Oklahoma Cooperative Extension Service AGEC-XX

Agribusiness Management Series

Oklahoma Beef Calf Retention Decision Aid 2.0

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The Oklahoma Beef Calf Retention Decision Aid was developed to assist cow-calf producers in deciding whether to retain calves past weaning. Retained ownership means that the owner chooses to market calves at some point beyond weaning rather than selling them at weaning time. This program is designed to assist producers in evaluating numerous common retained ownership scenarios, including retained ownership through preconditioning, one or more grazing periods and (or) the finishing phase. The program can be downloaded from: http://agecon.okstate.edu/faculty/publications/3445.xlsm.

This software is programmed in MS Excel 2007. Substantial loss of functionality, run-time errors and calculation errors will likely occur if it is run in MS Excel 2003 or earlier versions of Excel. So, its use in MS Excel 2003 or previous versions is not recommended. For the program to function properly, the user must allow the macro features of MS Excel. In MS Excel 2007, the user is prompted with a warning just below the button bar that macros have been disabled. Click on the warning and enable macros.

Data input

Only cells with a yellow background and black text are changeable. All other cells are calculated automatically by the program, are not accessible to the user, and have a light blue (gray on some monitors) or green background.

The program has several sections accessed by the tabs at the bottom of the screen. Alternatively, users can navigate between pages by clicking on "buttons" at the bottom of each page to return to the previous page or proceed to the next page. The tabs at the bottom of the page and their order will change with the **Scenario** (see below) being considered.

Scenario

The first section (see Table 1) allows the user to enter a scenario name ("DEMO" in the table below) as well as the date of the scenario.

The program utilizes a price data set to forecast returns. This data set is hidden to the user, but can be updated with a few clicks of the mouse. To update prices, **first connect to the internet**. You may need to enable macros as described previously. Then open the spreadsheet. Click on "UPDATE PRICE DATA." If asked if you want to proceed, click "OK." Note, if your internet connection is slow, this may take several minutes. The screen may flash several times as files and tabs are opened and closed.

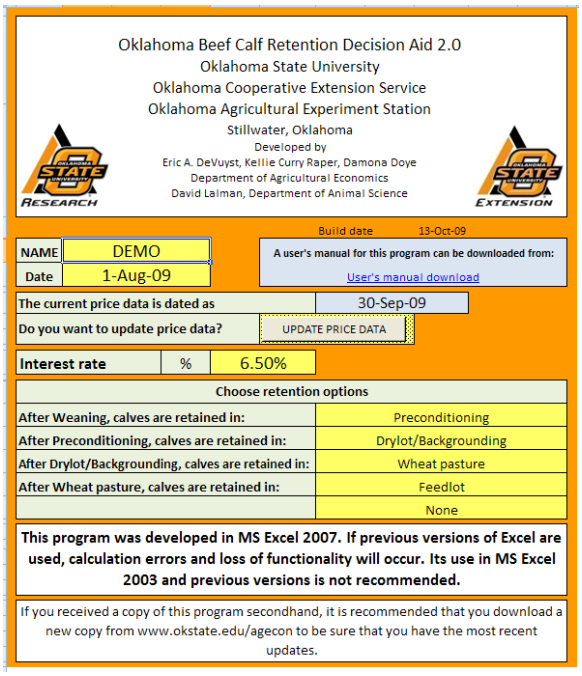
Users can choose up to five retention steps and numerous combinations of retention options. The options include **Preconditioning**, **Drylot/Backgrounding**, **Grass pasture**, **Wheat pasture**, and **Feedlot**.

At cell H17, the user must select a retention option. The first option specifies how calves will be retained immediately following weaning. In

the subsequent cells, H18 to H21, users can specify additional retention steps if desired. So, H18 denotes where calves will be retained after thefirst retention step in H17. The text in cells B17 through B21 guides users through these steps. Note, that **Preconditioning** can only be selected as the first retention option (cell H17) or not at all. Two **Grass** retention steps are allowed. At any point, if the user specifies **Feedlot** as the retention option, no further retention steps are allowed.

As the user specifies retention options, the program hides or displays tabs (or pages) at the bottom of the screen. These tabs are also arranged sequentially and the user should enter data in these tabs sequentially. **Scenario** will always be the first tab, followed by **Wean**. The last two tabs will always be **Results** followed by **More info**. The visibility and order of other tabs is dependent on the retention options and order specified by the user.

