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MICHIGAN CABBAGE COST OF PRODUCTION 2024

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EXECUTIVE SUMMARY

The average cost of producing fresh market cabbage was nearly $7,700 per acre in 2024. Revenues slightly exceeded costs, providing growers with a small economic profit. Our calculations include a management allocation of $200, which also represents income for farmers who directly manage their fields. Harvest costs were found to make up the majority of total production costs for fresh cabbage, making up 56% of the total.

For processing market cabbage (cabbage sold directly to processors), production costs added up to $4,140 per acre. While most cost components are similar between fresh and processing market cabbage, harvest costs are significantly lower for processing cabbage. Estimated revenues exceeded costs, leading to $1,300 in economic profit for processing cabbage.

Variable costs of production include labor and inputs such as fertilizer, crop protectant materials, and seedlings for transplant. Labor makes up 37% of total costs for fresh cabbage, and 38% for processing cabbage. Fixed costs, including equipment, irrigation systems, and land control costs, are a relatively small fraction of total costs—about 9% for fresh cabbage and 18% for processing cabbage.

Figures 1 and 2 illustrate costs by different expense categories for fresh cabbage and processing cabbage, respectively.

Figure 1.
Costs of *fresh* cabbage production in Michigan, as a percentage by category.

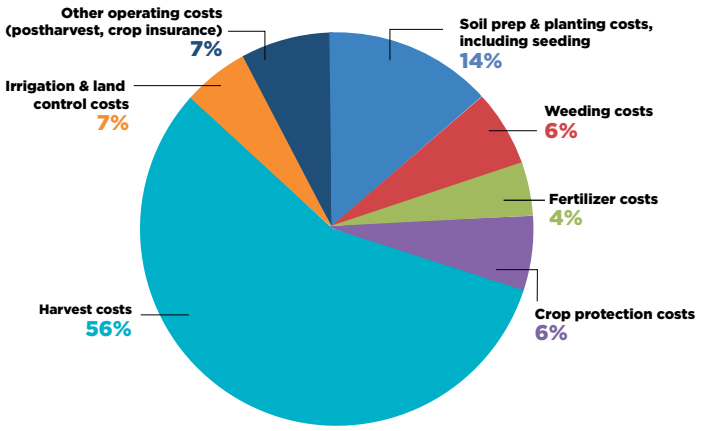
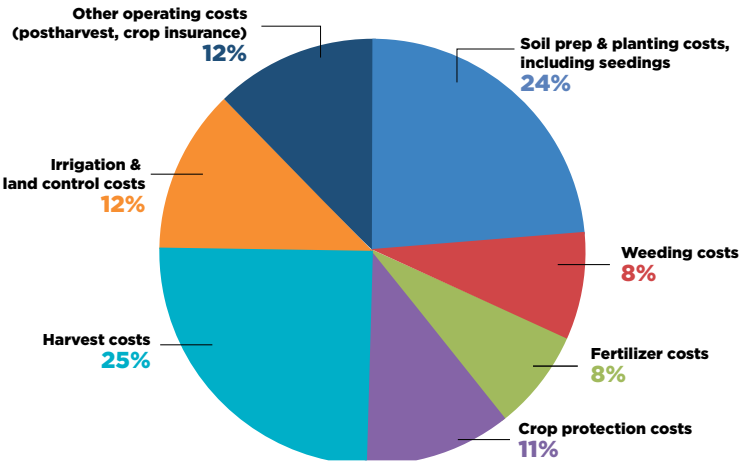


Figure 2.
Costs of *processing* cabbage production in Michigan, as a percentage by category.



Cover photo by Chris Galbraith, MSU Extension

INTRODUCTION

In recent years, well over 4,000 acres of cabbage have been planted and harvested in Michigan (NASS, 2024a). However, in 2024, growers planted less cabbage, harvesting about 3,800 acres between fresh and processing varieties (NASS, 2025).

About 75% of Michigan cabbage acreage is harvested for fresh and 25% is planted into processing varieties (NASS, 2024b). Most of the volume of cabbage, and the vast majority of the acreage, is currently grown by 10 or so growers in Michigan. This represents a drop from the 25 major growers reported to be engaged in commodity cabbage production in recent decades. However, cabbage acreage has increased substantially since the last Michigan cost of production study was conducted in 2002 (Dartt et al., 2002). At that time about 2,100 acres of cabbage were harvested annually (NASS, 2004).

Seedlings are raised in greenhouses and then transplanted into the field. Planting generally starts in April, with successive plantings made until mid-summer. These different plantings enable growers to have multiple, staggered harvests throughout summer and into fall. Fresh varieties generally take 10 to 12 weeks to grow to maturity, whereas processor varieties can be ready in 8 to 9 weeks. Cabbage harvest begins in late June and continues into late October.

Cool and cloudy weather, high heat and rainfall can all affect yields, in addition to the usual disease and pest challenges. However, many of today's biggest challenges are economic. The high cost of inputs and labor in recent years have tightened budgets. High-operating loan interest rates also cut into profits. Additionally, there is a trend to consolidate or add acres in order to provide retail buyers a larger portfolio of produce. This results in a scenario where growers must contend with narrow margins alongside the potential need for substantial capital investment.

Advances in robotic weeding and planting equipment have some potential to help remediate high labor input costs. Currently, however, this technology has risks and is not necessarily cost-effective or practical for Michigan growers. Instead, growers are focusing on labor savings where they are able, through devices and processes that increase efficiency. Careful design of field harvest activities is a necessity.

