

**SARE Grant Final Report
Marshall Ryegrass
Roy Metheney**

1. Project name and contact information

**Evaluating Marshall Ryegrass
FNE 04-5286
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2. Goals

To evaluate Marshall Ryegrass as a forage to increase the quality of spring and fall grazing, and overall forage production.

3. Farm Profile

I am a full time cow/calf farmer in central West Virginia. I own a 127 acre farm and currently rent 176 acres. I currently have 44 head of commercial cattle and sell calves to an Ohio feedlot. I am currently fencing off 17 acres of grassland which will be used for hay production and set aside for extended grazing. I am also using temporary fencing to do rotational grazing. I have also constructed a feed pad and watering facility to be used for winter feeding. This should improve water quality, improve nutrient management, and reduce soil erosion.

4. Participants

Bruce Skidmore – Grassland Technician

5. Project Activities

On August 12, 2004 a second cutting of hay was taken on the field, it was baled on August 16, 2004. The Marshall Ryegrass was no till seeded on August 17, 2004. On August 25th the ryegrass had germinated and was approximately one inch tall. The ryegrass was 10 – 12 inches tall on September 20th. On September 20th a grass sample was taken and sent to Skyview labs in Pennsylvania, when the results were received the grass had a crude protein (CP) 22.7 and a total digestible nutrient (TDN) value of 70.

In October the grass was approximately 18 inches tall. I will probably graze the field in about one month.

The cattle were turned into the field on November 20th. At this time the the CP was 18.3 and TDN of 69. The cattle grazed the field for four days and then were removed. The grass was grazed down to a height of two inches. The field has been empty since November 25th. The field will be left alone until the spring growing season begins.

This spring, to meet soil test recommendations, 5 ton of lime and 5 ton of chicken litter were applied to the field.

On May 31, 2005 a sample of the ryegrass was taken to the ARS Lab in Beaver WV to determine dry matter production. The ryegrass had produced 5663 pounds of dry matter per acre.

Due to the wet spring and early summer we had this year the ryegrass was harvested late, the crop was past peak nutritional value. When the field was harvested, in June, the CP was 12.9 and TDN was 62, both of these values would have been greater if we could have harvested the grass on time.

A total of 49 eight hundred pound round bales was harvested, compared to 32 bales before the ryegrass was planted, an increase of 17 bales.

6. Results

The ryegrass germinated well and a good stand has been established. The nutritional values of the forage are very good, and are better than the other forage that is available. We also received four days of extended grazing for 40 head of cattle. The ryegrass produced 5663 pounds of dry matter per acre during the spring growing season of 2005. I thought the nutritional values at the time of harvest would have been better, but I think the weather conditions that forced a late harvest contributed to the lower values. Over all I was pleased with the planting, it increased my dry matter production and the nutritional values compare favorably to the other forages I have harvested.

7. Conditions

In this area the summer and fall of 2004 has been very wet, we have received more rainfall than normal. The winter has been very mild compared to past years. I am not sure if this is having a positive or negative effect on the planting. However if the project was repeated the results may vary due to different weather conditions. The spring and early summer of 2005 was also wet, which delayed the harvesting of the ryegrass. I know this had an negative effect on the nutritional value of the forage.

8. Economics

The greatest expense that I had was the cost of the ryegrass seed which was 156 dollars. The cost of fertilizing was greatly reduced by using the chicken litter instead of commercial fertilizer. The only other major costs I had was tractor time and labor that was required to plant and harvest the forage. However if the marshall ryegrass would constantly produce the amount of forage that I received the costs of planting would be more than off set by the value of the forage that is harvested.

9. Assessment

Although the amount of dry matter that was produced per acre was good I thought the nutritional values would have been greater.

Production would be probably be better if the ryegrass was a pure stand instead of seeded into the existing forage, but I did not want to destroy the existing forage in this trial I was trying to improve the quality and quantity of my grassland.

