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2024 Enterprise Budgets for Missouri Crops and Livestock

Additional MIZZOU Resources for Lenders

Agricultural Lenders School

June 3-6, 2024
Columbia, Missouri

The Agricultural Lenders School is designed to train early to mid-career lenders specializing in financing agriculture. Participants typically work in banks, farm credit associations, agribusinesses, state agencies and finance companies.

Sessions use practical examples to demonstrate concepts focused on issues critical to successful agricultural lending. Speakers use a balance of presentations, exercises and case studies to provide a quality adult learning experience.

Since 2000, the school has successfully trained more than 700 agricultural lenders from a variety of states and lending institutions. The fee for attending is $1,350. Registration will open in January 2024.

This program is sponsored by University of Missouri Extension, Missouri Independent Bankers Association, Missouri Bankers Association and FCS Financial.

No-cost Technical Assistance for Agricultural Producers Starting or Expanding their Business

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MAFFIC

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We work 1-on-1 with producers and maintain a repository of information to support business planning, financial analysis, and marketing.

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Missouri Crop and Livestock Budgets for 2024

https://extension.missouri.edu/programs/agricultural-business-and-policy-extension

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Beef Backgrounding Planning Budget

Using this planning budget, beef backgrounders may estimate their costs and returns for 2024. Table 1 presents estimates for steer calves purchased and backgrounded in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed inputs, feed requirements and machinery investments are summarized in Tables 2, 3, 4 and 5. The production practices used to develop these cost estimates are common in Missouri beef farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri beef steer backgrounding planning budget for 2024.

	Winter backgrounding per steer[1]	Pasture backgrounding per steer[1]	Your estimate
Income			
Market steer sales	2,198.63	2,187.98	
Less death loss (1 percent)	-21.99	-21.88	
Total income	2,176.64	2,166.10	
Operating costs			
Purchased steer	1,663.56	1,784.99	
Pasture (rental rate)	0.00	43.00	
Feed, mineral and stored forage	175.88	88.78	
Labor	44.25	26.55	
Veterinary, drugs and supplies	20.00	17.00	
Marketing and hauling	54.97	54.70	
Machinery and utilities	71.14	31.86	
Livestock facility repair	4.00	1.00	
Professional fees (legal, accounting, etc.)	1.00	1.00	
Miscellaneous	4.00	4.00	
Operating interest	47.29	49.04	
Total operating costs	2,086.09	2,101.91	
Ownership costs			
Depreciation on livestock facilities	3.87	0.62	
Interest on livestock facilities	4.76	0.76	
Insurance and taxes on capital items	5.98	5.15	
Total ownership costs	14.61	6.52	
Total costs	2,100.70	2,108.44	
Income over operating costs	**90.55**	**64.19**	
Income over total costs	**75.94**	**57.66**	
Pounds of gain per steer purchased	216.85	177.25	
Feed cost per pound gain	0.81	0.74	
Breakeven steer price per pound	2.60	2.75	

[1] Totals may not sum due to rounding.

Written by
Adauto Rocha Jr. and **Wesley Tucker,** Agricultural Business and Policy; **Zachary Erwin**, Field Specialist in Livestock

Table 2. Input assumptions used in beef steer winter backgrounding planning budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Steer purchase weight, pounds	590	Steer purchase price, per hundredweight	281.96
Market steer sale weight, pounds	815	Market steer sale price, per hundredweight	269.77
Labor, hours per head	2.5	Labor cost, per hour	17.70
Feeding period, days	105		
Average daily gain, pounds	2.14		

Table 3. Input assumptions used in beef steer pasture backgrounding planning budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Steer purchase weight, pounds	590	Steer purchase price, per hundredweight	302.54
Market steer sale weight, pounds	775	Market steer sale price, per hundredweight	282.32
Labor, hours per head	1.5	Labor cost, per hour	17.70
Feeding period, days	105		
Average daily gain, pounds	1.76		

Table 4. Feed and stored forage in beef steer backgrounding planning budgets for 2024, on a per steer basis.

		Winter backgrounding[1]		Pasture backgrounding[2]	
Feed description	Cost per unit	Pounds	Dollars	Pounds	Dollars
Mixed hay, per ton	165.00	1,053	86.87		
Corn, per bushel	5.00	450	40.18		
Protein supplement, per ton	275.00	270	37.13	525	72.19
Salt and minerals, per ton	1,200.00	18	10.80	27	16.38
Limestone, per hundredweight	10.00	9	0.90	2	0.21
Total		**1,800**	**175.88**	**554**	**88.78**

[1] Winter backgrounding ration assumes 105 days on feed and 2.14 pound average daily gain for a steer.
[2] Pasture backgrounding ration assumes 105 days on feed and 1.76 pound average daily gain for a steer

Table 5. Machinery assumptions used in beef steer backgrounding planning budgets for 2024.

		Winter backgrounding[1]		Pasture backgrounding[2]	
Description	Cost per hour	Hours	Dollars	Hours	Dollars
Tractor; 105 MFWD	53.67	25	1,341.75		
Truck	40.00	20	800.00	10.0	400.00
Livestock trailer	30.00	8	240.00	8.0	240.00
4-wheeler	12.00	40	480.00	52.5	630.00
Total			**2,861.75**		**1,270.00**
Total per steer			**68.14**		**28.86**

[1] Machinery needs for winter backgrounding budget are based on 42 steers.
[2] Machinery needs for pasture backgrounding budget are based on 44 steers.
Abbreviations: MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the Missouri Beef Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates in Missouri.

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Beef Heifer Planning Budget

Using this planning budget, farmers raising beef heifers may estimate their costs and returns for 2024. Table 1 presents estimates for calves purchased and sold later as bred replacement heifers in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed inputs, feed requirements and machinery investments are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common in Missouri beef farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri beef heifer planning budget for 2024.

	Per heifer sold[1]	Your estimate
Income		
Bred heifer sales (0.875 head)	2,187.50	
Cull heifer sales (0.05 head)	133.42	
Yearling heifer sales (0.075 head)	143.03	
Less death loss (1 percent of heifer sales)	-24.64	
Total income	2,439.31	
Operating costs		
Purchased heifer calf	1,557.99	
Pasture	147.08	
Feed, mineral and stored forage	245.32	
Labor	88.50	
Veterinary, drugs and supplies	35.00	
Marketing costs	73.92	
Breeding costs	40.00	
Machinery and utilities	114.83	
Livestock facility repairs	8.50	
Miscellaneous	6.00	
Operating and calf interest	179.14	
Total operating costs	2,496.27	
Ownership costs		
Depreciation on livestock facilities	9.75	
Interest on livestock facilities	12.49	
Insurance and taxes on capital items	22.59	
Total ownership costs	44.83	
Total costs	2,541.10	
Income over operating costs	**-56.96**	
Income over total costs	**-101.79**	
Total cost per head per day (excluding calf price)	2.59	
Total cost per pound of gain	2.25	
Bred heifer breakeven price per head	2,618.10	

[1] Totals may not sum due to rounding.

Written by
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Table 2. Input assumptions used in replacement beef heifer planning budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Heifer purchase weight, pounds	550	Heifer purchase price, per hundredweight	283.27
Yearling cull heifer sale weight, pounds	750	Yearling heifer sale price, per hundredweight	254.28
Heavy cull heifer sale weight, pounds	1,000	Heavy cull heifer sale price, per hundredweight	266.83
Bred heifer sale weight, pounds	1,000	Bred heifer sale price, per head	2,500.00
Labor, hours per head	5	Labor cost, per hour	17.70
Pasture, animal unit months	8.17	Pasture, per animal unit month	18.00

Table 3. Feed and stored forage requirements in replacement beef heifer planning budget for 2024, on a per heifer basis.

		November to May[1]	May to October[2]	October to December[3]		
Feed description	Cost per unit	Pounds	Pounds	Pounds	Total pounds	Dollars[4]
Mixed hay, per ton	165.00	1,250			1,250	103.13
Processed corn, per bushel	5.84	240		90	330	34.41
Protein supplement, per ton	275.00	240		90	330	45.38
Salt and minerals, per ton	1,200.00	49	39	16	104	62.40
Total		**1,779**	**39**	**196**	**2,014**	**245.32**

[1] Beginning weight of 550 pounds and ending weight of 750 pounds after a 170 day feeding period.
[2] Beginning weight of 750 pounds and ending weight of 925 pounds after a 150 day feeding period.
[3] Beginning weight of 925 pounds and ending weight of 1,000 pounds after a 60 day feeding period.
[4] Totals may not sum due to rounding.

Table 4. Machinery assumptions used in replacement beef heifer planning budget for 2024.

Description	Cost per hour	Hours	Total dollars[1]	Dollars attributed to total heifer operation[2]	Dollars per replacement heifer[3]
Tractor; 105 MFWD	53.67	75	2,684	349	47
Truck	40.00	30	600	78	10
Livestock trailer	30.00	8	720	94	12
4-wheeler	12.00	180	2,160	281	37
Total			**6,164**	**801**	**107**

[1] Total machinery costs are based on combined cow-calf and replacement heifer operation.
[2] 13 percent of the total machinery costs for the beef herd are attributed to the heifer operation.
[3] An average of 7.5 replacement heifers are assumed to be raised yearly in a 50 cow herd.
Abbreviations: MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the Missouri Beef Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for a cow-calf (spring or fall calving), heifer or backgrounding (drylot or pasture) operation in Missouri.

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Missouri Beef Cow-Calf Planning Budget

Using this planning budget, beef cow-calf farmers may estimate their costs and returns for 2024. Table 1 presents estimates for a cow-calf operation (50-cow herd size and purchased replacements) in Missouri with either a fall or spring calving season. Assumptions were based on price forecasts as of September 2023. Detailed assumptions and feed requirements are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common in Missouri beef farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri beef cow-calf planning budget for 2024.

	Fall calving	Spring calving	Your estimate
	per cow[1]	per cow[1]	
Income			
Steer calf sales	791.88	775.29	
Heifer calf sales	675.47	662.14	
Cull cow sales	150.00	175.00	
Total income	1,617.35	1,612.44	
Operating costs			
Pasture (rental rate)	198.36	198.36	
Feed, mineral and stored forage	491.85	414.78	
Labor	141.60	141.60	
Veterinary, drugs and supplies	37.50	37.50	
Marketing	40.43	40.31	
Machinery and utility costs	124.58	115.24	
Livestock facility repairs	8.50	8.50	
Cow replacement	325.00	375.00	
Bull cost	35.00	35.00	
Professional fees (legal, accounting, etc.)	1.00	1.00	
Miscellaneous expense	6.00	6.00	
Operating interest	49.18	45.32	
Total operating costs	1,459.01	1,418.61	
Ownership costs			
Depreciation on facilities and equipment	9.10	9.10	
Interest on breeding stock, facilities and equipment	234.85	239.35	
Insurance/taxes on breeding stock and capital items	48.52	49.02	
Total ownership costs	292.47	297.47	
Total costs	1,751.48	1,716.08	
Income over operating costs	**158.35**	**193.83**	
Income over total costs	**-134.12**	**-103.64**	

[1] Totals may not sum due to rounding.

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Table 2. Income assumptions used in Missouri beef cow-calf planning budget for 2024.

Category	Percent	Weight (pounds)	Price per cwt	Calf crop (percent weaned)	Dollars per cow
Fall calving					
Steer	50	590	305.04	88	791.88
Heifers	50	550	279.12	88	675.47
Cull cows	12	1,250	100.00		150.00
Spring calving					
Steer	50	590	309.19	85	775.29
Heifers	50	550	283.27	85	662.14
Cull cows	14	1,250	100.00		175.00

Abbreviations: cwt = hundredweight

Table 3. Other assumptions used in Missouri beef cow-calf planning budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Labor, hours per cow	8	Labor cost, per hour	17.70
Fall calving cows replaced, percent	13	Heifer replacement value, per head	2,500.00
Spring calving cows replaced, percent	15	Bull value, per head	4,000.00

Table 4. Feed requirements in Missouri beef cow-calf planning budget for 2024, on a per cow basis.