Methods/Information Sources

For this study, we worked with MSU Extension educators and other industry key informants to learn preliminary information about the industry, identify existing materials, and connect with cabbage growers to interview. The most recent Michigan study was done in 2002 and focused on Monroe County (Dartt et al., 2002). That study provided us a baseline for data categories and study methods.

To gather data for this study, we interviewed several cabbage growers individually. We then held a focus group in a central location in southeast Michigan to further refine those numbers. We also gathered information from industry input and service providers.

We used a "custom rate" approach to evaluating the costs of tillage, planting, and other tractor and equipment tasks, following the 2002 Monroe study and other vegetable cost of production study approaches. During analysis, we corroborated the numbers we got from grower interviews and the focus group with National Agricultural Statistics Service (NASS) yield and price data, our key informant information, contacts with other growers, follow-up calls with the growers interviewed, and the information gathered from input and service providers.

Assumptions

One of our main assumptions is that the example average farm has existing farm buildings, including space for equipment repair and tool storage. This baseline is necessary due to the substantial variation in cabbage acreage relative to other farm activities, making it difficult to define a truly "average" farm and assign those

infrastructure costs accordingly. However, our custom rate approach for equipment use assumes the necessary warehousing and maintenance for the applicable tractors and equipment used. Our cooling cost calculation includes equipment cost in addition to the variable electricity costs. The trucking calculation similarly includes capital depreciation costs for the truck and trailer, in addition to fuel and labor.

The custom rates we developed are shown in Table 1. They are a combination of grower-stated prices along with information from Michigan State Universities custom rates report for 2024 (find the report at https://www.canr.msu.edu/resources/custom-machine-work-costs).

Table 1. Custom machinery rates.

Custom Machinery Rates

Task	Cost/ acre	Description/ notes
Row Cultivator	$10.00	Can fertilize at same time
V-Ripper	$26.00	
Discing	$25.00	
Soil Finisher	$20.00	
Transplanter	$120.00	
Flail Mower/ Shredder	$45.00	For residue management
Fertlizer-spread	$12.00	BUT may be done w/other equip pass
Fertlizer-sidedress	$12.00	BUT may be done w/other equip pass
Limestone application	$36.00	Done every 3 years, includes materials
Spray application	$12.00	
Seeding	$10.00	

Land Preparation

Cabbage is often planted after soybeans or other crops, such as sweet corn, because they help provide a good seed bed for the cabbage. Growers begin preparing for cabbage during the previous fall, by v-ripping or subsoiling and then planting a cover crop. Often oats or wheat will be used—cereal rye is avoided because it is aggressive and harder to kill in the spring.

In spring, fields are tilled to kill and/or incorporate the cover crop, using a vertical till or soil finisher. In some cases, this is followed by a bedder. Growers often apply fertilizer with one of these tractor passes. This spring tillage is then followed by application of a pre-emergent herbicide to help suppress weeds early in the season. Table 2 details the material and machinery costs for cabbage land preparation.

Red cabbage bordering a green cabbage field. Photo by Chris Galbraith, MSU Extension

Table 2. Soil preparation costs.

	Time	Labor Rate	Materials	Custom Machinery Charge	Subtotal	TOTAL
Operation	Hours/ acre	$/hour	$/acre	$/acre	$/acre	**$/acre**
Soil Prep						**$109**
- Fall tillage (V-rip or subsoil)				$26.00	$26.00	
- Fall-planted cover crop (oats, wheat, etc.)			$15.00	$10.00	$25.00	
- Spring tillage (1 to 2x soil finisher, or vertical till then bedder)				$30.00	$30.00	
- Pre-emergent **herbicide**			$15.88	$12.00	$27.88	

Transplanting
Growers transplant seedlings that are about 6 to 8 weeks old into their fields. Some grow the seedlings themselves but most source from local greenhouses. We found the average cost of plants to be about $7 for a flat of 200 seedlings. About 17,500 plants per acre are planted for fresh varieties, and 15,000 plants per acre for processed varieties.

A transplanter/tractor combination is used for planting. People sit on seats and set seedlings in the machine, which then sets them in the soil. A challenging aspect of management is ensuring that transplants are planted to correct depth using the transplanter machine.

Plant spacing can vary by grower. For fresh cabbage, 10 inches to 12 inches between plants is common (going down the row), with rows averaging 30 inches apart. However, to achieve this, many growers plant two rows 20 inches apart, followed by a 40-inch gap, and then two more 20-inch rows. This spacing provides advantages for cultivating and other equipment passes.

Costs for transplanting are detailed for fresh cabbage in Table 3 and processing cabbage in Table 4.

Table 3. Fresh cabbage transplanting costs.

	Time	Labor Rate	Materials	Custom Machinery Charge	Subtotal	TOTAL
Operation	Hours/ acre	$/hour	$/acre	$/acre	$/acre	**$/acre**
Planting						**$963**
- Seedling cost: $7 per 200 Plant population: 17,500			$612.50		$612.50	
- Transplanter custom cost/acre (equipment + driver)				$120.00	$120.00	
- Labor for transplanting	9.3	$24.75			$230.18	

Table 4. Processing cabbage transplanting costs.

