Yearling Systems

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Nebraska is unique in beef

What are the potential benefits of adding a yearlings to a cow/calf operation?

Feed ingredient prices expressed as a function of their energy content.

Item	$/unit	$/ton (DM)	TDN, %	$/lb TDN
Sandhills range, stocker	$67.05/month[1]	$146.94	63	**0.1166**
Grass hay	$110/ton	$122.22	55	**0.1111**
Grazed corn residue	$20/acre[2]	$25.00[3]	55	**0.0227**
Baled corn residue	$65/ton	$72.22	43	**0.0840**
Corn silage	$70.26/ton[4]	$200.75	70	**0.1434**
Cracked corn	$6.75/bushel	$278.37	83	**0.1678**
Dried distillers grains USDA Daily Ethanol	$291.00	$323.33 (116% corn)	108	**0.1497**

[1]Cornhusker Economics for North Region, published March, 2022. Assumes 1.3 AUM/pair and 90% DM.
[2]Crop residue exchange.
[3]Assumes 200 bushel/acre corn harvest and 8 lb/bushel forage availability
[4]Assumes $6.50 corn price with a 7.65 multiplier $10 hauling/packing, and 15% shrink.

Prices updated 1/10/23

- What is the optimum:
  - Target rate of gain during winter?
    - Slow (1 lb or less) or fast (1.5 to 2.0 lb)?
  - Month for selling calves? (July vs. September)

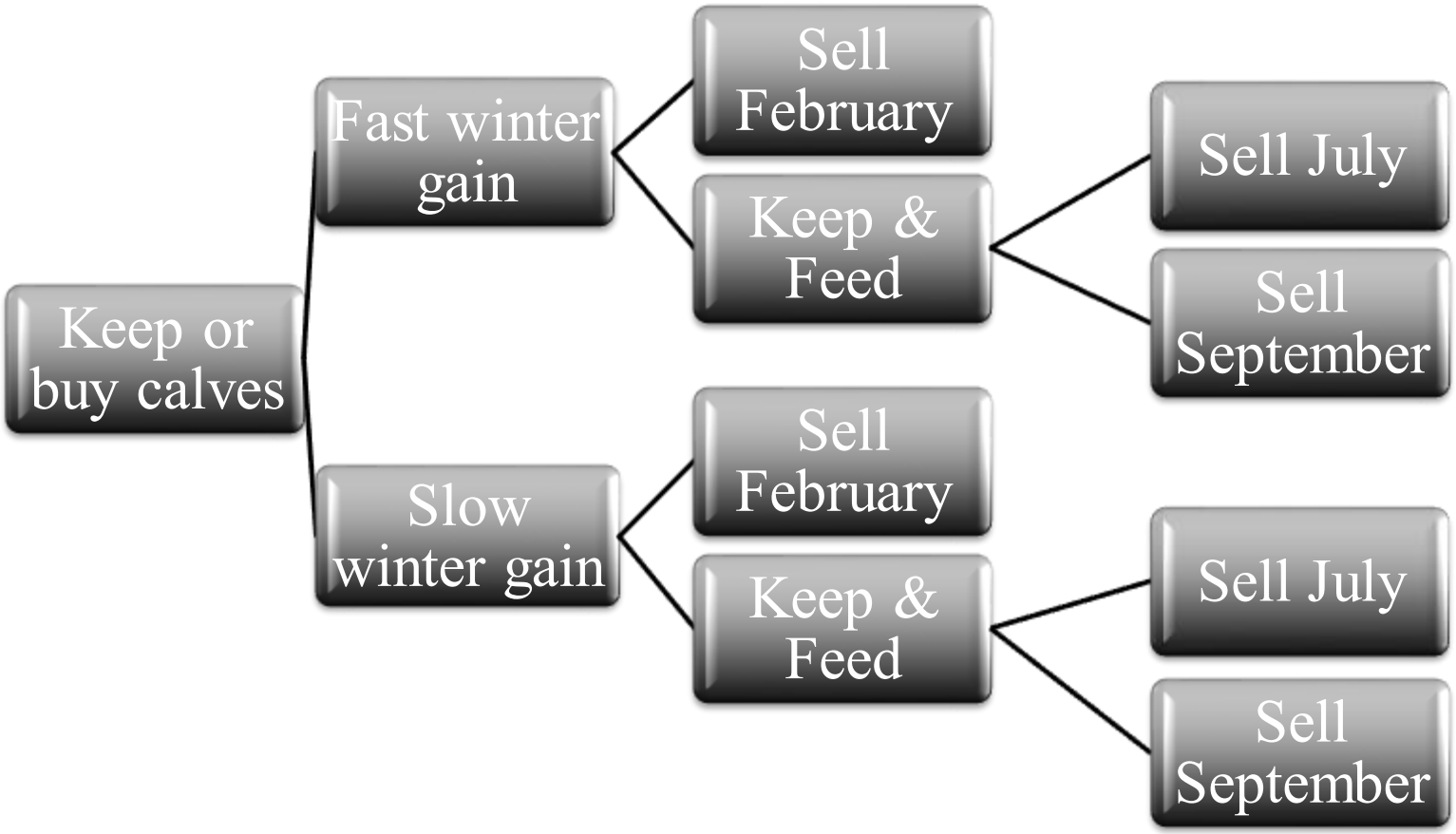
Model

- Fast winter growth (2.0 lb/d)
- Slow winter growth (0.8 lb/d)

- Market in July
- Market in September

Merical et al. 2021. Economics of Yearling systems

Yearling System flow



Supplementation of weaned calves on 200 bu/ac corn residue

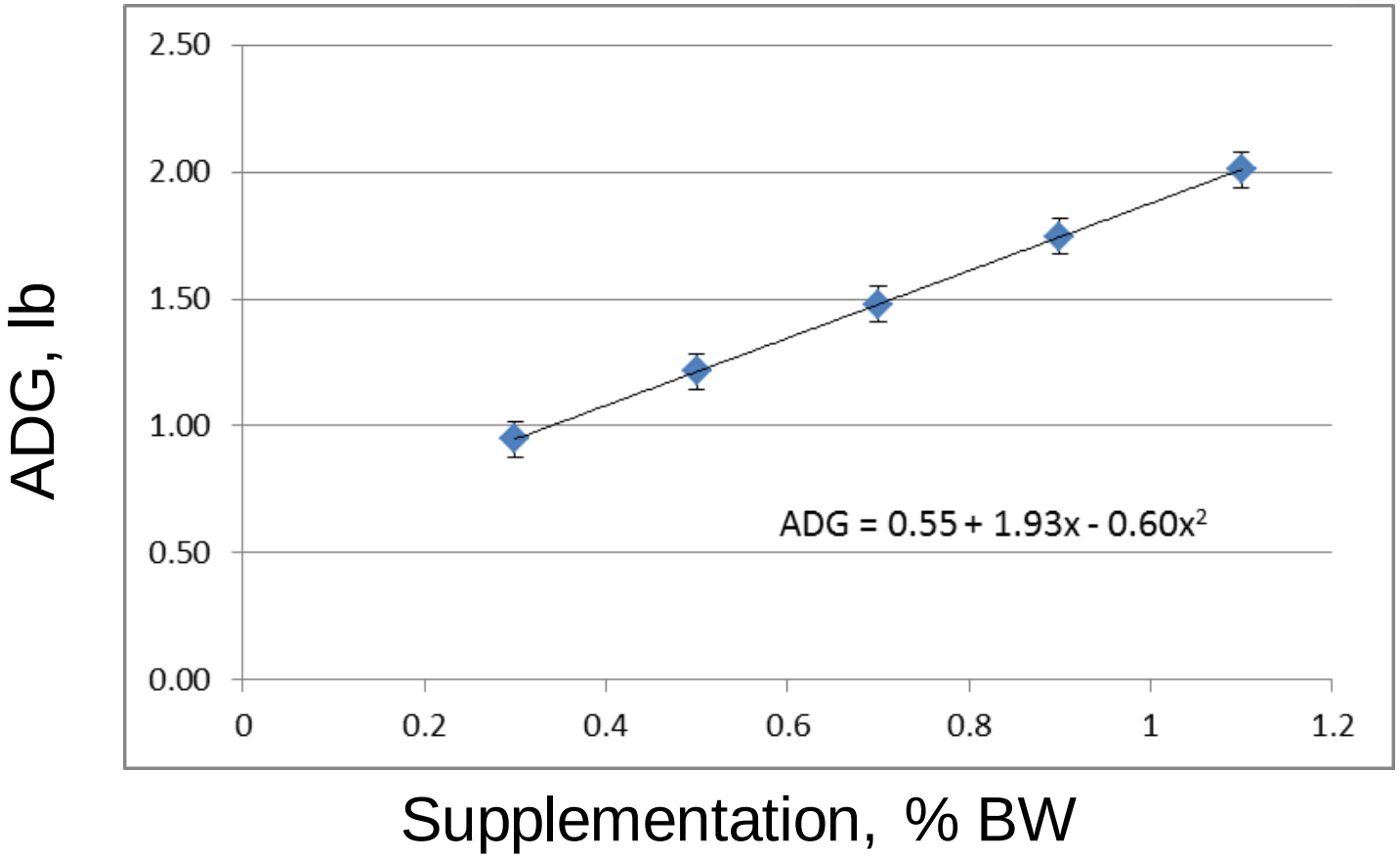
	No Suppl.	Corn	Corn+ Urea (5%)	DDGS
DM, lb	-	3.75	4.0	3.0
TDN, %	-	83%	78%	104%
TDN, lbs	-	3.11	3.12	3.12
CP, lbs	-	0.37	0.92	0.90

