

SEED GUIDE

2027



AMERICA'S
ALFALFA

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AMERICA'S
ALFALFA®



AGRONOMIC AND PEST RESISTANCE TRAITS

ALFALFA PERFORMANCE

	FALL DORMANCY	WINTERHARDINESS	ULTRACUT® DISEASE PACKAGE	HARVXTRA® ALFALFA	ROUNDUP READY® TECHNOLOGY	SALT TOLERANCE	ANTHRACNOSE RACE 1	ANTHRACNOSE RACE 5 ²	APHANOMYCES ROOT ROT RACE 1	APHANOMYCES ROOT ROT RACE 2	EVOLVING APHANOMYCES STRAINS ¹
HARVXTRA®											
AMERISTAND 483 HVXRR	4	2	☑	☑	☑	G	HR	HR	HR	HR	HR
AMERISTAND 482 HVXRR	4	2	☑	☑	☑	G	HR	R	HR	HR	HR
HVX614RR	6	—		☑	☑	—	R	—	R	—	—
AMERISTAND 972 HVXRR	9	—		☑	☑	G	HR	—	—	—	—
ROUNDUP READY®											
AMERISTAND 331TQ RR	3	1			☑	G	HR	—	HR	R	—
AMERISTAND 423TQ RR	4	1	☑		☑	G	HR	HR	HR	HR	HR
AMERISTAND 416NT RR	4	2			☑	G	HR	—	HR	—	—
AMERISTAND 400Q RR	4	2			☑	G	HR	—	HR	R	—
FREEDOMSTAR™ RR	4	2			☑	—	R	—	R	—	—
AMERISTAND 420LH RR	4	2			☑	—	HR	—	HR	R	—
AMERISTAND 546NTS RR	5	—			☑	G	HR	—	HR	HR	HR
ALFAGRAZE 600 RR	6	—			☑	—	R	—	—	—	—
AMERISTAND 716NT RR	7	—			☑	G	HR	—	—	—	—
AMERISTAND 836NTS RR	8	—			☑	G	R	—	R	—	—
AMERISTAND 956NT RR	9	—			☑	G	HR	—	R	—	—
CONVENTIONAL											
AMERISTAND 312TQ	3	1	☑			G	HR	HR	HR	HR	HR
AMERISTAND 428TQ	4	1	☑			G	HR	HR	HR	HR	HR
AMERISTAND 446NT	4	2				G	HR	—	R	—	—
AMERISTAND 432Q	4	2				—	HR	—	HR	R	—
AMERISTAND 419LH	4	2				—	HR	—	HR	R	—
AMERISTAND 519NT	5	—				G	HR	—	HR	—	—
AMERISTAND 557TQ	5	2	☑			G	HR	HR	HR	HR	HR
AMERISTAND 618NT	7	—				G	HR	—	—	—	—
AMERISTAND 803T	8	—				G	MR	—	—	—	—
AMERISTAND 901TS	9	—				G	R	—	—	—	—

HR	> 51% Resistance	MR	15–30% Resistance	G	Germination
R	31–50% Resistance	LR	6–14% Resistance	F	Forage

Salt Selected Variety: In addition to industry-standard salt germination testing and building upon Forage Genetics International's stress-resilient genetic background, Salt Selected Varieties must meet the following criteria:

- 1): Parent selection under salt stress: Derived from parental lines selected in nurseries with routine salt application.
- 2): Demonstrated field performance: Confirmed yield potential and persistence in FGI yield trials conducted under salt stresses.



	PHYTOPHTHORA ROOT ROT	BACTERIAL WILT	FUSARIUM WILT	VERTICILLIUM WILT	SPOTTED ALFALFA APHID	PEA APHID	POTATO LEAF HOPPER	BLUE ALFALFA APHID	STEM NEMATODE	ROOT KNOT NEMATODE	SALT SELECTED VARIETY	SEED GUIDE
AMERISTAND 483 HVXRR	HR	HR	HR	HR	R	R	—	—	R	—		PG 3
AMERISTAND 482 HVXRR	HR	HR	HR	HR	R	R	—	—	R	—		PG 4
HVX614RR	HR	MR	HR	—	HR	HR	—	MR	R	—	☑	PG 5
AMERISTAND 972 HVXRR	HR	MR	HR	R	HR	HR	—	HR	R	—	☑	PG 6
AMERISTAND 331TQ RR	HR	HR	HR	HR	R	R	—	—	R	—	☑	PG 7
AMERISTAND 423TQ RR	HR	HR	HR	HR	R	R	—	—	R	—		PG 8
AMERISTAND 416NT RR	HR	HR	HR	HR	R	R	—	—	HR	—	☑	PG 9
AMERISTAND 400Q RR	HR	HR	HR	HR	—	R	—	—	R	—		PG 10
FREEDOMSTAR™ RR	HR	HR	HR	HR	—	—	—	—	—	—		PG 11
AMERISTAND 420LH RR	HR	HR	HR	HR	—	R	HR	—	—	—		PG 12
AMERISTAND 546NTS RR	HR	HR	HR	HR	HR	HR	—	—	HR	—	☑	PG 13
ALFAGRAZE 600 RR	R	—	HR	R	R	—	—	—	MR	HR		PG 14
AMERISTAND 716NT RR	HR	R	HR	R	R	HR	—	R	HR	—	☑	PG 15
AMERISTAND 836NTS RR	HR	R	R	R	HR	HR	—	R	HR	—	☑	PG 16
AMERISTAND 956NT RR	HR	R	HR	R	HR	R	—	R	HR	—	☑	PG 17
AMERISTAND 312TQ	HR	HR	HR	HR	R	HR	—	—	R	—		PG 18
AMERISTAND 428TQ	HR	HR	HR	HR	R	R	—	—	HR	—		PG 19
AMERISTAND 446NT	HR	HR	HR	HR	R	HR	—	—	HR	—	☑	PG 20
AMERISTAND 432Q	HR	HR	HR	HR	—	—	—	—	R	—		PG 21
AMERISTAND 419LH	HR	HR	HR	HR	MR	HR	HR	—	—	—		PG 22
AMERISTAND 519NT	HR	HR	HR	HR	HR	HR	—	—	HR	—	☑	PG 23
AMERISTAND 557TQ	HR	HR	HR	HR	HR	R	—	—	R	—		PG 24
AMERISTAND 618NT	HR	MR	HR	MR	HR	HR	—	HR	HR	—	☑	PG 25
AMERISTAND 803T	HR	MR	HR	—	R	HR	—	HR	HR	HR	☑	PG 26
AMERISTAND 901TS	HR	R	HR	MR	—	HR	—	R	R	HR	☑	PG 27

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5, which was recently confirmed by USDA's Agricultural Research Service.

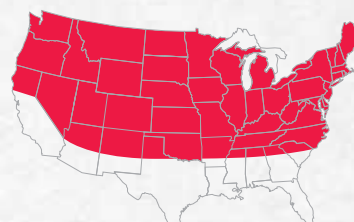
AMERISTAND 483 HVXRR

FALL DORMANCY: 4.1 | **WINTERHARDINESS: 1.8**



A Technology Powerhouse: HarvXtra[®] Alfalfa Paired with the UltraCut[®] Alfalfa Disease Package

- Latest advancement in disease resistance, featuring the UltraCut[®] alfalfa disease package with a DRI of 40/40, which includes High Resistance to Aphanomyces Root Rot Race 1, 2 and evolving strains¹; and includes High Resistance to Anthracnose Race 5²
- HarvXtra[®] Alfalfa gives growers the ability to better manage the yield-versus-quality tradeoff
- HarvXtra[®] Alfalfa offers more flexibility in cutting schedule to achieve improved forage quality or greater yield potential, when compared to conventional alfalfa at the same stage of maturity
- Salt Tolerance at germination



• Primary Adaptation

PERFORMANCE

Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5 ² :	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	R

Potential Benefits of HarvXtra[®] Alfalfa with Roundup Ready[®] Technology

FORAGE QUALITY ADVANTAGE

- Achieve higher quality alfalfa while maintaining a typical 28-day cutting schedule

FLEXIBILITY

- Increased harvest timing flexibility

DELAYED HARVEST

- Potential for fewer harvests, higher forage yield and improved persistence

Variety Performance

VARIETY	MULTI-YEAR % OF CHECKS
AMERISTAND 483 HVXRR	105
54R02	102
54HVX43	98

Data from FGI Trials in Touchet, WA from 2017-2019

Variety Performance

VARIETY	MULTI-YEAR % OF CHECKS
AMERISTAND 483 HVXRR	130
54HVX41	111
54QR04	109
AMERISTAND 480 HVXRR	107
HI-GEST 360	101
HYBRIFORCE-3400	91
ATTENTION II	85