	Time	Labor Rate	Materials	Custom Machinery Charge	Subtotal	TOTAL
Operation	Hours/ acre	$/hour	$/acre	$/acre	$/acre	**$/acre**
Planting						**$875**
- Seedling cost: $7 per 200 Plant population: 15,000			$525.00		$525.00	
- Transplanter custom cost/acre (equipment + driver)				$120.00	$120.00	
- Labor for transplanting	9.3	$24.75			$230.18	

Irrigation
Center-pivot irrigation systems are generally used for cabbage production in Michigan. To calculate the base system costs, we assumed $2,500 for the equipment plus $500 install costs per acre, for an 80-acre set up. Costing this out over 20 years, this calculates to $150 a year. We added $10 per acre per year for maintenance, for a total of $160 a year.

The variable costs for operating the irrigation system calculate to $20 per acre inch between electricity and labor. Growers reported using 5-acre inches per year on average.

Fertilizer
To determine nutrient needs, the growers we interviewed used grid sampling. The grids and frequency ranged from 2-acre grids each year, to 3 acre grids every 3 years. Grid samples are about $7.50 apiece and are often done by input providers as part of their services. Overall testing costs of grid sampling might be higher than traditional field-based testing, but grid testing ideally pays for itself through savings in materials and by targeting of spots in need of lime or other input materials.

Fertilizer is applied during spring tillage and as a side dress during the season, sometimes during cultivation passes. Many growers add some foliar fertilizers as well throughout the season.

Growers increasingly rely on custom mixes to achieve nutrient goals. However, the program detailed in Table 5 approximates typical levels identified by growers.

Table 5. Fertilizer program and cost.

FERTILIZER COST			
Type	**lbs./acre**	**Cost/ ton**	**Total $/ acre**
Urea 46-0-0	250	$500	**$62.50**
Potash 0-0-60	250	$500	**$62.50**
MAP 11-52-0	150	$880	**$66.00**
AMS 21-0-0-24S	100	$560	**$28.00**
Micros (Boron, etc.)	Varies	Varies	**$21.00**
Calcium input (gypsum, ca. nitrate, ca. chloride, etc.)			**$25.00**
Limestone $36 for 1 ton per 3 years (includes application)			**$12.00**
		TOTAL	**$277.00**

Pest and disease management
Cabbage pest management is critical to protect fields from weed competition, insect feeding, and plant pathogens. When employing crop protection, growers generally use a mix of cultural (resistant varieties, residue management, crop rotation, etc.), chemical, and occasionally biological control practices as part of an overall IPM program.

Clubroot (*Plasmodiophora brassicae*) is a common and persistent soilborne disease that affects cabbage. Black rot (*Xanthomonas campestris*) is a bacterial foliar pathogen that can cause crop loss. Fungal diseases like alternaria leaf

spot (*Alternaria brassicicola*) and white mold (*Sclerotinia spp.*) can also reduce yields. There are also several economically important insect pests affecting the cabbage industry in Michigan. One of the most significant is cabbage maggot (*Delia radicum*), which feeds on roots and stems during its larval stage and can cause major losses in younger plants. The larvae of diamondback moth (*Plutella xylostella*) and imported cabbageworm (*Pieris rapae*) can also cause considerable damage through leaf feeding. Thrips (various spp.) can also feed on leaves and reduce overall crop quality.

Table 6. Grower spray cost averages.

GROWER SPRAY COST AVERAGES	
Type	**Average**
Fungicide	**$226.06**
Insecticide	**$123.82**
Herbicide	**$15.88**

Weed management
In addition to the pre-emergent herbicide, growers use mechanical cultivation twice throughout the season. Hand-weeding is done as necessary. Generally, one careful hand-weeding pass is needed per year, followed by a quicker walk-through. As the plants grow, they help keep the weed pressure down within the rows.

Labor
Labor prices have risen substantially in recent years and are a considerable challenge for grower's bottom lines. Rising rates for the H-2A visa program have led to higher rates for available farm workers across the board. Housing is provided for most laborers. This cost is included in the prices stated in Table 7.

A $40.00 per hour rate for the farm owner (or managers) was included to represent the ongoing supervision and management costs for the farm. Five hours per year per acre was allocated at this rate for activities such as sourcing seed and transplants, accounting, managing harvests and contracts, and supervising work.

Table 7. Labor prices.

LABOR COST		
Skill Level	**Notes**	**Total $/hour**
Owner/ Manager	All in wage placeholder	$40.00
Skilled, year-round	Includes benefits/ housing	$27.00
Manual, hourly	**Includes benefits, housing, & contractor costs**	$24.75

Other production tasks, overhead, and operating costs
A number of other costs are associated with cabbage production, most of which will occur regardless of the amount of production harvested. Food safety and sanitation costs are an integral part of production, and include cleaning materials, portable bathroom rentals, and substantial management time for documenting practices and engaging in audits.

Land control was determined to be $250 per acre on average for non-irrigated land. Our calculations were informed by irrigated land rental rates, but we accounted for irrigation and land costs separately. Adding these together, our assumption for an irrigated land rental rate would be $410 ($250 for the land and $160 for the base irrigation system). This calculation did align well with grower estimates for renting irrigated land.

Crop insurance using the cabbage policy program averages about $140 per acre per year for fresh cabbage. Some growers use hail insurance or catastrophic coverage. We allocated $140 per acre for processed cabbage as well, as growers are hoping to use the cabbage policy given certain policy changes that will enable them to effectively cover those acres.