Tibbitts et al., 2016 Beef Report, p 31

	No Suppl.	Corn	Corn + Urea	DDGS
Initial BW	516	516	516	516
Ending BW	504[a]	539[b]	559[c]	629[d]
ADG, lb	-0.18[a]	0.31[b]	0.53[c]	1.32[d]

Tibbitts et al., 2016 Beef Report, p 31

DDG supplementation on grazed corn residue



Welchons 2017 UNL Beef Report p 34

Rate of winter gain and length of grazing

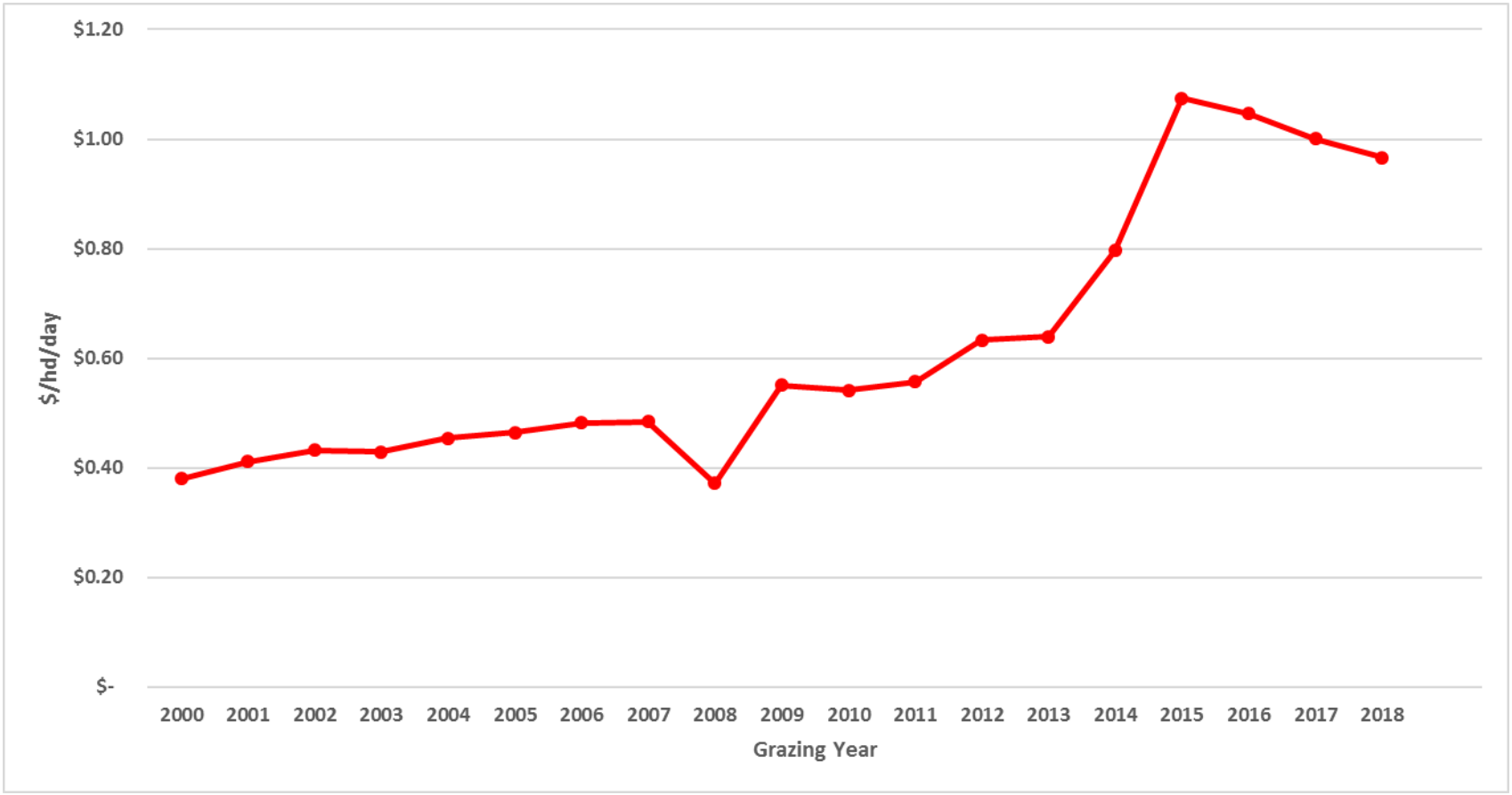
Winter DDGS, lb/d	1.3		7.0	
	Slow		Fast	
	July	Sept	July	Sept
Winter gain, lb/d	0.79	0.79	2.04	2.04
Winter BW, lb	627	627	785	785
Grass gain, lb/d	2.45	2.01	1.44	1.29
Grass BW, lb	779	866	867	938

Morris et al. (1996 Beef Report pp. 51-53)

Wintering costs ($/steer) 1999-2017

	Fast	Slow
Processing	$15	$15
Receiving (14 d yardage/feed)	$26.25	$26.25
Animal Interest (5.6% 0.35 yr)	$8.79 - $29.26 ($14.07)	$8.79 - $29.26 ($14.07)
Death Loss (1%)	$4.49 - $14.93 ($7.18)	$4.49 - $14.93 ($7.18)
Corn Residue ($0.56 hd/d)	$71.12	$71.12
Distillers ($71 - 282/ton) ($137/ton)	$31.34 - $125.37 ($61.04)	$5.82 - $23.28 ($11.34)
Mineral ($0.05/hd/d)	$6.35	$6.35
Feed Interest (5.6% 0.35 yr)	$1.47 - $2.39 ($1.76)	$1.22 - $1.39 ($1.27)
Wintering Cost	$170 - $271 ($203)	$142 - $176 ($153)

Grass costs



- Based on historic pasture rental rates (Jansen and Stokes, 2018)

Spring and summer costs $/steer (1999 – 2017)