Data from FGI Trials in West Salem, WI from 2017-2019

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

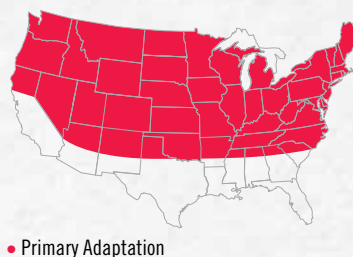
AMERISTAND 482 HVXRR

FALL DORMANCY: 4.2 | **WINTERHARDINESS: 1.9**



A Technology Powerhouse: HarvXtra® Alfalfa Paired with the UltraCut® Alfalfa Disease Package

- Building on AmeriStand 481 HVXRR with improved UltraCut disease resistance, cold tolerance, persistence and HarvXtra forage quality
- Latest advancement in disease resistance, featuring the UltraCut® alfalfa disease package with a DRI of 39/40, which includes High Resistance to Aphanomyces Root Rot Race 1, 2 and evolving strains¹; and includes multi-race resistance to Anthracnose²
- HarvXtra® Alfalfa gives growers the ability to better manage the yield-versus-quality tradeoff. It offers more flexibility in cutting schedule to achieve improved forage quality or greater yield potential, when compared to conventional alfalfa at the same stage of maturity
- Salt Tolerance at germination



PERFORMANCE

Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5 ² :	R
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	R

Potential Benefits of HarvXtra® Alfalfa with Roundup Ready® Technology

FORAGE QUALITY ADVANTAGE

- Maintain current harvest schedule
- Higher likelihood of harvesting premium quality hay

FLEXIBILITY

- Increased harvest timing flexibility

DELAYED HARVEST

- Potential for fewer harvests, higher forage yield and improved persistence

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

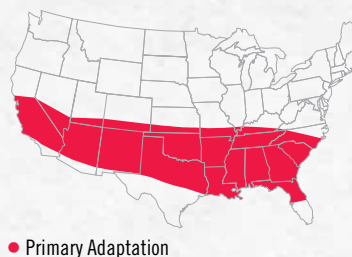
HVX614RR

FALL DORMANCY: 6.0



The First FD6 Release of a HarvXtra® Alfalfa Product

- HarvXtra® Alfalfa gives growers the ability to better manage the yield-versus-quality tradeoff. It offers more flexibility in cutting schedule to achieve improved forage quality or greater yield potential, when compared to conventional alfalfa at the same stage of maturity
- The HarvXtra® technology provides unprecedented flexibility by widening cutting windows, which gives growers the option at each cutting to:
 - Maintain their normal harvest schedules for higher-quality forage, or
 - Extend harvest for up to 10 days for increased yield potential, without sacrificing forage quality, compared to conventional alfalfa at the same stage of maturity
- HarvXtra® Alfalfa has 10-15% higher neutral detergent fiber digestibility (NDFd) than conventional alfalfa harvested at the same stage of maturity
- HarvXtra® Alfalfa is stacked with the Roundup Ready® Technology for unsurpassed weed control with excellent crop safety



PERFORMANCE

Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot Race 1:	R
Anthrachnose Race 1:	R
Bacterial Wilt:	MR
Fusarium Wilt:	HR
Blue Alfalfa Aphid:	MR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	HR
Stem Nematode:	R

Product Performance

PRODUCT	FALL DORMANCY	FORAGE YIELD (% COMMERCIAL CHECKS)	FORAGE QUALITY (NDFD, % COMMERCIAL CHECKS)
HVX614RR	6	110	110
WL 454HQ.RR	6	106	101
RRALF 6R200	6	98	102

Data from FGI Trials in Los Banos, CA 2020-2022

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

AMERISTAND 972 HVXRR

FALL DORMANCY: 9



Latest Non-Dormant Release of HarvXtra® in FD9

- Winter-active, non-dormant FD=9.0
- HarvXtra® Alfalfa gives growers the ability to better manage the yield-versus-quality tradeoff. It offers more flexibility in cutting schedule to achieve improved forage quality or greater yield potential, when compared to conventional alfalfa at the same stage of maturity
- The HarvXtra® technology provides unprecedented flexibility by widening cutting windows, which gives growers the option at each cutting to:
 - Maintain their normal harvest schedules for higher-quality forage, or
 - Delay harvest for 5-7 days for increased yield potential, without sacrificing forage quality, compared to conventional alfalfa at the same stage of maturity
- Non-dormant HarvXtra® Alfalfa has on average 12-14% less lignin and 8-10% higher neutral detergent fiber digestibility (NDFD) than conventional alfalfa harvested at the same stage of maturity
- HarvXtra® Alfalfa is stacked with the Roundup Ready® Technology for unsurpassed weed control with excellent crop safety
- Salt Tolerance at germination



PERFORMANCE

Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Anthracnose Race 1:	HR
Bacterial Wilt:	MR
Fusarium Wilt:	HR
Verticillium Wilt:	R
Blue Alfalfa Aphid:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	HR
Stem Nematode:	R

Product Performance

PRODUCT	FALL DORMANCY	FORAGE YIELD (% COMMERCIAL CHECKS)	FORAGE QUALITY (NDFD, % COMMERCIAL CHECKS)
AMERISTAND 972 HVXRR	9	129	107
HVX840RR	8	111	105
RRALF 9R100	9	109	98
6829R	8	91	99

Data from FGI Trials in Los Banos, CA 2020-2022

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

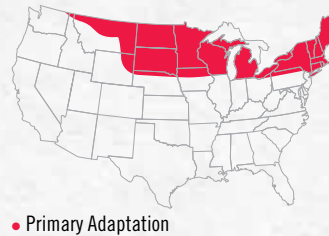


AMERISTAND 331TQ RR

FALL DORMANCY: 3.3 | WINTERHARDINESS: 1.0

Traffic Tested® Alfalfa with Roundup Ready® Technology

- Outstanding leaf retention and stem quality for optimizing digestibility and forage quality potential
- Improved salt tolerance of germinating seeds*
- High yield potential with excellent stand persistence
- Extreme cold tolerance with a winterhardiness score of 1.0
- High resistance to common yield-robbing diseases



PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

Selected for Survival and Persistence

Traffic Tested® varieties are bred and selected for improved plant types with:

- Large deep-seated crowns
- Heavy plant weight
- Fine stems
- Large roots to store energy
- Abundant leaf mass



Traffic Tested®



Non-Traffic Tested®

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	R
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	R

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 331TQ RR	108
54R02	104
54V09	103

Data from FGI Trials in West Salem, Wisconsin from 2015-2017

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 331TQ RR	111
54R02	104

Data from FGI Trials in Nampa, ID from 2015-2017

HR > 51% Resistance
R 31-50% Resistance
MR 15-30% Resistance
LR 6-14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



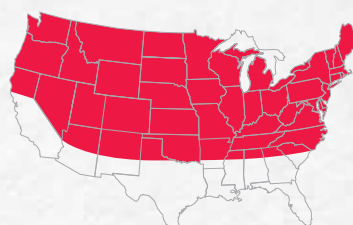
AMERISTAND 423TQ RR

FALL DORMANCY: 4.4 | WINTERHARDINESS: 1.3



High Quality Traffic Tested® Alfalfa with UltraCut® Alfalfa Disease Package and Roundup Ready® Technology

- Highly resistant to multiple races of Aphanomyces for protection during establishment and early season cool and wet soil conditions
- Highly resistant to multiple races of Anthracnose for protection during warm and humid weather conditions
- Salt tolerance at germination
- Top choice for heavy, compacted and saturated soils
- Extremely winterhardy providing superb cold tolerance
- High multifoliate expression for maximum quality
- The Roundup Ready® Alfalfa trait provides optimal weed control, making crop management easier than ever before. It helps produce better feed quality and stand during establishment while increasing yield potential.
- Disease resistance index (DRI) of 40/40 for solid yield potential and stand persistence across a wide range of soil types and climates
- Quick regrowth after cutting with outstanding standability for intensive management systems
- Dark green, fine-stemmed and a highly palatable HQ variety
- Very well-adapted and selected for use in the Midwestern, Northwestern, Central Plains or Northeastern regions of the U.S.



