

**FEEDER CATTLE PRODUCTION BUDGETS
FOR ARKANSAS, 2002**

Estimated Costs and Returns for
Specified Situations

S. King Brister
Graduate Research Assistant
Department of Agricultural Economics and Agribusiness
University of Arkansas

M. Popp
Associate Professor
Department of Agricultural Economics and Agribusiness
University of Arkansas

C. West
Professor
Department of Crop, Soil and Environmental Sciences
University of Arkansas

K. Coffey
Professor
Department of Animal Science
University of Arkansas

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INTRODUCTION

Enterprise budgets in this publication feature estimated costs and returns for various feeder cattle programs used in Arkansas. These enterprise budgets were designed to provide helpful information to a number of groups:

- 1) Entrants are provided with an approximation of capital requirements and an estimate of annual costs and returns.
- 2) Lenders are provided with information for evaluating loan applications.
- 3) Current producers are provided with a basis for evaluating the performance of their operation on a time sensitive basis.

The purpose for these enterprise budgets is to provide time sensitive estimates of the input requirements, costs and returns of commercial feeder cattle enterprises in Arkansas. Economic analyses provide a critical guide to retained ownership, investment, continued growth, and prosperity of Arkansas' beef industry. Prices for inputs depict those reported for the fall of 2001. Discussion is provided on alternative production practices to provide users of these budgets with a number of options (12). While a range of practices are described on the input side, the ultimate technology chosen for the various enterprise budgets will reflect practices that are thought to provide best management practices for an operation feeding 70 calves. Space exists on each budget for a producer to estimate his/her own costs and returns. These budgets represent significant revisions to the previous feeder cattle production budgets for Arkansas (5, 6, 10).

Factors that are varied include purchase and sale weights, procurement and sale dates, and feed rations appropriate for steers and heifers. Some general feeding and management assumptions of these budgets include the following:

Purchase Month

- An adjustment period of 2 weeks is expected with little to no weight gain. Cattle will be assessed a charge of \$4/head for feed and hay consumed during this period.
- If farm-raised calves are used this cost may be decreased or forgone depending upon weaning practices (8).

Pasture

- Permanent pasture is assumed to be available mid-March through mid-December. This is presumed to be a mix of bermuda and fescue grasses. Adjustments should be made for months of available forage depending upon geographic location and specific type of forage grown on your operation (13).
- Pastures are assumed to be well managed with respect to controlling stocking to prevent overgrazing.
- Soil tests are used to determine fertilizer requirements for adequate forage growth.
 - ✓ Nitrogen applications are often applied the last of February for spring growth, the last of May for summer growth and late September to early October for fall and winter growth.
- Adequate chemicals are applied to control weeds.
- Some time during April to Mid-May farmers are expected to mow to reduce stem and seedhead production.
- A full feed of permanent pasture is approximately 2.5% of body weight as daily dry matter intake.
- It is assumed that most of the forage will be consumed by the feeder cattle throughout the grazing period by setting an appropriate initial stocking rate and supplementing with hay and grain.
- Should extra forage be available during the spring, summer, or fall months, the producer may graze other livestock and should adjust pasture costs for cattle feeding budgets appropriately.
- If a hay enterprise is added, adjustments may also be made to the allocation of pasture costs to the feeder cattle enterprise.

Improved Pasture (No-till Drilling)

- Mowing is done in late August to the first of September in preparation for no-till drilling of winter forages.
- Rye is grown for its cold hardiness thereby lengthening the grazing season into late fall and earlier in the spring (11).
- Nitrogen fertilizer is often applied in February to promote early spring winter annual growth.

Small Grain Grazing

- It is preferable to use small grains on tilled acreage or for sod seeding into existing pastures to complement bermudagrass (winter dormant) during the cool season (1).
- Small grain grazing on wheat is assumed to be available mid to late November through April (13).
- For small grain grazing on wheat and rye, rye is added to reduce chances of winter kill and extend the grazing season (2).
- Changes to the above depend on location, soil type, soil drainage, and planting method (sod seeded or seeding in a prepared, tilled seedbed, etc.).
- Fertilizer would be applied in September and February.
- A full feed of small grain pasture could be as high as 2.5% of animal body weight as daily dry matter intake.
- The winter wheat graze-out vs. harvest option requires a producer to determine the breakeven yield required to both cover added production costs as well as feeder cattle profit potential foregone.

Supplementation

- Hay and grain (corn) were assumed to primarily meet the feed requirements of animals from mid-December through mid-March.
- Timing and amount of supplementation may vary considerably across location and from year to year.
- Daily hay consumption was estimated at 1.5 to 2.0% of body weight.
- Grain was fed to meet gain specifications.
- Lower daily gains represented a higher proportion of hay while higher daily gains were achieved with higher concentration of grain in the diet (12).

Feed Requirements

- Feed requirements were met in the following order:
 - ✓ Small grain pasture
 - ✓ Permanent pasture
 - ✓ Hay
 - ✓ Grain

Average monthly net energy (NE_g) requirements for maintaining the specified daily rate of gain were calculated by size of animal from research data reported in Nutrient Requirements of Beef Cattle.¹ Nutritional components of feedstuffs as well as

¹ **Nutrient Requirements of Beef Cattle.** National Research Council, 1984. National Academy of Sciences, Washington, DC, p.3. The recently updated 1996 NRC guidelines were consulted, but as the 1984 NRC numbers are not substantially different from the 1996 NRC baseline numbers, the 1984 NRC reference was maintained.

ration design were generated using Oklahoma State University's Ration Calculator As Fed Version (OSUNRCAF)¹. Arkansas-specific feed values on fescue and bermuda pastures and hay were used.

To provide a broad spectrum of different economic scenarios for feeding calves to heavier weights, four basic decisions are simulated based mainly on seasonal price changes (see Appendix D). These are i) *purchase dates* (September; October; and April); ii) *intended seasonal target markets* (#600 to #800 calves ready for placement in a feeding program anywhere from March to June and August – feedlot market; iii) *feed supplementation for gain* (low average daily gain; high average daily gain); and iv) *winter forage* (using permanent pasture only; seeding small grain pasture for winter forage in addition to permanent pasture). The intention of changing these four factors was to evaluate the economic feasibility of gains from *marketing* (purchasing at seasonally low prices and selling at seasonally high prices), *minimizing cost of production* (most efficient utilization of lowest cost feed resources throughout the feeding program) and/or *maximizing production* (improving the quality of cattle by ensuring high rate of gain throughout).

Given these decision factors and their rationale, seven basic feeding scenarios were developed. The following paragraphs and Table 1 highlight the production parameters and rationale for each of the seven feeding scenarios.

¹ Oklahoma State University Nutrient Requirements Calculator As Fed Version. Spreadsheet Programs for Calculation of Complete Diets for Beef Cattle, Checking for Nutrient Balance and Estimating Gain (OSUNRCAF & OSUNRCMD). Oklahoma Board of Regents for A&M Colleges, 1999. Program revised October 30, 2001. Developed by D.R. Gill and D.L. Lalman. <http://www.ansi.okstate.edu/software>. Publication No. CR-3027.

Option 1 (Low Cost):

This feeding regime estimates returns to a production system designed to be least input intensive. Minimizing cost of production while maximizing returns from marketing is the key. Light weight animals (approx. #350) available in September are placed on pasture and supplemented as needed with hay over the winter months so they can then be sold in April to June depending on a comparison of marginal cost to gains from month to month. In terms of production decisions this option involves calf purchase in early fall, a feedlot market in spring, a lower average daily gain (due to little supplementation), and use of permanent pasture.

Option 2 (Light Weight):

In feed ration two, moderate cost of production would be incurred while maximizing average daily gain. Light weight cattle (approx. #350) available in September will be placed on permanent pasture and supplemented with grain and hay to ensure an average season long average daily gain of 2 lbs. per day. This scenario would consist of higher feed bills due to the extra supplementation but does not require the added costs of seeding a small grain crop. Cattle would be retained throughout the winter but calves may be sold before the main spring pasture growth period. The analysis provides information regarding the trade off between extra gains and preserving this resource for other livestock or hay production. The intended sale months are March through June. These animals are already used to grain rations and should do well in the feedlot.

Option 3 (Heavy Weight):

This feed scenario would estimate returns to a moderately intensive production system. Use of corn ensures appropriate weight gains on moderate weight cattle (approx. #450) in October in addition to grazing permanent pasture. This feeding program should yield cattle that are accustomed to grain intake at the time of sale. Cattle would be retained to graze spring grass and then be placed in the feedlot at relatively heavy weights between March and June. The main difference between this program and the option 2 is seasonal differences in purchase and sale prices associated with heavier weights and condition of the calves (i.e. fewer death loss and faster adaptation to feed ration at the feedlot).

Option 4 (Sod Seeded):

Option 4 maximizes production through improved supplementation and sod-seeded forage (11). Light weight fall calves (approx. #350 in Sept.), utilizing permanent pasture as well as seeded forage and grain, will allow for high average daily gains. This scenario would be cost intensive but would also ensure top gain

rates for quick turnover and high beef production per acre. This production system can be relatively variable in terms of winter forage production and thus sale times may vary considerably depending on forage availability. Planting dates and soil conditions may alter grazing starting dates and weather may impact yields and forage availability for grazing in the spring months. Cattle should have an added advantage once at the feedlot because they are used to supplemented grain. Pending economics of feeding, cattle are pulled from pastures in April to allow other livestock to graze the new spring forage growth or allow for hay harvest. An added benefit of this scenario is that forage should be available throughout the entire grazing period.

Option 5 (Wheat):

Feed ration 5 would estimate returns to a moderately intensive production system. Minimizing feed cost due to grain supplementation while maximizing forage utilization is key. Again, fall light weight cattle (approx. #350 in Sept.) would be placed on wheat fields with a light supplementation of hay when forage was limited (1). In contrast to option four, the forage would be seeded on a prepared seedbed and thus may offer an alternative to crop producers. The seeding of fields would utilize available equipment but overall cost of forage production may be higher than sod-seeding due to higher equipment needs. Cattle could be pulled from the fields in February to take advantage of seasonally high cattle prices and a crop may be harvested if yields appear promising, or cattle could be left on fields to graze out until April. If the graze-out option is utilized and the field is in double crop production with soybean, this feeding option also allows for more timely planting of soybean as cattle could be pulled from the field at any time rather than having to wait for wheat harvest.

Option 6 (Wheat & Rye) :

Feed ration 6 estimates returns to a moderately intensive production system that maximizes forage utilization. Again, fall light weight cattle (approx. #350 in Sept.) would be placed on rye and wheat fields with a light supplementation of hay and grain when forage was limited (2). This option is very similar to option five except for eliminating the option of wheat harvest. By contrast this option uses rye, a more cold hardy small grain, and allows for a reduction of risk of winter kill while at the same time extending the grazing season to reduce hay supplementation requirements. Cattle could be pulled from the fields in April to take advantage of seasonally high cattle prices. These cattle should gain well if forages were adequate and also be ready for a finishing ration.

For fall born calves who will be weighing between #300 - 400 in late spring, a summer feeding program may be profitable. The following ration is for operations with adequate summer forage to sustain a stocker program.

Option 7 (Summer):

Ration 7 is input-intensive as feed supplementation with grain is important to achieve appropriate feed intake required to have animals gain the desired finish weight. It is used to take spring weaned calves weighing between #300 to 400, purchased in May through the summer months as prices decline sharply after April. These cattle should be accustomed to grazing and will be started on grain. This scenario utilizes permanent pasture with heavy grain supplementation increasing costs of production. The resulting calves will be sold to a feedlot by mid to late August to avoid price declines in September.

These strategies along with expected daily gains, nutrition, purchase and sale dates and weights are summarized in Table 1. A comparison of options 1 and 2 should determine the feasibility of more input-intensive nutrition management by supplementing grain to get higher average daily gains. Comparison of options 2 and 3 would highlight differences in seasonal purchase price and weights. Options 3, 4, 5, and 6 should highlight differences in cost of gain associated with pasture systems as well as seasonality in output price. Finally, option 7 presents an alternative for summer feeding.

Table 1. Feed Rations for Various Feeding Options.

Descriptions	Feeding Options						
	<i>Low Cost (1)</i>	<i>Light Weight (2)</i>	<i>Heavy Weight (3)</i>	<i>Sod Seeded (4)</i>	<i>Wheat (5)</i>	<i>Wheat & Rye (6)</i>	<i>Summer (7)</i>
1. Purchase Date / Weight ¹ (in lbs)	Sep./350	Sep./350	Oct./450	Sep./350	Sep./350	Sep./350	Apr./350
2. Permanent Pasture Only	✓	✓	✓				✓
3. Permanent Pasture & Seeded Forage				✓			
4. Seeded Forage Only					✓	✓	
5. Supplement for ADG ²		✓	✓	✓			✓
6. Maintenance Supplementation ²	✓				✓	✓	
7. Intended Range of Sale Dates	April to June	March to June	April to June	March to April	February to April	March to April	August
8. Preferred Cattle Type	English X	English X	English X	English X	English X	English X	Brahman X

Notes:

¹ A date is chosen to determine days on feed for budgeting purposes. Purchase dates are expected to vary by weather related pasture conditions as well as location. Cattle weights would represent an average. Producers should aim to purchase a uniform lot of cattle so as to be able to tailor the feeding program to the cattle's needs.

² A producer may choose to either: i) invest as little as possible for supplementation to simply ensure a reasonable weight gain; or ii) a program where supplementation plays a major role in achieving targeted average daily gains (ADG), feed efficiency (maintain similar ration over time) and prepare animals for a feedlot program. Supplementing for ADG is therefore the more input-intensive compared to maintenance supplementation.

BUDGET OUTLINE AND TERMINOLOGY

The budgets shown in the Budgets and Supplementary Tables section were developed using inputs to reflect current production practices and prices commensurate for an operation attempting to background 70 head of calves. The intention for any feeding program is to have a relatively uniform set of calves so as to efficiently match nutrient requirements with the feeding program. Groups of calves ranging in size from 25 head to 75 head may be relatively easily assembled from large cow-calf operations (> 100 cows) that may be interested in adding further value to their weaned calf crop or improving utilization of available pasture (9). Further, purchase and sale of livestock requires transportation and thus multiples of full trailer loads are expected to lead to cost efficiency from full utilization of hauling capacity. Alternatively, a producer can always look to the stocking rate assumptions across feeding options and determine the number of calves purchased and sold on the basis of their land resources available for feeding calves.

An assumption on operation size was necessary to calculate per head costs for those costs that don't vary with the number of head fed – often referred to as sunk or fixed costs. Fixed costs would to a large extent include investment in pasture and facilities which result in maintenance and repair, depreciation, property tax and insurance expenses. These costs are not expected to change substantially regardless of the number of head grazed. In addition, some of these charges can not be changed once feeding of animals has commenced. A distinction is thus made regarding: i) the timing of the expense; and ii) whether the amount per head changes with the number of head grazed.

The latter of the two can lead to economies of size if costs don't change with the number of head fed and more animals are fed.

The nature of the remaining costs are largely direct in the sense that they would not change on a per head basis if the number of head fed were altered – i.e. medication charges per head are expected to be relatively constant whether feeding 25 or 75 head. Most of these charges will also be incurred as the production process progresses – i.e. feed costs.

Minor difficulties arise in the distinction of type of cost for some costs as they may be incurred during the feeding process but still be incurred like a fixed cost (i.e. a semi-truck to haul cattle will cost the same amount per mile whether the trailer is full or not). Making a decision on the size of operation (number of animals fed) is thus left largely to the individual using the enterprise budget. A discussion on these types of issues follows on revenue and cost items.

Revenues

Gross receipts are calculated as pounds of live weight sold multiplied by the selling price for the appropriate sale month (USDA Agricultural Marketing Service). Prices are reported in fifty pound increments and represent a weighted average price across reporting locations and across all levels of quality (frame and muscle score) averaged over a month's worth of sales. These prices are thus thought to reflect prices of average quality cattle for that weight category (12). Further, cattle weighing in excess of #500 may be directly marketed to feedlots. Arkansas producers may be interested in selling to feedlots in Texas, Oklahoma and Kansas and therefore prices for calves in

excess of \$500 represent the highest reported prices for cattle in AR, KS, OK or TX, as deemed appropriate. Finally, for the summer feeding option 7, calf prices from Hope, AR were used to reflect Brahman cross breeds used for that type of feeding.

For purposes of analyzing risk associated with the purchase and sale prices of cattle, two risk measures are adopted: i) standard deviations from average seasonal index values over a ten-year period approximate the degree of consistency in market price premiums or discounts relative to the year (see Appendix) and were used to determine purchase and sale months; and ii) the range of possible nominal price combinations over the ten-year period (i.e. a producer may experience a combination of historically low or high purchase and sale price combinations over the ten-year period). These two measures are expected to show the decision maker i) whether the projected marketing month is relatively risky compared to other sale times in the production year and ii) the historical price risk associated with the various feeding options. Graphs depicting monthly return statistics indicate the average ± 1 standard deviation of returns per head available over the feeding period and are presented for each option. Further, price risk is only modeled for cattle. Additional price risk exists for feed inputs but are expected to be minor compared to the risk associated with changes in cattle prices (note that calf purchases typically comprise 60 to 80% of total specified expenses whereas hay and supplements are 0 to 8% of total specified expenses). Non-feed inputs, such as ownership charges, would not be expected to be very volatile given their extended useful lives (i.e. the producer would know this cost from year to year) but do vary given assumptions of different stocking rates and economies of size.

