



Development of Replacement Heifers Decisions

Nebraska Ranch Practicum
Gudmundsen Sandhills Laboratory
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**NORTH CENTRAL
EXTENSION
RISK
MANAGEMENT
EDUCATION**



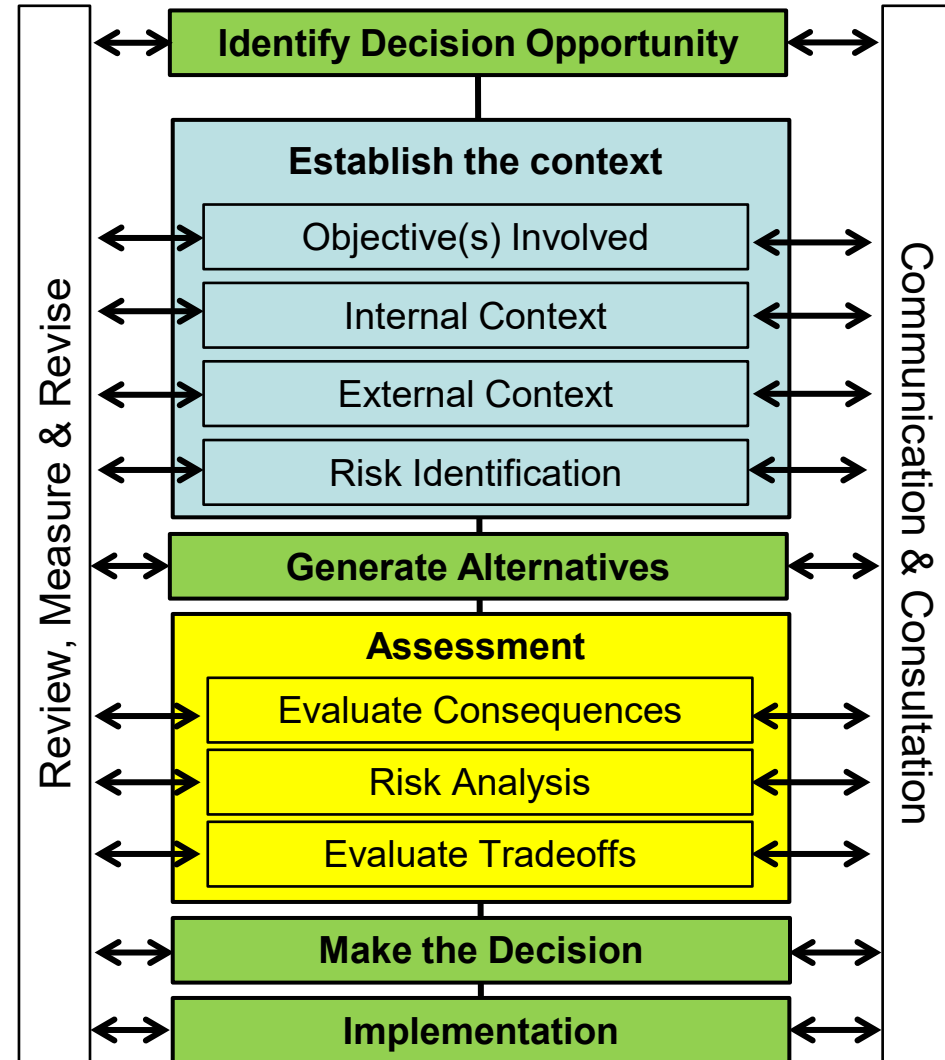
United States
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Decisions

- What do you want to accomplish?
 - Genetics, costs, etc.
- What is your situation?
 - Resources, experience, etc.
- What is the situation around you?
 - Alternative sources, markets, etc.
- What are the major uncertainties?
 - Feed, breeding, weather, etc.