• Primary Adaptation

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5 ² :	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	R

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 423TQ RR	107
55VR08	102
54VR10	101

Data from FGI Trials in West Salem, Wisconsin from 2021-2023

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 423TQ RR	113
54VR10	110
55VR08	108

Data from FGI Trials in Nampa, Idaho from 2021-2023

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



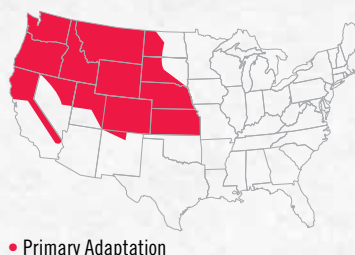
AMERISTAND 416NT RR

FALL DORMANCY: 4.3 | WINTERHARDINESS: 1.5



Nematode Resistant Traffic Tested® Variety with Roundup Ready® Technology

- High quality and high yield potential
- Compliments conventional AmeriStand 446NT in the PNW and Plains
- Excellent choice to maximize forage production while benefiting from the Roundup Ready® weed control system
- Improved salt tolerance of germinating seeds*
- High resistance to yield-robbing pests including stem nematode



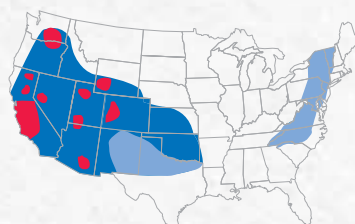
• Primary Adaptation

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Forage Quality:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

Traffic Tested® Genetics with High Nematode Resistance

Stem Nematodes are the most serious nematode for alfalfa. A stem nematode infection destroys chloroplasts causing “white flags,” or pale leaf tissue. When established, stem nematodes can severely limit productivity over the remaining life of the stand.



Stem Nematode

- Severe
- Moderate
- Mild

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot Race 1:	HR
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	HR

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 416NT RR	115
55VR08	108
54Q29	107
AFX 579	103
SW4107	103
AFX 460	102
54VR10	99
L-451APH2+	96
TUG-OF-WAR	88
HYBRIFORCE-4400	83

Data from FGI Trials in Nampa, Idaho from 2022-2024

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



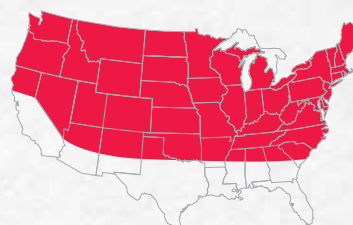
AMERISTAND 400Q RR

FALL DORMANCY: 4.0 | WINTERHARDINESS: 2.0



Roundup Ready® FD 4 with Improved Disease and Pest Resistance

- Combines a fall dormancy rating of 4.0 with a winter-hardiness score of 2.0 for optimum persistence and high yield potential
- Salt tolerance at germination
- Highly resistant to all six major alfalfa diseases; Phytophthora Root Rot, Bacterial Wilt, Fusarium Wilt, Anthracnose (Race 1), Aphanomyces (Race 1), and Verticillium Wilt
- Good stress tolerance for dryland, irrigated and saturated soils under intense management situations
- Forage quality is above average with a high leaf-to-stem ratio
- Resistance to both Aphanomyces Root Rot (Race 2) and Stem Nematode



• Primary Adaptation

PERFORMANCE

Recovery After Harvest: **Mod to Fast**

Average Stand Life: **Medium**

Salt Tolerance*: **Germination**

Disease Rating Index: **34/35**

RESISTANCE

Phytophthora Root Rot: **HR**

Aphanomyces Root Rot

Race 1: **HR**

Race 2: **R**

Anthracnose Race 1: **HR**

Verticillium Wilt: **HR**

Bacterial Wilt: **HR**

Fusarium Wilt: **HR**

Pea Aphid: **R**

Stem Nematode: **R**

Utilizing the Roundup Ready® Weed Control System Provides Many Benefits

- Weed control at both stand establishment and in established stands means fewer weeds and higher quality hay and haylage
- Optimal crop safety at all growth stages provides increased yield potential in both the establishment and subsequent years
- Flexibility in timing of application allows growers to spray when necessary; no carryover or crop rotation limitations
- Minimal wait (5 days) after Roundup® application before haying/feeding

HR > 51% Resistance

R 31–50% Resistance

MR 15–30% Resistance

LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



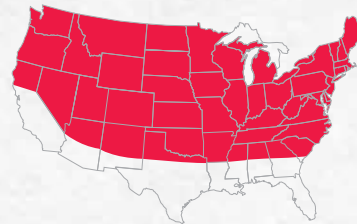
FREEDOMSTAR™ RR



FALL DORMANCY: 4 | WINTERHARDINESS: 2

Exceptional Quality for an Exceptional Value

- An economical Roundup Ready® alfalfa for dependable forage yield potential and good quality
- Good winterhardiness and pest package with resistance to key diseases
- Moderate to fast recovery after cutting for optimum yield potential



• Primary Adaptation

PERFORMANCE

Yield Potential:	Very Good
Forage Quality:	Very Good
Stand Persistence:	Very Good

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	R
Anthracoze Race 1:	R
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Diseases Index Rating:	28/30

Utilizing the Roundup Ready® Weed Control System Provides Many Benefits

- Weed control at both stand establishment and in established stands means fewer weeds and higher quality hay and haylage
- Optimal crop safety at all growth stages provides increased yield potential in both the establishment and subsequent years
- Flexibility in timing of application allows growers to spray when necessary; no carryover or crop rotation limitations
- Minimal wait (5 days) after Roundup® application before haying/feeding

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance



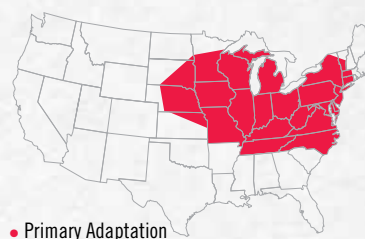
AMERISTAND 420LH RR

FALL DORMANCY: 3.9 | WINTERHARDINESS: 2.2



Roundup Ready® Alfalfa with High Resistance to Potato Leafhopper

- High potato leafhopper resistance that delivers high yield potential and forage quality, even under heavy leafhopper pressure
- High establishment success with glyphosate application shortly after emergence. Broad spectrum weed control reduces competition for water and nutrients allowing alfalfa to canopy and develop a strong root foundation
- Winterhardy (WH=2.2); AmeriStand 420LH RR delivers good winter survival, even under harsh winter conditions
- An almost perfect disease resistance index (DRI) of 34/35 for good yield potential and stand persistence across a wide range of soil types and climates



PERFORMANCE

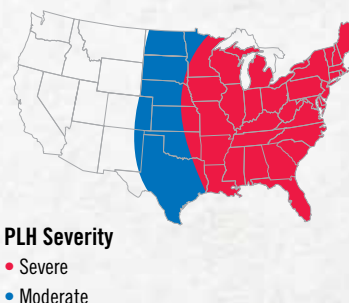
Yield Potential:	Very Good
Forage Quality Potential:	Very Good
Stand Persistence:	Very Good
Recovery After Cutting:	Fast

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	R
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Leafhopper:	HR

Alfalfa Stands Suffer Loss From Potato Leafhoppers

Potato leafhopper attacks can reduce crude protein, lower dry matter yield and reduce winter survival. These mid-to-late season alfalfa pests suck sap from plants and damage leaflets. Restriction of water and nutrient flow causes yellowing on the wedge-shaped areas on leaf tips. Severely damaged plants will be stunted if leafhoppers are not controlled. Damage typically first appears along the edge of fields, but field scouting is recommended to detect leafhoppers before yellowing appears. Highly resistant varieties suffer significantly less damage and inhibit leafhopper populations.



Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 420LH RR	109
54VR10	98
HYBRIFORCE-3400	93

Data from FGI Trials in Boone, Iowa from 2019-2020

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

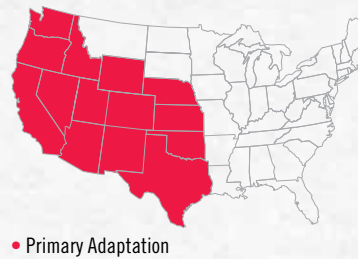
AMERISTAND 546NTS RR



FALL DORMANCY: 5.1

Salt Tolerant, Nematode Resistant FD5 with Roundup Ready® Technology

- Building on AmeriStand 545NT RR success with generations of salt tolerance breeding
- Salt Tolerance at germination
- Highly resistant to Aphanomyces Root Rot Race 2 providing protection during both establishment and in-season disease stress
- High quality and high yield potential while complimenting conventional AmeriStand 519NT in adapted regions
- Excellent choice to maximize forage production while benefiting from the Roundup Ready® weed control system
- High resistance to multiple yield-robbing pests including stem nematode



PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	HR
Stem Nematode:	HR

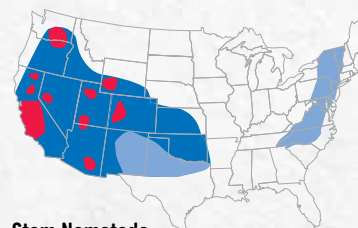
HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

Traffic Tested® Genetics with High Nematode Resistance

Stem Nematodes are the most serious nematode for alfalfa. A stem nematode infection destroys chloroplasts causing “white flags,” or pale leaf tissue. When established, stem nematodes can severely limit productivity for two to three years.



Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 546NTS RR	114
55VR08	105
54VR10	102

Data from FGI Trials in Burley, Idaho from 2021-2023



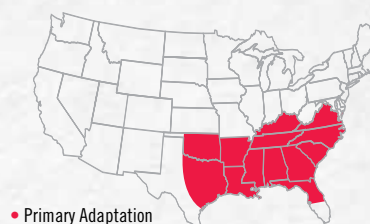
ALFAGRAZE 600 RR

FALL DORMANCY: 6



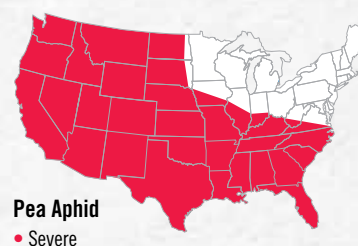
Original Dual-Purpose Alfagraze with Roundup Ready® Tolerance

- High yield potential, traffic tolerance and persistence
- Excellent choice to maximize forage production while benefiting from the Roundup Ready® weed control system
- Extra leafy plants have large, deep crowns for excellent grazing and fast recovery
- Semi-dormant dual-purpose variety for haying or grazing



Fight Aphids

Aphids feed by sucking nutrients out of alfalfa plants. Heavily infested plants wilt during the hottest part of the day. Aphids also may transmit viruses which cause mottling, yellowing, or curling of leaves and stunting of plant growth.



PERFORMANCE

Yield Potential:	Excellent
Forage Quality:	Excellent
Stand Persistence:	Excellent

RESISTANCE

Phytophthora Root Rot:	R
Anthrachnose Race 1:	R
Verticillium Wilt:	R
Fusarium Wilt:	HR
Spotted Alfalfa Aphid:	R
Stem Nematode:	MR
Southern Root Knot Nematode:	HR

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance



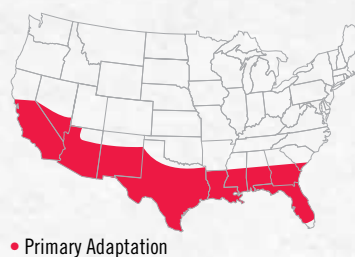
AMERISTAND 716NT RR

FALL DORMANCY: 7.3



Nematode Resistant Traffic Tested® Alfalfa with Roundup Ready® Technology

- Exceptional salt tolerance
- Superior resistance to stem nematodes
- Excellent forage quality and yield potential
- Parentage selected and screened for SN from elite semi-dormant lines
- Moderate multifoliate leaf expression improving forage quality
- The Roundup Ready® Alfalfa trait provides optimal weed control, making crop management easier than ever before. It helps produce better feed quality and stand during establishment while increasing yield potential.



PERFORMANCE

Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

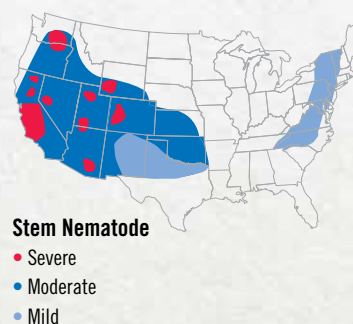
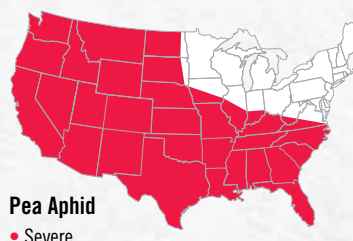
RESISTANCE

Phytophthora Root Rot:	HR
Anthrachnose Race 1:	HR
Verticillium Wilt:	R
Bacterial Wilt:	R
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	R
Stem Nematode:	HR
Blue Alfalfa Aphid:	R

Fight Aphids and Nematodes

Aphids feed by sucking nutrients out of alfalfa plants. Heavily infested plants wilt during the hottest part of the day. Aphids also may transmit viruses which cause mottling, yellowing, or curling of leaves and stunting of plant growth.

Stem Nematodes Stem Nematodes are the most serious nematode for alfalfa. A stem nematode infection destroys chloroplasts causing “white flags,” or pale leaf tissue. When established, stem nematodes can severely limit productivity for two to three years.



HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



AMERISTAND 836NTS RR

FALL DORMANCY: 8.3



Roundup Ready® FD8 Alfalfa Bred for High Resistance to Nematodes, Aphids and Phytophthora Root Rot

- Improved salt tolerance of germinating
- Strong aphid resistance
- Combination of salt tolerance and high resistance to Phytophthora Root Rot provides improved establishment success
- The Roundup Ready® Alfalfa trait provides optimal weed control, making crop management easier than ever before. It helps produce better feed quality and stand during establishment while increasing yield potential.



• Primary Adaptation

PERFORMANCE

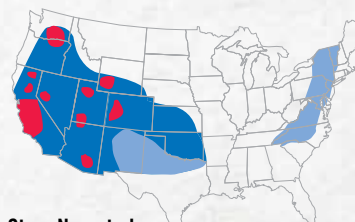
Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Anthracnose Race 1:	R
Aphanomyces Root Rot Race 1	R
Bacterial Wilt:	R
Fusarium Wilt:	R
Verticillium Wilt:	R
Pea Aphid:	HR
Spotted Alfalfa Aphid:	HR
Blue Alfalfa Aphid:	R
Stem Nematode:	HR

Traffic Tested® Genetics with Nematode Resistance

Stem Nematodes are the most serious nematode for alfalfa. A stem nematode infection destroys chloroplasts causing “white flags,” or pale leaf tissue. When established, stem nematodes can severely limit productivity for two to three years.



Stem Nematode

- Severe
- Moderate
- Mild

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 836NT RR	126
6829R	92
RRALF 9R100	108

Data from FGI Trials in California from 2021-2023

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



AMERISTAND 956NT RR

FALL DORMANCY: 9.3

9+ Dormancy Traffic Tested® Alfalfa with Roundup Ready® Technology

- Winter active Non-Dormant FD9
- Salt Tolerance at germination
- Solid disease package supporting strong seedling establishment and enhanced persistence
- Highly resistant to stem nematode and Phytophthora Root Rot
- Ideal non-dormant variety for the cash hay or dairy producer:
- AmeriStand 956NT RR produces big yields of leafy, fine-stemmed hay with dark green color
- Quick regrowth and canopy closure coupled with Roundup Ready® system should keep invasive weeds minimized
- Excellent tolerance to leaf diseases delivers improved leaf retention and overall forage quality



• Primary Adaptation

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

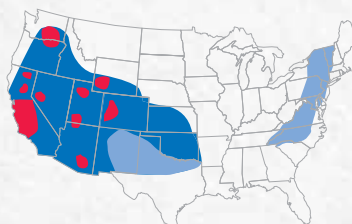
RESISTANCE

Phytophthora Root Rot:	HR
Anthrachnose Race 1:	HR
Aphanomyces Root Rot Race 1	R
Verticillium Wilt:	R
Bacterial Wilt:	R
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	HR
Blue Alfalfa Aphid:	R
Stem Nematode:	HR

Aphids and Salt Are Yield Robbers

Aphids cause plants to wilt and turn yellow, lowering productivity. The tiny spotted alfalfa aphid is the most devastating aphid pest of seedling alfalfa. The large green pea aphid builds up populations that can cover the stems and terminal buds to stunt growth.

Soil salinity is a limiting factor for crop production in parts of the western United States. Saline soils reduce yield and accelerate stand decline. To produce high quality hay in saline environments, planting a variety proven to tolerate salt is a key best management practice. Note that proper soil amendments and proper irrigation are also needed to maximize yield.