In addition to the price and risk information used, the cattle are expected to experience shrinkage during the sale process. While shrinkage can be relatively minimal with low stress and short transport (~ 2%), excessive heat, stress, lack of access to water, feed ration and long transportation can lead to shrinkage in excess of 7%. For the budgets in this publication 3% was used as an average value.

Expenses

Expenses are described in the order they are incurred. Further, they are broken down into i) *direct* costs per head that are not expected to change appreciably by the number of head fed; and ii) *fixed* costs that are fixed in nature and would therefore decline on a per head basis as more cattle are fed.

Steer Calf (direct)

The cost of the steer is calculated by multiplying the price per pound by the number of pounds the animal weighs or by multiplying the price per hundred weight times the number of pounds divided by one hundred.

Direct Pasture Costs (direct)

Direct costs on the type of pasture utilized are taken from the pasture budgets attached to each feeding option. Not included are ownership charges on equipment nor returns to land, labor or capital employed. These costs are incurred throughout the season and are charged in whole to the feeder cattle enterprise. A producer that also harvests hay or uses the same pasture for other livestock should make appropriate adjustments either to the stocking rate or cost of the pasture. The per head figure quoted

in the budgets are the total direct costs incurred per acre divided by the stocking rate (head per acre). Fixed costs associated with pasture production are added to the ownership charges at the bottom of the budgets.

Purchasing and Receiving of Cattle (direct)

Marketing charges can vary by method of shipment (Table 2). An order buyer may provide fee-based services such as i) purchasing calves only or ii) purchasing and

Table 2. Estimates of Transportation and Purchasing Costs, Average Feeder Cattle Operation in Arkansas, 2002.

Description	Unit	Cost per Unit		
		Range ¹	Average	Your Own
<i>Receiving Options</i>				
Order Buyer Purchasing Fee	\$/cwt	0.50 - 1.00	0.75	_____
Custom Hauling Fee ²	\$/head/mile	.042 - .044	0.043	_____
Owner Hauling Cost ³	\$/head/mile	.062 - .104	0.083	_____
<i>Shipping Options</i>				
Custom Hauling Fee ²	\$/head/mile	.063 - .067	0.065	_____
Custom Haul - Semi-Truck ⁴	\$/head/mile	.025 - .033	0.029	_____
Owner Hauling Cost ³	\$/head/mile	.085 - .146	0.116	_____

Notes:

- ¹ Range of cost estimates from published sources or calculation using a range of transportation means.
- ² Custom hauling fees are determined using a 32ft. goose neck stock trailer with 36 - #350 to #450 (receiving) and 24 - #750 (shipping) calf hauling capacity charged at \$1.50 to \$1.60 per mile.
- ³ Owner hauling costs are determined using a 14 ft. bumper type trailer with a hauling capacity of 8 - #350 calves or 7 - #450 calves (receiving) and 5 - #750 calves (shipping) for a high transportation cost estimate and a 24 ft. goose neck stock trailer with a hauling capacity of 22 - #350 or #450 calves (receiving) and 16 - #750 calves (shipping) for a low transportation cost estimate. Costs include straight line depreciation, repair and maintenance, insurance and property taxes on the trailer with an annual use of 1,000 miles regardless of trailer size. Truck charges are assessed at \$0.35 and \$0.40 per mile for the small and larger trailer sizes, respectively.
- ⁴ Use of semi-truck trailers with a legal weight limit of #50,000 per load is cost effective when cattle are hauled longer distances. Depending on the weight of animals, 60 to 80 calves make up a pot load of cattle. At a custom rate of \$2.00 per mile this translates to a range and average cost/head/mile.

delivering the calves to the farm. Producers may opt to purchase the calves themselves and have them custom delivered or haul the cattle themselves if they own a stock trailer. All cattle are expected to be treated and processed within 12 to 24 hours upon arrival with further treatment reserved for sick animals (7). Labor charges for these operations are not included in the budgets and are instead included as returns to this enterprise.

Vaccination costs are expected to vary little by the type of animal placed. However, different treatment options exist and are outlined in Table 3. Three processing/receiving programs for heifer, steer and bull calves are shown with varying costs depending on the level of prevention desired (3). Program 1 is a minimal protection plan using only deworming. The second program represents an intermediate level of vaccination and the third program represents the most conservative preventive plan that covers many of the possible infections/diseases an animal could contract. Depending upon location, adjustments should be made to cover other parasites and diseases. An example of this could be parasitic flukes found in the southern region of the United States. Some producers might thus want to invest in a more comprehensive dewormer to treat their animals. Average costs of products were taken to approximate prices a producer would be expected to pay.

Bull calves can be castrated surgically with a scalpel or with a banding or clamping device. It is recommended that banding be accompanied by a tetanus vaccine. Other medication charges for summer feeding programs would include external parasite control. These costs vary by time of placement and product chosen (e.g. ear tags or pour on) and range anywhere from \$0.80 to \$1.78 per head.

Table 3. Vaccination, Parasite Control and Castration Production Expenses, Average Feeder Cattle Operation in Arkansas, 2002.

		Cost per Head		
		Range ¹	Average	Your Own
<i>Program 1</i>	Dewormer	2.82-3.37	3.10	_____
<i>Program 2</i>	Dewormer	2.82-3.37	3.10	_____
	7 way Blackleg Clostridia	0.40-0.84	0.62	_____
	Total		3.72	_____
<i>Program 3</i>	Dewormer	2.82-3.37	3.10	_____
	Pasturella	1.90-2.62	2.26	_____
	7 way Blackleg Clostridia	0.40-0.84	0.62	_____
	Viral Pack ²	0.80-1.79	1.30	_____
	Total		7.28	_____
<i>Bull Calves</i>				
<i>Castration 1</i>	Surgical Scalpel	0.00 - 0.21	0.11	_____
<i>Castration 2</i>	Banding/Clamping ³	0.71-1.68	1.20	_____
	Tetanus	0.37-1.50	0.94	_____
	Total		2.14	_____

Notes:

¹ Range of cost estimates are from various local sources of veterinarian supplies.

² IBR, BVD, PI₃ and BRSV.

³ The banding and clamping charge does not reflect the price of the actual banding or clamping device. It is the cost of the band or tubing.

Finally, growth hormones and ionophore may be used on calves with the expectation of improved feed conversion and increased feed intake (4). Implants are charged at \$1.02 per head at time of placement.

Typically, death loss will occur early in the feeding process due to stress especially if poor weather conditions exist at arrival time on farm. Higher death losses may be expected for animals placed at lighter weights. Bloat can also cause death and

can occur at any time during the feeding process (feeding ionophore is expected to reduce this problem). A conservative death loss estimate is likely around 3% of animals placed. The value of the dead animals inclusive of transportation and vaccinations divided by the number of animals remaining is the cost of deathloss per head in the budgets.

Feeding and Operating Charges (direct)

Other medication charges for treating sick animals may also be incurred and can vary anywhere from \$7.00 to \$30.00 per head. These costs depend on the form of antibiotic used and the number of repeat treatments required. Most treatments involve some form of antibiotic. While these types of treatment costs are expected to be very minimal if retaining cattle that were produced on farm, they can be more important if cattle are purchased off farm.

Pasture checking is done in order to insure early detection of health problems, such as bloat or sickness. It is also done to check pasture conditions to insure proper stocking rates. This is often done at feeding time. Pasture checking is charged at \$0.52 per head per month¹.

Feed costs depend mainly on the type of pasture, rate of gain assumptions and grain prices. The typical rations are described in the budgets using feed prices presented in Table 6.

¹ 100 miles of truck travel at \$0.35 per mile is expected per month when no feeding is required. During months of hay supplementation the same fee proxies tractor use for feeding round bales. This amounts to \$0.52 per head/month if dividing by number of head sold.

Selling and Shipping (direct/fixed)

At time of sale the producer may have cattle custom transported or deliver them himself or herself. Depending upon where cattle are sold, bulk shipping through a cattle hauling service (semi truck) may be more economical. Again, see Table 2 for a summary of costs of transporting cattle.

Yardage and insurance must be paid if selling through a local sale barn. This can vary from location to location. Insurance charges vary from \$0.30-0.50 per head and yardage \$1.50-2.00 per head. Also, the beef checkoff must be paid at a \$1.00 per head.

Repair & Maintenance (direct/fixed)

Repairs and maintenance (RM) are usually a function of use. Table 5 summarizes annual RM cost estimates based on the use of a repair factor (the percentage of purchase price spent on RM over the useful life of an asset). While the annual RM charges change over the useful life of the asset (more towards the end), averaging across all equipment and buildings that are expected to be at various stages of useful life provides a reasonable estimate of annual enterprise RM costs.

Operating Interest (direct)

Monthly operating interest per head is charged on 65% of the value of the animal (including freight, vaccination and adjusted for deathloss) plus cumulative direct costs incurred to date (feed and minerals, sick treatment and pasture checking). Interest charges for the first and last month are adjusted to reflect the amount of time on feed.

Fencing (fixed)

Fencing costs can vary depending upon the size of the operation, location, available forages, and type of grazing management implemented. Stocking rates (number of calves per acre) may vary due to many factors over the length of the entire grazing season. Fencing costs across different fence types are outlined in Table 4.

Table 4. Estimated Fencing Costs for 70 Head at 2 Head/Acre, Arkansas, 2002.

Cost of Fence Per Mile ¹		
5 Strand Barbed Wire ²	6 Strand Permanent Electrical ³ (high-tensile)	2 Strand Temporary Electrical ⁴ (14 gauge)
\$1,710 (\$0.32/ft)	\$1,517 (\$0.29/ft)	\$409 (\$0.08/ft)

¹ Estimated fencing costs were found in “The Blue Book” Tractor Supply Co. 2001. Page 15.

² A typical 5 strand barbed wire fence with metal T-posts and wood-braces costs \$1,710 per mile or \$0.32 a foot.

³ A permanent 6 strand high-tensile electric fence costs \$1,517 per mile or \$0.29 cents a foot. Cost of electricity is not included as a variety of fence chargers are available.

⁴ A temporary 2 strand 14 gauge electric fence costs \$409 per mile or \$0.08 a foot. Cost of electricity is not included as a variety of fence chargers are available.

On a per head basis, fence charges can be approximated using the following two equations for perimeter and cross fencing respectively.

$$\text{Average Perimeter Fence Cost : } APFC = 1 / SR * \sqrt{43,560} * 4 * PFCF \quad (1)$$

$$\text{Average Cross Fence Cost: } ACFC = 1 / SR * \sqrt{43,560} * NCF * CFCF \quad (2)$$

where APFC is the perimeter and ACFC is cross fence cost per head, SR is the stocking rate (head/acre), NCF is the number of cross fences used, and PFCF and CFCF are the fencing cost per foot of perimeter and cross fence, respectively. An assumption for the

above is that pastures are square and a cross fence is parallel to one of the sides. Since this is often not the case, 20% extra fence costs are assumed in the budgets.

Pasture Checking (fixed)

Cattle also need to be checked daily and thus 100 miles of truck travel is expected per month. At \$0.35 per mile this results in \$35.00 per month. This charge will still vary by length of feeding program but is not expected to change significantly with number of head fed.

Ownership Charges (fixed)

Capital recovery captures opportunity cost of capital as well as depreciation on long-term assets. A capital recovery rate of 5% is expected to cover depreciation and long term interest rates. Insurance costs and property taxes are approximated at 0.8 % and 0.5% of initial investment, respectively. Repairs and maintenance are calculated as the initial cost of the item multiplied by a repair factor appropriate for the asset in question. This value is divided by the years of useful life to arrive at average annual costs. Table 5 provides a summary of this assumptions and annual costs.

Finally, pasture maintenance costs provided in the appendix are divided by the stocking rate to arrive at a cost per head for grazing. No land ownership charges are included in those budgets.

Table 5. Annual Capital Recovery (Depreciation and Interest), Repair and Maintenance, Property taxes and Insurance for Fixed Investments for a 70 Head Cattle Operation using a Stocking Rate of 2 Head/Acre in Arkansas, 2002.

Description	List Price	Years of Useful Life	Salvage Value	Capital Recovery ⁵	Repair Factor	Repair & Maintenance	Taxes	Insurance
Hay barn ¹ (1000 sqft)	\$4,500	20	\$0	\$361	0.40	\$90	\$23	\$36
Shed ¹ (800 sqft)	\$3,600	20	\$0	\$289	0.40	\$72	\$18	\$29
Five wire fence ²	\$1,897	20	\$0	\$152	0.20	\$19	\$9	\$15
Cross fence ³	\$99	20	\$0	\$8	0.20	\$1	\$0	\$1
Corral and Chute	\$3,900	10	\$750	\$445	0.05	\$20	\$20	\$31
Farm pond ⁴	\$1,500	20	\$0	\$120	0.10	\$8	\$8	\$12
Miscellaneous items	\$2,000	10	\$0	\$259	0.00	\$0	\$10	\$16
Total	\$17,495			\$1,635		\$209	\$87	\$140

Notes:

¹ Both hay barn and shed costs are estimated using \$4.50/sqft, excluding labor.

² Costs entail a five strand barbed wire fence (1 ½ miles) using equation 1 and information from Table 4. To account for non-square fence lines 20% was added.

³ Costs entail one cross fence (½ mile) of two strand temporary (14 gauge) electrical fence using equation 2 and information from Table 4.

⁴ Price denotes the cost of 2,500 cu. yds. at \$1.125 per cu. yd. The value shown in the table reflects adjustments for government cost share programs that vary from county to county as well as costs for drink tanks and fencing that are sometimes required with the government program.

⁵ A capital recovery rate (CRR) of 5% is used in the following equation where $CRF = CRR / [1 - 1/(1+CRR)^n]$:

$$\left[\left(\frac{\text{List Price} - \text{Salvage Value}}{\text{List Price}} \right) \cdot CRF \right] + \left[\left(\frac{\text{Salvage Value}}{\text{List Price}} \right) \cdot CRR \right]$$

INPUT PRICES

The basic price data for calculating gross receipts and variable costs in the budgets are shown in Table 6.

Table 6. Prices for Selected Farm Products and Inputs, Arkansas, 2002.

Item and Description	Unit	Cost (\$)
FEED		
Corn	\$/cwt	\$5.00
Corn Gluten	\$/cwt	\$7.50
Bermuda hay (#1,000 round bales)	\$/cwt	\$2.50
Salt (#50 bag)	\$/bag	\$3.54
Minerals (#50 bag)	\$/bag	\$13.35
Salt & Minerals	\$/head/month	\$0.70
Permanent Pasture (Total Specified Costs (TSC))	\$/acre	\$57.47
Sod-seeded Pasture (TSC)	\$/acre	\$77.90
Small-grains on Prepared Seedbed (TSC)	\$/acre	\$64.81
OTHER		
Operating Interest	% per annum	7.00%
Capital Recovery Rate	% per year	5.00%

The appendix provides ten-year averages of calf prices for all of Arkansas, Hope, AR, Springdale, AR, Dodge City, KS, Oklahoma City, OK and Amarillo, TX for various weight categories and cattle sex. Prices were not adjusted for inflation.

SUPPLEMENTARY TABLES

In addition to the basic enterprise budgets, supplementary tables present expert opinion on forage production practices and availability as well as the feed stuffs and amounts used each month (see Computational Appendix). This information is provided on a month to month basis to allow the comparison of cumulative costs incurred to date vs. the net sale value of the animal for each month of the feeding program. This later

information is plotted for each production month to identify an optimal sale time on the basis of ten-year average cattle purchase and sale prices. A plot of this information is expected to reveal profitability of the enterprise from month to month without consideration of cattle cycle or price trends. For purposes of analyzing risk the range of possible price combinations over the ten-year period (i.e. a producer may experience a combination of historically low or high purchase and sale price combinations over the ten-year period) was used. To capture this risk at different points in the production season, average monthly returns (sale value net of hauling less cumulative total specified expenses incurred to date) as well as their standard deviation over the period from 1992 to 2001 are presented. Note that profitability will differ when using a 10 year average purchase and sale price in the top graphs (Figures 1a - 7a) compared to 10 year averages of combinations of historical input and output prices (Figures 1b - 7b).

SUMMARY AND CONCLUSIONS

The purpose of these feeder cattle budgets was to evaluate various production and marketing strategies for Arkansas. These budgets are intended to provide producers with a broad spectrum of different economic scenarios for stockering calves. Four basic decisions regarding: i) purchase dates; ii) intended seasonal target markets; iii) feed supplementation for gain; and iv) various forages and their production were changed to evaluate the economic feasibility of gains from marketing, the impact of minimizing risk exposure by investing as little as possible during the feeding term, and finally the effect

of investing in added feed supplementation to optimize weight gain, feed efficiency and thereby precondition cattle for the feedlot.

Table 7 summarizes prominent features regarding economic performance for each of the different feeding scenarios. The following paragraphs discuss topics of profitability, stocking rate, capital intensity, various measures of rates of return and flexibility in marketing.

