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Dairy Lines

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Upcoming Events

Kansas Dairy Association
Annual Meeting
Seneca, KS
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DAIRY RESEARCH & EXTENSION NEWS
http://www.oznet.ksu.edu/ansi/nletter/dairylin.htm

Freestall or Drylot: Does one offer a competive edge?

Mike Brouk, John Smith, Joe Harner, and Kevin Dhuyvetter

Current dairy economics make it especially important for dairy producers to carefully consider all costs associated with milk production. For those either building or expanding, whether to use freestall or drylot housing is a critical decision. The decision involves more than simply evaluating the cost of construction.

Site and Environment

The first question that should be addressed is site selection. Based on the environment of the potential site, should a drylot be considered? Traditionally, drylot dairies have been located in arid environments having less than 20 inches of annual precipitation. As precipitation increases, potential negative effects of mud and nutrient management challenges greatly increase. If precipitation is not a concern, then next concern is whether environmental temperature, either extreme heat or cold, poses a serious risk for a drylot dairy. In the Midwest, the dividing line between drylot and freestall dairies is generally considered to be near the Kansas-Nebraska border. South of the line, winter temperatures are generally moderate enough to consider a drylot dairy. Granted, there is greater potential winter risk in northern Kansas compared to southern Kansas.

In addition to precipitation and temperature, one should also consider the current and future impact of urban pressure. In some arid regions, freestalls or enclosed barns are built to reduce the potential environmental impact of the dairy upon the surrounding area. Drylots may pose both an odor and dust problem. In addition, cattle are more visible to the public in drylot housing. Visibility of the cattle may increase the likelihood of future concerns from urban neighbors.

Investment Cost

The next step is to consider the difference in investment between a drylot dairy and freestall facility. Drylot dairies require less investment capital per cow than freestall facilities. K-State farm management guides indicate about $700 per cow investment difference between the two types of facilities. Industry sources indicate that in some cases the difference may be as much as $1,000 per cow. Table 1 demonstrates the amount of additional milk required to cover the increased investment per cow. If a freestall facility requires an additional $750 per cow investment over a drylot and the return above variable cost is $2 per hundredweight of milk produced, then the freestall facility must produce an additional 12.5 per pound per cow per day of milk to cover the higher depreciation and interest cost associated with the increased investment. Depreciation and interest were calculated using amortization tables based on a 15-year life and 9 percent interest rate. It was assumed that the variable cost of production on a per hundredweight basis does not change as production increases. In general, as production increases, variable cost per hundredweight produced decreases. Based on

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current budgets, this could be 25-30 cents for each 1,000-pound increase in production. However, this is a generalization and influenced by many factors. When making the decision between a freestall and drylot, initial investment has a direct impact upon the milk production goal of the unit. Assuming that you could either build a drylot or freestall facility, building the freestall sets a much higher production goal than building the drylot.

Another thing to consider is the number of cattle that you could milk with your available capital. If you build a drylot rather than a freestall, you could milk more cows with the same amount of capital invested. Depending on the price of heifers, you may be able to milk 30-45 percent more cattle in the drylot as compared to the freestall.

Management Style

Since the facility choice has a major influence on the level of production required to support the operation, it is important to consider management style. Higher levels of production are associated with greater attention to detail. In the case of a drylot dairy a 65-pound tank average may support the operation. However, a freestall facility would require a 75-80 pound tank average. When making the decision between freestall and drylot, decide in advance what type of management team will operate the facility. If the management intensity is not high, production level may not support the freestall facility. The facility can be correctly built but not managed intensely resulting in less than optimal milk production. Less than optimal milk production results in reduced cash flow and may result in a downward economic spiral resulting in the eventual financial failure of the dairy.

Milk Quality and Animal Health

Location of the dairy will determine the effects of the housing system on milk quality and animal health. In arid regions, drylot dairies produce low somatic cell count milk and only experience problems when the lots become muddy. In less arid climates, precipitation may have a significant impact on the milk quality of drylot dairies. Freestall barns with excellent stall management can also be used to produce high quality milk. However, if the management intensity is not high enough to keep the stall maintained, elevated somatic cell counts may occur.

In the case of general cow health, freestalls have the advantage because they provide greater protection from the environment. On the other hand, drylots may reduce hoof and joint problems. There may also be an advantage in using natural service sires in a drylot system as opposed to the freestall system.

Labor Efficiency

Drylot units generally have about 130-140 cows per employee whereas freestall units may have 90-100 cows per employee. Much of the difference is due to differences in building maintenance, stall maintenance and manure management. Reducing the labor requirement is a two-fold benefit to the drylot dairy. It may reduce labor cost per hundredweight and may reduce the employee management pressure by reducing the size of the work force.

