FINAL REPORT
FNE99-246

Milford Gibson

1. The goals of this project were to improve grazing production, quality, and distribution; reduce soil erosion; improve water quality; improve animal health and performance; and improve nutrient management.

2. My farm information has remained relatively unchanged since the grant was submitted for approval in 1999. Acreage and livestock are constant. Stored forage production was planned to be lower in 2000.

3. Cooperators in this project included the Dr. Bill Shockey, WVU Extension Service (WVUES) who provided technical assistance for grant administration and nutritional advise on use of pasture for lactating dairy cows. Ms. Jill Hauser and Mr. Joe Hatton, WV State Soil Conservation Agency (WVSSCA) provided forage production expertise and provided assistance in obtaining financial support for water development, walkways, and fencing. Mr. Mark Malone, Natural Resources Conservation Service (NRCS), provided technical expertise in design of water development and walkways. Mr. Frank Glover, Chairman of Monongahela Soil Conservation District (MSCD), supported financial needs required for water and walkway development and have pledged support in publicizing the results of this project and funding field days.

4. Soil samples were taken on two pastures totaling 38.9 acres of grassland that were normally continuously grazed. Pastures were fertilized according to WV Soil Testing Standards. Forage species were evaluated, and where necessary, no-till seeding of desirable forages was conducted. The water development sites were evaluated and development activities were carried out according to designs proposed by the NRCS and WVSSCA. Two types of water containment systems were installed. One was a cistern system in which 2, 1200-gallon cement cisterns were used to collect runoff from a barn roof. The water was delivered to troughs by way of a pipeline. Three springs were developed to provide water to three troughs. Plans are made to install more troughs to collect overflow from the first three. Approximately 800 feet of stabilized walkway was installed to allow animals to be moved from the barn to paddocks. Gravel was used to stabilize the walkway with fencing provided on either side. The pastures were fenced into 6 paddocks ranging in size from 5 to 8 acres. This layout maximized the water development potential while changing the pasture management from a continuous to a rotational grazing system. The farm is on DHIA test and records on animal performance were maintained.

5. Preston County WV was severely affected by drought conditions in 1999 and pasture growth was very poor. The herd was fed from purchased feed sources and the contribution of pasture to the herd's dry matter intake was less than 5%. Therefore, a fair evaluation of the effects of implementing a rotational grazing system on this farm could not be made in 1999. Plans are to evaluate records after the 2000 grazing system and compare the results to 1999, 1998 and 1997. One unexpected result was the performance of the cistern system that collected water from the barn roof. Even though there was little precipitation, the cisterns were able to provide a significant amount of water for the herd. Apparently, sufficient amounts of condensation (dew) occurred between rains. Water was available from this source nearly all summer. This is a relatively cheap source of livestock water and should be considered as an alternative to expensive well drilling and pump operation and maintenance.

6. There is no site-specific information relative to this project.

7. No economic evaluations could be made for this year that could be fairly compared to previous years.

8. One result of this project was a renewed appreciation for the importance of livestock watering facilities when planning paddock layouts. Our original proposal called for 12 paddocks. These might have been accomplished if all planned "overflow" tanks could have been installed in the first year. Cost and time constraints forced this development into plans for 2000 or 2001. The next step is to evaluate animal performance in the year 2000 compared to 1998 and 1997. All fencing and water development is established.

9. The practice will be continued until a good evaluation of its contribution to the farm economy is determined. With water, fence, and walkways established, it is a simple matter to continue the practice until economic feasibility is established.

10. So far I tell them that what we've accomplished has contributed to our efficient use of resources. One thing I tell them is to consider cisterns for animal water instead of deep wells. After a year of normal rainfall, we will be in a better position to make recommendations.

11. Our outreach program is planned for fall 2000. We purchased materials that can be used for brochures and informational handouts. A field day is planned for mid-August to show the pasture layouts, water developments, and forage production management. After year 2000 data from DHIA is evaluated, an economic description will be prepared.