Stem Nematode

- Severe
- Moderate
- Mild

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 956NT RR	125
AFX 1060	108
RRALF 9R100	105
MAGNA 995	104
MAGNA 801FQ	97

Data from FGI trials in Los Banos, CA from 2020-2022

HR > 51% Resistance
R 31-50% Resistance
MR 15-30% Resistance
LR 6-14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

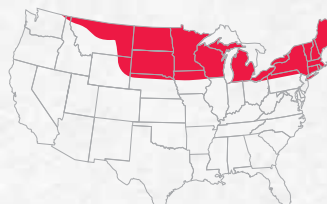
AMERISTAND 312TQ

FALL DORMANCY: 3.4 | **WINTERHARDINESS: 1.1**



UltraCut® FD3 Provides Excellent Establishment, Forage Quality and Longevity

- Features industry leading UltraCut® alfalfa disease package that offers enhanced protection against evolving Aphanomyces¹ strains and our patented Anthracnose² technology
- Salt Tolerance at germination
- Great quality and yield potential in a fall dormancy 3 product
- Exceptional winterhardiness and persistence



• Primary Adaptation

Selected for Survival and Persistence

Traffic Tested® varieties are bred and selected for improved plant types with:

- Large deep-seated crowns
- Abundant leaf mass
- Fine stems
- Large roots to store energy



Traffic Tested®



Non-Traffic Tested®

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 312TQ	117
54Q29	108
SW4107	101
L-451APH2+	99
HI-GEST 360	96
HYBRIFORCE-3420/WET	96
AFX 579	92
HYBRIFORCE-4400	84

Data from FGI Trials in West Salem, Wisconsin from 2021-2023

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
54Q29	107
AMERISTAND 312TQ	106
AFX 579	103
SW4107	103
AFX 460	102
L-451APH2+	96
HI-GEST 360	94
TUG-OF-WAR	88
HYBRIFORCE-4400	83

Data from FGI Trials in Nampa, Idaho from 2022-2024

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Very Good
Forage Quality Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	R
Stem Nematode:	R

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

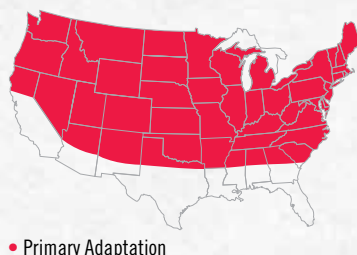
AMERISTAND 428TQ

FALL DORMANCY: 4.4 | **WINTERHARDINESS: 1.3**



UltraCut® Alfalfa Disease Package Ups Ante on Yield and Persistence

- Outstanding yield potential and agronomic performance under 4 to 5-cut harvest management systems (FD=4.4) in various locations throughout dormant alfalfa use areas
- AmeriStand 428TQ features the UltraCut® alfalfa disease package with a perfect Disease Resistance Index (DRI) of 40/40 including HR (high resistance) to aphanomyces race 1, race 2, and evolving strains¹, and HR to anthracnose race 1 and race 5²
- Improved salt tolerance of germinating seeds*
- Superb winterhardiness (WH=1.3); AmeriStand 428TQ delivers excellent cold tolerance and persistence
- AmeriStand 428TQ contains high-quality feed values for dairy and cash hay producers
- AmeriStand 428TQ delivers fast recovery in an FD4 package
- Great standability for intensive management systems
- Dark green, fine-stemmed, and a highly palatable variety
- Very well-adapted and selected for use in the Midwest, Northeast, Intermountain regions, Pacific Northwest or Central and Northern Plains of the U.S.



PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Forage Quality:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5 ² :	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	R
Stem Nematode:	HR

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 428TQ	121
54Q29	102
SW4107	99
AFX 579	98
HYBRIFORCE-3420/WET	97
L-451APH2+	96
HI-GEST 360	94
HYBRIFORCE-4400	91

Data from FGI Trials in West Salem, Wisconsin from 2022-2024

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 428TQ	112
54Q29	107
AFX 579	103
SW4107	103
AFX 460	102
L-451APH2+	96
TUG-OF-WAR	88
HYBRIFORCE-4400	83

Data from FGI Trials in Nampa, Idaho from 2022-2024

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



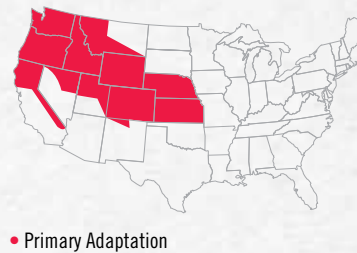
AMERISTAND 446NT

FALL DORMANCY: 4.4 | WINTERHARDINESS: 1.8



Excellent Yield Potential with High Nematode Resistance

- Ideal 4-to-5 cut variety adapted for western US areas with nematode pressure
- Salt Tolerance at germination
- High resistance to diseases and pests, including stem nematode
- Excellent rotation variety for nematode resistance

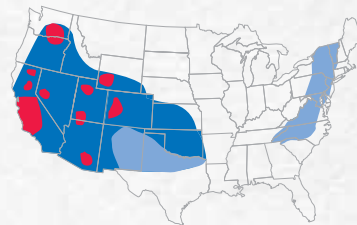


• Primary Adaptation

Traffic Tested® Genetics with High Nematode Resistance

Proven, **Traffic Tested®** varieties are named for their ability to withstand aggressive traffic from grazing and harvesting equipment for more yield potential than non-Traffic Tested varieties.

Stem Nematodes are the most serious nematode for alfalfa. A stem nematode infection destroys chloroplasts causing “white flags,” or pale leaf tissue. When established, stem nematodes can severely limit productivity over the remaining life of the stand.



Stem Nematode

- Severe
- Moderate
- Mild

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 446NT	113
54Q29	107
AFX 579	103
SW4107	103
AFX 460	102
L-451APH2+	96
HI-GEST 360	94
TUG-OF-WAR	88
HYBRIFORCE-4400	83

Data from FGI Trials in Nampa, Idaho from 2022-2024

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Forage Quality:	Very Good
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	R
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	R
Stem Nematode:	HR

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

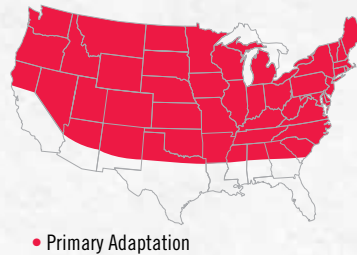
AMERISTAND 432Q

FALL DORMANCY: 4.0 | WINTERHARDINESS: 2.0



An Economical Conventional Alfalfa

- A dependable forage for good yield potential and reliable quality
- Good winterhardiness and pest package with strong resistance to key diseases
- Moderate to fast recovery after cutting for optimum yields
- Multi-race Aphanomyces resistance paired with resistance to alfalfa stem nematode provides both establishment and in-season disease and pest protection for increased yield potential, persistence and broad geographical adaptation



PERFORMANCE

Recovery Rate: **Moderate to Fast**

Average Stand Life: **Medium**

RESISTANCE

Phytophthora Root Rot: **HR**

Aphanomyces Root Rot

Race 1: **HR**

Race 2: **R**

Anthracnose

Race 1: **HR**

Verticillium Wilt: **HR**

Bacterial Wilt: **HR**

Fusarium Wilt: **HR**

Stem Nematode: **R**

Disease Rating Index: **34/35**

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

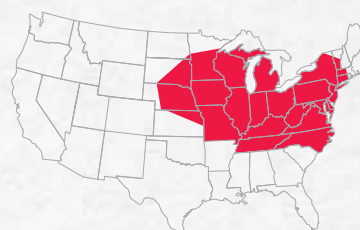
AMERISTAND 419LH

FALL DORMANCY: 4 | WINTERHARDINESS: 2



High Resistance to Potato Leafhopper with Increased Yield and Forage Quality Potential

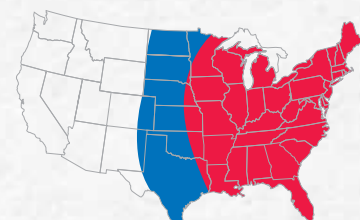
- Selected for enhanced glandular hair trait expression with excellent winterhardiness
- High resistance to common alfalfa diseases plus leafhopper
- Fast recovery after cutting with very good forage yield potential



• Primary Adaptation

Alfalfa Stands Suffer Loss From Potato Leafhoppers

Potato leafhopper attacks can reduce crude protein, lower dry matter yield and reduce winter survival. These mid-to-late season alfalfa pests suck sap from plants and damage leaflets. Restriction of water and nutrient flow causes yellowing on the wedge-shaped areas on leaf tips. Severely damaged plants will be stunted if leafhoppers are not controlled. Damage typically first appears along the edge of fields, but field scouting is recommended to detect leafhoppers before yellowing appears. Highly resistant varieties suffer significantly less damage and inhibit leafhopper populations.



