Farm Enterprise Budgets and Input Costs Management

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Business Management Tools and Steps

- 1st: Measure and Analysis Past Performance
- **2nd: Build Budget and Breakeven Prices**
- **3rd: Input Cost Management / Resource Optimization**
- 4th: Long Term Business Plan

Enterprise Budgets





Enterprise Budget

Detailed representation of revenues, costs, and net return associated with the production of agricultural products.

REVENUES - EXPENSES

NET RETURN

WHEAT BUDGET EXAMPLE

					Enterprise
REVENUE	Quantity	Units	\$/Unit	Total	Total
Wheat	40.00	Bushel	\$8.25	\$330.00	\$211,200.00
Wheat Pasture	64.00	Pound of Gain	\$0.75	\$48.00	\$30,720.00
Total Revenue				\$378.00	\$241,920.00 Enterprise
VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total
Production Costs					
Seed					
Wheat Seed	50	Pound	\$0.23	\$11.50	\$7,360.00
Fertilizer					
Fertilizer (N)	60	Pound	\$0.79	\$47.40	\$30,336.00
Fertilizer (P)	25	Pound	\$0.63	\$15.75	\$10,080.00
Custom					
Custom Harvest Wheat	1	Acre	\$35.00	\$35.00	\$22,400.00
Overage - Wheat	10	Bushel	\$0.24	\$2.40	\$1,536.00
Custom Haul Wheat	30	Bushel	\$0.24	\$7.20	\$4,608.00
Fertilizer Application	1	Acre	\$5.00	\$5.00	\$3,200.00
Miscellaneous					
Insurance - Wheat Herbicide	1	Acre	\$12.00	\$12.00	\$7,680.00
Herbicide - Wheat	6.4	Ounce	\$0.17	\$1.10	\$704.00
2,4D	4.2	Pint	\$2.84	\$11.93	\$7,633.92
Glyphosate	6	Pint	\$4.30	\$25.80	\$16,512.00
Insecticide					
Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.00
Fungicides					+-,
Fungicide Application	1	Acre	\$5.50	\$5.50	\$3,520.00
Machinery Labor		-			
Tractors/Self-Propelled	0.17	Hour	\$15.00	\$2.55	\$1,632.00
Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.00
Diesel Fuel				+	. ,
Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4,534.21
Gasoline					. ,
Pickup/General Use Equipment	1	Acre	\$2.11	\$2.11	\$1,350.00
Repairs & Maintenance	•			+=	. ,
Pickup/General Use Equipment	1	Acre	\$0.70	\$0.70	\$450.00
Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3.105.84
Implements	1	Acre	\$10.44	\$10.44	\$6.682.96
Interest on Credit Line			7.50%	\$9.93	\$6.353.45
Total Variable Costs				\$230.25	\$147,358,37
Planned Returns Above Variable Costs			-	\$1/17 75	\$94 561 62
Breakeven Price to Cover Variable Costs.			\$4.56 P	φ147.75 Liehol	φ 04 ,501.05
Dieakeven Frice to Cover variable Costs			φ4.00 D	usitel	Enterprise
FIXED COSTS	Quantity	Unite	\$/Linit	Total	Total
Machinery Depreciation	Quantity	Units	φιστητ	TOID	TOTAL
Pickup/General Lee Equipment	1	Acro	\$0.00	ድብ በወ	¢604 75
Tractore/Self-Propelled	1	Acre	ΦU.90 \$13.9F	⊅0.90 \$13.05	φ024.75 \$2 921 01
Implemente	1	Acro	\$13.33 \$0.40	¢13.35 ¢0.40	\$6,0011.01
Equipment Investment	1	AULE	φ3.40	φ 3 .40	φ0,014.00
Pickup/General Liss Equipment	¢6 04	Dollara	6 50%	¢0 11	¢201 16
Tractore/Salf Propalled	ΦU.04 ¢104 EC	Dollars	0.30% 6 E0%	ΦU.44 ¢c 00	\$204.40 \$4.240.61
Inacions/Self-Propelled	φ104.50 ¢40.00	Dollars	0.00%	\$0.8U	94,349.01 ¢1 670 /1
Implements	\$40.20	Donars	0.00%	¢2.01	\$1,0/2.41
Cash Kent - Wheat	1	Acre	\$30.00	\$30.00	\$19,200.00
I OTAL FIXED COSTS			_	\$64.18	\$41,076.90
Total Specified Costs			_	\$294.43	\$188,435.27
Returns Above Specified Costs				\$83.57	\$53,484.73
Breakeven Price to Cover Total Costs			\$6.16 B	ushel	
			U		

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Cost Estimation

 Production cost is a function of: Inputs/ activities
 Prices paid

COST = QUANTITY × PRICE Repeat for all production inputs *Pre* and *Post* analysis



Production and Market Data

- It is essential to keep records
 - Yields
 - Production activities
 - Input quantities
- Projections or historical records
 - Output and input prices
- Consistent estimates require at least <u>two</u> production cycles



Production Records To Use

Grand Average:
 All records



 Rolling Average: Most recent



 "Olympic" Average: Eliminate highest and lowest





Example – Cotton Yield

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Price (lb/ac)	589	632	646	644	610	748	809	783	589	696	666

 Grand Average: 673.82 lb/ac All records



- Rolling Average: Most recent (3 years)
- "Olympic" Average: Eliminate top and bottom



Example – Cotton Yield



- Grand Average: 673.82 lb/ac All records
- Rolling Average: 650.33 lb/ac Most recent (3 years)

 589 + 696 + 666
 3

 "Olympic" Average: Eliminate top and bottom



Example – Cotton Yield

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Price (lb/ac)	589	632	646	644	610	748	809	783	589	696	666