Heifer Development Costs

- Heifer Calf Value + Opportunity Cost
- Residual Variable Costs
- Additional Fixed (Overhead) Costs

Heifer Development Costs

- Heifer Calf Value + Opportunity Cost
 - 550 lb. heifer x \$260/cwt. = \$1,430
 - 1430 x 1.05 = \$1,501.50 or about \$1,500 per head.
- Residual Variable Costs
- Additional Fixed (Overhead) Costs

Heifer Development Costs

- Heifer Calf Value + Opportunity Cost = \$1,500
- Residual Variable Costs
 - Feed Costs (\$500)
 - Labor, Veterinary & Breeding Costs (\$150)
 - + Cull Heifer Net Sales Revenue
- Additional Fixed (Overhead) Costs (\$50)

Heifer Development Costs

- Example:
 - 15% replacement rate (RR)
 - 90% weaning rate (WR)
 - 94% pregnancy rate (PR)
- Heifer Development Costs = \$2,200
- Cost per Cow in Herd
 - $\frac{15\%}{94\%} = 16\%$ *replacements per cow*
 - $16\% \cdot 2200 = \$352$ *per cow*

Table 4. Forecast of breakeven values for replacement cows based on the FAPRI simulated costs and prices no borrowed money (NBM)

		Annual Replacement Rate														
		14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%	28%
Annual cow cost	\$747	\$2,227	\$2,181	\$2,134	\$2,087	\$2,041	\$1,994	\$1,948	\$1,902	\$1,856	\$1,809	\$1,763	\$1,717	\$1,671	\$1,625	\$1,579
	\$757	\$2,180	\$2,134	\$2,089	\$2,044	\$1,999	\$1,954	\$1,909	\$1,863	\$1,818	\$1,773	\$1,728	\$1,683	\$1,638	\$1,593	\$1,548
	\$767	\$2,132	\$2,088	\$2,044	\$2,001	\$1,957	\$1,913	\$1,869	\$1,825	\$1,781	\$1,737	\$1,693	\$1,649	\$1,605	\$1,561	\$1,517
	\$776	\$2,085	\$2,042	\$2,000	\$1,957	\$1,915	\$1,872	\$1,830	\$1,787	\$1,744	\$1,701	\$1,658	\$1,615	\$1,572	\$1,529	\$1,486
	\$786	\$2,037	\$1,996	\$1,955	\$1,914	\$1,873	\$1,832	\$1,791	\$1,749	\$1,707	\$1,665	\$1,623	\$1,581	\$1,539	\$1,497	\$1,455
	\$795	\$1,990	\$1,950	\$1,910	\$1,870	\$1,831	\$1,791	\$1,751	\$1,711	\$1,670	\$1,629	\$1,588	\$1,547	\$1,506	\$1,465	\$1,424
	\$805	\$1,942	\$1,904	\$1,865	\$1,827	\$1,789	\$1,750	\$1,712	\$1,672	\$1,632	\$1,593	\$1,553	\$1,513	\$1,473	\$1,433	\$1,393
	\$815	\$1,895	\$1,858	\$1,821	\$1,784	\$1,747	\$1,710	\$1,673	\$1,634	\$1,595	\$1,556	\$1,518	\$1,479	\$1,440	\$1,401	\$1,363
	\$824	\$1,847	\$1,811	\$1,776	\$1,740	\$1,705	\$1,669	\$1,633	\$1,596	\$1,558	\$1,520	\$1,483	\$1,445	\$1,407	\$1,369	\$1,332
	\$834	\$1,800	\$1,765	\$1,731	\$1,697	\$1,663	\$1,628	\$1,594	\$1,558	\$1,521	\$1,484	\$1,448	\$1,411	\$1,374	\$1,337	\$1,301
	\$843	\$1,752	\$1,719	\$1,686	\$1,653	\$1,621	\$1,588	\$1,555	\$1,519	\$1,484	\$1,448	\$1,412	\$1,377	\$1,341	\$1,306	\$1,270
	\$853	\$1,705	\$1,673	\$1,642	\$1,610	\$1,579	\$1,547	\$1,516	\$1,481	\$1,446	\$1,412	\$1,377	\$1,343	\$1,308	\$1,274	\$1,239
	\$863	\$1,657	\$1,627	\$1,597	\$1,567	\$1,537	\$1,506	\$1,476	\$1,443	\$1,409	\$1,376	\$1,342	\$1,309	\$1,275	\$1,242	\$1,208
	\$872	\$1,610	\$1,581	\$1,552	\$1,523	\$1,495	\$1,466	\$1,437	\$1,405	\$1,372	\$1,340	\$1,307	\$1,275	\$1,242	\$1,210	\$1,177
	\$882	\$1,562	\$1,535	\$1,507	\$1,480	\$1,453	\$1,425	\$1,398	\$1,366	\$1,335	\$1,303	\$1,272	\$1,241	\$1,209	\$1,178	\$1,146
	\$890	\$1,520	\$1,494	\$1,468	\$1,442	\$1,416	\$1,390	\$1,365	\$1,334	\$1,304	\$1,274	\$1,243	\$1,213	\$1,183	\$1,152	\$1,122
	\$899	\$1,477	\$1,453	\$1,429	\$1,404	\$1,380	\$1,356	\$1,331	\$1,302	\$1,273	\$1,244	\$1,215	\$1,185	\$1,156	\$1,127	\$1,098
	\$907	\$1,435	\$1,412	\$1,390	\$1,367	\$1,344	\$1,321	\$1,298	\$1,270	\$1,242	\$1,214	\$1,186	\$1,158	\$1,130	\$1,102	\$1,073
	\$916	\$1,393	\$1,372	\$1,350	\$1,329	\$1,308	\$1,287	\$1,265	\$1,238	\$1,211	\$1,184	\$1,157	\$1,130	\$1,103	\$1,076	\$1,049
	\$924	\$1,351	\$1,331	\$1,311	\$1,291	\$1,272	\$1,252	\$1,232	\$1,206	\$1,180	\$1,154	\$1,128	\$1,103	\$1,077	\$1,051	\$1,025
\$933	\$1,308	\$1,290	\$1,272	\$1,254	\$1,235	\$1,217	\$1,199	\$1,174	\$1,149	\$1,125	\$1,100	\$1,075	\$1,050	\$1,025	\$1,000	
\$941	\$1,266	\$1,249	\$1,233	\$1,216	\$1,199	\$1,183	\$1,166	\$1,142	\$1,118	\$1,095	\$1,071	\$1,047	\$1,024	\$1,000	\$976	
\$950	\$1,224	\$1,208	\$1,193	\$1,178	\$1,163	\$1,148	\$1,133	\$1,110	\$1,088	\$1,065	\$1,042	\$1,020	\$997	\$974	\$952	
\$958	\$1,181	\$1,168	\$1,154	\$1,140	\$1,127	\$1,113	\$1,100	\$1,078	\$1,057	\$1,035	\$1,014	\$992	\$971	\$949	\$927	
\$967	\$1,139	\$1,127	\$1,115	\$1,103	\$1,091	\$1,079	\$1,067	\$1,046	\$1,026	\$1,005	\$985	\$964	\$944	\$924	\$903	
\$975	\$1,097	\$1,086	\$1,076	\$1,065	\$1,055	\$1,044	\$1,033	\$1,014	\$995	\$975	\$956	\$937	\$917	\$898	\$879	
\$984	\$1,054	\$1,045	\$1,036	\$1,027	\$1,018	\$1,009	\$1,000	\$982	\$964	\$946	\$927	\$909	\$891	\$873	\$854	
\$993	\$1,012	\$1,005	\$997	\$990	\$982	\$975	\$967	\$950	\$933	\$916	\$899	\$882	\$864	\$847	\$830	

