

FEED SAVINGS ASSOCIATED WITH USING A LOW RFI BULL

Introduction

Feed costs can be as much as 70 percent of a beef producer’s total production costs. Residual feed intake (RFI) is a measure of feed efficiency that explains the difference between what an animal is expected to eat and what they actually eat for a given level of body weight, growth and production. Cattle with low RFI values are more efficient eating less than expected while cattle with high RFI values are less efficient as they eat more than expected. With its moderate heritability and independence of body weight and growth, selection for RFI can result in more feed efficient animals that require less feed but still achieve the same level of production, growth and body composition. Testing and selecting cattle for RFI and using genetics from sires with low RFI expected progeny differences (EPDs) can result in significant feed savings over time. The scenarios below show the feed savings associated with using low RFI sires with varying RFI EPDs and expected breeding values (EBVs).

Scenario 1

A rancher purchased Bull 1 from a seedstock producer that had been selecting for RFI for 2 years. The rancher plans on using the bull for 4 years. Estimated feed savings over the 4-year period:

- Bull 1 RFI EBV = -0.08
- Bull 1 RFI EPD = -0.04
- Bred to average cows with RFI EBVs = 0
- Each year the bull sires 20 calves – 10 heifer and 10 bull calves
 - 7 of the heifers are kept as replacements
 - 13 calves are sent to the feedlot
- Feed cost = \$0.13/lb DM

With an RFI EBV of -0.08, Bull 1 will eat 0.08 lb DM/day less than the average bull. If the bull is bred to an average cow with an RFI EBV of 0, it’s progeny will eat 0.04 lb DM/day (based on EPD) less than progeny from an inefficient or average RFI bull. This will equate to feed savings associated with maintaining the bull itself, as well as savings with feeding the replacement heifers and feedlot animals.

Table 1. Feed cost savings using Bull 1 for 4 years.

	Number of Animals	Per Year Feed Cost (\$/lb DM)	Reduction in Feed Intake (lb DM)	Total Savings (\$)
Maintaining Bull	1	0.13	117	15.18
Replacement Heifers	7	0.13	1,635	212.58
Feedlot Animals	13	0.13	468	60.84
			Total Savings:	\$288.60

Over the 4-year period, Bull 1 will save the rancher \$288.60 in feed costs alone when compared to feed costs of an average bull. Savings in feed costs will continue to be increased if the rancher chooses to breed the replacement heifers with another low RFI bull. With several years of selection, the feed savings associated with a bull can be increased drastically, as shown in Scenario 2.

Scenario 2

A rancher purchased Bull 2 from a seedstock producer that had been selecting for RFI for 15 years, hence the improvement in the RFI EPD. The rancher plans on using the bull for 4 years, this is how much can be saved in feed costs over the 4-year period, given the following assumptions:

- Bull 2 RFI EBV = -1.0
- Bull 2 RFI EPD = -0.5
- Bred to average cows with RFI EBVs = 0
- Each year the bull sires 20 calves – 10 heifer and 10 bull calves
 - 7 of the heifers are kept as replacements
 - 13 calves are sent to the feedlot
- Feed cost = \$0.13/lb DM

With an RFI EBV of -1.0, Bull 2 will eat 1.0 lb DM/day less than the average bull. If the bull is bred to an average cow with an RFI EBV of 0, its progeny will eat 0.5 lb DM/day (based on EPD) less than progeny from an inefficient or average RFI bull. This will equate to feed savings associated with maintaining the bull itself, as well as savings with feeding the replacement heifers and feedlot animals.

Table 2. Feed cost savings using Bull 2 for 4 years.

	Number of Animals	Per Year Feed Cost (\$/lb DM)	Reduction in Feed Intake (lb DM)	Total Savings (\$)
Maintaining Bull	1	0.13	1,460	189.90
Replacement Heifers	7	0.13	20,440	2,657.20
Feedlot Animals	13	0.13	5,850	760.50
			Total Savings:	\$3,607.50

Over the 4-year period, Bull 2 will save the rancher \$3,607.50 in feed costs alone when compared to feed costs of an average bull. Again, the savings will continue to increase if the rancher chooses to breed the replacement heifers with another low RFI bull.

Conclusion

By selecting for RFI, or introducing several low RFI bulls into your herd, feed-related savings will continue to increase. Several years of genetic selection will improve the baseline feed efficiency of the ranch and savings will continue to transfer to the cow herd as replacement heifers are retained.