

Effect of Green Spirit Italian Ryegrass in Crop Rotation on Corn Silage

Chief Investigator: Dr. Dan Undersander, Professor of Agronomy
University of Wisconsin, Arlington Research Station

Associate Investigator: Devesh Singh, Director of Research, **Barenbrug USA**

Effect of Green Spirit Italian Ryegrass on Next Year's Corn Silage Yield Compared to Conventional Rotation Options

Forage Crop	tons DM/acre	
	Yield	Corn Silage Yield
	2007	2008
Green Spirit Italian Ryegrass -25 Day cut	9.11	9.1
Green Spirit Italian Ryegrass -35 Day cut	8.69	8.6
Alfalfa	5.02	8.7
Soybean	—	8.6
Corn Silage	10.4	7.6
L.S.D (0.05)	0.16	0.8

Forage Crop	tons DM/acre	
	Yield	Corn Silage Yield
	2008	2009
Green Spirit Italian Ryegrass -25 Day cut	8.12	10.2
Green Spirit Italian Ryegrass -35 Day cut	8.76	10.2
Alfalfa	4.57	9.3
Soybean	3.87	8.8
Corn Silage	10.5	7.8
L.S.D (0.05)	0.32	0.2

Forage Quality of Green Spirit Italian Ryegrass compared to Conventional Rotational Options

Forage Crop	Forage Quality Parameters (Average)			
	Protein (% DM)	NDF (%DM)	NDFd (% NDF)	lbs milk/ton
Green Spirit Italian Ryegrass -25 Day cut	23.8	45.7	73.3	3370
Green Spirit Italian Ryegrass -35 Day cut	22.4	47.4	73.7	3410
Alfalfa	24.1	33.2	49.4	3252
Soybean	—	—	—	—
Corn Silage	7	46.8	53.8	3309
L.S.D (0.05)	0.6	0.8	1.6	59

Forage Crop	Forage Quality Parameters (Average)			
	Protein (% DM)	NDF (%DM)	NDFd (% NDF)	lbs milk/ton
Green Spirit Italian Ryegrass -25 Day cut	21.7	43.9	77	3615
Green Spirit Italian Ryegrass -35 Day cut	16.9	46.8	71.7	3468
Alfalfa	27.2	26.7	59.9	3975
Soybean	18.9	36.6	55.4	3597
Corn Silage	7.0	48.3	59.9	3249
L.S.D (0.05)	0.4	1.5	1.9	46

In The Rotation: Corn Silage, Soybeans, Alfalfa... *and Grass?*

There are two major reasons why farmers have been reluctant to include grasses into their rotation. One is that they are skeptical of what grasses can yield—both in terms of quantity and quality. And two, farmers are afraid that planting grass will depress their corn silage yields the following year.

Knowing this, Barenbrug organized trials which specifically examined whether these two concerns had any merit. Two questions were asked: first, can the quality and yield of an Italian ryegrass called Green Spirit compete with conventional rotation crops such as corn silage and alfalfa? And second, will planting Green Spirit depress corn silage yields on the same ground the following year? Dr. Dan Undersander conducted the investigation at the University of Wisconsin Arlington Research Station. The study was extensive and after two years of gathering data the results are impressive.

The yield results are displayed in table 1 and 2 (results are on back). **Green Spirit not only significantly out yields both alfalfa and soybeans, but it even comes close to yielding the same as corn silage.** But what does it do to the rotation? In the study, every crop was rotated out and followed by corn silage. You can see the results in the shaded bars. As you would expect, the worst corn silage yields were on ground that was planted to corn silage the previous year. But here is the surprising result: **The highest yields of corn silage were on ground that was planted to Green Spirit the previous year.** There was no yield depression, in fact there was actually a slight yield boost when compared to the legumes.

Now what about quality—because high yields mean little if the feed value is low? Tables 3 and 4 display the quality results. To the farmer who is used to dealing with unimproved, everyday grasses, these results will also be surprising. Notice how comparable the protein levels are between Green Spirit and the conventional legumes. Protein levels can be very high in well bred and well managed grasses. Now look at the fiber content. Don't just look at total fiber—but examine NDFd, which is fiber digestibility. Here Green Spirit gives the rumen exactly what it needs. **In terms of pounds of milk per ton of feed, Green Spirit both ties and out-yields corn silage in the two years of data.** Add in the health cost savings from including more quality fiber into the diet, and now profits are being maximized!



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