	Fast July	Fast September	Slow July	Slow September
Spring Feed (91 d)	$42.97 - $150.71 ($66.06)	$42.97 - $150.71 ($66.06)	$42.97 - $150.71 ($66.06)	$42.97 - $150.71 ($66.06)
Spring Yardage ($0.25/d)	$22.75	$22.75	$22.75	$22.75
Summer Grass (62 d vs 120 d)	$23.02 - $66.62 ($38.22)	$44.56 - $128.95 ($73.97)	$23.02 - $66.62 ($38.22)	$44.56 - $128.95 ($73.97)
Interest on Feed	$0.60 - $1.40 ($0.80)	$0.96 - $1.92 ($1.31)	$0.60 - $1.40 ($0.80)	$0.96 - $1.92 ($1.31)
Interest on Animal	$14.65 - $40.48 ($22.71)	$20.23 - $55.90 ($31.36)	$12.74 - $36.17 ($19.91)	$17.60 - $49.95 ($27.49)
Spring/Summer Cost	$116 - $241 ($151)	$145 - $289 ($195)	$113 - $236 ($147)	$142 - $284 ($192)
Total Cost	**$292 - $512 ($353)**	**$323 - $560 ($398)**	**$257 - $405 ($300)**	**$285 - $452 ($344)**

Merical et al. 2021. Economics of Yearling systems

Calves with compensatory growth eat more relative to BW

Winter ADG, lb/d	Summer ADG, lb/d	Summer Intake, % BW
1.43	1.57	**2.53**
0.54	2.02	**3.13**

BW	DM intake lb/d
750	19.0
600	18.8

Wilson et al, 2000 NE Beef Report

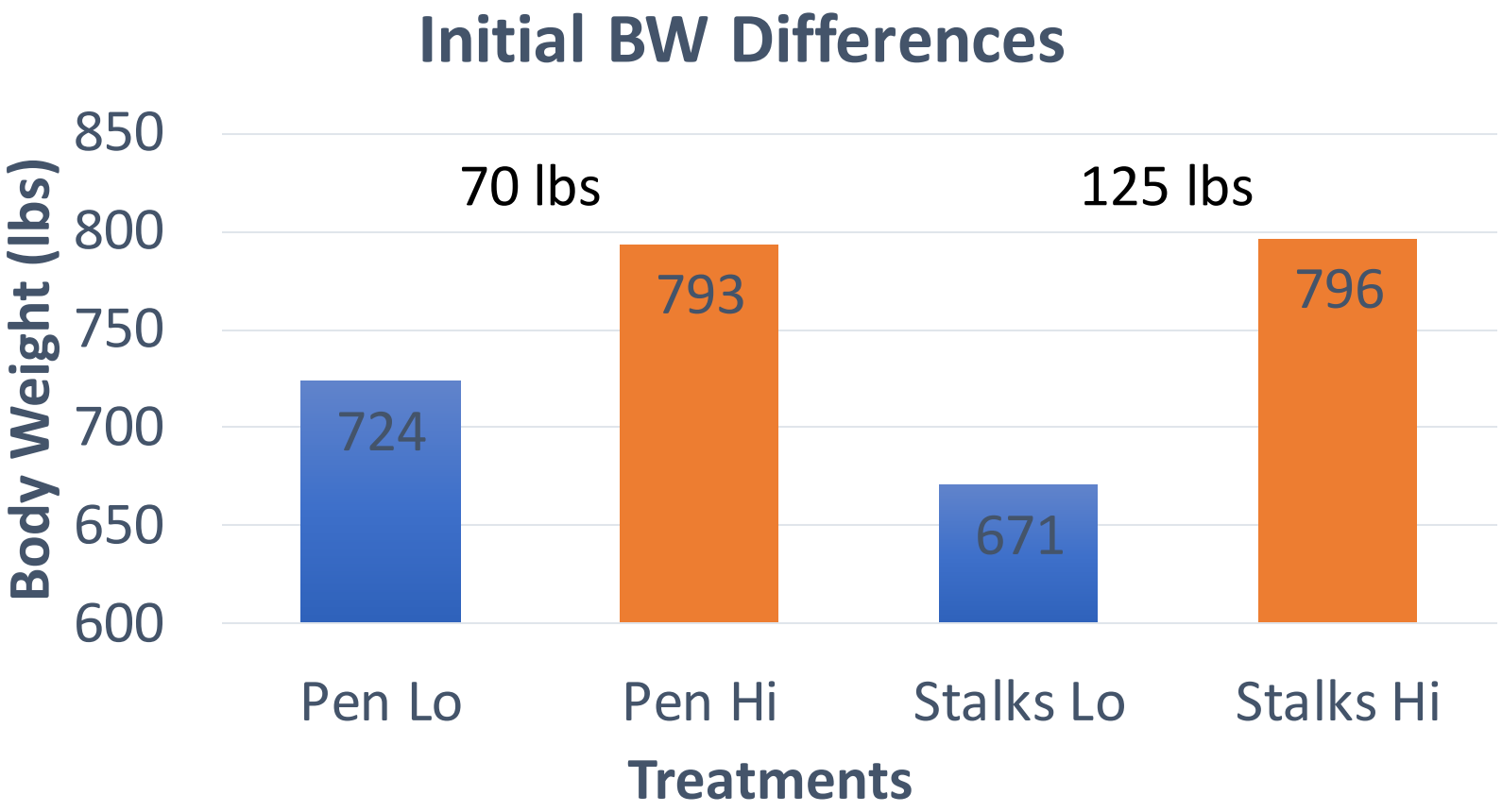
Calves with compensatory growth eat more relative to BW

	Cool season grass			Warm season grass		
Winter ADG	Summer ADG	Intake lb/d	Intake % BW	Summer ADG	Intake lb/d	Intake % BW
1.5	2.15	15.4	**1.92**	2.28	20.9	**2.29**
0.5	2.55	15.7	**2.52**	2.74	21.1	**2.80**

