

# 2022 Enterprise Budgets for Missouri Crops and Livestock



# Missouri Crop and Livestock Budgets for 2022

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# Beef Backgrounding Planning Budget

Using this planning budget, beef backgrounders may estimate their costs and returns for 2022. Table 1 presents estimates for steer calves purchased and backgrounded in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri beef steer backgrounding planning budget for 2022.**

	Winter backgrounding per steer <sup>1</sup>	Pasture backgrounding per steer <sup>1</sup>	Your estimate
<b>Income</b>			
Market steer sales	1,305.47	1,255.50	
Less death loss (1 percent)	13.05	12.56	
Total income	1,292.41	1,242.95	
<b>Operating costs</b>			
Purchased steer	996.45	1,054.21	
Pasture (rental rate)	0.00	38.22	
Feed, mineral and stored forage	145.72	68.93	
Labor	43.75	26.25	
Veterinary, drugs and supplies	18.00	15.00	
Marketing and hauling	32.64	31.39	
Machinery and utilities	58.36	26.34	
Livestock facility repair	3.75	0.75	
Professional fees (legal, accounting, etc.)	1.00	1.00	
Miscellaneous	3.50	3.50	
Operating interest	16.01	16.15	
Total operating costs	1,319.17	1,281.74	
<b>Ownership costs</b>			
Depreciation on livestock facilities	3.87	0.62	
Interest on livestock facilities	2.74	0.44	
Insurance and taxes on capital items	4.03	3.07	
Total ownership costs	10.64	4.12	
Total costs	1,329.81	1,285.86	
<b>Income over operating costs</b>	<b>-26.76</b>	<b>-38.80</b>	
<b>Income over total costs</b>	<b>-37.40</b>	<b>-42.92</b>	
Pounds of gain per steer purchased	216.85	177.25	
Feed cost per pound gain	0.67	0.60	
Breakeven steer price per pound	1.65	1.68	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Input assumptions used in beef steer winter backgrounding planning budget for 2022.**

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Steer purchase weight, pounds	590	Steer purchase price, per hundredweight	168.89
Market steer sale weight, pounds	815	Market steer sale price, per hundredweight	160.18
Labor, hours per head	2.5	Labor cost, per hour	17.50
Feeding period, days	105		
Average daily gain, pounds	2.14		

**Table 3. Input assumptions used in beef steer pasture backgrounding planning budget for 2022.**

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Steer purchase weight, pounds	590	Steer purchase price, per hundredweight	178.68
Market steer sale weight, pounds	775	Market steer sale price, per hundredweight	162.00
Labor, hours per head	1.5	Labor cost, per hour	17.50
Feeding period, days	105		
Average daily gain, pounds	1.76		

**Table 4. Feed and stored forage in beef steer backgrounding planning budgets for 2022, on a per steer basis.**

Feed description	Cost per unit	Winter backgrounding <sup>1</sup>		Pasture backgrounding <sup>2</sup>	
		Pounds	Dollars	Pounds	Dollars
Mixed hay, per ton	85.00	1,221	51.89		
Corn, per bushel	5.25	754	70.69		
Protein supplement, per ton	220.00	107	11.77	525	57.75
Salt and minerals, per ton	800.00	27	10.80	27	10.80
Limestone, per hundredweight	9.50	6	0.57	4	0.38
<b>Total</b>		<b>2,115</b>	<b>145.72</b>	<b>556</b>	<b>68.93</b>

<sup>1</sup> Winter backgrounding ration assumes 105 days on feed and 2.14 pound average daily gain for a steer.

<sup>2</sup> 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 2022.**

Description	Cost per hour	Winter backgrounding <sup>1</sup>		Pasture backgrounding <sup>2</sup>	
		Hours	Dollars	Hours	Dollars
Tractor; 105 MFWD	44.88	25	1,122.00		
Truck	30.00	20	600.00	10.0	300.00
Livestock trailer	28.00	8	224.00	8.0	224.00
4-wheeler	10.00	40	400.00	52.5	525.00
<b>Total</b>			<b>2,346.00</b>		<b>1,049.00</b>
<b>Total per steer</b>			<b>55.86</b>		<b>23.84</b>

<sup>1</sup> Machinery needs for winter backgrounding budget are based on 42 steers.

<sup>2</sup> 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx) (<https://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 2022. Table 1 presents estimates for calves purchased and sold later as bred replacement heifers in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri beef heifer planning budget for 2022.**

	Per heifer sold <sup>1</sup>	Your estimate
<b>Income</b>		
Bred heifer sales (0.875 head)	1,443.75	
Cull heifer sales (0.05 head)	70.00	
Yearling heifer sales (0.075 head)	83.60	
Less death loss (1 percent of heifer sales)	15.97	
Total income	1,581.38	
<b>Operating costs</b>		
Purchased heifer calf	852.83	
Pasture	130.73	
Feed, mineral and stored forage	161.97	
Labor	87.50	
Veterinary, drugs and supplies	30.00	
Marketing costs	47.92	
Breeding costs	37.50	
Machinery and utilities	97.04	
Livestock facility repairs	8.00	
Miscellaneous	6.00	
Operating and calf interest	58.13	
Total operating costs	1,517.62	
<b>Ownership costs</b>		
Depreciation on livestock facilities	8.45	
Interest on livestock facilities	6.23	
Insurance and taxes on capital items	14.66	
Total ownership costs	29.34	
Total costs	1,546.96	
<b>Income over operating costs</b>	<b>63.75</b>	
<b>Income over total costs</b>	<b>34.42</b>	
Total cost per head per day (excluding calf price)	1.83	
Total cost per pound of gain	1.61	
Bred heifer breakeven price per head	1,610.82	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Input assumptions used in replacement beef heifer planning budget for 2022.**

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Heifer purchase weight, pounds	550	Heifer purchase price, per hundredweight	155.06
Yearling cull heifer sale weight, pounds	750	Yearling cull heifer sale price, per hundredweight	148.62
Heavy cull heifer sale weight, pounds	1,000	Heavy cull heifer sale price, per hundredweight	140.00
Bred heifer sale weight, pounds	1,000	Bred heifer sale price, per head	1,650.00
Labor, hours	5	Labor cost, per hour	17.50
Pasture, animal unit months	8.17	Pasture, per animal unit month	16.00

**Table 3. Feed and stored forage requirements in replacement beef heifer planning budget for 2022, on a per heifer basis.**

Feed description	Cost per unit	November to	May to	October to	Total pounds	Dollars <sup>4</sup>
		May <sup>1</sup>	October <sup>2</sup>	December <sup>3</sup>		
		Pounds	Pounds	Pounds		
Mixed hay, per ton	85.00	1,250			1,250	53.13
Processed corn, per ton	187.50	240		90	330	30.94
Protein supplement, per ton	220.00	240		90	330	36.30
Salt and minerals, per ton	800.00	49	39	16	104	41.60
<b>Total</b>		<b>1,779</b>	<b>39</b>	<b>196</b>	<b>2,014</b>	<b>161.97</b>

<sup>1</sup> Beginning weight of 550 pounds and ending weight of 750 pounds after a 170 day feeding period.

<sup>2</sup> Beginning weight of 750 pounds and ending weight of 925 pounds after a 150 day feeding period.

<sup>3</sup> Beginning weight of 925 pounds and ending weight of 1,000 pounds after a 60 day feeding period.

<sup>4</sup> Totals may not sum due to rounding.

**Table 4. Machinery assumptions used in replacement beef heifer planning budget for 2022.**

Description	Cost per hour	Hours	Total dollars <sup>1</sup>	Dollars attributed to total heifer operation <sup>2</sup>	Dollars per replacement heifer <sup>3</sup>
Tractor; 105 MFWD	44.88	50	2,244.00	291.72	38.90
Truck	30.00	15	450.00	58.50	7.80
Livestock trailer	28.00	24	672.00	87.36	11.65
4-wheeler	10.00	180	1,800.00	234.00	31.20
<b>Total</b>			<b>5,166.00</b>	<b>671.58</b>	<b>89.54</b>

<sup>1</sup> Total machinery costs are based on combined cow-calf and replacement heifer operation.

<sup>2</sup> 13 percent of the total machinery costs for the beef herd are attributed to the heifer operation.

<sup>3</sup> 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx) (<https://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.

# Northern Missouri Beef Cow-Calf Planning Budget

Using this planning budget, beef cow-calf farmers may estimate their costs and returns for 2022. Table 1 presents estimates for a cow-calf operation (50-cow herd size and purchased replacements) in Northern Missouri with either a fall or spring calving season. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Northern Missouri beef cow-calf planning budget for 2022.**

	Fall calving per cow <sup>1</sup>	Spring calving per cow <sup>1</sup>	Your estimate
<b>Income</b>			
Steer calf sales	444.38	434.12	
Heifer calf sales	370.80	362.45	
Cull cow sales	97.50	113.75	
Total income	912.68	910.33	
<b>Operating costs</b>			
Pasture (rental rate)	168.32	168.32	
Feed and stored forage	230.98	183.51	
Labor	140.00	140.00	
Veterinary, drugs and supplies	40.00	40.00	
Marketing	22.82	22.76	
Machinery and utility costs	105.20	97.39	
Livestock facility repairs	8.00	8.00	
Cow replacement	240.50	277.50	
Bull cost	50.00	50.00	
Professional fees (legal, accounting, etc.)	1.00	1.00	
Miscellaneous	6.00	6.00	
Operating interest	19.23	17.88	
Total operating costs	1,032.04	1,012.35	
<b>Ownership costs</b>			
Depreciation on facilities and equipment	7.92	7.92	
Interest on breeding stock, facilities and equipment	87.73	89.55	
Insurance/taxes on breeding stock and capital items	40.90	41.27	
Total ownership costs	136.56	138.74	
Total costs	1,168.60	1,151.09	
<b>Income over operating costs</b>	<b>-119.36</b>	<b>-102.02</b>	
<b>Income over total costs</b>	<b>-255.92</b>	<b>-240.76</b>	

<sup>1</sup> Totals may not sum due to rounding.

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**Table 2. Income assumptions used in Northern Missouri beef cow-calf planning budget for 2022.**

Category	Percent	Weight (pounds)	Price per cwt	Calf crop (percent weaned)	Dollars per cow
<b>Fall calving</b>					
Steer	50	580	174.13	88	444.38
Heifers	50	540	156.06	88	370.80
Cull cows	12	1,250	65.00		97.50
<b>Spring calving</b>					
Steer	50	590	173.13	85	434.12
Heifers	50	550	155.06	85	362.45
Cull cows	14	1,250	65.00		113.75

Abbreviations: cwt = hundredweight

**Table 3. Other assumptions used in Northern Missouri beef cow-calf planning budget for 2022.**

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Labor, hours	8	Labor cost, per hour	17.50
Fall calving cows replaced, percent	13	Heifer replacement value, per head	1,850.00
Spring calving cows replaced, percent	15	Bull value, per head	3,750.00

**Table 4. Feed requirements in Northern Missouri beef cow-calf planning budget for 2022, on a per cow basis.**

	Cost per unit	Cow (units)	Calf (units)	Bull <sup>2</sup> (units)	Total units	Total cost per cow <sup>3</sup>
<b>Fall calving</b>						
Pasture, per animal unit equivalent	16.0	10.0 <sup>1</sup>		0.5	10.5	168.32
Harvested forage, per pound	0.0375	3,660.0	425.0	200.0	4,285.0	160.69
Protein supplement, per pound	0.011	300.0		7.2	307.2	33.79
Salt and mineral mix, per pound	0.4	91.3			91.3	36.50
					<b>Total</b>	<b>399.30</b>
<b>Spring calving</b>						
Pasture, per animal unit equivalent	16.0	10.0 <sup>1</sup>		0.5	10.5	168.32
Harvested forage, per pound	0.0375	3,445.5		200.0	3,645.5	136.71
Protein supplement, per pound	0.011	90.0		3.6	93.6	10.30
Salt and mineral mix, per pound	0.4	91.3			91.3	36.50
					<b>Total</b>	<b>351.83</b>

<sup>1</sup> Cow and calf requirements are combined for pasture animal unit equivalents.

<sup>2</sup> Bull feed units are based on 4 percent of its total need being allocated to cow-calf enterprise.