Saner and Stockton, 2023



Forecasted breakeven values for replacement heifers per head for the 2019-20 production season, by cull rate and initial annual production costs per head

Beginning Costs/Hd./Year	Annual Replacement Rate		
	14% Cull Rate	20% Cull Rate	28% Cull Rate
\$716.16	\$2128.23 (1)*	\$1701.95 (2)	\$1419.87 (3)
\$780.50	\$1812.18 (4)	\$1560.40 (5)	\$1227.99 (6)
\$831.20	\$1491.02 (7)	\$1217.81 (8)	\$1036.24 (9)
*Numbers in parentheses represent scenario numbers			

Saner and Stockton, 2020

Comparison

- $\$882 + \$352 = \$1,234$ total costs/cow
 - Revenue = calf sales + cull sales
 - $90\% \cdot 580 \cdot 2.50 + 14\% \cdot 1050 = \$1,452$ /cow
- Replacement costs supported by returns
 - $\$1,452 - 882 = \570
 - Present value = $PV = PMT \left(\frac{1 - (1+i)^{-n}}{i} \right)$
 - $PV = 570(5.553) = \$3,165$

Summary

- Managing investment costs of heifers is critical for long-term profitability
- Decreasing investment costs
 - Increases selection for fertility
 - Keep early breeding heifers
 - Increases flexibility in management
 - Heiferettes
 - Rebreeding open females
 - Selling late breeding females

Questions