Forage Quality

Higher levels of production require greater attention to forage quality and ration balancing. When building a freestall unit, you commit to producing greater quantities of milk. This requires careful attention to forage quality. The manager needs to understand the impact of forage quality on production and has the tools to manage forage quality. The manager should be able to reject forages based on quality standards. The nutritionist should assist in setting these standards and someone must be responsible for enforcing the standards to prevent lower quality forages from entering the lactating diets. The key to high production is a consistent diet incorporating high quality forages.

Summary

Is there a competitive edge for drylots over freestalls? Yes and no. It all depends upon your management style and the capital you have to invest. Building drylot dairies increases the climate related risk. Building a freestall increases the risks associated with low production. As a manager or investor you must decide the level of comfort you have with the inherent risks associated with each system. Either system can be financially rewarding. But the risks are different, and a different management style must be used in each system. The drylot system is not adapted to all climates. But, drylot dairies can compete for markets in climates where the drylot system is not adapted. In those areas, if the cost of drylot production plus transportation cost to the freestall climate is less than the cost of producing milk in the freestalls, the drylot dairy could compete for the market by providing lower-cost milk.

Table 1. Additional daily per cow milk production required to offset additional depreciation and interest payments associated with different levels of capital investment.

Investment	Depreciation and Interest	Return Above Variable Cost, $/cwt milk					
Per Cow		1	2	3	4	5	6
		Additional Milk, lb/cow/day					
$500.00	$60.84	16.7	8.3	5.6	4.2	3.3	2.8
$750.00	$91.32	25.0	12.5	8.3	6.3	5.0	4.2
$1,000.00	$121.68	33.3	16.7	11.1	8.3	6.7	5.6
$1,250.00	$152.16	41.7	20.8	13.9	10.4	8.3	6.9
$1,500.00	$182.52	50.0	25.0	16.7	12.5	10.0	8.3

Based on 15-year life and 9% rate of return on investment.

Hay Prices*—Kansas

	Location	Quality	Price ($/ton)
Alfalfa	Southwestern Kansas	Supreme	125-130
Alfalfa	Southwestern Kansas	Premium	110-125
Alfalfa	Southwestern Kansas	Good	95
Alfalfa	South Central Kansas	Supreme	120-130
Alfalfa	South Central Kansas	Premium	100-125
Alfalfa	South Central Kansas	Good	85-95
Alfalfa	Southeastern Kansas	Supreme	110-120
Alfalfa	Southeastern Kansas	Premium	100-110
Alfalfa	Southeastern Kansas	Good	—
Alfalfa	Northwestern Kansas	Supreme	110-120
Alfalfa	Northwestern Kansas	Premium	100-120
Alfalfa	Northwestern Kansas	Good	70-90
Alfalfa	North Central Kansas	Supreme	115-130
Alfalfa	North Central Kansas	Premium	100-115
Alfalfa	North Central Kansas	Good	70-80

Supreme = over 180 RFV (less than 27 ADF)
Premium = 150–180 RFV (27–30 ADF)
Good = 125–150 RFV (30–32 ADF)

Source: USDA-KS Department of Agriculture-USDA Market News Service , *December 11, 2001*

Hay Prices—Oklahoma

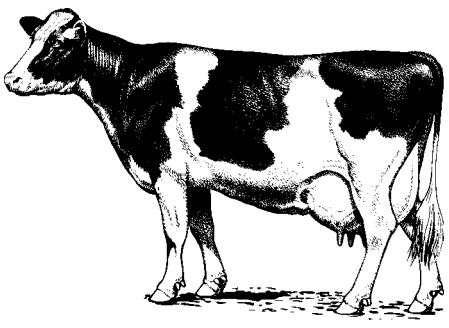
	Location	Quality	Price ($/ton)
Alfalfa	Central/Western, OK	Premium	110-120
Alfalfa	Central/Western, OK	Good	100-110
Alfalfa	Panhandle, OK	Premium	110-120
Alfalfa	Panhandle, OK	Good	100-115

Source: Oklahoma Department of Agriculture-USDA Market News Service, *December 6, 2001*

Feed Stuffs Prices

	Location	Price ($/ton)
Blood Meal	Central US	300
Corn Gluten Feed	Kansas City	70-73
Corn Gluten Meal	Kansas City	265-270
Corn Hominy	Kansas City	75-77
Cotton Seed Meal	Kansas City	155-165
Whole Cotton Seed	Memphis	95
Distillers Grains	Nebraska	75-95
Pork—Meat and Bone Meal	Texas Panhandle	460-485
SBM 48%	Kansas City	151-157
Wheat Middlings	Kansas City	70-74

