

# Enterprise Budgeting for Horse-Drawn Power in Farming



## Introduction

The decision to adopt horse-drawn farming has many components. Are you interested in farming with horses as a source of power, or are you already employing horse-powered farming techniques in some way? The publication "Is Horse-Drawn Farming for You?" (<https://extension.purdue.edu/extmedia/EC/EC-806-W.pdf>) can assist you in making decisions about the use of horse-drawn power in an agricultural operation. The Purdue Horse-Drawn Farming Readiness Assessment tool (PHDFRA) (<https://ag.purdue.edu/agecon/Pages/Horse-Powered-Farming.aspx>) is an interactive tool designed to assist you in evaluating some of the qualitative aspects of this decision. Major areas of considerations or rating within the PHDFRA include, on a scale/score of 1 through 5, horse care knowledge, horse riding or driving experience, alignment with lifestyle/values, and operation style; and business operations and available resources (both on a scale/score of 1 through 6).

Another consideration is whether horse-drawn farming makes economic sense. Careful analysis of costs and revenues and how those may be affected if you choose to pursue horse-drawn farming is necessary.

## The Importance of Enterprise Budgeting

Budgets are a valuable tool for any business. Enterprise budgets are a projection of all of the costs and returns for a single enterprise (Kay, Edwards, and Duffy, 2008). They are usually developed on a per-acre or per-unit of production basis, facilitating interpretation for on-farm decision making. Enterprise budgets can be helpful to a farm business by organizing and itemizing receipts or income alongside the inputs and resources employed. In addition, all costs are itemized, quantified, and accounted for on the same document. Thus, beyond the calculation of total profit generated by the enterprise, the exercise of creating and analyzing enterprise budgets can provide insights. For example, enterprise budgets are valuable in completing breakeven analysis for prices and yields. The breakeven price for a crop is calculated as follows:

$$\text{Breakeven price (\$/bushel)} = \text{total cost (\$/acre)} \div \text{expected yield (bushels/acre)}$$

The breakeven yield is calculated as follows:

$$\text{Breakeven yield (bushels/acre)} = \text{total cost (\$/acre)} \div \text{output price (\$/bushel)}$$

Enterprise budgets can be created for each type of crop or livestock, or for service-focused activities, such as an agritourism enterprise. Enterprise budgets can be created for different levels of production of a single crop, such as a separate budget for high-yield versus low-yield corn. And, of particular importance when considering integrating horse-drawn power, different types of technology can be evaluated in separate enterprise budgets to allow analysis and better-informed enterprise planning and on-farm decision making. For example,

Elizabeth Byrd, Nicole Olynk Widmar,  
and Joan Fulton

Department of Agricultural Economics  
Purdue University

**Audience:** Individuals considering using horse-drawn power in farming, agricultural and/or agritourism operations.

**Content:** Provides interested stakeholders or decision makers with a starting point for thinking about cost of production when using horse-drawn power in a farming operation. The importance of enterprise budgeting and how horse-drawn power would factor into budgeting is highlighted.

**Outcome:** Readers will have a basic understanding of why horse-drawn power in farming is important to consider in the context of cost of production, and ultimately in enterprise budgeting.

if a farm were considering using horses to farm a portion of its acreage but would, for that crop, also use tractor or machinery power, two distinct enterprise budgets could (and perhaps should) be created and analyzed.

It is important to consider the scale of production when using horse-drawn power. Horses are slower than tractors, and there are limits to how quickly they can complete necessary work on large tracts of a single crop.

It can be difficult to accurately account for the costs and benefits of horse-drawn farming: horses produce their own energy from the hay, pasture, or grain they are fed and also provide manure and can reproduce. Planning the farm layout and operation to take full advantage of horse power can lower expenses (Miller, 2004).

**Emphasis on Cost of Production**

There is no standard format for enterprise budgets in farm businesses. Purdue University Extension has developed a list of sources of enterprise budgets for various crops ([https://www.agecon.purdue.edu/extension/pubs/faq/FAQ\\_23.pdf](https://www.agecon.purdue.edu/extension/pubs/faq/FAQ_23.pdf)). Of particular interest in the Midwest are crop rotations involving corn, soybeans, and wheat. The 2015 Purdue Crop Cost and Return Guide ([http://www.agecon.purdue.edu/extension/pubs/id166-w\\_2015\\_sept\\_2014.pdf](http://www.agecon.purdue.edu/extension/pubs/id166-w_2015_sept_2014.pdf)) quantifies the expected revenue and costs associated with various crop rotations on low, average, and high productivity soils. Farms considering the use of horse power can begin by adapting their existing enterprise budgets or by adapting widely available crop budgets.

When thinking about the cost of production for enterprises utilizing horse power, the key is to determine what costs will be affected. Perhaps seed, fertilizer, insurance, and pesticide costs are not expected to change much by a switch from machinery to horse power. However, certainly fuel, machinery operating costs, and machinery repairs will be impacted. In cases where a farm moves entirely to horse power, certain categories of expenses may decrease to zero. But in many cases, farm managers must carefully consider how machinery will (or will not) be used and make thoughtful predictions about the effects on costs.

