



Current Report

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WHEAT PASTURE LEASE ANALYZER (LEASECOG)

Greg Highfill
Area Extension Livestock Specialist

Wheat Pasture Lease Analyzer (LEASECOG) is a Lotus - based computer spreadsheet wheat producers can use to analyze the profitability of leasing wheat pasture for grazing on a cost of gain basis. Many different scenarios exist for leasing pasture. Labor arrangements, cost of gain, death loss allowed and utilities are some factors which change in different lease arrangements. LEASECOG is flexible and permits producers to estimate the returns from a variety of leasing alternatives. For this program to be accurate, users need to estimate production costs and cattle performance with good accuracy.

Background

A significant percentage of Oklahoma's wheat pasture acreage is utilized by stocker cattle each year. Due to high stocker cattle purchase prices, producers have voiced increased concerns about financial risks involved with cattle ownership. One way to reduce ownership risk is to lease wheat pasture. At the same time feedlots have increased their ownership of stocker cattle in an effort to ensure reliable, economical feeder cattle supplies. These feedlots and some large cattle companies often seek cattle grazing land on a cost of gain basis.

There are numerous lease options with varying ways of paying for cattle gain, reimbursing other expenses and paying for cattle management. When developing wheat pasture leases, the land owner and cattle owner must decide on the exact lease provisions. These provisions include cost of gain, winter feeding and mineral expenses, utility

costs, amount of death loss each is to bear, daily management responsibilities, processing fees, weighing conditions and many other individual details.

Wheat grain producers that utilize grazing must manage for forage production. Increased wheat forage production requires early seeding dates, more fertilization, and increased management. Maximizing forage production slightly increases the grain production risk due to increased variation in climatic and biological factors.

LEASECOG

LEASECOG is divided into five segments:

- 1) Parameters of Operation
- 2) Income Parameters
- 3) Expenses
- 4) Lease Analysis
- 5) Pasture Lease Comparison.

An example budget is shown at the end of this report. The numerical inputs that can be changed by the user are marked with an asterisk (*) in the example. In the actual Lotus 1-2-3 template, these cells will appear a different color or intensity on the screen. The other cells are protected to avoid accidental deletion of equations.

Parameters of Operation.

1. Acres of wheat pasture. Number of cultivated acres in the field to be grazed. This acreage figure is used to compute "total" pasture production expenses in the expense section.

2. **Number of stockers received.** Number of stockers received for grazing.

3. **Number of days pastured.** Number of days from pay weight to pay weight. This number is used with estimated gain to compute estimated total gain.

4. **Average received-weight.** Average weight of calves when received.

5. **Death loss, allowed.** Death loss percentage which the cattle owner is willing to accept. Death loss up to this amount is reduced from the starting total received-weight and has little effect on total weight gain income. The only loss is reduced stocking rate. For accurate computation, enter death loss percentage to the nearest tenth. For example, 2 dead stockers out of 75 head would be entered 2.7%, not just 2%.

6. **Death loss, estimated.** Percent of stockers the producer expects to die before outgoing pay weight is taken.

7. **Death loss, over allowed.** Spreadsheet calculation of percent of stockers estimated to die minus the percent allowed by the cattle owner. If death loss estimated (6.) is *less than* death loss allowed (5.), death loss over allowed will be zero and have little effect on lease income. If death loss estimated (6.) is *higher than* death loss allowed (5.), the received-weight for the "Death loss, Over Allowed" is reduced from the gross gain made by the remaining live stockers.

8. **Number of stockers, out.** Total number of stockers delivered for out-weight. Computed from "Number of stockers Received" minus "Death Loss, Estimated" percentage.

Income Parameters.

1. **Cattle gain.** Dollars per pound the cattle owner is willing to pay from pay-weight to pay-weight for each pound of weight gained on "Number of Stockers, Out". Some lease agreements pay at different rates for the first 100 pounds of gain, second 100 pounds of gain, and over 200 pounds of gain. Other agreements pay the same price for all weight gained. If one price is used, all three inputs need to be that same dollar figure.

2. **Other income (optional).** Amount the cattle owner is willing to pay in dollars per head under various lease provisions. A management fee might be charged if the land owner checks the cattle regularly. Custom processing might be paid if the land owner receives or vaccinates the cattle upon arrival. Hay or feed income is for the receiving period feed and/or winter supplementation offered the cattle.

Expenses.

Wheat Pasture Production Expenses. The first portion of the expense section covers the wheat pasture forage production. These are expenses incurred *in addition* to the expected grain production expenses. These expenses are inputted on a *per acre* basis. To compute total forage expenses the per acre figure is multiplied by the "Acres of Wheat Pasture" in the parameters of operation section.

1. **Fertilizer and application.** Cost per acre of additional nitrogen needed for forage production above grain production. Forage production and nitrogen cost must be accurately estimated to make this input useful. Potassium and Phosphorus are generally charged to the grain crop.