Profit

Profit can be measured on a per head or per acre basis. Using profit (\$/hd) to rank the alternatives, the light and heavy weight options with higher supplementation are most profitable and summer feeding is least profitable. Taking the stocking rate into consideration narrows the gap across options and changes the rankings slightly.

Stocking Rate

A higher stocking rate may increase the level of risk associated with running out of or mismanaging pasture resources. This risk is highest for summer feeding as a drought could have devastating consequences. If hay should be required or stocking rates lowered, costs would likely make this option unprofitable.

Capital Intensity

Cumulative costs are intended to measure the level of capital intensity involved. On a per head basis summer feeding is least intensive and the heavy weight option is the most intensive. Adjusting for stocking rate drastically changes the ordering and becomes important when analyzing rates of return.

Rates of Return

Rates of return (ROR) can be calculated to reflect capital intensity and is sensitive to the time required for maximum profits. The ROR measure in the table takes costs incurred until sale time into account and leads to a similar ranking of options as discussed under the profits section. Taking both time requirements and capital intensity into account in the annualized ROR numbers, the options with higher stocking rates and shorter feeding time requirements become more attractive.

Flexibility in Marketing

Shorter time requirements until first profit and more months when cattle can be sold at a profit are preferable for marketing flexibility. The time required to become profitable could be very valuable when considering cash-flow and the potential for selling calves early and restocking with a second batch of cattle. The low cost and summer options are restrictive in this sense.

The number of profitable months is a measure that would reveal the level of risk incurred with the enterprise. The greater the amount of time in each option during which one could cover costs and make a profit, the lower the level of risk. If risk exposure is considered undesirable, the summer option is again ranked last while the light weight and wheat & rye options are most versatile. For example, when feeding wheat and rye, one might consider selling cattle in December or February and then buying another set of smaller light weight cattle (#300-450) to place on the same field and graze it out. This could increase the number of cattle you could market and thereby spread ownership charges over more cattle and lower risk.

The wheat option, where producers can choose to market cattle by end of February in order to harvest a wheat crop or have cattle graze out the wheat, showed that the latter could return \$67.82 per head or \$101.73/acre. First, the risk of negative returns declines after February (Figure 5b) which may justify retaining cattle for a longer period of time. Also, a producer would incur additional costs of \$30.74/ac in direct and \$12.56/ac of ownership charges (see footnote to Budget Table 5c). With average profits of \$20.19/acre associated with marketing calves in February, the producer would need a total of at least \$124.84/ac in cash revenue from the sale of wheat to justify harvest. Wheat price and yield expectations would therefore affect this decision.

The choice of feeding option largely depends on the resource conditions a producer faces as well as the amount of capital intensity and risk a producer is willing to take on. Note that options differed with respect to grazing period, total acreage requirements and management intensity. Net return numbers therefore need to be compared with a great deal of caution.

Not considered in this analysis are potential price differences that may be observed regarding the quality or level of precondition of the cattle to be sold. Also, many of these options could be combined to utilize a year round grazing schedule. Finally, these options are only templates to present how to budget various situations involving feeder cattle production. These are not recommendations – merely examples to be used when contemplating a new backgrounding or cattle feeding strategy.

Table 7. Summary of Results for the Seven Feeding Options.

Option	Profit (\$/hd)	Stocking Rate (hd/ac)	Profit (\$/ac)	Cumulative Total Specified Costs by Sale Date ¹		Time for Profit Max. ² (Months)	ROR ³ (%)	Annualized Returns ⁴		Time of First Profit ² (Month)	Profitable Months ²
				(\$/hd)	(\$/ac)			(\$/ac)	ROR		
<i>Low Cost (1)</i>	63.83	1.25	79.79	497.65	622.06	9	12.8	106.38	18.0	April	Apr, May, Jun
<i>Light Weight (2)</i>	119.33	1.5	179.00	527.36	791.04	9	22.6	238.66	32.7	December	Dec, Mar, Apr, May, Jun
<i>Heavy Weight (3)</i>	112.25	2	224.50	569.43	1,138.86	8	19.7	336.75	32.1	December	Dec, Apr, May, Jun
<i>Sod Seeded (4)</i>	67.31	2.25	151.45	487.25	1,096.31	7.5	13.8	242.32	23.5	December	Dec, Mar, Apr
<i>Wheat (5)</i>	67.82	1.5	101.73	520.41	780.62	7.5	13.0	162.77	22.4	December	Dec, Feb, Mar, Apr
<i>Wheat & Rye (6)</i>	77.67	1.66	128.93	502.69	834.47	7.5	15.5	206.29	26.3	December	Dec, Mar, Apr, May
<i>Summer (7)</i>	22.75	3.5	79.63	474.01	1,659.04	4.5	4.8	212.33	13.1	August	Aug

Notes:

- ¹ Cumulative total specified costs by sale date (\$/ac) is calculated by multiplying cumulative cattle and feed costs incurred by sale date (\$/hd) by the stocking rate (hd/ac). Ideally a charge for land would be added and would need to be adjusted for the feeding period required if producers wanted to make a more direct comparison across feeding options.
- ² Time for profit maximum is the time required to realize highest profit on a per head basis. Time of first profit is the first month when positive per head returns were observed. Profitable months are those with a positive per head returns. All three statistics are determined by examining Figures 1a-7a.
- ³ ROR is the rate of return to cattle excluding charges for land, labor and capital. This calculation is on a per head basis and is calculated using profit (\$/hd) divided by cumulative total specified costs by sale date (\$/hd). This number would be the same on a per acre basis and does not take grazing period into account.
- ⁴ Annualized returns (\$/ac) are calculated as the profit (\$/ac) times the number of hypothetical turns per year (12 / Time for Profit Max.). The (\$/ac) number is calculated to adjust for differences in the amount of time required to generate maximum profit and assumes but does not account for changes in cumulative costs incurred. The annualized ROR is calculated as annualized returns (\$/ac) divided by average cumulative total specified costs over the life of the feeding program in (\$/ac) to account for changes in average investment in addition to accounting for hypothetical turnover.

BUDGETS AND SUPPLEMENTARY TABLES

Budget Table 1a. Estimated Costs of Production, 70 Head, Feeder Steers on Permanent Pasture, Buy at #350 Sept. 15, Sell June 15, Stocking at 1.25 head per acre, Option 1.					
Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	82.81	6.99	578.85	_____
Less: Shrink (3%)	cwt	82.81	0.21	17.37	_____
Total Receipts				561.49	_____
Direct Costs					
<i>Steer Calf</i>	cwt	96.18	3.50	336.62	_____
<i>Direct Permanent Pasture¹</i>	head	44.71	1.00	44.71	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	10.83	1.00	10.83	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.56	1.00	1.56	_____
Pasture Checking ⁵	\$/head/month	0.52	9.00	4.64	_____
Hay (as fed)	lbs	0.03	1,105.00	27.63	_____
Salt and Minerals	\$/head/month	0.70	9.00	6.30	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	400.00	11.78	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.97	1.00	2.97	_____
<i>Operating Interest</i>	head	9.82	1.00	9.82	_____
Total Direct Costs				471.37	_____
Returns above Direct Costs				90.11	_____
Ownership Charges⁷	head	26.28	1.00	26.28	_____
Returns to Land, Management, Owner Equity and Labor				63.83	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 1c and divided by the stocking rate (1.25 hd/ac).

² Initial treatment includes vaccination at \$3.72/hd, Raigro[®] at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 1b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 1.							
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Fescue (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	NEg (Mcal/cwt DM)
Sept	350	0					
Oct	400	50	68	16.7	8.9		43.90
Nov	430	30	63	14.4	9.3		35.92
Dec	461	31	61	13.4	5.2	5.9	31.94
Jan	479	18	60	12.4		11.0	27.94
Feb	495	16	60	12.4		11.2	27.94
Mar	535	40	62	14.8	8.4	3.9	35.75
Apr	596	61	65	14.9	14.2		41.94
May	668	72	67	14.0	15.6		44.87
June ²	699	31	67	14.0	15.4		44.91
Total Pounds ³		349	---	---	2,117	1,105	---
Total Cost of Pasture Supplementation ⁴					---	\$27.63	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter.

¹ Average Arkansas bermuda/fescue hay is assumed.

² June feeding occurs for only half of the month.

³ Fifteen percent more hay is added to the total to account for spoilage.

⁴ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 1a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Permanent Pasture at 1.25 head per acre, 10 Year Average Cattle Prices.

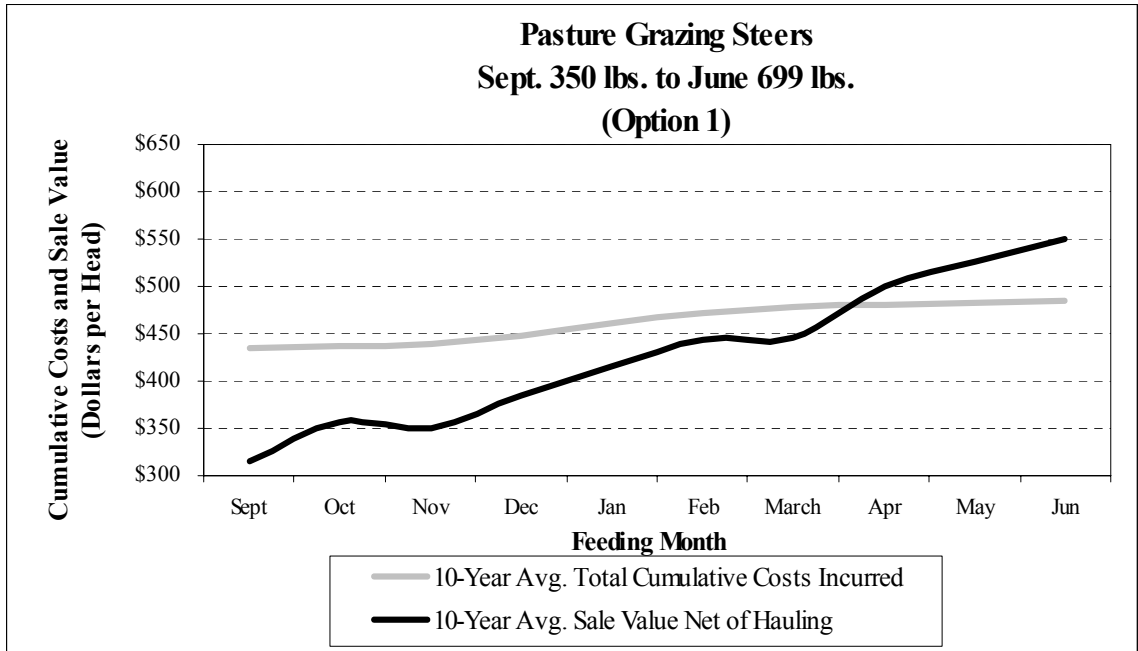
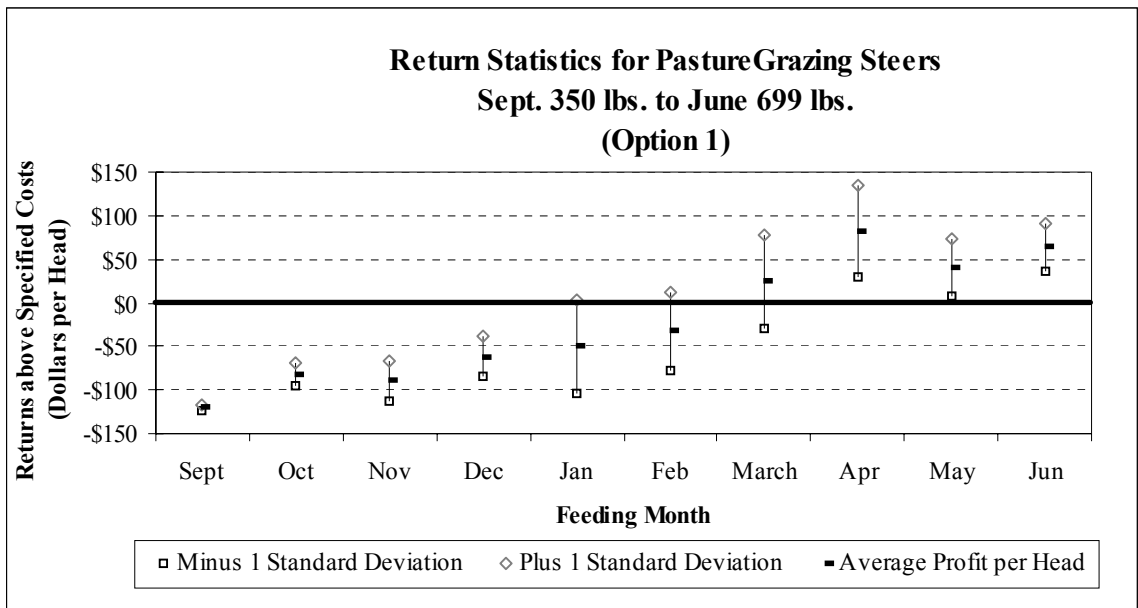


Figure 1b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Permanent Pasture at 1.25 head per acre, Cattle Prices from 1992 - 2001.



Budget Table 1c. Estimated Costs per Acre, Maintaining Established Fescue and Bermuda Grass for Grazing in Arkansas, Option 1.											
	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Fertilizer</i>											
Custom Fertilizer Application	Sept. - Mar.	acre	4.00	3.00	12.00	_____					
19-19-19	Sept.	lbs	0.08	200.00	17.00	_____					
Ammonium Nitrate 34%	Sept.	lbs	0.07	100.00	7.00	_____					
Ammonium Nitrate 34%	May	lbs	0.07	120.00	8.40	_____					
Ammonium Nitrate 34%	Mar.	lbs	0.07	120.00	8.40	_____					
<i>Mowing</i>											
Labor - Rotary cutter past. 15'	May	hours	0.00	0.138	0.00	_____					
Diesel fuel		gal	1.00	0.5326	0.53	_____					
Repair & Maintenance						_____					
Machinery (Mower)		acre	0.26	1.00	0.26	_____					
Tractor (2WD 75hp)		acre	0.36	1.00	0.36	_____					
<i>Interest on Operating Capital</i>		acre	1.94	1.00	1.94	_____					
Total Direct Cost					55.89	_____					
Ownership Charges¹											
Machinery (Mower)		acre	0.91	1.00	0.91	_____					
Tractor (2WD 75hp)		acre	0.67	1.00	<u>0.67</u>	_____					
Total Ownership Charges					1.58	_____					
Total Specified Costs					57.47	_____					
Fescue DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	140	400	1,100	1,560	800	0	0	100	700	600	100
Bermuda DM production per acre ²											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	-----3,750-----	0	0	0	0	0	0

Notes:

¹ The tractor and rotary cutter are not solely used for cutting pasture and therefore only a portion of ownership charges are allocated to this activity.

² For added hay production in the spring/summer an application of Ammonium Nitrate 34% at 220 lbs should be applied in June to allow for harvest.

Budget Table 2a. Estimated Costs of Production, 70 Head, Feeder Steers on Permanent Pasture, Buy at #350 Sept. 15, Sell June 15, Stocking at 1.5 head per acre, Option 2.					
Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	78.43	8.50	666.69	_____
Less: Shrink (3%)	cwt	78.43	0.255	20.00	_____
Total Receipts				646.69	_____
Direct Costs					
<i>Steer Calf</i>	cwt	96.18	3.50	336.62	_____
<i>Direct Permanent Pasture¹</i>	head	40.11	1.00	40.11	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	10.83	1.00	10.83	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.56	1.00	1.56	_____
Pasture Checking ⁵	\$/head/month	0.52	9.00	4.64	_____
Hay (as fed)	lbs	0.03	1,361.00	34.03	_____
Corn (as fed)	lbs	0.05	555.00	27.75	_____
Salt and Minerals	\$/head/month	0.70	9.00	6.30	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	400.00	11.78	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.94	1.00	2.94	_____
<i>Operating Interest</i>	head	10.49	1.00	10.49	_____
Total Direct Costs				501.55	_____
Returns above Direct Costs				145.14	_____
Ownership Charges⁷	head	25.81	1.00	25.81	_____
Returns to Land, Management, Owner Equity and Labor				119.33	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 2c and divided by the stocking rate (1.5 hd/ac).

² Initial treatment includes vaccination at \$3.72/hd, Ralgro[®] at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 2b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 2.								
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Corn (lbs as fed/day)	Fescue (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	NEg (Mcal/cwt DM)
Sept	350	0						
Oct	407	57	71	15.6	1.5	7.4		46.82
Nov	466	59	67	13.3	2.0	7.8	2.0	38.85
Dec	519	53	65	12.7	2.0	4.3	7.0	35.88
Jan	562	43	64	12.0	2.0		12.2	32.97
Feb	601	39	64	12.0	2.0		13.2	32.64
Mar	662	61	66	13.9	2.5	8.2	5.0	39.32
Apr	737	75	68	14.2	2.5	14.5		44.71
May	820	83	70	13.5	2.5	16.1		47.10
June ²	850	30	66	13.8	2.5	16.7		39.16
Total Pounds ³		500	---	---	555	2,036	1,361	---
Total Cost of Pasture Supplementation ⁴				---	\$27.75	---	\$34.03	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter.

¹ Average Arkansas bermuda/fescue hay is assumed.

² June feeding occurs for only half of the month.

³ Fifteen percent more hay is added to the total to account for spoilage.

