## 2010 Idaho Livestock Costs and Returns Estimate

EBB-D4-10
Holstein Dairy Enterprise Annual Cow Budget
2,500-head herd $\quad 22,650 \mathrm{lb}$ milk per cow
Free stall housing Milking 2 X per day Kathleen M. Painter and C. Wilson Gray

Agricultural Economics \& Rural Sociology

## Background and Assumptions

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. This budget represents the average costs and returns per cow associated with a $2,500-$ cow free stall dairy. The rolling 365-day $3.5 \%$ fat-corrected milk for the year is the 2010 state average of 22,650 pounds. The herd is milked two times daily. The dairy uses a double36 herringbone parlor with a 300-cow per hour throughput.

The herd consists of 2,500 cows total with 87 percent of cows in milk ( 2175 milking +325 dry). The herd replacement rate is $35.8 \%$ annually (cull loss and mortality) with ready-tocalve heifers used as replacement ( $\$ 1,226$ per head). The herd has a 5\% mortality rate on mature cows and an average 12-month calving interval.

The milking cows have free stall housing with mechanical vacuum manure removal. All pens have lock-type stanchions for herd management. An average investment value of $\$ 2,248$ per cow is based on the best estimate of current cost and the average value of each component over its useful life.

Operating input costs are based on actual herd survey data, herd-based information, or both.

## Waste Management

A flush-type system is used for cleaning stalls. Liquid manure goes out through the center pivot. Solid waste is spread on fields when conditions are right. The dairy also splits costs of hauling waste with local farms.

## Feeds

Feed is mixed on site using a blend that is customized based on current costs and nutritional requirements by stage of production, whether high production, low production, fresh, dry, or close up (CU) to calving. The ration in this budget consists of alfalfa and other hay, corn silage, beet pulp, corn, and other feed and mineral items (see table below). Cows are grouped in five production strings, barn-fed 10 pounds of concentrate, and top-dressed the balance outside. Feed components and quantities will change if relative prices of components change, with the goal of optimizing nutritional requirements at least cost.

| RATION (LB/COW) | Pen: |  |  |  |  | Cost/Ton | All Cows Cost/Day |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | HI | LOW | FRESH | DRY | CU |  |  |
| NUMBER OF COWS | 1432 | 521 | 130 | 326 | 91 | 2500 |  |
| PERCENT OF HERD | 57\% | 21\% | 5\% | 13\% | 4\% | 100\% |  |
| Alfalfa hay, dairy | 15.00 | 15.00 | 13.50 | 0.00 | 0.00 | \$153 | \$0.95 |
| Feeder hay | 0.00 | 0.00 | 0.00 | 29.10 | 0.00 | \$115 | \$0.22 |
| Close-up hay | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | \$136 | \$0.02 |
| Straw | 0.00 | 0.00 | 0.00 | 3.00 | 0.00 | \$55 | \$0.01 |
| Corn silage (32\% DM) | 37.00 | 36.00 | 23.00 | 17.00 | 32.00 | \$35 | \$0.58 |
| Beet pulp | 2.50 | 3.35 | 2.00 | 0.00 | 3.00 | \$130 | \$0.15 |
| Corn | 11.00 | 10.00 | 7.50 | 0.00 | 3.25 | \$192 | \$0.86 |
| Barley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | \$173 | \$0.00 |
| Canola | 3.00 | 2.00 | 2.75 | 0.00 | 0.55 | \$245 | \$0.28 |
| Distillers | 5.45 | 5.40 | 4.00 | 0.00 | 0.65 | \$165 | \$0.37 |
| Cottonseed | 6.00 | 4.00 | 3.50 | 0.00 | 0.00 | \$260 | \$0.58 |
| Molasses | 2.00 | 2.00 | 1.50 | 0.00 | 0.00 | \$155 | \$0.13 |
| Mineral, fresh cows | 0.00 | 0.00 | 1.75 | 0.00 | 0.00 | \$875 | \$0.04 |
| Mineral, lactating cows | 1.30 | 1.00 | 0.00 | 0.00 | 0.00 | \$515 | \$0.25 |
| Mineral, dry cows | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | \$1,284 | \$0.02 |
| Mineral, close-up cows | 0.00 | 0.00 | 0.00 | 0.00 | 1.60 | \$850 | \$0.02 |
|  |  |  |  |  |  | Cost/day--> | \$4.49 |