	Cost per unit	Cow (units)	Calf (units)	Bull[2] (units)	Total units	Total cost per cow[3]
Fall calving						
Pasture, per animal unit equivalent	18.00	10.5[1]		0.5	11.0	198.36
Harvested forage, per pound	0.08	4,392.0	510.0	240.0	5,142.0	411.36
Protein supplement, per pound	0.1375	180.0		7.2	187.2	25.74
Salt and mineral mix, per pound	0.6	91.3			91.3	54.75
					Total	**690.21**
Spring calving						
Pasture, per animal unit equivalent	18.00	10.5[1]		0.5	11.0	198.36
Harvested forage, per pound	0.08	4,099.5		240.0	4,339.5	347.16
Protein supplement, per pound	0.1375	90.0		3.6	93.6	12.87
Salt and mineral mix, per pound	0.6	91.3			91.3	54.75
					Total	**613.14**

[1] Cow and calf requirements are combined for pasture animal unit equivalents.

[2] Bull feed units are based on 4 percent of its total need being allocated to cow-calf enterprise.

[3] Totals may not sum due to rounding.

Farmers can also customize this budget to fit their own operations by using the Missouri Beef Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for a cow-calf (spring or fall calving), heifer or backgrounding (drylot or pasture) operation in Missouri.

The publication revises and replaces MU Extension publications G679, Southern Missouri Beef Cow-Calf Planning Budget, and G680, Northern Missouri Beef Cow-Calf Planning Budget

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Yearling Beef Steer Feeding Planning Budget

Using this planning budget, beef cattle producers may estimate their costs and returns for 2024. Table 1 presents estimates for yearling steers purchased in November 2023 and sold in April 2024 in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed assumptions and feed requirements are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common in Missouri beef farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri yearling beef steer feeding planning budget.

	Per steer sold[1]	Your estimate
Income		
Market steer sales	2,632.50	
Less death loss (2 percent)	-52.65	
Total income	2,579.85	
Operating costs		
Purchased steer calf	1,907.10	
Purchased feed	493.69	
Labor	35.40	
Veterinary, drugs and supplies	11.75	
Marketing	64.50	
Machinery and feed preparation	67.40	
Utilities	6.00	
Facility and equipment repair	11.00	
Professional fees	1.00	
Miscellaneous	1.00	
Operating interest	115.35	
Total operating costs	2,714.18	
Ownership costs		
Depreciation on facilities and equipment	4.50	
Interest on facilities and equipment	6.00	
Insurance and taxes on capital items	7.13	
Total ownership costs	17.63	
Total costs	2,731.81	
Income over operating costs	**-134.33**	
Income over total costs	**-151.96**	

[1] Totals may not sum due to rounding.

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Table 2. Assumptions in Missouri yearling beef steer feeding planning budget.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Steer purchase weight, pounds	750	Steer purchase price, per hundredweight	254.28
Market steer sale weight, pounds	1,350	Market steer sale price, per hundredweight	195.00
Labor, hours per head	2	Labor cost, per hour	17.70
Operating interest, percent	9		

Table 3. Feed requirements per steer in Missouri yearling beef steer feeding planning budget.

Feed description	Unit	Percent	Cost per unit	Total pounds[1]	Dollars
Corn, per bushel	bushel	52.25	5	2,508	223.92
Dried distiller grains	ton	34.00	240	1,632	195.84
Mixed hay	ton	12.00	165	576	47.52
Limestone	ton	1.00	200	48	4.80
Salt and additives, per ton	ton	0.75	1,200	36	21.60
Total		**100.00**		**4,800**	**493.69**

[1]Ration assumes 180 days on feed and 3.33 pound average daily gain for a steer.

Table 4. Machinery assumptions used in Missouri yearling beef steer feeding planning budget.

Description	Cost per hour	Hours	Dollars
Tractor; 105 MFWD	53.27	90	4,830.30
Grinder/mixer wagon	15.00	90	1,350.00
Pickup	40.00	8	320.00
Stock trailer	30.00	8	240.00
Total			**6,740.30**
Total per steer[1]			**67.40**

[1] Machinery needs are based on 100 fed steers.
Abbreviations: MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the Missouri Beef Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for a beef cattle operation in Missouri.

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Feeder Pigs Planning Budget

Using this budget, farmers can estimate the costs and returns associated with feeder pig production. Table 1 presents estimates for a confinement feeder pig operation in Missouri producing 23 pigs per sow per year and selling 22 feeder pigs at 40 pounds each. Assumptions were based on price forecasts as of October 2023. Detailed assumptions and feed requirements are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri swine farms. Use the "Your estimate" column to estimate your operation's costs and returns for 2024.

Table 1. Missouri feeder pigs planning budget for 2024.

	Per sow[1]	Your estimate
Income		
Feeder pigs sold (22 head)	1,196.32	
Cull sows sold (0.5 head)	101.20	
Manure value	71.21	
Total income	**1,368.72**	
Operating costs		
Purchased feed	463.78	
Feed processing	26.41	
Labor	235.95	
Veterinary and medicine	96.77	
Replacement gilts	113.30	
Semen and genetics	28.60	
Utilities and fuel	50.87	
Facility repair and maintenance	48.21	
Marketing and miscellaneous	19.67	
Operating interest	27.58	
Total operating costs	**1,111.13**	
Ownership costs		
Taxes and insurance	16.19	
Machinery and equipment	198.38	
Interest on breeding stock	18.54	
Total ownership costs	**233.11**	
Total costs	**1,344.24**	
Income over operating costs	**257.59**	
Income over total costs	**24.48**	

[1] Totals may not sum due to rounding.

Written by
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Scott Brown, Associate Extension Professor, Agricultural Business and Policy Extension
Tim Safranski, Professor, Animal Sciences

Table 2. Assumptions used in Missouri feeder pigs budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Feeder pig sale weight, pounds	40	Feeder pig sale price, hundredweight	135.00
Cull sow sale weight, pounds	400	Cull sow price, hundredweight	50.00
Replacement gilt weight, pounds	200	Replacement gilt price, per gilt	206.00
Labor, hours/sow	12.1	Labor rate, per hour	19.50
Weaned pigs/sow/year	23.3	Feed processing, per ton	15.50
Operating interest, percent	9.0	Manure value, $ per 1,000 gallons	48.44
Feeder pig death loss, percent	2.5		
Sow/gilt death loss, percent	8.0		

Table 3. Annual feed requirements for the Missouri feeder pigs budget for 2024.

Feed description	Pounds per sow	Dollars per pound	Total per sow
Corn	2,586	0.09	230.89
Soybean meal	605	0.21	124.03
Dried distillers grain with solubles	91	0.12	10.51
Vitamin and mineral supplement	54	0.50	27.00
Nursery pellets	49	0.40	19.60
Other feed additives	23	2.25	51.75
Total	**3,408**		**463.78**

Farmers can also customize this budget to fit their own operations by using the Missouri Swine Budget Generator (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx). Download the spreadsheet tool to create a copy of your cost and return estimates for raising feeder pigs in Missouri.

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Farrow to Finish Swine Planning Budget

Using this budget, farmers raising hogs from farrow to finish can plan their costs and returns in 2024. Table 1 presents estimates for a confinement farrow to finish operation in Missouri producing 23 pigs per sow per year and selling 22 market hogs at 280 pounds. Assumptions were based on price forecasts as of October 2023. Detailed assumptions and feed requirements are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri swine farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri farrow to finish swine planning budget for 2024.

	Per sow[1]	Your estimate
Income		
Market hogs sold (22 head)	4,010.81	
Cull sows sold (0.5 head)	101.20	
Manure value	242.30	
Total income	**4,354.31**	
Operating costs		
Purchased feed	1,541.87	
Feed processing	111.93	
Labor	257.40	
Veterinary and medicine	244.47	
Replacement gilts	113.30	
Semen and genetics	28.60	
Utilities and fuel	175.07	
Facility repair and maintenance	217.09	
Marketing and miscellaneous	133.06	
Operating interest	124.29	
Total operating costs	**2,947.08**	
Ownership costs		
Taxes and insurance	54.75	
Machinery and equipment	1,005.88	
Interest on breeding stock	18.54	
Total ownership costs	**1,079.18**	
Total costs	**4,026.26**	
Income over operating costs	**1,407.23**	
Income over total costs	**328.05**	

[1] Totals may not sum due to rounding.

Written by
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Scott Brown, Associate Extension Professor, Agricultural Business and Policy Extension
Tim Safranski, Professor, Animal Sciences

Table 2. Assumptions used in Missouri hog finishing budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Feeder pig purchase weight, pounds	40	Feeder pig purchase price, hundredweight	135.00
Market hog weight, pounds	280	Market hog sale price, hundredweight	63.00
Labor, hours/pig	0.17	Labor rate, per hour	19.50
Operating interest, percent	9.0	Feed processing, per ton	15.50
Death loss, percent	2.5		

Table 3. Feed requirements used in Missouri hog finishing budget for 2024.

Feed description	Pounds per pig	Dollars per pound	Dollars per lot of 100 hogs
Corn	500	0.09	4,464.29
Soybean meal	90	0.21	1,845.00
Dried distillers grain with solubles	30	0.12	346.50
Vitamin and mineral supplement	10	0.40	400.00
Total	**630**		**7,055.79**

Farmers can also customize this budget to fit their own operations by using the Missouri Swine Budget Generator (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx). Download the spreadsheet tool to create a copy of your cost and return estimates for finishing hogs in Missouri.

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Hog Finishing Planning Budget

Using this budget, farmers can estimate the costs and returns of finishing hogs in Missouri. Table 1 presents estimates for a confinement hog finishing operation in Missouri that purchases 103 head of 40 pound pigs and sells 100 head of 280 pound market hogs. Assumptions were based on price forecasts as of October 2023. Detailed assumptions and feed requirements are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri swine farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri hog finishing budget for 2024.

	Per lot of 100 hogs[1]	Your estimate
Income		
Market hogs sold (100 head)	17,640.00	
Manure value	495.54	
Total income	**18,135.54**	
Operating costs		
Purchased pigs	5,535.00	
Purchased feed	7,055.79	
Feed processing	488.25	
Labor	331.50	
Veterinary and medicine	640.80	
Utilities and fuel	679.20	
Facility/equipment repair and maintenance	342.24	
Marketing and miscellaneous	420.96	
Operating interest	280.68	
Total operating costs	**15,774.42**	
Ownership costs		
Taxes and insurance	273.60	
Machinery and equipment	2,648.16	
Total ownership costs	**2,921.76**	
Total costs	**18,696.18**	
Income over operating costs	**2,361.12**	
Income over total costs	**-560.64**	
Breakeven selling price for operating costs per hundredweight	54.46	
Breakeven selling price for total costs per hundredweight	65.00	

[1] Totals may not sum due to rounding.

Written by
Adauto Rocha, Assistant Extension Professor, Agricultural Business and Policy Extension
Scott Brown, Associate Extension Professor, Agricultural Business and Policy Extension
Tim Safranski, Professor, Animal Sciences

Table 2. Assumptions used in Missouri farrow to finish budget for 2024.

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Market hog sale weight, pounds	280	Market hog sale price, hundredweight	63.00
Cull sow sale weight, pounds	400	Cull sow price, hundredweight	50.00
Replacement gilt weight, pounds	200	Replacement gilt price, per gilt	206.00
Labor, hours/sow	13.2	Labor rate, per hour	19.50
Weaned pigs/sow/year	23.3	Feed processing, per ton	15.50
Manure production, 1,000 gallons	4.8	Manure value, per 1,000 gallons	50.48
Operating interest, percent	9.0		
Market hog death loss, percent	5.0		
Sow/gilt death loss, percent	8.0		

Table 3. Annual feed requirements for the Missouri farrow to finish budget for 2024.

Feed description	Pounds per sow	Dollars per pound	Total per sow
Corn	12,900	0.09	1,151.79
Soybean meal	1,020	0.21	209.10
Dried distillers grain with solubles	300	0.12	34.65
Vitamin and mineral supplement	150	0.50	75.00
Nursery pellets	49	0.40	19.59
Other feed additives	23	2.25	51.75
Total	**14,442**		**1,541.87**

Farmers can also customize this budget to fit their own operations by using the Missouri Swine Budget Generator (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx). Download the spreadsheet tool to create a copy of your cost and return estimates for raising hogs from farrow to finish in Missouri.