⁴ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 2a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Permanent Pasture at 1.5 head per acre, 10 Year Average Cattle Prices.

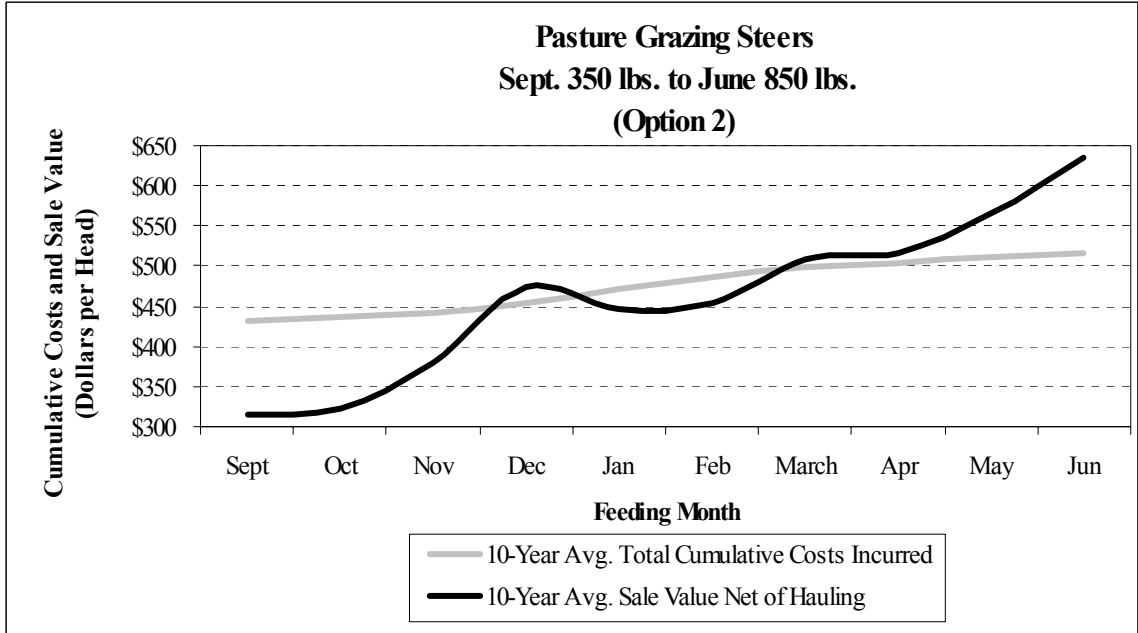
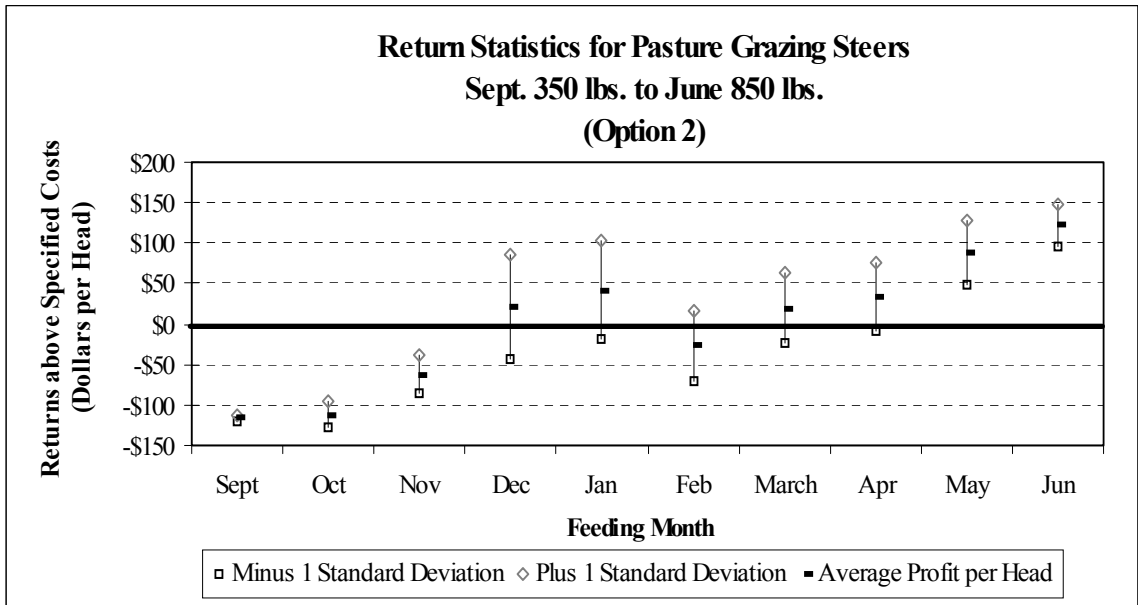


Figure 2b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Permanent Pasture at 1.5 head per acre, Cattle Prices from 1992 - 2001.



Budget Table 2c. Estimated Costs per Acre, Maintaining Established Fescue and Bermuda Grass for Grazing in Arkansas, Option 2.											
	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Fertilizer</i>											
Custom Fertilizer Application	Sept. - Mar.	acre	4.00	3.00	12.00	_____					
19-19-19	Sept.	lbs	0.08	200.00	17.00	_____					
Ammonium Nitrate 34%	Sept.	lbs	0.07	100.00	7.00	_____					
Ammonium Nitrate 34%	May	lbs	0.07	150.00	10.50	_____					
Ammonium Nitrate 34%	Mar.	lbs	0.07	150.00	10.50	_____					
<i>Mowing</i>											
Labor - Rotary cutter past. 15'	May	hours	0.00	0.138	0.00	_____					
Diesel fuel		gal	1.00	0.5326	0.53	_____					
Repair & Maintenance											
Machinery (Mower)		acre	0.26	1.00	0.26	_____					
Tractor (2WD 75hp)		acre	0.36	1.00	0.36	_____					
<i>Interest on Operating Capital</i>		acre	2.01	1.00	2.01	_____					
Total Direct Cost					60.16	_____					
Ownership Charges¹											
Machinery (Mower)		acre	0.91	1.00	0.91	_____					
Tractor (2WD 75hp)		acre	0.67	1.00	<u>0.67</u>	_____					
Total Ownership Charges					1.58	_____					
Total Specified Costs					61.76	_____					
Fescue DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	140	500	1,300	1,760	900	0	0	200	800	400	100
Bermuda DM production per acre ²											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	-----3,750-----	0	0	0	0	0	0

Notes:

¹ The tractor and rotary cutter are not solely used for cutting pasture and therefore only a portion of ownership charges are allocated to this activity.

² For added hay production in the spring/summer an application of Ammonium Nitrate 34% at 220 lbs should be applied in June to allow for harvest.

Budget Table 3a. Estimated Costs of Production, 70 Head, Feeder Steers on Permanent Pasture, Buy at #450 Oct. 15, Sell June 15, Stocking at 2 head per acre, Option 3.

Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	78.43	8.96	702.77	_____
Less: Shrink (3%)	cwt	78.43	0.2688	21.08	_____
Total Receipts				681.69	_____
Direct Costs					
<i>Steer Calf</i>	cwt	84.70	4.50	381.14	_____
<i>Direct Permanent Pasture¹</i>	head	30.08	1.00	30.08	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	4.50	3.38	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	12.23	1.00	12.23	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.56	1.00	1.56	_____
Pasture Checking ⁵	\$/head/month	0.52	8.00	4.12	_____
Hay (as fed)	lbs	0.03	1,527.00	38.18	_____
Corn (as fed)	lbs	0.05	607.00	30.35	_____
Salt and Minerals	\$/head/month	0.70	8.00	5.60	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	400.00	11.78	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.90	1.00	2.90	_____
<i>Operating Interest</i>	head	11.05	1.00	11.05	_____
Total Direct Costs				544.26	_____
Returns above Direct Costs				137.43	_____
Ownership Charges⁷	head	25.17	1.00	25.17	_____
Returns to Land, Management, Owner Equity and Labor				112.25	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 3c and divided by the stocking rate (2 hd/ac).

² Initial treatment includes vaccination at \$3.72/hd, Ralgro® at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 3b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 3.								
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Corn (lbs as fed/day)	Fescue (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	NEg (Mcal/cwt DM)
Oct	450	0						
Nov	504	54	67	13.7	2.0	9.5		39.52
Dec	558	54	66	12.7	2.5	4.7	6.6	35.75
Jan	605	47	65	12.0	2.5		12.8	33.07
Feb	647	42	65	12.0	2.5		13.8	32.04
Mar	706	59	66	12.8	3.0	4.0	10.8	41.55
Apr	782	76	69	14.1	3.0	15.0		43.90
May	866	84	70	13.4	3.0	16.4		46.71
June ²	896	30	67	13.8	3.0	16.9		38.49
Total Pounds ³		446	---	---	607	1,767	1,525	---
Total Cost of Pasture Supplementation					\$30.35	---	\$38.12	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter.

¹ Average Arkansas bermuda/fescue hay is assumed.

² June feeding occurs for only half of the month.

³ Fifteen percent more hay is added to the total to account for spoilage.

⁴ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 3a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Permanent Pasture at 2 head per acre, 10 Year Average Cattle Prices.

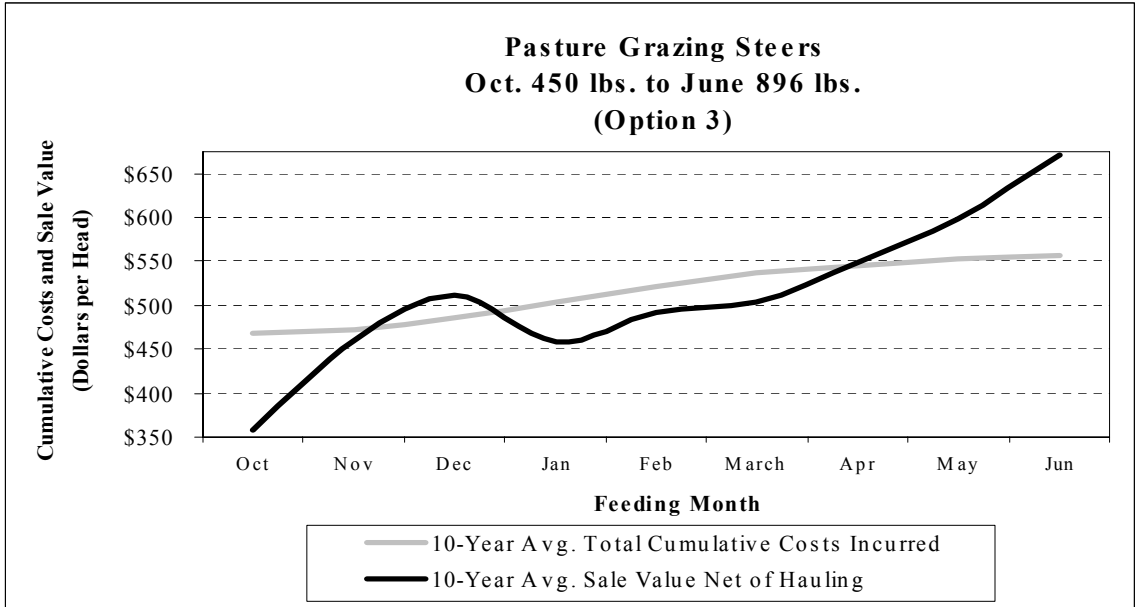
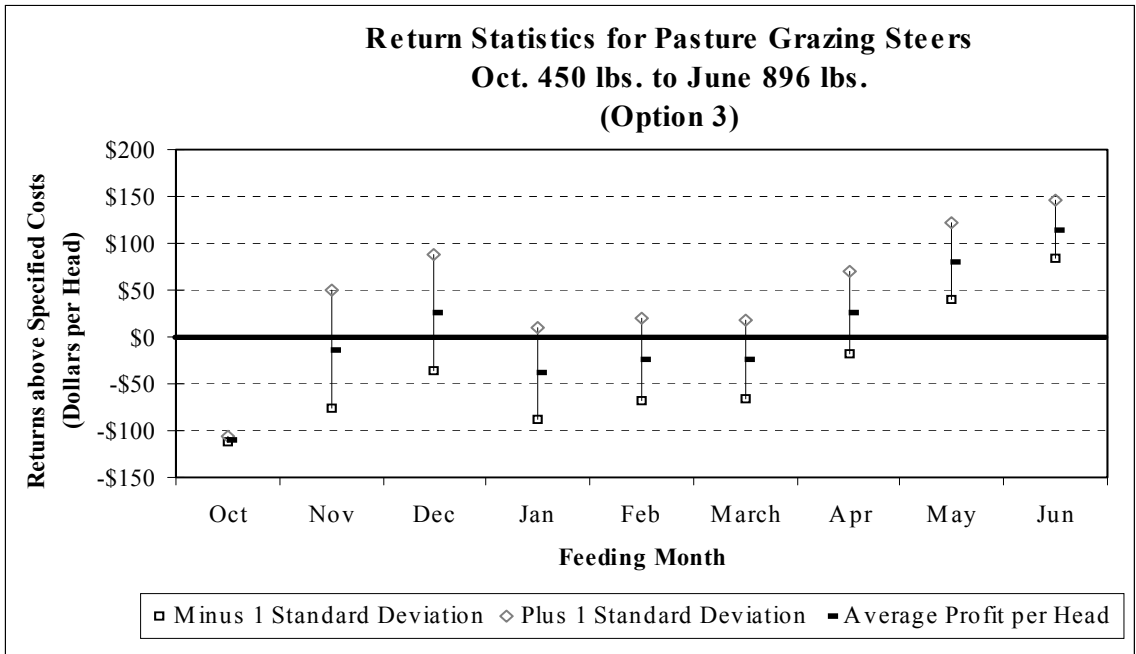


Figure 3b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Permanent Pasture at 2 head per acre, Cattle Prices from 1992 - 2001.



Budget Table 3c. Estimated Costs per Acre, Maintaining Established Fescue and Bermuda Grass for Grazing in Arkansas, Option 3.

	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Fertilizer</i>											
Custom Fertilizer Application	Sept - Mar.	acre	4.00	3.00	12.00	_____					
19-19-19	Sept.	lbs	0.08	200.00	17.00	_____					
Ammonium Nitrate 34%	Sept.	lbs	0.07	100.00	7.00	_____					
Ammonium Nitrate 34%	May	lbs	0.07	150.00	10.50	_____					
Ammonium Nitrate 34%	Mar.	lbs	0.07	150.00	10.50	_____					
<i>Mowing</i>											
Labor - Rotary cutter past. 15'	May	hours	0.00	0.138	0.00	_____					
Diesel fuel		gal	1.00	0.5326	0.53	_____					
Repair & Maintenance						_____					
Machinery (Mower)		acre	0.26	1.00	0.26	_____					
Tractor (2WD 75hp)		acre	0.36	1.00	0.36	_____					
<i>Interest on Operating Capital</i>		acre	2.01	1.00	2.01	_____					
Total Direct Cost					60.16	_____					
Ownership Charges¹											
Machinery (Mower)		acre	0.91	1.00	0.91	_____					
Tractor (2WD 75hp)		acre	0.67	1.00	<u>0.67</u>	_____					
Total Ownership Charges					1.58	_____					
Total Specified Costs					61.76	_____					
Fescue DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	140	500	1,300	1,760	900	0	0	0	600	700	200
Bermuda DM production per acre ²											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	-----	3,750	-----	0	0	0	0

Notes:

¹ The tractor and rotary cutter are not solely used for cutting pasture and therefore only a portion of ownership charges are allocated to this activity.

² For added hay production in the spring/summer an application of Ammonium Nitrate 34% at 220 lbs should be applied in June to allow for harvest.

Budget Table 4a. Estimated Costs of Production, 70 Head, Feeder Steers on Permanent Pasture, Buy at #350 Sept. 15, Sell April 30, Stocking at 2.25 head per acre, Option 4.					
Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	73.86	7.74	571.71	_____
Less: Shrink (3%)	cwt	73.86	0.23	17.15	_____
Total Receipts				554.56	_____
Direct Costs					
<i>Steer Calf</i>	cwt	96.18	3.50	336.32	_____
<i>Direct Sod-seeded Pasture¹</i>	head	31.37	1.00	31.37	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	10.83	1.00	10.83	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.56	1.00	1.56	_____
Pasture Checking ⁵	\$/head/month	0.52	7.50	3.87	_____
Hay (as fed)	lbs	0.03	691.00	17.28	_____
Corn (as fed)	lbs	0.05	439.00	21.95	_____
Salt and Minerals	\$/head/month	0.70	7.50	5.25	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	200.00	5.89	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.88	1.00	2.88	_____
<i>Operating Interest</i>	head	8.28	1.00	8.26	_____
Total Direct Costs				460.27	_____
Returns above Direct Costs				94.29	_____
Ownership Charges⁷	head	26.98	1.00	26.98	_____
Returns to Land, Management, Owner Equity and Labor				67.31	_____

Notes: Steer prices are 10-year averages.

¹ Direct Sod-seeded pasture charges are the total direct per acre costs listed in Budget Table 4c and divided by the stocking rate (2.25 hd/acre).