Typical forage yields for winter grazing (Nov. 1 - Feb. 28) range from 900 - 2200 pounds of dry matter depending upon planting date, weather and soil fertility level. "Average" production is about 1500 pounds. Cost of nitrogen (N) varies with type of application. Applied as anhydrous ammonia during cultivation, costs at present are about \$.12 - \$.14 per pound actual nitrogen. Dry application costs are about \$.25 per pound of actual nitrogen. Estimated nitrogen utilization for forage production is 35 lbs. nitrogen (actual)/1000 lbs of dry matter (D.M.) removed. To estimate nitrogen cost per acre, use the following formula:

$$\frac{1000\# \text{ Forage}}{\text{Ex. } 1.5} \times \frac{\text{Lbs. N}/1000\# \text{ D.M.}}{35} = \frac{\text{LBS. N}}{52.5}$$

$$\frac{\text{LBS. N}}{52.5} \times \frac{\text{N Price}}{\$.12} = \frac{\text{Cost/Acre}}{\$ 6.30}$$

2. **Herbicide application.** Cost per acre of applied herbicide needed on grazed acreage. Extra herbicide may or may not be necessary due to grazing. Given the opportunity for less ground cover, this might be a possible expense. If treatment

is not wholly due to grazing, only a percentage of the cost may be included in this budget.

3. Yield loss. Estimated (or average) loss in dollars per acre of wheat grain yield due to grazing. The range of percent yield loss can be from 0% (zero) to 15% or more. The "average" loss in a "typical" year is 8% - 10%. Planting dates, weather conditions, plant stress, available nitrogen, and stocking rates can all influence yields.

To estimate yield loss in dollars per acre, take the estimated yield loss (in percent) times the estimated yield times the estimated wheat price. A formula for dollar value of wheat yield reduction per acre follows:

$$\begin{array}{rclcl} \text{Yield/acre} & \times & \% \text{ Yield loss} & = & \text{Bushel Loss} \\ \text{Ex. } 35 & \times & 8 & = & 2.8 \end{array}$$

$$\begin{array}{rclcl} \text{Bushel loss} & \times & \text{Price/bu} & = & \text{Income loss/acre} \\ 2.8 & \times & 2.50 & = & 7.00 \end{array}$$

4. Extra seed. Cost per acre of extra seed wheat needed for greater planting rates. Many experts recommend an additional 20% of seed wheat per acre for increased forage production.

Livestock, management expenses. These are expenses on a dollar per head basis that the *land owner* is expected to supply in the lease arrangement. If these expenses are reimbursed, they should be accounted for in the "Other Income" section or *not* included as an expense. Per head costs are multiplied by the number of stockers received to compute total livestock expense.

1. Fence construction and maintenance. Cost of construction and maintenance of fencing for the leased pasture on a per head basis. If temporary fence is used, then materials (amortized), labor and electricity cost should all be included. If permanently fenced, the cattle should be charge one year's amortization.

2. Supplemental feed. Input the total non-pasture feed cost for stockers on a dollar amount per head.

3. Hay and mineral. Input the total hay and mineral expense for stockers on a dollar amount per head.

4. Medical cost. Input the total cost in dollars per head for medications, wormers, implants and the cost of treating sick cattle.

5. Pickup and fuel. Cost on a dollar per head basis.

6. Water and utilities. Cost in dollars per head for equipment and labor to provide water plus utility cost for water, fence or other factors.

7. Freight cost. Cost in dollars per head to haul, weigh, move, or transport stockers.

Lease Analysis Section

1. Daily gain. Input the average daily gain which you estimate the stockers will make for the grazing period. This average daily gain is only the gain for the Number of Stockers, Out (total number delivered at the end of the grazing period).

2. Total gain. Total Gain is the total weight gain of outgoing cattle minus the average received-weight of the number of deads over the allowed. Total weight gain of out-going cattle is the specified average daily gain estimate times the number of stockers, out. The average received-weight for the number of stockers over the allowed death loss is then subtracted from that total. When a stocker over the allowed percentage dies, the land owner loses the total received-weight of each dead, not just its weight gain. Total Gain is the amount of gain on which the land owner is paid.

3. Total income. Total income is generated from Total Gain, Cattle Gain (cost of gain) and Other Income. Cost of gain is based on the number of stockers, out.

4. Total Return. Total income for that expected rate of gain minus total expenses.

5. Return per head. Total return (or loss) divided by the number of stockers, out.

6. Return per acre. Total return (or loss) divided by the number of acres of wheat pasture.

Pasture Lease Comparison

The other common arrangement to lease pasture is for the cattle owner to pay a designated dollar amount for each hundred pounds of cattle delivered for grazing. This is referred to as grazing cost per hundred weight per month (\$/cwt/month). This section allows land owners to evaluate potential

returns from \$/cwt/month leasing and compare those to cost of gain leasing.