Residue management is also a cost for growers. After harvest, flail mowers are used to shred the remaining materials in the field, to help it to decompose quickly and not harbor disease. This activity is fairly hard on the flail mower, such that maintenance and replacement costs can be substantial. Our custom rate for this machinery came to $45 per acre.

Fresh cabbage harvest costs, yields, and returns

Fresh cabbage is packed by hand directly into boxes in the field. Workers bring boxes into the field and fill them, after which they are stacked on a wagon. Full wagons are transported to warehouses and put into coolers.

Boxes hold an average of 56 pounds of cabbage. The total cost for harvesting activities, including labor, associated housing, field supervision, and transport to the cooler averaged $2.60 per box. The boxes themselves are $3.00 each, made of heavy waxed cardboard.

Cooling costs were found to be 1 cent per pound, including electricity usage and depreciation for cooling equipment and facilities. Substantial infrastructure is needed to pull the field heat out of the cabbage before transporting to buyers.

Table 8 illustrates the costs of fresh harvest. These harvest costs make up about 56% of the total cost of production for fresh cabbage. Note that transportation to the end buyer was not considered to be a cost of production for fresh cabbage.

Table 8. Fresh cabbage harvest costs.

Fresh Cabbage Harvest Costs	Cost/box	lbs./box	Boxes/acre	lbs./acre	Subtotal
- Hand harvest labor, field supervision, & transfer to cooler – total costs/56 lb. box	$2.60	56	700		$1,820.00
- Box cost/acre	$3.00	56	700		$2,100.00
- Cooling costs, at 1 cent per pound				39,200	$392.00
				TOTAL	**$4,312**

We found yields to range from 12 to 24 tons per acre. For a 56-pound box, we assumed an average yield of 700 boxes (19.6 tons) per acre based on our data. This number fluctuates from year to year based on weather and related factors.

Prices growers receive also fluctuate, both from year to year and throughout the season. However, the growers we interviewed did not suggest that there are substantial pricing trends that strongly benefit one part of the season over others across years (early, mid, or late season). Prices stated generally ranged from $8 to $13 per box, though some higher and lower numbers may be experienced from time to time. For our revenue calculations, we assumed $11.00 per box, which fits in line with information gathered from growers and available NASS data. Table 9 shows revenues, total costs, and average profits for our study period.

Table 9. Yield, revenue, and profit calculations for fresh cabbage.

		TOTAL COSTS	**$7,692**
		Total costs per lb. harvested	**$0.196**
Price/box*	**Price/lb**	**# of boxes**	**REVENUE**
$11.00	**$0.196**	**700**	**$7,700**
		PROFIT	**$8**

Notes: * Stated for an average 56 lb. box (minimum weight = 50 lbs.)

Using this price and yield data, our calculations indicate that fresh cabbage growers are working at just above economic break even. However, the economic break even does include a management allocation for the growers of $200 per acre (see Table A.14 in the appendix for the full fresh cabbage budget). This $200 represents income for growers who are directly managing their production.

Table 10 illustrates the costs per acre and costs per box for different yield levels. The table splits costs into operating costs and overhead costs. Overhead costs are those that will occur regardless of yield, such as food safety, land rent, and the base irrigation system. You can see that as yield increases, operating costs increase on a per acre basis. This is mostly due to additional harvest costs including the cost of the cardboard boxes. However, as yield increases, the total costs per box decreases.

Table 10. Fresh cabbage costs per acre and per box for different yields.

FRESH CABBAGE	YIELD - Boxes per acre (56 lbs. /box)										
	500	**550**	**600**	**650**	**700**	**750**	**800**	**850**	**900**	**950**	**1000**
Operating costs/ acre:											
Cultural* -	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456	$2,456
Harvest -	$3,080	$3,388	$3,696	$4,004	$4,312	$4,620	$4,928	$5,236	$5,544	$5,852	$6,160
Operating interest -	$85	$89	$93	$97	$101	$105	$109	$114	$118	$122	$126
TOTAL Operating costs/acre:	**$5,621**	**$5,933**	**$6,245**	**$6,557**	**$6,869**	**$7,181**	**$7,493**	**$7,806**	**$8,118**	**$8,430**	**$8,742**
TOTAL Operating costs/box:	$11.24	$10.79	$10.41	$10.09	$9.81	$9.57	$9.37	$9.18	$9.02	$8.87	$8.74
Total Overhead** costs/acre -	$823	$823	$823	$823	$823	$823	$823	$823	$823	$823	$823
TOTAL COSTS per acre:	**$6,444**	**$6,756**	**$7,068**	**$7,380**	**$7,692**	**$8,004**	**$8,316**	**$8,629**	**$8,941**	**$9,253**	**$9,565**
TOTAL COSTS per box:	$12.89	$12.28	$11.78	$11.35	$10.99	$10.67	$10.40	$10.15	$9.93	$9.74	$9.57

Notes: * "Cultural" costs include soil prep, planting, hand weeding, cultivation and fertilizer, crop protection, post-harvest shredding, and variable irrigation costs
** "Overhead" costs includes the irrigation base system plus all costs under "Other operating/Overhead Expenses" *except* post-harvest shredding

Recently transplanted cabbage taking root in the soil. Photo by Chris Galbraith, MSU Extension

Table 11 illustrates the net returns over the total costs of production at different yields and price for fresh cabbage. The heavier blue cells show where breakeven or better is achieved for a particular price or yield.