² Initial treatment includes vaccination at \$3.72/hd, Ralgro® at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 4b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 4.									
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Wint. Ann. (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	Fescue (lbs DM/day)	Corn (lbs as fed/day)	NEg (Mcal/cwt DM)
Sept	350	0							
Oct	404	54	71	15.6			7.0	1.5	46.97
Nov	458	54	68	15.3	3.0		5.0	2.0	43.81
Dec	511	53	68	16.2	5.0	1.14	2.5	2.0	44.65
Jan	562	51	65	11.9		12.6		2.5	33.85
Feb	613	51	65	14.7	5.0	6.2	1.25	2.5	37.93
Mar	696	83	74	17.5	11.9			2.0	57.23
Apr	774	78	72	14.9	13.3			2.0	55.26
Total Pounds ²		424	---	---	1,154	691	480	439	---
Total Cost of Pasture Supplementation ³					---	\$17.28	---	\$21.93	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter to afford a higher stocking rate in the spring.

¹ Average Arkansas bermuda/fescue hay is assumed.

² Fifteen percent more hay is added to the total to account for spoilage.

³ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 4a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Permanent Pasture at 2.25 head per acre, 10 Year Average Cattle Prices.

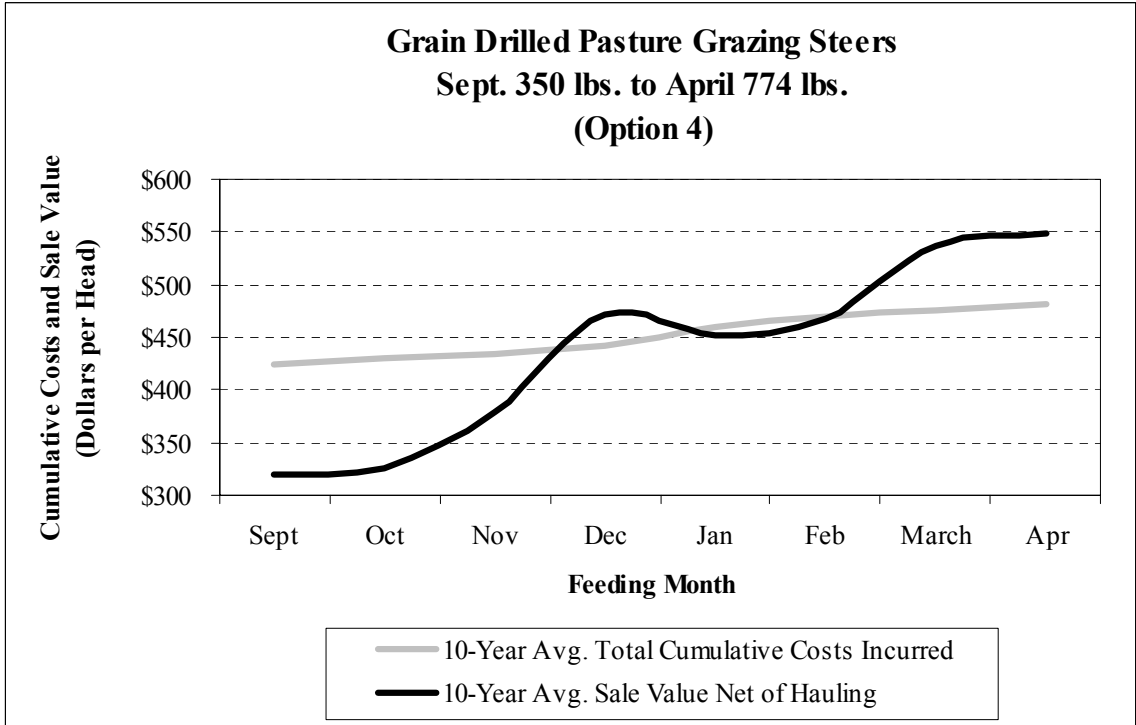
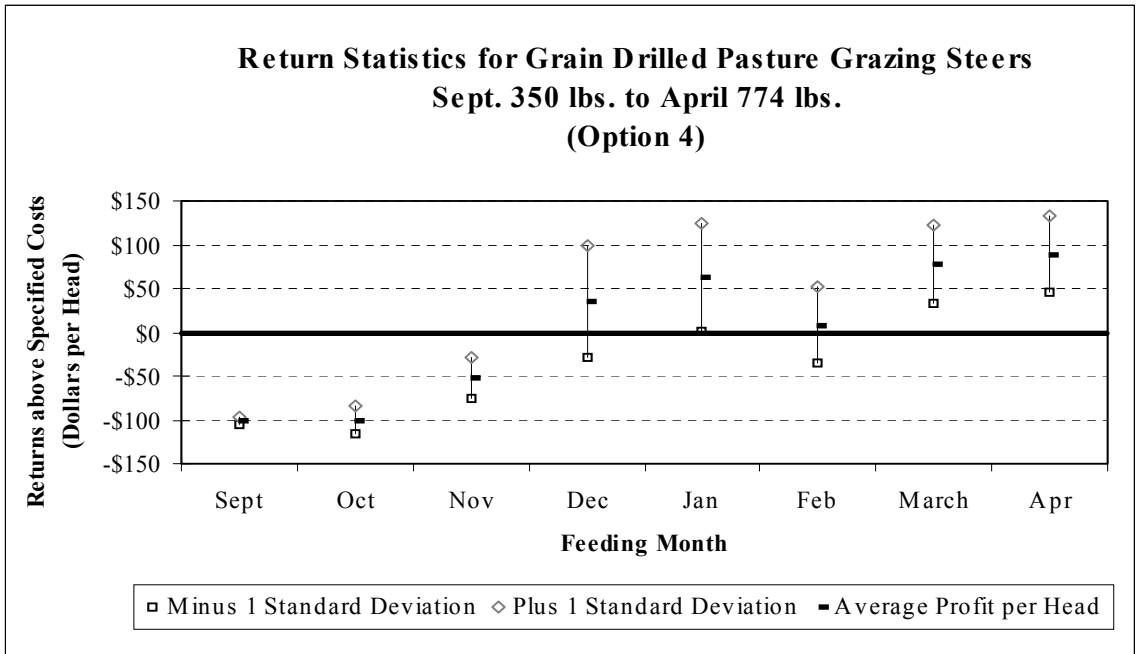


Figure 4b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Permanent Pasture at 2.25 head per acre, Cattle Prices from 1992 - 2001.



Budget Table 4c. Estimated Costs per Acre, Maintaining Established Fescue/Bermuda Pasture with Rye Sod Seeded with No-Till Drill in September, in Arkansas, Option 4.

	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Fertilizer</i>											
Custom Fertilizer Application	Sept. - Feb.	acre	4.00	2.00	8.00	_____					
19-19-19	Sept.	lbs	0.08	300.00	25.50	_____					
Ammonium Nitrate 34%	Feb.	lbs	0.07	200.00	14.00	_____					
<i>Mowing</i>											
Labor - Rotary cutter past. 15'	Sept.	hours	0.00	0.138	0.00	_____					
Diesel fuel		gal	1.00	0.53	0.53	_____					
Repair & Maintenance											
Machinery (Mower)		acre	0.26	1.00	0.26	_____					
Tractor (2WD 75hp)		acre	0.36	1.00	0.36	_____					
<i>Sod Seeding</i>											
Rye Seed	Sept.	lbs	0.17	90.00	15.30	_____					
Labor - No-till Drill 15'	Sept.	hours	0.00	0.376	0.00	_____					
Diesel fuel	Sept.	gal	1.00	0.66	0.66	_____					
Repair & Maintenance											
Machinery (Drill)		acre	1.81	1.00	1.81	_____					
Tractor (2WD 75hp)		acre	0.47	1.00	0.47	_____					
<i>Interest on Operating Capital</i>		acre	3.69	1.00	3.69	_____					
Total Direct Cost					70.58	_____					
Ownership Charges¹											
Machinery (Mower & Drill)		acre	4.63	1.00	4.63	_____					
Tractor (2WD 75hp)		acre	1.52	1.00	<u>1.52</u>	_____					
Total Ownership Charges					6.15	_____					
Total Specified Costs					76.73	_____					
Fescue DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	100	400	1,200	1,500	1,000	500	0	500	600	600	100
Rye DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
150	500	1,000	1,300	0	0	0	0	0	200	400	200
Bermuda DM production per acre ²											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	500	1,500	1,000	1,000	500	0	0	0

Notes: This assumes a 50/50 split of fescue/bermuda where the bermuda areas can support rye production whereas the fescue would compete with rye growth.

¹ The tractor and rotary cutter are not solely used for cutting pasture and therefore only a portion of ownership charges are allocated to this activity. In this budget the same tractor is used for rotary cutting as well as sod-seeding.

² For added hay production in the spring/summer an application of Urea in May at 160 lbs. (\$0.08/lbs) and another application of Ammonium Nitrate 34% at 200 lbs should be applied in July to allow for harvest.

Budget Table 5a. Estimated Costs of Production, 70 Head, Feeder Steers on Wheat, Buy at #350 Sept. 15, Sell April 30, Stocking at 1.5 head per acre, Option 5.

Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	73.86	8.21	606.43	_____
Less: Shrink (3%)	cwt	73.86	0.25	18.19	_____
Total Receipts				588.24	_____
Direct Costs					
<i>Steer Calf</i>	cwt	96.18	3.50	336.62	_____
<i>Direct Seeded Wheat¹</i>	head	43.69	1.00	43.69	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	10.83	1.00	10.83	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.56	1.00	1.56	_____
Pasture Checking ⁵	\$/head/month	0.52	7.50	3.87	_____
Hay (as fed)	lbs	0.03	1,186.00	29.65	_____
Corn (as fed)	lbs	0.05	537.00	26.85	_____
Salt and Minerals	\$/head/month	0.70	7.50	5.25	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	200	5.89	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.71	1.00	2.71	_____
<i>Operating Interest</i>	head	8.61	1.00	8.67	_____
Total Direct Costs				490.10	_____
Returns above Direct Costs				98.13	_____
Ownership Charges⁷	head	30.31	1.00	30.31	_____
Returns to Land, Management, Owner Equity and Labor				67.82	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 5c and divided by the stocking rate (1.5 hd/acre).

² Initial treatment includes vaccination at \$3.72/hd, Ralgro® at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 5b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 5.								
Month	End weight (lbs)	Weight gain (lbs)	% TDN (DM)	% C.P. (DM)	Corn (lbs as fed/day)	Wheat (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	NEg (Mcal/cwt DM)
Sept	350	0						
Oct	397	47	65	12.8	1.75		8.5	34.49
Nov	457	60	69	16.7	2.0	3.5	6.2	40.71
Dec	539	82	72	19.8	2.5	7.0	4.6	45.26
Jan	607	68	70	18.5	2.5	6.0	6.2	43.18
Feb	669	62	69	16.8	3.0	5.0	8.8	41.17
Mar	749	80	76	24.1	3.0	11.9		52.26
Apr	821	72	73	18.4	3.0	15.3		47.60
Total Pounds ²		471	---	---	537	1,477	1,188	---
Total Cost of Pasture Supplementation ³					\$26.85	---	\$29.70	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter to afford a higher stocking rate in the spring.

¹ Average Arkansas bermuda/fescue hay is assumed.

² Fifteen percent more hay is added to the total to account for spoilage.

³ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 5a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Wheat at 1.5 head per acre, 10 Year Average Cattle Prices.

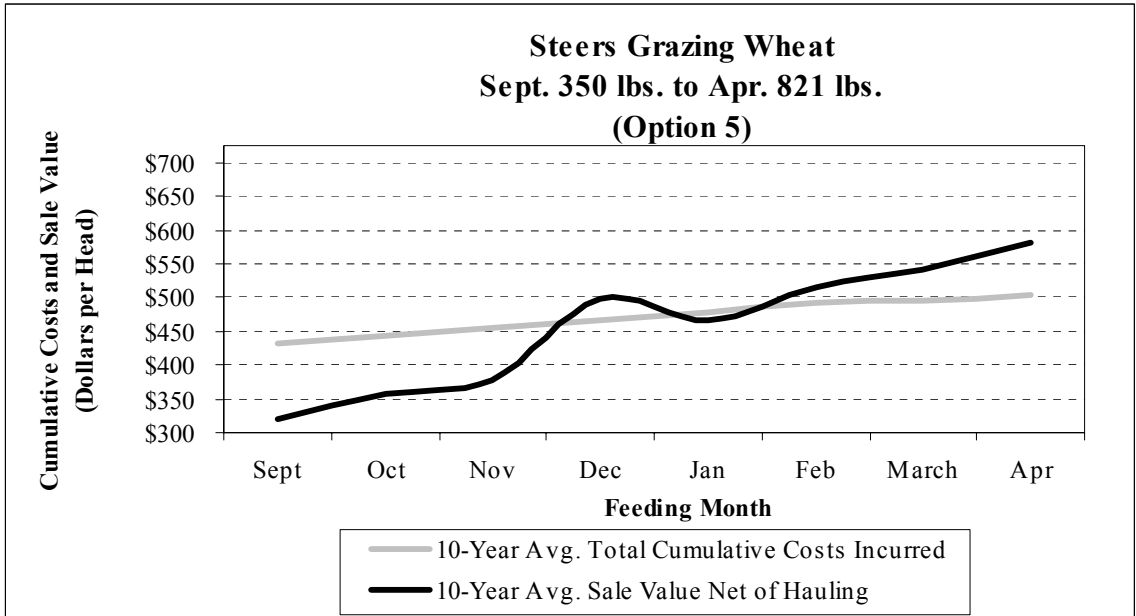
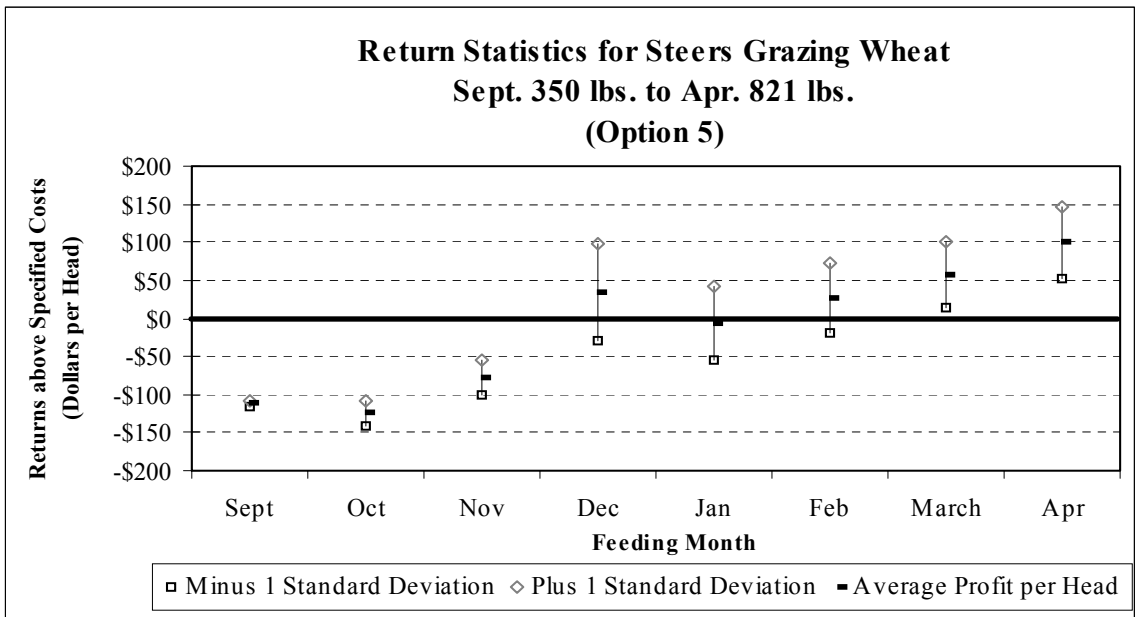


Figure 5b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Wheat at 1.5 head per acre, Cattle Prices from 1992-2001.



Budget Table 5c. Estimated Costs per Acre, Wheat for Cattle Grazing in Arkansas, Option 5.											
	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Field Work</i>											
Labor - Disking	Sept.	hours	0.00	0.106	0.00	_____					
Labor - Land Float	Sept.	hours	0.00	0.204	0.00	_____					
Labor - Triple K	Sept.	hours	0.00	0.067	0.00	_____					
Labor - Furrow Ditcher	Sept.	hours	0.00	0.019	0.00	_____					
<i>Seeding</i>											
Wheat Seed	Sept.	lbs	0.13	120.00	15.60	_____					
Labor - Grain Drill 20'	Sept.	hours	0.00	0.283	0.00	_____					
<i>Fertilizer</i>											
Custom Fertilizer Application - Ground	Sept.	acre	4.00	1.00	4.00	_____					
19-19-19	Sept.	lbs	0.08	200.00	17.00	_____					
Custom Fertilizer Application - Air	Feb.	acre	4.50	1.00	4.50	_____					
Urea 46-0-0	Feb.	lbs	0.08	160.00	12.80	_____					
<i>Other</i>											
Diesel fuel		gal	1.00	4.242	4.24	_____					
Repair & Maintenance						_____					
Machinery (Field Work & Seeding)		acre	1.65	1.00	1.65	_____					
Tractors		acre	3.29	1.00	3.29	_____					
<i>Interest on Operating Capital</i>		acre	2.45	1.00	2.45	_____					
Total Direct Cost					65.53	_____					
Ownership Charges											
Machinery (Field Work & Seeding)		acre	3.73	1.00	3.73	_____					
Tractors		acre	7.53	1.00	<u>7.53</u>	_____					
Total Ownership Charges					11.27	_____					
Total Specified Costs					76.80	_____					
Wheat DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
100	300	800	2,000	400	0	0	0	0	400	500	100

Notes: Appropriate size tractors are used for the field work entailed in the budget. The tractors and machinery are not solely used for this enterprise and therefore only a portion of ownership charges are allocated to this budget. Fertilizer is custom applied on the ground in September and aerially applied in February given potentially poor field conditions. Should a producer decide not to graze out the pasture but harvest instead, the following additional charges need to be taken into account: i) custom application (\$5.50/acre) of urea in March (110 lb at \$8.80/acre); ii) custom herbicide application (\$4.50/acre) in March (\$5.64/acre); direct harvest charges (\$5.57/acre); operating interest (\$0.72/acre); and ownership charges (\$12.56/acre). These charges total \$30.74/acre in direct expense and an additional \$12.56/acre of ownership charges. A Triple K is an equipment complex involving a field cultivator, rolling basket and smoothing board commonly used to flatten and prepare the seedbed for drilling.