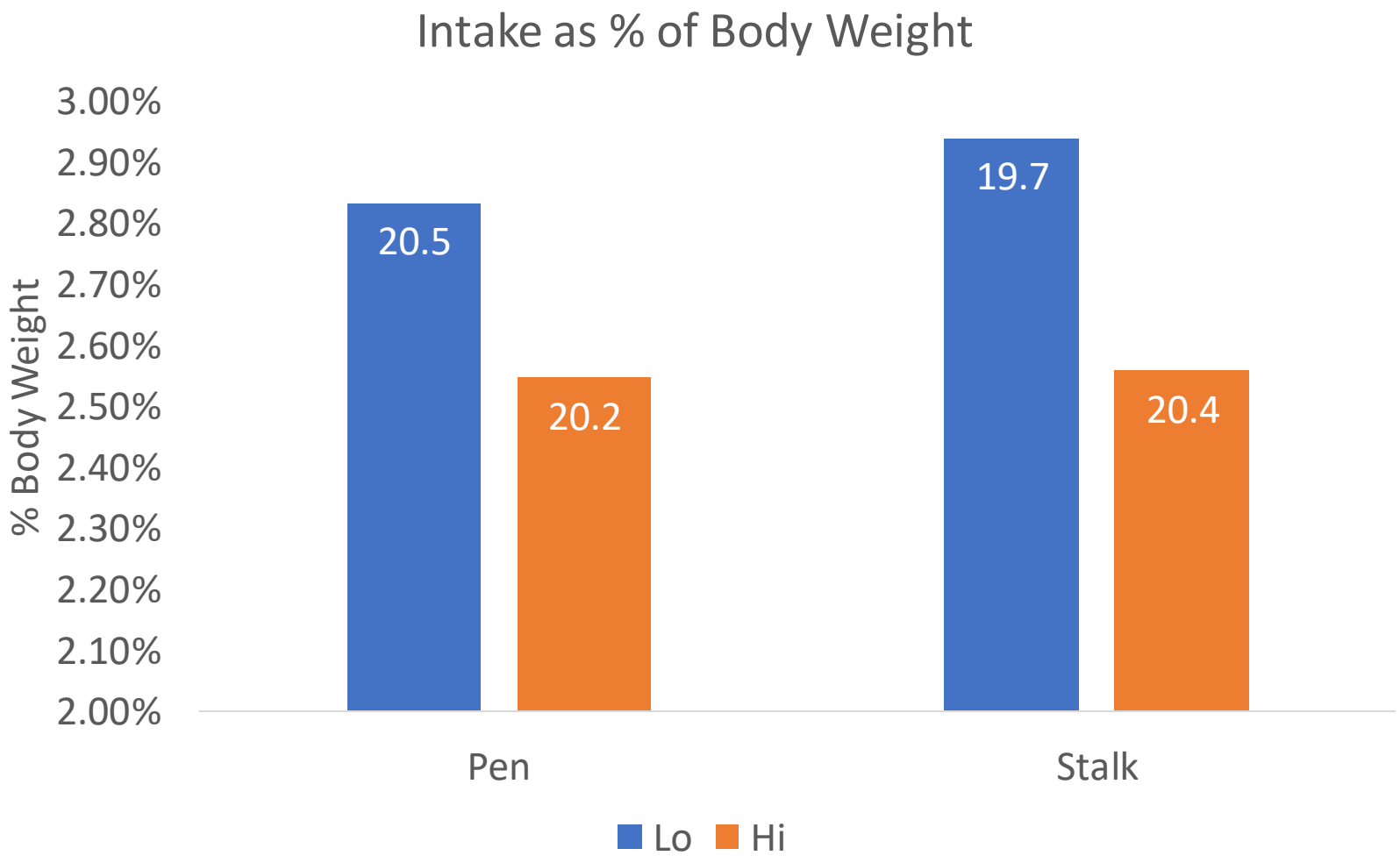
Creighton et al, 2001 NE Beef Report

Winter rate of gain

Treatments	IBW	EBW	ADG
Pen Hi	534	795	2.21
Pen Lo	534	723	1.61
Stalks Hi	536	777	2.21
Stalks Lo	535	677	1.15


Initial BW Differences
Body Weight (lbs)
850
800
750
700
650
600
70 lbs
125 lbs
724
793
671
796
Pen Lo
Pen Hi
Stalks Lo
Stalks Hi
Treatments

% of BW difference



Calves with compensatory growth eat more relative to BW

Stocking rate does not need to be decreased in the summer with heavier calves coming out of winter

Profitability Comparison

$/steer from 1999 through 2017 (19 years)

	Years Profitable	Average Net Profit	Maximum Net Profit	Minimum Net Profit
February Fast	10	$45.02	$211.53	-$80.57
February Slow	6	-$24.10	$126.63	-$195.43
July Fast	16	$123.03	$691.07	-$196.40
July Slow	16	$128.30	$634.67	-$211.06
September Fast	15	$142.83	$790.06	-$276.56
September Slow	13	$112.62	$719.93	-$312.26

Merical et al. 2021. Economics of Yearling systems

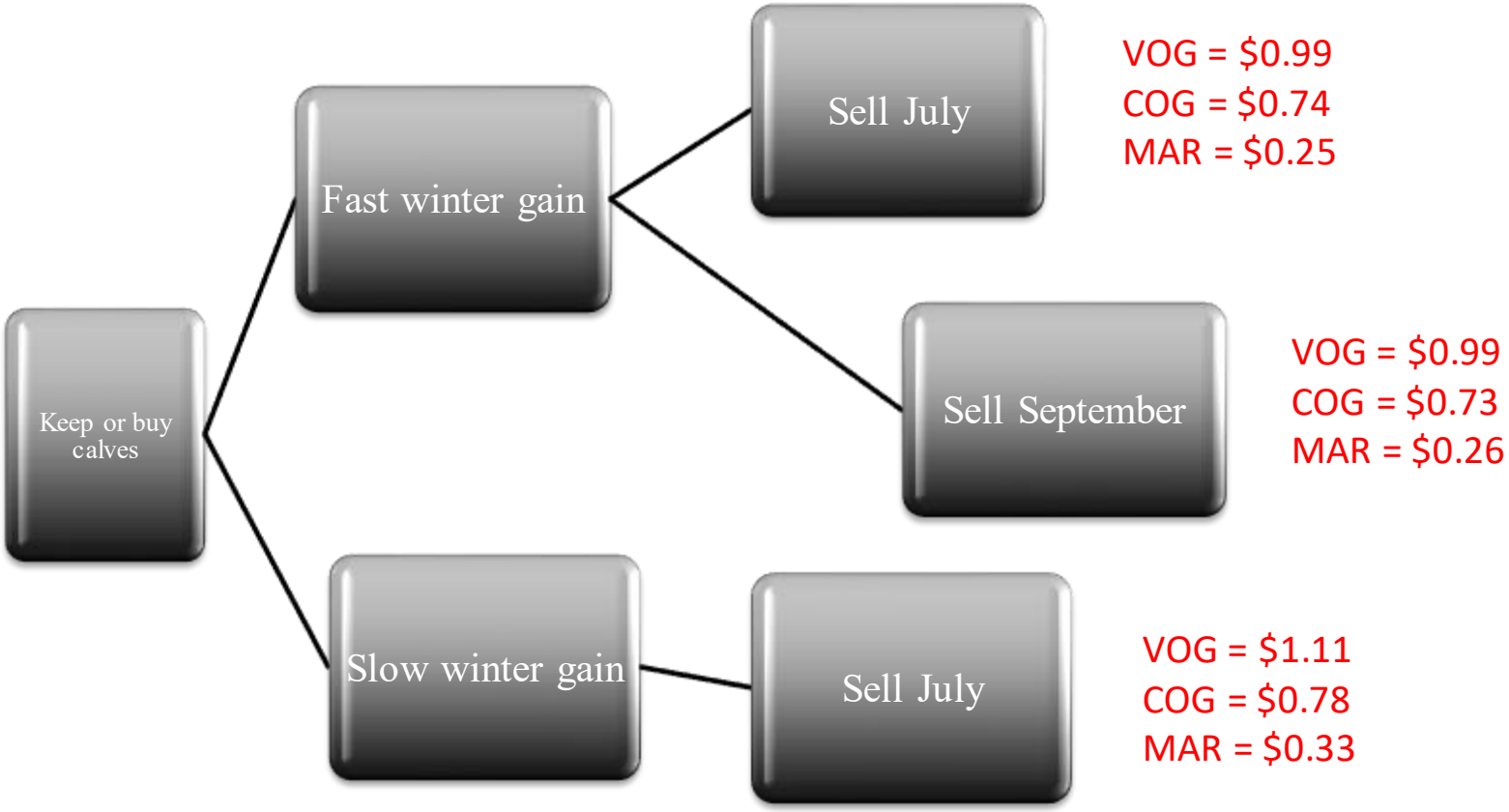
Cattle Price Jul-Sep Comparison

	Fast		Slow	
	Market in July	Market in September	Market in July	Market in September
Animal Weight	1,010	1,076	915	1,005
Market Price ($/cwt.)	$67.40 - $208.75 ($118.96)	$72.95 - $210.74 ($117.16)	$72.83 - $215.67 ($126.95)	$72.95 - $210.74 ($117.16)

[1]Prices are displayed as ranges between minimum and maximum values across years followed by the average in parentheses.

Merical et al. 2021. Economics of Yearling systems

Yearling System Cumulative Profit Margins ($/lb.)