Table 1. **Scenario** tab



Oklahoma Beef Calf Retention Decision Aid 2.0
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Build date 13-Oct-09

NAME	DEMO
Date	1-Aug-09

A user's manual for this program can be downloaded from: User's manual download

The current price data is dated as		30-Sep-09
Do you want to update price data?		UPDATE PRICE DATA
Interest rate	%	6.50%

Choose retention options	
After Weaning, calves are retained in:	Preconditioning
After Preconditioning, calves are retained in:	Drylot/Backgrounding
After Drylot/Backgrounding, calves are retained in:	Wheat pasture
After Wheat pasture, calves are retained in:	Feedlot
	None

This program was developed in MS Excel 2007. If previous versions of Excel are used, calculation errors and loss of functionality will occur. Its use in MS Excel 2003 and previous versions is not recommended.

If you received a copy of this program secondhand, it is recommended that you download a new copy from www.okstate.edu/agecon to be sure that you have the most recent updates.

Wean

The top of the **Wean** tab requires information on calf gender, weaning weight, and weaning date (see Table 2). Next, the user must enter anticipated weaning related expenses, including veterinary expenses and labor.

The third section of the **Wean** tab relates to sales information. The program will use the information entered here to analyze returns to the cow-calf enterprise if calves are sold at weaning. Data entered include sale related expenses, percent shrink and sale price. A computer-generated price forecast can be used for sale price. The forecast is generated using futures prices, projected calf weight, and basis for Oklahoma by sale date. To generate the price forecast, the user must press "ctrl+t" in cell I21. Alternatively, the user can enter expected sale price manually in cell I21.

Table 2. **Wean** tab

Calf weaning information	
Calf gender	Steers
Weaning date	16-Oct-09
Weight at weaning	450

Weaning related expenses		
Veterinary	$/head	$ 8.00
Labor	$/head	$ 2.00
Other weaning expense	$/head	$ 1.00

Sale related information expenses		
Commission and transport if SOLD	$/head	$ 2.00
Beef checkoff	$/head	$ 1.00
Hedging and option expense	$/head	$ -
Other expense if SOLD	$/head	$ -
Total weaning expenses if SOLD	$/head	$ 14.00
Percent shrink if SOLD	%	4.0%
Sale weight net of shrink	lb	432
Sale price	$/cwt	$ 116.66
Sale revenue	$/head	$ 503.97
Returns to cow-calf expenses	$/cwt	$ 489.97

Retained calf information and expenses		
Transport if RETAINED	$/head	$ 2.00
Other expense if RETAINED	$/head	$ 1.00
Total weaning expenses if RETAINED	$/head	$ 14.00
Percent shrink if RETAINED	%	1.0%
Transfer weight net of shrink	lb	446

To increase calf sale price and profitability, OSU recommends participation in a Vac-45 program. For additional information on OSU's Oklahoma Quality Beef Network Vac-45 options, see: http://www.oqbn.okstate.edu. Links to references with additional information on increasing sale prices can be found on the **More info** tab).

The bottom of the **Wean** tab requires information regarding costs associated with retained ownership, including transportation expense and percent shrink if retained.

Returns to cow-calf expenses are reported in cell I23. These returns are not equal to profit as cow-calf expenses have not been subtracted. By comparing these returns with returns from the first retention step, the returns associated with retention can be computed and are reported on the **Results** tab (see below).

Preconditioning

The **Preconditioning** tab is only visible if the user specified preconditioning as the first retention option (cell H17 on the **Scenario** tab). Preconditioning refers to the practice of feeding calves for some period, often 45 days, after weaning on the farm where the calves were raised. Calves may be dehorned, castrated, vaccinated, and bunk broke during this time period. By retaining calves on the home farm past weaning, morbidity and mortality is reduced when the calves are moved to another location. Because of reduced health expenses and death losses, subsequent owners will often pay a premium for preconditioned calves. Another benefit to producer from preconditioning is weight gain. For more information on the benefits of preconditioning, see the **More info** tab.

The **Preconditioning** page has four main sections as in Table 3. The first section asks for percent death loss during preconditioning, days preconditioning and anticipated average daily gain (ADG). The program reports beginning and ending dates, plus starting and ending weights.

The second section requests information on preconditioning expenses. Feed inputs and prices should be entered "as fed." The third section requests information related to selling calves after preconditioning and the fourth section requests information on percent shrink and expenses if calves are retained after preconditioning.