Note: HI = high producers; LOW = lower producers; CU = close-up (typically 14-21 days before calving)

Table 1: Annual Enterprise Budget for a 2500-Head Free Stall Dairy

| Item | Quantity Per Head | Unit | Price or Cost | Value or Cost/Dairy | Value or Cost/Head/Yr | Value or Cost/Cwt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Income: |  |  |  | \$8,800,125 | \$3,520.05 | \$15.54 |
| Milk | 226.5 | cwt | \$14.50 | \$8,210,625 | \$3,284.25 | \$14.50 |
| Bull Calves | 0.51 | head | \$35.00 | \$44,625 | \$17.85 | \$0.08 |
| Heifer Calves | 0.51 | head | \$135.00 | \$172,125 | \$68.85 | \$0.30 |
| Cull Cows | 0.30 | head | \$497.00 | \$372,750 | \$149.10 | \$0.66 |
| Operating Costs: |  |  |  |  |  |  |
| Feed (ton/head/yr): |  |  |  | \$4,088,385 | \$1,635.35 | \$7.22 |
| Alfalfa hay, dairy | 2.27 | head | \$153.00 | \$867,125 | \$346.85 | \$1.53 |
| Feeder hay | 0.69 | head | \$115.00 | \$198,807 | \$79.52 | \$0.35 |
| Close-up hay | 0.07 | head | \$136.00 | \$22,622 | \$9.05 | \$0.04 |
| Straw | 0.07 | head | \$55.00 | \$9,802 | \$3.92 | \$0.02 |
| Corn silage (32\%DM) | 6.07 | head | \$35.00 | \$531,377 | \$212.55 | \$0.94 |
| Beet pulp | 0.43 | head | \$130.00 | \$139,014 | \$55.61 | \$0.25 |
| Corn | 1.62 | head | \$192.00 | \$779,161 | \$311.66 | \$1.38 |
| Barley | 0.00 | head | \$173.00 | \$0 | \$0.00 | \$0.00 |
| Canola | 0.42 | head | \$245.00 | \$256,951 | \$102.78 | \$0.45 |
| Distillers | 0.82 | head | \$165.00 | \$337,217 | \$134.89 | \$0.60 |
| Cottonseed | 0.81 | head | \$260.00 | \$528,252 | \$211.30 | \$0.93 |
| Molasses | 0.30 | head | \$155.00 | \$116,023 | \$46.41 | \$0.20 |
| Mineral, fresh cows | 0.02 | head | \$875.00 | \$36,387 | \$14.55 | \$0.06 |
| Mineral, lactating cows | 0.17 | head | \$515.00 | \$223,955 | \$89.58 | \$0.40 |
| Mineral, dry cows | 0.01 | head | \$1,284.00 | \$19,070 | \$7.63 | \$0.03 |
| Mineral, close-up cows | 0.01 | head | \$850.00 | \$22,622 | \$9.05 | \$0.04 |
| Other costs: |  |  |  | \$3,732,500 | \$1,493 | \$6.59 |
| Labor, including fringe costs | 1.00 | head | \$359.00 | \$897,500 | \$359.00 | \$1.58 |
| Herd replacement costs | 1.00 | head | \$287.00 | \$717,500 | \$287.00 | \$1.27 |
| Veterinary, breeding, testing | 1.00 | head | \$87.00 | \$217,500 | \$87.00 | \$0.38 |
| Supplies | 1.00 | head | \$171.00 | \$427,500 | \$171.00 | \$0.75 |
| Repairs and maintenance | 1.00 | head | \$147.00 | \$367,500 | \$147.00 | \$0.65 |
| Utilities | 1.00 | head | \$54.00 | \$135,000 | \$54.00 | \$0.24 |
| Milk hauling | 1.00 | head | \$61.00 | \$152,500 | \$61.00 | \$0.27 |
| State \& association charges | 1.00 | head | \$50.00 | \$125,000 | \$50.00 | \$0.22 |
| Miscellaneous (fuel, insur., etc.) | 1.00 | head | \$160.00 | \$400,000 | \$160.00 | \$0.71 |
| Interest | 1.00 | head | \$117.00 | \$292,500 | \$117.00 | \$0.52 |
| Total Operating Costs |  |  |  | \$7,820,885 | \$3,128.35 | \$13.81 |
| Net Returns Above Variable Costs |  |  |  | \$979,240 | \$391.70 | \$1.73 |
| Fixed Costs: |  |  |  | \$1,550,956 | \$620.38 | \$2.74 |
| Capital recovery* | 1.00 | head | \$529.09 | \$1,322,721 | \$529.09 | \$2.34 |
| Insurance* | 1.00 | herd | \$32,712.56 | \$32,713 | \$13.09 | \$0.06 |
| Overhead (2.5\% Oper Costs) | 1.00 | herd | \$195,522.12 | \$195,522 | \$78.21 | \$0.35 |
| *See Table 2. |  |  |  |  |  |  |
| Total Costs (Operating and Fixed) |  |  |  | \$9,371,841 | \$3,748.74 | \$16.55 |
| Net Returns Above Total Costs |  |  |  | -\$571,716 | -\$228.69 | -\$1.01 |

