

University of Nebraska - Lincoln

## DigitalCommons@University of Nebraska - Lincoln

---

Historical Materials from University of  
Nebraska-Lincoln Extension

Extension

---

2001

### Leasing and Valuing Swine Facilities

Bruce B. Johnson

*University of Nebraska - Lincoln*, [bjohnson2@unl.edu](mailto:bjohnson2@unl.edu)

Allen Prosch

Ron Christensen

Follow this and additional works at: <https://digitalcommons.unl.edu/extensionhist>



Part of the [Agriculture Commons](#), and the [Curriculum and Instruction Commons](#)

---

Johnson, Bruce B.; Prosch, Allen; and Christensen, Ron, "Leasing and Valuing Swine Facilities" (2001).  
*Historical Materials from University of Nebraska-Lincoln Extension*. 98.  
<https://digitalcommons.unl.edu/extensionhist/98>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

## Leasing and Valuing Swine Facilities

Allen Prosch, Pork Central Coordinator

Ron Christensen, Area Chief Appraiser, Farm Credit Services of America

Bruce Johnson, Professor, Department of Agricultural Economics

This NebGuide provides an overview of factors to consider when setting rent levels or placing appropriate market value on swine facilities when a purchase is being considered or negotiated.

Assigning appropriate rents and values to farm buildings has always been challenging because of the diversity of building inventories, as well as the selective demand for these structures. For swine facilities, the challenge has even grown as buildings have become increasingly specialized in efforts to improve animal performance.

### Key Issues That Impact Lease Rates and Value

When evaluating a swine facility for leasing or valuation purposes, consider the following:

**Environmental Compliance:** The unit must comply with environmental regulations concerning manure storage and disposal. This includes having applicable construction and operating permits in place, as well as complying with separation (distance) requirements between the facility and occupied residences, public areas, waterways, or other specified concerns. In some cases a manure management plan is required to ensure the facility has access to enough land to comply with manure application requirements. This may require a manure easement on additional land that will transfer with the facility.

**Zoning Compliance:** Since zoning regulations vary by county, it is important to research the local requirements in detail to ensure that current use of the hog facility is in compliance. If it is not, there may be little reason to proceed.

**Location:** Location will impact both rental income and market value:

- If the facility is located in an area where swine operations are typical, consider the distance from processing facilities, sources of pigs for finishing facilities, as well as access to finish and nursery space for farrowing operations.
- If the location is near residences and public areas it may create a conflict with neighboring property owners. If the facility is near other swine operations there may be a greater risk of disease. Location is a

particularly important consideration when selecting a site for new construction. If the objective is to have a marketable facility, the owner should probably consider a separate, stand-alone site as opposed to building the facility adjacent to an existing building site that may have a residence or other buildings not related to the swine facility.

**Site:** The site must adequately support the facility and associated manure storage. Other factors to consider include truck accessibility and other traffic flow needs associated with production efficiency. The ability to expand the facilities in the future is another consideration, as potential site locations become more difficult to acquire and newer units may be purchased with expansion in mind.

**Age and Condition of Facilities (Physical Depreciation):** Swine facilities are depreciating assets with the level of physical depreciation directly related to the level of historical maintenance of the unit. Given the normal wear and tear of hog production, swine facilities often have a physical life of 25 years or less.

**Design and Utility of the Facility (Functional Depreciation):** Due to the accelerated pace of change in the swine industry, this is a critical factor that impacts both the rental income potential and market value of an existing hog facility. Even though a facility may be structurally sound and in good repair, it may have severe functional obsolescence that discounts its usability and hence its rental potential and value. In fact, functional depreciation in older hog facilities can be so extreme that the market for such properties will take rents (as well as value) to essentially zero. This issue can be addressed by asking: “How does the facility compare to current facility standards of new construction?” Factors to consider include: overall pig flow and animal movement from the standpoint of labor requirements; size; ventilation; manure handling; and bio-security. To the extent an existing facility is deficient in one or more of these aspects, both rental income potential and market value of the facility will be discounted.

**Space Requirements:** The facility should be large enough to meet industry capacity and performance level standards. Typical operating capacity requirements are presented in *Table 1*.

**Table I. Typical Operating Capacities of Swine Facilities**

Type	Operating Capacity	Comments
Farrow-wean Complex	6.25 - 7.00 sows per farrowing crate per yr.	Assumes adequate gestation
Finish and Wean-finish Complex	7.4 - 8.0 Square feet per pig	Assumes total slatted floors. Lower end of capacity range from newer, modern units. Upper end of range for older units
Nursery	2.8 - 3.2 square feet per pig	Assumes total slatted floors. Lower end of capacity range for newer, modern units. Upper end of range for older units.