- Grand Average: 673.82 lb/ac All records
- Rolling Average: 650.33 lb/ac Most recent (3 years)
- "Olympic" Average: 668.22 lb/ac Eliminate highest and lowest observations

$$=\frac{632+646+644+\dots+666}{9}$$



Production Costs

- Variable and Fixed Costs
- Variable Costs:

Varies with the level of production Other names: *Cash costs, direct costs, or out-of-pocket costs*

Examples: seed and plants, fertilizers, pesticides, fuel, repair and maintenance, labor, interest on operating capital



Production Costs

• Fixed Costs:

Constant regardless the level of production Other names: *non-cash costs, overhead cost*

Examples: Property taxes, interest on investment, land, machinery depreciation



Variable and Fixed Costs



	REVENUE	Quantity	Units	\$/Unit	Total	Total	
	Wheat	40.00	Bushel	\$8.25	\$330.00	\$211,200.00	11 - 11 - 11 -
B	Wheat Pasture	64.00 I	Pound of Gain	\$0.75	\$48.00	\$30,720.00	
Kevenue	Total Revenue				\$378.00	\$241,920.00	
						Enterprise	
	VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total	
	Production Costs						
	Seed						
	Wheat Seed	50	Pound	\$0.23	\$11.50	\$7,360.00	
	Fertilizer						
	Fertilizer (N)	60	Pound	\$0.79	\$47.40	\$30,336.00	
	Fertilizer (P)	25	Pound	\$0.63	\$15.75	\$10,080.00	
	Custom						
	Custom Harvest Wheat	1	Acre	\$35.00	\$35.00	\$22,400.00	
	Overage - Wheat	10	Bushel	\$0.24	\$2.40	\$1,536.00	
	Custom Haul Wheat	30	Bushel	\$0.24	\$7.20	\$4,608.00	
	Fertilizer Application	1	Acre	\$5.00	\$5.00	\$3,200.00	
	Miscellaneous						
	Insurance - Wheat	1	Acre	\$12.00	\$12.00	\$7,680.00	
	Herbicide						
	Herbicide - Wheat	6.4	Ounce	\$0.17	\$1.10	\$704.00	
	2,4D	4.2	Pint	\$2.84	\$11.93	\$7,633.92	
	Glyphosate	6	Pint	\$4.30	\$25.80	\$16,512.00	
L	Insecticide						
	Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.00	
	Fungicides						
Variahle	Fungicide Application	1	Acre	\$5.50	\$5.50	\$3,520.00	
Variable	Machinery Labor						
Costs	Tractors/Self-Propelled	0.17	Hour	\$15.00	\$2.55	\$1,632.00	
COSIS	Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.00	
	Diesel Fuel						
	Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4,534.21	
	Gasoline						
	Pickup/General Use Equipment	1	Acre	\$2.11	\$2.11	\$1,350.00	
	Repairs & Maintenance						
	Pickup/General Use Equipment	1	Acre	\$0.70	\$0.70	\$450.00	
	Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3,105.84	
	Implements	1	Acre	\$10.44	\$10.44	\$6,682.96	
	Interest on Credit Line			7.50%	\$9.93	\$6,353.45	
	Total Variable Costs				\$230.25	\$147,358.37	and the second
	Planned Returns Above Variable Costs:				\$147.75	\$94,561.63	Returns above VC
	Breakeven Price to Cover Variable Costs			\$4.56 B	ushel		
	1					Enterprise	
- A CAR	FIXED COSTS	Quantity	Units	\$/Unit	Total	Total	
(a) (a)	Machinery Depreciation						
- / ·····	Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75	
	Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8,931.01	
Fixed	Implements	1	Acre	\$9.40	\$9.40	\$6,014.66	
CALLAN V	Equipment Investment						
Costs	Pickup/General Use Equipment	\$6.84	Dollars	6.50%	\$0.44	\$284.46	
00505	Tractors/Self-Propelled	\$104.56	Dollars	6.50%	\$6.80	\$4,349.61	
	Implements	\$40.20	Dollars	6.50%	\$2.61	\$1,672.41	
- AND	Cash Rent - Wheat	1	Acre	\$30.00	\$30.00	\$19,200.00	
- AND	Total Fixed Costs				\$64.18	\$41,076.90	
	Total Specified Costs				\$294.43	\$188,435,27	
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	Beturns Above Specified Costs				\$83.57	\$53 /8/ 73	NET RETAILS
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Insecticide		_			
Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.0
Fungicides					
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Machinery Labor				A	
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Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.0
Diesel Fuel	0.00	o "	60 40	67.00	* 4 F04 0
Tractors/Self-Properted	2.03	Gallon	\$3.49	\$7.08	\$4,534.2
Gasoline			60.44	60.11	¢1 050 0
Pickup/General Use Equipment	1	Acre	\$2.11	\$2.11	\$1,350.0
Repairs & Maintenance		A	£0.70	¢0.70	¢450.0
Pickup/General Ose Equipment		Acre	50.70	50.70	\$400.0
Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3,105.8
Implements	· ·	Acre	\$10.44 7.500/	\$10.44	\$6,682.9
Interest on Gredit Line			7.50%	\$9.93	\$6,303.4
lotal Variable Costs			_	\$230.25	\$147,358.3
lanned Returns Above Variable Costs:				\$147.75	\$94,561.6
breakeven Price to Cover Variable Costs			\$4.96 B	ushei	Entomrine
	Quantity	Unite	\$/IIni+	Total	Tetal
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Pickup/General Lise Equipment	1	Acro	\$0.02	\$0.02	\$604 7
Tractors/Solf Propolled	1	Acre	90.90 \$12.05	30.30 \$13.05	3024./ \$2.021.0
Implements	1	Acre	\$9.40	\$9.70	\$6.014.6
Fauinment Investment	'	ALIE	40.4V	90.40	ψ0,0 i4.0
Pickup/General Lize Equipment	\$6.94	Dollare	6 50%	\$0.44	\$284.4
Tractors/Self-Propelled	\$104 56	Dollars	6.50%	\$6.80	9204.4 \$1 3/9 6
Implements	\$40.20	Dollars	6 50%	\$0.00 \$0.00	\$1 670 A
Cash Bent - Wheat	⊕-+0.20 1		\$30.00	\$2.01	\$19.2.4
Cotal Fixed Costs	1	ALIE	00.00	\$64.19	\$11,200.0
Total Presified Costs			_	\$04.10	\$100,405.0
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teturns Above Specified Costs				\$83.57	\$53,484.7
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Inputs ------