The program reports preconditioning expense, cost of gain, revenue, and returns with "deads in." So, the number of animals sold is lower than the number that was retained. This reduces revenue per head and increases per head costs.

Returns reported are returns to cow-calf expenses after subtracting preconditioning expenses. Since cow-calf expenses have not been subtracted from revenue, returns are not equal to profits. Returns to cow-calf expenses are needed to compute the value of retention.

Table 3. **Preconditioning** tab

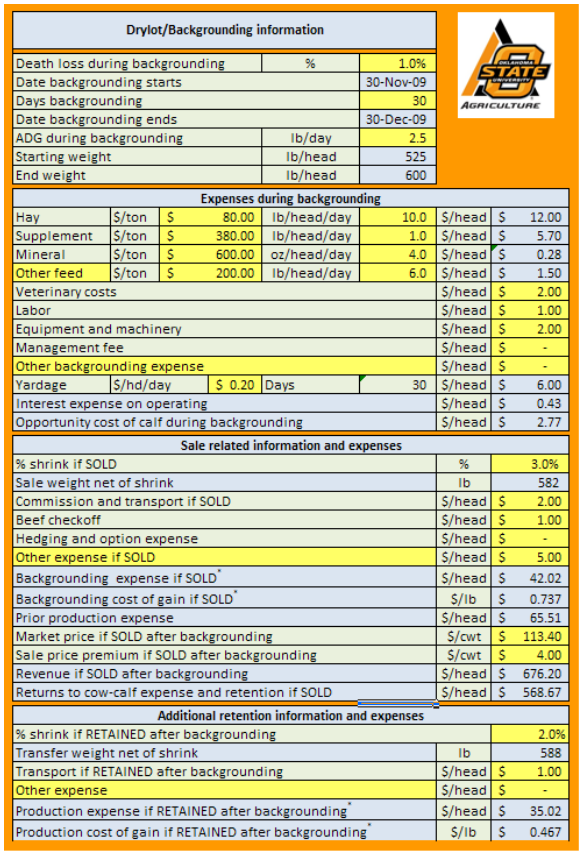
Preconditioning information						
Death loss during preconditioning			%	1.5%		
Date preconditioning starts				16-Oct-09		
Days preconditioning				45		
Date preconditioning ends				30-Nov-09		
ADG during preconditioning			lb/day	2.0		
Starting weight			lb/head	446		
End weight			lb/head	536		
Expenses during preconditioning						
Hay	$/ton	$ 80.00	lb/head/day	10.0	$/head	$ 18.00
Supplement	$/ton	$ 380.00	lb/head/day	2.0	$/head	$ 17.10
Mineral	$/ton	$ 600.00	oz/head/day	4.0	$/head	$ 0.42
Other feed	$/ton	$ 200.00	lb/head/day	2.0	$/head	$ 0.40
Veterinary costs					$/head	$ 5.00
Labor					$/head	$ 1.00
Equipment and machinery					$/head	$ 2.00
Management fee					$/head	$ -
Other preconditioning expense (e.g., program fees)					$/head	$ -
Yardage	$/hd/day	$ -	Days	45	$/head	$ -
Interest expense on operating expense					$/head	$ 0.29
Opportunity cost of calf during preconditioning					$/head	$ 3.93
Sale related information and expenses						
% shrink if SOLD					%	3.0%
Sale weight net of shrink					lb	519
Commission and transport if SOLD					$/head	$ 1.00
Beef checkoff					$/head	$ 1.00
Hedging and option expense					$/head	$ -
Other expense if SOLD					$/head	$ 1.00
Preconditioning expense if SOLD*					$/head	$ 51.86
Preconditioning cost of gain if SOLD*					$/lb	$ 0.701
Prior production expense					$/head	$ 14.21
Market price if SOLD after preconditioning					$/cwt	$ 110.31
Sale price premium if SOLD after preconditioning					$/cwt	$ 4.00
Revenue if SOLD after preconditioning*					$/head	$ 584.83
Returns to cow-calf expense and retention if SOLD*					$/head	$ 518.76
Additional retention information and expenses						
% shrink if RETAINED after preconditioning						2.0%
Transfer weight net of shrink					lb	525
Transport if RETAINED after preconditioning					$/head	$ 1.00
Other expense					$/head	$ 1.00
Preconditioning expense if RETAINED after preconditioning*					$/head	$ 50.86
Preconditioning cost of gain if RETAINED after preconditioning*					$/lb	$ 0.565

Drylot/Backgrounding

Data needs for **Drylot/Backgrounding** tab (see Table 4) are similar to the **Preconditioning** tab. See the previous section for instructions on entering these data. This tab is only visible if the user has selected **Drylot/Backgrounding** as a retention step on the **Scenario** tab in one of the cells H17 to H21.