Table 11. Fresh cabbage profits and break-even yields by price.

Net return over TOTAL costs per acre, FRESH CABBAGE	= positive profit	= break-even or better

	Fresh Yield - Boxes per acre (56 pounds/box)										
PRICE per box	**500**	**550**	**600**	**650**	**700**	**750**	**800**	**850**	**900**	**950**	**1000**
$8.50	($2,194)	($2,081)	($1,968)	($1,855)	($1,742)	($1,629)	($1,517)	($1,404)	($1,291)	($1,178)	($1,065)
$9.00	($1,944)	($1,806)	($1,668)	($1,530)	($1,392)	($1,254)	($1,117)	($979)	($841)	($703)	($565)
$9.50	($1,694)	($1,531)	($1,368)	($1,205)	($1,042)	($879)	($717)	($554)	($391)	($228)	($65)
$10.00	($1,444)	($1,256)	($1,068)	($880)	($692)	($504)	($317)	($129)	$59	$247	$435
$10.50	($1,194)	($981)	($768)	($555)	($342)	($129)	$83	$296	$509	$722	$935
$11.00	($944)	($706)	($468)	($230)	$8	$246	$483	$721	$959	$1,197	$1,435
$11.50	($694)	($431)	($168)	$95	$358	$621	$883	$1,146	$1,409	$1,672	$1,935
$12.00	($444)	($156)	$132	$420	$708	$996	$1,283	$1,571	$1,859	$2,147	$2,435
$12.50	($194)	$119	$432	$745	$1,058	$1,371	$1,683	$1,996	$2,309	$2,622	$2,935
$13.00	$56	$394	$732	$1,070	$1,408	$1,746	$2,083	$2,421	$2,759	$3,097	$3,435

In the appendix, we have included Table A.15 which shows the net return over operating costs. For that table, the overhead costs of $823 per acre are subtracted out in order to focus on what yields and prices are needed to cover the most variable costs of production.

Note that Table 10, Table 11, and Table A.15 all relate to each other, and each relate back to the full fresh cabbage budget found in Table A.14 in the appendix. In the appendix, we have also included tables that detail the effects of increases in input costs (Table A.16) and the effects of increases in labor costs (Table A.17) on the total fresh cabbage budget.

Processing cabbage harvest costs, yields, and returns

Processing cabbage is also hand-harvested. After the cabbage is cut from the plant, it is placed onto conveyor belts. These belts move the cabbage into large plastic bins. The bins are then rotated into large trailers that are driven directly to the processors. These semi-truck/trailers have dump capacities for dropping off loads.

Table 12 shows the various harvest costs we calculated for processing cabbage. Processing cabbage yields vary across different fields and sub-types (e.g. green versus red cabbage). Using grower data and corroborating with NASS data, we assumed an average yield of 34 tons or 68,000 pounds per acre.

Table 12. Processing cabbage harvest costs.

PROCESSOR CABBAGE HARVEST COSTS	Cost per lb.	Yield per acre (lbs.)	Subtotal
- Hand harvest, field labor, and supervision	$0.007	68,000	$476.00
- Harvest equipment cost (conveyor, etc.)	$0.002	68,000	$136.00
- Trucking to processor, labor, fuel, and equipment depreciation	$0.006	68,000	$408.00
		TOTAL	$1,020

To calculate revenues, we used a price of 8 cents per pound, based mostly on NASS figures from recently available years, but informed also by growers' feedback. Table 13 shows the revenue and profit breakdown for our processing cabbage budget at the assumed prices and yield.

Table 13. Yield, revenue, and profit calculations for processing cabbage.

	TOTAL COSTS/acre	$4,140
	Total costs per lb. harvested	$0.061
YIELD per acre, lbs.	PRICE/lb.	REVENUE
68,000	$0.08	$5,440
	PROFIT/acre	$1,300
	PROFIT per lb.	$0.019

Revenues and profits are both highly sensitive to yield. Costs vary somewhat by yield but not as dramatically. Table A.19 in the appendix shows the variation of operating and total costs by different processing cabbage yield levels. Table A.20 illustrates net returns over operating costs for different yields and prices. Table A.21 shows net returns over total costs (profits) at different yields and prices. The tables each relate to the full processing cabbage budget found in Table A.18 of the appendix.

In the appendix, we have also included tables that detail the effects of increases in input costs (Table A.22) and the effects of increases in labor costs (Table A.23) on the total processed cabbage budget.

Cabbage plants in the early growth stages. Photo by Chris Galbraith, MSU Extension

SUMMARY/ CONCLUSIONS

Michigan has substantial capacity for raising cabbage. Margins in fresh cabbage are currently very tight, due to numerous factors but especially due to harvest costs (labor plus box expense). However, it continues to be an important part of growers' product portfolio. Fewer farmers are growing cabbage than two decades ago, but more acres are now being planted and harvested. Depending on trucking distances and prices received, processing cabbage may achieve higher profitability due to lower labor costs.

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APPENDIX

Table A.14. Fresh market cabbage, full cost of production budget.