The input is the expected lease price/cwt/month. The output is the expected generated income. The total income generated from this option is based on Number of cattle received and Average received weigh with no adjustment for death loss. Expenses used for this output are *ONLY* those from the Wheat Production Cost portion of the Expense section. Leasing by \$/cwt/month usually involves less livestock management by the land owner. To accurately estimate returns from this type of lease, *ALL* expected expenses should be included in the Wheat Pasture Production Expenses section.

1. \$/cwt/month. Dollar amount the cattle owner is willing to pay monthly for each one hundred pounds of stockers delivered for grazing.

Pasture Leasing vs. Cattle Ownership

LEASECOG allows *land owners* to evaluate possible returns from leasing wheat pasture on a cost of gain basis. The Lotus template O.S.U. Stocker Planner (CR# 3026, NEWPAST) allows *cattle owners* to evaluate the cost and returns from the purchase of different classes of stocker cattle for pasture grazing. Utilizing both programs, under given individual circumstances, will allow producers to compare return potential concerning pasture leasing verse cattle ownership.

In addition to the difference in return potential, pasture leasing verse cattle ownership must be evaluated on various other financial and management considerations. Below are some of the general advantages and disadvantages of each.

Leasing Wheat Pasture

Advantages

- Avoid high cattle purchase cost.
- Reduced borrowing requirements.
- Reduced labor and cattle management.
- Eliminate concern about finding cattle types that budget favorably.
- Can shop to lease stockers of favorable grazing weight.
- Consistent income potential.

Disadvantages

- Forage production is variable year to year.
- Cattle vary in gain potential.
- Cattle owner has increased access to your property.
- Must trust cattle owner.
- Limit to income potential.
- Some death loss risk.

Cattle Ownership

Advantages

- Increased Profit Potential.
- Increased income through superior cattle management.
- More influence over cattle rate of gain potential.
- Control of initial stocker weight.

Disadvantages

- Large capital outlay.
- Potential negative price risk.
- Potential poor cattle performance.
- Need of risk management for sale price.
- Death loss and health risk.

For a detailed analysis of wheat pasture stocker ownership consult Fact Sheet # 212, Should I Buy (or Retain) Stockers to Graze Wheat Pasture.

Lease Agreements

Producers considering Lease arrangements should read Fact Sheet # 200, Wheat Pasture Lease Agreements. Fact Sheet # 200 provides excellent discussion on considerations for lease agreements and the importance of having written, legal documentation. It provides a sample contract outlining such details as lease dates, weighing conditions, pencil shrink, deposit payment and other variables.

WHEAT PASTURE LEASE ANALYZER

Partial Budget: Stockers For Wheat Pasture On A Gain Basis

Parameters Of Operation		Income Parameters	
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Acres Of Wheat Pasture	160*	Cattle Gain	\$ / Lb.
Number Of Stockers Received	80*	- First 100# Gain	0.30*
Number Of Days Pastured	120*	- Second 100# Gain	0.35*
Average Received Weight	400*	- Gain Over 200#	0.40*
Total Received-Weight	32000		
		Other Income - (opt.)	\$/Head
Death Loss, Allowed %	2.5*	- Management Fee	5.00*
Death Loss, Estimated %	5.0*	- Custom Processing	0.00*
Death Loss, Over Allowed %	2.5	- Hay & Feed Income	0.00*
Number Of Stockers, Out	76		

Expenses

Wheat Pasture Production (Additional expenses over grain production)	\$/Acre	Total Expenses
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- Fertilizer + Applic.	6.30*	1008.00
- Herbicide Application	3.00*	480.00
- Yield Loss (\$/A)	7.00*	1120.00
- Extra Seed	1.50*	240.00
- Other	0.00*	0.00
Livestock Management	\$/Head	

- Fence Const. & Maint.	4.00*	320.00
- Supplemental Feed	10.00*	800.00
- Hay & Mineral	2.00*	160.00
- Medical Cost	0.00*	0.00
- Pickup & Fuel	4.00*	320.00
- Water & Utilities	1.50*	120.00
- Freight Cost	0.00*	0.00
- Other Equipment	0.00*	0.00
- Other Expenses	0.00*	0.00
TOTAL EXPENSES		4568.00
		=====

-----LEASE ANALYSIS SECTION-----

Daily Gain (pay to pay)	Total Gain (lbs.)	Total Income \$	Total Return \$	Return per Head \$	Return per Acre \$
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1.25*	10600	3710	-858.00	-11.29	-5.36
1.50*	12880	4508	-60.00	-0.79	-0.38
1.75*	15160	5306	738.00	9.71	4.61
2.00*	17440	6216	1648.00	21.68	10.30
2.25*	19720	7128	2560.00	33.68	16.00
2.50*	22000	8040	3472.00	45.68	21.70

PASTURE LEASE COMPARISON #					
\$/CWT/MONTH					
2.50*	3200	352.00	4.40	2.20	

Assumes ONLY Wheat Pasture Production Expenses above. (No Lvst. Exp.)

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