Returns are computed after subtracting backgrounding expenses and previous retention steps' expenses, but cow-calf expenses have not been subtracted. Expenses, revenues, and returns are computed with "deads in."

Table 4. **Drylot/Backgrounding** tab



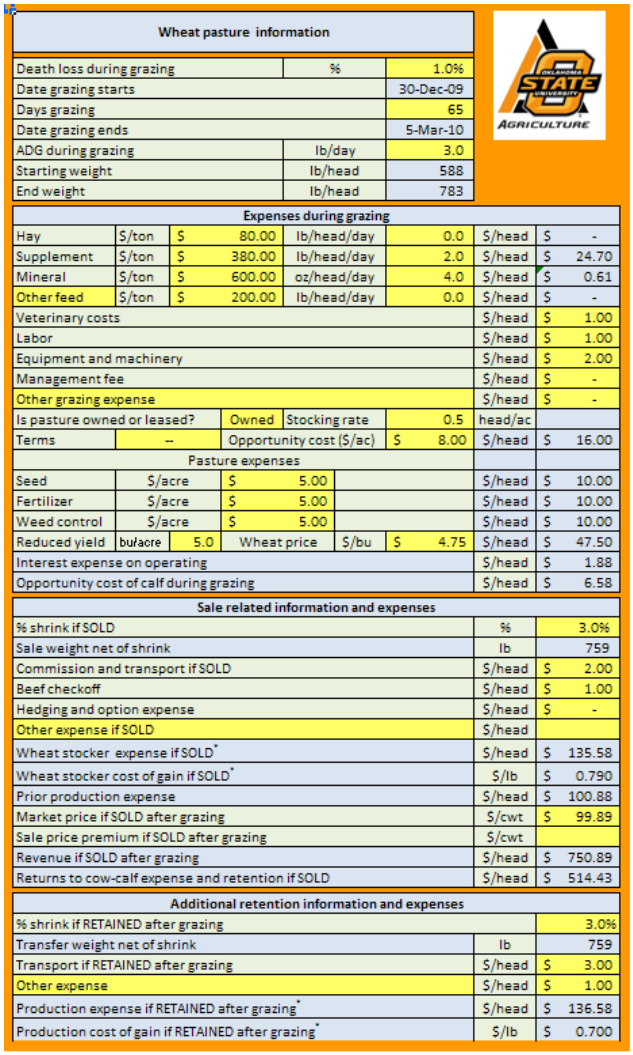
Drylot/Backgrounding information						
Death loss during backgrounding			%		1.0%	
Date backgrounding starts					30-Nov-09	
Days backgrounding					30	
Date backgrounding ends					30-Dec-09	
ADG during backgrounding			lb/day		2.5	
Starting weight			lb/head		525	
End weight			lb/head		600	
Expenses during backgrounding						
Hay	$/ton	$ 80.00	lb/head/day	10.0	$/head	$ 12.00
Supplement	$/ton	$ 380.00	lb/head/day	1.0	$/head	$ 5.70
Mineral	$/ton	$ 600.00	oz/head/day	4.0	$/head	$ 0.28
Other feed	$/ton	$ 200.00	lb/head/day	6.0	$/head	$ 1.50
Veterinary costs					$/head	$ 2.00
Labor					$/head	$ 1.00
Equipment and machinery					$/head	$ 2.00
Management fee					$/head	$ -
Other backgrounding expense					$/head	$ -
Yardage	$/hd/day	$ 0.20	Days	30	$/head	$ 6.00
Interest expense on operating					$/head	$ 0.43
Opportunity cost of calf during backgrounding					$/head	$ 2.77
Sale related information and expenses						
% shrink if SOLD					%	3.0%
Sale weight net of shrink					lb	582
Commission and transport if SOLD					$/head	$ 2.00
Beef checkoff					$/head	$ 1.00
Hedging and option expense					$/head	$ -
Other expense if SOLD					$/head	$ 5.00
Backgrounding expense if SOLD*					$/head	$ 42.02
Backgrounding cost of gain if SOLD*					$/lb	$ 0.737
Prior production expense					$/head	$ 65.51
Market price if SOLD after backgrounding					$/cwt	$ 113.40
Sale price premium if SOLD after backgrounding					$/cwt	$ 4.00
Revenue if SOLD after backgrounding					$/head	$ 676.20
Returns to cow-calf expense and retention if SOLD					$/head	$ 568.67
Additional retention information and expenses						
% shrink if RETAINED after backgrounding						2.0%
Transfer weight net of shrink					lb	588
Transport if RETAINED after backgrounding					$/head	$ 1.00
Other expense					$/head	$ -
Production expense if RETAINED after backgrounding*					$/head	$ 35.02
Production cost of gain if RETAINED after backgrounding*					$/lb	$ 0.467

