

Suitability of Hardy, Non-native Forage-adapted Meat Sheep to North American Management Intensive Grazing System

Final Report for FNC95-100

Project Type: Farmer/Rancher

Funds awarded in 1995: \$5,000.00

Projected End Date: 12/31/1996

Region: North Central

State: Iowa

Project Coordinator:

[Stephanie Mitcham](#)

Project Information

Summary:

PROJECT BACKGROUND

Our operation consists of 140 acres, 40 of which are in row crops. These 40 acres of row crops, which is cash rented, is across a road and is inaccessible for grazing. The rest of the ground is hay ground (16 acres), row crop ground which has been seeded to permanent pasture (40 acres of timothy/birdsfoot trefoil and red clover/brome as well as some warm season grasses), woodland and river bottom pasture (44 acres). The pastures are subdivided with electric fence and rotationally grazed by our sheep, Angora goats and guard donkeys. Excess pasture is harvested as hay and fed during the winter months after stock piled pastures have been grazed. The 250-300 ewe flock and 150 nanny herd produce replacements for our own operation, breeding stock, feeder and fat lambs and Angora wethers for hair production, brush clearing and slaughter.

We have been rotationally grazing our sheep and goats since 1988 and each year since then have been utilizing less harvested feedstuffs. Our grazing skills have gradually improved and each year the livestock utilize our forage more efficiently. We have also taken advantage of grazing cornstalks when they are available. We own and use minimal machinery. Machinery intensive work such as cutting and baling excess pasture is custom hired.

PROJECT DESCRIPTION AND GOALS

In order to examine performance of the Dorper sheep in an intensive grazing setup, rates of gain, back fat measurements and rib eye area measurements of Romanov X Dorper and Romanov X Horned Dorset lambs were compared.

Process:

The first step involved obtaining Dorper genetics. Embryos (20) were purchased in the fall of 1994 and finally arrived in Canada in January of 1995, at which time they were implanted in quarantined recipient ewes, Ewes were released from quarantine in April 1995 and transported to Iowa. The lambs (10) were born in June, 1995 providing us with a ram to utilize in the crossbreeding studies.

A Dorper ram, CCD 0001E, born June 10, 1996 as a twin, birth weight 7.5 lbs, adjusted 50 day weight 55.3 and adjusted 100 day weight 102.7 lbs (on feed), was selected to use as the sire in this trial. Purebred Romanov ewes were exposed to this Dorper ram and another group of ewes was exposed to a Horned Dorset ram. RODG #465 was born April 23, 1991 as a quad, had an adjusted 60 day weight of 106 lbs and on September 26, 1991, his actual weight was 106 lbs (on pasture). The Dorset ram had been used in our flock for several years and had produced very nice lambs that did well on pasture.

Lambs were born in May and June in a paddock on our acreage that could be carefully supervised at lambing time and then ewes and lambs were moved to the main rotational grazing setup when the lambs were a few days old.

Lambs were weighed so as to provide 50 and 100 day weights. Since our computer program, Ewebyte, designed by the University of Guelph, Ontario, Canada, deals with 50 and 100 day weights, for the sake of simplicity, we decided to utilize the same time intervals instead of the 60 and 120 day weights we had previously considered. Lambs were vaccinated against overeating and tetanus at approximately 30 and 60 days of age and were dewormed at approximately 50 days of age.

On December 9, 1996 all of the ewe lambs in the trial were ultrasounded and back fat and rib eye area recorded. Most of the ram lambs had been sold at this point or they would have been ultrasounded instead of or as well as the ewe lambs.

People:

Jack Dillon, Bremer County Extension Director and Kurtis Hoeft, Natural Resources Conservation Service were both very helpful with the field day held at our farm in June 1996.

Results:

The mean adjusted 50 day weights were 40.7 pounds for the Dorper X Romanov lambs and 38.4 pounds for the Dorset X Romanov lambs. Although the Dorper cross lambs weighed more on average, this difference was not statistically significant (see table 1).

The mean adjusted 100 days weights were 71.3 pounds for the Dorper X Romanov lambs and 69.9 pounds for the Dorset X Romanov lambs. These differences were not statistically significant using a T-test (see table 1).

For the 13 Dorper X Romanov and the 13 Dorset X Romanov were lambs, differences in back fat measurements were significantly different (0.001 level of significance, t-test, see table 2) with the Dorper X Romanov having more back fat. Neither group of lambs was excessively fat.