ADDENDUM TO
FINAL REPORT
FNE99-246

23 March 2001

Milford Gibson

INTRODUCTION

Because of drought conditions in 1999 it was impossible to complete the production report prior to the end of 2000. Since the last report, which was submitted in July 2000, production records for 2000 have been reviewed and compared to 1998 and 1999. There was also an educational Field Day held on the farm in August 2000. This addendum summarizes the results of the production data analysis and the results of the field day.

HERD PRODUCTION DATA

The attached graph shows the rolling herd average (RHA) along with % milk fat and % milk protein for the period April 1998 through October 2000. The start and stop points were chosen to include data for three time periods. 1) A grazing period when cows were fed, primarily, in confinement facilities, and used the 35 acres of pasture as an exercise area with little management effort directed to pasture utilization (May – Oct 98). 2) A grazing period when cows were fed primarily, in confinement facilities, and used the 35 acres, divided into 7, 5 acre paddocks, as an exercise area because a drought caused insufficient pasture growth to make a significant contribution (< 5% of diet dry matter) to the cows diets (May – Oct 99). 3) A grazing period similar to 2, except there was sufficient pasture growth to make a significant contribution (> 20% of diet dry matter) to the cows diets (May – Oct 00).

During the period between May 98 and Dec 99 the RHA remained relatively constant, ranging between 22,700 and 23,100 pounds. Between Dec 99 and Mar 00 the RHA increased more than 1,000 pounds to 24,300. We site two main reasons for this improvement; low "days-in-milk" and forage quality. Days-in-milk were low because of an unplanned calving period. By chance, a high proportion of the herd (mature cows and heifers) conceived in winter 1998-1999, causing an unusually high proportion of the milking herd to be in early lactation in early fall 1999.

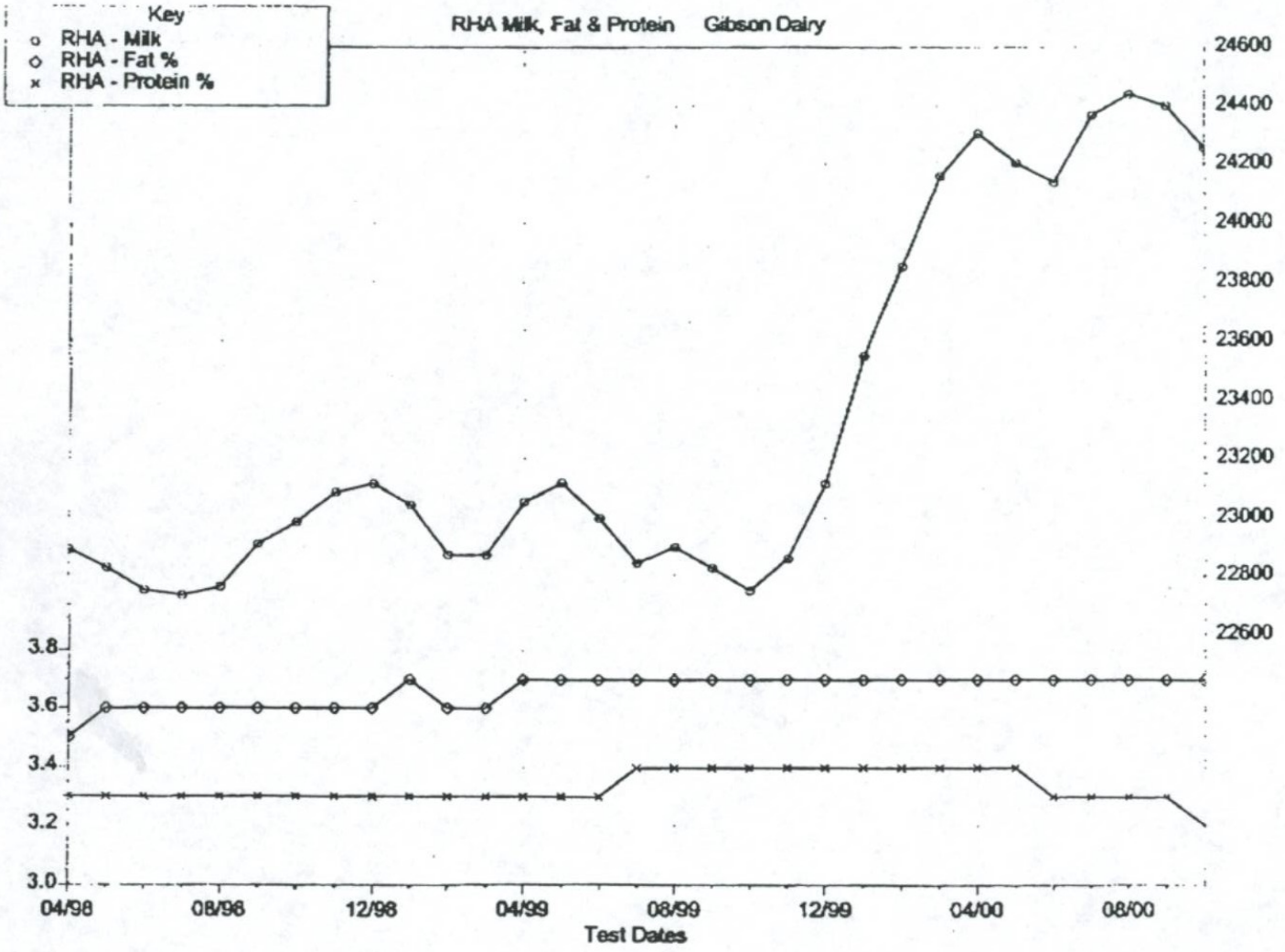
Forage quality in fall 1999 was higher than normal because of conditions surrounding the drought. There were two reasons for high forage quality: 1) Although forage yields were very low, the forage that was harvested was in an immature growth stage; 2) Because forage yields were very low (< 40% of normal), it was necessary to purchase hay from outside sources. Forage yields in other parts of the US had excellent growing conditions, so purchased forages were reasonably priced and of high quality (RFV > 130).