Wheat, Grass1 and Grass2

These three tabs are very similar. The discussion here will be about **Wheat**, but the instructions apply to **Grass1** and **Grass2**.

The **Wheat** tab (see Table 5) is also divided into four sections. The first section requests input regarding death loss, days grazing, and anticipated average daily gain, similar to the other retention tabs. The second step requires expenses associated with grazing. Feed quantities and prices should be entered "as fed." In cell F23, the user must specify if pasture is owned or rented. Next, the user specifies a stocking rate in head/acre. If rented, the user enters the lease arrangements. Lease terms ($/cwt/month, $/head/month, or $/lb of gain) are entered via pop-up menu. Clicking on cell D24 will activate the menu if "Leased" was selected in cell F23. The lease rate is entered in cell I24 in the appropriate terms. If "Owned" was selected in cell F23, then users should enter the opportunity cost of grazing. The opportunity cost of grazing is the rental rate that would be received if the owner had leased out the pasture.

Table 5. **Wheat** tab



Wheat pasture information								
Death loss during grazing				%	1.0%			
Date grazing starts					30-Dec-09			
Days grazing					65			
Date grazing ends					5-Mar-10			
ADG during grazing				lb/day	3.0			
Starting weight				lb/head	588			
End weight				lb/head	783			
Expenses during grazing								
Hay	$/ton	$ 80.00	lb/head/day		0.0	$/head	$ -	
Supplement	$/ton	$ 380.00	lb/head/day		2.0	$/head	$ 24.70	
Mineral	$/ton	$ 600.00	oz/head/day		4.0	$/head	$ 0.61	
Other feed	$/ton	$ 200.00	lb/head/day		0.0	$/head	$ -	
Veterinary costs						$/head	$ 1.00	
Labor						$/head	$ 1.00	
Equipment and machinery						$/head	$ 2.00	
Management fee						$/head	$ -	
Other grazing expense						$/head	$ -	
Is pasture owned or leased?		Owned	Stocking rate		0.5	head/ac		
Terms	--		Opportunity cost ($/ac)		$ 8.00	$/head	$ 16.00	
Pasture expenses								
Seed	$/acre	$ 5.00				$/head	$ 10.00	
Fertilizer	$/acre	$ 5.00				$/head	$ 10.00	
Weed control	$/acre	$ 5.00				$/head	$ 10.00	
Reduced yield	bu/acre	5.0	Wheat price	$/bu	$ 4.75	$/head	$ 47.50	
Interest expense on operating						$/head	$ 1.88	
Opportunity cost of calf during grazing						$/head	$ 6.58	
Sale related information and expenses								
% shrink if SOLD						%	3.0%	
Sale weight net of shrink						lb	759	
Commission and transport if SOLD						$/head	$ 2.00	
Beef checkoff						$/head	$ 1.00	
Hedging and option expense						$/head	$ -	
Other expense if SOLD						$/head		
Wheat stocker expense if SOLD*						$/head	$ 135.58	
Wheat stocker cost of gain if SOLD*						$/lb	$ 0.790	
Prior production expense						$/head	$ 100.88	
Market price if SOLD after grazing						$/cwt	$ 99.89	
Sale price premium if SOLD after grazing						$/cwt		
Revenue if SOLD after grazing						$/head	$ 750.89	
Returns to cow-calf expense and retention if SOLD						$/head	$ 514.43	
Additional retention information and expenses								
% shrink if RETAINED after grazing							3.0%	
Transfer weight net of shrink						lb	759	
Transport if RETAINED after grazing						$/head	$ 3.00	
Other expense						$/head	$ 1.00	
Production expense if RETAINED after grazing*						$/head	$ 136.58	
Production cost of gain if RETAINED after grazing*						$/lb	$ 0.700	

The **Wheat** tab also requires the user to enter costs associated with additional seed and fertilizer applied due to grazing. Enter only seed and fertilizer costs above the amount that would have been expended if grain-only wheat had been seeded.