<sup>3</sup> 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx) (<https://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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# Southern Missouri Beef Cow-Calf Planning Budget

Using this planning budget, beef cow-calf farmers may estimate their costs and returns for 2022. Table 1 presents estimates for a cow-calf operation (50-cow herd size and purchased replacements) in Southern Missouri with either a fall or spring calving season. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Southern Missouri beef cow-calf planning budget for 2022.**

	Fall calving per cow <sup>1</sup>	Spring calving per cow <sup>1</sup>	Your estimate
<b>Income</b>			
Steer calf sales	452.04	434.12	
Heifer calf sales	377.67	362.45	
Cull cow sales	97.50	113.75	
Total income	927.21	910.33	
<b>Operating costs</b>			
Pasture (rental rate)	168.32	168.32	
Feed, mineral and stored forage	217.78	183.50	
Labor	140.00	140.00	
Veterinary, drugs and supplies	35.50	35.50	
Marketing	23.18	22.76	
Machinery and utility costs	105.20	97.39	
Livestock facility repairs	8.00	8.00	
Cow replacement	214.50	247.50	
Bull cost	28.00	28.00	
Professional fees (legal, accounting, etc.)	1.00	1.00	
Miscellaneous expense	6.00	6.00	
Operating interest	18.24	17.22	
Total operating costs	965.72	955.18	
<b>Ownership costs</b>			
Depreciation on facilities and equipment	7.92	7.92	
Interest on breeding stock, facilities and equipment	85.48	87.10	
Insurance/taxes on breeding stock and capital items	40.25	40.58	
Total ownership costs	133.65	135.60	
Total costs	1,099.37	1,090.78	
<b>Income over operating costs</b>	<b>-38.51</b>	<b>-44.86</b>	
<b>Income over total costs</b>	<b>-172.16</b>	<b>-180.45</b>	

<sup>1</sup> Totals may not sum due to rounding.

Written by  
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**Table 2. Income assumptions used in Southern Missouri beef cow-calf planning budget for 2022.**

Category	Percent	Weight (pounds)	Price per cwt	Calf crop (percent weaned)	Dollars per cow
<b>Fall calving</b>					
Steer	50	590	174.13	88	452.04
Heifers	50	550	156.06	88	377.67
Cull cows	12	1,250	65.00		97.50
<b>Spring calving</b>					
Steer	50	590	173.13	85	434.12
Heifers	50	550	155.06	85	362.45
Cull cows	14	1,250	65.00		113.75

Abbreviations: cwt = hundredweight

**Table 3. Other assumptions used in Southern Missouri beef cow-calf planning budget for 2022.**

Selected input quantities	Per unit	Selected input prices	Dollars per unit
Labor, hours per cow	8	Labor cost, per hour	17.50
Fall calving cows replaced, percent	13	Heifer replacement value, per head	1,650.00
Spring calving cows replaced, percent	15	Bull value, per head	3,250.00

**Table 4. Feed requirements in Southern Missouri beef cow-calf planning budget for 2022, on a per cow basis.**

	Cost per unit	Cow (units)	Calf (units)	Bull <sup>2</sup> (units)	Total units	Total cost per cow <sup>3</sup>
<b>Fall calving</b>						
Pasture, per animal unit equivalent	16.00	10.0 <sup>1</sup>		0.5	10.5	168.32
Harvested forage, per pound	0.0375	3,660.0	425.0	200.0	4,285.0	160.69
Protein supplement, per pound	0.11	180.0		7.2	187.2	20.59
Salt and mineral mix, per pound	0.40	91.3			91.3	36.50
					<b>Total</b>	<b>386.10</b>
<b>Spring calving</b>						
Pasture, per animal unit equivalent	16.00	10.0 <sup>1</sup>		0.5	10.5	168.32
Harvested forage, per pound	0.0375	3,445.5		200.0	3,645.5	136.71
Protein supplement, per pound	0.11	90.0		3.6	93.6	10.30
Salt and mineral mix, per pound	0.40	91.3			91.3	36.50
					<b>Total</b>	<b>351.83</b>

<sup>1</sup> Cow and calf requirements are combined for pasture animal unit equivalents.

<sup>2</sup> Bull feed units are based on 4 percent of its total need being allocated to cow-calf enterprise.

<sup>3</sup> 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/Beef/Docs/MissouriBeefEnterprise.xlsx) (<https://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.

# Yearling Beef Steer Feeding Planning Budget

Using this planning budget, beef cattle producers may estimate their costs and returns for 2022. Table 1 presents estimates for yearling steers purchased in November 2021 and sold in April 2022 in Missouri. Assumptions were based on price forecasts as of October 2021. Detailed assumptions and feed requirements are summarized in Tables 2 and 3. 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 2022.

**Table 1. Missouri yearling beef steer feeding planning budget.**

	Per steer sold <sup>1</sup>	Your estimate
<b>Income</b>		
Market steer sales	1,664.00	
Less death loss (2 percent)	-33.28	
Total income	1,630.72	
<b>Operating costs</b>		
Purchased steer calf	1,087.50	
Purchased feed	430.25	
Labor	35.00	
Veterinary and drugs	11.75	
Commission, yardage, and hauling	25.00	
Machinery and feed preparation	8.00	
Utilities	5.00	
Operating interest	25.91	
Total operating costs	1,628.41	
<b>Ownership costs</b>		
Depreciation and interest on real estate	5.00	
Real estate and property taxes	4.00	
Total ownership costs	9.00	
Total costs	1,637.41	
<b>Income over operating costs</b>	<b>2.31</b>	
<b>Income over total costs</b>	<b>-6.69</b>	

<sup>1</sup> Totals may not sum due to rounding.

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

<b>Selected input quantities</b>	<b>Per unit</b>	<b>Selected input prices</b>	<b>Dollars per unit</b>
Steer purchase weight, pounds	750	Steer purchase price, per hundredweight	145.00
Market steer sale weight, pounds	1,300	Market steer sale price, per hundredweight	128.00
Labor, hours	2	Labor cost, per hour	17.50
Operating interest, percent	4.9		

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

<b>Feed description</b>	<b>Cost per unit</b>	<b>Total pounds<sup>1</sup></b>	<b>Dollars</b>
Corn, per bushel	5.25	2,240	210.00
Distiller grains, dry, per ton	230.00	1,500	172.50
Soybean meal, per ton	380.00	100	19.00
Salt and additives, per ton	500.00	30	7.50
Grass hay, per ton	85.00	500	21.25
<b>Total</b>		<b>4,370</b>	<b>333.00</b>

<sup>1</sup>Ration assumes 151 days on feed and 3.65 pound average daily gain for a steer.

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

# 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 with a production system of 23 pigs per sow per year and pigs sold at 40 pounds each. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri feeder pigs planning budget for 2022.**

	Per sow <sup>1</sup>	Your estimate
<b>Income</b>		
Feeder pigs sold (22 head)	1,284.93	
Cull sows sold (0.5 head)	118.80	
<b>Total income</b>	<b>1,403.73</b>	
<b>Operating costs</b>		
Purchased feed	455.76	
Feed processing	25.56	
Labor	192.50	
Veterinary and medicine	90.44	
Replacement gilts	115.21	
Semen and genetics	28.60	
Utilities and fuel	43.33	
Facility repair and maintenance	33.68	
Marketing and miscellaneous	27.97	
Operating interest	24.82	
<b>Total operating costs</b>	<b>1,037.88</b>	
<b>Ownership costs</b>		
Taxes and insurance	16.19	
Machinery and equipment	198.38	
<b>Total ownership costs</b>	<b>214.57</b>	
<b>Total costs</b>	<b>1,252.44</b>	
<b>Income over operating costs</b>	<b>365.85</b>	
<b>Income over total costs</b>	<b>151.29</b>	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Assumptions used in Missouri feeder pigs budget for 2022.**

<b>Selected input quantities</b>	<b>Per unit</b>	<b>Selected input prices</b>	<b>Dollars per unit</b>
Feeder pig sale weight, pounds	40	Feeder pig sale price, hundredweight	145.00
Cull sow sale weight, pounds	400	Cull sow price, hundredweight	54.00
Replacement gilt weight, pounds	200	Replacement gilt price, per gilt	199.00
Labor, hours/sow	11.0	Labor rate, per hour	17.50
Weaned pigs/sow/year	23.3	Feed processing, per ton	15.00
Operating interest, percent	4.9		
Feeder pig death loss, percent	5.0		
Sow/gilt death loss, percent	5.0		

**Table 3. Annual feed requirements for the Missouri feeder pigs budget for 2022.**

<b>Feed description</b>	<b>Pounds per sow</b>	<b>Dollars per pound</b>	<b>Total per sow</b>
Corn	2,586	0.09	242.44
Soybean meal	605	0.19	114.95
Dried distillers grain with solubles	91	0.12	10.92
Vitamin and mineral supplement	54	0.45	24.30
Nursery pellets	49	0.35	17.15
Other feed additives	23	2.00	46.00
<b>Total</b>	<b>3,408</b>		<b>455.76</b>

Farmers can also customize this budget to fit their own operations by using the [Missouri Swine Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx) (https://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.

# Farrow to Finish Swine Planning Budget

Using this budget, farmers raising hogs from farrow to finish can plan their costs and returns in 2022. Table 1 presents estimates for a confinement farrow to finish operation in Missouri with production of 23 pigs per sow per year and selling market hogs at 280 pounds. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri farrow to finish swine planning budget for 2022.**

	Per sow <sup>1</sup>	Your estimate
<b>Income</b>		
Market hogs sold (22 head)	3,805.45	
Cull sows sold (0.5 head)	118.80	
<b>Total income</b>	<b>3,924.25</b>	
<b>Operating costs</b>		
Purchased feed	1,551.81	
Feed processing	108.15	
Labor	231.00	
Veterinary and medicine	204.39	
Replacement gilts	115.21	
Semen and genetics	28.60	
Utilities and fuel	171.86	
Facility repair and maintenance	147.92	
Marketing and miscellaneous	107.41	
Operating interest	65.33	
<b>Total operating costs</b>	<b>2,731.68</b>	
<b>Ownership costs</b>		
Taxes and insurance	41.89	
Machinery and equipment	934.48	
<b>Total ownership costs</b>	<b>976.37</b>	
<b>Total costs</b>	<b>3,708.06</b>	
<b>Income over operating costs</b>	<b>1,192.57</b>	
<b>Income over total costs</b>	<b>216.19</b>	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Assumptions used in Missouri farrow to finish budget for 2022.**

<b>Selected input quantities</b>	<b>Per unit</b>	<b>Selected input prices</b>	<b>Dollars per unit</b>
Market hog sale weight, pounds	280	Market hog sale price, hundredweight	62.00
Cull sow sale weight, pounds	400	Cull sow price, hundredweight	54.00
Replacement gilt weight, pounds	200	Replacement gilt price, per gilt	199.00
Labor, hours/sow	13.2	Labor rate, per hour	17.50
Weaned pigs/sow/year	23.3	Feed processing, per ton	15.00
Operating interest, percent	4.9		
Market hog death loss, percent	6.0		
Sow/gilt death loss, percent	5.0		

**Table 3. Annual feed requirements for the Missouri farrow to finish budget for 2022.**

<b>Feed description</b>	<b>Pounds per sow</b>	<b>Dollars per pound</b>	<b>Total per sow</b>
Corn	12,900	0.09	1,209.38
Soybean meal	1,020	0.19	193.80
Dried distillers grain with solubles	300	0.12	36.00
Vitamin and mineral supplement	150	0.45	67.50
Nursery pellets	49	0.35	17.14
Other feed additives	1	28.00	28.00
<b>Total</b>	<b>14,420</b>		<b>1,551.81</b>

Farmers can also customize this budget to fit their own operations by using the [Missouri Swine Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx) (<https://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.



# 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 2021. 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 2022.