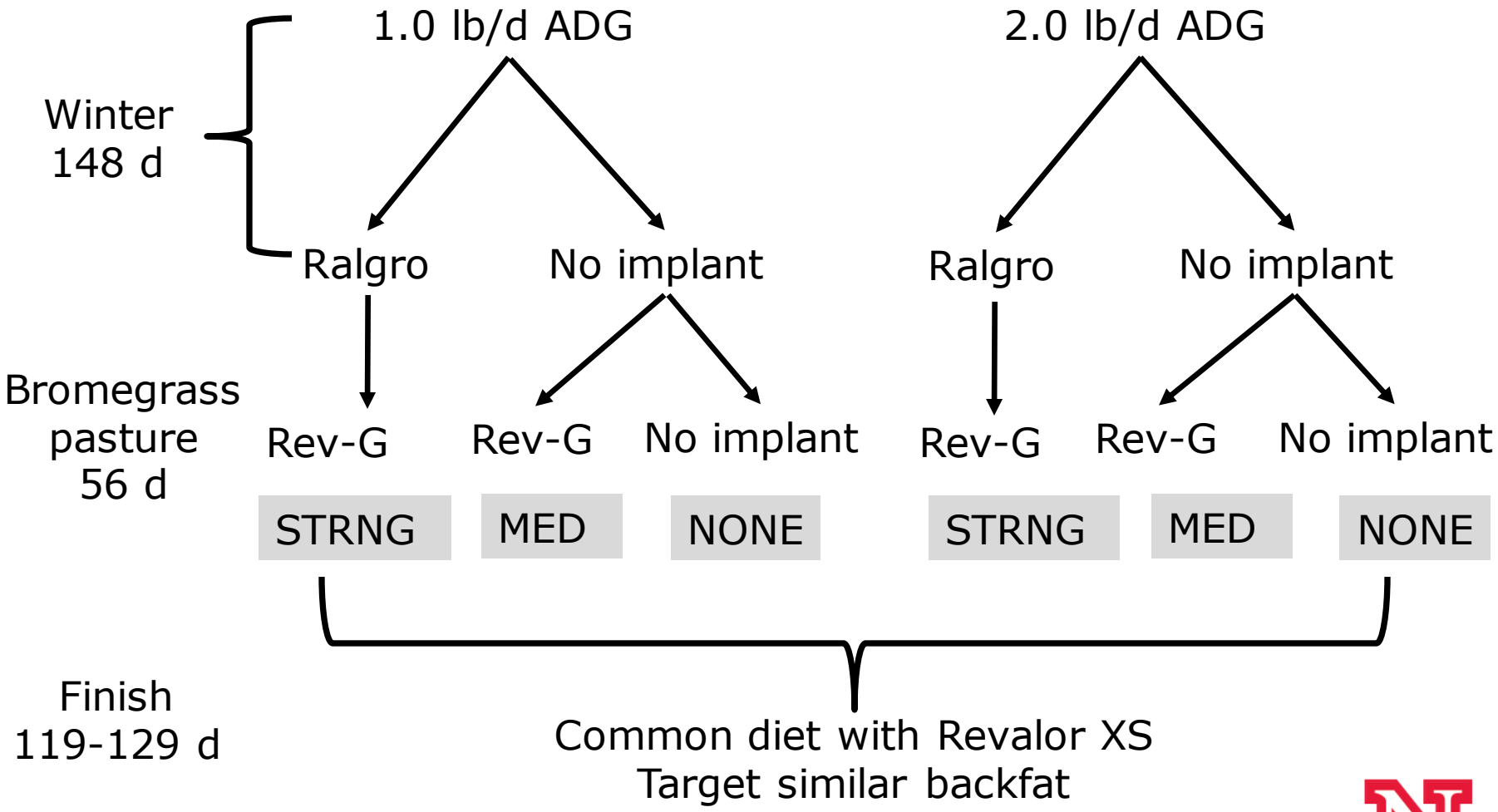
Summary

- Feb. Sales – Fast Growth Winter diet
- Jul. Sales – it depends
  - Slow Growth Winter diet slightly better returns and less risk in declining market
  - Fast Growth Winter diet provides flexibility
- Sep. Sales – Fast Growth Winter diet

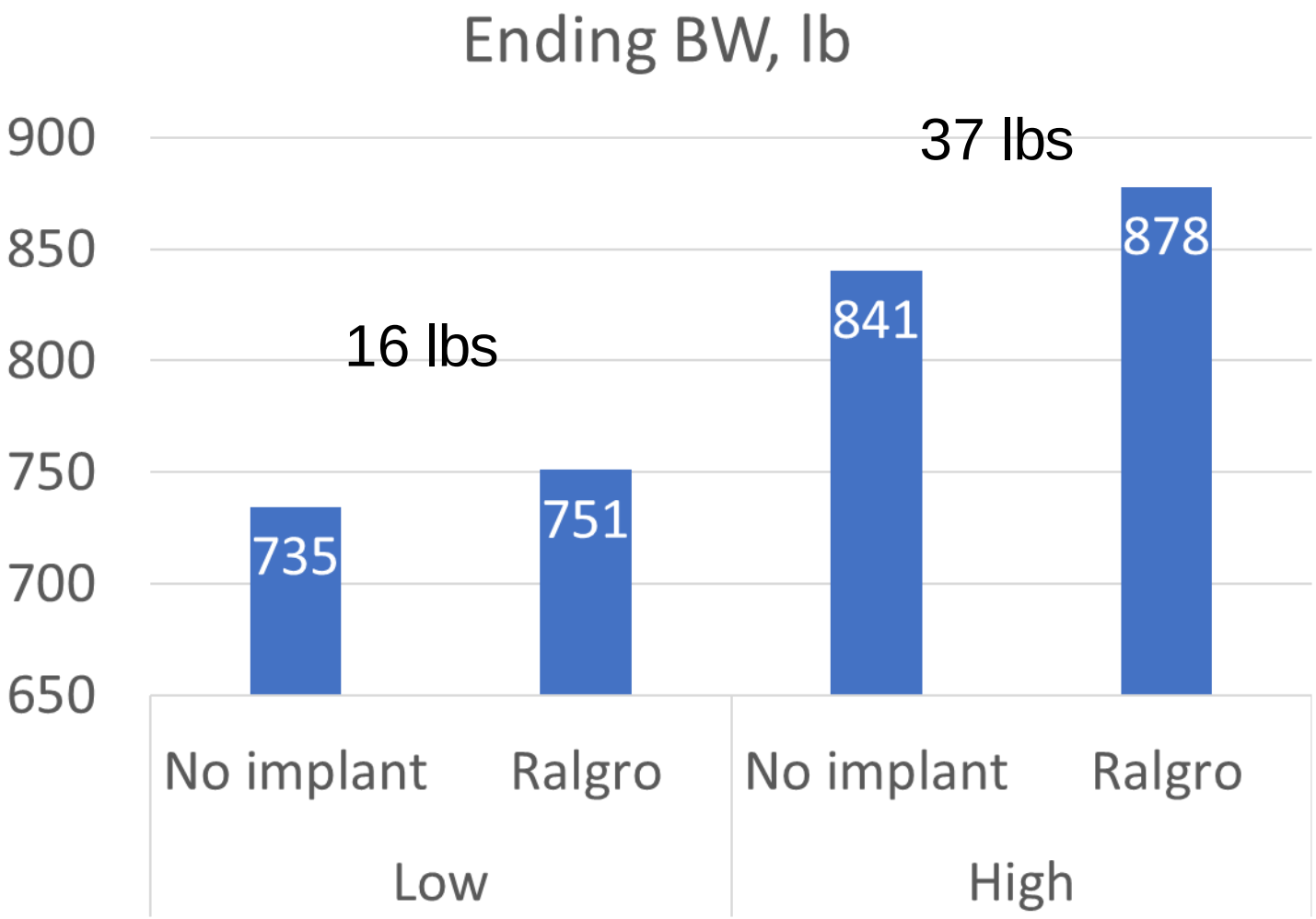
What about implants?

- Should you….
  - Not implant?
  - Implant in the winter only?
  - Implant in the summer only?
  - Implant in both?

