

ALFALFA

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Legend

- EX = Excellent
- VG = Very Good
- G = Good
- F = Fair

Average Seeds Per Pound

Alfalfa	199,000
Barley	14,300
Bromegrass	136,000
Clovers	
Sweet	240,000
Alslike	653,000
Red	252,000
White	784,000
Oats	16,200
Orchardgrass	653,000
Ryegrass	227,000
Sorghum	15,000
Sudangrass	4,000
Timothy	1,234,000

Alfalfa Autotoxicity Reseeding Risk Assessment



	Points	Score
1. Amount of previous alfalfa top growth incorporated or left on soil surface		
Fall cut or grazed	1	
0 to 1 ton top growth	3	
More than 1 ton top growth	5	
2. Disease resistance of the variety to be seeded		
High disease resistance	1	
Moderate disease resistance	2	
Low disease resistance	3	
3. Irrigation or rainfall potential prior to reseeding		
High (greater than 2 inches)	1	
Medium (1 to 2 inches)	2	
Low (less than 1 inch)	3	
4. Soil Type		
Sandy	1	
Loamy	2	
Clayey	3	
5. Tillage prior to reseeding		
Moldboard plow	1	
chisel plow	2	
No-till	3	
6. Sum of points from questions 1-5		
7. Age of previous alfalfa stand		
less than 1 year	0	
1 to 2 years	0.5	
More than 2 years	1	
8. Reseeding delay after alfalfa kill/plowdown		
12 months or more	0	
6 months	1	
2 to 4 weeks	2	
Less than 2 weeks	3	
Your total score (multiply points from 6, 7 and 8)		

Alfalfa Reseeding Risk

Your score:	Autotoxicity risk is:	Recommendation
0	Low	Seed
4 to 8	Moderate	Caution, potential yield loss
9 to 12	High	Warning, yield loss likely
> 13	Very High	Avoid reseeding, likely stand & yield loss

Source: Craig Sheaffer, Dan Undersander, and Paul Peterson, Universities of Minnesota and Wisconsin, 2004

ALFALFA

Brand Name	Performance Assured	Fall Dormancy	Winter Hardiness	Yield Expectation	Forage Quality	Disease Resistance	Seedling Vigor	Stand Persistence	Regrowth After Harvest	Standability	Wheel Traffic Resistant	Harvest Cuts	ML Expression
Sustain E brand	 3	5	EX	EX	EX	VG	EX	EX	EX	EX	EX	4-5	EX
Sustain W brand	 3	5	EX	EX	EX	EX	EX	EX	EX	VG	VG	4-5	VG
Ascend 552	3	5	EX	EX	VG	EX	EX	EX	EX	G	EX	4-5	VG
Haymaker II Supreme	3	4	EX	VG	EX	EX	EX	EX	VG	G	EX	3-4	EX
Bronco brand	3	4	EX	EX	VG	EX	EX	EX	VG	G	EX	4-5	VG
Matrix brand		3	EX	VG	EX	EX	EX	VG	VG	G	VG	3	EX
K9681 brand	3	3	VG	G	EX	EX	EX	EX	G	G	EX	2-3	EX
Kow Chow Ultra brand		3	VG	G	G	G	VG	G	G	G	G	3	VG



Performance Assured alfalfa products listed meet or exceed Kussmaul Seeds' Performance Assured criteria for exceptional performance and value

SUSTAIN E brand

Sustain E brand alfalfa is a licensed proprietary variety marketed as a brand by Kussmaul Seeds.

Key Features: A high yielding variety with StandFast Alfalfa technology traits for improved standability through mid-bloom and 20% faster growth after harvest.

Genetic Background: A variety developed from crossing European germplasm screened for U.S. adaptability onto elite U.S. fall dormancy 4 plants selected for superior yield, persistence and forage quality

Field Appearance at Bud Stage: Plants are tall with an upright growth habit. Sustain E features a dense, uniform canopy and a dark green color.

Multifoliate Leaf Expression: 65%.