### Swine Facility Rent Determination

What is a reasonable rent? Typically, both the owner and the prospective tenant will have a perception of reasonable rent — often with a wide disparity between the two. Sometimes the disparity is so large it precludes a negotiated agreement. However, if both parties take the same factors into consideration, the chances that an agreement will be reached greatly improves.

From the owner's standpoint, s/he will probably want to lease out a facility for an annual rent that would, at least, cover the costs of repairs, property taxes, and insurance. And, assuming the building is not fully depreciated, the owner also may want a rental rate which reflects depreciation and interest charges as well. However, tenants may be hesitant to cover that component if they see the facility is already heavily depreciated with little remaining value.

Repairs can differ. Some repairs are required for maintaining the building as a useful structure regardless of use, while others will occur only because the building is in use. Also, for most swine buildings, some equipment will need to be maintained as well. Typically, annual repair rates for equipment will run 3 to 5 percent of replacement cost while building maintenance will run 1 to 3 percent. The replacement cost could equal the original cost or be the cost of a different piece of equipment or building that is currently recommended as a replacement. Since use obviously contributes to the level of repairs needed, one creative way to factor them into a negotiated rent is for the owner and tenant to share actual repair costs equally.

Property taxes on the facility can usually be determined from public records of current assessed value multiplied by the tax levy in that taxing district. They also can be estimated as a percentage of value. In Nebraska that percentage may average 1 to 1.5 percent of the current market value.

These annual ownership costs, sometimes referred as the (DIRTI Five), are illustrated in the following example of a \$40,000 hog finishing unit with a 235-head capacity.

Depreciation (20-year functional life) 5% x \$40,000	=	\$2,000
Interest (10 percent on undepreciated balance) 10% x \$20,000	=	\$2,000
Repairs (depends on use and condition) 2% x \$40,000	=	\$ 800
Taxes (use actual figure if available) 1.5% x \$40,000	=	\$ 600
Insurance (1 percent of undepreciated balance) 1% x \$20,000	=	\$ 200
Total Annual Fixed Costs		\$5,600

At an annual rental rate of \$5,600, the building owner in this example would recover all of his/her costs associated with the facility. In a viable rental market, the owner could well expect to get this level of rent (essentially the owner's high end of rental expectations).

But, a problem lies in the fact that the market demand for hog facilities in a given locality and point in time may

fall short of available supply — a situation that arises frequently in a highly-variable hog cycle. When that situation occurs, the facility owner faces downward adjustments in rents to levels which do not cover all costs. For example, in the illustration above, consider a situation where a prospective tenant offers only \$0.04 per head per day. The offered annual rent would be \$3,431. The owner's response depends on the alternatives. If there are no other potential tenants and the facility is likely to sit idle if not rented to this person, the offer may still be considered, even though it doesn't cover all costs. The owner must realize that the facility, if allowed to sit idle, still incurs the cash costs of repairs, taxes, and insurance (\$1,600) which must be covered from other income sources. In short, the owner's true bargaining range for this facility can be quite wide, \$1,600 to \$5,600.

From the tenant's perspective, the amount of rent he/she would pay depends on the amount the building can contribute to their net income. This contributory value depends on several factors including size, physical condition, location, and degree of obsolescence.

Typical income flows (and rents) from specialized swine facilities also depend on whether the units are under a multi-year contract or a shorter term rental arrangement. The "contract" applies primarily to newer, more modern facilities currently being constructed, where the owner can negotiate a multi-year contract from a proven contractor. Typical rates are negotiated on a pig space per year basis with ranges for the various swine facility types as shown in *Table II*.

**Table II. Typical Rental Rates for Newer Swine Facilities, 2001**

Type	Operating Capacity	Typical Contract Range
Farrow-wean Complex	6.25 - 7.0 sows per farrowing crate*	\$10 - \$20 per pig weaned/year
Finish Complex	7.5 square feet per pig	\$32 - \$38 per pig space/year
Wean-finish Complex	7.5 square feet per pig	\$34 - \$40 per pig space/year
Nursery	3.0 square feet per pig	\$34 - \$40 per pig space/year

\*Assumes adequate gestation capacity.

For older, less functional facilities, the typical arrangement is more likely on a rental basis of actual unit production. For example, farrowing buildings will be rented on a dollar per pig weaned basis, while finishing units will generally be rented on a per head per day basis. Typical rental ranges for the different facility types are presented in *Table III*.