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Dairy (Confinement) Planning Budget

Using this planning budget, dairy farmers may estimate their costs and returns for 2023. Table 1 presents estimates for a 150-cow confinement dairy (replacements raised on farm) in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed inputs, feed requirements and investments are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common for Missouri confinement dairies. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri dairy (confinement) planning budget for 2024.

	20,000 pounds milk sold		25,000 pounds milk sold		Your estimate
	Dollars per cow[1]	Dollars per cwt[1]	Dollars per cow[1]	Dollars per cwt[1]	
Income					
Milk sales	3,999.96	20.00	5,000.00	20.00	
Government payments	100.00	0.50	125.00	0.50	
Bull and surplus heifer sales	125.00	0.63	125.00	0.50	
Cull cow sales	430.65	2.15	430.65	1.72	
Total income	4,655.60	23.28	5,680.65	22.72	
Operating costs					
Feed	2,850.89	14.25	3,178.40	12.71	
Labor	646.55	3.23	646.55	2.59	
Veterinary, drugs and supplies	120.00	0.60	125.00	0.50	
Utilities and water	65.00	0.33	80.00	0.32	
Fuel, oil and vehicle	90.00	0.45	90.00	0.36	
Milk hauling and promotion	300.00	1.50	375.00	1.50	
Building and equipment repair	266.85	1.33	266.85	1.07	
Breeding/genetic charges	57.00	0.29	57.00	0.23	
Professional fees (legal, accounting, etc.)	12.00	0.06	12.00	0.05	
Miscellaneous and DMC premiums	28.40	0.14	35.50	0.14	
Operating interest	186.15	0.93	202.11	0.81	
Total operating costs	4,622.84	23.11	5,068.41	20.27	
Ownership costs					
Depreciation on buildings and equipment	469.99	2.35	469.99	1.88	
Interest on land, buildings and equipment	380.60	1.90	380.60	1.52	
Interest on breeding stock	157.50	0.79	157.50	0.63	
Insurance/tax on capital items	138.01	0.69	138.01	0.55	
Total ownership costs	1,146.10	5.73	1,146.10	4.58	
Total costs	**5,768.93**	**28.84**	**6,214.51**	**24.86**	
Income over operating costs	**32.77**	**0.16**	**612.24**	**2.45**	
Income over total costs	**-1,113.33**	**-5.57**	**-533.86**	**-2.14**	

[1] Totals may not sum due to rounding.
Abbreviations: cwt = hundredweight

Written by
Adauto Rocha Jr. and **Ryan Milhollin**, Agricultural Business and Policy; **Reagan Bluel** and **Chloe Collins**, Field Specialists in Dairy

Table 2. Input assumptions used in dairy (confinement) planning budget for 2024.

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull cow sale weight, pounds	1,450	Cull cow sale price, per hundredweight	110
Labor, cows per worker	70	Annual labor salary and benefits, per worker	52,500
Calf crop, percent	95	Average bull calf sale price, per head	225
Heifer replacement, percent	33	Average surplus heifer calf sale price, per head	125
Operating interest, percent	9	Milk price, per hundredweight	20

Table 3. Feed requirements used in dairy (confinement) planning budget for 2024, on a per cow basis.

		20,000 pounds milk sold		24,000 pounds milk sold	
Feed description	**Cost per unit**	**Pounds**	**Dollars[2]**	**Pounds**	**Dollars[2]**
Corn silage, per ton	58.50	12,223	357.53	14,416	421.68
Alfalfa baleage, per ton	138.00	3,741	258.13	5,296	365.41
Corn, ground, per bushel	5.85	3,470	362.50	3,658	382.08
Alfalfa hay, per ton	320.00	1,708	273.25	1,934	309.46
Whole cotton seed, per ton	320.00	1,675	268.05	1,897	303.56
Soybean hulls, per ton	225.00	1,125	126.52	752	84.59
Soybean meal, per ton	495.00	1,095	270.96	1,354	335.23
Distillers grain, dry, per ton	240.00	1,005	120.62	949	113.84
Grass hay, per ton	165.00	914	75.36	914	75.36
Minerals/vitamins, per ton	1,250.00	577	360.66	656	409.91
Total lactating and dry cow feed cost			2,473.60		2,801.11
Replacement heifer feed and forage cost[1]			377.29		377.29
Total feed cost per cow			**2,850.89**		**3,178.40**

[1] Total replacement heifer (0 to 24 months) feed cost is $1,143.30 and was adjusted to a 33% heifer replacement rate.

[2] Totals may not sum due to rounding.

Table 4. Investment assumptions in dairy (confinement) planning budget for 2024.

Description	Quantity	Dollars per unit	Total dollars	Dollars per cow[2]
Land, acres	4	4,500	18,000	119
Milking parlor, stalls	12	35,000	420,000	2,785
Breeding herd, cows	150	1,750	263,900	1,400
Free stall barn, stalls	130	3,000	390,000	2,586
Land improvements			5,000	33
Feed storage			77,743	516
Manure storage system			130,000	862
Equipment			109,000	723
Total[1]			**1,413,643**	**9,374**

[1] Totals may not sum due to rounding.

[2] Represents total cows in herd.

Farmers can also customize this budget to fit their own operations by using the Missouri Dairy Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for dairy production and heifer raising in Missouri.

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Dairy (Grazing) Planning Budget

Using this planning budget, dairy farmers may estimate their costs and returns for 2024. Table 1 presents estimates for a 150-cow rotational grazing dairy (replacements raised on farm) in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed inputs, feed requirements and investments are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common for Missouri grazing dairies. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri dairy (grazing) planning budget for 2024.

	11,000 pounds milk sold		14,000 pounds milk sold		Your estimate
	Dollars per cow[1]	Dollars per cwt[1]	Dollars per cow[1]	Dollars per cwt[1]	
Income					
Milk sales	2,200.05	20.00	2,800.06	20.00	
Government payments	55.00	0.50	70.00	0.50	
Bull and surplus heifer sales	141.25	1.28	141.25	1.01	
Cull cow sales	217.80	1.98	217.80	1.56	
Total income	2,614.10	23.76	3,229.11	23.06	
Operating costs					
Feed	1,265.64	11.51	1,365.55	9.75	
Labor	437.50	3.98	437.50	3.12	
Veterinary, drugs and supplies	90.00	0.82	100.00	0.71	
Utilities and water	60.00	0.55	60.00	0.43	
Fuel, oil and vehicle	70.00	0.64	70.00	0.50	
Milk hauling and promotion	165.00	1.50	210.00	1.50	
Building and equipment repair	201.82	1.83	201.82	1.44	
Breeding/genetic charges	57.00	0.52	57.00	0.41	
Professional fees (legal, accounting, etc.)	12.00	0.11	12.00	0.09	
Miscellaneous and DMC premiums	15.62	0.14	19.88	0.14	
Operating interest	99.43	0.90	104.57	0.75	
Total operating costs	2,474.01	22.49	2,638.33	18.84	
Ownership costs					
Depreciation on buildings and equipment	136.97	1.25	136.97	0.98	
Interest on land, buildings and equipment	535.50	4.87	535.50	3.82	
Interest on breeding stock	157.50	1.43	157.50	1.12	
Insurance/taxes on capital items	68.56	0.62	68.56	0.49	
Total ownership costs	898.53	8.17	898.53	6.42	
Total costs	**3,372.54**	**30.66**	**3,536.86**	**25.26**	
Income over operating costs	**140.09**	**1.27**	**590.79**	**4.22**	
Income over total costs	**-758.45**	**-6.89**	**-307.75**	**-2.20**	

[1] Totals may not sum due to rounding.
Abbreviations: cwt = hundredweight

Written by
Adauto Rocha Jr. and **Ryan Milhollin**, Agricultural Business and Policy; **Reagan Bluel** and **Chloe Collins**, Field Specialists in Dairy

Table 2. Input assumptions used in dairy (grazing) planning budget for 2024.

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull cow sale weight, pounds	1,100	Cull cow sale price, per hundredweight	110
Labor, cows per worker	100	Annual labor salary and benefits, per worker	52,500
Calf crop, percent	95	Average bull calf sale price, per head	225
Heifer replacement, percent	20	Average surplus heifer calf sale price, per head	125
Operating interest, percent	9	Milk price, per hundredweight	20

Table 3. Feed requirements in dairy (grazing) planning budget for 2024, on a per cow basis.

		11,000 pounds milk sold		14,000 pounds milk sold	
Feed description	**Cost per unit**	**Pounds**	**Dollars[2]**	**Pounds**	**Dollars[2]**
Pasture (intensive dairy), dry matter per ton	100.00	7,335	366.77	7,658	382.88
Alfalfa hay, per ton	320.00	1,289	206.30	1,289	206.30
Corn, cracked, per bushel	5.85	910	95.06	1,384	144.61
Soybean hulls, per ton	225.00	910	102.38	1,068	120.16
Distillers grain, dry, per ton	240.00	791	94.86	949	113.84
Grass hay, per ton	165.00	670	55.27	639	52.75
Minerals/vitamins, per ton	1,250.00	186	116.34	186	116.34
Total lactating and dry cow feed cost			1,036.98		1,136.89
Replacement heifer feed and forage cost[1]			228.66		228.66
Total feed cost per cow			**1,265.64**		**1,365.55**

[1] Total replacement heifer (0 to 24 months) feed cost is $1,143.30 and was adjusted to a 20% heifer replacement rate.

[2] Totals may not sum due to rounding.

Table 4. Investment assumptions in dairy (grazing) planning budget for 2024.

Description	Quantity	Dollars per unit	Total dollars	Dollars per cow[2]
Land, acres	200	4,500	900,000	5,000
Milking parlor, stalls	24	8,000	192,000	1,067
Breeding herd, cows	180	1,750	315,000	1,750
Working facility			17,060	95
Feed storage			14,350	80
Manure storage system			37,500	208
Equipment			50,000	278
Total[1]			**1,525,910**	**8,477**

[1] Totals may not sum due to rounding.

[2] Represents total cows in herd.

Farmers can also customize this budget to fit their own operations by using the Missouri Dairy Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for dairy production and heifer raising in Missouri.

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Dairy Heifer Planning Budget

Using this planning budget, farmers raising dairy heifers may estimate their costs and returns for 2024. Table 1 presents estimates for dairy calves purchased at birth, bred and sold at 24 months in Missouri. Assumptions were based on price forecasts as of September 2023. Detailed inputs, feed requirements and investments are summarized in Tables 2, 3 and 4. The production practices used to develop these cost estimates are common in Missouri. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri dairy heifer planning budget for 2024.

	Per heifer sold[1]	Your estimate
Income		
Springer heifer sales (0.95 head)	1,662.50	
Cull heifer sales (0.025 head)	35.75	
Yearling heifer sales (0.025 head)	19.94	
Less death loss (4 percent) of purchased calves	-2.00	
Total income	1,716.19	
Operating costs		
Purchased heifer calf and interest	59.36	
Feed (birth to 24 months of age)	1,143.30	
Labor	177.00	
Veterinary, drugs and supplies	25.00	
Breeding costs for artificial insemination services	47.50	
Transportation and marketing	20.00	
Utilities, fuel and oil	20.00	
Building and equipment repairs	10.50	
Miscellaneous	18.00	
Operating interest	65.76	
Total operating costs	1,586.41	
Ownership costs		
Depreciation on buildings and equipment	55.80	
Interest on buildings and equipment	51.98	
Insurance and taxes on buildings and equipment	15.53	
Total ownership costs	123.30	
Total costs	**1,709.71**	
Income over operating costs	**129.77**	
Income over total costs	**6.47**	
Total cost per day per heifer sold	2.29	
Total cost per pound of gain per heifer sold	1.38	
Springer heifer breakeven price per head	1,743.19	

[1] Totals may not sum due to rounding.

Written by
Adauto Rocha Jr. and **Ryan Milhollin**, Agricultural Business and Policy; **Reagan Bluel** and **Chloe Collins**, Field Specialists in Dairy

Table 2. Input assumptions used in dairy heifer planning budget for 2024.

