

## Appendix I: Measuring Hog Production Costs

Production costs are an important indicator of the potential financial success of hog enterprises. Business decisions, such as how much or whether or not to produce, are based on the relationship between production costs and expected product price, and the length of the planning period. In a short-term planning period where production decisions are made about the number of sows to breed or feeder pigs to purchase, decisions are based only on the level of operating costs. During this time, ownership costs are fixed regardless of these decisions. As the length of the planning period increases and production decisions about replacing capital assets are faced, both operating and asset ownership costs need to be considered. Because of the substantial investment required in replacing hog production facilities, this is when most hog producers must decide whether or not to stay in business. Most hog producers make shorter term business decisions several times per year, whereas they make longer term decisions every 10-20 years as facilities need to be replaced.

This report uses production costs to evaluate the relative success of hog operations in terms of their ability to meet short-term obligations and to replace capital assets as needed, and thus stay in business over time.<sup>20</sup> Therefore, both operating and ownership costs on hog operations are used in the analysis of costs (Appendix table I-1). Operating costs include costs for feed; feeder pigs; veterinary and medical services; bedding and litter; marketing; custom services; fuel, lubrication, and electricity; repairs; hired labor; other operating costs; and operating interest. Ownership costs include the annualized cost of maintaining the capital investment (depreciation and interest) in hog facilities and equipment, and costs for non-real estate property taxes and insurance. The costs incurred by all participants in the production process, including farm operators, landlords, contractors, and contractees, are included in the accounts. The 1998 ARMS survey of hog producers provides the primary data used to estimate the costs. All costs are computed using methods recommended by the American Agricultural Economics Association Task Force on commodity cost and return estimation (AAEA).

<sup>20</sup> In this report, production costs of producers of the same type (e.g., farrow-to-finish, farrow-to-feeder pig, feeder pig-to-finish) are compared. Because of differences in the methods used to compute costs, a comparison of costs across producer types is not recommended. For example, the price used to value feeder pigs has a significant impact on hog finishing costs, but not on the costs for other types of producers. Also, differences in the size and ownership structure among producer types would affect their relative costs.

The hog cost estimates are developed from measurements taken during the 1998 calendar year, and are presented on a per hundredweight (cwt) of gain basis. This gain is measured as the cwt of hogs sold or removed under contract, less cwt of inventory change during 1998 (see Glossary, p. 43). Gain is an indicator of the value added to the hogs during the calendar year and reflects the output achieved for the inputs used. In contrast, sales may be high or low during a year depending on whether the hog operation is reducing inventory, such as operations exiting the industry, or adding inventory, such as new entrants to the industry.

### Operating Costs

Feed, comprised of feed grains, protein sources, complete mixes, and other feed items, is the largest component of total operating costs on hog operations. Costs of purchased feed items were taken directly from the survey data. Quantities of farm-raised feed grains were valued according to annual average feed grain prices in each State obtained from *Agricultural Prices* (USDA, NASS). Head of feeder pigs purchased were valued at the feeder pig purchase price on each surveyed farm, while those placed under contract were valued with State feeder pig prices obtained from *Agricultural Prices* (USDA, NASS).

Most other operating costs (including bedding and litter; marketing; custom services; fuel, lubrication, and electricity; repairs; hired labor; and other operating costs) were taken directly from the survey data. Other operating costs include odor control expenditures, and fees, permits, licenses, and other regulatory costs. The cost of operating capital is the cost of carrying the operating expenses from the time they are incurred until the time they are paid, assumed to be a 6-month period for hog operations. Operating capital cost was computed using the 6-month Treasury bill rate.

### Ownership Costs

The capital recovery method (AAEA) for estimating asset ownership costs was used to specify annual depreciation and interest costs associated with hog operations. Information was collected in the survey to determine the capital assets used in hog production, including those for hog housing, feed storage and processing, manure storage and handling, and other livestock handling equipment. These data were combined with current price information

**Appendix table I-1—Items included in the analysis of cost**

*Estimates of operating and ownership costs were used to evaluate the relative success of hog operations.*

<b>Operating Costs</b>	<b>Ownership Costs</b>
Feed	Depreciation and interest <sup>1</sup>
Feeder pigs	Property taxes (excluding real estate)
Veterinary and medicine	Insurance
Bedding and litter	
Marketing	
Custom services	
Fuel, lubrication, and electricity	
Repairs	
Hired labor	
Other operating costs <sup>2</sup>	
Operating interest	

<sup>1</sup>Computed using the capital recovery method.

<sup>2</sup>Other operating costs include costs for odor control, and fees, permits, licenses, and other regulatory costs.

(Boeckh; USDA, NASS, *Agricultural Prices*) and engineering coefficients developed by the American Society of Agricultural Engineers. Capital costs were also estimated for purchased breeding stock, but not for replacement stock raised on the farm because costs of raising

these replacements were included in the other cost items. The interest component of the capital recovery method was estimated using the longrun (10-year moving average) rate of return to agricultural production assets from current income.