## Breakeven Price and Yield

The first breakeven analysis below presents breakeven milk prices (\$/cwt) that will cover operating costs, ownership costs, and total costs for the base yield in the enterprise budget above, as well as for milk yields that are $10 \%$ above and below the base yield. The second breakeven analysis below presents breakeven yields that will cover operating costs, ownership costs, and total costs for the base price in the enterprise budget above, as well as for milk prices that are $10 \%$ above and below the base yield. In the spreadsheet version (Excel), you can change the numbers in the percentages in the orange cells and all values will be updated. Costs, prices, and yields in this breakeven table are all linked to values in the budget above, so any changes in the budgetswill be automatically updated in these breakeven analyses.

|  |  |  |
| :--- | :---: | :---: | :--- |
|  | Breakeven Milk Prices (\$/cwt): |  |
|  |  |  |

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Table 2. Capital Costs for 2500-Head Free Stall Dairy in Southern Idaho

| Item | Quantity Per Dairy | Unit | Price or Cost | Value or Cost |
| :---: | :---: | :---: | :---: | :---: |
| Initial Capital Outlays: |  |  |  |  |
| Cattle: |  |  |  | \$3,062,500 |
| Initial cow purchase | 2,500 | hd | \$1,225 | \$3,062,500 |
| Land: |  |  |  | \$1,787,500 |
| Land purchase | 150 | ac | \$4,000 | \$600,000 |
| Site Prep: Permits, well, roads | 2,500 | hd | \$475 | \$1,187,500 |
| Feeding Facilities: | 1 |  |  | \$211,710 |
| Scales | 1 | farm | \$100,000 | \$100,000 |
| Commodity shed, 7 bays | 1 | farm | \$105,000 | \$105,000 |
| Hay storage (1,200 tons) | 2 | farm | \$2,680 | \$5,360 |
| Hay tarps, 50' x 50' | 3 | stack | \$450 | \$1,350 |
| Freestall Barn |  |  |  | \$3,750,000 |
| Stalls, in 5 barns, 525' $\times 210$ | 2,500 | stall | \$1,500 | \$3,750,000 |
| Milking Barn |  |  |  | \$1,181,000 |
| Building | 3,500 | sq ft | \$70 | \$245,000 |
| Double 36 parallel stalls | 72 | stall | \$13,000 | \$936,000 |
| Hospital Barn |  |  |  | \$226,000 |
| Building | 1,000 | sq ft | \$70 | \$70,000 |
| Double 6 parallel stalls | 12 | stall | \$13,000 | \$156,000 |
| Machinery: |  |  |  | \$1,208,503 |
| Generator | 1 | farm | \$45,000 | \$45,000 |
| Farm pickups, new | 1 | farm | \$40,000 | \$40,000 |
| Farm pickups, used | 1 | farm | \$20,000 | \$20,000 |
| 4-wheelers | 1 | farm | \$6,000 | \$6,000 |
| 10-wheel truck (manure removal) | 2 | farm | \$60,000 | \$120,000 |
| Tractor-125 HP | 1 | farm | \$95,000 | \$95,000 |
| Tractor-75 HP | 1 | farm | \$55,000 | \$55,000 |
| Tractor-60 HP | 1 | farm | \$41,000 | \$41,000 |
| Straw Spreader | 2 | farm | \$35,000 | \$70,000 |
| Loaders, used | 2 | farm | \$74,000 | \$148,000 |
| Skid steer loader | 2 | farm | \$35,000 | \$70,000 |
| Telehandler loader | 1 | farm | \$50,000 | \$50,000 |
| Semis, with feedbox mixers, new | 1 | farm | \$125,000 | \$125,000 |
| Semis, with feedbox mixers, used | 1 | farm | \$95,000 | \$95,000 |
| Dump truck | 2 | farm | \$16,188 | \$32,376 |
| Vacuum tank | 1 | farm | \$64,500 | \$64,500 |
| Backhoe | 1 | farm | \$45,000 | \$45,000 |
| Boxscraper | 1 | farm | \$3,000 | \$3,000 |
| Brush hog, 10' | 1 | farm | \$9,127 | \$9,127 |
| Gooseneck trailer, 28' | 1 | farm | \$24,500 | \$24,500 |
| Miscellaneous | 1 | farm | \$50,000 | \$50,000 |
| Insurance: |  |  |  | \$32,713 |
| Insur., facilities @ \$5 per \$1,000 | 1 | farm | \$26,844 | \$26,844 |
| Insur., machinery, @ \$4 per \$1,000 | 1 | farm | \$4,834.01 | \$4,834 |
| Liability Insur. (\$1 million coverage) | 1 | farm | \$1,035 | \$1,035 |
| Total Capital Costs \$11,459,926 |  |  |  |  |
| Capital Costs per Unit |  |  |  | \$4,584 |
| Average Capital Costs (Purchase - Salvage Value)/2 |  |  |  | \$5,621,235 |
| Average Capital Costs per unit |  |  |  | \$2,248 |