**Table 1. Missouri hog finishing budget for 2022.**

	Per lot of 100 hogs <sup>1</sup>	Your estimate
<b>Income</b>		
Market hogs sold (100 head)	17,360.00	
<b>Total income</b>	<b>17,360.00</b>	
<b>Operating costs</b>		
Purchased pigs	5,974.00	
Purchased feed	7,242.50	
Feed processing	473.25	
Labor	297.50	
Veterinary and medicine	568.80	
Utilities and fuel	626.40	
Facility/equipment repair and maintenance	249.60	
Marketing and miscellaneous	439.20	
Operating interest	162.02	
<b>Total operating costs</b>	<b>16,033.27</b>	
<b>Ownership costs</b>		
Taxes and insurance	208.80	
Machinery and equipment	2,035.20	
<b>Total ownership costs</b>	<b>2,244.00</b>	
<b>Total costs</b>	<b>18,277.27</b>	
<b>Income over operating costs</b>	<b>1,326.73</b>	
<b>Income over total costs</b>	<b>-917.27</b>	
Breakeven selling price for operating costs per hundredweight	57.26	
Breakeven selling price for total costs per hundredweight	65.28	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Assumptions used in Missouri hog finishing budget for 2022.**

<b>Selected input quantities</b>	<b>Per unit</b>	<b>Selected input prices</b>	<b>Dollars per unit</b>
Feeder pig purchase weight, pounds	40	Feeder pig purchase price, hundredweight	145.00
Market hog sale weight, pounds	280	Market hog sale price, hundredweight	62.00
Labor, hours/pig	0.17	Labor rate, per hour	17.50
Operating interest, percent	4.9	Feed processing, per ton	15.00
Death loss, percent	3.0		

**Table 3. Feed requirements used in Missouri hog finishing budget for 2022.**

<b>Feed description</b>	<b>Pounds per pig</b>	<b>Dollars per pound</b>	<b>Dollars per lot of 100 hogs</b>
Corn	500	0.09	4,687.50
Soybean meal	90	0.19	1,710.00
Dried distillers grain with solubles	30	0.12	360.00
Vitamin and mineral supplement	10	0.45	450.00
Other feed additives	1	0.35	35.00
<b>Total</b>	<b>631</b>		<b>7,242.50</b>

Farmers can also customize this budget to fit their own operations by using the [Missouri Swine Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/SwineBudgets.xlsx) (<https://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.

# Dairy (Confinement) Planning Budget

Using this planning budget, dairy farmers may estimate their costs and returns for 2022. Table 1 presents estimates for a 150-cow confinement dairy (replacements raised on farm) in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri dairy (confinement) planning budget for 2022.**

	20,000 pounds milk sold		24,000 pounds milk sold		Your estimate
	Dollars per cow <sup>1</sup>	Dollars per cwt <sup>1</sup>	Dollars per cow <sup>1</sup>	Dollars per cwt <sup>1</sup>	
<b>Income</b>					
Milk sales	3,649.96	18.25	4,379.93	18.25	
Government payments	250.00	1.25	300.00	1.25	
Bull and surplus heifer sales	58.38	0.29	58.38	0.24	
Cull cow sales	254.48	1.27	254.48	1.06	
Total income	4,212.81	21.06	4,992.78	20.80	
<b>Operating costs</b>					
Feed	2,424.41	12.12	2,667.39	11.11	
Labor	554.19	2.77	554.19	2.31	
Veterinary, drugs and supplies	114.00	0.57	115.00	0.48	
Utilities and water	60.00	0.30	75.00	0.31	
Fuel, oil and vehicle	65.00	0.33	65.00	0.27	
Milk hauling and promotion	200.00	1.00	240.00	1.00	
Building and equipment repair	225.77	1.13	225.77	0.94	
Breeding/genetic charges	54.00	0.27	54.00	0.23	
Professional fees (legal, accounting, etc.)	12.00	0.06	11.00	0.05	
Miscellaneous and DMC premiums	28.40	0.14	34.08	0.14	
Operating interest	81.37	0.41	87.43	0.36	
Total operating costs	3,819.13	19.10	4,128.85	17.20	
<b>Ownership costs</b>					
Depreciation on buildings and equipment	395.68	1.98	395.68	1.65	
Interest on land, buildings and equipment	164.56	0.82	164.56	0.69	
Interest on breeding stock	55.20	0.28	55.20	0.23	
Insurance/tax on capital items	115.12	0.58	115.12	0.48	
Total ownership costs	730.56	3.65	730.56	3.04	
<b>Total costs</b>	<b>4,549.69</b>	<b>22.75</b>	<b>4,859.41</b>	<b>20.25</b>	
<b>Income over operating costs</b>	<b>393.67</b>	<b>1.97</b>	<b>863.93</b>	<b>3.60</b>	
<b>Income over total costs</b>	<b>-336.89</b>	<b>-1.68</b>	<b>133.37</b>	<b>0.56</b>	

<sup>1</sup> Totals may not sum due to rounding.  
 Abbreviations: cwt = hundredweight

Written by  
**Joe Horner and Ryan Milhollin**, State Specialists, Agricultural Business and Policy Extension

**Table 2. Input assumptions used in dairy (confinement) planning budget for 2022.**

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull cow sale weight, pounds	1,450	Cull cow sale price, per hundredweight	65
Labor, cows per worker	70	Annual labor salary and benefits, per worker	45,000
Calf crop, percent	95	Bull calf sale price, per head	100
Heifer replacement, percent	33	Surplus heifer calf sale price, per head	75
Operating interest, percent	4.6	Milk price, per hundredweight	18.25

**Table 3. Feed requirements used in dairy (confinement) planning budget for 2022, on a per cow basis.**

Feed description	Cost per unit	20,000 pounds milk sold		24,000 pounds milk sold	
		Pounds	Dollars <sup>2</sup>	Pounds	Dollars <sup>2</sup>
Corn silage, per ton	55.00	12,223	336.14	13,357	367.32
Alfalfa baleage, per ton	100.00	3,741	187.05	5,296	264.79
Corn, ground, per bushel	5.50	3,470	340.81	3,658	395.22
Alfalfa hay, per ton	240.00	1,708	204.94	1,934	232.09
Whole cotton seed, per ton	340.00	1,675	284.80	1,897	322.53
Soybean hulls, per ton	190.00	1,125	106.84	752	71.43
Soybean meal, per ton	380.00	1,095	208.01	1,354	257.35
Distillers grain, dry, per ton	230.00	1,005	115.60	949	109.09
Grass hay, per ton	85.00	914	38.82	914	38.82
Minerals/vitamins, per ton	1,100.00	577	317.38	656	360.72
Total lactating and dry cow feed cost			2,140.40	2383.37	
Replacement heifer feed and forage cost <sup>1</sup>			284.01	284.01	
<b>Total feed cost per cow</b>			<b>2,424.41</b>	<b>2,667.39</b>	

<sup>1</sup> Total replacement heifer (0 to 24 months) feed cost is \$860.64 and was adjusted to a 33% heifer replacement rate.

<sup>2</sup> Totals may not sum due to rounding.

**Table 4. Investment assumptions in dairy (confinement) planning budget for 2022.**

Description	Quantity	Dollars per unit	Total dollars	Dollars per cow <sup>2</sup>
Land, acres	4	3,700	14,800	98
Milking parlor, stalls	12	30,000	360,000	2,387
Breeding herd, cows	150	1,250	180,960	1,200
Free stall barn, stalls	130	2,750	357,500	2,371
Land improvements			5,000	33
Feed storage			56,826	377
Manure storage system			97,500	647
Equipment			81,100	538
<b>Total<sup>1</sup></b>			<b>1,153,686</b>	<b>7,650</b>

<sup>1</sup> Totals may not sum due to rounding.

<sup>2</sup> Represents total cows in herd.

Farmers can also customize this budget to fit their own operations by using the [Missouri Dairy Enterprise Tool](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx) (<https://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 2022. 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 October 2021. 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 2022.

**Table 1. Missouri dairy (grazing) planning budget for 2022.**

	11,000 pounds milk sold		14,000 pounds milk sold		Your estimate
	Dollars per cow <sup>1</sup>	Dollars per cwt <sup>1</sup>	Dollars per cow <sup>1</sup>	Dollars per cwt <sup>1</sup>	
<b>Income</b>					
Milk sales	2,007.54	18.25	2,555.05	18.25	
Government payments	137.50	1.25	175.00	1.25	
Bull and surplus heifer sales	66.63	0.61	66.63	0.48	
Cull cow sales	128.70	1.17	128.70	0.92	
Total income	2,340.37	21.28	2,925.38	20.90	
<b>Operating costs</b>					
Feed	1,067.68	9.71	1,158.56	8.28	
Labor	375.00	3.41	375.00	2.68	
Veterinary, drugs and supplies	85.00	0.77	95.00	0.68	
Utilities and water	55.00	0.50	55.00	0.39	
Fuel, oil and vehicle	65.00	0.59	65.00	0.46	
Milk hauling and promotion	110.00	1.00	140.00	1.00	
Building and equipment repair	166.09	1.51	166.09	1.19	
Breeding/genetic charges	54.00	0.49	54.00	0.39	
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	43.59	0.40	46.01	0.33	
Total operating costs	2,048.99	18.63	2,186.55	15.62	
<b>Ownership costs</b>					
Depreciation on buildings and equipment	106.18	0.97	106.18	0.76	
Interest on land, buildings and equipment	225.17	2.05	225.17	1.61	
Interest on breeding stock	55.20	0.50	55.20	0.39	
Insurance/taxes on capital items	54.91	0.50	54.91	0.39	
Total ownership costs	441.46	4.01	441.46	3.15	
<b>Total costs</b>	<b>2,490.45</b>	<b>22.64</b>	<b>2,628.01</b>	<b>18.77</b>	
<b>Income over operating costs</b>	<b>291.38</b>	<b>2.65</b>	<b>738.84</b>	<b>5.28</b>	
<b>Income over total costs</b>	<b>-150.07</b>	<b>-1.36</b>	<b>297.38</b>	<b>2.12</b>	

<sup>1</sup> Totals may not sum due to rounding.  
 Abbreviations: cwt = hundredweight

Written by  
**Joe Horner and Ryan Milhollin**, State Specialists, Agricultural Business and Policy Extension

**Table 2. Input assumptions used in dairy (grazing) planning budget for 2022.**

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull cow sale weight, pounds	1,100	Cull cow sale price, per hundredweight	65
Labor, cows per worker	100	Annual labor salary and benefits, per worker	45,000
Calf crop, percent	95	Bull calf sale price, per head	100
Heifer replacement, percent	22	Surplus heifer calf sale price, per head	75
Operating interest, percent	4.6	Milk price, per hundredweight	18.25

**Table 3. Feed requirements in dairy (grazing) planning budget for 2022, on a per cow basis.**

Feed description	Cost per unit	11,000 pounds milk sold		14,000 pounds milk sold	
		Pounds	Dollars <sup>2</sup>	Pounds	Dollars <sup>2</sup>
Pasture (intensive dairy), dry matter per ton	90.00	7,335	330.09	7,658	344.59
Alfalfa hay, per ton	240.00	1,289	154.73	1,289	154.73
Corn, cracked, per bushel	5.25	910	85.31	1,384	129.78
Soybean hulls, per ton	190.00	910	86.45	1,068	101.47
Distillers grain, dry, per ton	230.00	791	90.91	949	109.09
Grass hay, per ton	85.00	670	28.47	639	27.18
Minerals/vitamins, per ton	1,100.00	186	102.38	186	102.38
Total lactating and dry cow feed cost			878.34	969.22	
Replacement heifer feed and forage cost <sup>1</sup>			189.34	189.34	
<b>Total feed cost per cow</b>			<b>1,067.68</b>	<b>1,158.56</b>	

<sup>1</sup> Total replacement heifer (0 to 24 months) feed cost is \$860.64 and was adjusted to a 22% heifer replacement rate.

<sup>2</sup> Totals may not sum due to rounding.

**Table 4. Investment assumptions in dairy (grazing) planning budget for 2022.**

Description	Quantity	Dollars per unit	Total dollars	Dollars per cow <sup>2</sup>
Land, acres	200	3,700	740,000	4,111
Milking parlor, stalls	24	7,000	168,000	933
Breeding herd, cows	180	1,200	216,000	1,200
Working facility			14,800	82
Feed storage			11,480	64
Manure storage system			31,250	174
Equipment			31,000	172
<b>Total<sup>1</sup></b>			<b>1,212,530</b>	<b>6,736</b>

<sup>1</sup> Totals may not sum due to rounding.

<sup>2</sup> Represents total cows in herd.

