MISSISSIPPI STATE UNIVERSITY EXTENSION

Economic Considerations of Honey Production

Beekeeping and honey production are important agricultural enterprises that contribute significantly to food systems, rural economies, and environmental sustainability. Beekeeping is a growing industry in the United States.

Mississippi is home to several large commercial queen producers who collectively produce tens of thousands of young honeybee queens and several thousand nucleus colonies and package bees each spring and distribute them among beekeepers in and out of state. These producers also contribute to the production of substantial quantities of honey derived from Mississippi's agricultural landscape. Beyond commercial operations, many Mississippians are discovering the joy of keeping honeybees as a hobby or a source of supplemental income. Whether the desire is for locally sourced/home-grown consumption or to sell honey at local farmers markets, beekeeping offers a rewarding way to connect with nature and support local agriculture.

MSU Extension Publication 3594 Beginning Beekeeping in Mississippi outlines the equipment needs and many factors to consider for those thinking of starting beekeeping. Extension Publication 4136 Honeybee Hive Establishment Costs was developed to help beginning beekeepers understand the start-up costs of setting up an initial hive.

As beekeepers gain experience managing a single hive, many in Mississippi choose to expand their operation, thanks to the state's favorable climate and abundant floral resources. Much of the equipment needed to establish one hive can be used across multiple hives over several years. Consequently, the cost of establishing a single hive (+/- $1,000) does not accurately represent the cost structure of a multi-hive operation. Producers managing multiple hives benefit from economies of scale, as fixed equipment costs are spread across more units of production, resulting in lower per-hive costs.

For producers interested in expanding from a hobby into an income-generating enterprise, an accurate production budget is essential. A production budget allows producers to evaluate economic feasibility by estimating costs, projecting revenues, and supporting informed management decisions. This publication presents an estimated honey production budget that outlines major inputs, operating expenses, and expected returns associated with maintaining a productive apiary. By analyzing these financial components, the budget provides insight into profitability and serves as a practical tool for both new and expanding beekeepers.

Investment Costs

Budget 1 presents estimated investment costs for a 65-colony apiary. Beginning producers would typically require several years to reach this scale. While many different hive configurations are possible, a 65-colony operation was selected to represent a level at which beekeeping can generate a meaningful stream of income.

By using equipment across multiple hives and amortizing fixed investments over their useful lives, per-hive costs are reduced. Cost estimates are based on average prices collected from multiple sources in the fall of 2025; individual producers may pay more or less, depending on suppliers and time of purchase. The final column in Budget 1 reports the annualized cost of each item, including depreciation and interest. Collectively, these costs represent the fixed costs used in the annual operating budget presented in Budget 2.

Although producers may select different equipment or obtain different prices, Budget 1 provides a reasonable framework for estimating annual fixed costs for a 65-colony apiary.

Operating Budget and Returns

Budget 2 presents an estimated annual honey production cost and return budget for a 65-colony apiary. At this scale, total annual honey revenue exceeds $36,000. This estimate assumes an average production of 85 pounds of honey per hive, with 63 percent sold in 1-pound bottles at $8.50 per bottle and the remaining production sold in 60-pound, 5-gallon buckets at $2.40 per pound. A 40 percent annual bee replacement rate is assumed. Labor costs are calculated at $15 per hour, and an 8 percent annual interest rate is used. No revenue from beeswax is included, although it could provide an additional income source for some producers.

Variable costs represent the annual expenses required to operate the apiary and were also estimated using fall 2025 price data. While producers may be able to obtain some inputs at lower costs, the budget provides a reasonable guide for evaluating a commercial-scale honey operation. Producers who perform all labor themselves may not have direct labor expenses, and vehicle expenses may vary by location; however, the opportunity cost of labor and equipment should still be considered. Land and facility expenses are not included in this example but may be relevant depending on individual circumstances.

Fixed costs are costs that remain constant regardless of output level and include equipment and infrastructure required to operate the apiary. Fixed costs shown in Budget 2 are based on the depreciation and interest assumptions detailed in Budget 1. A tractor and rotary cutter are included at 20 percent of their total annual use, reflecting partial allocation to the beekeeping operation.

Profitability and Considerations

Budget 2 reports returns above variable costs and returns above total specified costs. Given the assumed production levels and honey prices, the 65-colony apiary generates positive returns above variable costs but shows close to break-even returns when total specified costs are considered.