Fall Dormancy: 5.0

Winter Hardiness Rating: 2.8

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - R; Fusarium Wilt - HR

Management Keys: A variety for the grower where lodged alfalfa has been a problem. The fast recovery trait does not express itself until the third crop of the seeding year. The improved standability starts in the year of establishment. Best adapted to 4- and 5-cut harvest systems. Expect Sustain E to reach the late bud or early flower stage 3 days ahead of most fall dormancy 4 alfalfas. Recommended for aggressive, balanced forage management systems on the most productive fields.

No known soil type or management limitations.

SUSTAIN W brand

Sustain W brand alfalfa is a licensed proprietary variety marketed as a brand by Kussmaul Seeds.

Key Features: A high yielding variety with StandFast Alfalfa technology traits for 30% faster growth after harvest and improved standability through late-bud.

Genetic Background: A variety developed from crossing European germplasm screened for U.S. adaptability onto elite U.S. fall dormancy 4 plants selected for superior yield, persistence and forage quality.

Field Appearance at Bud Stage: Plants are tall with a full, dense, uniform canopy. Medium green plant color. Multifoliate Leaf Expression: 66%

Fall Dormancy: 5.0

Winter Hardiness Rating: 2.1

Pest Package: Anthracnose - R; Aphanomyces - R; Bacterial Wilt - HR; Phytophthora Root Rot - R; Verticillium Wilt - R; Fusarium Wilt - HR

Management Keys: A variety recommended for aggressive, balanced management systems on the most productive fields. Sustain W's faster growth after harvest will help growers maximize total yield of high quality forage each cropping season. Fast growth trait does not express itself until after third crop of seeding year. Improved standability protects crop through bud stage. Best adapted to 4- and 5-cut harvest systems in fall dormancy 3, 4 and 5 production zones. Sustain W will reach the late bud stage 3-5 days ahead of current varieties of the same dormancy. Exceptional tolerance to higher pH soils in the West. Harvest before regrowth starts from crown. No known soil type limitations.

Research has proven that Sustain E performs best when planted east from a geographical line separating Iowa and South Dakota. Sustain W performs better west of this line in a drier environment.



ASCEND 552

Ascend alfalfa is a licensed proprietary variety marketed as Ascend 552 by Kussmaul Seeds.

Key Features: A very high yielding fall dormancy 5 variety with persistence equal to Vernal.

Genetic Background: A variety comprised of elite yield trial plants from Pennsylvania crossed onto elite dormancy four plants selected for high forage quality.

Field Appearance at Bud Stage: Plants are tall with an upright growth habit. Medium dark green foliage.

Multifoliate Leaf Expression: 68%

Fall Dormancy: 5.0

Winter Hardiness Rating: 2.22

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - HR; Fusarium Wilt - HR

Wheel Traffic Performance: An 11% advantage over Ameristand 403T.

Management Keys: A variety for growers who aggressively manage their alfalfa crop and want a more uniform yield distribution across each season's harvest. Best adapted for 4- to 5-cut harvest systems and harvest as haylage and baled. Early maturity to first crop. Recommended for the more productive soils and aggressive management. No known soil or management limitations.

HAYMAKER II SUPREME

Supreme alfalfa is a licensed proprietary variety marketed as Haymaker II Supreme by Kussmaul Seeds.

Key Features: A high quality yielding variety with persistence and wide area adaptation.

Genetic Background: A variety comprised of elite plants selected for forage quality and disease resistance crossed onto yield trial plants for persistence.

Field Appearance at Bud Stage: A fine-stemmed, leafy variety that is medium-tall and hides its yield in a dense canopy. Medium to medium-dark green foliage.

Multifoliate leaf expression 97%

Fall Dormancy Rating: 4.0

Winter Hardiness Rating: 1.9

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - HR; Fusarium Wilt - HR

Management Keys: A variety well adapted across fall dormancy 3 and 4 production zones. Well suited for 3- or 4-cut harvest systems and long rotations. Medium maturity to first crop harvest. Rapid recovery after harvest. High stem count per crown provides high yield. Very high forage quality potential.

