

Livestock Development in North Dakota

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Topics for Discussion

- Decision tool/calculators
- Other beef cattle projects
- New swine project

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Decision Tools/Calculators

- Open cow replacement options
- Heifer purchase, develop and marketing (breds and pairs)
- Forage management under drought conditions
- Alternative feed rations for winter feeding calves

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Open Cow Replacement Options

- Sell open cow, replace with bred heifer
- Sell open cow, replace with bred cow
- Keep open cow, give her a second chance

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Assumptions

- We assume producers utilize pregnancy testing at weaning
- We use current and projected market prices (Salebarn, NDSU)
- We use average weights for each animal class

Table 1. Economics for alternative scenarios for replacing open cows

Source of revenue/cost:	Year	Weight (lbs/hd)	NDSU price (\$/lb)	NDSU value (\$/hd)	Producer price (\$/lb)	Producer value (\$/hd)
Scenario 1: Sell an open cow and purchase a bred heifer						
Sell open cow at weaning in November	2024	1400	1.30	1,820	1.30	1,820
Purchase bred heifer in January in year 1	2025	-	-	-3,019	-	-3,019
Sell steer calf at weaning in November in year 1	2025	600	3.10	1,860	3.10	1,860
Sell heifer calf at weaning in November in year 1	2025	575	2.80	1,610	2.80	1,610
Sell average calf at weaning in November, year 1	2025	587.5	2.95	1,733	2.95	1,733
Sell steer calf at weaning in November in year 2	2026	600	3.15	1,890	3.15	1,890
Sell heifer calf at weaning in November in year 2	2026	575	2.85	1,639	2.85	1,639
Sell average calf at weaning in November in year 2	2026	587.5	3.00	1,763	3.00	1,763
Value of scenario 1	-	-	-	2,297	-	2,297
Scenario 2: Sell an open cow and purchase a 3-6-year-old bred cow						
Sell open cow at weaning in November	2024	1400	1.30	1,820	1.30	1,820
Purchase a 3-6 year bred cow in January in year 1	2025	-	-	-2,899	-	-2,899
Sell steer calf at weaning in November in year 1	2025	600	3.10	1,860	3.10	1,860
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Sell average calf at weaning in November in year 2	2026	587.5	3.00	1,763	3.00	1,763
Value of scenario 2	-	-	-	2,417	-	2,417
Scenario 3: Keep and rebreed and open cow						
Pregnancy tested open at weaning	2024	-	-	-	-	-
Rebreed in spring of year 1 (no calf to sell in year 1)	2025	-	-	-	-	-
Value of steer calf at weaning in year 2	2026	600	3.15	1,890	3.15	1,890
Value of heifer calf at weaning in year 2	2026	575	2.85	1,639	2.85	1,639
Average value of calf at weaning in year 2	2026	587.5	3.00	1,763	3.00	1,763
Value of scenario 3	-	-	-	1,763	-	1,763
Summary of value between scenarios						
Difference between SC1 and SC3	-	-	-	534	-	534
Difference between SC2 and SC3	-	-	-	654	-	654
Difference between SC1 and SC2	-	-	-	120	-	120

Source of revenue/cost:	Year	Weight (lbs/hd)	NDSU	NDSU	Producer	Producer
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Heifer Purchase, Develop and Marketing

- Gavin Eeg (Eeg Cattle Company, Greenbush, MN)
- Purchase backgrounded heifers
- Breed (AI plus cleanup bulls or natural)
- Market (bred heifers and/or pairs)

**Heifer Purchase, Development and Marketing:
Revenues, Costs, and Net Return to Labor, Management and Overhead**

Base-case sources of revenue	\$/heifer	\$/operation	%
Bred heifers	3,250	65,000	18%
Pairs	3,750	262,500	75%
Open heifers	2,475	24,750	7%
Total gross revenue	3,523	352,250	100%
Production costs	\$/heifer	\$/operation	%
Heifer purchase	2,062.50	206,250	64%
Pasture, feed, hay and mineral	704.78	70,478	22%
Tractor: depreciation and interest	3.59	359	0.11%
Tractor: fuel, lube and repairs	13.02	1,302	0.41%
Veterinary/health	10.53	1,053	0.33%
Breeding	71.40	7,140	2.23%
Transportation	12.30	1,230	0.38%
Interest for operating expenses	60.44	6,044	2%
Interest for owning the heifers	154.69	15,469	5%
Marketing (commission, checkoff, etc.)	115.17	11,517	4%
Total cost of production	3,208.42	320,842	100%
Net return	314.08	31,408	-