Farmers can also customize this budget to fit their own operations by using the [Missouri Dairy Enterprise Tool](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx) (<https://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.

# Dairy Heifer Planning Budget

Using this planning budget, farmers raising dairy heifers may estimate their costs and returns for 2022. 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 October 2021. 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 2022.

**Table 1. Missouri dairy heifer planning budget for 2022.**

	Per heifer sold <sup>1</sup>	Your estimate
<b>Income</b>		
Springer heifer sales (0.95 head)	1,140.00	
Cull heifer sales (0.025 head)	27.63	
Yearling heifer sales (0.025 head)	16.31	
Less death loss (4 percent) of purchased calves	-3.00	
<b>Total income</b>	<b>1,180.94</b>	
<b>Operating costs</b>		
Purchased heifer calf and interest	82.18	
Feed (birth to 24 months of age)	860.64	
Labor	175.00	
Veterinary, drugs and supplies	25.00	
Breeding costs for artificial insemination services	45.00	
Transportation and marketing	15.00	
Utilities, fuel and oil	18.75	
Building and equipment repairs	9.68	
Miscellaneous	15.00	
Operating interest	26.77	
<b>Total operating costs</b>	<b>1,273.01</b>	
<b>Ownership costs</b>		
Depreciation on buildings and equipment	52.09	
Interest on buildings and equipment	24.48	
Insurance and taxes on buildings and equipment	14.08	
<b>Total ownership costs</b>	<b>90.65</b>	
<b>Total costs</b>	<b>1,363.66</b>	
<b>Income over operating costs</b>	<b>-92.07</b>	
<b>Income over total costs</b>	<b>-182.72</b>	
Total cost per day per heifer sold	1.78	
Total cost per pound of gain per heifer sold	1.08	
Springer heifer breakeven price per head	1,392.34	

<sup>1</sup> Totals may not sum due to rounding.

**Table 2. Input assumptions used in dairy heifer planning budget for 2022.**

Selected input quantities	Quantity	Selected input prices	Dollars per unit
Cull heifer sale weight, pounds	1,300	Cull and yearling heifer sale price, per pound	0.90
Yearling heifer sale weight, pounds	725	Springer heifer sale price, per head	1,200.00
Labor, hours	10	Labor cost, per hour	17.50
		Heifer purchase price	75.00

**Table 3. Feed requirements for dairy heifer planning budget for 2022.**

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 <sup>1</sup>	Units	Dollars <sup>1</sup>	Units	Dollars <sup>1</sup>
Milk replacer, per pound	1.4000	50	70.00				
Calf starter, per pound	0.1550	100	15.50	100	15.50		
Alfalfa hay, per pound	0.1200	20	2.40	90	10.80	225	27.00
Calf grower, per pound	0.1450			50	7.25	450	65.25
Grass hay, per pound	0.0425					225	9.56
Pasture, per animal unit month	16.0000					0.4	6.53
<b>Feed cost per period</b>		<b>87.90</b>		<b>33.55</b>		<b>108.35</b>	
<b>Total feed costs<sup>2</sup></b>		<b>231.51</b>					
6 to 12 months (400 to 725 pounds)		Winter ration		Spring/Fall ration		Summer ration	
Feed description	Cost per unit	Units	Dollars <sup>1</sup>	Units	Dollars <sup>1</sup>	Units	Dollars <sup>1</sup>
Corn gluten feed, per pound	0.1150	525	60.38			270	31.05
Corn, cracked, per pound	0.9380	387	36.28	252	23.63	234	21.94
Soybean hulls, per pound	0.0950	263	24.94	360	34.20	270	25.65
Grass hay, per pound	0.0425	1,350	57.38				
Mineral, per pound	0.5375	36	19.35	36	19.35	36	19.35
Pasture, per animal unit month	16.0000			1.1	18.00	1.7	27.00
<b>Feed cost per period</b>		<b>198.32</b>		<b>95.18</b>		<b>124.99</b>	
<b>Average total feed costs</b>		<b>256.83</b>					
12 to 24 months (725 to 1,380 pounds)		Winter ration		Spring/Fall ration		Summer ration	
Feed description	Cost per unit	Units	Dollars <sup>1</sup>	Units	Dollars <sup>1</sup>	Units	Dollars <sup>1</sup>
Corn gluten feed, per pound	0.1150	225	25.88			207	23.81
Corn, cracked, per pound	0.9380	135	12.66	90	8.44	117	10.97
Soybean hulls, per pound	0.0950	90	8.55	180	17.10	207	19.67
Grass hay, per pound	0.0425	1,710	72.68				
Mineral, per pound	0.5375	18	9.68	18	9.68	18	9.68
Pasture, per animal unit month	16.0000			2.1	33.68	3.2	50.52
<b>Feed cost per period</b>		<b>129.43</b>		<b>68.89</b>		<b>114.63</b>	
<b>Average total feed costs<sup>3</sup></b>		<b>372.30</b>					

<sup>1</sup> Totals may not sum due to rounding.

<sup>2</sup> Feed cost adjusted to account for death loss (4 percent).

<sup>3</sup> 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/MODairyBudget.xlsx) (<https://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 2022: Early kidding, sell at weaning (50 does, 150% kidding rate).**

	Head per doe	Quantity	Unit	Dollars per unit	Dollars per doe	Dollars per enterprise	
<b>Returns</b>							
Heavy kids	0.50	60	pound	3.80	114.00	5,700.00	
Light kids	0.92	50	pound	3.60	165.60	8,280.00	
Culled does	0.16	125	pound	2.05	35.88	1,793.75	
Culled bucks	0.02	175	pound	2.20	7.70	385.00	
Total returns					323.18	16,158.75	
<b>Operating costs</b>							
Doe replacement	0.17		head	210.00	35.70	1,785.00	
Buck cost, breeding supplies	0.04		head	410.00	9.20	460.00	
Pasture		0.35	acre	31.76	7.04	352.00	
Hay		396.0	pound	0.043	16.84	842.16	
Supplement		30.0	pound	0.102	3.06	152.78	
Mineral		4.4	pound	0.40	3.53	176.52	
Animal health					6.38	318.85	
Guard dog replacement and food					9.17	458.65	
Bedding and stock supplies					2.75	137.50	
Marketing		7.5	percent		24.24	1,211.91	
Machinery fuel, lube, repair					18.26	913.03	
Facility maintenance					3.90	195.00	
Operating interest		4.9	percent		2.76	138.07	
Operator and hired labor		4.32	hour	17.50	75.60	3,780.00	
Total operating costs					218.43	10,921.48	
<b>Ownership costs</b>							
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		4.9	percent		25.65	1,282.70	
Total ownership costs					54.79	2,739.46	
Total costs					273.22	13,660.94	
<b>Return over operating costs</b>					<b>104.75</b>	<b>5,237.27</b>	
<b>Return over total costs</b>					<b>49.96</b>	<b>2,497.81</b>	
					Return to labor and management	125.56	6,277.81
					Shut-down kid price, all else equal, \$ per pound	2.30	
					Break-even kid price, all else equal, \$ per pound	3.02	

Written by  
**Jennifer Lutes**, County Engagement Specialist, Agriculture and Environment Extension

**Table 2. Production rates for 2022: Early kidding, sell at weaning.**

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	150
Kid crop (raised to sale weight), percent	142
Adult death loss, percent	3
Kid death loss, pre-weaning, percent	3
Kid death loss, post-weaning, percent	3

**Table 3. Feed and labor estimates for 2022: Early kidding, sell at weaning.**

	Unit	Units per head, adults	Units per head, kids	Total units per doe	Weighted price (dollars per unit)	Total dollars per doe
Pasture	acre	0.2	0.1	0.35	31.76	11.18
Hay	pound	381.1	0.0	396.0	0.043	16.84
Supplement	pound	27.5	1.0	30.0	0.102	3.06
Mineral	pound	8.0	0.3	8.8	0.40	3.53
Labor	hour	3.0	0.8	4.32	17.50	75.60

**Table 4. Land and capital investment estimates for 2022: Early kidding, sell at weaning.**

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per doe
Pastureland	acre	18	2,500	44,000	880
Breeding stock unit	doe	50	263	13,150	263
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			<b>Total</b>	<b>78,450</b>	<b>1,569</b>

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

The meat goat budget is designed to reflect the economic costs and returns of a 50 doe, winter kidding flock (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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EarlyKiddingGoatBudget.xlsx) (<https://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.

# Goats - Late Kidding Planning Budget

**Table 1. Missouri meat goat planning budget for 2022: Late kidding, sell at weaning (50 does, 160% kidding rate).**

	Head per doe	Quantity	Unit	Dollars per unit	Dollars per doe	Dollars per enterprise	
<b>Returns</b>							
Heavy kids	0.44	60	pound	3.00	79.20	3,960.00	
Light kids	1.08	50	pound	2.80	151.20	7,560.00	
Culled does	0.16	125	pound	1.90	33.25	1,662.50	
Culled bucks	0.02	175	pound	2.10	7.35	367.50	
Total returns					271.00	13,550.00	
<b>Operating costs</b>							
Doe replacement	0.17		head	210.00	35.70	1,785.00	
Buck cost, breeding supplies	0.04		head	410.00	9.20	460.00	
Pasture		0.36	acre	31.70	7.24	362.00	
Hay		395.0	pound	0.043	16.80	839.78	
Supplement		30.0	pound	0.102	3.07	153.40	
Mineral		4.4	pound	0.40	3.55	177.26	
Animal health					6.41	320.60	
Guard dog replacement and food					9.17	458.65	
Bedding and stock supplies					2.75	137.50	
Marketing		7.5	percent		20.33	1,016.25	
Machinery fuel, lube, repair					18.26	913.03	
Facility maintenance					3.90	195.00	
Operating interest		4.9	percent		2.77	138.47	
Operator and hired labor		4.4	hour	17.50	77.00	3,850.00	
Total operating costs					216.14	10,806.94	
<b>Ownership costs</b>							
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		4.9	percent		25.65	1,282.70	
Total ownership costs					54.79	2,739.46	
Total costs					270.93	13,546.40	
<b>Return over operating costs</b>					<b>54.86</b>	<b>2,743.06</b>	
<b>Return over total costs</b>					<b>0.07</b>	<b>3.60</b>	
					Return to labor and management	77.07	3,853.60
					Shut-down kid price, all else equal, \$ per pound	2.18	
					Break-even kid price, all else equal, \$ per pound	2.86	

Written by  
**Jennifer Lutes**, County Engagement Specialist, Agriculture and Environment Extension

**Table 2. Production rates for 2022: Late kidding, sell at weaning.**

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	160
Kid crop (raised to sale weight), percent	152
Adult death loss, percent	3
Kid death loss, pre-weaning, percent	3
Kid death loss, post-weaning, percent	3

**Table 3. Feed and labor estimates for 2022: Late kidding, sell at weaning.**

	Unit	Units per head, adults	Units per head, kids	Total units per doe	Weighted price (dollars per unit)	Total dollars per doe
Pasture	acre	0.2	0.1	0.36	31.70	11.47
Hay	pound	380.0		395.0	0.043	16.80
Supplement	pound	27.5	1.0	30.1	0.102	3.07
Mineral	pound	8.0	0.3	8.9	0.40	3.55
Labor	hour	3.0	0.8	4.4	17.50	77.00

**Table 4. Land and capital investment estimates for 2022: Late kidding, sell at weaning.**

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per doe
Pastureland	acre	18	2,500	45,250	905
Breeding stock unit	doe	50	263	13,150	263
Buildings and facilities				11,500	230
Machinery, equipment and pickup				9,800	196
			<b>Total</b>	<b>79,700</b>	<b>1,594</b>

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

The meat goat budget is designed to reflect the economic costs and returns of a 50 doe, spring kidding flock (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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/LateKiddingGoatBudget.xlsx) (https://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.