The user must also enter the reduction in wheat grain yield attributed to grazing. Wheat is typically seeded early for grazing. OSU research shows that early-seeded winter wheat has lower yields than wheat seeded later in the fall (see: http://agecon.okstate.edu/faculty/publications/250.pdf for more information). The user is prompted to enter the expected yield reduction

and anticipated price for wheat (grain). This information is not collected on the **Grass1** and **Grass2** tabs.

As with other retention tabs, expenses, revenues and returns are computed with "deads in."

Feedlot

The top section of the **Feedlot** tab (see Table 6) is similar to other retention tabs. The user enters data regarding anticipated death loss, days on feed, and average daily gain. The program reports start and end dates, starting weight and end weight.

Also similar to other retention tabs, the user enters expenses incurred during finishing. Feed quantities and prices are entered "as fed." The program allows the user to enter the percent dry matter in the ration (cell D18) and reports feed efficiency on a dry matter basis (cell F18) and as feed (cell I19). Feedlot feed cost of gain is reported in cell G20.

Also similar to other retention tabs, the user enters sale related information in the third section of the **Feedlot** tab. There are additional data needed for the **Feedlot** sale information. As fed cattle can be sold "live" or on the "grid," the user must enter information regarding anticipated market ("live") price (cell K40), anticipated dressing percentage (cell I42), anticipated plant average base price for carcasses (cell K43), grid pricing data, anticipated program premiums (e.g., Certified Angus Beef) and the anticipated percentage of cattle qualifying for premiums.

The program can generate a market price forecast (cell K40) if the user presses "ctrl+t" at cell K40. The user also has the option to enter a price.

In the grid price subtable (bottom of **Feedlot** table), the user must enter the anticipated percentage of cattle that will grade Standard (cell D46), Select (cell E46), Choice (cell F46), High Choice (cell G46) and Prime (cell H46). Premiums and discounts for these grades are entered in cell D47 to H47. Similarly, the user must enter anticipated percentages of cattle with yield grades 1 through 5 in cells D49 to H49. Premiums and discounts for yield grades are entered below the percentages.

The program computes returns ("deads in" as discussed above) for both live and grid pricing. The largest of the returns is used to evaluate the value of retaining calves through the feedlot and carried forward to the **Results** tab.

Results

The **Results** tab (see Table 7) has four main sections. The top section reports returns associated with weaning and the user specified retention options. Summary budgets for weaning and each retention step are reported. The bottom line ("Returns to retention") of this section reports the added-value associated with each retention step. If this value is positive for a step, that retention step is projected to add value to the calf. The projected returns to retention are dependent on the order of retention steps and the information entered by the user.

The next three sections are sensitivity analyses. The user can vary feeder calf sales prices and feed expenses to see the impact on each stage of retention. The user can also vary death loss percentage at each retention step to assess the impact on the value of retention.

More info

The **More info** tab has links to sources of information on how to improve the sale price of calves. These sites have information on value-added programs such as OQBN Vac-45, preconditioning, and management practices that have all been shown to increase the sale price of calves. Links are also provided with information on beef cattle management and other resources. These include the Oklahoma Cooperative State Extension Service factsheet library, the Master Cattlemen's homepage, Beefextension.com and a link to find your local OCES office.

For more information contact:
Eric DeVuyst, Oklahoma State University, 530 Ag. Hall, Stillwater, OK 74078-6026. 405-744-6166. eric.devuyst@okstate.edu.

