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Native Warm-Season Grass Planning Budget

Using this budget, farmers can estimate the costs and returns of native warm-season grass (NWSG). Table 1 presents estimates for replacing forage stands with NWSG in Missouri. Assumptions were based on price forecasts in October 2025. The NWSG mix used in this budget includes big bluestem, indiangrass, little bluestem and forbs. The mix was assumed planted in a dormant season. Multiple years are needed for NWSG stands to reach full forage yield. 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 NWSG.

Table 1. Missouri big bluestem, indiangrass, little bluestem and forbs budget for 2026 (dollars per acre).

	Year 1 Preparation	Year 2 Establishment	Year 3 Partial production	Year 4 Full production	Your estimate
Income					
Haying	0.00	0.00	375.00	500.00	
Grazing	0.00	0.00	24.50	49.00	
Total income	0.00	0.00	399.50	549.00	
Operating costs					
Seed	0.00	275.91	0.00	0.00	
Fertility[1]	99.50	0.00	45.43	75.03	
Herbicide	15.36	7.50	0.00	0.00	
Custom hire and rental					
Fertilizer application	7.61	0.00	7.61	7.61	
Chemical application	8.23	8.23	0.00	0.00	
No-till drill rental	0.00	22.05	0.00	0.00	
Hay preparation and baling	0.00	0.00	144.69	192.92	
Mowing (rotary cutter)	0.00	16.75	0.00	0.00	
Operator and hired labor	0.00	11.00	0.00	0.00	
Operating interest	4.74	12.38	7.17	9.99	
Total operating costs	135.44	353.82	204.90	285.55	
Ownership costs					
Farm business overhead	5.00	20.00	20.00	20.00	
Real estate charge	11.25	45.00	45.00	45.00	
Total ownership costs	16.25	65.00	65.00	65.00	
Total costs	151.69	418.82	269.90	350.55	
Income over operating costs	**–135.44**	**–353.82**	**194.60**	**263.45**	
Income over total costs	**–151.69**	**–418.82**	**129.60**	**198.45**	

Note: Totals may not sum due to rounding.

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

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Year 1: Fall burndown and seedbed preparation

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

Year 2: Seeding and competition management

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

Table 2. Input prices in NWSG budget.

Description	Dollars per unit
Hay market price, per ton	125.00
Grazing, per cow-day	0.70
Big bluestem seed, per PLS pound	18.05
Indiangrass seed, per PLS pound	17.50
Little bluestem seed, per PLS pound	15.33
Forb seed, per PLS pound	67.50
Nitrogen, per pound N	0.70
Phosphorus, per pound P_2O_5	0.73
Potassium, per pound K_2O	0.42
Lime, per ton applied	35.00
Soil testing, per test	30.00
Glyphosate, per ounce	0.24
Imazapic, per ounce	1.25
Operator labor, per hour	22.00
Operating interest, annual percentage	7.25%

Check out the complete collection of Missouri crop and livestock enterprise budgets at muext.us/MissouriAgBudgets

Year 3: Fertilization, hay and graze, partial yield

Forage production begins in Year 3, which is at least one full year after seeding. Yield will be approximately 75% of full production. Costs include a nitrogen application to boost yield and plant vigor, along with potassium and phosphorous applied according to soil test recommendations and yield goals. If weed pressure is an issue, an application of an approved herbicide can be used or the area can be mowed for broadleaf control.

Yield is measured both in tonnage harvested as hay (3 tons) and cow-days (35) of grazing. The first cutting of hay is typically at the beginning of July, and the second in late August or grazed until 45 days before frost.

Year 4: Fertilization, hay and graze, full production

Full production is achieved in Year 4, or at least two full years after seeding. Costs include fertilizer applied according to soil test recommendations. Forage yield of 4 tons of hay and 70 cow-days of grazing per acre are expected to remain stable in the future if the stand is properly managed.

Develop your own budget

Farmers can customize this budget using the Native Warm-Season Grass Planning Budgets workbook (XLSX) (extension.missouri.edu/media/wysiwyg/Extensiondata/Pro/AgBusinessPolicyExtension/Docs/nwsg-budgets.xlsx). Budgets are available for these NWSG scenarios:

- Big bluestem and indiangrass with no forbs, dormant season planting
- Big bluestem and indiangrass with no forbs, spring planted following winter cover crop
- Big bluestem, indiangrass, little bluestem and forbs, dormant season planting
- Big bluestem, indiangrass, little bluestem and forbs, spring planted following winter cover crop
- Eastern gamagrass, dormant season planting

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