ Pfizer		MH	R			LR	R										
130	DeKalb/ Pfizer	1980	MH	HR	HR	LR	MR	MR	LR	LR	LR	LR		R	R			R
131[b]	DeKalb/ Pfizer	1976	MH	LR			S			LR	LR	MR		R	R			HR
135	DeKalb/ Pfizer	1981	MH	R	R	MR	MR	MR	LR	MR	R	MR		R	R	LR	S	MR
141[c]	Hoffman Seeds	1984	MH	R		MR	R	MR			R				LR			
153[b]	DeKalb/ Pfizer	1967	H	S			LR	S	MR	LR	S				S			
167	DeKalb/ Pfizer	1975	MH	MR			LR			LR		MR		S	R			R
183[b]	DeKalb/ Pfizer	1970	NH															
185[b]	DeKalb/ Pfizer	1978		S			LR	S		LR		LR		LR	R			S
185R[b]	DeKalb/ Pfizer	1978		S			LR	S		LR		LR		LR	R			S
187	DeKalb/ Pfizer	1983	NH	LR	HR		R	S				LR		R	HR			
209[b]	Ramsey		H	R	R		R	MR						MR	MR			
235	Pioneer	1976	H	R														
300	Pioneer		MH	MR														
360[d]	Greenway																	
436	Pioneer		MH	MR						S								
520	Pioneer	1968	H	R	MR		S	LR	LR	LR	LR	S					LR	
521	Pioneer	1975	H	R			S	LR	LR	LR	LR				R			
522[b]	Arnold Thomas	1965	H	R			S											
524	Pioneer	1977	H	R	R		LR					R			R			
525[b]	Arnold Thomas	1962	MH	R											LR			

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Variety	Brand	Year	WH	BW	FW	VW	PRR	AN	SBS	CLS	LLS	DM	AW	PA	SAA	LH	RKN	SN
526	Pioneer	1981	H	R														
530	Pioneer	1972	MH	R			S	S	LR	R	MR	R		R	R			
531	Pioneer	1977	MH	MR			S	LR						MR	MR			
532	Pioneer	1979	H	HR	R		LR	LR										
545	Pioneer	1977	H	R	MR		R	LR		R		R		S	R			MR
555	Pioneer	1979	MH															
572	Pioneer	1975		S			LR			S		HR		R	R		LR	S
581	Pioneer	1977	MH	R			R			LR		R		LR	R			
617			MH	MR														
788[d]	NAPB		MH	MR	LR													
819[d]	NK		H		R		MR	LR						MR	R		LR	
919[d]	NK		MH	MR			MR			MR		MR		LR	MR			MR
1019[d]	NK		MH	MR			R			R		R		LR	MR			R
5500	NC + Calif.		MH	R			R	S		LR		LR		R	R			LR
5929	Pioneer	1983	NH	LR	HR		MR	S						R	R			
6600	NC + Calif.		MH	LR	LR		MR	S		LR		LR		LR	MR			LR
7901[c]	Cenex	1985	H	MR	R		LR	HR								MR		
7905[c]	Cenex	1985	H	R	MR		S	HR								MR		
8000	NC + Calif.		MH	S	MR		LR	S				LR		MR	R			LR
8800	NC + Calif.		MH	S			R	S		LR		LR		MR	R			S

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This publication was prepared by David B. Hannaway, Extension agronomist, forages, Oregon State University. The listing of alfalfa variety brand names in table 1 was compiled from information received from private company representatives, USDA research scientists, and university research and Extension staff members. The listing is for the convenience of readers of this publication; it does not constitute endorsement of these brands by the Cooperative Extension Services of Oregon, Idaho, and Washington.

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