Cattle Production and Market: Data and Assumptions

Assumption:	Value
Heifers (wintered) purchased (head)	100
Heifer purchase price (\$/head)	2.75
Heifer weight at purchase (pounds/head)	750
Sale price of bred heifers (\$/pound)	3.25
Sale weight of bred heifers (pounds/head)	1,000
Percent sold as heifers	20%
Bred heifers sold	20
Sale price of pairs (\$/pair)	3,750
Weight of pairs (pounds/pair)	1,000
Percent sold as pairs (%)	70%
Pairs sold (head)	70
Heifer cull price (\$/pound)	2.75
Final weight of culled heifers (pounds/head)	900
Percent of heifers open (%)	10%
Open heifers culled (head)	10
Interest on operating capital (%)	7.50%
Interest rate on investment capital (\$)	7.50%

Enter values in orange cells that reflect your operation

Pasture, Feed, Hay, and Mineral: Data and Assumptions

Assumption:	Value
Days on farm (April/May to April/May)	365
Days on pasture	180
Pasture rent (\$/acre)	25.00
Stocking rate (acres/heifer)	8.00
Pasture cost (\$/heifer)	200.00
Stocking rate (acres/bull)	10.00
Pasture needed for bulls (acres)	30.00
Pasture cost for bulls for 2 months (\$/heifer)	0.63
Total pasture cost (\$/heifer)	200.63
Days on winter feed	185
Feed during winter (pounds/heifer/day)	21.88
Price of feed (\$/ton)	150
Price of feed (\$/pound)	0.08
Cost of feed during winter (\$/heifer)	303.52
Days on hay	185
Quantity of hay (pounds/heifer/day)	26.25
Price of hay (\$/ton)	75.00
Price of hay (\$/pound)	0.04
Cost of hay (\$/heifer)	182.11
Price of mineral (\$/50-pound block)	10.00
Price of mineral (\$/ounce)	0.013
Rate of mineral fed (ounces/heifer/day)	4.00
Cost of mineral for heifers (\$/heifer)	18.25
Cost of mineral for bulls for 2 months (\$/heifer)	0.28
Total pasture, feed, hay, and mineral cost (\$/heifer)	704.78

Enter values in orange cells that reflect your operation

Veterinary/Health: Data and Assumptions

Assumption:	Products	Value
<i>Vet/health for heifers</i>		
IBRV-BVDV-BRSV-Vib-Lep5 (\$/hd)	PregGuard	2.28
Clostridial (blackleg) (\$/hd)	One Shot Ultra8	4.35
Moraxella bovis (Pinkeye vaccine) (\$/hd)	Pinkeye	1.14
Footrot vaccine (\$/hd)	Footrot	1.58
Parasites (necrophorum) (\$/hd)	Ivermectin (pour)	0.84
Total vet cost for heifers (\$/hd)		10.19
<i>Vet/health for breeding bulls</i>		
IBRV-BVDV-BRSV-Vib-Lep5 (\$/hd)	Bovishield Gold	2.28
Clostridial (blackleg) (\$/hd)	One Shot Ultra8	4.35
Moraxella bovis (Pinkeye vaccine) (\$/hd)	Pinkeye	1.14
Footrot vaccine (\$/hd)	Footrot	1.58
Parasites (necrophorum) (\$/hd)	Ivermectin (pour)	0.84
Total vet cost for bulls (\$/bull)		10.19
Total vet cost for bulls (\$/heifer)		0.51
Total vet/health (\$/heifer)		10.70

Enter values in orange cells that reflect your operation

Heifer Breeding: Data and Assumptions

Assumption:	Value
Are you using an artificial insemination (AI) program (y/n)?	y
Synchronization program	
CIDR (\$/heifer)	15.60
Lutalyse (\$/heifer)	2.58
GNRH (\$/heifer)	1.12
Semen straw (\$/heifer)	25.00
AI Technician (\$/heifer)	15.00
Cows to bull ratio	30
Bulls needed based on heifers purchased (rounded)	3.0
Purchase price of breeding bull (\$/bull)	5,000
Salvage value of bulls after breeding period (\$/bull)	5,000
Cost of bulls (\$/heifer)	0.00
Breeding soundness exam (\$/bull/year)	70.00
Breeding soundness exam (\$/heifer)	2.10
Pregnancy test (\$/heifer)	10.00
Total cost of breeding heifers (\$/heifer)	71.40

Enter values in orange cells that reflect your operation

Tractor: Data and Assumptions

Assumption	Value
Tractor purchase price (90 HP) (\$)	60,000
Tractor life expectancy (years)	7
Interest rate on investment capital (%)	7.50%
Tractor salvage value (\$)	15,000
Tractor, amortized depreciation and interest (\$/year)	8,496
Tractor use (hours/day)	2.00
Tractor use (hours/development period)	370
Hours per year	8,760
Tractor use (%/year)	4.22%
Tractor, amortized D&I (\$/heifer)	3.59
Price of fuel (\$/gallon)	3.50
Tractor fuel (\$/heifer)	12.95
Tractor lube and repairs (%/annual value)	2.00%
Tractor, lube and repairs (\$/development period)	7.18
Tractor lube and repairs (\$/heifer)	0.07
Total cost of tractor (\$/heifer)	16.61