Table 6. **Feedlot** tab

Feedlot information								
Death loss during finishing				%		0.5%		
Date finishing starts						5-Mar-10		
Days finishing						160		
Date finishing ends						12-Aug-10		
ADG during finishing				lb/day		3.2		
Starting weight				lb/head		759		
End weight				lb/head		1271		
Expenses during finishing								
Hay	$/ton	$ 80.00		lb/head/day		25.0	$/head	$ 160.00
Supplement	$/ton	$ 380.00		lb/head/day		7.0	$/head	$ 212.80
Mineral	$/ton	$ 600.00		oz/head/day		4.0	$/head	$ 1.50
Other feed	$/ton	$ 200.00		lb/head/day		2.0	$/head	$ 32.00
% dry matter	78%	DM	29.6 lb	Total as fed		38 lb		
Feed efficiency	lb feed/ lb gain	DM		17.3	As fed	13.5		
Feed cost of gain		$/lb gain		$ 0.79				
Veterinary costs							$/head	$ 3.00
Labor							$/head	$ 1.00
Equipment and machinery							$/head	$ 2.00
Management fee							$/head	$ -
Other finishing expense							$/head	$ -
Yardage	$/hd/day	$ 0.30		Days		160	$/head	$ 48.00
Interest expense on operating							$/head	$ 13.33
Opportunity cost of calf during finishing							$/head	$ 14.66
Sale related information and expenses								
% shrink when SOLD							%	3.0%
Sale weight net of shrink							lb	1233
Commission and transport when SOLD							$/head	$ 3.00
Beef checkoff							$/head	$ 1.00
Hedging and option expense							$/head	$ -
Other expense when SOLD							$/head	
Finishing expense*							$/head	$ 494.73
Finishing cost of gain*							$/lb	$ 1.044
Prior production expense							$/head	$ 237.65
Market (base) price							$/cwt	$ 85.70
Revenue if sold LIVE							$/head	$ 1,051.54
Anticipated dressing percentage					%	62.5%		
Plant average base carcass price							$/cwt	$ 137.00
Grid pricing								
Quality grade	**% Std**	**% Sel**	**% Ch**	**%Hg Ch**	**% Pr**			
%	1%	15%	65%	15%	4%	Total	100%	
Premium (disc)	$ (12.00)	$ (6.00)	$ -	$ 6.00	$ 9.00	Wtd avg	$/cwt	$ 0.24
Yield Grade	**% YG1**	**% YG2**	**% YG3**	**% YG4**	**% YG5**			
%	5%	18%	72%	4%	1%	Total	100%	
Premium (disc)	$ 5.00	$ 2.00	$ -	$ (8.00)	$ (20.00)	Wtd avg	$/cwt	$ 0.09
Program premium (e.g., CAB)	$/cwt	$ 3.00		% qualifying		60%	$/cwt	$ 1.80
Revenue if sold on GRID							$/head	$ 1,066.96
Returns to cow-calf expense and retention if sold LIVE							$/head	$ 319.17
Returns to cow-calf expense and retention if sold on GRID							$/head	$ 334.58
MAXIMUM of Returns to cow-calf expense and retention							$/head	$ 334.58

Table 7. **Results** tab

Results ($/head)						
Sale after:	Weaning	Preconditioning	Drylot/Backgrounding	Wheat pasture	Feedlot	
Sale weight net of shrink	432	519	582	759	1,233	
Market price ($/cwt)	$ 116.66	$ 110.31	$ 113.40	$ 99.89	$ 137.00	
Premium ($/cwt)	--	$ 4.00	$4.00	$0.00	$2.13	
Death loss (%)	--	1.50%	1.00%	1.00%	0.50%	
Revenue ($/hd)	**$ 503.97**	**$ 584.83**	**$ 842.43**	**$ 1,001.94**	**$ 1,066.96**	
Feed expense	--	$ 35.92	$ 19.48	$ 25.31	$ 406.30	
Prior expense	--	$ 14.21	$ 65.51	$ 100.88	$ 237.65	
Pasture rent/yardage		$ -	$ 6.00	$ 16.00	$ 48.00	
Other expense		$ 11.72	$ 13.34	$ 85.81	$ 12.43	
Interest expense + opportunity cost		$4.22	$3.20	$8.46	$27.99	
Total expense	**$ 14.00**	**$66.07**	**$107.53**	**$236.46**	**$732.37**	
Returns to cow-calf + prior retention	**$ 489.97**	**$ 518.76**	**$ 734.90**	**$ 765.48**	**$ 334.59**	
Returns to retention	--	**$ 28.79**	**$ 216.14**	**$ 30.58**	**$ (430.90)**	