Budget Table 6a. Estimated Costs of Production, 70 Head, Feeder Steers on Wheat and Rye, Buy at #350 Sept. 15, Sell April 30, Stocking at 1.66 head per acre, Option 6.

Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	73.86	8.10	598.30	_____
Less: Shrink (3%)	cwt	73.86	0.24	17.95	_____
Total Receipts				580.36	_____
Direct Costs					
<i>Steer Calf</i>	cwt	96.18	3.50	336.62	_____
<i>Direct Seeded Wheat and Rye¹</i>	head	40.98	1.00	40.98	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	8.74	1.00	8.74	_____
Death Loss ³	head	10.83	1.00	10.83	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.28	1.00	1.28	_____
Pasture Checking ⁵	\$/head/month	0.52	7.50	3.87	_____
Corn (as fed)	lbs	0.05	318.80	15.94	_____
Hay (as fed)	lbs	0.03	1,093.00	27.33	_____
Salt and Minerals	\$/head/month	0.70	7.50	5.25	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	200	5.89	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.70	1.00	2.70	_____
<i>Operating Interest</i>	head	7.93	1.00	7.93	_____
Total Direct Costs				473.14	_____
Returns above Direct Costs				107.22	_____
Ownership Charges⁷	head	29.55	1.00	29.55	_____
Returns to Land, Management, Owner Equity and Labor				77.67	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 6c and divided by the stocking rate (2 hd/acre).

² Initial treatment includes vaccination at \$3.72/hd, Ralgro® at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 6b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 6.									
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Corn (lbs as fed/day)	Wheat (lbs DM/day)	Rye (lbs DM/day)	Bermuda Hay Supplement ¹ (lbs as fed/day)	NEg (Mcal/cwt DM)
Sept	350	0							
Oct	392	42	64	12.7	1.5			8.5	33.56
Nov	443	51	68	17.3	1.5	1.7	1.8	5.6	40.47
Dec	508	65	68	18.2	1.5	2.5	2.5	6.5	40.81
Jan	575	67	69	18.7	1.5	2.5	3.5	7.0	41.11
Feb	633	58	71	22.0	1.5	3.0	5.7	3.5	46.00
Mar	726	93	73	18.0	1.5	5.5	9.9		50.83
Apr	810	84	72	15.2	1.5	6.6	10.0		49.01
May ²	846	36	69	13.7	1.5	11.5	6.5		44.35
Total pounds ³		496	---	---	341	832	1,180	1,091	---
Total Cost of Pasture Supplementation ⁴					\$15.92	---		\$27.28	---

Notes: Stocking rates are set so that forage production is utilized fully in the fall (through mid-December) while at the same time utilizing to the fullest extent possible the spring growth. Forage balance at the end of the feeding program are targeted not to exceed 1,000 lbs per acre. If more forage is left over, feed supplementation will occur in the fall and winter.

¹ Average Arkansas bermuda/fescue hay is assumed.

² May feeding would only occur for 15 days.

³ Fifteen percent more hay is added to the total to account for spoilage. Numbers include May feed.

⁴ Total costs are based on cumulative costs up to and including the month of April. The added costs for supplementation in May would be \$1.13/head for corn. See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 6a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Wheat and Rye at 1.66 head per acre, 10 Year Average Cattle Prices.

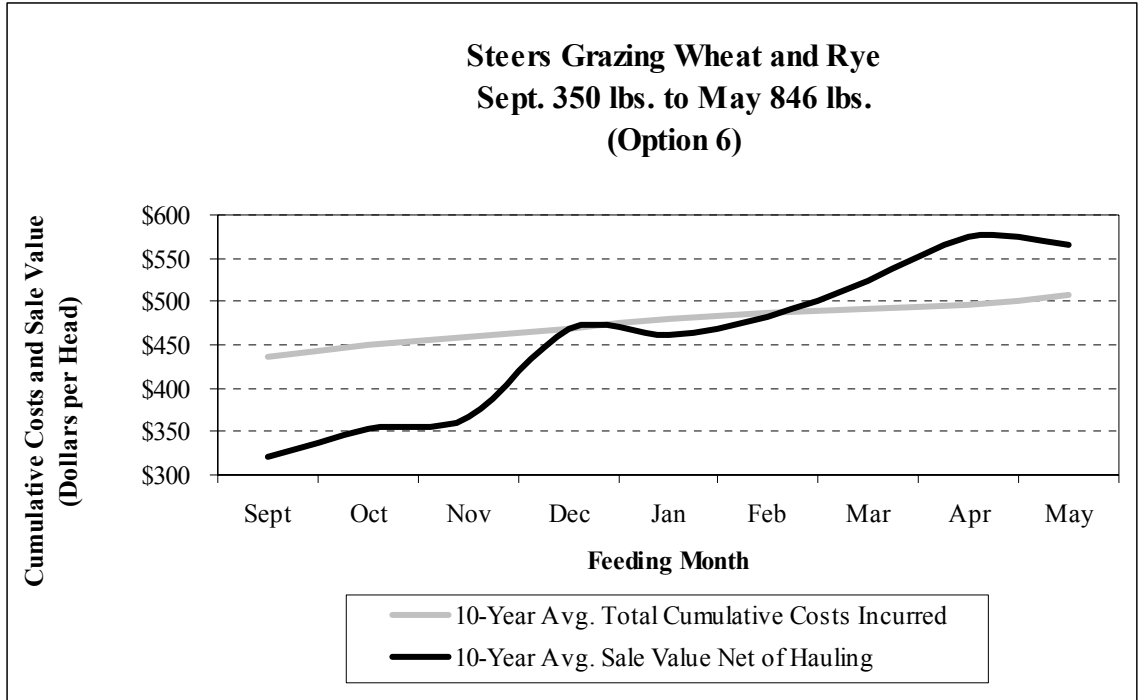
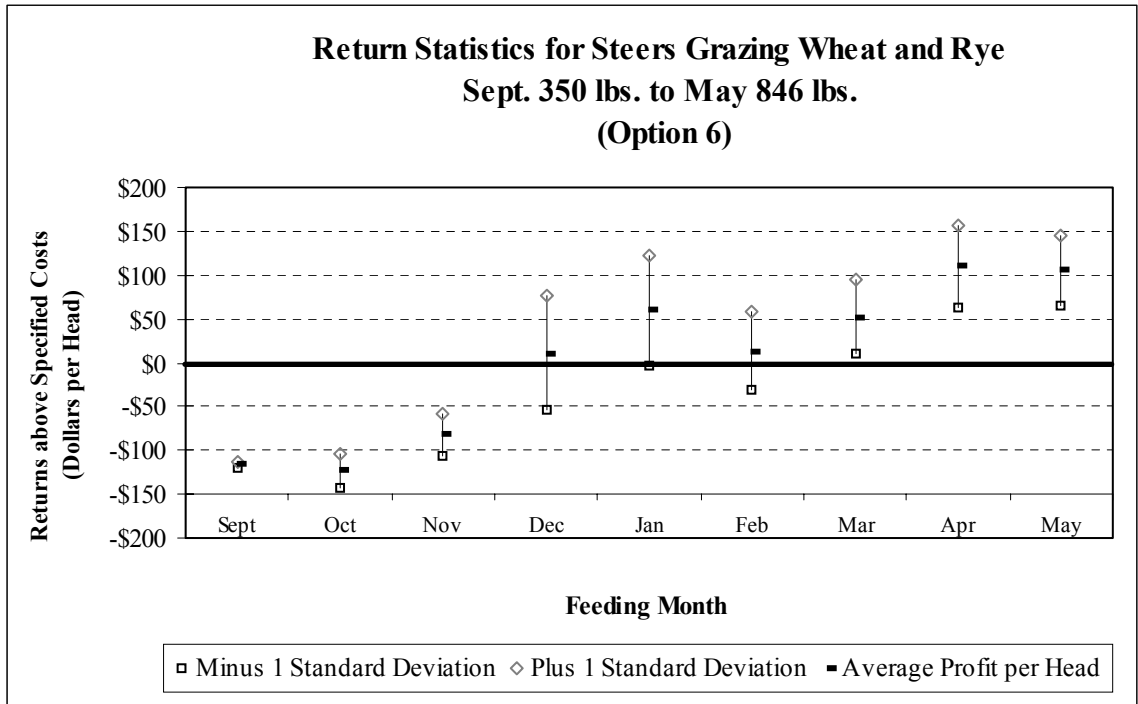


Figure 6b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Wheat and Rye at 1.66 head per acre, Cattle Prices from 1992-2001.



Budget Table 6c. Estimated Costs per Acre, Wheat and Rye for Cattle Grazing in Arkansas, Option 6.											
	Month	Unit	Price	Quantity	Value or cost	Your Estimate					
Direct Costs											
<i>Field Work</i>											
Labor - Disking	Sept.	hours	0.00	0.106	0.00	_____					
Labor - Land Float	Sept.	hours	0.00	0.204	0.00	_____					
Labor - Triple K	Sept.	hours	0.00	0.067	0.00	_____					
Labor - Furrow Ditcher	Sept.	hours	0.00	0.019	0.00	_____					
<i>Seeding</i>											
Rye Seed	Sept.	lbs	0.17	60.00	10.20	_____					
Wheat Seed	Sept.	lbs	0.13	60.00	7.80	_____					
Labor - Grain Drill 20'	Sept.	hours	0.00	0.283	0.00	_____					
<i>Fertilizer</i>											
Custom Fertilizer Application - Ground 19-19-19	Sept.	acre	4.00	1.00	4.00	_____					
Custom Fertilizer Application - Air Urea 46-0-0	Sept.	lbs	0.08	200.00	17.00	_____					
	Feb.	acre	4.50	1.00	4.50	_____					
	Feb.	lbs	0.08	160.00	12.80	_____					
<i>Other</i>											
Diesel fuel		gal	1.00	4.242	4.24	_____					
Repair & Maintenance Machinery (Field Work & Seeding)		acre	1.65	1.00	1.65	_____					
Tractors		acre	3.29	1.00	3.29	_____					
<i>Interest on Operating Capital</i>		acre	2.55	1.00	2.55	_____					
Total Direct Cost					68.03	_____					
Ownership Charges											
Machinery (Field Work & Seeding)		acre	3.73	1.00	3.73	_____					
Tractors		acre	7.53	1.00	<u>7.53</u>	_____					
Total Ownership Charges					11.27	_____					
Total Specified Costs					79.30	_____					
Wheat DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
50	150	400	1,000	200	0	0	0	0	200	250	50
Rye DM production per acre											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
100	400	700	1,000	0	0	0	0	0	200	300	100

Notes: Appropriate size tractors are used for the field work entailed in the budget. The tractors and machinery are not solely used for this enterprise and therefore only a portion of ownership charges are allocated to this budget. Fertilizer is custom applied on the ground in September and aerially applied in February given potentially poor field conditions. A Triple K is an equipment complex involving a field cultivator, rolling basket and smoothing board commonly used to flatten and prepare the seedbed for drilling. Rye is used to add cold hardiness to the forage and reduced likelihood of winter kill.

Budget Table 7a. Estimated Costs of Production, 70 Head, Feeder Steers on Permanent Pasture, Buy at #350 April 15, Sell August 31, Stocking at 3.5 head per acre, Option 7.					
Description	Unit	Price	Quantity	Value or cost	Your Estimate
Gross Receipts					
Feeder Steer	cwt	86.65	5.91	512.13	_____
Less: Shrink (3%)	cwt	86.65	0.18	15.36	_____
Total Receipts				496.76	_____
Direct Costs					
<i>Steer Calf</i>	cwt	103.73	3.50	363.04	_____
<i>Direct Permanent Pasture¹</i>	head	18.22	1.00	18.22	_____
<i>Purchasing and Receiving of Cattle</i>					
Buying	cwt	0.75	3.50	2.63	_____
Hauling, Receiving	mile	0.04	50.00	2.15	_____
Initial Treatment ²	head	10.24	1.00	10.24	_____
Death Loss ³	head	11.69	1.00	11.69	_____
<i>Feeding and Operating Charges</i>					
Sick Treatment ⁴	head	1.00	1.00	1.00	_____
Pasture Checking ⁵	\$/head/month	0.52	4.50	2.32	_____
Corn (as fed)	lbs	0.05	294.00	14.70	_____
Salt and Minerals	\$/head/month	0.70	4.50	3.15	_____
<i>Selling and Shipping</i>					
Hauling, Shipping ⁶	miles	0.03	400.00	11.78	_____
Checkoff	head	1.00	1.00	1.00	_____
<i>Repair & Maintenance</i>	head	2.83	1.00	2.83	_____
<i>Operating Interest</i>	head	5.01	1.00	5.01	_____
Total Direct Costs				449.76	_____
Returns above Direct Costs				47.00	_____
Ownership Charges⁷	head	24.25	1.00	24.25	_____
Returns to Land, Management, Owner Equity and Labor				22.75	_____

Notes: Steer prices are 10-year averages.

¹ Direct permanent pasture charges are the total direct per acre costs listed in Budget Table 7c and divided by the stocking rate (3.5 hd/ac).

² Initial treatment includes vaccination and fly treatment at \$5.22/hd, Ralgro® at \$1.02/hd and a \$4 feed cost per head for receiving.

³ Death loss is calculated as the total value of animals received x 3% death loss and adjusted to a per head sold basis.

⁴ Sick treatment occurs at a rate of 5% of animals for the first month and 2% of animals for second month on feed as well as for December and January. Sick treatment is charged at \$14 per animal treatment.

⁵ Pasture checking involves a monthly charge of \$35 and is divided by the number of head sold.

⁶ Hauling charges may be lower if cattle are sold to a local sale barn, but yardage and insurance will have to be paid. Yardage charges are from \$1.50 to \$2.00 per head. Insurance is often \$0.30 to \$0.50 per head.

⁷ Ownership charges are capital recovery, taxes and insurance listed in Table 5 on a per head sold basis. The fixed cost component (capital recovery on equipment only) of the permanent pasture charge is also included on a per head sold basis. These charges are incurred whether feeding or not and may be excluded when calculating a short term breakeven selling price. Ownership charges are dependent on the scale of production implemented. Different stocking rates would have an impact on ownership charges.

Budget Table 7b. Growth Pattern, Monthly Feed Assumptions and Nutrient Information for Option 7.								
Month	End Weight (lbs)	Weight Gain (lbs)	% TDN (DM)	% C.P. (DM)	Corn (lbs as fed/day)	Bermuda Grass (lbs DM/day)	Fescue Grass (lbs DM/day)	NEg (Mcal/cwt DM)
May	404	54	70	14.9	2		7.5	43.05
June	467	63	64	13.9	2.25	7.4	2.9	37.64
July	529	62	66	12.0	2.5	9.8		39.30
Aug	591	62	65	11.3	2.8	11.2		38.11
Total Pounds		241	---	---	294	873	319.5	---
Total Cost of Pasture Supplementation ¹					\$14.69	---	---	---

Notes: Stocking rates are set so that forage production is utilized to the fullest extent possible.

¹ See Table 6 for prices in calculating total cost of pasture supplementation.

Figure 7a. Estimated Monthly Cumulative Costs and Sale Values for Grazing 70 Feeder Steers on Permanent Pasture at 3.5 head per acre, 10 Year Average Cattle Prices.