**Table III. Typical Year - to - Year Rents for Older Swine Facilities, 2001**

Type	Typical Rent Range
Farrow to Feeder Complex	\$4.00 - \$8.00 per pig weaned
Farrow to Finish Complex	\$5.00 - \$12.00 per pig weaned
Finish Complex	\$0.03 - \$0.08 per head per day
Nursery	\$0.08 - \$0.20 per head per day

The type of system the facility represents implies performance characteristics which can greatly impact the rental bid levels. For example, research by Nebraska Pork Central suggests that rates on a pig space per year basis for a hog finishing unit average about \$35 for a confinement system and then downward to \$33 for a modified open front system, \$22 for a hoop system, \$16 for an open front bedded system, and \$11 for an open front unbedded system.

Obviously, the ranges indicated in *Tables II* and *III* reflect the production performance variations across facili-

ties, as well as the overall profitability levels in the swine industry at the time.

Estimating Facility Value: The Appraisal Process

The value of the hog facility itself helps determine depreciation, interest, repairs, taxes, and insurance — all the factors that must be considered before setting rent. Therefore, it’s important to understand how swine facilities are appraised. While it is not possible to address all aspects of appraisal here, an overview of the factors that impact value will be provided, as will a description of the various appraisal methods used for hog facilities. This information will help you determine when to have a certified real estate appraiser appraise the facility, and it will explain how to use the certified appraisal once you have it.

The real estate appraisal process includes three approaches — the Cost Approach, the Sales Comparison Approach, and the Income Capitalization Approach. Each of these approaches may be used in various combinations with the others as a means to strengthen the analysis and provide a basis of internal checks on the final estimated value. Despite the differences of the approaches, however, each is based on information obtained from verified, representative sales. Ultimately it is the market itself that determines value (market value), and the appraisal process itself is only trying to mirror that dynamic.

The Cost Approach to Value

The Cost Approach to Value is derived by estimating the replacement cost new (RCN) of the buildings and facilities and subtracting depreciation (based on condition, utility and other factors) to arrive at the contributory value of the buildings and facilities. This building contributory value is then added to the land or site value (based on comparable land sales) to arrive at the cost approach value. This can reliably indicate value, particularly for newer facilities with minimal depreciation.

Value = RCN - depreciation + value of site/land

**Determining the Site Value:** The first step is to estimate the value of the land site based on recent sales. In some areas there are actual sales of building sites for construction of new facilities. In other areas, sales of comparable agricultural land will provide the basis for site values.

**Estimating the Replacement Cost New (RCN):** This will include all costs except acquisition of the land (building, concrete, site preparation, landscaping, well, survey, permits, road, utility hookups, etc.). These costs may be estimated on a per head or per square foot basis (Table IV).

Table IV. Typical Replacement Costs of Swine Facilities, 2001.

Type	RCN/Square Foot	RCN/Head
Farrow-wean Complex	\$27.25 - \$33.50	\$800 - \$1000 / sow
Finish Complex	\$18.00 - \$22.00	\$155 - \$180 / pig space
Wean-finish Complex	\$20.00 - \$24.00	\$165 - \$190 / pig
Nursery	\$28.00 - \$40.00	\$90 - \$125 / pig

Depreciation:

*Physical:* For swine facilities, it is reasonable to assume an economic life of about 20 years (10 to 12 years for equipment and 20 to 25 years for the building). Start with actual age and consider level of maintenance, deferred maintenance, etc. to estimate effective age. Assuming typical maintenance and

condition relative to age, annual physical depreciation will be about 4 to 6 percent per year (of effective age).

*Functional:* Functional depreciation is more difficult to quantify. If the functional deficiencies can be cured, the functional depreciation can be estimated based on the cost to cure the deficiency. If the deficiencies are noncurable (i.e. it is not financially feasible or physically possible to cure the problem) functional depreciation may be estimated based on indirect costs (i.e. reduced feed efficiency, reduced production, increased mortality, increased labor requirements, etc.)

Functional depreciation should be viewed from two perspectives (especially for complexes with a combination of older and new buildings):

- First perspective — entire unit (i.e. pig flow, bio-security, etc.)
- Second perspective — individual buildings within the facility complex

*External:* External depreciation is the third form of depreciation. It is based on factors external to the property as opposed to the other forms of depreciation, which are based on the physical aspects of the subject property. There are two basic components of external depreciation:

- Location: Proximity to residences or livestock sites not considered a part of the facility, public areas, and waterways; also, location in an area where swine production is predominant vs. areas with no swine operations.
- Economic: Profitability of swine industry, additional need for facilities, ability to secure a profitable contract, etc.

Generally, in times of profitability for the hog industry when there is considerable market demand (a significant amount of new construction), external depreciation for well-located sites is minimal. Conversely, in times of low or no profitability and limited demand, the value discount on hog facilities can be substantial.