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						Enterprise
	REVENUE	Quantity	Units	\$/Unit	Total	Total
	Wheat	40.00	Bushel	\$8.25	\$330.00	\$211,200.00
	Wheat Pasture	64.00	Pound of Gain	\$0.75	\$48.00	\$30,720.00
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						Enterprise
	VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total
	Production Costs					
	Seed					
	Wheat Seed	50	Pound	\$0.23	\$11.50	\$7,360.00
	Fertilizer					
	Fertilizer (N)	60	Pound	\$0.79	\$47.40	\$30,336.00
	Fertilizer (P)	25	Pound	\$0.63	\$15.75	\$10,080.00
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	Custom Harvest Wheat	1	Acre	\$35.00	\$35.00	\$22,400.00
	Overage - wheat	10	Bushel	\$0.24	\$2.40	\$1,536.00
	Custom Haul Wheat	30	Bushel	\$0.24	\$7.20	\$4,608.00
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	Wiscellaneous	1	A	£10.00	£10.00	00 000 59
	Insurance - wheat	1	Acre	\$12.00	\$12.00	\$7,660.00
	Herbicide	6.4	0	¢0 17	¢1 10	\$704.00
	Herbicide - Wheat	0.4	Diat	50.17	51.10 ¢11.00	\$704.00
	Z,4U Chuphagata	4.2	Pint	\$2.04 \$4.20	\$11.95 \$25.90	\$7,633.9Z
	Incontinida	0	PIIIL	\$4.50	\$25.00	\$10,512.00
Quantitias	Insecticide & Application Whee	2	Ounco	\$4.50	\$9.00	\$5 760 00
Quantities	Europicidee	2	Ounce	94.00	\$5.00	\$5,700.00
	Europicide Application	1	Acre	\$5.50	\$5.50	\$3 520 00
Used	Machinery Labor		71010	00.00	00.00	00,020.00
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	Gasoline	2.00	Guilon	00110	0,100	01,001121
	Pickup/General Use Equipment	1	Acre	\$2.11	\$2,11	\$1,350.00
	Repairs & Maintenance		, 1010	02	02.111	0.,000100
	Pickup/General Use Equipment	1	Acre	\$0.70	\$0.70	\$450.00
	Tractors/Self-Propelled	. 1	Acre	\$4.85	\$4.85	\$3 105 84
	Implements	1	Acre	\$10.44	\$10.44	\$6,682,96
	Interest on Credit Line			7.50%	\$9.93	\$6,353.45
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	Planned Beturns Above Variable Costs:			-	\$147.75	\$94 561 63
	Breakeven Price to Cover Variable Costs			\$4.56 F	Rushel	004,001.00
				0.000 2	donto	Enterprise
	FIXED COSTS	Quantity	Units	\$/Unit	Total	Total
	Machinery Depreciation					
	Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75
	Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8,931.01
	Implements	1	Acre	\$9.40	\$9.40	\$6,014.66
	Equipment Investment			-		
	Pickup/General Use Equipment	\$6,84	Dollars	6.50%	\$0.44	\$284.46
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	Implements	\$40.20	Dollars	6.50%	\$2.61	\$1,672.41
	Cash Rent - Wheat	1	Acre	\$30.00	\$30.00	\$19,200.00
	Total Fixed Costs			_	\$64.18	\$41,076.90
	Total Specified Costs			-	\$294.43	\$188.435.27
				=	÷20-11-10	¢.00,100127
	Returns Above Specified Costs				\$83.57	\$53.484.73
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Giypnosate	0	PINT	\$4.30	\$25.60	\$16,512.00	
Insecticide	2	Ourses	\$1.50	\$9.00	\$5.760.00	
Europicidos	Z	Ounce	54.50	33.00	\$5,700.00	
Fungicide Application	1	Acro	\$5.50	\$5.50	\$3 520 00	
Machineny Labor	1	Acre	\$0.00	\$5.50	\$3,520.00	
Tractore/Solf Propollod	0.17	Hour	\$15.00	\$2.55	\$1 622 00	
Other Labor	0.17	Hour	\$15.00	\$2.00	\$1,032.00	
Diosal Fuel	0.2	riour	\$15.00	\$5.00	91,920.00	
Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4 534 21	
Gasoline	2.00	Gallon	00.40	\$7.00	ψ 1 ,001.21	
Pickup/General Use Equipment	1	Acre	\$2.11	\$2.11	\$1,350,00	
Renairs & Maintenance		7 1010	02.111	02.11	\$1,000.00	
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			0.100		Enterprise	
FIXED COSTS	Quantity	Units	\$/Unit	Total	Total	
Machinery Depreciation	daamii	01110		, o tu	, oral	
Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75	
Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8,931.01	
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			=	ψ20-1,40	\$100,700.27	
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Total Revenue				\$378.00	\$241,920.00	
					Enterprise	
VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total	🖉 Dollar Value
Production Costs						Bollar Value
Seed Wheet Seed	50	Daviad	¢0.00	¢11 E0	\$7.200.00	$\sim (\$/ac)$
Fortilizor	50	Pound	\$0.25	511.00	\$7,360.00	/ (J/ac)
Fertilizer (NI)	60	Pound	\$0.79	\$47.40	\$30,336,00	
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Custom	25	round	ψ0.00	Q10.70	\$10,000.00	
Custom Harvest Wheat	1	Acre	\$35.00	\$35.00	\$22,400.00	
Overage - Wheat	10	Bushel	\$0.24	\$2.40	\$1,536.00	
Custom Haul Wheat	30	Bushel	\$0.24	\$7.20	\$4,608,00	
Fertilizer Application	1	Acre	\$5.00	\$5.00	\$3,200.00	
Miscellaneous				00100	00,200100	
Insurance - Wheat	1	Acre	\$12.00	\$12.00	\$7.680.00	
Herbicide			\$ 12100	012:00	\$7,000100	
Herbicide - Wheat	6.4	Ounce	\$0.17	\$1.10	\$704.00	
2 4D	4.2	Pint	\$2.84	\$11.93	\$7,633,92	
Glyphosate		Pint	\$4.30	\$25.80	\$16 512 00	
Insecticide	0		Q1.00	020100	010,012.00	
Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.00	
Fungicides	-	ounoo	01100	00100	00,700100	
Fungicide Application	1	Acre	\$5.50	\$5.50	\$3,520,00	
Machinery Labor		7.610	00.00	00.00	\$0,020.000	
Tractors/Self-Propelled	0.17	Hour	\$15.00	\$2.55	\$1,632.00	
Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.00	
Diesel Fuel					• .,-=	
Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4,534,21	
Gasoline	2.00			•••••	• .,	
Pickup/General Use Equipment	1	Acre	\$2,11	\$2.11	\$1,350.00	
Repairs & Maintenance					• .,	
Pickup/General Use Equipment	1	Acre	\$0.70	\$0.70	\$450.00	
Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3,105,84	
Implements	1	Acre	\$10.44	\$10.44	\$6,682,96	
Interest on Credit Line		7,610	7.50%	\$9.93	\$6,353,45	
Total Variable Costs				\$230.25	\$147.358.37	
Planned Beturns Above Variable Costs			-	\$147.75	\$9/ 561 62	
Breakeven Price to Cover Variable Costs:			\$4.56	GI47.70 Bushel	954,001.03	
Sicalevent free to Cover valiable COSIS			94.00	astici	Enterprise	
FIXED COSTS	Quantity	Units	\$/Unit	Total	Total	
Machinery Depreciation		00	4. e m.	10.001		
Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75	
Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8.931.01	
Implements	1	Acre	\$9.40	\$9.40	\$6.014.66	
Equipment Investment			201-10	00110	\$27011100	
Pickup/General Use Equipment	\$6.84	Dollars	6.50%	\$0.44	\$284.46	
Tractors/Self-Propelled	\$104.56	Dollars	6,50%	\$6.80	\$4.349.61	
Implements	\$40.20	Dollars	6.50%	\$2.61	\$1,672.41	
Cash Bent - Wheat	±+0.20 1	Acre	\$30.00	\$30.00	\$19.200.00	
Total Fixed Costs		, 676	00.00	\$64.18	\$41.076.90	
Total Specified Caste			=	\$204.10	\$199 425 27	2 ANYA
rotar Specified Costs			=	ə294.43	⊅100,430.27	TEXAS
Returns Above Specified Costs				\$83.57	\$53,484.73	AGRI
Reachance Bries to Course Tatal Conte			¢C 1C	Due hel		EXT
breakeven Price to Cover Lotal Costs			3 6.16	bushei		



