

**LOW INPUT PASTURE FINISHING OF LAMBS  
2002 SARE GRANT REPORT**

**BACK TO THE BASICS**

EXPERIENCES OF PRODUCER 2 - MODERATE INPUT

The previous year's experience was so bad, that we decided to return to our previously successful, albeit higher input, model. Lambs were fed a creep ration, and weaned when the youngest animal was 60 days old. Depending on the season, ewes and lambs are turned out onto ryegrass pasture in late March or early April, and this year it was early April. Pasture height must be 8" in order for the sward not be harmed by early grazing.

Our model follows this table presented on page 652 of the SID manual:

Table. Performance of Pasture-Fed and Drylot-Fed Lambs\*

<u>System</u>	<u>Daily Gain (lb)</u>	<u>Supplemental Feed Consumed (lb/day)</u>	<u>Supplemental Feed: Gain Ratio</u>	<u>Carcass Fat%</u>
pasture	.34	-----	----	23.9
Pasture + Supplement	.58	2.20	3.79	27.3
Drylot, 13% CP	.59	4.55	7.71	33.2

\*Initial Weight = 70 LB; Slaughter Weight = 110 LB.  
13% CP supplement; same as drylot, 13% CP  
From the SID Sheep Production Handbook, Fifth Edition, Copyright 1996

On Page 658 of this manual, this statement is made: "high quality forages can support lean tissue growth without producing excessive fatness, but when lambs enter a feedlot finishing phase, fat deposition is the dominant portion of live-weight gain. Limited feedlot finishing may be necessary in many situations, but extended feedlot finishing periods are the primary reason most of our lambs do not meet the Certified Lean Lamb standards (less than .25 inches backfat measured over the 12th rib).

Our model differs from the above table in in that we characterize our lambs as "moderate growth potential", so we feed 1.25 lbs./hd/day, Our concentrate ration consists of one pound of 15% CP pelleted complete ration with Bovatec ©, and .25 pound of shell corn comprising a 14% CP ration.

Feeding concentrates is not necessary in every system but it serves to accelerate rates of gain in order to hit a target market. Our direct market lambs must be slaughtered at or before the age of eight months in order to give our customers the product they expect.



Ewes and lambs grazing annual rye in early April. Note already grazed area on the other side of the two wires on the right; also note the PVC pipe 'gate' (left of center) the ewes have been trained to walk under. Our land contains a State Trail (beyond trees), with thousands of people passing through, so environmental 'friendliness' is important for public perception.

## Parasite Study

This year there was no death loss due to parasites. One ewe lamb became anemic, but recovered with no further relapse. Three ram lambs became anemic and exhibited facial edema; all three needed repeated de-worming (all were culled).

Correlation of genetics: All four had Suffolk breeding in their background. There has been a random occurrence of this problem in previous years, and we have decided to reduce the Suffolk influence in our flock.

The following table shows weight gains for our February-born twin ram lambs and wethers:

### 2002 Lamb Weight Record - Twin Ram Lambs

Lamb#	Sex	No.	Birth Date	Weight Date	Days Elapsed	Birth Weight	90 day Weight	Adjusted Daily Gain	90 day adj	120 day wt	150 d wt	210 Day Weight	Act.Wt -PostW Weight	210 day Weigh Date
02-201	R	TW	1/17/02	5/5/02	108	7	78	0.66	66	86	100	113	35	9/2/02
02-204	W	TW	1/18/02	5/5/02	107	7.5	71	0.59	60	78	85	95	24	9/2/02
02-205	R	TW	1/18/02	5/5/02	107	7.5	77	0.65	66	83	97	105	28	9/2/02
02-221	R	TW	1/26/02	5/5/02	99	10.3	78	0.68	72	88	109	123	45	9/2/02
02-228	R	TW	1/27/02	5/5/02	98	10.3	76	0.67	71	87	102	120	44	9/2/02
02-230	R	TW	1/29/02	5/5/02	96	8.6	75	0.69	71	80	100	112	37	9/2/02
02-236	R	TW	1/31/02	5/5/02	94	11.1	70	0.63	67	86	102	117	47	9/2/02
02-245	R	TW	2/3/02	5/5/02	91	11.9	76	0.70	75	90	110	127	51	9/2/02
02-246	R	TW	2/3/02	5/5/02	91	8.6	70	0.67	69	83	101	115	45	9/2/02
02-253	W	TW	2/7/02	5/5/02	87	9.6	71	0.71	73	76	88	100	29	9/2/02
02-254	W	TW	2/8/02	5/5/02	86	10	64	0.63	67	70	90	100	36	9/2/02
02-255	W	TW	2/8/02	5/5/02	86	6.6	57	0.59	59	63	78	88	31	9/2/02
02-257	R	TW	2/8/02	5/5/02	86	12.9	69	0.65	72	78	98	113	44	9/2/02
02-260	R	TW	2/9/02	5/5/02	85	12.6	76	0.75	80	88	110	128	52	9/2/02
02-261	R	TW	2/9/02	5/5/02	85	11.8	76	0.76	80	87	105	122	46	9/2/02
02-264	W	TW	2/11/02	5/5/02	83	8.1	63	0.66	68	73	87	101	38	9/2/02

17 total

avg. ram = 43 lbs.  
avg. wether = 33 lbs.