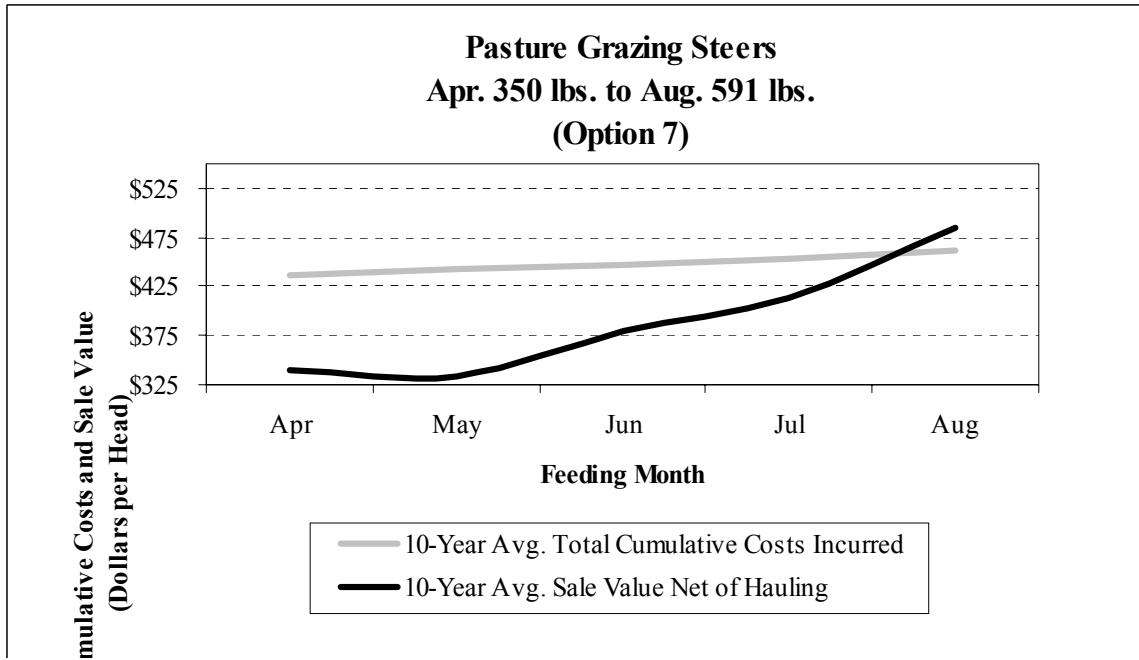
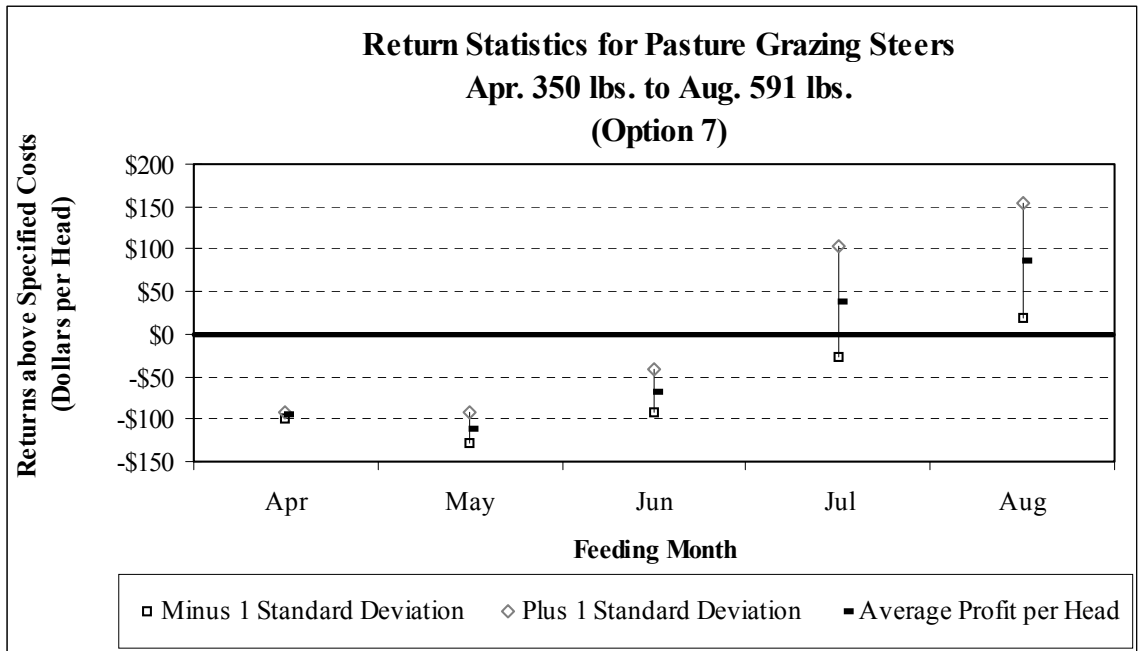


Figure 7b. Estimated Monthly Return Statistics for Grazing 70 Feeder Steers on Permanent Pasture at 3.5 head per acre, Cattle Prices from 1992-2001.



Budget Table 7c. Estimated Costs per Acre, Maintaining Established Fescue and Bermuda Grass for Grazing in Arkansas, Option 7.

	Month	Unit	Price	Quantity	Value or cost	Your Estimate						
Direct Costs												
<i>Fertilizer</i>												
Custom Fertilizer Application	May. - Jul.	acre	4.00	2.00	8.00	_____						
Ammonium Nitrate 34%	May	lbs	0.07	220.00	15.40	_____						
0-0-60	May	lbs	0.07	133.33	10.13	_____						
0-30-30	May	lbs	0.08	133.33	11.86	_____						
Ammonium Nitrate 34%	Jul.	lbs	0.07	220.00	15.40	_____						
<i>Mowing</i>												
Labor - Rotary cutter past. 15'	May	hours	0.00	0.138	0.00	_____						
Diesel fuel		gal	1.00	0.5326	0.53	_____						
Repair & Maintenance						_____						
Machinery (Mower)		acre	0.26	1.00	0.26	_____						
Tractor (2WD 75hp)		acre	0.36	1.00	0.36	_____						
<i>Interest on Operating Capital</i>		acre	1.83	1.00	1.83	_____						
Total Direct Cost					63.77	_____						
Ownership Charges												
Machinery (Mower)		acre	0.91	1.00	0.91	_____						
Tractor (2WD 75hp)		acre	0.67	1.00	<u>0.67</u>	_____						
Total Ownership Charges					1.58	_____						
Total Specified Costs					65.35	_____						
Fescue DM production per acre												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0	0	0	1,665	1,400	600	0	0	0	500	400	200
Bermuda DM production per acre												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0	0	0	0	1,200	1,440	1,380	1,080	600	300	0	0

Notes: The tractor and rotary cutter are not solely used for cutting pasture and therefore only a portion of ownership charges are allocated to this activity. During the summer months this pasture would predominantly consist of bermuda grass.

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APPENDIX. PRICE SEASONALITY

To analyze and forecast seasonality in prices, a seasonal price index was calculated. This index shows whether prices are relatively higher or lower when compared to the annual average price. The index is calculated as follows:

$$\text{Index}_{\text{Month}} = \frac{\text{Monthly price}}{\text{Annual Price}}$$

An index value greater than one implies that the monthly price is higher than the annual price and the reverse holds for an index value less than one. These index values say nothing about the price levels only their seasonal deviation from annual prices. Using 1992 to 2002 price data for medium to large frame #1 steers and heifers, monthly index values were calculated across different weight classes. These values represent ten-year averages of seasonal indexes calculated using a 12-month centered moving average annual price. Ten years of data are used to cover a range of price scenarios that might be encountered during a cattle cycle. In addition, use of the 12-month centered moving average annual price accounts for price trend and cyclical price movements. Since ten years of data are used, monthly seasonal index values are averaged. To describe the variation in index values from year to year, the standard deviation is calculated. It serves as a proxy of the degree of certainty with which a monthly price can be calculated using current annual price expectations. Seasonal indexes thus present information on when prices tend to be highest and lowest for a certain type of cattle over the course of the year. For example, Appendix Table 1 shows that #300-400 medium and large frame #1 steer calves trade at 1.06 ± 0.03 times the annual average price during the month of March in two out of three years.

Appendix Table 1. Ten-year Averages of Monthly Seasonal Indexes and Standard Deviations for Feeder Steers and Heifers, 1992-2002.												
Cattle Type:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No. 1 Medium and Large Frame Steers												
#300-400	1.02 (.04) ¹	1.05 (.03)	1.06 (.03)	1.04 (.06)	0.98 (.05)	0.98 (.04)	0.99 (.05)	0.99 (.04)	0.97 (.04)	0.95 (.02)	0.97 (.04)	0.99 (.04)
#400-500	1.02 (.03)	1.05 (.02)	1.07 (.03)	1.05 (.06)	0.99 (.05)	0.98 (.03)	0.98 (.04)	0.98 (.04)	0.96 (.03)	0.95 (.02)	0.97 (.03)	0.99 (.04)
#600-700	1.01 (.02)	1.03 (.04)	1.04 (.03)	1.03 (.05)	1.01 (.05)	1.00 (.03)	1.00 (.04)	1.00 (.04)	0.97 (.03)	0.95 (.02)	0.97 (.03)	0.98 (.04)
#700-800	1.01 (.03)	1.02 (.04)	1.02 (.03)	1.00 (.05)	0.99 (.04)	1.00 (.04)	1.01 (.04)	1.00 (.03)	0.98 (.03)	0.97 (.02)	0.99 (.03)	0.99 (.04)
No. 1 Medium and Large Frame Heifers												
#300-400	1.00 (.04)	1.04 (.03)	1.07 (.04)	1.05 (.05)	1.01 (.05)	1.00 (.04)	1.00 (.04)	1.00 (.03)	0.97 (.04)	0.94 (.02)	0.95 (.04)	0.96 (.05)
#400-500	1.01 (.03)	1.04 (.02)	1.07 (.03)	1.05 (.06)	1.01 (.05)	1.00 (.04)	1.00 (.04)	0.99 (.03)	0.96 (.04)	0.94 (.02)	0.95 (.03)	0.96 (.05)
#600-700	1.01 (.02)	1.02 (.03)	1.03 (.03)	1.02 (.06)	1.00 (.05)	1.01 (.03)	1.02 (.03)	1.01 (.04)	0.98 (.03)	0.96 (.02)	0.97 (.02)	0.98 (.04)
#700-800	1.01 (.03)	1.01 (.03)	1.01 (.02)	1.00 (.06)	1.00 (.05)	1.01 (.03)	1.02 (.04)	1.02 (.03)	0.99 (.03)	0.96 (.03)	0.98 (.03)	0.99 (.04)

¹ Numbers in parentheses represent the standard deviation for the index estimate.

Similar information is also shown in Appendix Figures 1 through 6 for various market locations and cattle types using 1992 to 2001 price information. Appendix Figure 1 shows the seasonal price pattern for steers using state-wide average prices of Arkansas. The chart suggests that regardless of weight, purchase of calves in October, given seasonally low prices as well as relatively little risk (note the standard deviation values that are plotted in the bottom half of the graph using the right hand side axis) is optimal. Opportunities for selling in a high price month(s) exist for March #600-800 steers and for July and August #700-800 steers. Note sharp price declines in May and at the end of August for #700-800 steers.

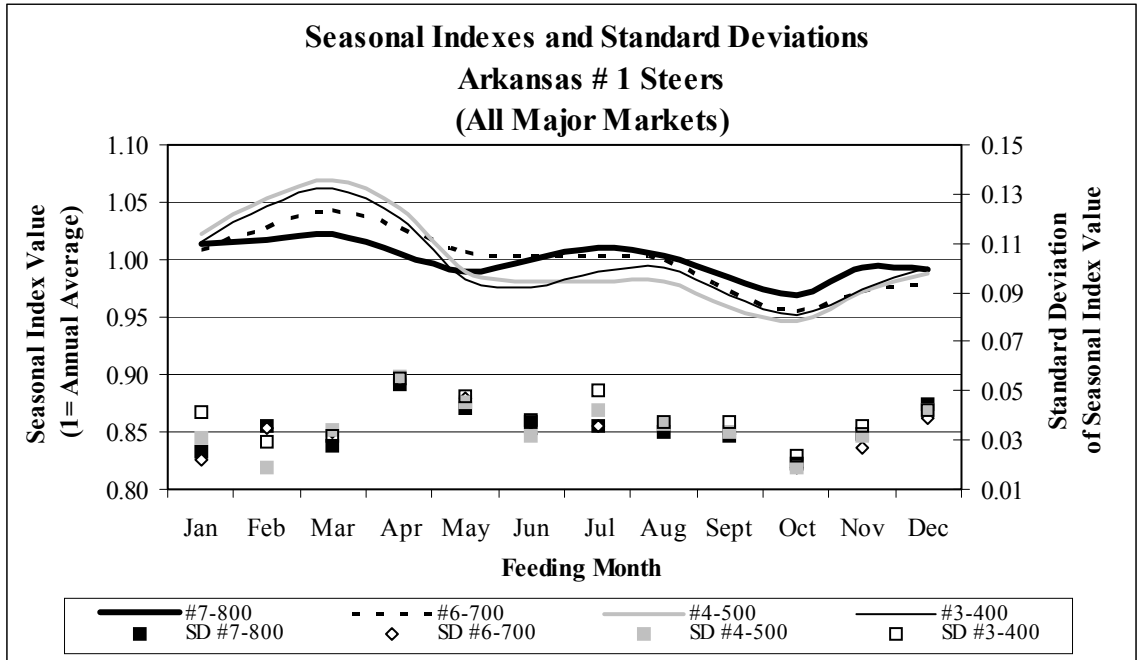
Since cattle may be marketed directly to feedlots outside the state, seasonal patterns are also shown for Kansas, Oklahoma and Texas in comparison with Arkansas. Figures 2 to 4 show differences in seasonal patterns for #500-600, #600-700 and #700-800 steers across these regions. Note that the figure should not be used to determine an optimal sale location for maximum price but instead to compare evidence of seasonal price patterns. The charts indicate that Arkansas and Oklahoma follow very similar seasonal price patterns for #500-600. Texas deviates slightly in the sense that prices seem to stay above average annual prices longer in the spring. By contrast, Kansas displays the least seasonal variation in prices for #500-600 as demonstrated by its flat seasonal index values and low standard deviations. Standard deviation values are highest for Texas implying greater uncertainty about seasonal price patterns. A downward trend is seen when moving through the year from March till October in all states.

The same declining trend can be seen in Appendix Figure 3 for the #600-700 steers. Arkansas offers relatively higher seasonal variation in prices compared to the other states. Compared to the #500-600 chart, the seasonal index values show a smaller range in observations as well.

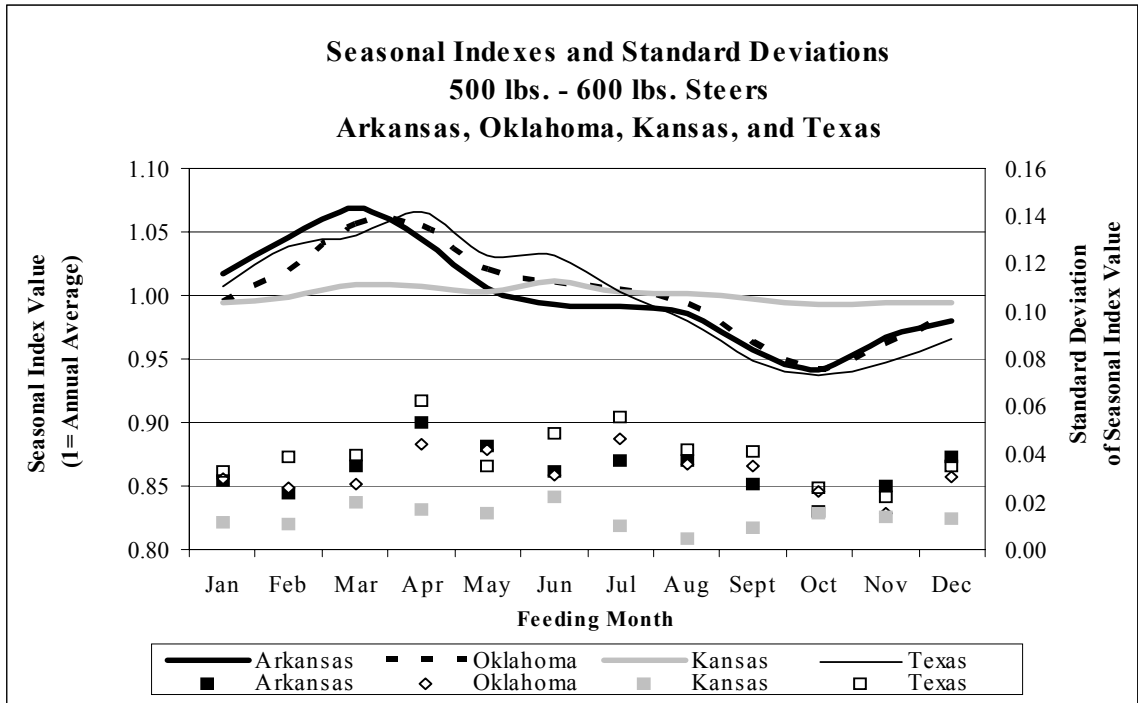
For #700-800 steers, seasonal price fluctuations are quite small compared to the lighter weight categories and the March peak is only evident in Arkansas. The smaller deviations are likely a function of lower price levels for higher weight categories. Standard deviation values are similar to other weight categories, however.

Finally, seasonal price patterns may also differ by location and predominant cattle type sold in a market area within a state. This is portrayed in Appendix Figures 5 and 6 where Springdale and Hope price patterns are compared in Arkansas. Cattle marketed at Hope often have more Zebu or Brahman cross influence as cattle in that region need to be able to withstand hotter temperatures and pest pressure in the summer months. Springdale cattle are often considered to have more exotic or English influence and may also trade at higher prices given shrink at the Springdale sale barn. Overall, Hope prices seemed to experience the highest fluctuations in seasonal price fluctuations in spite of lower price levels. One explanation for this could be that more cattle with Brahman influence are being bought for summer grazing, thus pushing prices higher. Similar to the Arkansas average prices, Hope and Springdale experience seasonally higher prices in the spring months that trend downward through October. Appendix Table 2 provides the ten-year average prices used in this analysis. Note that transportation costs and shrink need to be accounted for when budgeting performance.