PLH Severity

- Severe
- Moderate

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 419LH	106
HYBRIFORCE-3400	103
55H94	100
54Q29	99

Data from FGI Trials in Mt. Joy, Pennsylvania from 2020-2021

PERFORMANCE

Yield Potential:	Excellent
Forage Quality:	Very Good
Stand Persistence:	Excellent

RESISTANCE

Leafhopper:	HR
Phytophthora Root Rot:	HR
Aphanomyces Root Rot Race 1:	HR
Race 2:	R
Anthraxnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	MR

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

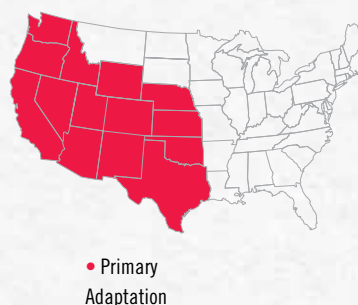
AMERISTAND 519NT

FALL DORMANCY: 5.1



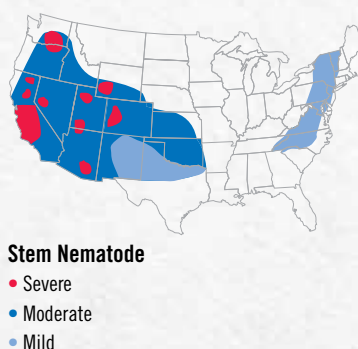
High Yield Potential With High Nematode Resistance

- High resistance to Alfalfa Stem Nematode, Pea and Spotted Alfalfa Aphid
- Salt Tolerance at germination
- AmeriStand 519NT performance is built on eleven breeding cycles of biotic and abiotic pest and stress improvements over AmeriStand 518NT
- Widely adapted to take advantage of the strong yield potential of this improved conventional fall dormancy 5 variety
- Very fast recovery provides high yield potential under intensive harvest management



Nematodes are Yield Robbers

Stem Nematodes infestations can cause stunted plants and thin stands. Under warm, humid conditions, they can migrate into leaf tissue, killing chloroplasts and turning the leaves white. Infestations can cause stunted plants and thin stands.



Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 519NT	117
54Q29	104
L-451APH2+	100
HYBRIFORCE-3400	100
AFX 579	96

Data from FGI Trials in Washington from 2019-2021

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Anthrachnose Race 1:	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	HR
Spotted Alfalfa Aphid:	HR
Stem Nematode:	HR

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

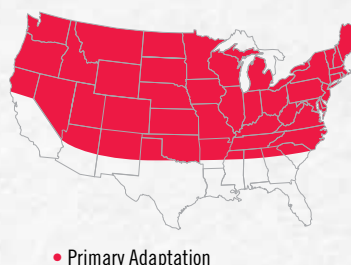
AMERISTAND 557TQ

FALL DORMANCY: 5.0 | **WINTERHARDINESS: 1.8**



UltraCut® Disease Package raises ante on alfalfa yield potential and persistence

- A new day in disease resistance greatly affecting establishment and in-crop performance, AmeriStand 557TQ's perfect Disease Resistance Index (DRI) of 40/40 also includes HR (high resistance) to evolving aphanomyces strains², and HR to anthracnose race 1 and race 5¹
- Superb winterhardiness (WH=1.8); AmeriStand 557TQ delivers excellent cold tolerance and persistence
- AmeriStand 557TQ contains high-quality feed value levels highly desirable for dairy and cash hay producers
- UltraCut® Disease Package offers expanding yield advantages
- AmeriStand 557TQ delivers fast recovery in an FD5 package
- Great standability for intensive management systems
- Dark green, fine-stemmed, and a highly palatable HQ variety
- Very well-adapted and selected for use in the Midwest, Northeast, Intermountain regions, Pacific Northwest or Central and Northern Plains of the U.S.



PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination

RESISTANCE

Phytophthora Root Rot:	HR
Aphanomyces Root Rot	
Race 1:	HR
Race 2:	HR
Evolving Strains ¹ :	HR
Anthracnose	
Race 1:	HR
Race 5 ² :	HR
Verticillium Wilt:	HR
Bacterial Wilt:	HR
Fusarium Wilt:	HR
Pea Aphid:	R
Spotted Alfalfa Aphid:	HR
Stem Nematode:	R

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

¹Includes race 1 and race 2 protection. In addition, Forage Genetics International, LLC (FGI) has identified a novel source of Aphanomyces resistance in the greenhouse and field that visibly outperforms unrelated varieties on the market when grown under natural or artificial disease pressure. FGI researchers have been working cooperatively with universities collecting and testing the most virulent strains of Aphanomyces to help determine the level of resistance to this novel source.

²Includes race 1 protection, along with Anthracnose Race 5 protection, which is patented by FGI.

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

Product Performance: East

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 557TQ	115
54Q29	105
L-451APH2+	103
HYBRIFORCE-3420/WET	102
L-457HD+	101
6305Q	100
HYBRIFORCE-4400	99
AFX 579	96

Data from FGI Trials in West Salem, WI from 2023-2025

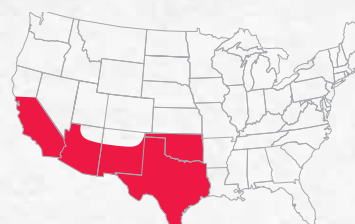
AMERISTAND 618NT

FALL DORMANCY: 7



Highly Resistant to Aphids and Nematodes

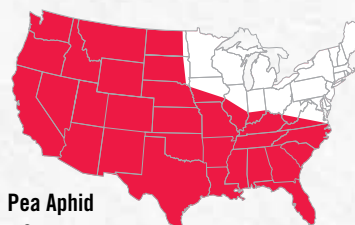
- High resistance to spotted alfalfa aphid, pea aphid, blue alfalfa aphid and stem nematode; thus minimizing the introduction of diseases and protecting yield, quality and stand
- Salt Tolerance at germination
- Excellent yield potential with improved stand persistence



• Primary Adaptation

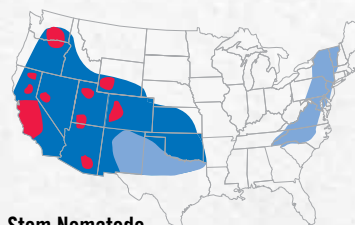
Nematodes are Yield Robbers

Stem Nematodes infestations can cause stunted plants and thin stands. Under warm, humid conditions, they can migrate into leaf tissue, killing chloroplasts and turning the leaves white. Infestations can cause stunted plants and thin stands.



Pea Aphid

• Severe



Stem Nematode

• Severe
• Moderate
• Mild

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 618NT	111
CW 704	98
HYBRIFORCE-2600	85
MAGNA 801FQ	102

Data from FGI Trials in Los Banos, CA from 2019-2020

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Anthrachnose Race 1:	HR
Verticillium Wilt:	MR
Bacterial Wilt:	MR
Fusarium Wilt:	HR
Pea Aphid:	HR
Blue Alfalfa Aphid:	HR
Spotted Alfalfa Aphid:	HR
Stem Nematode:	HR

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.



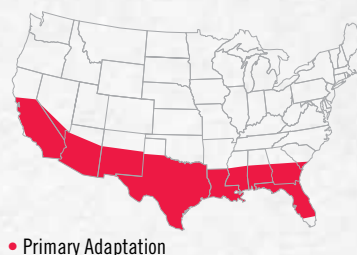
AMERISTAND 803T

FALL DORMANCY: 8.3



Fine Stems for High Quality and Yield

- Traffic Tested® for improved persistence under heavy traffic conditions
- Salt Tolerance at germination
- Good forage quality potential with fine stems, excellent leaf retention and dark green color

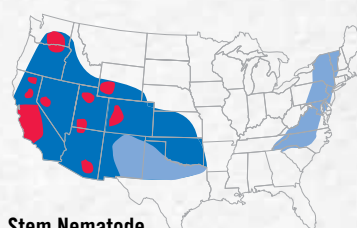


• Primary Adaptation

Nematodes are Yield Robbers

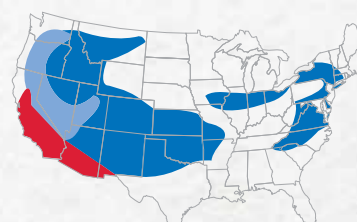
Stem Nematodes infestations can cause stunted plants and thin stands. Under warm, humid conditions, they can migrate into leaf tissue, killing chloroplasts and turning the leaves white. Infestations can cause stunted plants and thin stands.

Root Knot Nematodes are among the most widespread and economically damaging to alfalfa. They are most abundant in sandy loam soils and infect roots, causing galls and lateral root growth. Bacterial wilt, Phytophthora root rot, Fusarium wilt and stem nematode damage may be enhanced when Northern root knot is present.