To illustrate the Cost Approach to value, assume a finishing complex of 500 head capacity that is five years old with a remaining economic life of 15 years. Based on current observation of the facility the contributory value of the property is determined as follows.

Building Value	
Replacement cost new (RCN)	\$87,500
— Less Depreciation:	
Physical depreciation	\$21,875
Functional depreciation	\$ 3,000
External depreciation	\$ 1,500
TOTAL depreciation	\$26,375
Present Contributory Value of building	\$61,125
Land Site	\$ 2,000
Total Value of Property	\$63,125

In this example, functional and external depreciation as well as physical depreciation result in a contributory value of the building being \$61,125 and the total value of the property being \$63,125.

Sales Comparison Approach to Value

This approach focuses entirely on the market to indicate value by identifying what similar properties have recently sold for.

The approach requires the verification of recent sales to assure that sale prices reflect bonafide market transactions.



It also necessitates some adjustments of comparable sale prices to reflect closer alignment of these comparables with the subject property. For swine facilities, these adjustments could include the following.

- Market trends (time)
- Term of sale
- Excess land (for expansion purposes)
- Rolling stock and livestock
- Supporting building (i.e. sheds, houses, grain storage, mill etc.
- Condition
- Utility
- Location

Typically, for swine facilities there will not be a large number of sales that are close comparisons to the subject property. As a result, large dollar adjustments to the comparables are usually required which tends to reduce the reliability of this approach. Consequently, the sales comparison approach should be used sparingly in situations of limited market activity.

### Income Capitalization Approach to Value

The income capitalization approach to value essentially estimates annual income potential of the property and then divides that income by a capitalization rate to come to a basis of property value.

**Estimating Income:** The two most typical methods for estimating income are the “Contract” Basis and the “Rental” Basis.

**Contract Basis:** This method applies primarily to newer modern facilities that are typical for what is being constructed today. This method assumes that the owner of the facility could obtain a 10-year contract from a proven contractor.

Typical contract rates are as noted in *Table II*. Typical expenses for “contract” basis (note that these will vary depending upon specific contract terms.) are:

- Labor/management
- Manure removal
- Insurance
- Taxes
- Repair/replacement
- Utilities

**Rental Basis:** The rental basis may apply to all types of facilities and is the primary basis for estimating income for older, less functional facilities that are not typically contracted. Ranges of these gross rents are as presented previously in *Table III*. When estimating the rent, consider the remaining economic life of the facility (how long it will be kept in production).

Typical Expenses for the “rental” basis (note that these will vary depending on specific lease terms.) are:

- Insurance
- Repairs/replacement
- Taxes

In both methods, total expenses are then subtracted from gross earnings to arrive at an estimated net annual dollar return for the facility. Also, estimated years of income flow

at this level are determined to complete the income earnings component.

**Capitalization Rate:** Capitalization rates can be based on indications by sales of similar properties or by comparing with rates of alternative investments. Typical capitalization rates for swine facilities range from 10 to 20 percent. The shortness of economic life of these facilities and the risk of maintaining an income flow over time tends to keep the capitalization rates in this relatively high range.

Once a capitalization rate is determined, total net annual dollar return to the facility is divided by the appropriate capitalization rate to arrive at an estimate of value of the property using the income - capitalization method.

To illustrate the Income Capitalization Approach, assume the same finishing complex used earlier which generates a rental return of \$0.06 per head per day. The calculations are as follows:

Income		
Gross Income (Rent)		\$10,950
Less expenses:		
Insurance	\$300	
Repairs	\$900	
Taxes	\$500	
TOTAL expenses		\$1,700
Net Income		\$9,250
Capitalization Rate:	15%	
Income Capitalized Value		
Value	= Net income/capitalization rate	
	= \$9,250/.15 =	\$61,667

Using the income-capitalization method, the implied market value is \$61,667.

### Final Reconciliation of Value

Once at least two of the three appraisal methods have been appropriately employed, the final step in the appraisal process is to reconcile the different value estimates and arrive at a single final estimate of value. At times, when the estimates are reasonably uniform, the final estimate of value can logically be a simple average of the methods. For example, in the illustration above, where the implied value estimate from the cost approach was \$63,125 and the income-capitalized estimate of value was \$61,667, it would be reasonable to average the final value at \$62,395. However, depending on the relative strength of the different analysis methods, one method may be seen as more reliable than the other(s), and therefore the final estimate would be weighted accordingly towards that procedure's estimate of value.

UNL Extension publications are available online  
at <http://extension.unl.edu/publications>.

**Index: Farm Management  
Lease & Contracts**

Issued September 2001

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.

© 2001, The Board of Regents of the University of Nebraska on behalf of the University of Nebraska–Lincoln Extension. All rights reserved.