# Sheep - Early Lambing Planning Budget

**Table 1. Missouri hair sheep planning budget for 2022: Early lambing, sell at weaning (50 ewes, 175% lambing rate).**

	Head per ewe	Quantity	Unit	Dollars per unit	Dollars per ewe	Dollars per enterprise	
<b>Returns</b>							
Heavy lambs	0.32	70	pound	2.52	56.45	2,822.40	
Light lambs	1.32	60	pound	2.62	207.50	10,375.20	
Culled ewes	0.14	120	pound	1.28	18.43	921.60	
Culled rams	0.02	170	pound	1.12	3.81	190.40	
Total returns					286.19	14,309.60	
<b>Operating costs</b>							
Ewe replacement	0.15		head	200.00	30.00	1,500.00	
Ram cost, breeding supplies	0.04		head	350.00	8.00	400.00	
Pasture		0.34	acre	35.00	6.81	340.60	
Hay		462.0	pound	0.042	19.41	970.48	
Supplement		30.0	pound	0.102	3.09	154.61	
Mineral		4.5	pound	0.40	3.56	178.14	
Animal health					6.47	323.40	
Guard dog replacement and food					9.17	458.65	
Bedding and stock supplies					2.75	137.50	
Marketing		7.5	percent		21.46	1,073.22	
Machinery fuel, lube, repair					18.26	913.03	
Facility maintenance					3.90	195.00	
Operating interest		4.9	percent		2.85	142.66	
Operator and hired labor		4.53	hour	17.50	79.24	3,962.00	
Total operating costs					214.99	10,749.30	
<b>Ownership costs</b>							
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		4.9	percent		24.10	1,204.79	
Total ownership costs					53.23	2,661.55	
Total costs					268.22	13,410.85	
<b>Return over operating costs</b>					<b>71.21</b>	<b>3,560.30</b>	
<b>Return over total costs</b>					<b>17.97</b>	<b>898.75</b>	
					Return to labor and management	97.21	4,860.75
					Shut-down lamb price, all else equal, \$ per pound	1.90	
					Break-even lamb price, all else equal, \$ per pound	2.42	

Written by  
**Jennifer Lutes**, County Engagement Specialist, Agriculture and Environment Extension

**Table 2. Production rates for 2022: Early lambing, sell at weaning.**

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	164
Adult death loss, percent	3
Lamb death loss, pre-weaning, percent	4
Lamb death loss, post-weaning, percent	2

**Table 3. Feed and labor estimates for 2022: Early lambing, sell at weaning.**

	Unit	Units per head, adults	Units per head, lambs	Total units per ewe	Weighted price (dollars per unit)	Total dollars per ewe
Pasture	acre	0.165	0.1	0.34	35.00	11.92
Hay	pound	443.8	0.0	462.0	0.042	19.41
Supplement	pound	27.5	1.0	30.2	0.102	3.09
Mineral	pound	8.0	0.3	8.9	0.40	3.56
Labor	hour	3.0	0.8	4.53	17.50	79.24

**Table 4. Land and capital investment estimates for 2022: Early lambing, sell at weaning.**

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per ewe
Pastureland	acre	17	2,500	42,575	852
Breeding stock unit	ewe	50	231	11,560	231
Buildings and facilities				11,500	230
Machinery, equipment, and pickup				9,800	196
			<b>Total</b>	<b>75,435</b>	<b>1,509</b>

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

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 60 to 70 pounds in April/May. This management system takes advantage of expected seasonally high market prices for light 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](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EweEarlyLambingBudget.xlsx) (<https://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.

# Sheep - Late Lambing Planning Budget

**Table 1. Missouri hair sheep planning budget for 2022: Late lambing, sell at weaning (50 ewes, 185% lambing rate).**

	Head per ewe	Quantity	Unit	Dollars per unit	Dollars per ewe	Dollars per enterprise	
<b>Returns</b>							
Heavy lambs	0.20	70	pound	2.45	34.30	1,715.00	
Light lambs	1.56	60	pound	2.65	248.04	12,402.00	
Culled ewes	0.14	120	pound	1.30	18.72	936.00	
Culled rams	0.02	170	pound	1.37	4.66	232.90	
Total returns					305.72	15,285.90	
<b>Operating costs</b>							
Ewe replacement	0.15		head	200.00	30.00	1,500.00	
Ram cost and breeding supplies	0.04		head	350.00	8.00	400.00	
Pasture		0.35	acre	35.00	7.03	351.60	
Hay		466.0	pound	0.042	19.60	980.00	
Supplement		30.0	pound	0.103	3.12	155.77	
Mineral		4.5	pound	0.40	3.58	179.02	
Animal health					6.50	325.15	
Guard dog replacement and food					9.17	458.65	
Bedding and stock supplies					2.75	137.50	
Marketing		7.5	percent		22.93	1,146.44	
Machinery fuel, lube, repair					18.26	913.03	
Facility maintenance					3.90	195.00	
Operating interest		4.9	percent		2.87	143.56	
Operator and hired labor		4.61	hour	17.50	80.64	4,032.00	
Total operating costs					218.35	10,917.72	
<b>Ownership costs</b>							
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		4.9	percent		24.10	1,204.79	
Total ownership costs					53.23	2,661.55	
Total costs					271.59	13,579.27	
<b>Return over operating costs</b>					<b>87.36</b>	<b>4,368.18</b>	
<b>Return over total costs</b>					<b>34.13</b>	<b>1,706.63</b>	
					Return to labor and management	114.77	5,738.63
					Shut-down lamb price, all else equal, \$ per pound	1.81	
					Break-even lamb price, all else equal, \$ per pound	2.31	

Written by  
**Jennifer Lutes**, County Engagement Specialist, Agriculture and Environment Extension

**Table 2. Production rates for 2022: Late lambing, sell at weaning.**

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	185
Lamb crop (raised to sale weight), percent	176
Adult death loss, percent	3
Lamb death loss, pre-weaning, percent	3
Lamb death loss, post-weaning, percent	2

**Table 3. Feed and labor estimates for 2022: Late lambing, sell at weaning.**

	Unit	Units per head, adults	Units per head, lambs	Total units per ewe	Weighted price (dollars per unit)	Total dollars per ewe
Pasture	acre	0.165	0.1	0.35	35.00	12.31
Hay	pound	448.1	0.0	466.0	0.042	19.60
Supplement	pound	27.5	1.0	30.4	0.103	3.12
Mineral	pound	8.0	0.3	9.0	0.40	3.58
Labor	hour	3.0	0.80	4.61	17.50	80.64

**Table 4. Land and capital investment estimates for 2021: Late lambing, sell at weaning.**

	Unit	Quantity	Dollars per unit	Enterprise total dollars	Dollars per ewe
Pastureland	acre	18	2,500	43,950	879
Breeding stock unit	ewe	50	231	11,560	231
Buildings and facilities				11,500	230
Machinery, equipment, and pickup				9,800	196
			<b>Total</b>	<b>76,810</b>	<b>1,536</b>

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

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 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 Sheep Enterprise Tool](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/EweLateLambingBudget.xlsx) (<https://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.



# Corn (Dryland) Planning Budget

Using this planning budget, corn farmers may estimate their costs and returns for 2022. Table 1 presents estimates for dryland corn grain production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri corn (dryland) planning budget for 2022.**

	Dollars per acre	Your estimate
<b>Income</b>		
Grain sales	782.00	
Other income	0.00	
<b>Total income</b>	<b>782.00</b>	
<b>Operating costs</b>		
Seed	103.13	
Fertilizer and soil amendments	178.47	
Crop protection chemicals	49.00	
Crop supplies, storage, and marketing	2.50	
Crop consulting and insurance	26.00	
Custom hire and rental	6.00	
Machinery fuel, drying, and irrigation energy	50.65	
Machinery repairs and maintenance	27.08	
Operator and hired labor	18.80	
Operating interest	11.31	
<b>Total operating costs</b>	<b>472.94</b>	
<b>Ownership costs</b>		
Farm business overhead	4.00	
Machinery overhead	25.51	
Machinery depreciation	40.04	
Real estate charge	168.00	
<b>Total ownership costs</b>	<b>237.55</b>	
<b>Total costs</b>	<b>710.48</b>	
<b>Income over operating costs</b>	<b>309.06</b>	
<b>Income over total costs</b>	<b>71.52</b>	
	Operating costs per bushel	2.78
	Ownership costs per bushel	1.40
	<b>Total costs per bushel</b>	<b>4.18</b>

Written by  
**Raymond Massey**, Professor, Agricultural Business and Policy Extension  
**Ben Brown**, State Specialist, Agricultural Business and Policy Extension

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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	170	Corn market price, per bushel	4.60
Seeding rate, count	30,000	Seed, per 80,000 seed bag	275.00
Nitrogen rate, pounds	170	Nitrogen, per pound N	0.50
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	77	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	49	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.60	Lime, per ton	25.00
Sum of allocated labor, hours	0.97	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
V-ripper 30-inch (17 feet); 360 4WD	0.03	0.45	2.39	5.75	8.15	0.3
Row crop planter (16 row); 225 MFWD	0.05	0.53	5.69	12.48	18.17	1.0
Boom sprayer (90 feet); 130 MFWD	0.04	0.25	3.00	4.67	7.67	2.0
Anhydrous applicator (21 feet); 225 MFWD	0.09	0.88	5.87	7.23	13.10	1.0
Combine, corn head (8 row); 275 HP	0.15	1.78	22.66	17.74	40.40	1.0
Grain cart (500 bushel); 225 MFWD	0.07	0.73	5.17	8.19	13.36	
Grain auger (5,000 bushels per hour); 130 MFWD	0.03	0.19	1.49	1.36	2.84	
Semi, tractor and trailer		2.57	12.13	6.07	18.20	
Pickup truck		0.33	1.71	2.05	3.76	
<b>Total<sup>3</sup></b>	<b>0.47</b>	<b>7.72</b>	<b>60.11</b>	<b>65.55</b>	<b>125.66</b>	<b>5.3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm>). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for corn and other crops in Missouri.

# Corn (Irrigated) Planning Budget

Using this planning budget, corn farmers may estimate their costs and returns for 2022. Table 1 presents estimates for irrigated corn grain production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri corn (irrigated) planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Grain sales	989.00	
Other income	0.00	
<b>Total income</b>	<b>989.00</b>	
<b>Operating costs</b>		
Seed	110.00	
Fertilizer and soil amendments	221.51	
Crop protection chemicals	49.00	
Crop supplies, storage, and marketing	4.00	
Crop consulting and insurance	26.00	
Custom hire and rental	6.00	
Machinery fuel, drying, and irrigation energy	90.07	
Machinery repairs and maintenance	60.91	
Operator and hired labor	28.41	
Operating interest	14.60	
<b>Total operating costs</b>	<b>610.50</b>	
<b>Ownership costs</b>		
Farm business overhead	3.13	
Machinery overhead	49.98	
Machinery depreciation	63.45	
Real estate charge	227.50	
<b>Total ownership costs</b>	<b>344.06</b>	
<b>Total costs</b>	<b>954.55</b>	
<b>Income over operating costs</b>		
	<b>378.50</b>	
<b>Income over total costs</b>		
	<b>34.45</b>	
	Operating costs per bushel	2.84
	Ownership costs per bushel	1.60
	<b>Total costs per bushel</b>	<b>4.44</b>

<sup>1</sup> Totals may not sum due to rounding.

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**Ben Brown**, State Specialist, Agricultural Business and Policy Extension

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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	215	Corn market price, per bushel	4.60
Seeding rate, count	32,000	Seed, per 80,000 seed bag	275.00
Nitrogen rate, pounds N	215	Nitrogen, per pound N	0.50
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	97	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	62	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.6	Lime, per ton	25.00
Sum of allocated labor, hours	1.52	Skilled labor, per hour	23.00
Irrigation, inches	6	Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Field cultivator (35 ft); 360 4WD	0.04	0.63	3.63	4.87	8.50	1
V-ripper 30" (17 feet); 360 4WD	0.03	0.45	2.39	5.75	8.15	0.3
Split row no-till planter (16/31 (30/15")); 225 MFWD	0.05	0.53	5.13	12.02	17.15	1
Boom sprayer (90 feet); 130 MFWD	0.04	0.25	3.00	4.67	7.67	2
Anhydrous applicator (21 feet); 225 MFWD	0.09	0.88	5.87	7.23	13.10	1
Combine, corn head (8 row); 275 HP	0.15	1.78	22.66	17.74	40.40	1
Grain cart (500 bushel); 225 MFWD	0.07	0.73	5.17	8.19	13.36	
Grain auger (5,000 bushels per hour); 130 MFWD	0.04	0.25	1.88	1.72	3.60	
Irrigation	0.50		61.43	44.00	105.43	1
Semi, tractor and trailer		2.41	11.37	5.65	17.02	
Pickup truck		0.26	1.33	1.60	2.93	
<b>Total<sup>3</sup></b>	<b>1.02</b>	<b>8.17</b>	<b>123.87</b>	<b>113.43</b>	<b>237.30</b>	<b>7.3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm>). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for corn and other crops in Missouri.