Steer Management

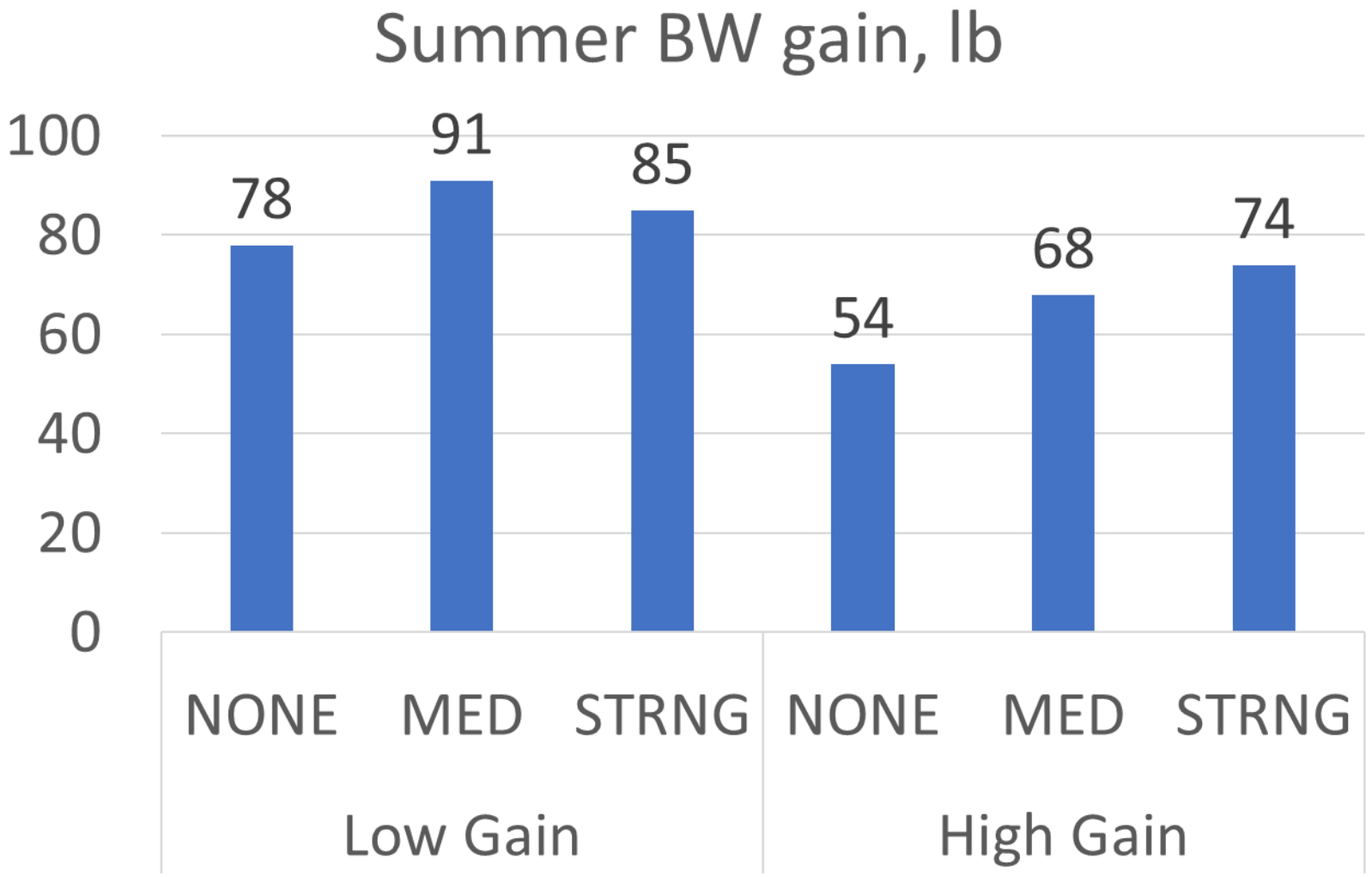


Winter Performance

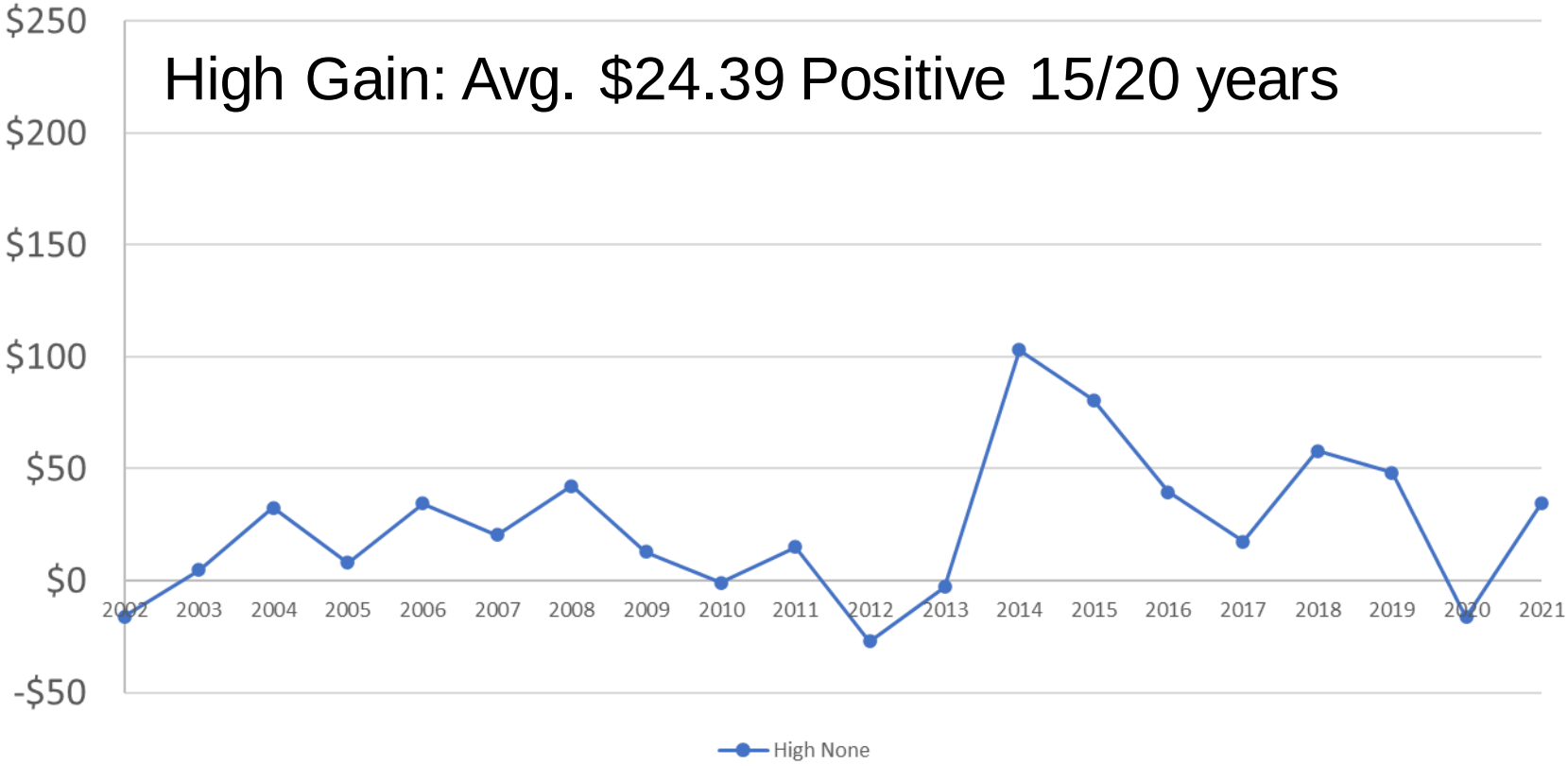


Summer performance

	Treatments								
	Low Gain			High Gain			P-value		
	NONE	MED	STRNG	NONE	MED	STRNG	Rate	Implant	Int
Inital BW, lb	738	751	760	850	850	888	**<0.01**	**<0.01**	0.15
End BW, lb	816	842	845	904	918	962	**<0.01**	**<0.01**	**0.10**
ADG, lb	**1.42**	**1.62**	**1.53**	**0.98**	**1.23**	**1.30**	**<0.01**	**0.02**	0.48

