2014

Red Clover Variety Persistence Trial

Stephen K. Barnhart
Iowa State University, sbarnhar@iastate.edu

David Rueber
Iowa State University, drueber@iastate.edu

Red Clover Variety Persistence Trial

Abstract
In response to questions about the longevity of the forage legume red clover (Trifolium pretense) in northwest Iowa, a variety trial was initiated in 2010 with a few examples of alternative red clover varieties. For a long time, red clover has been considered a shortlived (2-year) perennial, with some yield in the planting year and generally good production for one additional production year. Plants generally are lost because of a combination of root and crown diseases and winterkill. Red clover breeders have been selecting for improved plant resistance to the root/crown vascular wilt diseases, as well as northern and southern anthracnose. With improvement in anthracnose resistance has come somewhat better persistence. Several new red clover varieties are being marketed as 3- and 4-year production varieties.

Keywords
Agronomy

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences

Red Clover Variety Persistence Trial

RFR-A1396

Stephen Barnhart, professor
Department of Agronomy
David Rueber, former farm superintendent

Introduction

In response to questions about the longevity of the forage legume red clover *(Trifolium pretense)* in northwest Iowa, a variety trial was initiated in 2010 with a few examples of alternative red clover varieties. For a long time, red clover has been considered a short-lived (2-year) perennial, with some yield in the planting year and generally good production for one additional production year. Plants generally are lost because of a combination of root and crown diseases and winterkill. Red clover breeders have been selecting for improved plant resistance to the root/crown vascular wilt diseases, as well as northern and southern anthracnose. With improvement in anthracnose resistance has come somewhat better persistence. Several new red clover varieties are being marketed as 3- and 4-year production varieties.

Materials and Methods

Four red clovers were tested. Breeders selected Redland III for improved southern anthracnose resistance, Marathon for improved northern anthracnose resistance, and FSG960 for improved resistance to northern and southern anthracnose and powdery mildew. A locally available seedlot of common medium red clover also was included for comparison.

Entries were planted April 5, 2011, with four replicates. Oats were planted as a companion crop. In 2010, 0-300-240 fertilizer was applied before planting. The oats were killed with a grass-control herbicide in early summer of the seeding year. Stand counts were taken in the spring of production years 2011-2013. Plots were harvested twice in 2011, twice in 2012, and three times in 2013. Yields were calculated and reported on an air-dry basis.

Results and Discussion

As is typical for red clover, stand density decreased over the life of the stand (Table 1). Marathon maintained the highest stand density into the fourth growing season. Four plants per square foot, or more, are usually considered to be an economically viable stand density.

Seasonal yields (Table 2) of the three improved red clover entries were significantly higher in the third growing season (2012), with the variety Marathon maintaining significantly higher yields into the fourth growing season. Yields declined somewhat as stand density declined over the years of production.

From this limited trial, it appears that improved red clover varieties merit consideration for inclusion in forage production systems in the area.

Acknowledgements

Thanks to David Rueber, former farm superintendent, for doing the majority of the work on this project.

Table 1. Red clover stand counts, 2011-2013.

	2011		2012		2013	
	Range	Avg	Range	Avg	Range	Avg
Entry	Plants per square foot					
Common medium red clover	5.5-18.5	15.50	3.5-7.5	5.8	0-1	.25
Redland III	11-18.0	14.25	5-9	7.8	0.2	.75
Marathon	7.5-20.0	15.00	1-6	2.6	0-3	1.25
FSG9601	15.5-24.5	18.25	1-4.5	3.3	0-5	2.50

Table 2. Red clover variety trial yields. Kanawha, 3-yr yields 2011-2013.

	2011	2012	2013	3-yr total
Entry	Dry matter, tons/acre			
Common medium red clover	1.38	0.76	1.00	3.69
Redland III	2.04	2.5	0.95	6.62
Marathon	1.95	3.18	2.26	8.67
FSG9601	1.75	2.68	0.65	6.2