					Enterprise
REVENUE	Quantity	Units	\$/Unit	Total	Total
Wheat	40.00	Bushel	\$8.25	\$330.00	\$211,200.00
Wheat Pasture	64.00	Pound of Gain	\$0.75	\$48.00	\$30,720.00
Total Revenue				\$378.00	\$241,920.00 Enterprise
VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total
Production Costs					
Seed					
Wheat Seed	50	Pound	\$0.23	\$11.50	\$7,360.00
Fertilizer				·	
Fertilizer (N)	60	Pound	\$0.79	\$47.40	\$30,336.00
Fertilizer (P)	25	Pound	\$0.63	\$15.75	\$10,080.00
Custom	1	A	¢25.00	¢25.00	\$22,400,00
Overage Wheet	10	Acre	\$33.00	\$35.00	\$22,400.00 \$1,526.00
Custom Haul Wheat	30	Bushel	\$0.24	\$2.40	\$1,530.00
Fertilizer Application	1	Acre	\$5.00	\$5.00	\$3,200,00
Miscellaneous		Acre	ψ0.00	ψ0.00	ψ0,200.00
Insurance - Wheat	1	Acre	\$12.00	\$12.00	\$7.680.00
Herbicide			÷.2.00	\$12.00V	07,000,00
Herbicide - Wheat	6.4	Ounce	\$0.17	\$1.10	\$704.00
2,4D	4.2	Pint	\$2.84	\$11.93	\$7,633.92
Glyphosate	6	Pint	\$4.30	\$25.80	\$16,512.00
Insecticide					
Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.00
Fungicides					
Fungicide Application	1	Acre	\$5.50	\$5.50	\$3,520.00
Machinery Labor					
Tractors/Self-Propelled	0.17	Hour	\$15.00	\$2.55	\$1,632.00
Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.00
Diesel Fuel			* * **	<u> </u>	A. 50. 04
Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4,534.21
Gasoline Biology (Concert User Equipment)	1	A	60.11	60.11	¢1.050.00
Pickup/General Ose Equipment	1	Acre	ΦZ.11	\$Z.11	\$1,300.00
Pickup/Gonoral Use Equipment	1	Acro	\$0.70	\$0.70	\$450.00
Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3 105 84
Implements	1	Acre	\$10.44	\$10.44	\$6,682,96
Interest on Credit Line	1	1010	7.50%	\$9.93	\$6.353.45
Total Variable Costs				\$230.25	\$147.358.37
Planned Returns Above Variable Costs			_	\$147.75	\$94 561 63
Breakeven Price to Cover Variable Costs			\$4.56 B	ushel	0-4,001.00
					Enterprise
FIXED COSTS	Quantity	Units	\$/Unit	Total	Total
Machinery Depreciation					
Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75
Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8,931.01
Implements	1	Acre	\$9.40	\$9.40	\$6,014.66
Equipment Investment					
Pickup/General Use Equipment	\$6.84	Dollars	6.50%	\$0.44	\$284.46
Tractors/Self-Propelled	\$104.56	Dollars	6.50%	\$6.80	\$4,349.61
Implements	\$40.20	Dollars	6.50%	\$2.61	\$1,672.41
Cash Rent - Wheat	1	Acre	\$30.00	\$30.00	\$19,200.00
Total Fixed Costs			_	\$64.18	\$41,076.90
Total Specified Costs			_	\$294.43	\$188,435.27
Returns Above Specified Costs				\$83.57	\$53,484.73
Breakeven Price to Cover Total Costs			\$6.16 B	ushel	

