

Starting a Cow-Calf Operation Considering Profitability and Off-Farm Income

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Emerging Research on Beginning Farmers and
Ranchers

November 9-10, 2020

Motivation

~40%

33,268

77%



Our Study

- Analyze the profitability and required off-farm income to start a cow-calf operation
 - Interest rates
 - Land rent



Scenario

- 30 and 60 head
 - Spring calving, bred cows
- 3.45% interest rate vs. 3.95% interest rate
 - cattle, operating, and equipment loans
- Rent land vs. own land

Framework

- 30-year NPV simulation analysis
 - Considers price and production risk
 - Annualized off-farm income required to cover debt
- Dynamic cattle growth & production model
 - Head and growth, calving season, management practices, cows/heifers
- Lots of scenarios could be considered
 - Interest rates, buying vs. leasing, down payments, etc

Data

- UT Cow Calf Budgets
 - UT recommendations for nutrition, stocking, and other production assumptions
- Monthly TN price data
 - 500-600 lb steer & heifer; 850 lb open heifer; cull cow prices
- Bred cow prices PREC sales
 - 5 month pregnant 3-yr old cow
- Weaning weights from Ames data
 - Function of cow age & calving season

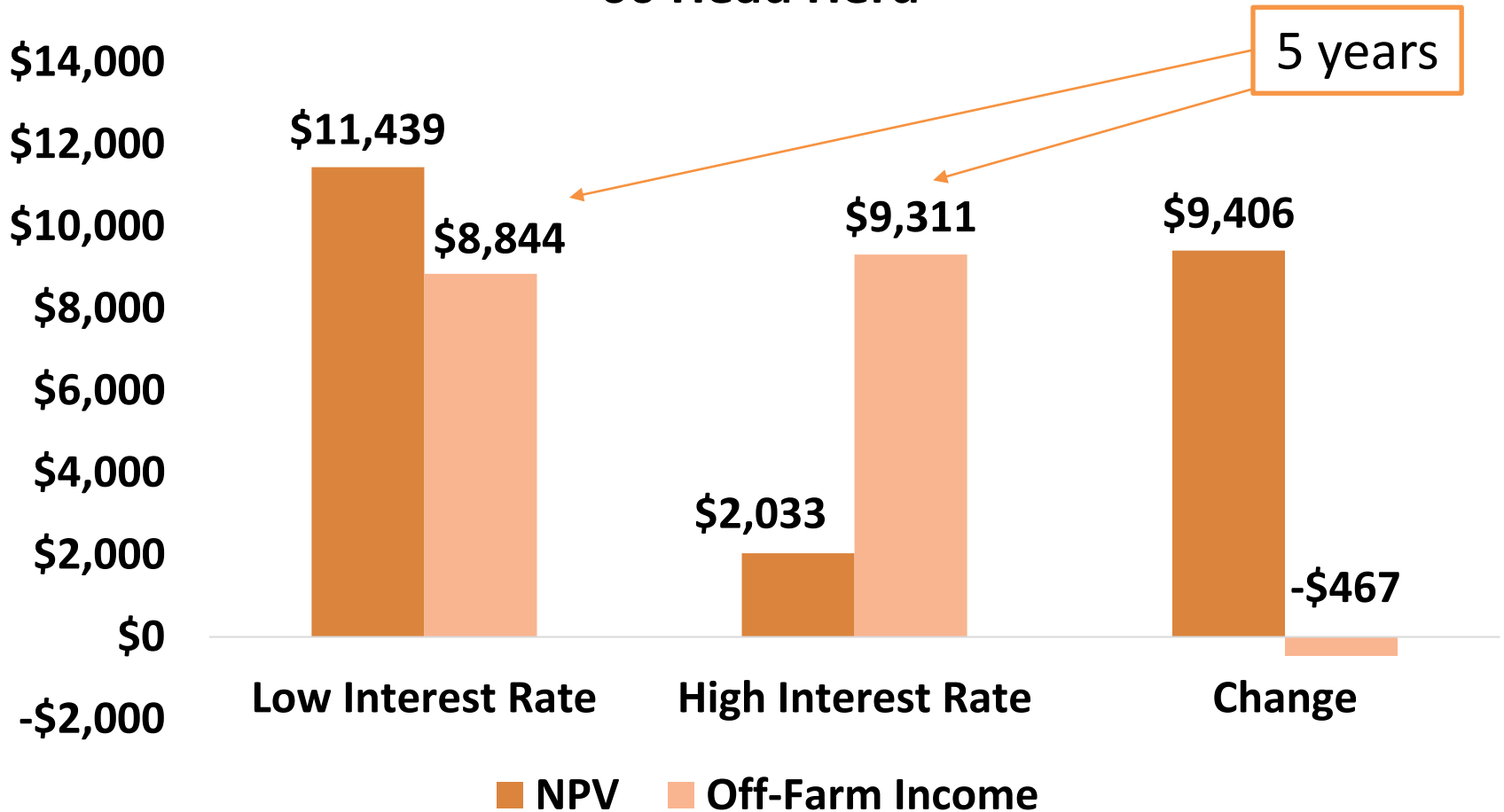
Loan Assumptions

- 10% down payment

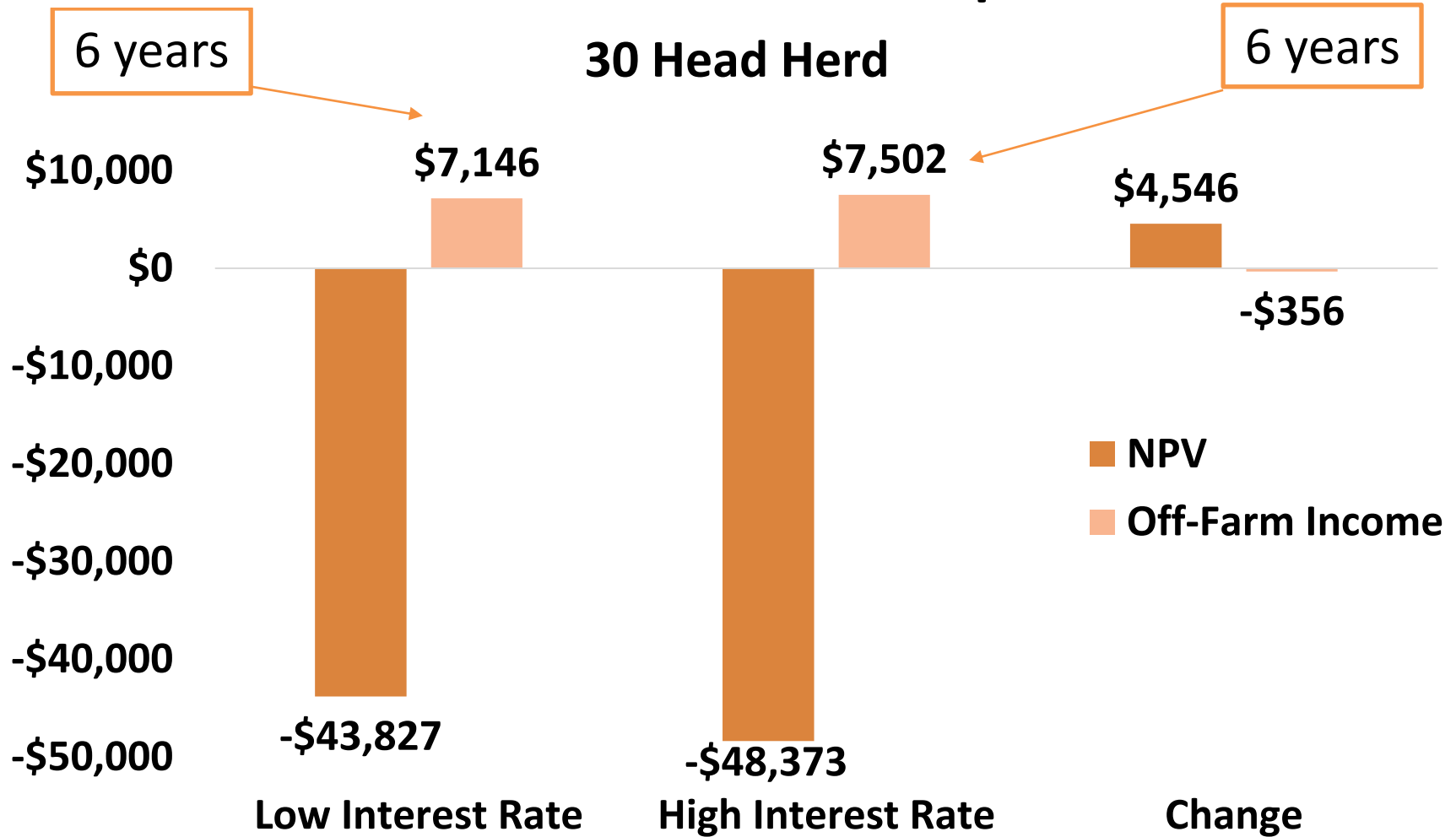
Item	Cost	Loan Term (years)	Interest Rate
Building	\$12,600	10	4.45%
Equipment	\$68,400	5	3.45 & 3.95%
30 head cows	\$40,331	5	3.45 & 3.95%
60 head cows	\$87,111	5	3.45 & 3.95%