High quality forage became a significant portion of the lactating cow diet in Oct – Nov timeframe. Improved forage quality increased dry matter intake and stimulated the rise in RHA through late Apr 00. In late Apr lactating cows were turned into paddocks. Intake from pasture was estimated to be about 20% of diet dry matter. Animals were rotated to a new paddock about every 4 to 5 days. This allowed approximately 30 days for recovery. Pasture quality and availability maintained milk production at levels equivalent to the levels achieved during the winter months when cows were fed high quality purchased forages. This trend continued through the summer months, a time when high temperatures usually result in lower milk production. I attribute the high summer production to the quality and availability of pasture. If I had known that such a simple process as dividing my pasture could have contributed so much to my herd's performance, I'd have divide the pasture years ago.

FIELD DAY

On August 12, 2000, the Monongahela Soil Conservation District provided funds for lunch and assisted in publicizing a forage field day at our farm. Dr. Kathy Soder from the USDA Pasture Labs, University Park, PA started the day by leading the group on a pasture walk. She explained the basic tenants of pasture management and explained how our management system contributed to improved forage quality. I look forward to reaping the benefits of improved quality during this summer's grazing season. Other speakers included Mr. Joe Hatton, WV Soil Conservation Agency, who discussed principles of waste application, particularly sewage sludge. Ms. Becky Lewis, WV Soil Conservation Agency, completed the day by demonstrating the proper methods of soil sampling. Her presentation drove home the importance of knowing soil fertility levels and how they affect farm productivity.

Approximately 45 people were in attendance. Summaries of the speaker's reports were published in the regional newspaper. We will continue to educate our neighbors and regional farmers about the benefits of pasture management practices and the potential these benefits these practices can have on farm profitability. At 12 dollar milk an additional 1,000 pounds of milk on 70 cows put an extra $8,400 dollars in our pockets.


Key
RHA - Milk
RHA - Fat %
RHA - Protein %
RHA Milk, Fat & Protein Gibson Dairy
24600
24400
24200
24000
23800
23600
23400
23200
23000
22800
22600
3.8
3.6
3.4
3.2
3.0
04/98
08/98
12/98
04/99
08/99
12/99
04/00
08/00
Test Dates