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull heifer sale weight, pounds	1,300	Cull heifer sale price, per hundredweight	110.00
Yearling heifer sale weight, pounds	725	Yearling heifer sale price, per hundredweight	110.00
Labor, hours	10	Springer heifer sale price, per head	1,750.00
		Labor cost, per hour	17.70
		Heifer purchase price	50.00

Table 3. Feed requirements for dairy heifer planning budget for 2024.

Birth to 6 months (90 to 400 pounds)		Pre-weaning ration (90 to 180 pounds)		Transition ration (180 to 235 pounds)		Early growing ration (235 to 400 pounds)	
Feed description	**Cost per unit**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**
Milk replacer, per pound	1.4400	50	72.00				
Calf starter, per pound	0.3100	100	31.00	100	31.00		
Alfalfa hay, per pound	0.1600	20	3.20	90	14.40	225	36.00
Calf grower, per pound	0.2900			50	14.50	450	130.50
Grass hay, per pound	0.0825					225	18.56
Pasture, per animal unit month	18.0000					0.4	7.35
Feed cost per period			**106.20**		**59.90**		**192.41**
Total feed costs[2]			**358.51**				
6 to 12 months (400 to 725 pounds)		**Winter ration**		**Spring/Fall ration**		**Summer ration**	
Feed description	**Cost per unit**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**
Corn gluten feed, per pound	0.1150	525	60.38			270	31.05
Corn, cracked, per pound	0.1045	387	40.43	252	26.33	234	24.44
Soybean hulls, per pound	0.1125	263	29.53	360	40.50	270	30.38
Grass hay, per pound	0.0825	1,350	111.38				
Mineral, per pound	0.6000	36	21.60	36	21.60	36	21.60
Pasture, per animal unit month	18.0000			1.1	20.25	1.7	30.38
Feed cost per period			**263.31**		**120.60**		**1**
Average total feed costs			**309.25**				
12 to 24 months (725 to 1,380 pounds)		**Winter ration**		**Spring/Fall ration**		**Summer ration**	
Feed description	**Cost per unit**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**	**Units**	**Dollars[1]**
Corn gluten feed, per pound	0.1150	225	25.88			207	23.81
Corn, cracked, per pound	0.1045	135	14.10	90	9.40	117	12.22
Soybean hulls, per pound	0.1125	90	10.13	180	20.25	207	23.29
Grass hay, per pound	0.0825	1,710	141.08				
Mineral, per pound	0.6000	18	10.80	18	10.80	18	10.80
Pasture, per animal unit month	18.0000			2.1	37.89	3.2	56.84
Feed cost per period			**201.98**		**78.34**		**126.95**
Average total feed costs[3]			**485.61**				

[1] Totals may not sum due to rounding.

[2] Feed cost adjusted to account for death loss (4 percent).

[3] Feed cost adjusted to account for sale of yearling heifers (2.5 percent).

Farmers can also customize this budget by using the Missouri Dairy Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx). Download the spreadsheet to keep an electronic copy of your cost and return estimates for dairy production and heifer raising.

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Goats (Early Kidding) Planning Budget

Table 1. Missouri meat goat planning budget for 2024: Early kidding, sell at weaning (50 does, 157% kidding rate).

	Head per doe	Quantity	Unit	Dollars per unit	Dollars per doe	Dollars per enterprise
Returns						
Heavy kids	0.42	60	pound	2.84	71.57	3,578.40
Light kids	1.08	50	pound	2.99	161.46	8,073.00
Culled does	0.16	125	pound	1.60	28.00	1,400.00
Culled bucks	0.02	175	pound	1.55	5.43	271.25
Total returns					266.45	13,322.65
Operating costs						
Doe replacement	0.16		head	210.00	33.60	1,680.00
Buck cost, breeding supplies	0.04		head	270.00	6.40	320.00
Pasture		0.74	acre	32.55	18.56	928.13
Hay		435	pounds	0.080	34.85	1,742.31
Supplement		59	pounds	0.107	6.28	314.05
Mineral		4.4	pounds	0.50	4.43	221.39
Animal health					6.45	322.59
Guard dog replacement and food					12.07	603.61
Bedding and stock supplies					3.25	162.50
Marketing					19.98	999.20
Machinery fuel, lube, repair					14.03	701.48
Facility maintenance					3.90	195.00
Operating interest		9.0	percent		7.30	364.78
Operator and hired labor		2.87	hour	17.70	50.80	2,539.95
Total operating costs					221.90	11,094.99
Ownership costs						
Business overhead (professional fees, utilities, miscellaneous)					4.50	225.00
Property taxes and insurance					3.51	175.60
Economic depreciation, facility and equipment					21.12	1,056.17
Opportunity interest on capital investment		5.0	percent		26.33	1,316.63
Total ownership costs					55.47	2,773.39
Total costs					277.37	13,868.38
Return over operating costs					**44.55**	**2,227.66**
Return over total costs					**-10.91**	**-545.73**
Return to labor and management					39.88	1,994.22
Shutdown kid price, all else equal, $ per pound					2.38	
Breakeven kid price, all else equal, $ per pound					3.08	

Written by
Jennifer Lutes, Field Specialist, Agricultural Business

Table 2. Budgeted production rates for 2024.

Rates	Quantity
Kiddings, per doe per year	1
Doe numbers, start of breeding season	50
Bucks for breeding	2
Kid crop (live birth per exposed), percent	157
Kid crop (raised to sale weight), percent	150
Adult death loss, percent	2
Kid death loss, pre-weaning, percent	3
Kid death loss, post-weaning, percent	3

Table 3. Enterprise feed and labor estimates for 2024.

	Unit	Units per head, adults	Units per head, kids	Total units per doe	Weighted price (dollars per unit)	Total dollars per doe
Pasture	acre	0.38	0.23	0.74	32.55	24.17
Hay	pound	418.6	0.0	435.0	0.08	34.85
Supplement	pound	55.0	1.0	58.7	0.107	6.28
Mineral	pound	8.0	0.3	8.9	0.5	4.43
Labor	hour	2.0	0.5	2.87	17.70	50.80

Table 4. Enterprise land and capital investment estimates for 2024.

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per doe
Breeding stock unit	doe	50	266	13,305	266
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			Total	**34,605**	**692**

Note: Building and machinery investment for the farm is allocated across multiple enteprises.

The meat goat budget is designed to reflect the economic costs and returns of a 50 doe, winter kidding herd (December and January) with kids marketed between 50 to 60 pounds in April. This management system takes advantage of seasonally high market prices for weaned kids. However, this management system has relatively high production risk due to summer breeding challenges and winter kidding. Farmers can also customize this budget to fit their own operations by using the Missouri Meat Goat Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EarlyKiddingGoatBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for meat goats in Missouri.

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Goats (Late Kidding) Planning Budget

Table 1. Missouri meat goat planning budget for 2024: Late kidding, sell at weaning (50 does, 167% kidding rate).

	Head per doe	Quantity	Unit	Dollars per unit	Dollars per doe	Dollars per enterprise
Returns						
Heavy kids	0.38	60	pound	2.34	53.35	2,667.60
Light kids	1.20	50	pound	2.38	142.80	7,140.00
Culled does	0.16	125	pound	1.50	26.25	1,312.50
Culled bucks	0.02	175	pound	1.70	5.95	297.50
Total returns					228.35	11,417.60
Operating costs						
Doe replacement	0.16		head	210.00	33.60	1,680.00
Buck cost, breeding supplies	0.04		head	270.00	6.40	320.00
Pasture		0.77	acre	32.51	19.14	956.88
Hay		432.0	pound	0.08	34.56	1,728.24
Supplement		59.0	pound	0.107	6.32	315.80
Mineral		4.4	pound	0.50	4.44	222.13
Animal health					6.49	324.34
Guard dog replacement and food					12.07	603.61
Bedding and stock supplies					3.25	162.50
Marketing		7.5	percent		17.13	856.32
Machinery fuel, lube, repair					14.03	701.48
Facility maintenance					3.90	195.00
Operating interest		9.0	percent		7.32	366.06
Operator and hired labor		2.92	hour	17.70	51.68	2,584.20
Total operating costs					220.33	11,016.55
Ownership costs						
Business overhead (professional fees, utilities, miscellaneous)					4.50	225.00
Property taxes and insurance					3.51	175.60
Economic depreciation, facility and equipment					21.12	1,056.17
Opportunity interest on capital investment		5.0	percent		26.33	1,316.63
Total ownership costs					55.47	2,773.39
Total costs					275.80	13,789.94
Return over operating costs					**8.02**	**401.05**
Return over total costs					**-47.45**	**-2,372.34**
Return to labor and management					4.24	211.86
Shutdown kid price, all else equal, $ per pound					2.27	
Breakeven kid price, all else equal, $ per pound					2.94	

Written by
Jennifer Lutes, Field Specialist, Agricultural Business

Table 2. Budgeted production rates for 2024.

Rates	Quantity
Kiddings, per doe per year	1
Doe numbers, start of breeding season	50
Bucks for breeding	2
Kid crop (live birth per exposed), percent	167
Kid crop (raised to sale weight), percent	158
Adult death loss, percent	2
Kid death loss, pre-weaning, percent	3
Kid death loss, post-weaning, percent	3

Table 3. Enterprise feed and labor estimates for 2024.

	Unit	Units per head, adults	Units per head, kids	Total units per doe	Weighted price (dollars per unit)	Total dollars per doe
Pasture	acre	0.38	0.23	0.77	32.51	24.89
Hay	pound	415.2	0.0	432.0	0.08	34.56
Supplement	pound	55.0	1.0	58.8	0.107	6.32
Mineral	pound	8.0	0.3	8.9	0.50	4.44
Labor	hour	2.0	0.5	2.92	17.70	51.68

Table 4. Enterprise land and capital investment estimates for 2024.

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per doe
Breeding stock unit	doe	50	266	13,305	266
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			Total	**34,605**	**692**

Note: Building and machinery investment is allocated across multiple enteprises.

The meat goat budget is designed to reflect the economic costs and returns of a 50 doe, spring kidding herd (March and April) with kids marketed between 50 to 60 pounds in July/August. This management system takes advantage of spring forage production and the natural breeding season. However, this management system has high price risk during summer marketing. Farmers can also customize this budget to fit their own operations by using the Missouri Meat Goat Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension /Docs/LateKiddingGoatBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for meat goats in Missouri.

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Sheep (Early Lambing) Planning Budget

Table 1. Missouri hair sheep planning budget for 2024: Early lambing, sell following January (50 ewes, 175% lambing rate).

	Head per ewe	Quantity	Unit	Dollars per unit	Dollars per ewe	Dollars per enterprise
Returns						
Heavy lambs	0.30	95	pound	1.95	55.58	2,778.75
Light lambs	1.36	85	pound	2.10	242.76	12,138.00
Culled ewes	0.14	120	pound	1.30	18.72	936.00
Culled rams	0.02	170	pound	1.15	3.91	195.50
Total returns					320.97	16,048.25
Operating costs						
Ewe replacement	0.14		head	200.00	28.00	1,400.00
Ram cost, breeding supplies	0.04		head	350.00	8.00	400.00
Pasture		0.79	acre	35.00	19.66	982.75
Hay		451.0	pound	0.08	36.00	1,799.95
Supplement		67.0	pound	0.14	9.43	471.27
Mineral		6.6	pound	0.50	6.57	328.70
Animal health					5.82	291.16
Guard dog replacement and food					12.07	603.61
Bedding and stock supplies					3.25	162.50
Marketing		7.5	percent		24.07	1,203.62
Machinery fuel, lube, repair					14.03	701.48
Facility maintenance					3.90	195.00
Operating interest		9.0	percent		7.76	388.09
Operator and hired labor		4.53	hour	17.70	80.15	4,007.28
Total operating costs					258.71	12,935.41
Ownership costs						
Business overhead (professional fees, utilities, miscellaneous)					4.50	225.00
Property taxes and insurance					3.51	175.60
Economic depreciation, facility and equipment					21.12	1,056.17
Opportunity interest on capital investment		5.0	percent		24.49	1,224.38
Total ownership costs					53.62	2,681.14
Total costs					312.33	15,616.56
Return over operating costs					**62.26**	**3,112.84**
Return over total costs					**8.63**	**431.69**
Return to labor and management					88.78	4,438.97
Shutdown lamb price, all else equal, $ per pound					1.64	
Breakeven lamb price, all else equal, $ per pound					2.01	

Written by
Jennifer Lutes, Field Specialist, Agricultural Business

Table 2. Budgeted production rates for 2024.