I possibly might be interested in planting a pure stand of marshall ryegrass to determine the quality and production of the forage. I would also like to try the ryegrass as a follow up to a small grain crop, but in this area the climate is not suited for this type of planting. Possibly some test plantings could be conducted in a region with a milder winter climate.

I would also be interested in comparing marshall ryegrass to some other varieties of annual ryegrass. There are cheaper varieties to plant if the quality was comparable.

10. Adoption

Over all I was pleased with the outcome of the planting. The amount of dry matter produced was good and the nutritional value would have been better if it could have been harvested on time. If I continue to receive the production that was harvested this year I will continue to plant the ryegrass, it improved the over all production of forage on my farm.

11. Outreach

The planting has been viewed by several different producers on an individual basis and the data that has been collected was shared with them. The enclosed article was published in all four of the newspapers that serve the counties in the area where the planting was conducted. The newspaper article was also shared the

Grassland Technicians that serve the producers throughout the state of West Virginia.

The enclosed handout was also made available to producers throughout the area. Copies of the hand out were left at retail outlets throughout the area.

I have also had many discussions with producers that have had questions about the planting after reading the newspaper article.

12. Report Summary

The purpose of the project was to determine if marshall ryegrass would increase the quantity and quality of the forage in this area. The ryegrass was no till seeded into existing forage after a second cutting of hay was taken. The ryegrass was grazed in the fall and then left alone until the following year when a cutting of hay was harvested. The production and nutritional values were checked at different times throughout the project.

The ryegrass produced 5663 pounds of dry matter per acre. The nutritional values were CP of 18.3 and TDN of 69 when the ryegrass was grazed. When it was harvested for hay the CP was 12.9 and TDN of 62.

I was pleased with the results I received from the test plot. I plan to plant the ryegrass again this year and see if the results are comparable to this years planting. I will then make a decision on whether or not to continue using marshall ryegrass.

Roy Metheney
August 1, 2005

This article was sent to the following newspapers in the area:

Braxton Citizens News
Nicholas Chronicle
Webster Echo
Clay Free Press

USDA rules for planting Ryegrass

Annual ryegrass has several features that make it popular with livestock producers. When planted late summer or early fall annual ryegrass can produce 2-3 tons of high quality feed per acre before December and an additional 3-4 tons in the spring. Annual ryegrass is able to obtain these yields because it continues to grow after the first killing frost. In addition the lack of true dormancy in annual ryegrass allows it to resume growth earlier in the spring than many perennial cool season grasses. In addition to rapid growth the forage quality of annual ryegrass is outstanding; with crude protein levels that exceed 20% and dry matter digestibility that approaches 70%.

Marshall Ryegrass is one variety of annual ryegrass that seems to be out performing the other varieties. During the past year a test planting of marshall ryegrass was conducted in the Elk Conservation District on the Roy Metheney Farm in Clay County.

The marshall ryegrass was seeded no till at a rate of 30 pound per acre on August 17th of 2004. On September 20th the ryegrass was approximately 10 - 12 inches tall and had

a nutritional value of 22.7 crude protein and a 70 percent total digestible nutrients (TDN). On November 20th the ryegrass was approximately 22-24 inches tall; with a crude protein of 18.3 and a TDN of 69. On this date 40 head of beef cattle turned into the field, they grazed the field for five days and then removed. The field was then left alone until the spring of 2005.

In the spring of 2005 fertilizer was applied according to soil test results. In late May samples were taken to calculate total dry matter production. The ryegrass had produced 5663 pounds of dry matter per acre. The ryegrass was harvested in June and round baled as dry hay.

Due to wet weather conditions the ryegrass was past maturity when it was cut, but the nutritional values were still good, crude protein of 12.6a TDN of 65.

This test planting shows that marshall ryegrass is very useful in this area. It grew very fast, produced good quality forage, and produced almost three ton of dry matter per acre. If you would like further information about this test planting contact the USDA office in Gassaway, 364-5103 ext. 110.