| Total Capital Recovery Costs |  |  |  | \$1,322,721 |
| Capital Recovery Costs per Unit |  |  |  | \$529 |

Table 3: Monthly Summary of Returns and Expenses for a 2500-Head Free Stall Dairy in Southern Idaho

|  | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Production: |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Milk | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$656,719 | \$7,880,622 |
| Bull Calves | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$1,972 | \$23,658 |
| Heifer Calves | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$7,323 | \$87,876 |
| Cull Cows | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$5,873 | \$70,476 |
| Total Receipts | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$671,886 | \$8,062,632 |
| Operating Inputs: |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alfalfa hay, dairy | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$70,844 | \$850,122 |
| Feeder hay | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$12,246 | \$146,946 |
| Close-up hay | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$1,663 | \$19,956 |
| Straw | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$817 | \$9,804 |
| Corn silage (32\%DM) | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$44,282 | \$531,378 |
| Beet pulp | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$11,585 | \$139,014 |
| Corn | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$64,930 | \$779,154 |
| Barley |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Canola | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$21,413 | \$256,956 |
| Distillers | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$28,101 | \$337,212 |
| Cottonseed | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$44,021 | \$528,246 |
| Molasses | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$9,669 | \$116,028 |
| Mineral, fresh cows | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$3,032 | \$36,384 |
| Mineral, lactating cows | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$18,664 | \$223,962 |
| Mineral, dry cows | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$1,592 | \$19,104 |
| Mineral, close-up cows | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$1,887 | \$22,644 |
| Supplies | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$35,626 | \$427,506 |
| Utilities | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$11,250 | \$135,000 |
| Labor, including fringe costs | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$74,793 | \$897,510 |
| Herd replacement costs | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$59,792 | \$717,504 |
| Repairs \& maintenance | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$30,625 | \$367,500 |
| Milk hauling | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$12,709 | \$152,502 |
| State \& association charges | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$10,417 | \$125,004 |
| Misc. (fuel, insur., etc.) | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$33,334 | \$400,002 |
| Interest | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$24,375 | \$292,500 |
| Veterinary Medicine | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$18,125 | \$217,500 |
| Machinery (Fuel,Lube,Repair) | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,501 | \$2,513 | \$30,024 |
| Vehicles (Fuel and Repair) | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,497 | \$1,504 | \$17,965 |
| Equipment (Repair) | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$305 | \$3,654 |
| Housing, Improvements (Repair) | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,668 | \$10,719 | \$128,061 |
| Taxes and Insurance | \$45,676 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$45,676 |
| Total | \$706,432 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,756 | \$660,826 | \$7,974,818 |