Rates	Quantity
Lambings, per ewe per year	1
Ewe numbers, start of breeding season	50
Rams for breeding	2
Lamb crop (live birth per exposed), percent	175
Lamb crop (raised to sale weight), percent	166
Adult death loss, percent	2
Lamb death loss, pre-weaning, percent	3
Lamb death loss, post-weaning, percent	2

Table 3. Enterprise feed and labor estimates for 2024.

	Unit	Units per head, adults	Units per head, lambs	Total units per ewe	Weighted price (dollars per unit)	Total dollars per ewe
Pasture	acre	0.380	0.23	0.79	35.00	27.52
Hay	pound	433.5	0.0	451.0	0.080	36.00
Supplement	pound	55.0	6.0	67.3	0.140	9.43
Mineral	pound	8.0	9.6	13.1	0.50	6.57
Labor	hour	3.0	0.8	4.53	17.70	80.15

Table 4. Enterprise land and capital investment estimates for 2024.

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per ewe
Breeding stock unit	ewe	50	229	11,460	229
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			Total	**32,760**	**655**

Note: Building and machinery investment for the farm is allocated across multiple enteprises.

The sheep budget is designed to reflect the economic costs and returns of a 50 ewe, winter lambing flock (December/January) with lambs marketed between 85 and 95 pounds in the following January. This management system takes advantage of expected seasonally high market prices for lambs. However, this management system also has relatively high production risk due to summer breeding challenges and winter lambing. Farmers can also customize this budget to fit their own operations by using the Missouri Sheep Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EweEarlyLambingBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for sheep in Missouri.

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Sheep (Late Lambing) Planning Budget

Table 1. Missouri hair sheep planning budget for 2024: Late lambing, sell following January (50 ewes, 170% lambing rate).

	Head per ewe	Quantity	Unit	Dollars per unit	Dollars per ewe	Dollars per enterprise
Returns						
Heavy lambs	0.28	75	pound	2.30	48.30	2,415.00
Light lambs	1.32	65	pound	2.55	218.79	10,939.50
Culled ewes	0.14	120	pound	1.30	18.72	936.00
Culled rams	0.02	170	pound	1.15	3.91	195.50
Total returns					289.72	14,486.00
Operating costs						
Ewe replacement	0.14		head	200.00	28.00	1,400.00
Ram cost and breeding supplies	0.04		head	350.00	8.00	400.00
Pasture		0.77	acre	35.00	19.37	968.38
Hay		464.0	pound	0.08	37.09	1,854.50
Supplement		64.0	pound	0.129	8.33	416.72
Mineral		5.8	pound	0.50	5.84	292.05
Animal health					5.80	290.11
Guard dog replacement and food					12.07	603.61
Bedding and stock supplies					3.25	162.50
Marketing		7.5	percent		21.73	1,086.45
Machinery fuel, lube, repair					14.03	701.48
Facility maintenance					3.90	195.00
Operating interest		9.0	percent		7.69	384.58
Operator and hired labor		4.48	hour	17.70	79.30	3,964.80
Total operating costs					254.40	12,720.17
Ownership costs						
Business overhead (professional fees, utilities, miscellaneous)					4.50	225.00
Property taxes and insurance					3.51	175.60
Economic depreciation, facility and equipment					21.12	1,056.17
Opportunity interest on capital investment		5.0	percent		24.49	1,224.38
Total ownership costs					53.62	2,681.14
Total costs					308.03	15,401.31
Return over operating costs					**35.32**	**1,765.83**
Return over total costs					**-18.31**	**-915.31**
Return to labor and management					60.99	3,049.49
Shutdown lamb price, all else equal, $ per pound					2.17	
Breakeven lamb price, all else equal, $ per pound					2.67	

Written by
Jennifer Lutes, Field Specialist, Agricultural Business

Table 2. Budgeted production rates for 2024.

Rates	Quantity
Lambings, per ewe per year	1
Ewe numbers, start of breeding season	50
Rams for breeding	2
Lamb crop (live birth per exposed), percent	170
Lamb crop (raised to sale weight), percent	160
Adult death loss, percent	2
Lamb death loss, pre-weaning, percent	3
Lamb death loss, post-weaning, percent	2

Table 3. Enterprise feed and labor estimates for 2024.

	Unit	Units per head, adults	Units per head, lambs	Total units per ewe	Weighted price (dollars per unit)	Total dollars per ewe
Pasture	acre	0.380	0.230	0.77	35.00	27.11
Hay	pound	446.6	0.0	464.0	0.08	37.09
Supplement	pound	55.0	4.4	64.4	0.129	8.33
Mineral	pound	8.0	5.3	11.7	0.50	5.84
Labor	hour	3.0	0.8	4.48	17.70	79.30

Table 4. Enterprise land and capital investment estimates for 2024.

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per ewe
Breeding stock unit	ewe	50	229	11,460	229
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			Total	**32,760**	**655**

Note: Building and machinery investment for the farm is allocated across multiple enteprises.

The sheep budget is designed to reflect the economic costs and returns of a 50 ewe, spring lambing flock (March/April) with lambs marketed between 65 to 75 pounds the following January. This management system takes advantage of spring forage production and the fall breeding season. Farmers can also customize this budget to fit their own operations by using the Missouri Sheep Enterprise Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EweLateLambingBudget.xlsx). Download the spreadsheet tool to keep an electronic copy of your cost and return estimates for sheep in Missouri.

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Corn (Dryland) Planning Budget

Using this planning budget, corn farmers may estimate their costs and returns for 2024. Table 1 presents estimates for dryland corn grain production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri corn (dryland) planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grain sales	779.52	
Other income	0.00	
Total income	779.52	
Operating costs		
Seed	99.38	
Fertilizer and soil amendments	162.53	
Crop protection chemicals	95.30	
Crop supplies, storage, and marketing	3.00	
Crop consulting and insurance	33.00	
Custom hire and rental	7.25	
Machinery fuel, drying, and irrigation energy	55.09	
Machinery repairs and maintenance	33.04	
Management	23.39	
Operating interest	23.04	
Total operating costs	535.01	
Ownership costs		
Farm business overhead	7.80	
Machinery ownership	102.49	
Real estate charge	185.00	
Total ownership costs	295.29	
Total costs	830.30	
Income over operating costs	**244.51**	
Income over total costs	**-50.78**	
Return to land and management	**157.61**	
Operating costs per bushel	3.18	
Ownership costs per bushel	1.76	
Total costs per bushel	4.94	

[1] Totals may not sum due to rounding.

Written by
Ben Brown, Senior Research Associate, Agricultural Business and Policy
Juo-Han Tsay, Assistant Extension Professor, Agricultural Business and Policy

Table 2 shows input assumptions for the dryland corn budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in corn (dryland) planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	168	Corn market price, per bushel	4.64
Seeding rate, count	30,000	Seed, per 80,000 seed bag	265.00
Nitrogen rate, pounds	170	Nitrogen, per pound N	0.46
Phosphorus rate, pounds P_2O_5	77	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	49	Potassium, per pound K_2O	0.41
Lime rate, tons	0.60	Lime, per ton	27.50
Sum of allocated labor, hours	0.69	Skilled labor, per hour	25.00
		Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in corn (dryland) planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Field cultivator (35 ft); 360 HP 4WD	0.06	1.01	6.34	9.00	15.34	1
Tandem disk (30 feet); 360 HP 4WD	0.06	1.00	7.66	12.89	20.55	1
Row crop planter (16 row); 225 HP MFWD	0.08	0.78	7.82	17.10	24.92	1
Boom sprayer (90 feet); 130 HP MFWD	0.03	0.14	1.48	5.19	6.67	2
Anhydrous applicator (21 feet); 225 HP MFWD	0.12	1.11	10.39	10.86	21.25	1
Combine, corn head (8 row); 275 HP	0.15	1.78	28.22	24.89	53.11	1
Grain cart (500 bushel); 225 HP MFWD	0.16	0.56	4.93	7.09	12.02	
Grain auger (5,000 bushels per hour); 130 MFWD	0.03	0.19	1.81	1.36	3.17	
10-wheeler		1.50	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**0.69**	**9.47**	**88.13**	**102.49**	**190.62**	**7**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: 4WD = 4-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for corn and other crops in Missouri.

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Corn (Irrigated) Planning Budget

Using this planning budget, corn farmers may estimate their costs and returns for 2024. Table 1 presents estimates for irrigated corn grain production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri corn (irrigated) planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grain sales	1,020.80	
Other income	0.00	
Total income	1,020.80	
Operating costs		
Seed	106.00	
Fertilizer and soil amendments	200.96	
Crop protection chemicals	79.30	
Crop supplies, storage, and marketing	6.00	
Crop consulting and insurance	33.00	
Custom hire and rental	7.25	
Machinery fuel, drying, and irrigation energy	151.91	
Machinery repairs and maintenance	23.34	
Management	30.62	
Operating interest	28.73	
Total operating costs	667.11	
Ownership costs		
Farm business overhead	9.50	
Machinery ownership	184.95	
Real estate charge	185.00	
Total ownership costs	379.45	
Total costs	1,046.56	
Income over operating costs	**353.69**	
Income over total costs	**-25.76**	
Return to land and management	**189.86**	
Operating costs per bushel	3.03	
Ownership costs per bushel	1.72	
Total costs per bushel	4.76	

[1] Totals may not sum due to rounding.

Written by
Ben Brown, Senior Research Associate, Agricultural Business and Policy
Juo-Han Tsay, Assistant Extension Professor, Agricultural Business and Policy

Table 2 shows input assumptions for the irrigated corn budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in corn (irrigated) planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	220	Corn market price, per bushel	4.64
Seeding rate, count	32,000	Seed, per 80,000 seed bag	265.00
Nitrogen rate, pounds N	215	Nitrogen, per pound N	0.46
Phosphorus rate, pounds P_2O_5	97	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	62	Potassium, per pound K_2O	0.41
Lime rate, tons	0.6	Lime, per ton	27.50
Sum of allocated labor, hours	1.52	Skilled labor, per hour	25.00
Irrigation, inches	6	Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in corn (irrigated) planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Field cultivator (35 ft); 360 HP 4WD	0.06	1.01	6.34	9.00	15.34	1
Tandem disk (21 feet); 360 HP 4WD	0.06	1.00	7.66	12.89	20.55	1
Row crop planter (16 row); 225 HP MFWD	0.08	0.08	7.82	17.10	24.92	1
Boom sprayer (90 feet); 130 HP MFWD	0.03	0.14	1.48	5.19	6.67	2
Anhydrous applicator (21 feet); 225 HP MFWD	0.12	1.11	10.39	10.86	21.25	1
Combine, corn head (8 row); 275 HP	0.15	1.78	28.22	24.89	53.11	1
Grain cart (500 bushel); 225 HP MFWD	0.16	0.56	4.93	7.09	12.02	
Grain auger (5,000 bushels per hour); 130 HP MFWD	0.03	0.19	1.81	1.36	3.17	
Irrigation	0.50		87.12	82.46	169.58	
10-wheeler		1.50	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**1.19**	**8.77**	**175.25**	**184.95**	**360.20**	**7**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: 4WD = four wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for corn and other crops in Missouri.

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Corn Silage Planning Budget

Using this planning budget, farmers growing corn silage can estimate their costs and returns for 2024. Table 1 presents estimates for corn silage production in Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri corn silage planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Silage sales	864.00	
Other income	0.00	
Total income	864.00	
Operating costs		
Seed	95.63	
Fertilizer and soil amendments	191.96	
Crop protection chemicals	72.63	
Crop supplies, storage, and marketing	10.00	
Custom hire and rental	187.02	
Machinery fuel	8.39	
Machinery repairs and maintenance	16.80	
Operator and hired labor	14.55	
Operating interest	26.86	
Total operating costs	623.84	
Ownership costs		
Farm business overhead	29.68	
Machinery ownership	49.96	
Real estate charge	155.21	
Total ownership costs	234.85	
Total costs	858.69	
Income over operating costs	**240.16**	
Income over total costs	**5.31**	
Operating costs per ton, as-fed basis	34.66	
Ownership costs per ton, as-fed basis	13.05	
Total costs per ton, as-fed basis	47.70	

[1] Totals may not sum due to rounding.