Note the increase from the previous year's averages; in 2001, the rams gained an average of 19 pounds, compared to 43 pounds in 2002, and wethers gained an average of 17 pounds, compared to 33 pounds in 2002. Was feeding the lambs cost effective? An analysis of input costs shows pre-and post- weaning costs:

## CALCULATION OF ASSOCIATED PURCHASED INPUTS

Item	vaccine	Probiotics/ antibiotics	wormers	feed	salt	hay	forage seed*	total	per day
Pre-Weaning per head	\$ 0.41	\$ 0.17		\$ 7.90	\$ .06	\$ 2.24	\$ .38	\$11.16	\$ 0.12
Post-Weaning Per Head			\$ 3.80	\$ 18.07	\$ 0.34		\$ 2.02	\$24.25	\$ 0.20
Total for 7 months of rearing								\$35.41	\$.16/day avg.

\*Forage seed cost apportioned to time of grazing

Note that these costs do not include cost of feeding ewes

The per-day cost of feeding a lamb post-weaning was \$.15 per day for 120 days, for a total of \$18.07 average per lamb. If you compare the 2001 average of 19 pounds to the 2002 average of 43 pounds, and consider that the lambs were sold for an average of \$1.15/lb. you can make the following calculations: 43 pounds /120 days = .358 lbs./day, so every pound of gain cost \$.42. Clearly worth it if only feed is considered. (Remember, the 'disasters' that occurred last year did not occur this year, so extraordinary stress was not a factor). Time to feed these lambs is approximately 15 minutes total; it takes 30 minutes every other day to shift grazing cells.

Table 3

### Typical Composition of Forages Planted for Our Sheep

(All values, except DM, are on a DM basis)

Forage Type (vegetative)	DM		Protein	TDN	Energy			EE	Fiber			Minerals	
	%	CP %	Bypass %		DE	NEM	NEG		CF	ADF	NDF	CA	P
				%	-----Mcal/lb-----			%	%	%	%	%	%
Annual Ryegrass	20	15	-----	60	1.20	.60	.34					.65	.41
Ladino Clover *	19	25	-----	69	1.38	.71	.43	4.8	14	--	--	1.27	.38
Lespedeza	25	15	-----	60	1.20	.60	.30	2.0	32	--	--	1.20	.24
Red Clover	24	18	-----	57	1.14	.57	.25	2.9	30	41	56	1.50	.25

\*Sheep do not consume Ladino clover at all stages of growth

TDN = Total Digestible Nutrients, DE = Digestible Energy, ME = Metabolizable Energy, NEM = Net Energy for Maintenance, NEG = Net Energy for Gain, CP = Crude Protein  
(Source: Nutrient Requirements of Sheep, 6th Revised Edition, 1985, The National Academy of Sciences)

## Costs:

Red Clover: 60 lbs.. @ .55/lb. = \$33.00

Annual Ryegrass : 100 lbs.. @ .46/lb. = \$46

Lespedeza (Marion): 25 lbs.. @ 1.90/lb = \$47.50

Ladino (white) Clover not re-seeded due to excellent stand persistence.