This example represents a near break-even scenario. Producers may be able to improve profitability by reducing input costs, performing their own labor, or lowering vehicle and equipment expenses. However, selling large volumes of honey in 1-pound containers will require a well-developed marketing plan. Individual results will vary based on management practices, marketing strategies, and local market conditions.

Budget 1. Investment Costs in Honey Production (Annual) for a 65-Colony Apiary

Hive

Item	Units per colony	Total units	$/unit	Total cost ($)	Useful life (years)	Interest rate (%)	Total annual cost with depreciation + interest ($)
Boxes	4	260	55.44	5,544	10	8	2,018
Hive stand	1	65	24.47	1,224	13	8	226
Bees	1	65	180.83	18,083	10	8	1,646
Total hive annual investment costs							**3,890**

Hive Accessories

Item	Units per colony	Total units	$/unit	Total cost ($)	Useful life (years)	Interest rate (%)	Total annual cost with depreciation + interest ($)
Inner cover	1	65	27.99	1,819	10	8	255
Outer cover	1	65	49.24	3,201	10	8	448
Bottom board	1	65	45.49	2,957	7	8	541
Entrance reducer	1	65	9.84	640	10	8	90
Internal feeder	1	65	32.32	2,101	5	8	504
Mite count board	1	65	34.32	2,231	5	8	535
Total hive accessories annual investment costs							**2,373**

Honey Collection Equipment and Supplies

Item	Total units	$/unit	Total cost ($)	Useful life (years)	Interest rate (%)	Total annual cost with depreciation + interest ($)
Capping scratcher	1	9.99	9.99	10	8	1.40
Uncapping knife	1	9.96	9.96	10	8	1.39
Uncapping tub	1	198	198	10	8	27.79
Sieve	1	25	24.99	10	8	3.50
Honey extractor	2	2,000	4,000	10	8	560.00
Stainless tables	5	200	1,000	10	8	140.00
Bulk honey storage	6	620	3,720	10	8	520.80
Miscellaneous	1	750	750	10	8	105.00
Total honey collection annual investment costs						**1,360**

Other Equipment Annual Investment Costs

Item	Total units	$/unit	Total cost ($)	Useful life (years)	Interest rate (%)	Total annual cost with depreciation + interest ($)
Beekeeper suit with gloves and veil	1	58.76	58.76	10	8	14.10
Hive tool	1	11.52	11.52	10	8	1.04
Frame gripper	1	7.99	7.99	10	8	1.12
Bee brush	1	7.29	7.29	10	8	3.94
Smoker	1	20.39	20.39	10	8	4.89
Frame holder	1	17.66	17.66	10	8	2.47
Gravel	65	15.84	1,030	10	8	188.27
Paint	65	7.98	519	10	8	72.62
Tractor with front-end loader and bush hog	0.20	27,500	5,500	15	8	513
Total other annual investment costs						**801**

Total annual investment costs.... $8,424 • Total initial outlay (sum of total costs column)..... $54,686

Annual costs include depreciation and interest based on useful life and an 8 percent interest rate.

Budget 2. Annual Honey Production Budget Operating Estimates for a 65-Colony Apiary

Revenue

Item	Estimated income ($)	Your estimate
Honey – 5-gallon buckets	3,978	
Honey – 1-pound bottles	32,874	
Beeswax		
Total revenue	**36,852**	

Operating (Variable) Costs

Item	Unit	$/Unit	Units per hive	Total units	Total cost ($)	Your cost
Replacement bees	hive	180.83	0.40	26	4,702	
Smoker fuel	lb	14.47	0.25	16.25	235	
Sugar	25 lb	25.60	2	65	3,328	
Pollen patties	lb	22.78	1	65	1,481	
Miticide traps	other	34.00	1	65	2,210	
Beetle traps	hive	12.79	1	65	831	
Buckets/lids	hive	7.00	0.35	22.75	159	
Bottles/labels	hive	1.25	63	4095	5,119	
Labor	hour	15.00	10	650	9,750	
Vehicle expense	mile	0.65	50	3250	2,113	
Land expense						
Facility expense						
Total variable costs					**29,927**	
Interest					**2,394**	
Total variable costs including interest					**32,321**	

Returns above variable costs.....$4,531
Fixed costs (from Budget 1).....$8,424
Total specified costs (total variable + fixed) $40,745
Returns above total specified costs .....-$3,893

Sensitivity Analysis

Honey production profitability is sensitive to both yield per colony and honey price. Tables 1 and 2 illustrate how changes in average honey yield and retail honey price (1-pound bottles) affect returns above total specified costs for a 65-colony apiary. All other assumptions, including costs, sales mix, and bulk honey prices, are held constant.