Written by
Ryan Milhollin, Assistant Extension Professor, Agricultural Business and Policy
Drew Kientzy, Research Analyst, Agricultural Business and Policy
C. Tim Schnakenberg, Field Specialist in Agronomy

Table 2 shows input assumptions for the corn silage budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in corn silage planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, tons, as-fed basis	18	Corn silage market price, per ton	48.00
Seeding rate, corn	26,000	Seed, per 80,000 seed bag	255.00
Nitrogen rate, pounds	184	Nitrogen, per pound N	0.46
Phosphorus rate, pounds P_2O_5	59	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	139	Potassium, per pound K_2O	0.41
Lime rate, tons	0.5	Lime, per ton	27.50
Sum of allocated labor, hours	0.84	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in corn silage planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Boom sprayer - pull type (90 feet), 130 HP MFWD	0.03	0.14	1.49	5.19	20.05	3
Anhydrous applicator (21 feet), 160 HP MFWD	0.12	0.79	9.07	7.61	16.68	1
Field cultivator (24 feet),160 HP MFWD	0.06	0.45	4.15	5.07	9.22	2
Row crop planter (30 feet), 130 HP MFWD	0.08	0.45	6.39	14.71	21.10	1
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					7.02	1
Silage chopping, custom charge					180.00	
Total[3]	**0.34**	**2.10**	**31.08**	**49.96**	**268.07**	**7**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.
[2] Machinery ownership cost is the sum of machinery overhead and depreciation.
[3] Totals may not sum due to rounding.
Abbreviations: MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for corn silage and other forages in Missouri. For corn grown for grain, customized budgets can be created using the Missouri Crop Budget Tool (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx).

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Soybean (Dryland) Planning Budget

Using this planning budget, soybean farmers may estimate their costs and returns for 2024. Table 1 presents estimates for dryland soybean production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri soybean (dryland) planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grain sales	615.45	
Other income	0.00	
Total income	615.45	
Operating costs		
Seed	56.00	
Fertilizer and soil amendments	75.07	
Crop protection chemicals	66.00	
Crop supplies, storage, and marketing	4.00	
Crop consulting and insurance	20.00	
Custom hire and rental	7.25	
Machinery fuel, drying, and irrigation energy	35.99	
Machinery repairs and maintenance	27.95	
Management	18.46	
Operating interest	13.98	
Total operating costs	324.71	
Ownership costs		
Farm business overhead	5.60	
Machinery ownership	66.17	
Real estate charge	185.00	
Total ownership costs	256.77	
Total costs	581.48	
Income over operating costs	**290.74**	
Income over total costs	**33.97**	
Return to land and management	**237.44**	
Operating costs per bushel	5.90	
Ownership costs per bushel	4.67	
Total costs per bushel	10.57	

[1] Totals may not sum due to rounding.

Written by
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Table 2 shows input assumptions for the dryland soybean budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in soybean (dryland) planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	55	Soybean market price, per bushel	11.19
Seeding rate, count	140,000	Seed, per 150,000 seed bag	60.00
Phosphorus rate, pounds P_2O_5	46	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	80	Potassium, per pound K_2O	0.41
Lime rate, tons	0.5	Lime, per ton	27.50
Sum of allocated labor, hours	0.35	Skilled labor, per hour	25.00
		Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in soybean (dryland) planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Field cultivator (35 feet); 360 HP 4WD	0.06	1.01	6.34	9.00	15.34	1
Row crop planter (16 row); 225 HP MFWD	0.08	0.78	7.82	17.10	24.92	1
Boom sprayer (90 feet); 130 HP MFWD	0.03	0.14	1.48	5.19	13.34	2
Combine, flexible grain head (25 feet); 275 HP	0.15	1.79	27.01	19.41	46.42	1
Grain auger (5,000 bushels per hour); 130 HP MFWD	0.03	0.19	1.81	1.36	3.17	
10-wheeler		1.50	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**0.35**	**6.81**	**63.94**	**66.17**	**130.11**	**5**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: 4WD = 4-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for soybeans and other crops in Missouri.

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Soybean (Double Crop) Planning Budget

Using this planning budget, soybean farmers may estimate their costs and returns for 2024. Table 1 presents estimates for double crop soybeans (after wheat) production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri soybean (double crop) planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grain sales	391.65	
Other income	0.00	
Total income	391.65	
Operating costs		
Seed	72.00	
Fertilizer and soil amendments	38.89	
Crop protection chemicals	45.00	
Crop supplies, storage, and marketing	0.00[2]	
Crop consulting and insurance	0.00	
Custom hire and rental	0.00[2]	
Machinery fuel, drying, and irrigation energy	30.45	
Machinery repairs and maintenance	25.67	
Management	11.75	
Operating interest	10.06	
Total operating costs	233.83	
Ownership costs		
Farm business overhead	3.92	
Machinery ownership	51.98	
Real estate charge	0.00[2]	
Total ownership costs	55.90	
Total costs	289.73	
Income over operating costs	**157.82**	
Income over total costs	**101.92**	
Return to land and management	**113.67**	
Operating costs per bushel	6.68	
Ownership costs per bushel	1.60	
Total costs per bushel	8.28	

[1] Totals may not sum due to rounding.

[2] These expenses were charged to wheat production since soybeans were planted in the same year wheat was harvested.

Written by
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Table 2 shows input assumptions for the double crop soybean budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge was not included but could be allocated between the soybean and wheat crops.

Table 2. Input assumptions used in soybean (double crop) planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	35	Soybean market price, per bushel	11.19
Seeding rate, count	180,000	Seed, per 150,000 seed bag	60.00
Phosphorus rate, pounds P_2O_5	29	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	51	Potassium, per pound K_2O	0.41
Sum of allocated labor, hours	0.29	Skilled labor, per hour	25.00
		Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in soybean (double crop) planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Row crop planter (16 row); 225 HP MFWD	0.08	0.78	7.82	17.10	24.92	1
Boom sprayer (90 feet); 130 HP MFWD	0.03	0.14	1.48	5.19	13.34	2
Combine, flexible grain head (30 feet); 275 HP	0.15	1.79	27.01	19.41	46.42	1
Grain auger (5,000 bushels per hour); 130 HP MFWD	0.03	0.19	1.81	1.36	3.17	
10-wheeler		1.50	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**0.29**	**5.80**	**56.12**	**51.98**	**114.77**	**4**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: 4WD = 4-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for soybeans and other crops in Missouri.

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Winter Wheat Planning Budget

Using this planning budget, wheat farmers may estimate their costs and returns for 2024. Table 1 presents estimates for winter wheat (for grain) production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri winter wheat planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income per acre		
Grain sales	503.75	
Other income	0.00	
Total income	503.75	
Operating costs		
Seed	80.00	
Fertilizer and soil amendments	105.40	
Crop protection chemicals	19.50	
Crop supplies, storage, and marketing	4.00	
Crop consulting and insurance	17.00	
Custom hire and rental	14.50	
Machinery fuel, drying, and irrigation energy	36.42	
Machinery repairs and maintenance	26.76	
Management	15.11	
Operating interest	14.34	
Total operating costs	333.03	
Ownership costs		
Farm business overhead	5.04	
Machinery ownership	60.51	
Real estate charge	145.00	
Total ownership costs	210.55	
Total costs	543.58	
Income over operating costs	**170.72**	
Income over total costs	**-39.83**	
Return to land and management	**120.28**	
Operating costs per bushel	5.12	
Ownership costs per bushel	3.24	
Total costs per bushel	8.36	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the winter wheat budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in winter wheat planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	65	Wheat market price, per bushel	7.75
Seeding rate, 50 pound bag	100	Seed, per bag	40.00
Nitrogen rate, pounds N	95	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	42	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	21	Potassium, per pound K_2O	0.41
Lime rate, tons	0.5	Lime, per ton	27.50
Sum of allocated labor, hours	0.38	Skilled labor, per hour	25.00
		Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in winter wheat planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
No-till drill (15 feet); 225 HP MFWD	0.17	1.71	14.88	25.63	40.51	1
Boom sprayer (90 feet); 130 HP MFWD	0.03	0.14	1.48	5.19	6.67	1
Combine, flexible grain head (25 feet); 275 HP	0.15	1.79	27.01	19.41	46.42	1
Grain auger (5,000 bushels per hour); 130 HP MFWD	0.03	0.19	1.81	1.36	3.17	
10-wheeler		1.50	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**0.38**	**6.73**	**63.18**	**60.51**	**123.69**	**3**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.
[2] Machinery ownership cost is the sum of machinery overhead and depreciation.
[3] Totals may not sum due to rounding.
Abbreviations: MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for winter wheat and other crops in Missouri.

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Grain Sorghum Planning Budget

Using this planning budget, sorghum farmers may estimate their costs and returns for 2024. Table 1 presents estimates for grain sorghum production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common for Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri grain sorghum planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grain sales	477.75	
Other income	0.00	
Total income	477.75	
Operating costs		
Seed	10.80	
Fertilizer and soil amendments	90.70	
Crop protection chemicals	34.00	
Crop supplies, storage, and marketing	2.50	
Crop consulting and insurance	16.37	
Custom hire and rental	7.50	
Machinery fuel, drying, and irrigation energy	38.17	
Machinery repairs and maintenance	22.18	
Management	14.33	
Operating interest	10.64	
Total operating costs	247.19	
Ownership costs		
Farm business overhead	6.25	
Machinery ownership	61.73	
Real estate charge	145.00	
Total ownership costs	212.98	
Total costs	460.17	
Income over operating costs	**230.56**	
Income over total costs	**17.58**	
Return to land and management	**176.92**	
Operating costs per bushel	2.35	
Ownership costs per bushel	2.03	
Total costs per bushel	4.38	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the grain sorghum budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in grain sorghum planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	105	Grain sorghum market price, per bushel	4.55
Seeding rate, count	90,000	Seed, per 750,000 seed bag	90.00
Nitrogen rate, pounds N	90	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	36	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	25	Potassium, per pound K_2O	0.41
Lime rate, tons	0.2	Lime, per ton	27.50
Sum of allocated labor, hours	0.81	Skilled labor, per hour	25.00
		Farm diesel, per gallon	4.00

Table 3 details the field activities assumed in this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in grain sorghum planning budget for 2024, on a per acre basis.

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Tandem disk (21 feet); 360 4WD	0.08	1.43	9.15	15.20	24.35	0.3
Row crop planter (16 row); 225 MFWD	0.08	0.78	7.82	17.10	24.92	1
Boom sprayer (90 feet); 130 MFWD	0.03	0.14	1.48	5.19	6.67	2
Combine, flexible grain head (25 feet); 275 HP	0.15	1.79	27.01	19.41	46.42	1
Grain auger (5,000 bushels per hour); 130 HP MFWD	0.03	0.19	1.81	1.36	3.17	
10-wheeler		1.5	7.56	1.98	9.54	
Semi, tractor and trailer		1.07	8.09	4.52	12.61	
Pickup truck		0.33	2.35	2.42	4.77	
Total[3]	**0.37**	**7.23**	**60.35**	**61.73**	**122.08**	**4.3**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: 4WD = 4-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Crop Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for grain sorghum and other crops in Missouri.

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Alfalfa Establishment Planning Budget

Using this planning budget, farmers establishing alfalfa can estimate their costs and returns for 2024. Table 1 presents estimates for the establishment of Roundup Ready® alfalfa in Missouri. Assumptions were based on price conditions as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Farmers are encouraged to modify this budget based on their circumstances. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri alfalfa establishment planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Hay sales (60 pound bales)	594.00	
Other income	0.00	
Total income	594.00	
Operating costs		
Seed	131.25	
Fertilizer and soil amendments	146.40	
Crop protection chemicals	62.49	
Crop supplies, storage, and marketing	10.00	
Custom hire and rental	73.44	
Machinery fuel	26.00	
Machinery repairs and maintenance	24.19	
Operator and hired labor	42.81	
Operating interest	23.25	
Total operating costs	539.83	
Ownership costs		
Farm business overhead	21.66	
Machinery ownership	89.73	
Real estate charge	120.72	
Total ownership costs	232.11	
Total costs	771.93	
Income over operating costs	**54.17**	
Income over total costs	**-177.93**	

[1] Totals may not sum due to rounding.