Sensitivity analysis--feeder calf sale price						
Percent change in calf sale price	+/-	-15%				
	Weaning	Preconditioning	Drylot/Backgrounding	Wheat pasture	Feedlot	
Days	--	45	30	65	160	
Sale weight net of shrink	432	519	582	759	1,233	
Market price ($/cwt)	$ 99.16	$ 93.76	$ 96.39	$ 84.91	$ 137.00	
Premium ($/cwt)	--	$ 4.00	$ 4.00	$ -	$ 2.13	
Death loss (%)	--	1.50%	1.00%	1.00%	0.50%	
Revenue ($/hd)	**$ 428.38**	**$ 500.18**	**$ 578.22**	**$ 638.26**	**$ 1,066.96**	
Feed expense		$ 35.92	$ 19.48	$ 25.31	$ 406.30	
Prior expense		$ 14.21	$ 65.51	$ 100.88	$ 237.65	
Pasture rent/yardage		$ -	$ 6.00	$ 16.00	$ 48.00	
Other expense		$ 11.72	$ 13.34	$ 85.81	$ 12.43	
Returns to cow-calf + prior retention		$ 3.61	$ 2.75	$ 5.41	$ 17.71	
Total expense	**$ 14.00**	**$ 65.46**	**$ 107.08**	**$ 233.41**	**$ 722.09**	
Net return	**$ 414.38**	**$ 434.71**	**$ 471.14**	**$ 404.85**	**$ 344.86**	
Returns to retention	--	**$ 20.34**	**$ 36.43**	**$ (66.29)**	**$ (59.99)**	

Table 7. **Results** tab continued

Sensitivity analysis--feed expense						
Percent change in feed expense	+/-	10%				
	Weaning	Preconditioning	Drylot/Backgrounding	Wheat pasture	Feedlot	
Days	--	15	45			
Sale weight net of shrink	432	519	582	759	1,233	
Market price ($/cwt)	$ 116.66	$ 110.31	$ 113.40	$ 99.89	$ 137.00	
Premium ($/cwt)	--	$ 4.00	$ 4.00	$ -	$ 2.13	
Death loss (%)	--	1.50%	1.00%	1.00%	0.50%	
Revenue ($/hd)	**$ 503.97**	**$ 584.83**	**$ 676.20**	**$ 750.89**	**$ 1,066.96**	
Feed expense		$ 39.51	$ 21.43	$ 27.84	$ 446.93	
Prior expense		$ 14.21	$ 69.10	$ 102.83	$ 240.18	
Pasture rent/yardage		$ -	$ 6.00	$ 16.00	$ 48.00	
Other expense		$ 11.72	$ 13.34	$ 85.81	$ 12.43	
Interest expense + opportunity cost		$ 4.22	$ 3.20	$ 8.46	$ 27.99	
Total expense	**$ 14.00**	**$ 69.66**	**$ 113.07**	**$ 240.94**	**$ 775.53**	
Returns to cow-calf + prior retention	**$ 489.97**	**$ 515.17**	**$ 563.13**	**$ 509.95**	**$ 291.43**	
Returns to retention	--	**$ 25.20**	**$ 47.96**	**$ (53.18)**	**$ (218.52)**	

Sensitivity analysis--death loss						
	Weaning	Preconditioning	Drylot/Backgrounding	Wheat pasture	Feedlot	
Death loss		3.0%	2.0%	2.0%	1.0%	
Days	--	45	30	65	160	
Sale weight net of shrink	432	519	582	759	1,233	
Market price ($/cwt)	$ 116.66	$ 110.31	$ 113.40	$ 99.89	$ 137.00	
Premium ($/cwt)	--	$ 4.00	$ 4.00	$ -	$ 2.13	
Revenue ($/hd)	**$ 503.97**	**$ 575.93**	**$ 833.93**	**$ 991.82**	**$ 1,061.60**	
Feed expense		$ 36.45	$ 19.67	$ 25.56	$ 408.32	
Prior expense		$ 14.42	$ 66.16	$ 101.88	$ 238.83	
Pasture rent/yardage		$ -	$ 6.06	$ 16.16	$ 48.24	
Other expense		$ 11.89	$ 13.47	$ 86.66	$ 12.50	
Interest expense + opportunity cost		$ 4.28	$ 3.18	$ 10.39	$ 34.94	
Total expense	**$ 14.00**	**$ 67.04**	**$ 108.55**	**$ 240.65**	**$ 742.82**	
Returns to cow-calf + prior retention	**$ 489.97**	**$ 508.88**	**$ 725.38**	**$ 751.18**	**$ 318.77**	
Returns to retention	--	**$ 18.91**	**$ 216.49**	**$ 25.80**	**$ (432.40)**	