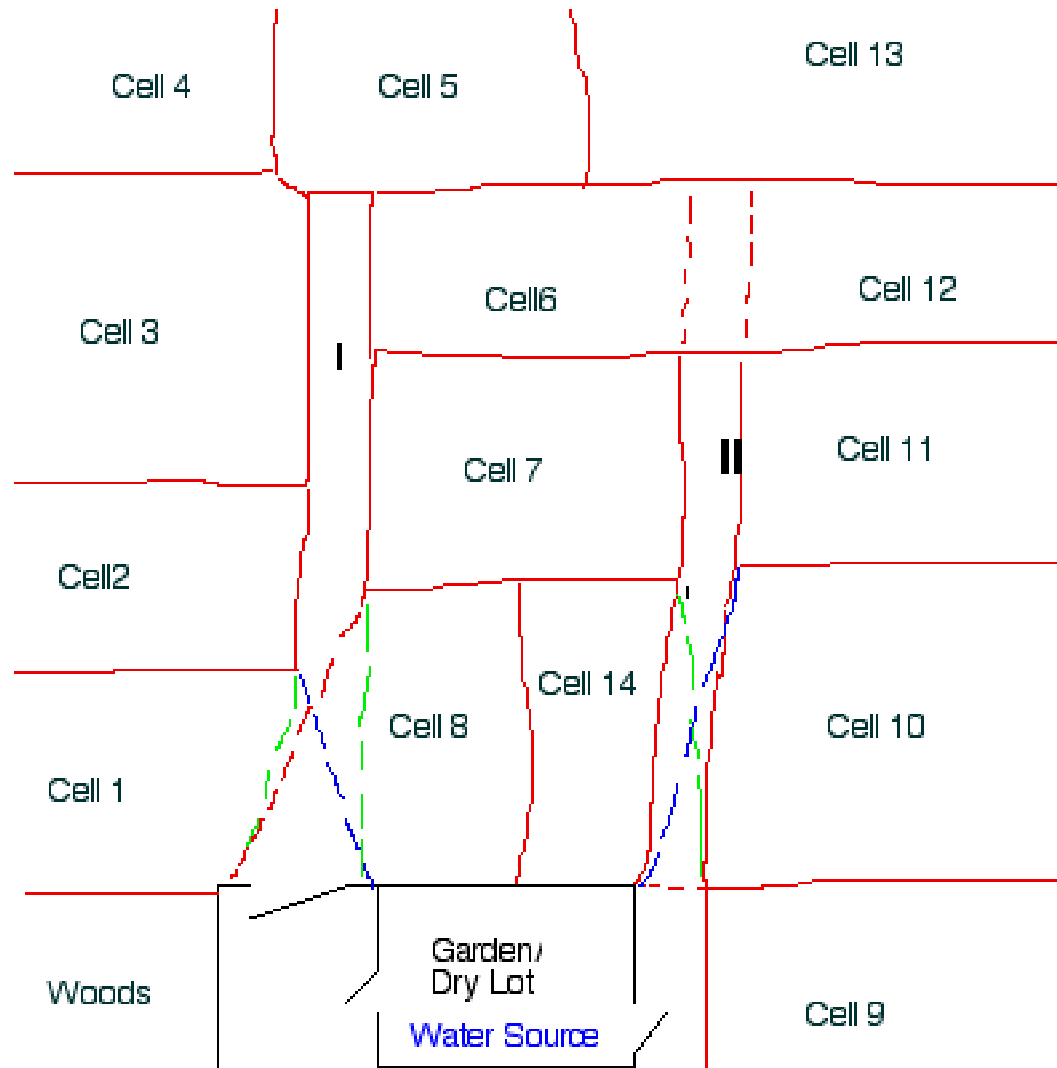
Seeds are distributed over approximately seven acres. The annual rye is broadcast and harrowed in either late September or early October. Legume seeds are broadcast in mid-to late February, when rapid freeze-thaw cycles are occurring. No fertilizer is used. Grazing feeder lambs will consume three to four percent of body weight on a daily basis if forage quality is not limiting, so forage quality is very important. Annual ryegrass production is estimated at producing two tons of forage per acre, and legumes roughly double pasture yield to four tons per acre. *Annual ryegrass is usually later maturing than other winter annual forages used for winter grazing, such as winter wheat and cereal rye. Thus, it has the highest forage quality later in the spring when other annual, cool-season grasses are well into their reproductive cycle. Consequently, its greatest value is to extend the grazing season into late spring.* (Oklahoma State Univ. Dept. of Agronomy). Annual ryegrass usually forms seed heads in late June, and ceases growth soon after. Red clover persists longer into hot weather, but is the first choice forage, so decreases in production as grazing pressure increases. Ladino and other white clovers rapidly lignify in hot weather, and are not consumed at all. Late August and September are chronic problem periods because choice grasses like crabgrass and barnyard grass are starting to mature, and “junk” grass like green bristlegrass and lawn bermuda are the only species evident.

## The Grazing Cell System

The following drawing illustrates a two-acre paddock divided into grazing cells accessed by “swing” alleys. This system allows lambs to be fed and watered in a permanent lot, decreasing the need to put in water lines or move feeding equipment. Grazing cells are entered when forage height is eight inches, and moved when forage is 4 inches high. Moving them through the cells prevents re-grazing of forage until desired. Using swing alleys prevents permanent rutted paths in the pasture entrances.