Under the assumptions used in this analysis, the 65-colony apiary approaches break-even performance at approximately **85 pounds of honey per colony** when retail honey is sold at **$8.50 per pound**. Modest increases in either honey yield or retail price result in increased positive net returns. Conversely, lower yields or reduced prices quickly lead to negative returns. These results emphasize the importance of maintaining strong colony health to maximize yield, developing a strong marketing program that supports premium pricing, and managing costs carefully.

Table 1. Sensitivity to honey yield ($): Returns above total specified costs for a 65-colony apiary.

Honey yield (lb/colony)	Total revenue ($)	Returns above total costs ($)
75	32,516	-8,229
80	34,684	-6,061
85 (baseline)	36,852	-3,893
90	39,020	-1,725
95	41,187	442

Table 2. Sensitivity to retail honey price ($): Returns above total specified costs for a 65-colony apiary.

Retail honey price ($/lb)	Total revenue ($)	Returns above total costs ($)
7.50	32,984	-7,761
8.00	34,918	-5,827
8.50 (baseline)	36,852	-3,893
9.00	38,786	-1,959
10.00	42,653	1,908

Summary

Beekeeping and honey production are growing agricultural enterprises in Mississippi and the United States, offering opportunities for supplemental or full-time income while providing essential pollination services. While many beekeepers begin with a single hive, expanding to a multi-hive operation changes the cost structure significantly because equipment and infrastructure can be shared across hives, creating economies of scale.

This publication presents an economic framework for expanding beekeeping into a 65-colony operation, a scale at which honey production can generate meaningful income. Initial investment costs include hives, bees, accessories, and shared equipment. When these fixed investments are depreciated and annualized, per-hive costs are reduced compared to a single-hive startup.

An annual production budget for a 65-colony apiary estimates total honey revenue of just over $36,000, based on average production of 85 pounds of honey per hive. Most honey is assumed to be sold in 1-pound bottles, with a smaller portion sold in bulk. Variable costs—such as replacement bees, bee feed, pest management, labor, packaging, and transportation—account for the majority of annual expenses, while fixed costs include depreciation and interest on equipment and infrastructure.

Under the baseline assumptions, the operation generates positive returns above variable costs but approaches break-even returns when total fixed costs are included. Profitability is highly sensitive to both honey yield per hive and retail honey prices. Modest increases in either production efficiency or price, such as increasing yields above 85 pounds per hive or selling honey at higher retail prices, can result in positive net returns, while lower yields or prices can quickly lead to losses.

The analysis emphasizes that successful commercial-scale beekeeping depends on strong colony management, effective cost control, and well-developed marketing strategies. Additional revenue streams, including selling bees, queens, beeswax, and pollination services, may further improve profitability. Overall, the budget serves as a practical planning tool and benchmark for beekeepers considering expansion beyond hobby-scale production.

The 65-colony apiary used in this example budget, with an assumption of 85 pounds of honey per colony, suggests approximately 460 gallons of total honey production. Honey producers in Mississippi who sell more than 500 gallons must be inspected by the Mississippi State Department of Health. (See Extension Publication 3953 Honey Inspection and Label Requirements for Retail Markets in Mississippi.) Thus, expansion beyond this level of production would require additional facilities and expenses not covered in this publication.

This publication is intended as a planning guide for producers considering expansion to a scale capable of generating significant income. While actual costs and revenues will differ among operations, this budget provides a useful benchmark for evaluating financial feasibility. The MSU Department of Agricultural Economics offers an interactive budget where producers can enter their own cost and revenue estimates.

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By **Steve Martin**, PhD, Extension Professor, Delta Research and Extension Center; **Curt Lacy**, PhD, Professor and Head, Central Mississippi Research and Extension Center; **Esmaeil Amiri**, PhD, Assistant Extension/Research Professor, Delta Research and Extension Center; **Jeff Harris**, PhD, Associate Extension/Research Professor, Agricultural Science and Plant Protection; **Keith Fielder**, Agriculture and Natural Resources Agent, Hancock and Putnam Counties, University of Georgia; and **Brian Mills**, PhD, Associate Professor, Agricultural Economics.

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