· · · · · · · · · · ·







Cost Allocation Considerations

- Single farm with different enterprises
- Same inputs are used by several enterprises
- Economics of scale (*extrapolations*)
 E.g.: irrigation labor, land preparation
- Define the appropriate units:
 Unit of area: per acre, plot, greenhouse
 Unit of product: per Ton, per head, per bushel



Uses of Enterprise Budgets

- Estimate the profits of the entire farm
- Identify the most profitable crops
- Analyze the financial impact of production decisions
- Price estimation
- Identify the major sources of production cost
- Benchmarking analysis
- Support farm loan applications







Whole-Farm Budget

Used to estimate the profits of the entire farm and identify the crops profitability, and alternatives.





Partial Budget Analysis

- Tool used to analyze the impact that changes on production practices have on farm income.
- For example:
 - Adoption of new technologies
 - Changing input levels and type of inputs
 - Buy or rent machinery
 - Expanding or reducing the farm size
- Identify <u>ONLY</u> the revenues and expenses affected by the change in production practices.





Partial Budget Analysis

A. Positive Effects

Additional revenue

- + Reduced costs
- = Positive change in income

B. Negative Effects

Reduced revenue

- + Additional costs
- = Negative change in income

C. Net Effect

= Net change in income (A-B)



Source: Maryland Cooperative Extension

Cost to Program Cattle Participation								
Calf Born to Weaning	\$/Head	Total						
Verification Service Fees & Investment Annual Costs	\$42.97	\$4,297						
Added Management and Labor	\$3.00	\$300						
Record Keeping - Paper Work	\$4.00	\$400						
Other	\$0.00							
Other	\$0.00							
Other	\$0.00							
Subtotal Calf Born to Weaning Cost	\$49.97	\$4,997						
Post Weaning To Sale	\$/Head	Total						
Record Keeping - Paper Work	\$3.00	\$300						
Added days of feeding & Grazing 60 Days	\$72.00	\$7,200						
Vet, Vaccination, Worm and medicine	\$14.00	\$1,400						
RFID Tag	\$3.85	\$385						
Other	\$0.00							
Subtotal of Post Weaning Participation Production Co	\$92.85	\$9,285						
Total Participation Cost	\$142.82	\$14,282						



		Weaned Program Calves	Non Weaned Calves
VAL	Participating in Program		
CAN COMPANY	Initial Weaned Weight - Net If Sold	500	550
	Death Loss (%)	1%	
	Added Net Weight	120	0
	Weight in Program (Lb/Head)	620	550
	Projected Net Market Price (\$/CWT)	\$205.00	\$205.00
	Projected Premium (\$/CWT)	\$11.00	
	(\$/Head)	\$68.20	
	Participating Price (\$/CWT)	\$216.00	\$205.00
	Revenue per Head	\$1,339	\$1,128
	Total Revenue	\$132,581	\$112,750

Change In Revenue	Total \$	\$19,831
Change In Costs to Participate (Added Costs)	Total \$	\$14,282
Net Revenue Change*	Total \$	\$5,549
Net Revenue Change*	\$/Head	\$56.05
Minimum Price Required	\$/Head	\$1,339.96
Minimum Price Required	\$/CWT	\$205.12



Breakeven Analysis

Breakeven price:

Minimum price per unit required to cover all projected costs Breakeven price = $\frac{\text{Expected cost}}{\text{Expected yield}}$

Breakeven yield:

Minimum yield required to cover all projected costs Breakeven yield = $\frac{\text{Fixed cost}}{\text{Expected price} - \text{Average variable cost}}$



Breakeven Analysis





Breakeven Price - Example

Wheat:

Yield = 45 bu/ac
Total variable cost = \$230/ac
Total fixed cost = \$64/ac
Total cost = \$294/ac
Breakeven price = Expected cost

- Breakeven price (variable cost) = $\frac{230}{40}$ = \$5.11/bu
- Breakeven price (total cost) = $\frac{294}{40}$ = \$6.53/bu