Enter values in orange cells that reflect your operation

Transportation Costs: Data and Assumptions

Assumption:	Value
Transport roundtrip to and from salebarn (miles)	60
Transport price for heifers in pot belly (\$/mile)	3.50
Maximum weight per truck load (lbs/load)	58,000
Maximum number of purchased heifers per load	77
Maximum number of bred heifers per load	58
Maximum number of pairs per load	58
Maximum number of open heifers per load	64
Weight of purchased heifers going to farm (total pounds)	75,000
Weight of bred heifers going to market (total pounds)	20,000
Weight of pairs going to market (total pounds)	70,000
Weight of open heifers going to market (total pounds)	9,000
Weight of cattle going to market (total pounds)	99,000
Trucks needed to transport cattle from salebarn to farm	1
Trucks needed to transport cattle from farm to salebarn	2
Roundtrip cost to obtain purchased heifers (\$)	210.00
Roundtrip cost to deliver breds, pairs and opens (\$)	420.00
Roundtrip cost transport purchased heifers (\$/heifer)	2.10
Roundtrip cost to deliver breds, pairs and opens (\$/heifer)	4.20
Producer transport price of breeding bulls (\$/mile)	5.00
Number of trips	2.00
Roundtrip cost to obtain and deliver bulls (\$/heifer)	600.00
Cost to transport bulls (\$/heifer)	6.00
Total cost of transportation (\$/heifer)	12.30

Enter values in orange cells that reflect your operation

Cattle Marketing: Data and Assumptions

Assumption:	Value
Commission (%/price)	3.00%
Commission, average (\$/heifer)	105.68
Salebarn fee (insurance, yardage) (\$/heifer)	2.00
Beef checkoff (\$/heifer)	2.00
Brand inspection (\$/heifer)	0.85
Commission, average (\$/bull)	150
Salebarn fee (insurance, yardage) (\$/bull)	2.00
Beef checkoff (\$/bull)	2.00
Brand inspection (\$/bull)	0.85
Number of bulls	3
Total marketing costs (\$/heifer)	115.17

Enter values in orange cells that reflect your operation

**Heifer Purchase, Development and Marketing:
Revenues, Costs, and Net Return to Labor, Management and Overhead**

Base-case sources of revenue	\$/heifer	\$/operation	%
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Other beef cattle projects (in progress)

- Value of using pregnancy testing in beef cow operations
- Economics of hoop barns for feeding/finishing cattle
- Grazing annually produced forage under irrigation
- Annual forage production options for ND

Understanding the Economics Between Feeding Pigs in Canada versus North Dakota

*Funded by
the North Dakota Soybean Council's
Market Development Grant Program

Expected North Dakota Production and Shipments of Soybean Meal: 2026

Soybean meal production	tons/year	% total
North Dakota (Spiritwood)	1,215,000	54.55%
North Dakota (Casselton)	1,012,500	45.45%
North Dakota (total)	2,227,500	100.00%
ND soybean meal shipments*	tons/year	% total
Montana	181,000	8.13%
Oregon	197,000	8.84%
Washington	313,000	14.05%
Alberta	129,000	5.79%
British Columbia	0	0.00%
Manitoba	62,000	2.78%
Ontario	0	0.00%
Quebec	0	0.00%
Saskatchewan	51,000	2.29%
Northwest USA combined	691,000	31.02%
Canada combined	242,000	10.86%
PNW out to Asia and ROW countries	1,294,500	58.11%

*Data from Wilson et al., 2025

What are the differences between Industries?

- Feed rations (feed mixes, quality, quantities, relative prices, sources)
- Breeding pigs (sources, ownership, genetics, litters, prices, etc.)
- Finishing hogs (sources, weights, ownership, contracts, location)
- Slaughter hogs (weights, processing, shipping, etc.)
- Farm sizes and makeup (number, sizes, costs of barns, crop mix and acres)
- Programs/incentives for investment (provincial versus national)
- Trends in pork consumption (domestic, international)



A better understanding of Canadian swine industry will help us:

1. Improve the development/expansion of ND swine production
2. Increase ND exports of SB meal (and other co-products) to Canada
3. Improve overall trade relations with Canada
4. Increase our understanding of BE pricing of ND meal to encourage trade with other Canadian provinces (e.g., Ontario, British Columbia)



Thank you!
Questions?

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