Emergency Forage Plantings in Central Wisconsin: Preliminary Results

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For most dairy and beef cattle producers in Wisconsin, alfalfa is the primary forage crop used for winter feed supplies. In 2005, we experienced more winterkill which left producers faced with an immediate loss in the supply of high quality forage.

This was an event we faced in 2002-2003 as many alfalfa fields in the Upper Midwest were water-saturated going into winter, and had essentially no snow cover combined with some very cold temperatures. In 2004-2005, we had freezing rain with no snow cover in late December which resulted in a very thick ice formation on many fields. With the concerns about autotoxicity of alfalfa, the ability to replant alfalfa in winter killed alfalfa fields was not possible unless it was a fall new seeding in 2004. Even if producers risk attempting to re-seed alfalfa after alfalfa, the seeding year productivity always falls far short of an established stand's productivity.

In light of this situation, most producers were faced with a forage supply shortage and would generally need to plant an annual forage crop to fill the gap. Proper selection and management of the emergency forage can be a key to the farm's short- and long-term profitability and sustainability.

Central Sands of Wisconsin Trial - 2005:

For the past few years, researchers at the University of Wisconsin and the University of Minnesota have conducted trials on yield and feeding value of various annual crop alternatives. Since none of the Wisconsin and Minnesota trials were done on sandy soil, many producers were interested in what would be the best emergency crop in the Central Sands area. Using funds from a UW-Extension grant and the land of an Adams County farmer located north of Grand Marsh, a 13-acre parcel was chosen as a site for the trials. This land had not grown a crop for 4 years and had a weak stand of alfalfa in it and a large weed population of green foxtail. Land was tilled by disking on May 21 and May 28 to control weeds. Only a few scattered alfalfa plants survived the disking. On June 2, the entire field was planted using the 10 ft no-till drill. Most seeds were planted into moist soil at a planting depth of 0.75 inch to 1.5 inch. All the crops tested were planted into one acre plots. On June 4, the field received 0.2 inch of rain. On June 5, the area received 0.6 inch of rain. On July 4, the field received 0.7 of an inch. The heat (9 days of 90 degree plus) and lack of rain affected some of the forages, but they recovered after receiving 6 inches of rain from July 20 to 25. The rest of the summer continued hot and dry.

On July 11, 35 lbs of nitrogen, 25 lbs of sulfur and 15 lbs of phosphorus per acre were applied. On August 6, the plots were harvested using a pull-type windrower/conditioner at the 4-inch level. With good drying conditions, the plots were ready to harvest in 48

hours and were round baled. Five sub-samples per harvested crop were randomly sampled from 10 ft by 10 ft sub-plots. The yield data, pounds milk per ton, percent crude protein, and pounds milk per acre in Table 1 are the means of these sub-samples.

Table 1. Emergency forage plots in the Central Sands of Wisconsin

Entry	**Planting Date June 2, 2005**		**Aug 6 Cutting**		**Lab Analysis**	
Species	Rate/acre	Cost/acre	Ton DM/acre	lb Milk/ton	%CP	lb Milk/acre
Corn (110 day RM)	20 lbs	$18	6.1	3,273	11.5	20,050
UW Grazing Composite Corn	20 lbs (25,000 plants)		4.8	3,389	12.3	16,146
Sesqui Oats	75 lbs	$10	1.4[1]	3,425	12.3	4,663
BMR Forage Sorghum	30 lbs	$15.60	4.8	3,203	11.5	15,260
Piper Sudangrass	30 lbs	$27	7.9[2]	3,227	11.1	21,964
Milo/Soybean Mix	150 lbs	$33	3.4	3,034	12.0	10,325
Italian Ryegrass	35 lbs	$34	2.3[1]	3,167	10.7	7,329
Japanese Millet	30 lbs	$15	2.7	3,132	14.2	8,527
German Millet	20 lbs	$14	5.4	2,822	12.4	15,366
Hybrid Pearl Millet	25 lbs	$18	5.8[2]	3,293	10.4	15,690
Derry Soybeans (R5)	50 lbs	$26	Weeds[1]		Weeds[1]	

[1] Since no chemical weed control was used, these plots had large populations of green foxtail.
[2] Additional forage was harvested on Sept. 20 for the hybrid pearl millet (0.95 ton DM/acre) and the piper sudangrass (1.1 ton DM/acre).

There were major differences in yield, pounds milk per ton, crude protein, and pounds milk per acre between the species in the trial. The piper sudangrass, 110-day RM corn, and hybrid pearl millet had the highest yields of the 11 species in the trial. Sesqui oats, the UW grazing composite corn, and the hybrid pearl millet produced the highest pounds of milk per ton. Japanese millet, German millet, Sesqui oats, and the UW grazing composite corn had the highest percent crude protein. The piper sudangrass, 110-day RM corn, UW grazing composite corn, and hybrid pearl millet produced the highest pounds of milk per acre.

Sudangrass has been a popular choice of area growers and appears to be the yield leader in total yield (7.9 tons DM/acre) and pounds milk per acre (21,964 lb milk per acre). Except for German millet, there were not major differences in pounds milk per ton in this trial.

Since the landowner wished to keep the field chemical free, weeds became a problem in the Sesqui oats, Italian ryegrass, and forage soybeans. This weed problem prevented the harvest of the forage soybeans. The warm season annuals did a good job of weed suppression and would not have needed herbicides, which for a producer would have increased their economic value.