Source: USDA Market News Service, *December 11,2001*



Heart of America Dairy Herd Improvement Summary

	Quartiles 1	2	3	4	Your Herd
Ayrshire					
Rolling Herd Average	17,026	16,618	14,010	12,016	
Summit Milk Yield 1st	0.00	27.5	50.0	46.0	
Summit Milk Yield 2nd	0.00	66.5	61.5	58.5	
Summit Milk Yield 3rd	51.0	35.0	66.0	62.0	
Summit Milk Yield Avg.	51.0	65.5	59.5	59.0	
Income/Feed Cost	—	1,200	1,061	575	
SCC Average	229	292	441	377	
Days to 1st Service	84	79	41	58	
Days Open	84	105	176	163	
Projected Calving Interval	12.0	12.7	15.0	14.6	
Brown Swiss					
Rolling Herd Average	19,539	17,019	15,422	13,496	
Summit Milk Yield 1st	60.2	47.0	52.6	45.1	
Summit Milk Yield 2nd	72.4	69.2	69.3	59.5	
Summit Milk Yield 3rd	87.6	75.3	70.5	65.0	
Summit Milk Yield Avg.	69.2	66.3	64.5	57.6	
Income/Feed Cost	1,881	1,612	1,595	1,082	
SCC Average	399	435	514	401	
Days to 1st Service	74	89	99.2	83.0	
Days Open	160	171	149	255	
Projected Calving Interval	14.5	14.8	14.1	17.6	
Guernsey					
Rolling Herd Average	19,497	15,933	13,294	11,403	
Summit Milk Yield 1st	0.00	53.5	45.0	49.0	
Summit Milk Yield 2nd	54.0	64.0	54.0	28.0	
Summit Milk Yield 3rd	92.0	64.5	59.0	61.0	
Summit Milk Yield Avg.	73.0	60.0	53.5	58.5	
Income/Feed Cost	—	1,442	1,150	1,272	
SCC Average	82	349	188	332	
Days to 1st Service	0	85	118	109.5	
Days Open	93	175	178	226	
Projected Calving Interval	12.3	14.9	15.0	16.6	
Holstein					
Rolling Herd Average	22,935	19,944	17,670	14,194	
Summit Milk Yield 1st	72.3	65.1	59.3	51.9	
Summit Milk Yield 2nd	92.0	82.6	73.5	61.2	
Summit Milk Yield 3rd	96.8	87.5	78.2	66.9	
Summit Milk Yield Avg.	86.1	78.0	70.7	61.5	
Income/Feed Cost	2,067	1,695	1,478	1,052	
SCC Average	379	426	458	610	
Days to 1st Service	97	95	97	95.3	
Days Open	175	180	189	220	
Projected Calving Interval	14.9	15.1	15.4	16.4	
Jersey					
Rolling Herd Average	16,600	14,536	13,280	11,191	
Summit Milk Yield 1st	53.3	41.9	44.2	39.8	
Summit Milk Yield 2nd	65.2	59.7	54.8	48.6	
Summit Milk Yield 3rd	72.6	56.7	58.1	54.3	
Summit Milk Yield Avg.	63.3	56.7	53.0	47.9	
Income/Feed Cost	1,946	1,755	1,403	1,073	
SCC Average	293	326	416	593	
Days to 1st Service	102	70	84	88	
Days Open	144	129	140	190	
Projected Calving Interval	13.9	13.4	13.8	15.4	
Milking Shorthorn					
Rolling Herd Average	15,782	14,409	12,983	9,425	
Summit Milk Yield 1st	48.0	59.0	44.0	48.0	
Summit Milk Yield 2nd	56.0	75.0	54.0	55.0	
Summit Milk Yield 3rd	73.0	74.0	60.0	63.0	
Summit Milk Yield Avg.	62.0	71.0	54.0	57.0	
Income/Feed Cost	1,578	1,249	1,029	—	
SCC Average	278	167	349	389	
Days to 1st Service	59	0	104	123	
Days Open	101	277	172	233	
Projected Calving Interval	12.6	18.3	14.9	16.9	

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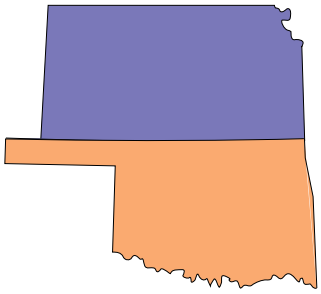

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