Stem Nematode

- Severe
- Moderate
- Mild



Root Knot Nematode

- Severe
- Moderate
- Mild

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 803T	108
MAGNA 995	103
MAGNA 801FQ	102
CW 704	101

Data from FGI Trials in Los Banos, CA from 2019-2021

PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

RESISTANCE

Phytophthora Root Rot:	HR
Anthraxnose Race 1:	MR
Bacterial Wilt:	MR
Fusarium Wilt:	HR
Pea Aphid:	HR
Blue Alfalfa Aphid:	HR
Spotted Alfalfa Aphid:	R
Stem Nematode:	HR
Root Knot Nematode:	HR

HR > 51% Resistance
R 31–50% Resistance
MR 15–30% Resistance
LR 6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

AMERISTAND 901TS

FALL DORMANCY: 9



Top Quality, Yield and Persistence

- Excellent persistence and fast recovery for aggressive cutting cycles
- Improved salt tolerance of germinating seeds*
- Proven yield potential in the Southwest US
- High resistance to Phytophthora root rot, Fusarium wilt, pea aphid and root knot nematode
- Top quality with excellent color and vigor



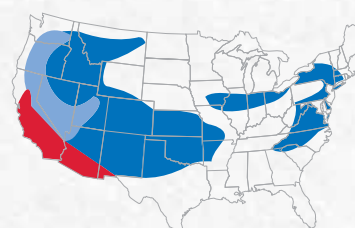
PERFORMANCE

Traffic Tested®:	Excellent
Yield Potential:	Excellent
Stand Persistence:	Excellent
Salt Tolerance*:	Germination
Salt Selected Variety:	☒

Nematodes and Salt are Yield Robbers

Nematodes are often an unrecognized cause of severe yield and stand loss. Alfalfa varieties with resistance can protect from the most troublesome nematodes including Northern and Southern Root Knot Nematode and Stem Nematode. Nematode resistance also reduces susceptibility to other diseases, such as Fusarium and Bacterial Wilt.

Soil salinity is a limiting factor for crop production in parts of the western United States. Salinity reduces yield and accelerates stand decline. To produce high quality hay in saline environments, planting a variety proven to tolerate salt is a key best management practice. Note that proper soil amendments and proper irrigation are also needed to maximize yield.



Root Knot Nematode

- Severe
- Moderate
- Mild

RESISTANCE

Phytophthora Root Rot:	HR
Anthracoze Race 1:	R
Verticillium Wilt:	MR
Bacterial Wilt:	R
Fusarium Wilt:	HR
Pea Aphid:	HR
Blue Alfalfa Aphid:	R
Stem Nematode:	R
Root Knot Nematode:	HR

Product Performance: West

PRODUCT	MULTI-YEAR % OF CHECKS
AMERISTAND 901TS	119
AFX 1060	112
MAGNA 995	103
MAGNA 801FQ	102

Data from FGI Trials in Los Banos, CA from 2019-2021

HR	> 51% Resistance
R	31–50% Resistance
MR	15–30% Resistance
LR	6–14% Resistance

* In tests established by the NAAIC Review Board, this variety demonstrated improved salt tolerance of germinating seeds as compared to the industry salt tolerant checks. References available upon request.

NOTES

In the following states, purchase and use of HarvXtra® Alfalfa with Roundup Ready® Technology is subject to a Seed and Feed Use Agreement, requiring that products of this technology can only be used on farm or otherwise be used in the United States: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. In addition, due to the unique cropping practices do not plant HarvXtra® Alfalfa with Roundup Ready® Technology in Imperial County, California, pending import approval and until Forage Genetics International, LLC (FGI) grants express permission for such planting.

Forage Genetics International, LLC ("FGI") is a member of Excellence Through Stewardship® (ETS). FGI products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with FGI's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. HarvXtra® Alfalfa with Roundup Ready® Technology and Roundup Ready® Alfalfa have pending import approvals. GROWERS MUST DIRECT ANY PRODUCT

PRODUCED FROM HARVXTRA® ALFALFA WITH ROUNDUP READY® TECHNOLOGY SEED OR CROPS (INCLUDING HAY AND HAY PRODUCTS) ONLY TO UNITED STATES DOMESTIC USE. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Growers should refer to <http://www.biotradestatus.com/> for any updated information on import country approvals. Excellence Through Stewardship® is a registered trademark of Biotechnology Industry Organization.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready® crops contain genes that confer tolerance to glyphosate. Glyphosate herbicides will kill crops that are not tolerant to glyphosate.

Roundup Ready® is registered trademarks of Monsanto Technology LLC, used under license by Forage Genetics International, LLC. America's Alfalfa®, HarvXtra®, Traffic Tested® and UltraCut® are trademarks of Forage Genetics International, LLC. HarvXtra® Alfalfa with Roundup Ready® Technology is enabled with Technology from The Samuel Roberts Noble Foundation, Inc. All product names, trademarks and registered trademarks are property of their respective owners.

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Standard Seed Treatment Package Offerings

STANDARD TREATMENT OPTIONS	DESCRIPTION	STAMINA®	MEFENOXAM	INOCULANT	OPTIMIZE® GOLD	MICRO-NUTRIENTS	OMRI LISTED
GROZONE® GOLD 34% COAT	COS	X	X	X	X	X	NO

SPECIAL ORDER OPTIONS* (40 BAG MINIMUM ORDER)	DESCRIPTION	STAMINA®	MEFENOXAM	INOCULANT	OPTIMIZE® GOLD	MICRO-NUTRIENTS	OMRI LISTED
34% ORGANIC COAT AVAILABLE ON SELECT PRODUCTS	OC			X			YES
GROZONE® GOLD 8% COAT	COS8	X	X	X	X	X	NO
MEFENOXAM (APRON/ANCHOR)/INOCULANT	AN		X	X			NO

*Special order options are only available on select products. Please consult with your alfalfa provider. Minimum order quantities and charges apply. No returns on special order products.

GROZONE® Gold Package Details

Grozone® Gold with LCO Promoter Technology® for Alfalfa

When present at the time of planting, LCO Promoter Technology® enables your crop to achieve its full genetic potential by enhancing nutritional capabilities that drive natural growth processes, maximizing plant health and crop performance.

Stamina® (Pyroclostrobin) Fungicide

Protects seed and new seedlings from fungal disease and enhances plant health, especially under tough soil conditions with elevated disease pressure. May result in higher germination rates, increased nodulation, healthier roots and larger plants.

Inoculant

Specially selected natural rhizobia strains (pre-inoculant) result in high levels of nitrogen fixation for maximum yield potential.

Mefenoxam

Protects against seedling damping-off diseases, especially in cool wet soils.

Micronutrients

Assists in early vigor and stand establishment.

Protective Coating

Coating keeps beneficial products close to the seed, provides better seed to soil contact, attract water for better moisture absorption and transfer to seed for germination, and better stands due to higher seed-to-seedling success rates.

GROZONE® Gold Advantages

BETTER EMERGENCE IN WET OR DRY CONDITIONS

- Micronutrients surrounding the seed increases germination and emergence
- Controls early season diseases that attack new seedlings in wet environments

OPTIMAL NODULE FORMATION FOR IMPROVED NITROGEN FIXATION

- Unique mix of Rhizobium strains improves nodulation and promotes nitrogen-fixation

OPTIMAL STAND ESTABLISHMENT

- Root and shoot development is enhanced independent of soil conditions
- Improved plant health with multi-season benefits of greater yield potential
- Smooth finish and uniform seed size improves planting accuracy
- Ideal for reduced tillage

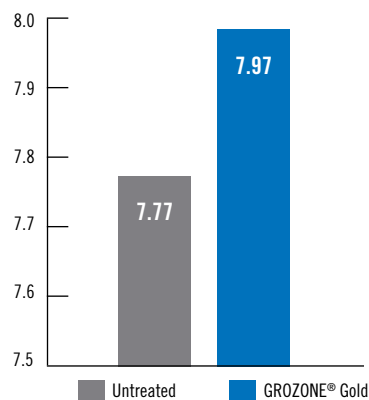
Improved Root System



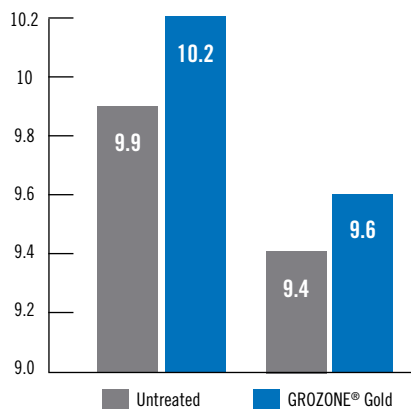
Untreated

Treated with Grozone® Gold

Yield Summary Solid ROI-Multi-year
(43 Trials)



Continued Returns with 2nd Year Crop
(4 Trials)

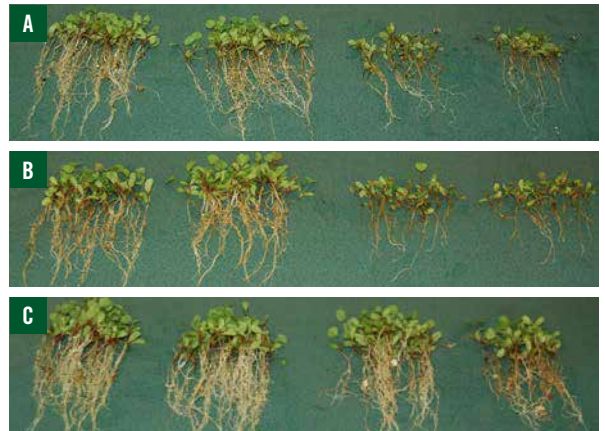


Why Use Stamina® Fungicide?