Overage - Wheat	10	Bushel	\$0.24	\$2.40	\$1,536.00	
Custom Haul Wheat	30	Bushel	\$0.24	\$7.20	\$4,608.00	
Fertilizer Application	1	Acre	\$5.00	\$5.00	\$3,200.00	
Miscellaneous						
Insurance - Wheat	1	Acre	\$12.00	\$12.00	\$7,680.00	
Herbicide						
Herbicide - Wheat	6.4	Ounce	\$0.17	\$1.10	\$704.00	
2,4D	4.2	Pint	\$2.84	\$11.93	\$7,633.92	
Glyphosate	6	Pint	\$4.30	\$25.80	\$16,512.00	
Insecticide						
Insecticide & Application - Whea	2	Ounce	\$4.50	\$9.00	\$5,760.00	
Fungicides						
Fungicide Application	1	Acre	\$5.50	\$5.50	\$3,520.00	
Machinery Labor						
Tractors/Self-Propelled	0.17	Hour	\$15.00	\$2.55	\$1,632.00	
Other Labor	0.2	Hour	\$15.00	\$3.00	\$1,920.00	
Diesel Fuel						
Tractors/Self-Propelled	2.03	Gallon	\$3.49	\$7.08	\$4,534.21	
Gasoline						
Pickup/General Use Equipment	1	Acre	\$2.11	\$2.11	\$1,350.00	
Repairs & Maintenance						
Pickup/General Use Equipment	1	Acre	\$0.70	\$0.70	\$450.00	
Tractors/Self-Propelled	1	Acre	\$4.85	\$4.85	\$3,105.84	
Implements	1	Acre	\$10.44	\$10.44	\$6,682.96	
Interest on Credit Line			7.50%	\$9.93	\$6,353.45	
Total Variable Costs				\$230.25	\$147,358.37	
Planned Returns Above Variable Costs:				\$147.75	\$94,561.63	Breakeven
Breakeven Price to Cover Variable Costs			\$4.56	Bushel 🔶		Duine
		L			Enterprise	Price –
FIXED COSTS	Quantity	Units	\$/Unit	Total	Total	Variable
Machinery Depreciation						variable
Pickup/General Use Equipment	1	Acre	\$0.98	\$0.98	\$624.75	Costs
Tractors/Self-Propelled	1	Acre	\$13.95	\$13.95	\$8,931.01	0313
Implements	1	Acre	\$9.40	\$9.40	\$6,014.66	
Equipment Investment						
Pickup/General Use Equipment	\$6.84	Dollars	6.50%	\$0.44	\$284.46	
Tractors/Self-Propelled	\$104.56	Dollars	6.50%	\$6.80	\$4,349.61	
Implements	\$40.20	Dollars	6.50%	\$2.61	\$1,672.41	
Cash Rent - Wheat	1	Acre	\$30.00	\$30.00	\$19,200.00	
Total Fixed Costs			·	\$64.18	\$41,076.90	
Total Specified Costs			:	\$294.43	\$188,435.27	Brookovon
			:		2	Diedkeven
Returns Above Specified Costs				\$83.57	\$53,484.73	🍚 Price – Total
Breakeven Price to Cover Total Costs			\$6.16	Bushel	2	Cost
Cash Rent - Wheat Total Fixed Costs Total Specified Costs Returns Above Specified Costs Breakeven Price to Cover Total Costs	1	Acre	\$30.00	\$30.00 \$64.18 \$294.43 \$83.57 Bushel	\$19,200.00 \$41,076.90 \$188,435.27 \$53,484.73	Breakeven Price – Tot Cost



Sensitivity Analysis

Analysis of price and yield uncertainty.

		Example Breakeven Prices				
Example	Example	To Cover	To Cover			
Yield	Yield	Variable	Total			
Percent	Bushel	Costs	Costs			
75%	30.00	\$6.07	\$8.21			
90%	36.00	\$5.06	\$6.85			
100%	40.00	\$4.56	\$6.16			
110%	44.00	\$4.14	\$5.60			
125%	50.00	\$3.64	\$4.93			

Different yield levels:

- 100% = Expected yield
- 90% = Yield is 10% lower
- 110% = Yield is 10% higher



Sensitivity Analysis

Analysis of price and yield uncertainty.

		Example Breakeven Prices		
Example	Example	To Cover	To Cover	
Yield	Yield	Variable	Total	
Percent	Bushel	Costs	Costs	
75%	30.00	\$6.07	\$8.21	
90%	36.00	\$5.06	\$6.85	
100%	40.00	\$4.56	\$6.16	
110%	44.00	\$4.14	\$5.60	
125%	50.00	\$3.64	\$4.93	
	*			

At a given <u>yield</u>, this is the <u>minimum price</u> required to cover :