Michigan Cabbage Cost of Production 2024						
Fresh Market Cabbage						
	Time	**Labor Rate**	**Materials**	**Custom Machinery Charge**	**Subtotal**	**TOTAL**
Operation	Hours/acre	$/hour	$/acre	$/acre	$/acre	**$/acre**
Soil Prep						**$109**
- Fall tillage (V-rip or subsoil)				$26.00	$26.00	
- Fall-planted cover crop (oats, wheat, etc.)			$15.00	$10.00	$25.00	
- Spring tillage (1 to 2x soil finisher, or vertical till then bedder)				$30.00	$30.00	
- Pre-emergent herbicide			$15.88	$12.00	$27.88	
Planting						**$963**
- Seedling cost: $7 per 200 Plant population: 17,500			$612.50		$612.50	
- Transplanter custom cost/acre (equipment + driver)				$120.00	$120.00	
- Labor for transplanting	9.3	$24.75			$230.18	
Hand Weeding						**$460**
-Total labor hours for one careful pass, another quick pass per acre	18.60	$24.75			$460.35	
Irrigation						**$260**
- Base system: installation costs spread over 20 years, plus $10/year maintenance				$160.00	$160.00	
- Variable costs: $20/acre inch for fuel & operation x 5 acre inches average use			$100.00		$100.00	
Cultivation & Fertilizer Application						**$32**
- Cultivation #1 & fertilizer application #1				$10.00	$10.00	
- Cultivation #2				$10.00	$10.00	
- Sidedress/ fertilization application #2				$12.00	$12.00	
Fertilizer Materials						**$277**
- Equivalent of 150 lbs. N, 75 lbs. P2O5, and 150 lbs. K2O. **Sample product mix**:						
Urea 46-0-0, 250 lbs.			$62.50		$62.50	
Potash 0-0-60, 250 lbs.			$62.50		$62.50	
MAP 11-52-0, 150 lbs.			$66.00		$66.00	
AMS 21-0-0-24S			$28.00		$28.00	
Micronutrients, including Boron			$21.00		$21.00	
Calcium input (Gypsum, etc.)			$25.00		$25.00	

(more.)

Table A.14. Fresh market cabbage, full cost of production budget. (cont.)

Fresh Market Cabbage						
	Time	Labor Rate	Materials	Custom Machinery Charge	Subtotal	TOTAL
Limestone $36 for 1 ton per 3 years, materials including custom application				$12.00	$12.00	
Crop Protection						**$470**
- Fungicide materials			$226.06		$226.06	
- Insecticide materials			$123.82		$123.82	
- Applications (10) @ Custom rate of $12				$120.00	$120.00	
Other Operating / Overhead Expenses						**$708**
- Porta-potty cost per acre			$9.00		$9.00	
- Soil testing - grid sample every 3 years, 3-acre zone			$7.50		$7.50	
- Crop insurance			$140.00		$140.00	
- Food safety compliance			$30.00		$30.00	
- Pickup (40 miles/acre @ $0.67/mile)				$26.80	$26.80	
- Post-harvest shredding w/flail mower				$45.00	$45.00	
- Management & labor Supervision	5	$40.00			$200.00	
- Land control (includes property taxes)			$250.00		$250.00	
Harvest Costs	**Cost/box**	**lbs./box**	**Boxes/ acre**	**lbs./acre**		**$4,312**
- Hand-harvest labor, field supervision, & transfer to cooler — total costs/56 lb. box	$2.60	56	700		$1,820.00	
- Box cost/acre	$3.00	56	700		$2,100.00	
- Cooling costs, at 1 cent per pound				39,200	$392.00	
Interest on operating capital - 8% interest, on half of variable costs for an average of 4 months						**$101**

		TOTAL COSTS	**$7,692**
		Total costs per lb. harvested	**$0.196**
Price/box*	**Price/lb.**	**# of boxes**	**REVENUE**
$11.00	**$0.196**	**700**	**$7,700**
		PROFIT	**$8**

Notes: * Stated for an average 56 lb. box (minimum weight = 50 lbs.)

Table A.15. Net return over operating costs at different yield and prices, fresh cabbage.

Net return over OPERATING costs per acre, FRESH CABBAGE	= positive return	= break-even or better

	Fresh Yield - Boxes per acre (56 lbs. /box)										
PRICE per box	500	550	600	650	700	750	800	850	900	950	1000
$8.50	($1,371)	($1,258)	($1,145)	($1,032)	($919)	($806)	($693)	($580)	($467)	($355)	($242)
$9.00	($1,121)	($983)	($845)	($707)	($569)	($431)	($293)	($155)	($17)	$120	$258
$9.50	($871)	($708)	($545)	($382)	($219)	($56)	$107	$270	$433	$595	$758
$10.00	($621)	($433)	($245)	($57)	$131	$319	$507	$695	$883	$1,070	$1,258
$10.50	($371)	($158)	$55	$268	$481	$694	$907	$1,120	$1,333	$1,545	$1,758
$11.00	($121)	$117	$355	$593	$831	$1,069	$1,307	$1,545	$1,783	$2,020	$2,258
$11.50	$129	$392	$655	$918	$1,181	$1,444	$1,707	$1,970	$2,233	$2,495	$2,758
$12.00	$379	$667	$955	$1,243	$1,531	$1,819	$2,107	$2,395	$2,683	$2,970	$3,258
$12.50	$629	$942	$1,255	$1,568	$1,881	$2,194	$2,507	$2,820	$3,133	$3,445	$3,758
$13.00	$879	$1,217	$1,555	$1,893	$2,231	$2,569	$2,907	$3,245	$3,583	$3,920	$4,258

Table A.16. Fresh cabbage potential input fluctuations.