BENEFITS

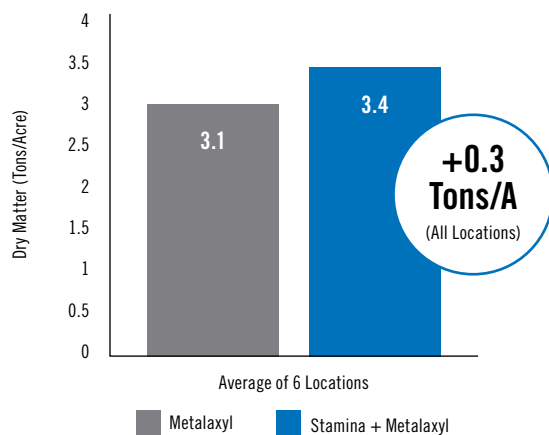
- Powered by F500® fungicide, the same active ingredient that is in Headline® fungicide
- Stamina® fungicide is a broad spectrum, seed-applied and provides suppression of seed and emerging seedling disease caused by these target diseases:
 - *Aphanomyces euteiches*
 - *Rhizoctonia solani*
 - *Fusarium spp.*
 - *Phytophthora medicaginis*
- Seed treated with Stamina® results in:
 - A healthier stand with faster developing plants
 - Increased forage yield potential
 - More rapid and increased emergence of seedlings even under certain cold conditions

Stamina Stamina + Metalaxyl Metalaxyl Untreated



Seedlings inoculated with (A) *Aphanomyces euteiches* Race 1, (B) *Aphanomyces euteiches* Race 2 (C) *Phytophthora medicaginis*. Stamina applied at 3.1 fl oz/cwt & metalaxyl applied at 0.91 fl oz/cwt. 2011 Laboratory test conducted by an independent third party researcher.

Summary of Alfalfa Forage Yield, Seeding Year
Data Across Midwest Locations



Stamina applied at 3.1 fl oz/cwt. Metalaxyl applied at 0.91 fl oz/cwt. 2013 replicated trials conducted in West Salem, WI.

Untreated

Stamina + Metalaxyl



Alfalfa spring seeded May 6, 2013. Photos taken on June 29, 2013 in West Salem, WI. 54 Days After Seeding. Stamina 3.1 fl oz/cwt, metalaxyl 0.91 fl oz/cwt.



An alfalfa that gives you options, not limits.

THE BIGGEST ADVANCEMENT IN THE FIELD

HarvXtra® alfalfa with Roundup Ready® technology gives you unprecedented flexibility by widening cutting windows so you can better manage the yield-versus-quality trade-off. It also adds unsurpassed weed control with Roundup Ready® technology.

Choose to maintain your
current harvest schedule for
higher quality forage

OR

Delay harvest a few days
for increased tonnage without
sacrificing forage quality

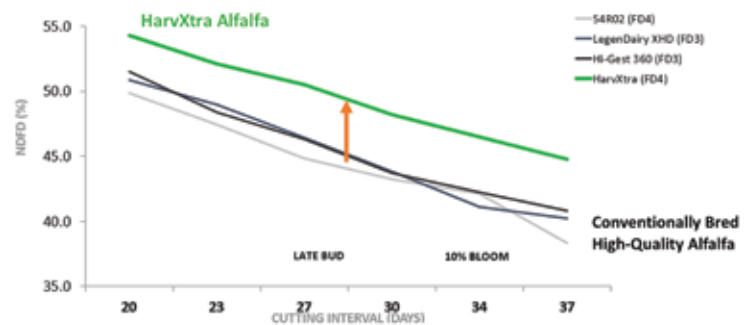
IT'S A TRUE GAME CHANGER

By reducing the amount of lignin in the plant, the HarvXtra® alfalfa trait technology fundamentally changes the relationship between forage quality and stage of maturity. Higher neutral detergent fiber digestibility (NDFD) improves digestibility, and higher relative forage quality (RFQ) can command a higher price tag at harvest.

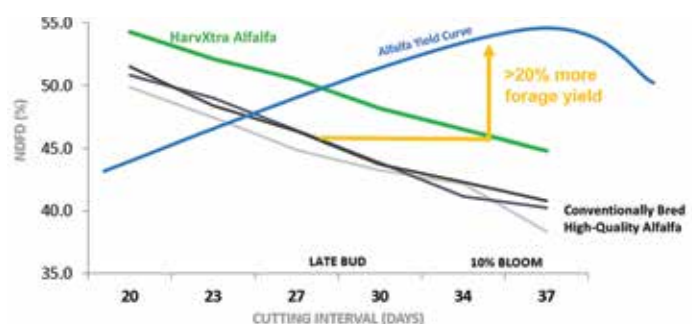
To learn more about HarvXtra® with Roundup Ready® technology, visit harvxtra.com.



Delivers Exceptional Forage Quality



Extend Harvest Without Sacrificing Quality



Extend Harvest for Higher Yield Potential



ULTRACUT[®] ALFALFA DISEASE PACKAGE



UltraCut[®] Disease Package Promotes Plant Health and Yield Potential

SEE THE DIFFERENCE IN YOUR FIELD.

America's Alfalfa varieties with the UltraCut[®] disease package can help producers get healthier and more productive alfalfa crops. Its protection can help deliver an advantage through improved agronomic performance and yield potential. Crown, stem and root diseases can cause significant impact on alfalfa yield, quality and persistence. The UltraCut[®] Disease Package enables strong stand establishment through unmatched seedling genetic disease resistance,

especially in field conditions susceptible to yield-robbing Anthracnose and Aphanomyces disease strains. UltraCut[®] disease package is built on several decades of industry-leading persistence breeding (yield over time). The persistence in UltraCut[®] disease package varieties can help growers to realize higher yield potential over multiple years.

PROMOTES
PLANT HEALTH

STAND
ESTABLISHMENT

YIELD
POTENTIAL

DISEASE
RESISTANCE

See healthier stands and more yield in your fields* by planting varieties with the UltraCut[®] Disease Package.

ULTRA/CUT[®]
Alfalfa Disease Package



UltraCut[®] alfalfa disease package varieties (in the middle) compared to susceptible competitive check varieties (on outsides), Photo taken at FGI Research Facility, June 2018, West Salem, WI

*Compared to varieties without the UltraCut alfalfa disease package in fields with disease pressure.



TECHNOLOGY

ROUNDUP READY® ALFALFA



Experience the Advantages of Roundup Ready® Alfalfa

EASIER WEED CONTROL

Get unsurpassed control of broadleaf and grass weeds, as well as suppression of most persistent, parasitic or poisonous weeds.

CLEANER STAND ESTABLISHMENT

Roundup Ready® Alfalfa's weed control helps you establish a strong stand.

DECREASED DAMAGE FROM HERBICIDES

Roundup Ready® Systems provide excellent crop safety with no crop rotation restrictions compared to conventional herbicide systems.

FLEXIBILITY IN APPLICATION TIMING

Enjoy the broadest application timing window for both crops and weeds. Wait only five days before grazing or harvest.

Controlling weed pressure during establishment provides these benefits:

MORE YIELD POTENTIAL

Roundup Ready® Alfalfa lowers weed pressure early on, leading to greater yield potential.

MORE QUALITY POTENTIAL

With fewer weeds in every ton, you can harvest a higher percentage of pure alfalfa.

MORE PERSISTENCE POTENTIAL

The Roundup Ready® Alfalfa trait helps establish a strong stand, giving you thicker, denser alfalfa year after year.



Learn more at RoundupReadyAlfalfa.com



AMERICASALFALFA.COM