A major focus of enterprise budgeting when evaluating the incorporation of horses into a farming operation is the cost of maintaining and caring for the horses. Several examples of enterprise budgets specifically for horses are available. Montana State University has an easily edited enterprise budget (available for download as an Excel spreadsheet) that is developed to facilitate estimating costs and revenue. <http://www.montana.edu/softwaredownloads/documents/software/Ranch%20Horse%20Budget.xls>

While the budget itself may not be developed with horse-powered farming in mind, categories in terms of costs associated with equine management are helpful. Key categories that will need to be considered are feed expenses (including pasture and pasture maintenance), veterinary and medicine expenses, labor associated with equine care, supplies (including fly spray, deworming, etc.),

Costs without horses	Costs with horses
<b>Variable Costs</b>	<b>Variable Costs</b>
Seed	Seed
Fertilizer	Fertilizer
Pesticides	Pesticides
Machinery fuel, lube, and repairs	Machinery fuel, lube, and repairs *** Costs may increase or decrease depending on specific machinery needs.
Custom spraying	Custom spraying
Harvesting and hauling	Harvesting and hauling
Labor	Labor
Interest	Interest
	Labor specific to caring for or working with horses (If required)
	Horse-specific costs
<b>Fixed Costs</b>	<b>Fixed Costs</b>
Machinery depreciation, interest, taxes, and insurance	Machinery depreciation, interest, taxes, and insurance *** Costs may increase or decrease depending on specific machinery needs.
Land charge	Land charge
	Facilities charge for horse facilities

\* List of costs adapted from (Kay, Edwards, and Duffy, 2008).

tack, bedding, farrier expenses, training costs for the horses and farm employees working with the horses, equine facilities for housing and handling, and maintenance and repairs on equine facilities, fences, and equipment. These expenses are horse-specific. Depending on the specific enterprise into which horses are being integrated, additional expenses for machinery capable of working with horses may need to be considered. Generic categories of expenses for a field crop enterprise are outlined below.

Since enterprise budgets are constructed on a per-acre basis, comparisons across enterprises and categories may be insightful for those operations considering horse-powered farming. For example, one can consider the increase in total costs arising from horse-specific costs and easily compare it with the change in machinery-related costs. For some operations the increase in horse-related costs may not be offset by decreases in machinery costs. For example, a farm that must purchase horse-powered implements will incur higher associated costs.

**Considerations for Revenue Generation**

While the main focus of budgeting when considering horse power in your farming operation is on the cost of production, the revenue generation potential of the enterprise should also be considered. If efficiency decreases, total yields decrease, and/or the price of the product decreases, total revenue may decrease substantially. However, a decrease in revenue may not result in a



decrease in profit if the total decrease in the cost of production is greater than the decrease in revenue generated. On the other hand, there is potential for increased revenue if efficiency increases, total yields increase, and/or the price of the product increases. Some farm products may demand higher prices in the marketplace when marketed as having been produced with horse power.

Employing horses in an enterprise may facilitate additional revenue streams through sales of foals or other horse-specific activities. For example, a farm with excess horse power may engage in activities such as wagon rides, sleigh rides, or custom work. However, these revenue streams may not be considered part of a cropping enterprise. How such horse-specific revenue streams are allocated across enterprises should be carefully considered before profitability analyses are conducted.

## References

- Byrd, E.S., Olynk Widmar, N.J., and J.R. Fulton. (2016). "Is Horse-Drawn Farming for You?" Available online at: <https://extension.purdue.edu/extmedia/EC/EC-806-W.pdf>
- Byrd, E.S., Olynk Widmar, N.J., and J.R. Fulton. (2016). Purdue Horse-Drawn Farming Readiness Assessment Tool (PHDFRA). Available online at <https://ag.purdue.edu/agecon/Pages/Horse-Powered-Farming.aspx>
- Dobbins, C.L., Langemeier, M.R., and Miller, W.A., Nielsen, B., Vyn, T.J., Casteel, S., Johnson, B., and K. Wise. (2014). *The 2015 Purdue Crop Cost and Return Guide*. Available online at [http://www.agecon.purdue.edu/extension/pubs/id166-w\\_2015\\_sept\\_2014.pdf](http://www.agecon.purdue.edu/extension/pubs/id166-w_2015_sept_2014.pdf)
- Kay, R.D., W.M. Edwards, and P.A. Duffy. (2008). *Farm Management*. Sixth Edition. New York, NY: McGraw-Hill.
- Miller, L.R. (2004). *Work Horse Handbook*. Second Edition. Sisters, Oregon: Small Farmer's Journal Inc.
- Montana State University. (2007). *Ranch Horse Enterprise Budget*. Available online at <http://www.montana.edu/softwaredownloads/documents/software/Ranch%20Horse%20Budget.xls>
- Roucan, M. (2006). *Where Do I find Midwestern and National Enterprise Budgets?* Available online at [https://www.agecon.purdue.edu/extension/pubs/faq/FAQ\\_23.pdf](https://www.agecon.purdue.edu/extension/pubs/faq/FAQ_23.pdf)

## About the Authors

*Elizabeth Byrd is Graduate Research Assistant and Ph.D. student, Niclole Olynk is Associate Professor, and Joan Fulton Professor and Associate Department Head in the Department of Agricultural Economics, Purdue University.*



*This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2013-38640-20901 through the North Central Region SARE program under subaward number H003679434. USDA is an equal opportunity employer and service provider. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.*

May 2016

It is the policy of the Purdue University Cooperative Extension Service that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran.

Purdue University is an Affirmative Action institution. This material may be available in alternative formats.



Order or download materials from  
Purdue Extension • The Education Store  
[www.edustore.purdue.edu](http://www.edustore.purdue.edu)