

SLOPE COUNTY ANNUAL FORAGE CROP DEMONSTRATION PLOT - RESULTS 1998

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Summary

Non-replicated demonstration plots were seeded to a Conlon barley, Haybet barley, Paul oat, a combination of Trapper pea with Conlon or Haybet barley or Paul oat, and corn to provide producers the opportunity to see annual forages grow in the Amidon, ND area. Since this was a non-replicated demonstration, no estimate of error due to variable soil and other conditions can be made for proper interpretation of the results. Results are reported as a point of interests and not for a valid comparison of varieties or crops. Replicated results from Research and Extension Centers located in North Dakota should be utilized to help with the selection of crops and varieties. The annual forage crop demonstration plot would suggest that producers have a number of options available to grow good quality, high yielding annual forages to supplement traditional forage supplies.

Introduction

Annual forages are often considered as emergency feed by producers in times of drought and are often by passed by producers in favor of perennial grass and alfalfa. Some producers perceive that annual forages are less productive and more expensive to harvest. Low wheat and barley prices have prompted producers to consider haying cereal grain fields and feeding it to cattle rather than harvesting it for grain. Also producers who have traditionally cut hay from native and introduced species are questioning the economics of harvesting hay from low producing fields and pastures.

The purpose of the demonstration was to show the potential that annual crops have for use in producing forage in

Materials and Methods

The demonstration was initiated on a conventional-tilled site where the previous crop was barley. At seeding, using the Brown probe, approximately four inches of plant available water was estimated to be stored in the soil. The plot received approximately eight inches of rain from the time the plot was seeded until the cool season forages were harvested. Corn received an additional three inches of rain prior to harvest. A soil fertility test taken on March 26 indicated that the soil contained 22 lb./acre of nitrate nitrogen, 8 ppm phosphorous (Olson), 270 ppm potassium, 2 lbs/acre sulfur, 1.3 ppm zinc and 80 lbs/acre of chloride. Fertilizer was broadcast at the rate of 190 lbs of ammonium sulfate (21-0-0-24) and 50 lbs of mono-ammonium phosphate (11-55-0) per acre and incorporated prior to seeding. Cool season forages were seeded with a double disc drill on April 30 and the corn was seeded with a two-row corn planter on May 9. Buctril 2E was applied May 30 at the rate of 1 pint/acre to barley and oat plots but not on intercropped barley-pea or oat-pea plots. Harvest for the cool season forages was July 17 and corn silage harvest was September 18. At harvest, Conlon barley was in the hard dough, Haybet barley and Paul Oat were in the soft dough stage of development, and corn was mature, black layer formed.

Results and Discussion

The results found in Table 1 are from the non-replicated annual forage demonstration near Amidon. The results seen at the Amidon demonstration tend to be supported by the results of replicated research conducted at the Dickinson Research Extension Center by Dr. Pat Carr (1998). Haybet is a forage type barley while Conlon barley and Paul oat are bred primarily for grain production. Forage varieties tend to produce more hay than varieties bred for grain. The intercropping of pea with the a cereal forage can increase crude protein levels but not always. The intercropping of pea with a cereal does not increase the hay yield produced under the water limiting environments found in southwest North Dakota.

Varieties for annual forage production should be selected based on replicated annual forage trial results. Results are available from your county extension agent or various Research Extension Centers. The web address for the NDSU-RECs is: <<http://www.ag.ndsu.nodak.edu/recenthp.htm>>.

Literature Cited

Carr, P.M., G.B. Martin, J.S. Caton, and W.W. Poland. 1998. Forage and nitrogen yield of barley-pea and oat-pea intercrops. *Agron.J.* 90:79-84.

Table 1. Annual forage crop demonstration, Donald Nordby Farm, Amidon, ND, 1998.					
	Yield		DM Basis		
Variety	12% ¹	DM ²	CP ³	ADF ⁴	NDF ⁵
<u>Cool Season</u>	tons/acre		%		
Conlon Barley	2.8	2.5	8.6	36.8	59.8
Conlon Barley + Trapper Pea	2.8	2.5	11.5	38.2	58.3
Haybet Barley	3.5	3.1	9.3	36.7	60.7
Haybet Barley + Trapper Pea	3.7	3.3	9.7	40.0	60.2
Paul Oat	3.1	2.8	8.5	38.2	60.9
Paul Oat + Trapper Pea	3.0	2.6	10.7	41.3	60.3
<u>Warm Season</u>					
Corn DK493RR	--	4.1	8.1	29	--
<u>Book values for selected hays⁶</u>					
Alfalfa hay, early-bloom	--	--	18	31	40
Alfalfa hay, mature	--	--	13	44	57
Alfalfa-grass mixed hay	--	--	16	37	50

Oat hay	--	--	9.3	36	62
Barley hay	--	--	8.7	--	--

¹ Yield at 12% moisture basis.

² DM is yield on a dry matter basis (0% moisture).

³ CP is crude protein.

⁴ ADF is acid detergent fiber.

⁵ NDF is neutral detergent fiber.

⁶ Book values for alfalfa and alfalfa grass mix hay quality are provided for comparison and were not grown in trials in Slope County. Source: *Nutrient Requirements of Beef Cattle 6th revised edition*, National Academy Press, Washington, D.C., 1984.

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