- Variable expenses
- All production expenses

REVENUE	Quantity	Units	\$/Unit	Total	Total
Bermudagrass Round Bale	6.00	Round Bale	\$130.00	\$780.00	\$78,000.00
Total Revenue				\$780.00	\$78,000.00
					Enterprise
VARIABLE COSTS	Quantity	Units	\$/Unit	Total	Total
Production Costs	SA	~~~~	SAN (1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Custom					
Fertilizer Application	3	Acre	\$5.00	\$15.00	\$1,500.00
Herbicide Application	2	Acre	\$5.50	\$11.00	\$1,100.00
Insecticide Application	1	Acre	\$5.50	\$5.50	\$550.00
Cut and Bale	6	Roll	\$30.00	\$180.00	\$18,000.00
Fertilizer					
Fertilizer (N)	135	Pound	\$0.79	\$106.65	\$10,665.00
Fertilizer (P)	37.8	Pound	\$0.63	\$23.81	\$2,381.40
Potash (K)	113.4	Pound	\$0.70	\$79.38	\$7,938.00
Herbicide					
Hay Pre and Post Herbicide	2	Acre	\$12.00	\$24.00	\$2,400.00
Insecticide					
Insecticide - Alfalfa 1	1	Pint	\$4.12	\$4.12	\$412.00
Gasoline					
Pickup/General Use Equipment	1	Acre	\$4.50	\$4.50	\$450.00
Repairs & Maintenance					
Pickup/General Use Equipment	1	Acre	\$30.00	\$30.00	\$3,000.00
Interest on Credit Line			7.50%	\$17.09	\$1,708.86
Total Variable Costs			-	\$501.05	\$50,105.26
Planned Returns Above Variable Costs:			=	\$278.95	\$27,894.74
Breakeven Price to Cover Variable Costs			\$83.51	Round Bale	+,==
					Enterprise
FIXED COSTS	Quantity	Units	\$/Unit	Total	Total
Machinery Depreciation					
Pickup/General Use Equipment	1	Acre	\$45.83	\$45.83	\$4,582,50
Equipment Investment		-		-/	
Pickup/General Use Equipment	\$395.88	Dollars	6.50%	\$25.73	\$2,573.19
Allocated Establishment Cost	1	Acre	\$55.00	\$55.00	\$5,500.00
Total Fixed Costs	Val			\$126.56	\$12,655,69
Total Specified Costs			1/2	\$627.61	\$62 760 95
				φ027.01	φυ2,700.33
Returns Above Specified Costs				\$152.39	\$15,239.05
Breakeven Price to Cover Total Costs			\$104.60	Round Bale	

ATEXAS A&M GRILIFE EXTENSION



Breakeven Prices – NT Wheat

2022-23

		Example Breakeven Prices			
Example	Example	To Cover	To Cover		
Yield	Yield	Variable	Total		
Percent	Bushel	Costs	Costs		
75%	30.00	\$6.07	\$8.21		
90%	36.00	\$5.06	\$6.85		
100%	40.00	\$4.56	\$6.16		
110%	44.00	\$4.14	\$5.60		
125%	50.00	\$3.64	\$4.93		

		Examp	le Breakeven Prices
Example	Example	To Cover	To Cover
Yield	Yield	Variable	Total
Percent	Bushel	Costs	Costs
75%	30.00	\$6.89	\$8.97
90%	36.00	\$5.74	\$7.48
100%	40.00	\$5.16	\$6.73
110%	44.00	\$4.69	\$6.12
125%	50.00	\$4.13	\$5.38



Breakeven Prices – Coastal Production

2022-23

	Example Breakeven Prices			
Example	Example	To Cover	To Cover	
Yield	Yield	Variable	Total	
Percent	Round Bale	Costs	Costs	
75%	4.50	\$111.35	\$139.47	
90%	5.40	\$92.79	\$116.22	
100%	6.00	\$83.51	\$104.60	
110%	6.60	\$75.92	\$95.09	
125%	7.50	\$66.81	\$83.68	

		Example Breakeven Prices			
Example	Example	To Cover	To Cover		
Yield	Yield	Variable	Total		
Percent	Round Bale	Costs	Costs		
75%	4.50	\$118.12	\$145.36		
90%	5.40	\$98.43	\$121.13		
100%	6.00	\$88.59	\$109.02		
110%	6.60	\$80.53	\$99.11		
125%	7.50	\$70.87	\$87.22		



Breakeven Prices – NT Irrigated Cotton

2022-23

		Example Breakeven Prices			
Example	Example	To Cover	To Cover		
Yield	Yield	Variable	Total		
Percent	Pound	Costs	Costs		
75%	1,053	\$0.75	\$0.94		
90%	1,264	\$0.63	\$0.78		
100%	1,404	\$0.56	\$0.70		
110%	1,544	\$0.51	\$0.64		
125%	1,755	\$0.45	\$0.56		

		Examp	Example Breakeven Prices			
Example	Example	To Cover	To Cover			
Yield	Yield	Variable	Total			
Percent	Pound	Costs	Costs			
75%	1053.00	\$0.74	\$0.91			
90%	1263.60	\$0.61	\$0.76			
100%	1404.00	\$0.55	\$0.68			
110%	1544.40	\$0.50	\$0.62			
125%	1755.00	\$0.44	\$0.55			



Breakeven Prices – NT Dryland Cotton

2022-23

		eakeven Prices	
Example	Example	To Cover	To Cover
Yield	Yield	Variable	Total
Percent	Pound	Costs	Costs
75%	330.00	\$1.08	\$1.26
90%	396.00	\$0.90	\$1.05
100%	440.00	\$0.81	\$0.94
110%	484.00	\$0.74	\$0.86
125%	550.00	\$0.65	\$0.75

		Example Breakeven Prices				
Example	Example	To Cover	To Cover			
Yield	Yield	Variable	Total			
Percent	Pound	Costs	Costs			
75%	330.00	\$1.05	\$1.23			
90%	396.00	\$0.88	\$1.02			
100%	440.00	\$0.79	\$0.92			
110%	484.00	\$0.72	\$0.84			
125%	550.00	\$0.63	\$0.74			



Breakeven Prices – Dryland Sorghum

			Example Breakeven Prices				
	Example	Example	To Cover	To Cover			
c	Yield	Yield	Variable	Total			
5	Percent	CWT	Costs	Costs			
	75%	22.50	\$8.38	\$10.75			
	90%	27.00	\$6.98	\$8.95			
	100%	30.00	\$6.28	\$8.06			
	110%	33.00	\$5.71	\$7.33			
	125%	37.50	\$5.03	\$6.45			