Table 4: Monthly Feed Requirements (tons) for a 2500-Head Free Stall Dairy in Southern Idaho

|  | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Feed (tons): |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alfalfa hay, dairy | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 473 | 5670 |
| Feeder hay | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 144 | 1728 |
| Close-up hay | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 168 |
| Straw | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 180 |
| Corn silage (32\%DM) | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 1265 | 15180 |
| Beet pulp | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 1068 |
| Corn | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 338 | 4056 |
| Barley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Canola | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | 1050 |
| Distillers | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 171 | 2046 |
| Cottonseed | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 170 | 2034 |
| Molasses | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 750 |
| Mineral, fresh cows | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 42 |
| Mineral, lactating cows | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 432 |
| Mineral, dry cows | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| Mineral, close-up cows | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 24 |

Table 5: Investment Summary for a 2500-Head Free Stall Dairy in Southern Idaho

| Item | Value or | Years | Salvage | Salvage | Discount | Capital | Capital |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cost | of Life | Value | Value | Rate | Recovery | Recovery |
|  |  | $(\mathrm{n})$ | $(\$ /$ head $)$ | $(\$ /$ herd $)$ | (i) | Factor | Value |

## Initial Capital Outlays:

| Cattle: | \$3,062,500 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Initial cow purchase | \$3,062,500 | 3 | \$525 | \$1,312,500 | 5.00\% | 0.3672 | \$708,225 |
| Land: | \$1,787,500 |  |  |  |  |  |  |
| Land purchase* | \$600,000 | 30 |  |  | 7.50\% |  | \$45,000 |
| Site Prep: Permits, well, roads** | \$1,187,500 | 30 | \$0 |  | 6.00\% | 0.0727 | \$86,272 |
| Feeding Facilities: | \$211,710 |  |  |  |  |  |  |
| Scales | \$100,000 | 30 | \$0 |  | 6.00\% | 0.0727 | \$7,265 |
| Commodity shed, 7 bays | \$105,000 | 30 | \$0 |  | 6.00\% | 0.0727 | \$7,628 |
| Hay storage (1,200 tons) | \$5,360 | 30 | \$0 |  | 6.00\% | 0.0727 | \$389 |
| Hay tarps, 50' x 50' | \$1,350 | 5 | \$0 |  | 6.00\% | 0.2374 | \$320 |
| Freestall Barn | \$3,750,000.00 |  |  |  |  |  |  |
| Stalls, in 5 barns, 525' x 210' | \$3,750,000.00 | 30 |  |  | 6.00\% | 0.0727 | \$272,438 |
| Milking Barn | \$1,181,000 | 30 | \$118,100 | \$0 | 6.00\% | 0.0727 | \$85,800 |
