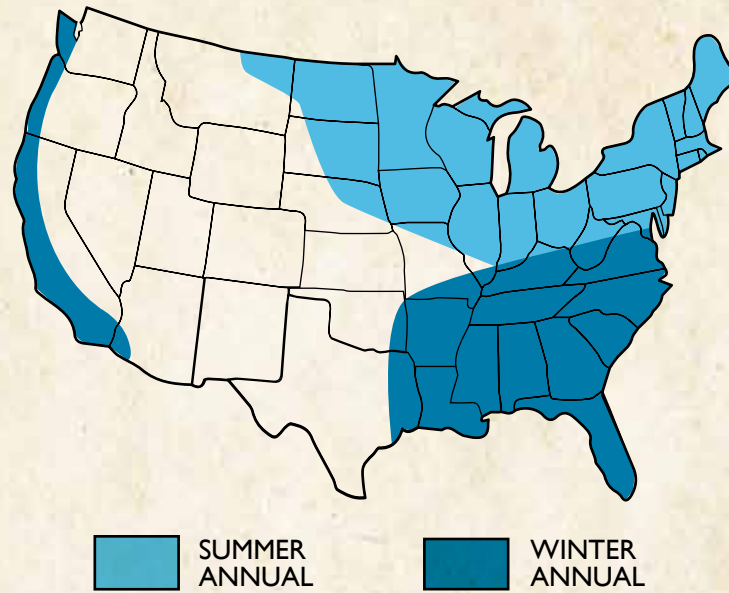


Recent studies have shown that an 80/20 alfalfa/berseem clover mix could increase yield, crude protein, and water soluble carbohydrate levels in hay fields. Hay yields were reported to be increased by more than 30%.



Species Background

Berseem clover, *Trifolium alexandrinum*, is a cool-season annual legume that is native to the eastern Mediterranean region. Berseem clover performs best on fertile, medium to heavy textured soils that are mildly acidic to neutral pH.

Berseem clover can be used in mixtures with other legumes and grasses in pasture or hay situations. Berseem clover is unique in that it is not known to cause bloat in livestock. In pasture applications, berseem clover will not only improve the quality and yield of the forage it can also create substantial quantities of nitrogen improving both the quality and quantity of forage long after the clover has reached the end of its lifecycle. Berseem clover has also



been shown to have a synergistic relationship with alfalfa, improving the overall forage yields. Other applications include hay, as a cover crop for nitrogen production, and in over-seeding warm season grasses and crops that can utilize the nitrogen created by the clover over winter months.

Berseem clover has very low hard seed counts and as a result is not useful in applications where re-seeding is of high importance. Berseem clover has a moderate tolerance to salinity and can withstand short periods of waterlogged soils. Berseem clover is sensitive to weed competition and as a result should only be sown on clean, well-prepared seed beds.

In a recently published paper (Al-Suhaibani; 2010), it has been shown that a 80/20 alfalfa/berseem clover mix could increase yield, crude protein, and water soluble carbohydrate levels in hay fields. Hay yields were reported to be increased by >30%. This merits further study in the United States as it could greatly increase yields and as a result decrease feeding costs.

Green Manure

For millennia, berseem clover has nourished soils in the Mediterranean and has been the foundation for agricultural fertility in the Nile Delta. It is less prone to possible N leaching if grown to maturity without cutting, when it produces 100 to 125 lb. N/A. Its dry matter N concentration is about 2.5 percent.

Companion crop

Planted with oat, the two crops can be harvested together as silage, haylage or hay, depending on the crops development stage. Berseem/oat haylage has very high feed quality if cut at oats' boot stage. Dry seasons favor development of an oat grain crop, after which berseem clover can be cut one, two or three times in the Midwest.

Quick growing

At 60° F, berseem clover will be ready to cut about 60 days after planting.

Grazing and forage crop

At 18 to 28 percent protein, young berseem clover is comparable to or better than crimson clover or alfalfa as feed. No cases of bloat from grazing berseem clover have been reported. Forage quality remains acceptable until the onset of seed production.

Clark, Andy (ed.). 2007. Managing Cover Crops Profitably, 3rd ed. Sustainable Agriculture Network, Beltsville, MD

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 We've combined the best in forage and cover crop research to find an effective new solution to your cover crop needs.





Frosty Varietal Background

Grassland Oregon has been investigating the potential of annual clovers for both a forage and nitrogen source. Escalating fertilizer prices as well as an increased interest in the utilization of cover crops in the Midwestern United States led us to believe that there would be a demand for a forage/nitrogen fixing legume that could fill that particular need. The experimental cultivar Frosty is the result of our efforts.

Frosty is approximately 45 days later in maturity than Dixie crimson clover when Fall sown. The later maturity allows for multiple cuttings/grazing. Fully developed plants exhibit excellent re-growth. Crude protein levels have been measured ranging from 16.5% to 22.1% with relative feed values measured as high as 182.



FORAGE TESTING LABORATORY

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Lab received: 05/04/11
Date printed: 05/05/11
Lab use: .936

KIND DESCRIPTION	CODE	LAB SAMPLE
LEGUME PASTURE	010	16525270
DESCRIPTION I FROSTY BERSEEM CLOVER		
ANALYSIS RESULTS		
COMPONENTS	AS SAMPLED BASIS	DRYMATTER BASIS
% Moisture	80.2	
% Dry Matter	19.7	
% Crude Protein	3.2	16.5
% Available Protein	3.0	15.1
% ADICP	.3	1.4
% Adjusted Crude Protein	3.2	16.5
Soluble Protein % CP		35
Degradable Protein % CP		68
% NDICP	.7	3.6
% Acid Detergent Fiber	4.6	23.1
% Neutral Detergent Fiber	7.1	36.2
% Lignin	1.1	5.4
% NFC	8.0	40.6
% Starch	2.4	12.0
% WSC (water Sol. Carbs.)	3.2	16.4
% ESC (Simple Sugars)	2.5	12.9
% Crude Fat	.8	4.0
% Ash	1.24	6.28
% TDN	14	69
NEL, Mcal/Lb	.14	.73
NEM, Mcal/Lb	.14	.72
NEG, Mcal/Lb	.09	.45
Relative Feed Value		182
% Calcium	.20	1.00
% Phosphorus	.06	.33
% Magnesium	.04	.22
% Potassium	.40	2.05
% Sulfur	.04	.19
% Chloride Ion	.03	.14
% Lysine	.17	.85
% Methionine	.05	.26
Horse DE, Mcal/Lb	.25	1.28

ENERGY TABLE - NRC 2001		
	Mcal/Lb	Mcal/Kg
DE, IX	1.40	3.09
ME, IX	1.21	2.67
NEL, 3X	0.71	1.55
NEM, 3X	0.74	1.63
NEG, 3X	0.47	1.03
TDNIX, %	69	

2013 ANNUAL CLOVER YIELDS

Holly, MS Planted 9/28/2012

HARVEST DATE

Variety	4/18/13	5/29/13	TOTAL
Frosty berseem clover	1400	1415	2815
FIXatioN balansa clover	1955	770	2725
Common crimson clover	1525	657	2182
Bokena crimson clover	1473	312	1785
Au Don ball clover	689	985	1674
Grazers Select ball clover	-	1266	1266

Estimated net nitrogen yield (yield of the zero nitrogen treatment subtracted out) of the bermudagrass pastures receiving conventional nitrogen fertilizer (100 pounds nitrogen, 200 pounds nitrogen) or planted with various clovers.

Louisiana Agriculture Magazine 2010