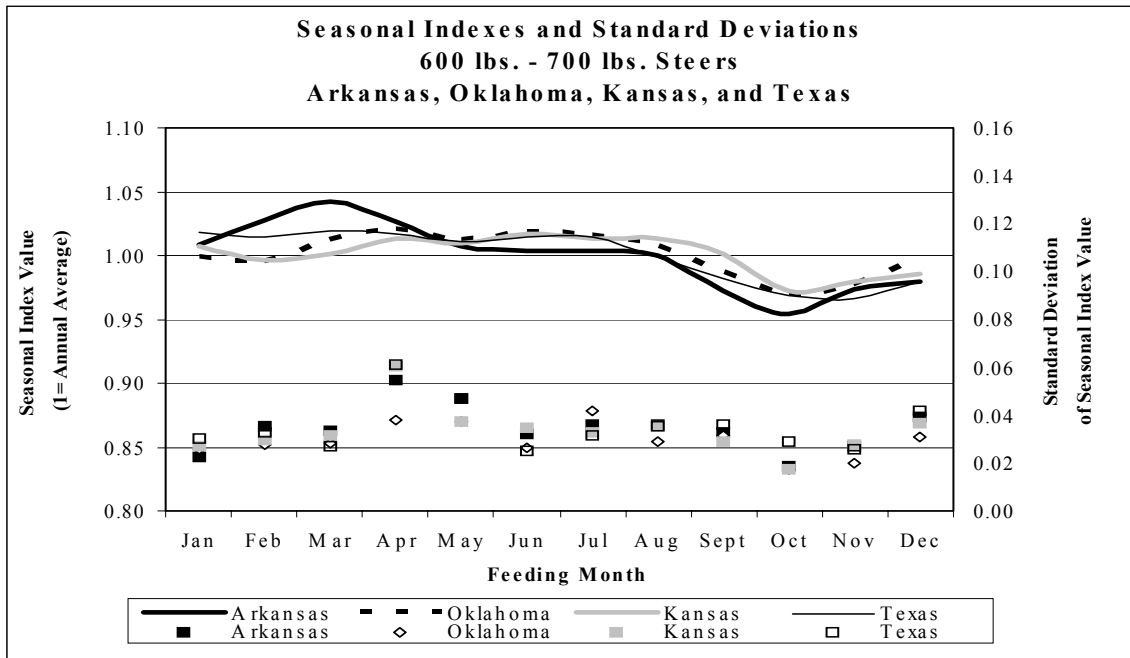
Appendix Figure 1. Seasonal Price Information for Medium Frame, #1-2 Steers in Arkansas using Average Prices for All Major Markets, 1992-2001.



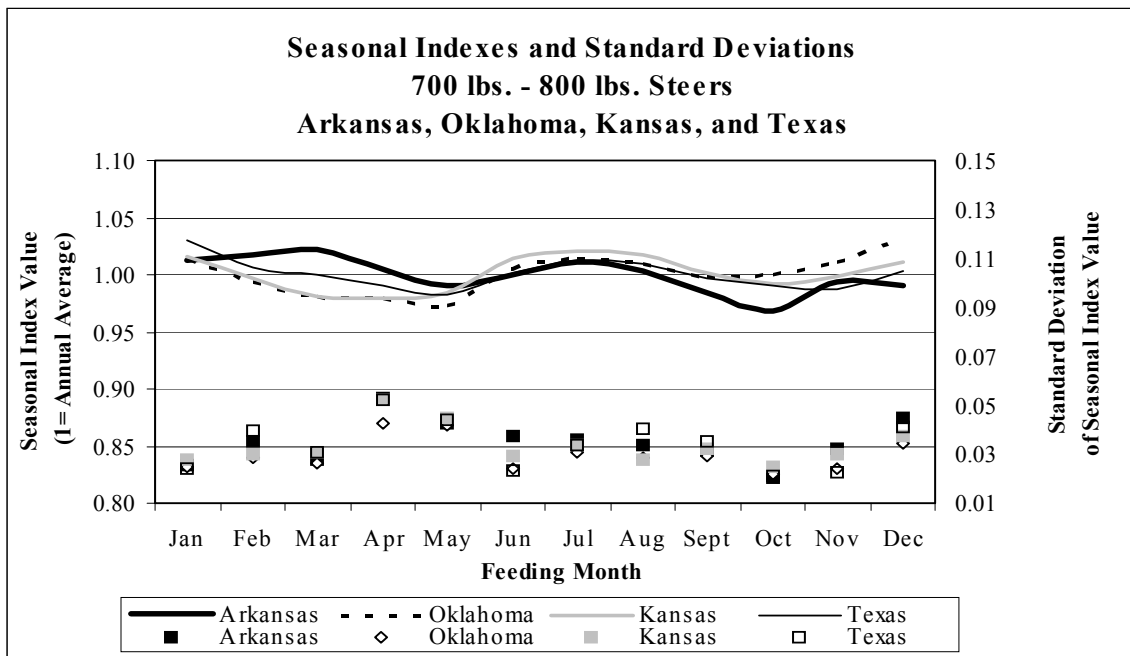
Appendix Figure 2. Seasonal Price Information for #5-600 Steers in Arkansas, Oklahoma, Kansas and Texas using Average Prices for All Major Markets, Oklahoma City, Dodge City and Amarillo, respectively, 1992-2001.



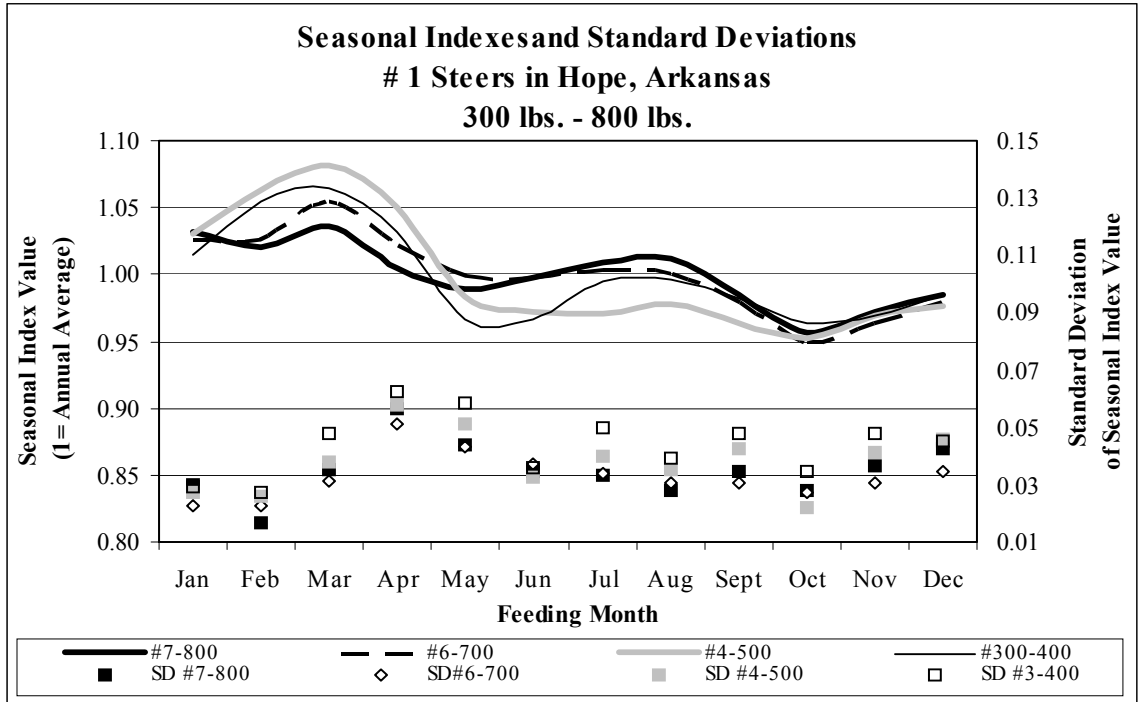
Appendix Figure 3. Seasonal Price Information for #6-700 Steers in Arkansas, Oklahoma, Kansas and Texas using Average Prices for All Major Markets, Oklahoma City, Dodge City and Amarillo, respectively, 1992-2001.



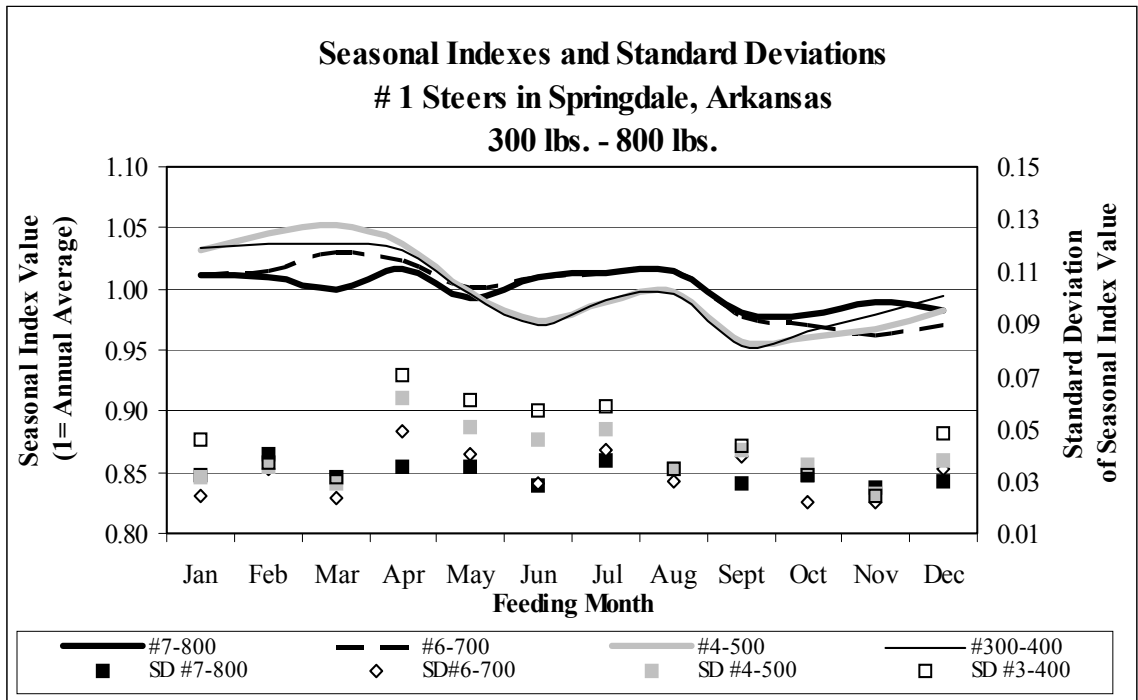
Appendix Figure 4. Seasonal Price Information for #7-800 Steers in Arkansas, Oklahoma, Kansas and Texas using Average Prices for All Major Markets, Oklahoma City, Dodge City and Amarillo, respectively, 1992-2001.



Appendix Figure 5. Seasonal Price Information for Medium Frame, #1-2 Steers in Hope, Arkansas using Average Prices, 1992-2001.



Appendix Figure 6. Seasonal Price Information for Medium Frame, #1-2 Steers in Springdale, Arkansas using Average Prices, 1992-2001.



Appendix Table 2. Ten-year Average of Nominal Prices (\$/cwt) of Monthly No. 1 Medium and Large Frame Steers, 1992-2002.

Location:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
#300-400												
Arkansas	101.56	105.09	105.86	103.13	98.21	96.84	98.37	98.47	96.18	94.52	96.31	99.03
Hope, AR	102.46	106.42	107.34	103.73	97.06	96.99	99.91	99.82	98.36	96.69	97.01	99.88
Springdale, AR	108.08	109.35	108.62	107.61	103.70	101.31	103.46	103.74	99.48	100.59	102.03	104.87
#400-500												
Arkansas	91.84	94.88	96.28	93.85	89.11	87.62	87.83	87.58	85.72	84.70	86.68	88.63
Hope	91.91	94.81	96.25	93.69	87.95	86.40	83.37	86.79	85.52	84.65	85.87	87.71
Springdale	97.42	99.43	99.80	97.80	94.19	92.02	93.40	94.07	90.29	90.49	91.21	93.57
#500-600												
Arkansas	83.82	86.19	87.99	85.77	82.74	81.38	81.36	80.73	78.51	77.30	79.19	80.66
Oklahoma City, OK	86.94	89.47	92.20	92.08	89.30	87.80	87.77	86.65	84.07	82.10	83.51	86.29
Dodge City, KS	96.02	96.49	97.36	97.65	97.00	97.50	96.82	96.78	96.46	96.17	96.37	96.45
Amarillo, TX	83.57	85.77	86.58	88.39	85.52	85.24	82.96	81.00	78.43	77.46	78.44	79.96
#600-700												
Arkansas	78.13	79.65	80.83	79.30	78.08	77.54	77.60	77.19	75.07	73.71	74.89	75.95
Oklahoma City, OK	81.39	81.40	82.84	83.39	82.91	82.81	82.95	82.14	80.57	79.19	79.56	81.47
Dodge City, KS	80.92	80.39	80.74	81.50	81.13	81.06	81.29	81.29	80.35	77.95	78.27	79.00
Amarillo, TX	80.18	80.09	80.28	79.99	79.42	79.45	79.41	78.11	76.80	75.82	75.59	76.85
#700-800												
Arkansas	74.44	74.79	75.27	73.86	72.62	73.24	74.10	73.58	72.08	71.00	72.50	72.87
Oklahoma City, OK	79.21	77.98	77.04	76.79	76.33	78.32	79.42	78.99	78.06	78.20	78.83	80.48
Dodge City, KS	78.76	77.75	76.62	76.23	76.44	78.43	79.28	79.00	77.82	77.02	77.39	78.16
Amarillo, TX	77.99	76.67	76.08	75.18	74.68	75.68	76.79	76.46	75.63	75.01	74.78	76.13

Note: Producers interested in budgeting cattle performance using these prices need to consider transportation costs as well as additional shrinkage.

Appendix Table 3. Ten-year Average of Nominal Prices (\$/cwt) of Monthly No. 1 Medium and Large Frame Heifers, 1992-2002.

Location:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
#300-400												
Arkansas	85.54	88.90	90.90	88.96	85.97	84.19	84.54	84.03	81.72	79.53	80.38	82.49
#400-500												
Arkansas	79.77	82.72	84.57	82.97	80.16	78.45	78.66	77.83	75.41	73.68	74.78	76.83
#500-600												
Arkansas	75.63	77.78	79.61	78.54	75.99	75.08	75.23	74.56	72.31	70.43	71.19	73.17
#600-700												
Arkansas	72.19	72.97	73.53	72.88	71.60	71.99	72.66	72.01	70.01	68.19	68.69	70.23
Oklahoma City, OK	75.71	75.23	75.44	75.68	74.67	76.02	77.24	76.75	75.15	73.75	73.67	74.90
Dodge City, KS	76.16	75.72	74.61	74.01	74.33	76.05	76.60	76.27	75.46	74.13	74.31	75.47
Amarillo, TX	73.27	73.50	73.94	73.04	72.78	72.85	72.70	72.50	70.97	69.36	69.70	70.39
#700-800												
Arkansas	69.40	70.05	69.73	68.65	72.14	69.06	70.13	69.81	68.15	66.19	66.84	67.97
Oklahoma City, OK	74.16	72.94	72.15	71.27	71.01	73.27	75.08	74.39	72.71	72.14	72.65	73.59
Dodge City, KS	74.98	73.73	72.10	71.19	71.57	73.84	75.29	74.94	74.05	72.94	73.70	74.39
Amarillo, TX	71.17	70.84	71.16	69.71	69.50	70.79	70.76	71.16	69.39	67.77	67.83	68.15

Note: Producers interested in budgeting cattle performance using these prices need to consider transportation costs as well as additional shrinkage.

Option 1	Daily Forage & Hay Intake		# days	Stocking Rate	Estimated Forage Consumption	Estimated Monthly Available Forage Production	Estimated End of Month Available Forage
	Forage	Hay					
Month	lb dm/d	lb dm/d		hd/ac	----- lb dm/acre/month -----		lb dm/acre
Sept						60	60.0
Oct	8.9		31	1.25	344.9	420	135.1
Nov	9.3		30	1.25	346.9	360	148.3
Dec	5.2	5.2	31	1.25	201.5	60	6.8
Jan		9.7	31	1.25	0.0	0	6.8
Feb		9.8	28	1.25	0.0	84	90.8
Mar	8.4	3.4	31	1.25	325.5	240	5.3
Apr	14.2		30	1.25	532.5	660	132.8
May	15.6		31	1.25	604.5	936	464.3
June	15.4		15	1.25	288.8	480	655.5

The above provides an example of how forage and hay intake were balanced with stocking rate to ensure full utilization of fall forage while at the same time ending up with a forage balance less than 1,000 lb dm/acre at the end of the month during most of the spring feeding period. Grain supplementation was also considered for some of the feeding scenarios.