Written by
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Table 2 shows input assumptions for alfalfa establishment and small bale production. Price estimates reflect prices out-of-the-field. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in alfalfa establishment planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, 60 pound bales	66	Alfalfa market price, per bale	9.00
Seeding rate, pounds	15	Alfalfa seed, per pound	8.75
Phosphorus rate, pounds P_2O_5	70	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	50	Potassium, per pound K_2O	0.41
Lime rate, tons	3	Lime, per ton	27.50
Sum of allocated labor, hours	2.47	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in alfalfa establishment planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Chisel plow (16 feet), 160 HP MFWD	0.12	0.94	7.50	9.83	17.33	1
Tandem disk (21 feet), 160 HP MFWD	0.08	0.63	6.06	9.63	15.69	1
Cultimulcher (21 feet), 160 HP MFWD	0.08	0.63	5.43	9.51	14.94	1
Presswheel drill (16 feet), 105 HP MFWD	0.16	0.75	7.61	9.02	16.63	1
Boom sprayer - pull-type (90 feet), 160 HP MFWD	0.03	0.17	1.65	5.23	13.75	2
Disk mower/conditioner (12 feet), 105 HP MFWD	0.14	0.67	6.52	10.15	33.33	2
Hay rake (20 feet), 75 HP TWD	0.07	0.23	2.35	1.78	8.26	2
Small square baler, 105 HP MFWD	0.15	0.70	8.37	5.21	27.16	2
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					14.04	2
Accumulate/stack/haul small square bales (mechanical collection), custom charge					59.40	
Total[3]	**1.22**	**6.50**	**71.36**	**89.73**	**234.53**	**14**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: TWD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for alfalfa and other forages in Missouri.

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Alfalfa Baleage Planning Budget

Using this planning budget, farmers growing alfalfa for baleage can estimate their costs and returns for 2024. Establishment costs for alfalfa can be found in MU Extension publication, G661, Alfalfa Establishment Planning Budget (extension.missouri.edu/g661). Table 1 presents estimates for established Roundup Ready® alfalfa baleage production in Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop this budget are common in Missouri. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri alfalfa baleage planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Baleage sales	1,015.20	
Other income	0.00	
Total income	1,015.20	
Operating costs		
Seed	0.00	
Fertilizer and soil amendments	125.40	
Crop protection chemicals	62.49	
Crop supplies, storage, and marketing	15.00	
Custom hire and rental	162.54	
Machinery fuel	25.42	
Machinery repairs and maintenance	53.03	
Operator and hired labor	28.74	
Operating interest	21.27	
Total operating costs	493.89	
Ownership costs		
Farm business overhead	21.66	
Machinery ownership	100.51	
Real estate charge	120.72	
Total ownership costs	242.89	
Total costs	736.78	
Income over operating costs	**521.31**	
Income over total costs	**278.42**	
Operating costs per ton, as fed	54.88	
Ownership costs per ton, as fed	26.99	
Total costs per ton, as fed	81.86	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the alfalfa baleage budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in alfalfa baleage planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, tons, as fed	9	Market price, per ton	112.80
Phosphorus rate, pounds P_2O_5	70	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	200	Potassium, per pound K_2O	0.41
Sum of allocated labor, hours	1.66	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in alfalfa baleage planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Boom sprayer - pull type (90 feet), 130 HP MFWD	0.03	0.14	1.49	5.19	13.37	2
Disk mower-conditioner (12 feet), 130 HP MFWD	0.14	0.83	7.40	11.79	76.76	4
Hay rake (30 feet), 75 HP TWD	0.04	0.16	1.64	1.68	13.27	4
Round baler with net wrap, 130 HP MFWD	0.09	0.53	13.10	7.31	81.65	4
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					14.04	2
Move round bales on farm, custom charge					58.50	
Tube wrap round bales (with wrap), custom charge					90.00	
Total[3]	**1.16**	**6.35**	**98.53**	**100.51**	**361.59**	**16**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.
[2] Machinery ownership cost is the sum of machinery overhead and depreciation.
[3] Totals may not sum due to rounding.
Abbreviations: TWD = 2-wheel drive tractor; MFWD = Mechanical front wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for alfalfa and other forages in Missouri.

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Alfalfa Small Bales Planning Budget

Using this planning budget, farmers growing alfalfa can estimate their costs and returns associated with producing small square bales in 2024. Establishment costs for alfalfa can be found in MU Extension publication G661, Alfalfa Establishment Planning Budget (extension.missouri.edu/g661). Table 1 presents estimates for established Roundup Ready® alfalfa with small bale production. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Farmers are encouraged to modify this budget based on their circumstances. For example, an alfalfa large round bale planning budget could be developed by modifying machinery activities and hay sales. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri alfalfa small bales planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Hay sales (60 pound bales)	1,350.00	
Other income	0.00	
Total income	1,350.00	
Operating costs		
Seed	0.00	
Fertilizer and soil amendments	125.40	
Crop protection chemicals	62.49	
Crop supplies, storage, and marketing	15.00	
Custom hire and rental	149.04	
Machinery fuel	27.89	
Machinery repairs and maintenance	27.56	
Operator and hired labor	45.12	
Operating interest	20.36	
Total operating costs	472.87	
Ownership costs		
Farm business overhead	21.66	
Machinery ownership	95.34	
Real estate charge	120.72	
Total ownership costs	237.71	
Total costs	710.58	
Income over operating costs	**877.13**	
Income over total costs	**639.42**	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the alfalfa small bales budget. Price estimates reflect harvest time prices out-of-the-field. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in alfalfa small bales planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, 60 pound bales	150	Alfalfa market price, per bale	9.00
Phosphorus rate, pounds P_2O_5	70	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	200	Potassium, per pound K_2O	0.41
Sum of allocated labor, hours	2.61	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in alfalfa small bales planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Boom sprayer - pull-type (90 feet), 130 HP MFWD	0.03	0.14	1.49	5.19	13.37	2
Disk mower/conditioner (12 feet), 130 HP MFWD	0.14	0.83	7.40	11.79	76.76	4
Hay tedder (16 feet), 75 HP TWD	0.06	0.22	2.14	2.72	9.72	2
Hay rake (20 feet), 75 HP TWD	0.07	0.23	2.35	1.78	16.52	4
Small square baler, 75 HP TWD	0.15	0.50	7.50	4.56	48.24	4
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					14.04	2
Accumulate/stack/haul small square bales (mechanical collection), custom charge					135.00	
Total[3]	**1.61**	**6.97**	**83.27**	**95.34**	**327.64**	**18**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: TWD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for alfalfa and other forages in Missouri.

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Cool Season Pasture Establishment Planning Budget

Using this budget, farmers establishing cool season pasture can estimate their costs and returns for 2024. Table 1 presents estimates for cool season pasture establishment in Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri cool season pasture establishment planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Grazing	36.00	
Other income	0.00	
Total income	36.00	
Operating costs		
Seed, tall fescue and red clover	44.00	
Fertilizer and soil amendments	85.65	
Crop protection chemicals	20.48	
Crop supplies, storage, and marketing	5.00	
Custom hire and rental	21.25	
Machinery fuel	7.21	
Machinery repairs and maintenance	14.47	
Operator and hired labor	22.66	
Operating interest	9.93	
Total operating costs	230.66	
Ownership costs		
Farm business overhead	8.84	
Machinery ownership	35.19	
Real estate charge	39.04	
Total ownership costs	83.08	
Total costs	313.73	
Income over operating costs	**-194.66**	
Income over total costs	**-277.73**	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the cool season pasture establishment budget. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in cool season pasture establishment planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Pasture yield, animal unit month	2	Pasture price, per animal unit month	18.00
Seeding rate, pounds tall fescue	10	Tall fescue seed, per pound	2.00
Seeding rate, pounds clover	8	Clover seed, per pound	3.00
Nitrogen rate, pounds N	30	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	35	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	45	Potassium, per pound K_2O	0.41
Lime rate, tons	1	Lime, per ton	27.50
Sum of allocated labor, hours	1.31	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in cool season pasture establishment planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
No-till drill (15 feet), 130 HP MFWD	0.17	0.99	11.73	20.36	32.09	1
Rotary mower (15 feet); 130 HP MFWD	0.13	0.81	8.31	7.83	16.14	1
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					14.50	2
Crop chemical application, custom charge					6.75	1
Total[3]	**0.31**	**1.80**	**27.04**	**35.19**	**83.48**	**5**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.
[2] Machinery ownership cost is the sum of machinery overhead and depreciation.
[3] Totals may not sum due to rounding.
Abbreviations: MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for forages in Missouri.

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Fescue - Clover Hay Planning Budget

Using this planning budget, farmers growing hay can estimate their costs and returns for 2024. Table 1 presents estimates for established tall fescue and clover hay production in Missouri. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri hay planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Hay	300.00	
Grazing	18.00	
Other income	0.00	
Total income	318.00	
Operating costs		
Seed	0.00	
Fertilizer and soil amendments	102.87	
Crop protection chemicals	0.00	
Crop supplies, storage, and marketing	15.00	
Custom hire and rental	31.63	
Machinery fuel	5.93	
Machinery repairs and maintenance	18.06	
Operator and hired labor	14.24	
Operating interest	8.45	
Total operating costs	196.17	
Ownership costs		
Farm business overhead	21.66	
Machinery ownership	21.37	
Real estate charge	39.04	
Total ownership costs	82.07	
Total costs	278.24	
Income over operating costs	**121.83**	
Income over total costs	**39.76**	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the tall fescue and clover hay budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in hay planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Hay yield, tons, 10% moisture	3	Hay price, per ton	100.00
Pasture yield, animal unit month	1	Pasture price, per animal unit month	18.00
Nitrogen rate, pounds N	60	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	46	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	60	Potassium, per pound K_2O	0.41
Lime rate, tons	0.50	Lime, per ton	27.50
Sum of allocated labor, hours	0.82	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in hay planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Disk mower (9 feet), 105 HP MFWD	0.19	0.90	8.39	6.43	14.83	1
Hay rake (30 feet), 75 HP TWD	0.04	0.16	1.64	1.68	3.32	1
Round baler, net wrap (30 feet); 105 HP MFWD	0.09	0.43	12.54	6.26	18.80	1
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					7.25	1
Move round bales on farm, custom charge					24.38	
Total[3]	**0.32**	**1.48**	**29.57**	**21.37**	**82.57**	**4**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

[2] Machinery ownership cost is the sum of machinery overhead and depreciation.

[3] Totals may not sum due to rounding.

Abbreviations: TWD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for forages in Missouri.

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Fescue Seed and Forage Planning Budget

Using this planning budget, farmers growing fescue for seed and forage can estimate their costs and returns for 2024. Table 1 presents estimates for established fescue used for seed, hay and grazing purposes. Assumptions were based on price forecasts as of October 2023. Detailed prices and practices are summarized in Tables 2 and 3. The production practices used to develop these cost estimates are common on Missouri farms. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri fescue seed and forage planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Fescue seed	225.00	
Fescue hay	300.00	
Fescue pasture	18.00	
Other income	0.00	
Total income	543.00	
Operating costs		
Seed	0.00	
Fertilizer and soil amendments	115.35	
Crop protection chemicals	0.00	
Crop supplies, storage, and marketing	10.00	
Custom hire and rental	76.13	
Machinery fuel	5.93	
Machinery repairs and maintenance	18.06	
Operator and hired labor	18.57	
Operating interest	10.98	
Total operating costs	255.01	
Ownership costs		
Farm business overhead	8.84	
Machinery ownership	14.37	
Real estate charge	39.04	
Total ownership costs	62.25	
Total costs	317.26	
Income over operating costs	**287.99**	
Income over total costs	**225.74**	

[1] Totals may not sum due to rounding.