Effect of non-labor variable inputs on total per acre costs on FRESH cabbage budget.

% Increase in input prices	Increase in cost per acre	Resulting total costs per acre	% increase in total costs
5%	$196	$7,888	3%
10%	$392	$8,085	5%
15%	$589	$8,281	8%
20%	$785	$8,477	10%
25%	$981	$8,673	13%

Table A.17. Fresh cabbage potential labor fluctuations.

Effect of labor prices on total per acre costs on FRESH cabbage budget.

% Increase in labor price	Increase in cost per acre	Resulting total costs per acre	% increase in total costs
5%	$142	$7,835	2%
10%	$285	$7,977	4%
15%	$427	$8,119	6%
20%	$569	$8,262	7%
25%	$712	$8,404	9%

Green cabbage getting nearer to harvest. Photo by Chris Galbraith, MSU Extension

Table A.18. Processing cabbage, full cost of production budget.

Michigan Cabbage Cost of Production 2024

Processor Market Cabbage						
Operation	**Time** Hours/acre	**Labor Rate** $/hour	**Materials** $/acre	**Custom Machinery Charge** $/acre	**Subtotal** $/acre	**TOTAL $/acre**
Soil Prep						**$109**
- Fall tillage (V-rip or subsoil)				$26.00	$26.00	
- Fall-planted cover crop (oats, wheat, etc.)			$15.00	$10.00	$25.00	
- Spring tillage (1 to 2x soil finisher, or vertical till then bedder)				$30.00	$30.00	
- Pre-emergent **herbicide**			$15.88	$12.00	$27.88	
Planting						**$875**
- Seedling cost: $7 per 200 Plant population: 15,000			$525.00		$525.00	
- Transplanter custom cost/ acre (equipment + driver)				$120.00	$120.00	
- Labor for transplanting	9.3	$24.75			$230.18	
Hand Weeding						**$334**
-Total labor hours a pass	13.50	$24.75			$334.13	
Irrigation						**$260**
- Base system: installation costs spread over 20 years, plus $10/year maintenance				$160.00	$160.00	
- Variable costs: $20/acre inch for fuel & operation x 5 acre inches average use			$100.00		$100.00	
Cultivation & Fertilizer Application						**$32**
- Cultivation #1 & fertilizer application #1				$10.00	$10.00	
- Cultivation #2				$10.00	$10.00	
- Sidedress/ fertilization application #2				$12.00	$12.00	
Fertilizer Materials						**$277**
- Equivalent of 150 lbs. N, 75 lbs. P2O5, and 150 lbs. K2O. **Sample product mix**:						
Urea 46-0-0, 250 lbs.			$62.50		$62.50	
Potash 0-0-60, 250 lbs.			$62.50		$62.50	

(more)

Table A.18. Processing cabbage, full cost of production budget. (cont.)

Processor Market Cabbage						
Operation	**Time** Hours/acre	**Labor Rate** $/hour	**Materials** $/acre	**Custom Machinery Charge** $/acre	**Subtotal** $/acre	**TOTAL $/acre**
MAP 11-52-0, 150 lbs.			$66.00		$66.00	
AMS 21-0-0-24S			$28.00		$28.00	
Micronutrients, including Boron			$21.00		$21.00	
Calcium input (Gypsum, etc.)			$25.00		$25.00	
Limestone $36 for 1 ton per 3 years, materials, includes custom application				$12.00	$12.00	
Crop Protection						**$470**
- Fungicide materials			$226.06		$226.06	
- Insecticide materials			$123.82		$123.82	
- Applications (10) @Custom rate of $12				$120.00	$120.00	
Other Operating / Overhead Expenses						**$708**
- Porta-Potty cost per acre			$9.00		$9.00	
- Soil testing - grid sample every 3 years, 3 acre zone			$7.50		$7.50	
- Crop Insurance*			$140.00		$140.00	
- Food Safety Compliance			$30.00		$30.00	
- Pickup (40 miles/A @ $0.67/mile)				$26.80	$26.80	
- Post-harvest shredding w/ flail mower				$45.00	$45.00	
- Management and Labor Supervision	5	$40.00			$200.00	
- Land Control (includes property taxes)			$250.00		$250.00	
Harvest Costs	**Cost per lb.**		**Yield per acre (lbs.)**			**$1,020**
- Hand harvest, field labor and supervision	$0.007		68,000		$476.00	
- Harvest equipment cost (conveyor, etc.)	$0.002		68,000		$136.00	
- Trucking to processor, labor, fuel, and equipent depreciation	$0.006		68,000		$408.00	
Interest on operating capital - 8% interest, on half of variable costs for an average of 4 months						**$54**

TOTAL COSTS/acre		**$4,140**
Total costs per lb. harvested		**$0.061**
YIELD per acre, lbs.	**PRICE/lb.**	**REVENUE**
68,000	**$0.08**	**$5,440**
	PROFIT/acre	**$1,300**
	PROFIT per lb.	**$0.019**

Notes: * Crop insurance was NAP for processed growers, but due to the desire to insure with the cabbage policy and potential upcoming changes, we included the same level as fresh to match likely scenarios

Table A.19. Processing cabbage costs per acre and per box for different yields.