Interest Rate Impact

60 Head Herd

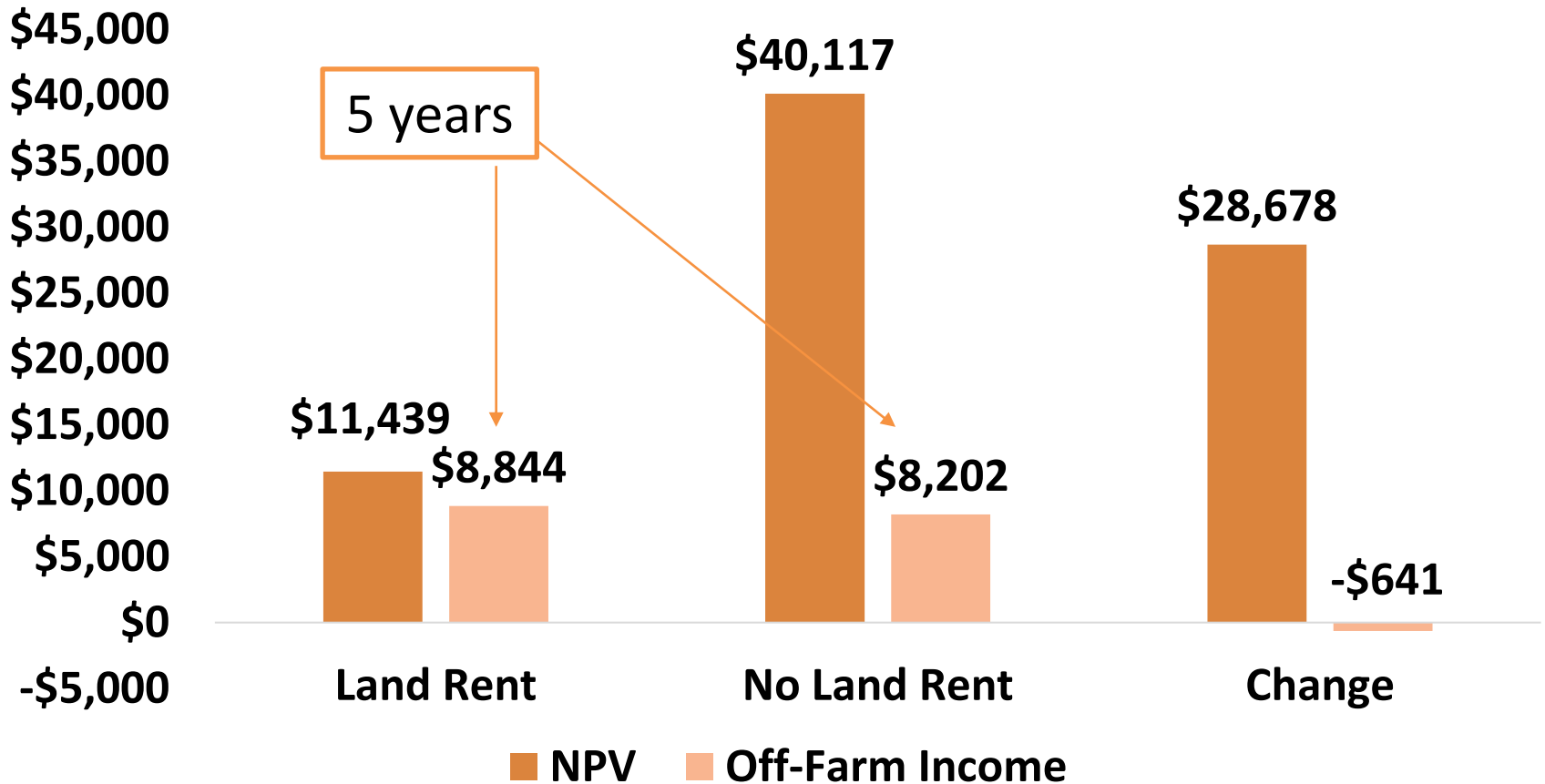


Interest Rate Impact

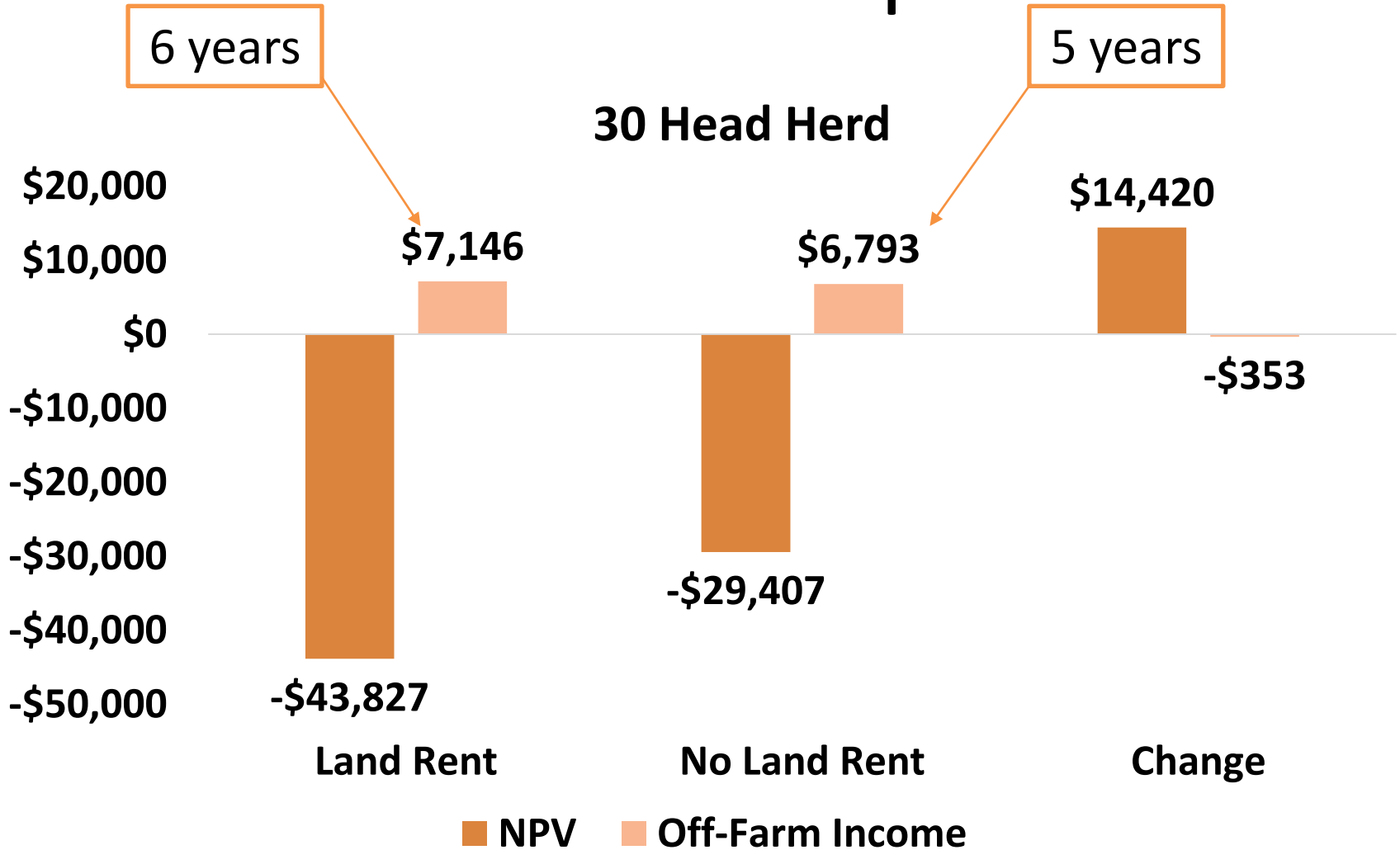


Land Rent Impact

60 Head Herd



Land Rent Impact



Hypothetical Land Rent Policy

30-head	Land Rent	10-year Forgiveness	Change
NPV	-\$43,827	-\$37,316	\$6,510
Off-Farm Income	\$7,146	\$6,806	-\$340
60-Head	Land Rent	10-year Forgiveness	Change
NPV	\$11,439	\$24,423	\$12,984
Off-Farm Income	\$8,844	\$8,203	-\$641

Concluding

- Lower interest rates and owning land increase NPV & reduce off-farm income
- Land rent has a larger impact of NPV than interest rate
- Both impact NPV more than off farm income
- In future.. risk analyses across production scenarios
 - Spring vs. fall, cows vs. heifers, etc.