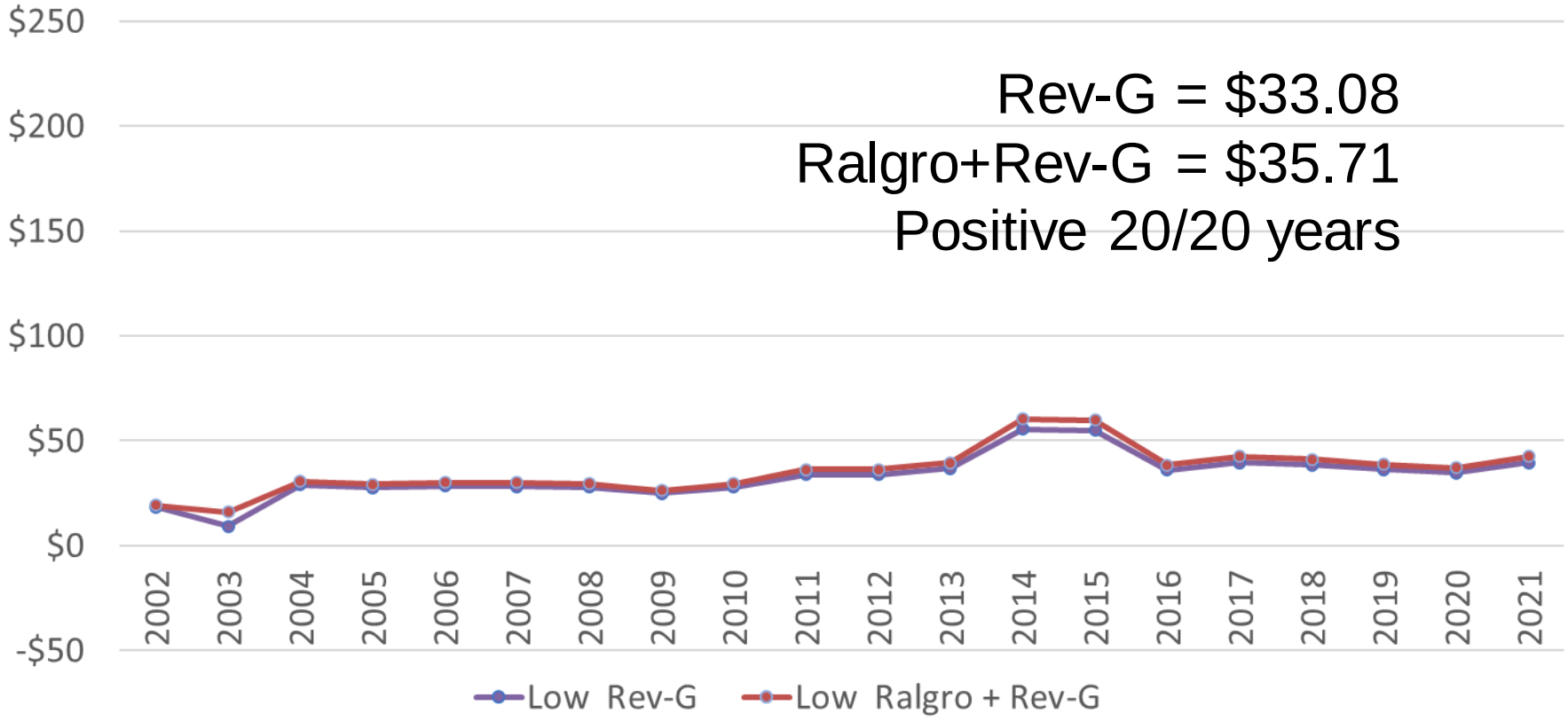

Summer BW gain, lb
100
80
60
40
20
0
78
91
85
54
68
74
NONE
MED
STRNG
NONE
MED
STRNG
Low Gain
High Gain

Economic Decisions
#1 Winter rate of gain



Difference is net revenue from high winter gain with and without implants and low winter gain

Economic Decisions
#2 When to implant (low winter gain)



Rev-G = $33.08
Ralgro+Rev-G = $35.71
Positive 20/20 years

Difference is net revenue from low winter gain with and without implants

Economic Decisions
#3 Winter rate of gain + Implants

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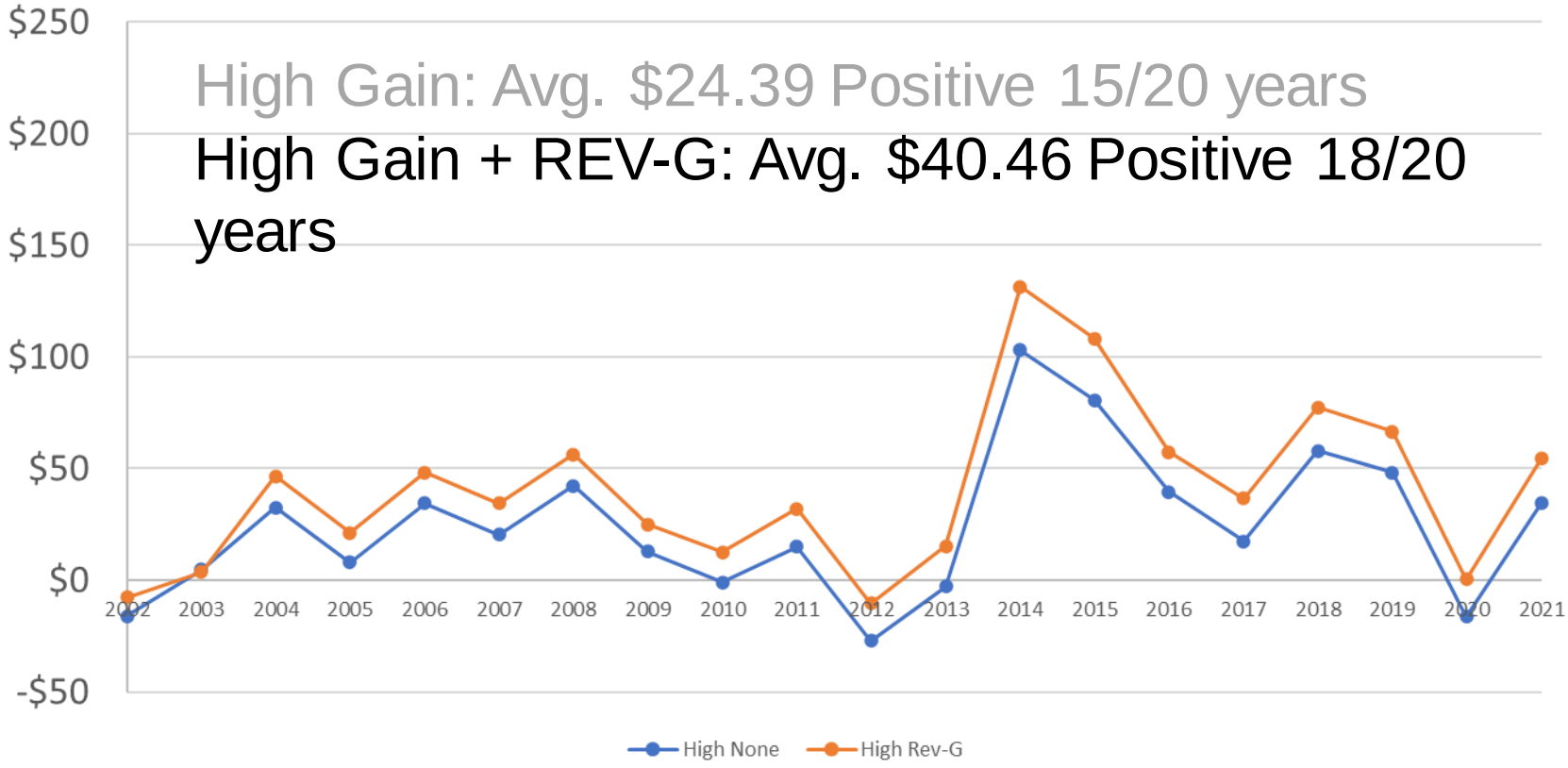
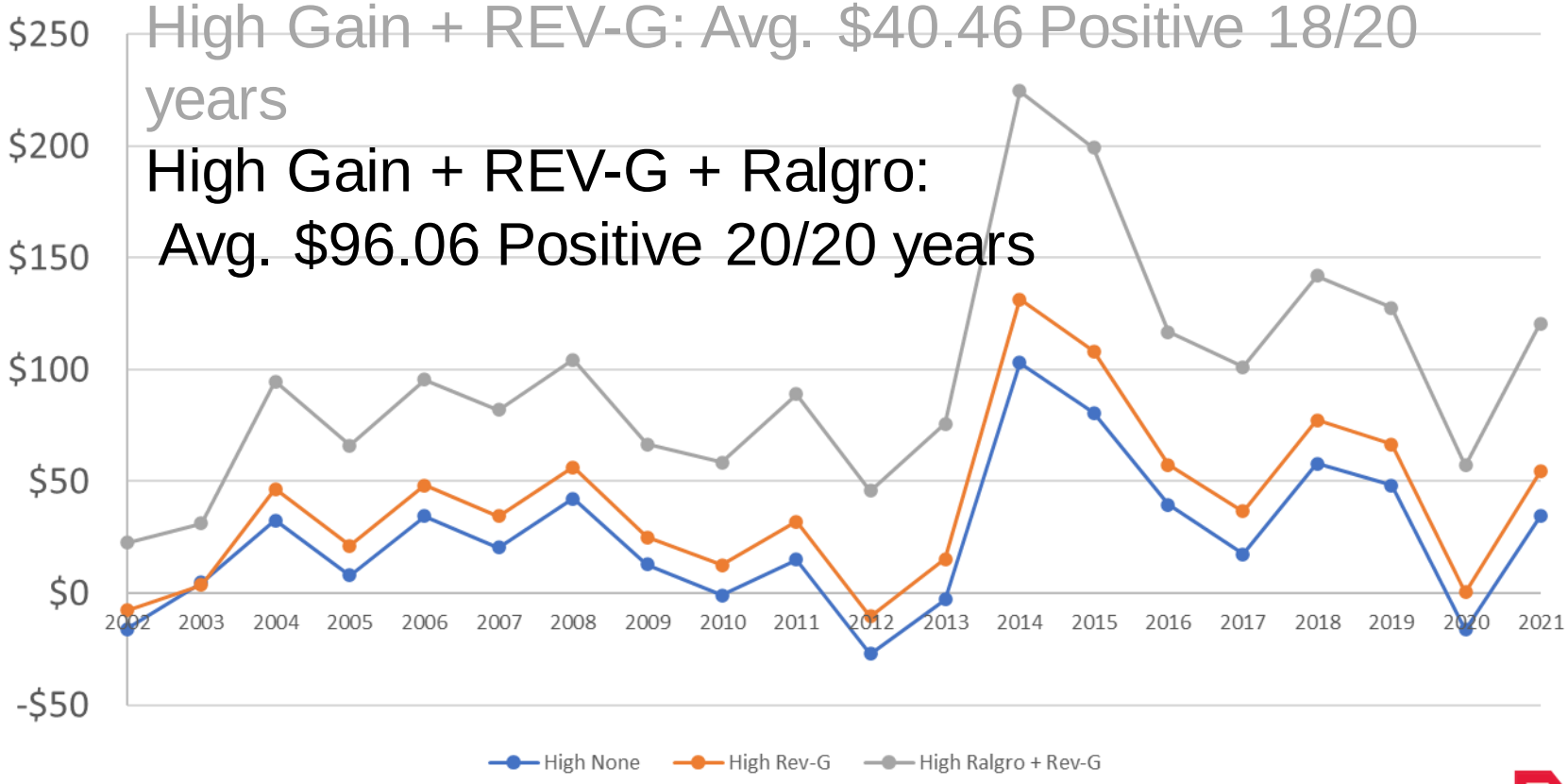