No known soil or management limitations.

BRONCO brand

Bronco brand alfalfa is a licensed proprietary variety marketed as a brand by Kussmaul Seeds.

Key Features: A fall dormancy 4 variety with very high, stable yield potential.

Genetic Background: A variety comprised of poly-crossed elite fall dormancy 4 yield trial plants.

Field Appearance at Bud Stage: Features tall, showy plants and a dense leafy canopy. Medium-dark green foliage. Multifoliate Leaf Expression 80%

Fall Dormancy Rating: 4.0

Winter Hardiness Rating: 2.0

Wheel Traffic Performance: A 20% yield advantage over Ameristand 403T

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - R; Fusarium Wilt - HR

Management Keys: A variety for the high yield requirements of growers across production zones where fall dormancy 3, 4 or 5 alfalfa is grown. Best adapted to 4- cut harvest systems and responds well when pushed by aggressive managers. Medium early maturity to late bud. Fast recovery after harvest. Performs well in longer rotations where stand persistence in later years is important. Adapted for late season grazing tolerance. No known soil or management limitations.

Matrix brand

Matrix brand alfalfa is a licensed proprietary variety marketed as a brand by Kussmaul Seeds.

Key Features: Stable yield performance and resistance to Aphanomyces Race II Root Rot.

Genetic Background: A variety comprised of elite fall dormancy 3 plants selected for Aphanomyces Race II Root Rot resistance.

Field Appearance at Bud Stage: Medium-tall, uniform plants with a dense leaf canopy. Medium, dark green plant color. Multifoliate leaf expression: 60%

Fall Dormancy: 3.0

Winter Hardiness Rating: 2.0

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - HR; Fusarium Wilt - R

Management Keys: Expect best overall performance when grown in areas where Aphanomyces Race II Root Rot is an identified problem. Does well under 3- to 4-cut harvest systems for haylage or hay production. Medium maturity to first harvest.

No known soil or management limitations.

K9681 brand

K9681 brand alfalfa is a licensed proprietary variety marketed as a brand by Kussmaul Seeds.

Key Features: A fall dormancy 3 brand for growers who expect top forage quality and exceptional winter survival.

Genetic Background: A variety comprised of elite fall dormancy 3 yield trial plants selected for stand persistence, drought tolerance, and screened for crown and root health.

Field Appearance at Bud Stage: An eye appealing brand with a uniform, medium-tall, semi-upright growth habit and healthy, dark green foliage.

Multifoliate leaf expression: 84%

Fall Dormancy: 2.75

Winter Hardiness Rating: 1.75

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - HR; Fusarium Wilt - HR

Management Keys: K9681 brand fits 2 or 3 cut harvest systems and medium-long rotations. Expect a fast start in the spring, a medium early maturity to 1/10th flower. For dryland areas or where irrigation water is short. No known soil type or management limitations.

Kow Chow Ultra brand

Kow Chow Ultra brand alfalfa is a blend of proprietary varieties marketed as a brand by Kussmaul Seeds.

Genetic Background: A blend of elite fall dormancy 3 varieties selected for yield and high forage quality.

Field Appearance at Bud Stage: Leafy plants are medium-tall with a dense, semi-upright growth habit.

Medium-green foliage. Multifoliate leaf expression: 80%

Fall Dormancy: 3.0

Winter Hardiness Rating: 2.5

Pest Package: Anthracnose - HR; Aphanomyces - HR; Bacterial Wilt - HR; Phytophthora Root Rot - HR; Verticillium Wilt - R; Fusarium Wilt - HR

Management Keys: A fall dormancy 3 brand that has wide geographic adaptation, fits 3- or 4-cut harvest systems and provides the best performance in short to medium-long rotations. Medium maturity to late bud or early flower. Fast recovery after harvest. Not adapted to grazing. No soil type or management limitations.