# Corn Silage Planning Budget

Using this planning budget, farmers growing corn silage can estimate their costs and returns for 2022. Table 1 presents estimates for corn silage production in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri corn silage planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Silage sales	828.00	
Other income	0.00	
<b>Total income</b>	<b>828.00</b>	
<b>Operating costs</b>		
Seed	73.13	
Fertilizer and soil amendments	241.87	
Crop protection chemicals	49.00	
Crop supplies, storage, and marketing	5.75	
Custom hire and rental	81.00	
Machinery fuel and irrigation energy	17.67	
Machinery repairs and maintenance	22.95	
Operator and hired labor	25.90	
Operating interest	12.67	
<b>Total operating costs</b>	<b>529.94</b>	
<b>Ownership costs</b>		
Farm business overhead	9.00	
Machinery overhead	26.95	
Machinery depreciation	37.40	
Real estate charge	168.00	
<b>Total ownership costs</b>	<b>241.35</b>	
<b>Total costs</b>	<b>771.29</b>	
<b>Income over operating costs</b>		
	<b>298.06</b>	
<b>Income over total costs</b>		
	<b>56.71</b>	
Operating costs per ton, as-fed basis	29.44	
Ownership costs per ton, as-fed basis	13.41	
<b>Total costs per ton, as-fed basis</b>	<b>42.85</b>	

<sup>1</sup> Totals may not sum due to rounding.

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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, tons, as-is basis	18	Corn silage market price, per ton	46.00
Seeding rate, corn	26,000	Seed, per 80,000 seed bag	225.00
Nitrogen rate, pounds	184	Nitrogen, per pound N	0.60
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	59	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	139	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.50	Lime, per ton	25.00
Sum of allocated labor, hours	1.26	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Field cultivator (18 ft); 160 MFWD	0.08	0.54	4.29	4.70	8.99	1
Row crop planter (12 row); 130 MFWD	0.07	0.41	5.66	11.80	17.46	1
Boom sprayer (90 ft); 105 2WD	0.04	0.21	2.80	4.28	7.08	2
Anhydrous applicator (21 feet); 160 MFWD	0.09	0.63	5.04	5.17	10.22	1
Silage chopper, 3 row (7.5 feet); 160 MFWD	0.48	3.40	35.72	33.29	69.00	1
Pickup truck		0.83	4.27	5.11	9.38	
<b>Total<sup>3</sup></b>	<b>0.76</b>	<b>6.02</b>	<b>57.77</b>	<b>64.35</b>	<b>122.13</b>	<b>6</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (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 corn silage and other forages in Missouri. For corn grown for grain, customized budgets can be created using the [Missouri Crop Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm).

# Soybean (Dryland) Planning Budget

Using this planning budget, soybean farmers may estimate their costs and returns for 2022. Table 1 presents estimates for dryland soybean production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri soybean (dryland) planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Grain sales	662.75	
Other income	0.00	
<b>Total income</b>	<b>662.75</b>	
<b>Operating costs</b>		
Seed	65.73	
Fertilizer and soil amendments	88.80	
Crop protection chemicals	55.00	
Crop supplies, storage, and marketing	3.50	
Crop consulting and insurance	17.00	
Custom hire and rental	6.00	
Machinery fuel, drying, and irrigation energy	15.06	
Machinery repairs and maintenance	21.95	
Operator and hired labor	16.45	
Operating interest	7.09	
<b>Total operating costs</b>	<b>296.59</b>	
<b>Ownership costs</b>		
Farm business overhead	4.00	
Machinery overhead	18.35	
Machinery depreciation	33.04	
Real estate charge	168.00	
<b>Total ownership costs</b>	<b>223.39</b>	
<b>Total costs</b>	<b>519.97</b>	
<b>Income over operating costs</b>		
	<b>366.16</b>	
<b>Income over total costs</b>		
	<b>142.78</b>	
	Operating costs per bushel	5.39
	Ownership costs per bushel	4.06
	<b>Total costs per bushel</b>	<b>9.45</b>

<sup>1</sup> Totals may not sum due to rounding.

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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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	55	Soybean market price, per bushel	12.05
Seeding rate, count	170,000	Seed, per 150,000 seed bag	58.00
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	46	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	80	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.5	Lime, per ton	25.00
Sum of allocated labor, hours	0.87	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Tandem disk (30 feet); 360 4WD	0.06	0.91	5.22	7.89	13.11	1
Row crop planter (16 row); 225 MFWD	0.05	0.53	5.69	12.48	18.17	1
Boom sprayer (90 feet); 130 MFWD	0.04	0.25	3.00	4.67	7.67	2
Combine, flexible grain head (25 feet); 275 HP	0.13	1.63	20.29	14.48	34.77	1
Grain cart (500 bushel); 225 MFWD	0.07	0.67	4.73	7.49	12.22	
Grain auger (5,000 bushels per hour); 130 MFWD	0.01	0.06	0.48	0.44	0.92	
Semi, tractor and trailer		0.74	3.59	1.89	5.47	
Pickup truck		0.33	1.71	2.05	3.76	
<b>Total<sup>3</sup></b>	<b>0.37</b>	<b>5.11</b>	<b>44.71</b>	<b>51.39</b>	<b>96.10</b>	<b>5</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for soybeans and other crops in Missouri.



# Soybean (Double Crop) Planning Budget

Using this planning budget, soybean farmers may estimate their costs and returns for 2022. 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 2021. 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 2022.

**Table 1. Missouri soybean (double crop) planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Grain sales	421.75	
Other income	0.00	
<b>Total income</b>	<b>421.75</b>	
<b>Operating costs</b>		
Seed	77.33	
Fertilizer and soil amendments	48.43	
Crop protection chemicals	10.00	
Crop supplies, storage, and marketing	0.00 <sup>2</sup>	
Crop consulting and insurance	0.00	
Custom hire and rental	0.00 <sup>2</sup>	
Machinery fuel, drying, and irrigation energy	8.78	
Machinery repairs and maintenance	15.72	
Operator and hired labor	13.19	
Operating interest	4.25	
<b>Total operating costs</b>	<b>177.70</b>	
<b>Ownership costs</b>		
Farm business overhead	5.00	
Machinery overhead	12.11	
Machinery depreciation	20.15	
Real estate charge	0.00 <sup>2</sup>	
<b>Total ownership costs</b>	<b>37.26</b>	
<b>Total costs</b>	<b>214.96</b>	
<b>Income over operating costs</b>	<b>244.05</b>	
<b>Income over total costs</b>	<b>206.79</b>	
	Operating costs per bushel	5.08
	Ownership costs per bushel	1.06
	<b>Total costs per bushel</b>	<b>6.14</b>

<sup>1</sup> Totals may not sum due to rounding.

<sup>2</sup> These expenses were charged to wheat production since soybeans were planted in the same year wheat was harvested.

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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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	35	Soybean market price, per bushel	12.05
Seeding rate, count	200,000	Seed, per 150,000 seed bag	58.00
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	29	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	51	Potassium, per pound K <sub>2</sub> O	0.58
Sum of allocated labor, hours	0.69	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Row crop planter (16 row); 225 MFWD	0.05	0.53	5.69	12.48	18.17	1
Boom sprayer (90 feet); 130 MFWD	0.02	0.12	1.50	2.96	4.46	1
Combine, flexible grain head (30 feet); 275 HP	0.11	1.36	17.05	12.63	29.67	1
Grain auger (5,000 bushels per hour); 130 MFWD	0.01	0.11	0.55	0.63	1.17	
Semi, tractor and trailer		0.43	2.02	1.01	3.03	
Pickup truck		0.42	2.13	2.56	4.69	
<b>Total<sup>3</sup></b>	<b>0.19</b>	<b>2.97</b>	<b>28.94</b>	<b>32.26</b>	<b>61.20</b>	<b>3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for soybeans and other crops in Missouri.

# Winter Wheat Planning Budget

Using this planning budget, wheat farmers may estimate their costs and returns for 2022. 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 2021. 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 2022.

**Table 1. Missouri winter wheat planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income per acre</b>		
Grain sales	455.00	
Other income	0.00	
<b>Total income</b>	<b>455.00</b>	
<b>Operating costs</b>		
Seed	36.00	
Fertilizer and soil amendments	118.48	
Crop protection chemicals	20.00	
Crop supplies, storage, and marketing	3.50	
Crop consulting and insurance	13.00	
Custom hire and rental	12.00	
Machinery fuel, drying, and irrigation energy	18.57	
Machinery repairs and maintenance	22.07	
Operator and hired labor	16.67	
Operating interest	6.38	
<b>Total operating costs</b>	<b>266.67</b>	
<b>Ownership costs</b>		
Farm business overhead	5.00	
Machinery overhead	18.90	
Machinery depreciation	32.43	
Real estate charge	129.50	
<b>Total ownership costs</b>	<b>185.83</b>	
<b>Total costs</b>	<b>452.51</b>	
<b>Income over operating costs</b>	<b>188.33</b>	
<b>Income over total costs</b>	<b>2.49</b>	
	Operating costs per bushel	3.81
	Ownership costs per bushel	2.65
	<b>Total costs per bushel</b>	<b>6.46</b>

<sup>1</sup> 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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	70	Wheat market price, per bushel	6.50
Seeding rate, 50 pound bag	100	Seed, per bag	18.00
Nitrogen rate, pounds N	95	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	42	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	21	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.5	Lime, per ton	25.00
Sum of allocated labor, hours	0.86	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
No-till drill (15 feet); 225 MFWD	0.16	1.56	13.22	21.37	34.59	1
Boom sprayer (90 feet); 130 MFWD	0.02	0.12	1.50	2.96	4.46	1
Combine, fixed grain head (30 feet); 275 HP	0.11	1.36	17.05	12.63	29.67	1
Grain cart (500 bushel); 225 MFWD	0.06	0.56	3.94	6.24	10.18	
Grain auger (5,000 bushels per hour); 130 MFWD	0.01	0.08	0.61	0.56	1.17	
Semi, tractor and trailer		2.14	10.11	5.02	15.13	
Pickup truck		0.42	2.13	2.56	4.69	
<b>Total<sup>3</sup></b>	<b>0.36</b>	<b>6.23</b>	<b>48.56</b>	<b>51.33</b>	<b>99.90</b>	<b>3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for winter wheat and other crops in Missouri.

# Grain Sorghum Planning Budget

Using this planning budget, sorghum farmers may estimate their costs and returns for 2022. Table 1 presents estimates for grain sorghum production in northern, central and southwest Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri grain sorghum planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Grain sales	475.00	
Other income	0.00	
<b>Total income</b>	<b>475.00</b>	
<b>Operating costs</b>		
Seed	12.60	
Fertilizer and soil amendments	128.57	
Crop protection chemicals	34.00	
Crop supplies, storage, and marketing	2.00	
Crop consulting and insurance	17.00	
Custom hire and rental	12.00	
Machinery fuel, drying, and irrigation energy	17.37	
Machinery repairs and maintenance	21.18	
Operator and hired labor	15.39	
Operating interest	6.37	
<b>Total operating costs</b>	<b>266.48</b>	
<b>Ownership costs</b>		
Farm business overhead	5.00	
Machinery overhead	20.28	
Machinery depreciation	29.87	
Real estate charge	129.50	
<b>Total ownership costs</b>	<b>184.65</b>	
<b>Total costs</b>	<b>451.13</b>	
<b>Income over operating costs</b>	<b>208.52</b>	
<b>Income over total costs</b>	<b>23.87</b>	
	Operating costs per bushel	2.66
	Ownership costs per bushel	1.85
	<b>Total costs per bushel</b>	<b>4.51</b>

<sup>1</sup> 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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, bushels	100	Grain sorghum market price, per bushel	4.75
Seeding rate, count	90,000	Seed, per 750,000 seed bag	105.00
Nitrogen rate, pounds N	100	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	45	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	29	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.5	Lime, per ton	25.00
Sum of allocated labor, hours	0.81	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
V-ripper 30-inch (17 feet); 360 4WD	0.03	0.45	2.39	5.75	8.15	0.3
Row crop planter (16 row); 225 MFWD	0.05	0.53	5.69	12.48	18.17	1
Boom sprayer (90 feet); 130 MFWD	0.04	0.25	3.00	4.67	7.67	2
Combine, fixed grain head (30 feet); 275 HP	0.11	1.36	17.05	12.63	29.67	1
Grain cart (500 bushel); 225 MFWD	0.06	0.56	3.94	6.24	10.18	
Grain auger (5,000 bushels per hour); 130 MFWD	0.02	0.11	0.88	0.80	1.67	
Semi, tractor and trailer		2.14	10.11	5.02	15.13	
Pickup truck		0.42	2.13	2.56	4.69	
<b>Total<sup>3</sup></b>	<b>0.31</b>	<b>5.82</b>	<b>45.19</b>	<b>50.15</b>	<b>95.34</b>	<b>4.3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> 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 Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm) (<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/CropBudgetGenerator.xlsm>). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for grain sorghum and other crops in Missouri.