No problem is encountered moving lambs back and forth in the system. They are very eager to come to feed, but also very eager to go back out on pasture (lot gates can be shut behind them to keep them out while feed is being put down). Sheep, unlike cattle, do not need a constant water source since their water needs are relatively lower. During periods of lush forage growth, very little water will be consumed.

There is one major drawback of intensive grazing on permanent pastures: parasite problems actually become worse, because lambs are re-grazing cells at about the time parasite eggs are hatching. It is therefore necessary to have lambs that are relatively parasite tolerant. Normally, as the summer progresses into hotter and drier weather, parasite eggs die on the pasture. This is not true on our farm, because our location, so near the river bottom, means heavy dew every night; the forage is never dry.



Legend: Alley I, Alley II

Black: Permanent Fence

Red: Electric Cells  
also alley position 1

Green: alley position 2

Blue: alley position 3

Ewes are kept on the pastures with the lambs until weaning, then transported by trailer to remote leaseholds, where they graze fescue/clover/lespedeza pastures. They return to the farm in late October, where they are walked out to the field levees every day to graze.



Nothing beats free land. After field crops are harvested, electric paddocks are erected, and ewes graze stockpiled forage. The Levee District members say that they wish we'd graze the entire system. Noxious weeds are controlled, the forage is fertilized, and gasoline isn't burned.

### Soil Fertility Experiment

According to a forage seed company, a good sward of grass and White clover can yield as much as pure grass receiving 150 pounds of nitrogen per acre (Barenbrug, AG, promotional literature). We decided to do a subjective experiment on one of our grazing cells; note that we have never put anything but agricultural lime and wood ashes on our pastures since we started grazing them.

A 13% Nitrogen 13% Phosphorus 13% Potassium fertilizer mixture was spread on our pasture at the recommended rate. Rain dissolved the fertilizer two days later, and the cell was observed over the next month. Absolutely no increase in forage growth was noted compared to adjacent grazing cells. Hay has never been cut off of these pastures so all nutrients except lime are recycled.

### Total Cost Calculations

pasture rental , based on \$4 per acre per 800 pound yearling calf: \$.25 per lamb per month or \$1.75 total  
farm labor livestock based on approximately \$8.00/hour: \$.30 per lamb per day or \$33.60.  
(capitalized expenses and depreciated equipment not considered).  
\$50 per year cost to maintain ewe, divided by two lambs = \$25

110 pound lamb X \$1.15 per pound = \$126.50 - (\$35.41 + 1.75 + 33.60+\$25) = **\$30.74 profit per lamb**  
Breakeven sale price = \$.87 / pound. If you don't get this price, you're working for peanuts!

## Environmental Considerations

There is another advantage of feeding out lambs on pasture besides growing nutritious feed; manure becomes an asset, rather than a problem. No time is spent removing manure from a feedlot or spreading it around. When manure does not accumulate, it does not form point source pollution, either of the water or the air.



Waste not, want not. Winter drylot for the lambs becomes the garden; the garden is cleaned up by the sheep. Waste hay becomes mulch. I contend that sheep manure is the reason that we have tomatoes unaffected by disease (but that's another research project.....)

## Sustainability

We have found that visitors to our farm, who come to see the sheep, invariably become more interested in the grazing system than the sheep. That's appropriate, because we are raising forage, more than sheep. Once they see the system, and we explain its function, we begin to give them ideas on how to adapt the same system to their own operation.

While some producers have reported great success with grazing crops, these crops necessitate either large, expensive equipment, or expensive custom operators (who won't even show up on our farm). We use overseeding because it requires no expensive equipment. I actually seed the whole farm by hand.

## Meat Quality

Customer's lambs were evaluated after freezing. Backfat at the twelfth rib was .1", carcass dressing percentage was 47%, and loin eye area averaged 2.5 square inches; very acceptable numbers in our system. Although it has been one of my goals to increase loin eye area, none of my customers have any complaints about the size of the loin eye. Taste was evaluated by our past favorite method: passing out samples of broiled ground meat to hundreds of attendees at Small Farm Today Magazine's Trade Show and Expo on Oct. 31, Nov. 2 & 3. Comments were uniformly favorable.

### Goals for Next Year:

1. Explore source of Bovatec<sup>®</sup> mineral/salt mixture thereby decreasing need to purchase commercially mixed pelleted feed. Cracked corn would be cheaper to feed pre-weaning.
2. Explore new forage varieties and test frost-seeding of alfalfa.
3. Include more producers in reporting their production methods



The promise of things to come--ryegrass seedlings in November.

A presentation of this year's experience will be made in conjunction with the [Annual Farm Day / Small Farms Conference](#) at Powell's Locust Lane Sheep Farm, Buffalo, MO, June 7, 2003.