Economic Decisions
#3 Winter rate of gain + Implants

High Gain: Avg. $24.39 Positive 15/20 years

High Gain + REV-G: Avg. $40.46 Positive 18/20 years

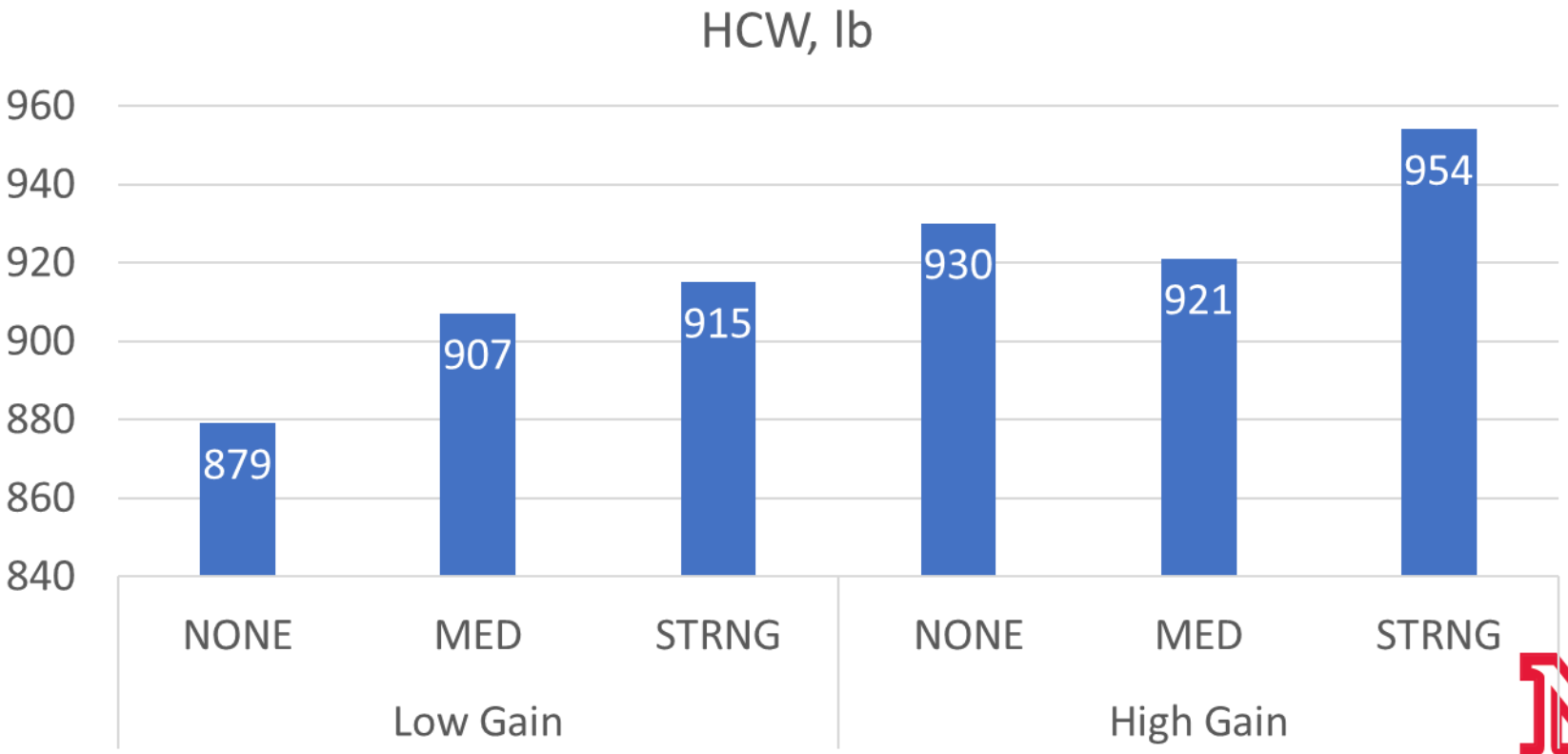
High Gain + REV-G + Ralgro:
Avg. $96.06 Positive 20/20 years



Finishing retained their wt advantage

Ralgro+RevG 30 lbs
Rev G 10 lb

Hi 51 lb
Hi plus implants 75 lb



Take home

- Implanting pays
- Targeting a 2.0 lb rate of gain in winter increases risk but also increases potential reward especially when coupled with implanting
  - If couple high rate of gain and implants, target sell in July?

Take Home

- Most years there is opportunity in backgrounding calves.
- Invest energy and protein during the winter.
- Implants have one of the highest ROI in the industry
  - Natural programs need to pay $30-$100 to offset the value of an implant.

Let’s talk!