# Alfalfa Establishment Planning Budget

Using this planning budget, farmers establishing alfalfa can estimate their costs and returns for 2022. Table 1 presents estimates for the fall establishment of alfalfa in Missouri. Assumptions were based on price conditions as of October 2021. 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, spring established alfalfa would have a higher crop protection cost to account for necessary herbicides. Use the “Your estimate” column to plan your operation’s costs and returns for 2022.

**Table 1. Missouri alfalfa establishment planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Hay sales (60 pound bales)	560.00	
Other income	0.00	
<b>Total income</b>	<b>560.00</b>	
<b>Operating costs</b>		
Seed	48.75	
Fertilizer and soil amendments	162.20	
Crop protection chemicals	39.00	
Crop supplies, storage, and marketing	7.75	
Custom hire and rental	80.00	
Machinery fuel and irrigation energy	22.56	
Machinery repairs and maintenance	25.55	
Operator and hired labor	48.60	
Operating interest	10.64	
<b>Total operating costs</b>	<b>445.05</b>	
<b>Ownership costs</b>		
Farm business overhead	11.25	
Machinery overhead	25.05	
Machinery depreciation	43.12	
Real estate charge	119.00	
<b>Total ownership costs</b>	<b>198.42</b>	
<b>Total costs</b>	<b>643.48</b>	
<b>Income over operating costs</b>	<b>114.95</b>	
<b>Income over total costs</b>	<b>-83.48</b>	

<sup>1</sup> Totals may not sum due to rounding.

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Table 2 shows input assumptions for alfalfa establishment and small bale production. Price estimates reflect summer 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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, 60 pound bales	70	Alfalfa market price, per bale	8.00
Seeding rate, pounds	15	Alfalfa seed, per pound	3.25
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	70	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.50
Potassium rate, pounds K <sub>2</sub> O	90	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	3	Lime, per ton	25.00
Sum of allocated labor, hours	2.47	Skilled labor, per hour	23.00
Operating interest, %	4.90	Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Chisel plow (15 feet); 130 MFWD	0.13	0.74	6.17	9.04	15.21	1
Tandem disk (21 feet); 130 MFWD	0.16	0.94	8.82	8.99	17.81	2
Roller harrow (12 feet); 105 2WD	0.13	0.65	5.43	5.49	10.92	1
No-till drill (15 feet); 130 MFWD	0.16	0.90	10.37	15.08	25.46	1
Disk mower-conditioner (9 feet); 105 2WD	0.35	1.71	16.17	10.82	26.99	2
Wheel rake (2-16'); 60 2WD	0.08	0.20	2.46	2.30	4.76	2
Small square baler; 75 2WD	0.46	1.51	24.55	10.05	34.50	2
Pickup truck		1.04	5.34	6.39	11.73	
<b>Total<sup>3</sup></b>	<b>1.47</b>	<b>7.69</b>	<b>79.21</b>	<b>68.17</b>	<b>147.38</b>	<b>11</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (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 alfalfa and other forages in Missouri.



# Alfalfa Baleage Planning Budget

Using this planning budget, farmers growing alfalfa for baleage can estimate their costs and returns for 2022. Establishment costs for alfalfa can be found in MU Extension publication, G661, [Alfalfa Establishment Planning Budget](https://extension.missouri.edu/g661) (https://extension.missouri.edu/g661). Table 1 presents estimates for established alfalfa baleage production in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri alfalfa baleage planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Baleage sales	900.00	
Other income	0.00	
<b>Total income</b>	<b>900.00</b>	
<b>Operating costs</b>		
Seed	0.00	
Fertilizer and soil amendments	161.50	
Crop protection chemicals	16.00	
Crop supplies, storage, and marketing	110.00	
Custom hire and rental	52.50	
Machinery fuel and irrigation energy	39.55	
Machinery repairs and maintenance	49.72	
Operator and hired labor	72.86	
Operating interest	12.30	
<b>Total operating costs</b>	<b>514.43</b>	
<b>Ownership costs</b>		
Farm business overhead	11.25	
Machinery overhead	31.35	
Machinery depreciation	59.67	
Real estate charge	119.00	
<b>Total ownership costs</b>	<b>221.27</b>	
<b>Total costs</b>	<b>735.70</b>	
<b>Income over operating costs</b>		
	<b>385.57</b>	
<b>Income over total costs</b>		
	<b>164.30</b>	
Operating costs per ton, as fed	57.16	
Ownership costs per ton, as fed	24.59	
<b>Total costs per ton, as fed</b>	<b>81.74</b>	

<sup>1</sup> Totals may not sum due to rounding.

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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Yield, tons, as fed	9.00	Market price, per ton	100.00
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	70.00	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	200.00	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.00	Lime, per ton	0.00
Sum of allocated labor, hours	3.71	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Boom sprayer (90 feet); 105 2WD	0.04	0.21	2.80	4.28	7.08	2
Disk mower-conditioner (9 feet); 105 2WD	0.71	3.41	32.33	18.18	50.51	4
Wheel rake (2-16'); 75 2WD	0.15	0.50	5.37	4.38	9.75	4
Round baler, silage kit (1500 pound); 105 2WD	0.71	3.41	37.49	28.04	65.53	4
Round bale wrapper haylage; 75 2WD	1.50	4.95	68.30	29.75	98.05	1
Pickup truck		1.04	5.34	6.39	11.73	
<b>Total<sup>3</sup></b>	<b>3.11</b>	<b>13.53</b>	<b>151.63</b>	<b>91.02</b>	<b>242.65</b>	<b>15</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (<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 alfalfa and other forages in Missouri.

# 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 2022. Establishment costs for alfalfa can be found in MU Extension publication G661, [Alfalfa Establishment Planning Budget](https://extension.missouri.edu/g661) (https://extension.missouri.edu/g661). Table 1 presents estimates for established alfalfa with small bale production. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri alfalfa small bales planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Hay sales (60 pound bales)	1,333.36	
Other income	0.00	
<b>Total income</b>	<b>1,333.36</b>	
<b>Operating costs</b>		
Seed	0.00	
Fertilizer and soil amendments	161.50	
Crop protection chemicals	16.00	
Crop supplies, storage, and marketing	13.00	
Custom hire and rental	177.84	
Machinery fuel and irrigation energy	27.54	
Machinery repairs and maintenance	33.43	
Operator and hired labor	58.26	
Operating interest	11.95	
<b>Total operating costs</b>	<b>499.51</b>	
<b>Ownership costs</b>		
Farm business overhead	11.25	
Machinery overhead	13.78	
Machinery depreciation	55.57	
Real estate charge	119.00	
<b>Total ownership costs</b>	<b>199.60</b>	
<b>Total costs</b>	<b>699.11</b>	
<b>Income over operating costs</b>	<b>833.85</b>	
<b>Income over total costs</b>	<b>634.25</b>	

<sup>1</sup> 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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Forage yield, 60 pound bales	166.67	Alfalfa market price, per bale	8.00
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	70	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	200	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.00	Lime, per ton	0.00
Sum of allocated labor, hours	2.74	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Boom sprayer (90 feet); 75 2WD	0.04	0.14	2.50	3.89	6.39	2
Swather (haybine) mower-conditioner	0.92	4.24	43.04	35.01	78.05	4
Hay tedder (8.5 feet); 60 2WD	0.21	0.55	5.78	2.65	8.43	2
Wheel rake (2-16'); 60 2WD	0.15	0.40	4.91	3.97	8.88	4
Small square baler; 75 2WD	0.92	3.03	48.91	17.44	66.35	4
Pickup truck		1.04	5.34	6.39	11.73	
<b>Total<sup>3</sup></b>	<b>2.24</b>	<b>9.40</b>	<b>110.48</b>	<b>69.35</b>	<b>179.83</b>	<b>16</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; hp = horsepower

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (<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 alfalfa and other forages in Missouri.

# Cool Season Pasture Establishment Planning Budget

Using this budget, farmers establishing cool season pasture can estimate their costs and returns for 2022. Table 1 presents estimates for cool season pasture establishment in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri cool season pasture establishment planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Grazing	32.00	
Other income	0.00	
<b>Total income</b>	<b>32.00</b>	
<b>Operating costs</b>		
Seed, orchardgrass and red clover	36.70	
Fertilizer and soil amendments	94.85	
Crop protection chemicals	12.00	
Crop supplies, storage, and marketing	4.25	
Custom hire and rental	25.50	
Machinery fuel and irrigation energy	6.13	
Machinery repairs and maintenance	3.85	
Operator and hired labor	14.37	
Operating interest	4.84	
<b>Total operating costs</b>	<b>202.49</b>	
<b>Ownership costs</b>		
Farm business overhead	5.63	
Machinery overhead	7.36	
Machinery depreciation	9.93	
Real estate charge	55.10	
<b>Total ownership costs</b>	<b>78.02</b>	
<b>Total costs</b>	<b>280.51</b>	
<b>Income over operating costs</b>	<b>-170.49</b>	
<b>Income over total costs</b>	<b>-248.51</b>	

<sup>1</sup> Totals may not sum due to rounding.

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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Pasture yield, animal unit month	2	Pasture price, per animal unit month	16.00
Seeding rate, pounds orchardgrass	6	Orchardgrass seed, per pound	2.65
Seeding rate, pounds clover	8	Clover seed, per pound	2.60
Nitrogen rate, pounds N	30	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	35	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	45	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	1	Lime, per ton	25.00
Sum of allocated labor, hours	0.77	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Rent, no-till drill (15 feet); 130 MFWD	0.16	0.90	19.41	5.29	24.71	1
Rotary mower (12 feet); 130 MFWD	0.11	0.66	5.51	8.81	14.32	1
Pickup truck		0.52	2.67	3.19	5.86	
<b>Total<sup>3</sup></b>	<b>0.27</b>	<b>2.07</b>	<b>27.60</b>	<b>17.30</b>	<b>44.89</b>	<b>2</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (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.

# Fescue - Clover Hay Planning Budget

Using this planning budget, farmers growing hay can estimate their costs and returns for 2022. Table 1 presents estimates for established fescue-clover hay production in Missouri. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri fescue-clover hay planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Hay	255.00	
Grazing	16.00	
Other income	0.00	
<b>Total income</b>	<b>271.00</b>	
<b>Operating costs</b>		
Seed	0.00	
Fertilizer and soil amendments	105.20	
Crop protection chemicals	0.00	
Crop supplies, storage, and marketing	14.00	
Custom hire and rental	26.25	
Machinery fuel and irrigation energy	6.67	
Machinery repairs and maintenance	12.06	
Operator and hired labor	11.53	
Operating interest	4.30	
<b>Total operating costs</b>	<b>180.02</b>	
<b>Ownership costs</b>		
Farm business overhead	5.63	
Machinery overhead	8.79	
Machinery depreciation	11.67	
Real estate charge	64.60	
<b>Total ownership costs</b>	<b>90.69</b>	
<b>Total costs</b>	<b>270.71</b>	
<b>Income over operating costs</b>	<b>90.98</b>	
<b>Income over total costs</b>	<b>0.29</b>	

<sup>1</sup> Totals may not sum due to rounding.