| Building | \$245,000 |  |  |  |  |  |  |
| Double 36 parallel stalls | \$936,000 |  |  |  |  |  |  |
| Hospital Barn | \$226,000 | 30 | \$0 |  | 6.00\% | 0.0727 | \$16,419 |
| Building | \$70,000 |  |  |  |  |  |  |
| Double 6 parallel stalls | \$156,000 |  |  |  |  |  |  |
| Machinery: | \$1,208,503 |  |  |  |  | Total: | \$173,434 |
| Generator | \$45,000 | 25 | \$4,500 | \$4,500 | 6.00\% | 0.0782 | \$3,438 |
| Farm pickups, new | \$40,000 | 8 | \$4,000 | \$4,000 | 6.00\% | 0.1610 | \$6,036 |
| Farm pickups, used | \$20,000 | 8 | \$2,000 | \$2,000 | 6.00\% | 0.1610 | \$3,018 |
| 4-wheelers | \$6,000 | 10 | \$600 | \$600 | 6.00\% | 0.1359 | \$770 |
| 10-wheel truck (manure removal) | \$120,000 | 10 | \$6,000 | \$12,000 | 6.00\% | 0.1359 | \$15,397 |
| Tractor-125 HP | \$95,000 | 20 | \$9,500 | \$9,500 | 6.00\% | 0.0872 | \$8,024 |
| Tractor-75 HP | \$55,000 | 20 | \$5,500 | \$5,500 | 6.00\% | 0.0872 | \$4,646 |
| Tractor-60 HP | \$41,000 | 20 | \$4,100 | \$4,100 | 6.00\% | 0.0872 | \$3,463 |
| Straw Spreader | \$70,000 | 10 | \$3,500 | \$7,000 | 6.00\% | 0.1359 | \$8,982 |
| Loaders, used | \$148,000 | 10 | \$7,400 | \$14,800 | 6.00\% | 0.1359 | \$18,990 |
| Skid steer loader | \$70,000 | 3 | \$3,500 | \$7,000 | 6.00\% | 0.3741 | \$23,989 |
| Telehandler loader | \$50,000 | 3 | \$5,000 | \$5,000 | 6.00\% | 0.3741 | \$17,135 |
| Semis, with feedbox mixers, new | \$125,000 | 4 | \$12,500 | \$12,500 | 6.00\% | 0.1610 | \$18,863 |
| Semis, with feedbox mixers, used | \$95,000 | 2 | \$9,500 | \$9,500 | 6.00\% | 0.1610 | \$14,336 |
| Dump truck | \$32,376 | 20 | \$1,619 | \$3,238 | 6.00\% | 0.0872 | \$2,735 |
| Vacuum tank | \$64,500 | 10 | \$6,450 | \$6,450 | 6.00\% | 0.1359 | \$8,276 |
| Backhoe | \$45,000 | 20 | \$4,500 | \$4,500 | 6.00\% | 0.0872 | \$3,801 |
| Boxscraper | \$3,000 | 20 | \$300 | \$300 | 6.00\% | 0.0872 | \$253 |
| Brush hog, 10' | \$9,127 | 10 | \$913 | \$913 | 6.00\% | 0.1359 | \$1,171 |
| Gooseneck trailer, 28' | \$24,500 | 8 | \$2,450 | \$2,450 | 6.00\% | 0.1610 | \$3,697 |
| Miscellaneous | \$50,000 | 10 | \$5,000 | \$5,000 | 6.00\% | 0.1359 | \$6,416 |
| Total Capital Costs/Salvage Value | \$11,427,213 |  | \$217,457 |  |  |  |  |
| Capital Costs/Salvage Value per Head | \$4,571 |  | \$87 |  |  |  |  |
| Average Capital Costs | \$5,822,335 |  |  |  |  |  |  |
| Average Capital Costs per Head | \$2,329 |  |  |  |  |  |  |
| Total Capital Recovery Costs | \$1,403,190 |  |  |  |  |  | \$1,403,190 |
| Capital Recovery Costs per Head | \$561 |  |  |  |  |  | \$561 |

[^0]
[^0]:    *Opportunity cost on land investment is calculated as land value multiplied by the interest rate. Land is not depreciable.
    **Site preparation charges include nutrient management expenses.