PROCESSED CABBAGE	YIELD - tons per acre									
	24	26	28	30	32	34	36	38	40	42
Operating costs/acre:										
Cultural* -	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242	$2,242
Harvest -	$720	$780	$840	$900	$960	$1,020	$1,080	$1,140	$1,200	$1,260
Operating interest -	$50	$51	$52	$53	$54	$54	$55	$56	$57	$58
TOTAL Operating costs/acre:	**$3,012**	**$3,073**	**$3,134**	**$3,195**	**$3,256**	**$3,317**	**$3,377**	**$3,438**	**$3,499**	**$3,560**
TOTAL Operating costs/ton:	$125.50	$118.19	$111.93	$106.50	$101.75	$97.54	$93.81	$90.48	$87.48	$84.76
Total Overhead** costs/acre -	$823	$823	$823	$823	$823	$823	$823	$823	$823	$823
TOTAL COSTS per acre:	**$3,835**	**$3,896**	**$3,957**	**$4,018**	**$4,079**	**$4,140**	**$4,200**	**$4,261**	**$4,322**	**$4,383**
TOTAL COSTS per ton:	$159.81	$149.86	$141.33	$133.95	$127.48	$121.76	$116.68	$112.14	$108.06	$104.37

Notes: * "Cultural" costs include soil prep, planting, hand weeding, cultivation and fertilizer, crop protection, post-harvest shredding, and variable irrigation costs

** "Overhead" costs includes the irrigation base system plus all costs under "Other operating/Overhead Expenses" *except* post-harvest shredding

Table A.20. Net return over operating costs at different yield and prices, processed cabbage.

Net return over OPERATING costs per acre, PROCESSED CABBAGE

= positive return

= **break-even** or better

	Processed Cabbage Yield - tons per acre									
PRICE per lb.	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**42**
6 cents	($133)	$47	$226	$405	$584	$763	$943	$1,122	$1,301	$1,480
6.5 cents	$107	$307	$506	$705	$904	$1,103	$1,303	$1,502	$1,701	$1,900
7 cents	$347	$567	$786	$1,005	$1,224	$1,443	$1,663	$1,882	$2,101	$2,320
7.5 cents	$587	$827	$1,066	$1,305	$1,544	$1,783	$2,023	$2,262	$2,501	$2,740
8 cents	$827	$1,087	$1,346	$1,605	$1,864	$2,123	$2,383	$2,642	$2,901	$3,160
8.5 cents	$1,067	$1,347	$1,626	$1,905	$2,184	$2,463	$2,743	$3,022	$3,301	$3,580
9 cents	$1,307	$1,607	$1,906	$2,205	$2,504	$2,803	$3,103	$3,402	$3,701	$4,000
9.5 cents	$1,547	$1,867	$2,186	$2,505	$2,824	$3,143	$3,463	$3,782	$4,101	$4,420
10 cents	$1,787	$2,127	$2,466	$2,805	$3,144	$3,483	$3,823	$4,162	$4,501	$4,840
11 cents	$2,267	$2,647	$3,026	$3,405	$3,784	$4,163	$4,543	$4,922	$5,301	$5,680

Table A.21. Processing cabbage profits and break-even yields by price.

Net return over TOTAL costs per acre, PROCESSED CABBAGE	= positive profit	= **break-even** or better

	Processed Cabbage Yield - tons per acre									
PRICE per lb.	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	**42**
6 cents	($956)	($777)	($597)	($418)	($239)	($60)	$119	$299	$478	$657
6.5 cents	($716)	($517)	($317)	($118)	$81	$280	$479	$679	$878	$1,077
7 cents	($476)	($257)	($37)	$182	$401	$620	$839	$1,059	$1,278	$1,497
7.5 cents	($236)	$3	$243	$482	$721	$960	$1,199	$1,439	$1,678	$1,917
8 cents	$4	$263	$523	$782	$1,041	$1,300	$1,559	$1,819	$2,078	$2,337
8.5 cents	$244	$523	$803	$1,082	$1,361	$1,640	$1,919	$2,199	$2,478	$2,757
9 cents	$484	$783	$1,083	$1,382	$1,681	$1,980	$2,279	$2,579	$2,878	$3,177
9.5 cents	$724	$1,043	$1,363	$1,682	$2,001	$2,320	$2,639	$2,959	$3,278	$3,597
10 cents	$964	$1,303	$1,643	$1,982	$2,321	$2,660	$2,999	$3,339	$3,678	$4,017
11 cents	$1,444	$1,823	$2,203	$2,582	$2,961	$3,340	$3,719	$4,099	$4,478	$4,857

Table A.22. Processing cabbage potential input fluctuations.

Effect of non-labor variable inputs on total per acre costs on PROCESSED cabbage budget.			
% Increase in input prices	Increase in cost per acre	Resulting total costs per acre	% increase in total costs
5%	$82	$4,222	2%
10%	$163	$4,303	4%
15%	$245	$4,385	6%
20%	$327	$4,467	8%
25%	$408	$4,548	10%

Table A.23. Processing cabbage potential labor fluctuations.

Effect of labor prices on total per acre costs on PROCESSED cabbage budget.			
% Increase in labor prices	Increase in cost per acre	Resulting total costs per acre	% increase in total costs
5%	$78	$4,218	2%
10%	$156	$4,296	4%
15%	$235	$4,375	6%
20%	$313	$4,453	8%
25%	$391	$4,531	9%

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