		Exampl	Example Breakeven Prices			
Example	Example	To Cover	To Cover			
Yield	Yield	Variable	Total			
Percent	CWT	Costs	Costs			
75%	22.50	\$8.58	\$10.90			
90%	27.00	\$7.15	\$9.08			
100%	30.00	\$6.43	\$8.18			
110%	33.00	\$5.85	\$7.43			
125%	37.50	\$5.15	\$6.54			

2022-23



Budget and Breakeven Prices

Breakeven Prices to Cover Total Costs							
	80% Wea	80% Weaning Percent		85% Weaning Percent		90% Weaning Percent	
	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	
Cull Cow	999	100	999	94	999	89	
Cull Bull	1,575	118	1,575	111	1,575	105	
Steer Calves	450	229	450	216	450	204	
Heifer Calves	428	224	428	211	428	199	

Breakeven Prices to Cover Total Costs							
	80% Weaning Percent		85% Weaning Percent		90% Weaning Percent		
	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	
Cull Cow	1,110	90	1,110	85	1,110	80	
Cull Bull	1,750	106	1,750	100	1,750	94	
Steer Calves	500	206	500	195	500	184	
Heifer Calves	475	201	475	190	475	179	

Breakeven Prices to Cover Total Costs							
	80% Weaning Percent		85% Weaning Percent		90% Weaning Percent		
	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	Weight	Price (\$/CWT)	
Cull Cow	1,221	82	1,221	77	1,221	73	
Cull Bull	1,925	96	1,925	91	1,925	86	
Steer Calves	550	188	550	177	550	167	
Heifer Calves	523	183	523	172	523	163	



Wheat and Small Grain Decision Aids



Input Cost Management / Resource Optimization





TEXAS A&M

EXTENSION

Figure 1: Monthly Average Fertilizer Nutrient Prices, January 1995 to October 2021.

Source: Compiled from DTN spot market price data for the last trading day of each month. The markets include New Orleans, Corn Belt, Southern Plains, South Central, Southeast and Florida. The phosphorous price is specifically for diammonium phosphate (DAP).



Fertilizer





Chemical





Maximize Profits!

I am an economist, NOT AN AGRONOMIST

Consult with your crop consultant and AgriLife agronomy faculty before making critical input decisions

- The rule of making any input adjustments is balancing Marginal Revenue (MR) and Marginal Cost (MC); rates of change
 MR > MC → Profitable decision
 MR = MC → Point of profit maximization
 MR < MC → Losing profits
- These figures change at different levels of input; eventually reach a max return and even negative return



Managing Input Costs

- Marginal Revenue = Change Rev. / Change Q.
- Marginal Cost = Change Cost/ Change Q.
- Simple fertilizer example
- Price Wheat: 10 \$/bu Cost N: 0.79\$/LB



Price Wheat: 7 \$/bu Cost N: 0.79\$/LB







Resource Optimization / Maximize Profit







Heads



Resource Optimization / Maximize Profit





Resource Optimization / Maximize Profit



Unique for each ranch, each operation

Examples:

Cost Business Structure Business Organization Genetics Forage Production

Budgeting Decision Tools





Enterprise Budget Resources

Available tools:

Texas crop and livestock budgets Spreadsheet budgets – build your own Machinery Cost Estimator

Online search: "AgriLife crop budgets"

https://agecoext.tamu.edu/resources



Available Resources





Texas Crop and Livestock Budgets



Use the menu to the right to navigate through the Extension enterprise budgets. Budgets can be viewed by Extension district or by commodity. For more information email budgets@tamu.edu.

To view a list of counties in each Texas A&M AgriLife Extension district go to this page.



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Budgets by Extension District



• District 12

To view a list of counties in each Texas A&M AgriLife Extension district go to this page.

CROP AND LIVESTOCK BUDGETS
 Texas Crop and Livestock Budgets
 uild Your Own Budgets
 udgets by Extension District

 District 1 – Panhandle
 District 2 – South Plains
 District 3 – Rolling Plains

Social Media

- District 4 North
- District 5 East
- District 6 Far West
- District 7 West Central
- District 8 Central
- District 9 Southeast
- District 10 Southwest
- District 11 Coastal Bend
- District 12 South
- Budgets by Commodity
- Budget Archives 1972-1997

Build your own Budget:

- <u>Spreadsheet Budgets</u>* (<u>Spreadsheet Budget Help Video</u> best viewed in full screen)
- <u>Using The Spreadsheet Budgets</u> (help file)
- <u>Machinery Cost Estimator</u> (calculate your machinery cost)

*Caution: This file may not open in some browsers. If so, download the file to your computer when given the option by your browser, then open the file in Excel. If you still have trouble with the file try downloading this <u>zip file</u> and extracting the Excel file from it.

Forage Crops

- Dryland Alfalfa Establishment
- Coastal Bermudagrass Establishment
- <u>Dryland Alfalfa Hay</u>
- <u>Coastal Bermudagrass Hay Dryland</u>
- Irrigated Alfalfa Establishment
- <u>Irrigated Alfalfa Hay</u>
- Small Grain Grazing

Field Crops

- Dryland Cotton (Solid 40" Rows)
- Cotton Red Till Irrigated
- Conventional Irrigated Cotton
- <u>Cotton No Till Irrigated</u>
- Cotton No Till Cover Crop Wheat Irrigated
- <u>Cotton No Till Dryland</u>
- Irrigated Peanuts
- Dryland Sorghum
- Dryland Wheat
- <u>Dryland Wheat No Till</u>
- Irrigated Wheat
- Organic Wheat Year 3
- Organic Summer Hay Crop
- Organic Wheat Year 1

Livestock

Thank you very much

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https://vernon.tamu.edu/extension-projects/d3-agricultural-economics/ https://agecoext.tamu.edu/resources/decisionaids/beef/





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