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Table 2 shows input assumptions for the fescue-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 fescue-clover hay planning budget for 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Hay yield, tons, 10% moisture	3	Hay price, per ton	85.00
Pasture yield, animal unit month	1	Pasture price, per animal unit month	16.00
Nitrogen rate, pounds N	40	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	46	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	60	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.50	Lime, per ton	25.00
Sum of allocated labor, hours	0.57	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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-clover hay planning budget for 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Disk mower-conditioner (9 feet); 130 MFWD	0.18	1.01	8.86	8.90	17.76	1
Wheel rake (2-16'); 75 2WD	0.04	0.13	1.34	1.62	2.96	1
Round baler, net wrap (1500 pound); 130 MFWD	0.11	0.61	13.01	6.76	19.77	1
Pickup truck		0.52	2.67	3.20	5.86	
<b>Total<sup>3</sup></b>	<b>0.32</b>	<b>2.26</b>	<b>25.89</b>	<b>20.47</b>	<b>46.36</b>	<b>3</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (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.



# Fescue Seed and Forage Planning Budget

Using this planning budget, farmers growing fescue for seed and forage can estimate their costs and returns for 2022. Table 1 presents estimates for established fescue used for seed, hay and grazing purposes. Assumptions were based on price forecasts as of October 2021. 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 2022.

**Table 1. Missouri fescue seed and forage planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Income</b>		
Fescue hay	180.00	
Fescue seed	225.00	
Grazing	16.00	
Other income	0.00	
<b>Total income</b>	<b>421.00</b>	
<b>Operating costs</b>		
Seed	0.00	
Fertilizer and soil amendments	127.40	
Crop protection chemicals	0.00	
Crop supplies, storage, and marketing	9.00	
Custom hire and rental	42.00	
Machinery fuel and irrigation energy	7.57	
Machinery repairs and maintenance	13.76	
Operator and hired labor	17.07	
Operating interest	5.31	
<b>Total operating costs</b>	<b>222.11</b>	
<b>Ownership costs</b>		
Farm business overhead	3.00	
Machinery overhead	9.63	
Machinery depreciation	14.64	
Real estate charge	55.10	
<b>Total ownership costs</b>	<b>82.37</b>	
<b>Total costs</b>	<b>304.49</b>	
<b>Income over operating costs</b>	<b>198.89</b>	
<b>Income over total costs</b>	<b>116.51</b>	

<sup>1</sup> 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 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Hay yield, bales	4	Hay price, per bale	45.00
Seed yield, pounds	300	Seed price, per pound	0.75
Pasture yield, animal unit month	1	Pasture price, per animal unit month	16.00
Nitrogen rate, pounds N	70	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	30	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	80	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.50	Lime, per ton	25.00
Sum of allocated labor, hours	0.82	Skilled labor, per hour	23.00
		Farm diesel, per gallon	2.91

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 2022, on a per acre basis.**

Machine activity (not custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>2</sup> (dollars)	Total costs (dollars)	Trips across field
Swather mower-conditioner (9 feet); 105 MFWD	0.23	1.06	10.76	12.27	23.03	1
Wheel rake (2-16'); 60 2WD	0.04	0.10	1.23	1.46	2.69	1
Round baler, net wrap (1500 pound); 105 MFWD	0.11	0.49	12.52	6.06	18.58	1
Combine, fixed grain head (15 feet); 100 horsepower	0.15	0.66	7.22	2.78	10.00	1
Pickup truck		0.28	1.42	1.70	3.13	
<b>Total<sup>3</sup></b>	<b>0.52</b>	<b>2.59</b>	<b>33.15</b>	<b>24.27</b>	<b>57.42</b>	<b>4</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs, maintenance, and the value of labor.

<sup>2</sup> Machinery ownership cost is the sum of machinery overhead and depreciation.

<sup>3</sup> Totals may not sum due to rounding.

Abbreviations: 2WD = 2-wheel drive tractor; MFWD = mechanical front-wheel drive tractor

Farmers can also customize this budget to fit their own operations by using the [Missouri Forage Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/ForageBudgets.xlsx) (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.

# 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 October 2021. The NWSG forage species mix used in this budget includes big bluestem, indiagrass, 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 for 2022.

**Table 1. Missouri big bluestem, indiagrass, little bluestem and forbs budget for 2022.**

	Year 1 Preparation	Year 2 Establishment	Year 3 Half production	Year 4 Full production	Your estimate
<b>Income</b>					
Haying	0.00	0.00	140.00	280.00	
Grazing	0.00	0.00	18.00	36.00	
Total income	0.00	0.00	158.00	316.00	
<b>Operating costs</b>					
Warm-season grass seed	0.00	165.50	0.00	0.00	
Forb/minor species seed mix	0.00	62.50	0.00	0.00	
Fertilizer and soil amendments <sup>1</sup>	81.90	0.00	39.53	79.06	
Competition management	28.80	26.00	0.00	0.00	
Chemical application	6.95	6.95	0.00	0.00	
Fertilizer application	6.18	0.00	6.18	6.18	
No-till drill use	0.00	20.00	0.00	0.00	
Hay baling and preparation	0.00	0.00	64.17	128.33	
Operator labor	0.00	8.75	0.00	0.00	
Operating interest	3.03	7.10	2.69	5.13	
Total operating costs	126.86	296.80	112.57	218.81	
<b>Ownership costs</b>					
Farm business overhead	0.00	0.00	0.00	0.00	
Machinery overhead/depreciation	0.00	0.00	0.00	0.00	
Real estate charge	8.50	34.00	34.00	34.00	
Total ownership costs	8.50	34.00	34.00	34.00	
Total costs	135.36	330.80	146.57	252.80	
<b>Income over operating costs</b>	<b>-126.86</b>	<b>-260.80</b>	<b>45.13</b>	<b>97.19</b>	
<b>Income over total costs</b>	<b>-135.36</b>	<b>-294.80</b>	<b>11.43</b>	<b>63.19</b>	

Note: Totals may not sum due to rounding.

1. University of Missouri Soil Test Lab recommends 2 pounds of P<sub>2</sub>O<sub>5</sub> and 14.6 pounds of K<sub>2</sub>O per ton of hay yield.

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## Year 1: Fall burndown and seedbed preparation

Year 1 reflects the fall season before planting occurs. The seedbed preparation process begins in early fall when the existing stand is chemically eradicated. Soil tests are taken and fertilizer applied according to soil test recommendations. Fertilizer application and spraying are performed by a custom operator. If the soil test indicates lime is required, it should also be applied at this time. 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 grazing days in the fall. If additional pasture must be rented to carry livestock for the remainder of the year, the cost of renting should be applied to the NWSG.

Table 2. Input prices in NWSG budget.

Description	Dollars per unit
Hay market price, per ton	80.00
Pasture, per animal unit month	18.00
Nitrogen, per pound N	0.70
Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium, per pound K <sub>2</sub> O	0.58

## Year 2: Seeding and competition management

Year 2 begins with no-tilling the seed and forb mix during the winter dormant season. There will be no hay or pasture harvest. Weed control includes an application of Imazapic for broadleaf and cool-season grass control if the label recommends for the seeding mix used. Additional charges were included in the budget above for competition management if mowing becomes necessary later in the season. Ownership costs are limited to a land charge plus any owned machinery costs associated with replacing custom work.

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

Measurable production of the NWSG stand begins in Year 3, which is at least one full year after seeding. In this year, forage yield is typically 50 percent of full production. Costs incurred include a nitrogen application to boost yield and plant vigor along with potassium and phosphorous applied according to soil test recommendations based on 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 in Year 3 is measured both in tonnage harvested as hay (1.75 tons) and animal unit months (AUM) of grazing (1 AUM). An AUM represents one month of grazing per 1,000 pounds of animal. The first cutting of hay is typically harvested in the beginning of July, then either hayed again in August or grazed until 45 days before frost.

## Year 4: Fertilization, hay and graze, full production

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

## Develop your own budget

Farmers can also customize this budget to fit their own operations by using the [Native Warm-Season Grass \(NWSG\) Planning Tool](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/NWSGBudgets.xlsx) (<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/NWSGBudgets.xlsx>). Download the spreadsheet tool to create an electronic copy of your cost and return estimates for NWSG. Budget worksheets are available for the following 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

# Industrial Hemp for Fiber Planning Budget

Using this budget, growers of industrial hemp for fiber can estimate their production costs for 2022. Table 1 presents cost estimates for industrial hemp fiber production based on input price forecasts in October 2021. Production and necessary inputs are poorly documented for Missouri. Information from Missouri and other states have been used to develop this budget. Farmers should understand production assumptions used in this budget may not describe their production activities. Assumptions are summarized in Tables 2 and 3. Use the “Your estimate” column to plan your operation’s costs and returns.

**Table 1. Missouri industrial hemp for fiber planning budget for 2022.**

	Dollars per acre <sup>1</sup>	Your estimate
<b>Operating costs</b>		
Seed	300.00	
Fertilizer	200.80	
Machinery operating cost	19.56	
Custom hire and rental	172.00	
Registration and background check	25.35	
Sampling costs	6.25	
Operating interest	17.74	
<b>Total operating costs</b>	<b>741.70</b>	
<b>Ownership costs</b>		
Machinery ownership	47.21	
Real estate charge	168.00	
<b>Total ownership costs</b>	<b>215.21</b>	
<b>Total costs</b>	<b>956.91</b>	

<sup>1</sup> Totals may not sum due to rounding.

Industrial hemp is more regulated than most other Missouri agricultural commodities. This budget contain cost estimates for state registration, grower background checks and product sampling and testing costs. It is suggested that producers contact [Missouri Department of Agriculture’s Industrial Hemp Program](https://agriculture.mo.gov/plants/industrial-hemp/) (https://agriculture.mo.gov/plants/industrial-hemp/) to learn the latest regulations surrounding industrial hemp production.

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**Table 2. Input assumptions for 5 tons per acre industrial hemp fiber production in Missouri, 2022.**

Selected input quantities	Per acre	Selected input prices	Dollars per unit
Fiber yield, tons	5		
Seeding rate, pounds	50	Seed, per pound	6.00
Nitrogen rate, pounds N	100	Nitrogen, per pound N	0.70
Phosphorus rate, pounds P <sub>2</sub> O <sub>5</sub>	80	Phosphorus, per pound P <sub>2</sub> O <sub>5</sub>	0.65
Potassium rate, pounds K <sub>2</sub> O	110	Potassium, per pound K <sub>2</sub> O	0.58
Lime rate, tons	0.6	Lime, per ton	25.00
Fuel for machinery and drying, gallons	3.22	Fuel, per gallon	2.91
Labor, hours	0.58	Labor, per hour	17.50

**Table 3. Machinery used in Missouri industrial hemp for fiber planning budget for 2022, on a per acre basis.**

Machinery activity (including custom fieldwork)	Labor (hours)	Fuel (gallons)	Operating costs <sup>1</sup> (dollars)	Ownership costs <sup>1</sup> (dollars)	Total costs (dollars)	Trips across field
Anhydrous application, 200 MFWD	0.08	0.64	3.22	7.30	10.52	1
Tandem disk, fold (21 feet), 160 MFWD	0.16	1.48	7.18	19.92	27.10	2
Presswheel drill (16 feet), 105 MFWD	0.15	0.61	4.36	10.05	14.41	1
Sickle mower, 75 HP tractor	0.12	0.35	3.08	6.90	9.98	1
Hay rake (30 feet), 40 HP tractor	0.08	0.14	1.72	3.06	4.78	2
Dry fertilizer application, custom charge					12.00	2
Large rectangular bales, custom charge					100.00	1
Moving large rectangular bales, custom charge					60.00	1
<b>Total<sup>2</sup></b>	<b>0.58</b>	<b>3.22</b>	<b>19.56</b>	<b>47.21</b>	<b>238.79</b>	<b>10</b>

<sup>1</sup> Machinery operating cost is the sum of fuel, repairs and maintenance, and the value of labor. Machinery ownership cost is the sum of overhead and depreciation.

<sup>2</sup> 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 Industrial Hemp Budget Generator](https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/IndustrialHempBudget.xlsx) (<https://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.