Rib eye area was significantly larger for the 13 Dorper X Romanov ewe lambs (0.05 level of significance, t-test, see table 2).

One of the Dorset X Romanov lambs became parasitized (internal parasitism/stomach worms) and had to be removed from the trial. I did not count the lamb in the results as there was only one of these. None of the other lambs of either cross showed clinical signs of parasitism (anemia, weakness) so this individual may have just been unthrifty. He did survive to market but was confinement raised.

Discussion:

This grant taught me a variety of things.

Even the most seemingly straightforward project has problems that are not necessarily identified until after the fact. If I were to do this study again, it would be nice to use multiple Dorper and Dorset sires and larger number of lambs so one

could compare average breed performance instead of looking at individual ram performance. This way, if an individual sire is either superior or inferior compared to the breed average, this should not have a major impact on results. I feel that the Horned Dorset ram we used was well above average in rate of gain (his grandfather had the top rate of gain on ROP testing in Alberta, Canada) while the Dorper ram we used was more of an early maturing variety that did not have maximal rate of gain nor a large manure size.

The larger rib eye area in the Dorper cross lambs is to be expected because of the thick hind leg muscling of the Dorper sheep. Since the preferred cuts of lamb are from the rear leg, this is a very good feature of the Dorper crosses.

Although the Dorper X Romanov lambs were fatter (had significantly greater back fat measurements), both crosses were very lean.

Dorper cross lambs thrived on pasture and may possibly have been more resistant to internal parasites than the Dorset crosses. If indeed this is the case, this will encourage me to create more Dorper crosses for lamb production in a rotational grazing system.

I would like to also consider some of the other Dorper features in the future to evaluate their profitability - their ability to shed fleeces, out of season breeding capability and their "easy care". In the latter category, I have noticed that the yearling old purebred Dorpers seem to require much less feed to maintain body condition than our average sheep, especially of that age. If this is truly the case, this would be a wonderful trait and would reduce winter feed costs considerably. Obviously there is far more to discover about this unique breed.

A recommendation to other producers attempting this type of study - animals in comparison groups must be treated exactly the same way. Animals need to be in the same pasture/paddock at the same time, wormed, vaccinated and weighted at the same time and so on.

The economic impact of raising sheep in a management intensive grazing system is significant since feed costs, the major expense in a sheep operation, are significantly lowered. Thrifty sheep that require minimal care obviously cost the producer less in time and money. Farms in pasture provide more habitat for wildlife. Less machinery is required and this less fuel is utilized, lessening pollution. Machinery costs are also low which makes the operation more profitable. The entire family can be involved in a grazing operation. Small children can help with chores with little danger. The family can spend more quality time together, both doing chores and because there should be more free time, after chore activities/projects can also be very pleasurable.

NOTE: Iowa State University would like to do some carcass studies on the pure Dorpers and Dorper crosses. As soon as I have some lambs available for study, I will provide some to Iowa State University and can furnish results if you would like them. This will probably occur some time during 1997.

OUTREACH

A field day/grazing day was held at our farm during the summer of 1996 to show people the purebred and crossbred Dorper lambs and our rotational grazing setup.

As well, we were interviewed by the local television and had articles in several newspapers and livestock publications about the Dorper sheep.

Bob Kimm, Hawkeye Technical College Lamb and Wool Program, brought a tour to our farm midsummer 1996.

Table 1.
 $n, \sum x, X$

Dorper X Romanov
Adjusted 50 day weights ,25, 1016.7 , 40.7

Dorset X Romanov
Adjusted 50 day weights, 23, 883.0 , 38.9

Dorper X Romanov
Adjusted 100 day weights, 22 ,1568.7 , 71.3

Dorset X Romanov
Adjusted 100 day weights, 21 ,1468.7 , 69.9

(No statistically significant difference using t-test for statistical comparison, all weights in pounds)

Table 2.

N, $\sum x$, X

Dorper X Romanov
Back fat (cm) , 13, 4.9, 0.38a

Dorset X Romanov
Back fat (cm) , 13, 3.6 , 0.28b

Dorper X Romanov
Rib eye area (cm²) , 13 ,72.8 , 5.6a

Dorset X Romanov , 13, 61.4, 4.7b

(Using a t-test, back fat measurements were significantly different at the 0.001 level of significance and the rib eye areas were significantly different at the 0.05 level of significance.)

Research

Participation Summary

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture or SARE.



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