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Table 2 shows input assumptions for the fescue seed and forage budget. Price estimates reflect harvest time prices. Costs or returns from storage or other marketing methods are not included. No income from government programs are added. Farm business overhead includes liability insurance, utilities, accounting, etc. Real estate charge is an estimated rental rate for above average land.

Table 2. Input assumptions used in fescue seed and forage planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Hay yield, tons	3	Hay price, per ton	100.00
Seed yield, pounds	300	Seed price, per pound	0.75
Pasture yield, animal unit month	1	Pasture price, per animal unit month	18.00
Nitrogen rate, pounds N	70	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	30	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	100	Potassium, per pound K_2O	0.41
Lime rate, tons	0.50	Lime, per ton	27.50
Sum of allocated labor, hours	1.07	Labor, per hour	17.31
Operating interest, %	9	Farm diesel, per gallon	4.00

Table 3 details the field activities for this budget and their machinery costs. Machinery costs were estimated using typical life (years), use (hours) and performance (fuel and labor) factors for each power unit and implement used.

Table 3. Machinery assumptions used in fescue seed and forage planning budget for 2024, on a per acre basis.

Machine activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[2] (dollars)	Total costs (dollars)	Trips across field
Disk mower (9 feet), 105 HP MFWD	0.19	0.90	8.39	6.43	14.83	1
Hay rake (30 feet); 75 HP TWD	0.04	0.16	1.64	1.68	3.32	1
Round baler, net wrap (30 feet), 105 HP MFWD	0.09	0.43	12.54	6.26	18.80	1
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					7.25	1
Combine grass seed, custom charge					32.50	1
Seed hauling, custom charge					12.00	
Move round bales on farm, custom charge					24.38	
Total[3]	**0.32**	**1.48**	**29.57**	**21.37**	**127.08**	**5**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.
[2] Machinery ownership cost is the sum of machinery overhead and depreciation.
[3] Totals may not sum due to rounding.
Abbreviations: TWD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor; HP = horsepower

Farmers can also customize this budget to fit their own operations by using the Missouri Forage Budget Tool (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for forages in Missouri.

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Native Warm-Season Grass Planning Budget

Using this budget, farmers can estimate the costs and returns of establishing native warm-season grass (NWSG) forage species. Table 1 presents estimates for replacing existing forage stands with NWSG in Missouri. Assumptions were based on price forecasts as of September 2023. The NWSG forage species mix used in this budget includes big bluestem, indiangrass, little bluestem and forbs. The mix was assumed to be planted in a dormant season. Multiple calendar years are needed for the NWSG stand to reach full forage yield potential. Seeding mixes are designed to enhance wildlife habitat and meet eligibility for cost share practices. Use the "Your estimate" column to plan your operation's costs and returns, including any cost share awarded.

Table 1. Missouri big bluestem, indiangrass, little bluestem and forbs budget for 2024.

	Year 1 Preparation	Year 2 Establishment	Year 3 Half production	Year 4 Full production	Your estimate
Income		*Dollars per acre*			
Haying	0.00	0.00	218.75	437.50	
Grazing	0.00	0.00	18.00	36.00	
Total income	0.00	0.00	236.75	473.50	
Operating costs					
Warm-season grass seed	0.00	175.00	0.00	0.00	
Forb/minor species seed mix	0.00	62.50	0.00	0.00	
Fertility[1]	83.40	0.00	31.71	63.42	
Herbicide	20.48	6.00	0.00	0.00	
Custom hire and rental					
Fertilizer application	7.38	0.00	7.38	7.38	
Chemical application	7.50	7.50	0.00	0.00	
No-till drill rental	0.00	21.00	0.00	0.00	
Hay preparation and baling	0.00	0.00	81.67	163.33	
Mowing (rotary cutter)	0.00	25.00	0.00	0.00	
Operator and hired labor	0.00	8.66	0.00	0.00	
Operating interest	5.34	13.75	5.43	10.54	
Total operating costs	124.10	319.41	126.19	244.67	
Ownership costs					
Business overhead & depreciation	0.00	0.00	0.00	0.00	
Real estate charge	9.76	39.04	39.04	39.04	
Total ownership costs	9.76	39.04	39.04	39.04	
Total costs	133.86	358.45	165.23	283.71	
Income over operating costs	**-124.10**	**-319.41**	**110.56**	**228.83**	
Income over total costs	**-133.86**	**-358.45**	**71.52**	**189.79**	

Note: Totals may not sum due to rounding.

1. University of Missouri Soil Test Lab recommends 2 pounds of P_2O_5 and 14.6 pounds of K_2O per ton of hay yield.

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Year 1: Fall burndown and seedbed preparation

Year 1 reflects the fall prior to seeding. Seedbed preparation begins in early fall by chemically eradicating the existing stand. Soil tests are taken and fertilizer and lime are applied accordingly. Fertilizer and chemical application are performed by a custom operator. If the existing pastureland is grazed, allocate 75 percent of ownership costs to the previous pasture stand and 25 percent to the new NWSG stand because of lost fall grazing days. If additional pasture must be rented to carry livestock, the cost of renting should be applied to the NWSG.

Year 2: Seeding and competition management

Year 2 no-till drills the seed and forb mix during the winter dormant season. There will be no forage harvested. Weed control includes an application of Imazapic for broadleaf and cool-season grass control if the label recommends for the seeding mix used. Mowing with a rotary cutter is included for weed and residual grass control. Ownership costs are limited to a land charge.

Year 3: Fertilization, hay and graze, half mature yield

Forage production begins in Year 3, which is at least one full year after seeding. Yield will be approximately 50 percent of full production. Costs include a nitrogen application to boost yield and plant vigor along with potassium and phosphorous applied according to soil test recommendations and yield goals. If weed pressure is an issue, an application of an approved herbicide can be used or the area can be mowed for broadleaf control.

Yield is measured both in tonnage harvested as hay (1.75 tons) and animal unit months (AUM) of grazing (1 AUM). The first cutting of hay is typically in the beginning of July, then again in late August or grazed until 45 days before frost.

Table 2. Input prices in NWSG budget.

Description	Dollars per unit
Hay market price, per ton	125.00
Pasture, per animal unit month	18.00
Big bluestem seed, per PLS pound	14.00
Indiangrass seed, per PLS pound	15.00
Little bluestem seed, per PLS pound	15.00
Forb seed, per PLS pound	62.50
Nitrogen, per pound N	0.60
Phosphorus, per pound P_2O_5	0.62
Potassium, per pound K_2O	0.41
Lime, per ton applied	27.50
Soil testing, per test	25.00
Glyphosate, per ounce	0.32
Imazapic, per ounce	1.50
Operator labor, per hour	17.31
Operating interest, percent	9.00

Year 4: Fertilization, hay and graze, full production

Full production is achieved in Year 4, or at least two full years after seeding. Costs include fertilizer applied according to soil test recommendations. Forage yield of 3.5 tons hay and 2 AUM per acre are expected to remain stable in the future if the stand is properly managed.

Develop your own budget

Farmers can customize this budget by using Native Warm-Season Grass Planning Budget (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/NWSGBudgets.xlsx). Download the spreadsheet tool to create a copy of your cost and return estimates. Budgets are available for these NWSG scenarios:

1. Big bluestem and indiangrass with no forbs, dormant season planting
2. Big bluestem and indiangrass with no forbs, spring planted following winter cover crop
3. Big bluestem, indiangrass, little bluestem and forbs, dormant season planting
4. Big bluestem, indiangrass, little bluestem and forbs, spring planted following winter cover crop
5. Eastern gamagrass, dormant season planting

This guide was supported by the MU/MDC Native Grass Extension Project.

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Industrial Hemp for Fiber Planning Budget

Using this budget, growers of industrial hemp fiber can estimate their production costs for 2024. Table 1 presents cost estimates for industrial hemp fiber production based on price conditions in October 2023. Assumptions are summarized in Tables 2 and 3. Use the "Your estimate" column to plan your operation's costs and returns for 2024.

Table 1. Missouri industrial hemp for fiber planning budget for 2024.

	Dollars per acre[1]	Your estimate
Income		
Hemp fiber	1,050.00	
Other income	0.00	
Total income	1,050.00	
Operating costs		
Seed	233.75	
Fertilizer	150.60	
Crop supplies, storage and marketing	15.00	
Custom hire and rental	83.08	
Machinery fuel	16.17	
Machinery repairs and maintenance	54.62	
Operator and hired labor	22.17	
Sampling and testing costs	20.00	
Other expense	5.00	
Operating interest	27.02	
Total operating costs	627.41	
Ownership costs		
Farm business overhead	21.66	
Machinery ownership	60.10	
Real estate charge	155.21	
Total ownership costs	236.97	
Total costs	864.38	
Income over operating costs	**422.59**	
Income over total costs	**185.62**	

[1] Totals may not sum due to rounding.

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Table 2. Input assumptions used in industrial hemp for fiber planning budget for 2024.

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Hemp fiber yield, pounds	7,000	Hemp fiber price, per pound	0.15
Seeding rate, pounds	55	Seed, per pound	4.25
Nitrogen rate, pounds N	100	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P_2O_5	60	Phosphorus, per pound P_2O_5	0.62
Potassium rate, pounds K_2O	90	Potassium, per pound K_2O	0.41
Lime rate, tons	0.6	Delivered and spread lime, per ton	27.50
Fuel for machinery, gallons	4.04	Fuel, per gallon	4.00
Labor, hours	1.28	Labor, per hour	17.31

Table 3. Machinery used in industrial hemp for fiber planning budget for 2024, on a per acre basis.

Machinery activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs[1] (dollars)	Ownership costs[1] (dollars)	Total costs (dollars)	Trips across field
Tandem disk (21 feet), 160 MFWD	0.08	0.63	11.43	9.63	42.13	2
Cultimulcher (21 feet), 160 MFWD	0.08	0.63	10.81	9.51	20.32	1
Presswheel drill (16 feet), 105 MFWD	0.16	0.53	8.59	8.32	16.90	1
Disk mower (9 feet), 75 HP TWD	0.19	0.64	9.11	5.59	14.70	1
Hay rake (30 feet), 75 HP TWD	0.04	0.16	3.82	1.68	11.00	2
Round baler (30 feet), 160 HP MFWD	0.09	0.66	18.29	7.06	25.35	1
Pickup truck			7.00	7.00	14.00	
Dry fertilizer application, custom charge					7.25	1
Moving round bales on farm, custom charge					37.92	
Moving round bales locally, custom charge					37.92	
Total[2]	**0.78**	**4.04**	**84.31**	**60.10**	**227.49**	**9**

[1] Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor. Machinery ownership cost is the sum of overhead and depreciation.
[2] Totals may not sum due to rounding.
Abbreviations: MFWD = mechanical front-wheel drive tractor; TWD = two-wheel drive tractor; HP = horsepower.

Farmers can also customize this budget to fit their own operations by using the Missouri Industrial Hemp Budget (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/IndustrialHempBudget.xlsx). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for industrial hemp production in Missouri.

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Agricultural Business and Policy Extension

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The Agricultural Business and Policy (ABP) Extension program at the University of Missouri works statewide helping farmers, ranchers, agri-business, other agriculture producers and communities understand their opportunities and challenges and to make informed decisions. The team is primarily focused on:

- Helping farmers and agribusinesses with decision-making, financial management, taxes and risk mitigation;
- Helping small production entrepreneurs in making business plans and provide tools that will help them in making informed production decisions;
- Studying relevant industry and value-added agricultural issues;
- Sharing how market fundamentals and trade policy may impact agricultural outlook;
- Assessing diversification and new business opportunities for farms, businesses and commodity groups.

Examples of projects include:

Annie's Project – Empowering women in agriculture

Crop and livestock enterprise budgets – Annual MO budgets assist producers to evaluate costs and returns

Farm Accounting Resources

Farm Labor Management Resources.

Farm Succession Planning materials to aid families as they transition a farm from one generation to the next.

Missouri Ag Intel – Website to help MO producers evaluate alternative agriculture opportunities.

Missouri Agriculture, Food and Forestry Innovation Center – Technical assistance to support value-added producers grow their businesses.

Find over 120 short educational publications on a range of business management topics on our website.

For more information about our program and events:

https://extension.missouri.edu/programs/agricultural-business-and-policy-extension