

Lightning EXTRA Alfalfa



Preferred Seed Company, Inc.

Lightning EXTRA, marketed exclusively by Preferred Seed Company, is one of the new elite alfalfa varieties. It combines high yield potential, excellent pest resistance, fast recovery after cutting, outstanding winterhardiness and persistence, and excellent forage quality with a high expression of the multifolioate trait.

Forage Yield

In yield trials conducted over a wide range of environments Lightning EXTRA has consistently ranked at or near the top, outperforming commercial check varieties by 6 to 8 % (Table 1), and because of it's excellent winterhardiness and persistence it is especially well suited to Northeastern soil conditions.

Lightning EXTRA was included in 2004 established Cornell University alfalfa trials at two locations, Ithaca (Tompkins County), and Perry (Wyoming County). At both locations in 2005, first harvest year, Lightning EXTRA was one of the highest yielding varieties topping check varieties by 10% and 15% respectively at the two locations.



Table 1

Grand mean yield of Lightning EXTRA versus other varieties in % of check at 8 locations over 2 harvest seasons *	
Variety	Grand Mean %
Lightning EXTRA	108
Garst 6410	101
WL 342	101
Pion 54V54	100
Geneva	100
Magnum V	99
WL325 HQ	99
Ameristand 403T	96
Affinity + Z	96

* Performance data provided by Forage Genetics

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Pest Resistance

Multiple pest resistance, especially for diseases, is an important feature of modern alfalfa varieties. Pests, both diseases and insects, can cause reduced forage yield, persistence and/or forage quality. The six diseases most commonly associated with alfalfa stand loss in the Northeast are: Bacterial wilt (Bw), Fusarium wilt (Fw), Verticillium wilt (Vw), Anthracnose (An), Phytophthora root rot (Prr), and Aphanomyces root rot (APH). As indicated in Table 2, based on information published by the National Alfalfa Review Board, Lightning EXTRA has high resistance to all 6 diseases. The University of Wisconsin has developed a disease resistance index (DRI) to measure combined resistance to the six major diseases. Lightning EXTRA has a DRI of 30, the highest possible score in the system.

Pea aphid is an occasional insect pest in the Northeast, and potato leafhopper can be a serious pest. While Lightning EXTRA has no known resistance to potato leafhopper it does have high resistance to pea aphid.

Table 2

Disease Resistance Ratings of Lightning EXTRA*	
Disease	Rating
BW	HR
FW	HR
VW	HR
AN	HR
PRR	HR
APH	HR
*From 2004/2005 edition National Alfalfa Review Board Report	
Based on the University of Wisconsin disease resistance index (DRI) Lightning EXTRA has a DRI of 30, the highest possible score in the system.	

Winterhardiness and Fall Dormancy

Fall dormancy and winterhardiness ratings help to determine where a variety is best adapted. In older varieties winterhardiness was closely related to early fall dormancy and slower recovery after cutting. Lightning EXTRA is the product of a selection program by alfalfa breeders designed to change the fall dormancy/winterhardiness relationship. The result – a new generation of varieties, including Lightning EXTRA, that combines later fall dormancy, excellent winterhardiness and persistence, and fast recovery after cutting along with excellent forage yield potential.

Table 3 summarizes ratings for fall dormancy, winterhardiness and recovery after cutting for Lightning EXTRA compared with several commercial checks.

Table 3

Fall Dormancy (FD), Winterhardiness (WH), Persistence (PI), and Recovery after Cutting (Rgw) ratings of Lightning EXTRA compared to those other varieties evaluated at several locations in upper Midwest *				
Variety	FD	WH	PI	Rgw
Lightning	3.7	1.1	8.3	8.9
Dart	3.0	3.0	6.2	-
DK 134	2.9	1.8	8.9	8.2
G 2852	4.2	4.0	3.0	-
Affinity + Z	3.6	2.8	5.5	6.9
Magnum V	4.3	3.1	5.0	7.4
Vernal	2.0	2.0	5.7	-
54H69	2.9	3.0	5.0	5.4
(1) FD 1 = earliest dormant 9 = non-dormant				
(2) WH 1 = most hardy 6= least hardy				
(3) PI 9 = most persistent 1 = least persistent				
(4) Rgw 1 = slowest recovery 9 = fastest recovery				
*Data provided by Forage Genetics				

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Forage Quality

Lightning EXTRA has a high expression of the multifoliolate leaf trait. This in itself is considered a component in improved forage quality. However, most animal nutritionists agree that intake and digestibility are the forage quality parameters most meaningful in predicting animal performance with Relative Feed Value (RFV), the index used to compare the quality of different forages. Table 4 is a summary of studies by the University of Minnesota / University of Wisconsin NIRS Consortium that compares the feed value of Lightning EXTRA with several commercial checks.

Table 4

Forage quality parameters of several alfalfa varieties*				
Variety	(1)	(2)	(3)	(4)
Lightning EXTRA	40.5	41.0	76.1	143
WL 325 HQ	40.7	42.1	76.5	141
Affinity + Z	40.6	38.9	75.2	142
Magnum V	41.4	40.0	75.1	135
53Q60	41.2	39.2	74.9	139
(1) NFD = neutral detergent fiber				
(2) CWD = cell wall digestibility				
(3) IVDMD = invitro dry matter digestibility				
(4) RFV = relative feed value				
*Data provided by University of Minnesota / University of Wisconsin NIRS Consortium				

Table 5

Variety	2001 Yield T/A	Mean RFV	2001 Lbs. milk / acre
Lightning EXTRA	8.29	143	20,309
WL 325 HQ	7.34	141	18,170
Affinity + Z	7.28	142	17,293
Magnum V	7.56	135	17,967
53Q60	7.29	139	17,194

The Agronomy and Dairy Science Departments at the University of Wisconsin have developed a series of equations to predict milk production per acre from forage. Forage yield, NDF, IVDMD and % protein are used in this calculation. Alfalfa variety differences in forage yield potential and forage quality potential can both have a significant impact on economic return for dairy farmers. The milk/acre calculation is a useful way to compare the potential for economic return for varieties that differ in forage quality and forage yield potential.

Table 5 compares total milk production per acre for Lightning EXTRA with several competitive check varieties in trials averaged over three locations in Wisconsin.

About Seed of Lightning EXTRA

Seed increase of Lightning EXTRA is on a limited generation basis to ensure genetic purity. Also all seed of Lightning EXTRA is certified.

To assure maximum stand establishment seed of Lightning EXTRA is pre-inoculated with Dormal Plus and treated with the Apron Fungicide for protection against soil born diseases.

Untreated seed of Lightning EXTRA alfalfa is available for Northeast Organic Producers.

Summary

Lightning EXTRA combines exceptional forage yield potential, fast recovery after cutting and excellent winterhardiness. Its multiple pest resistance is excellent and its high multifoliolate expression along with its dark green color and very fast recovery after cutting provide excellent visual impact. Lightning EXTRA has performed well over a wide range of environments in the Northeast and upper Midwest and is an excellent variety for all areas where FD3 and FD4 varieties are typically planted

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