


INTEGRATING CROP & BEEF CATTLE SYSTEMS: ALTERNATIVE COW HERD MANAGEMENT

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and

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Winter 2017

- 
- Introductions
 - Information about your farm
 - Calving date
 - Weaning date
 - Marketing
 - Sell off the cow
 - Background? If so, when do you sell
 - Background – retain ownership for summer yearling stocker grazing
 - Grow & Finish on the farm or in custom yard
 - Do you winter graze? If so, how long?

TODAY'S OBJECTIVES

- Introduce Alternative Production Methods
- Crops:
 - Cropping System
 - Soil Health
 - Crop Production
- Livestock
 - Calving Date
 - Relevance of 3rd Trimester
 - Cow Wintering
 - Cover Crop and Crop Residue Grazing
 - Stockpiled Hay Land and Corn Residue Grazing
 - Integrating Yearling Stocker Cattle Into a Diverse Cropping System
 - Long-Yearling – Retained Ownership to End of Extended Grazing
 - Long-Yearling - Retained Ownership to Slaughter



CROP ROTATION

Spring Wheat – Rotation
Cash Crop



Sunflower:
Cash Crop



Cover Crop:
Cows Graze
After Weaning

Diversity



Corn:
Yearling Steers
Beef Income



Field Pea-Barley:
Yearling Steers
Beef Income

No Diversity



Spring Wheat – Control
Cash Crop

Soil Health Principles



Crop Diversity and
Livestock Integration



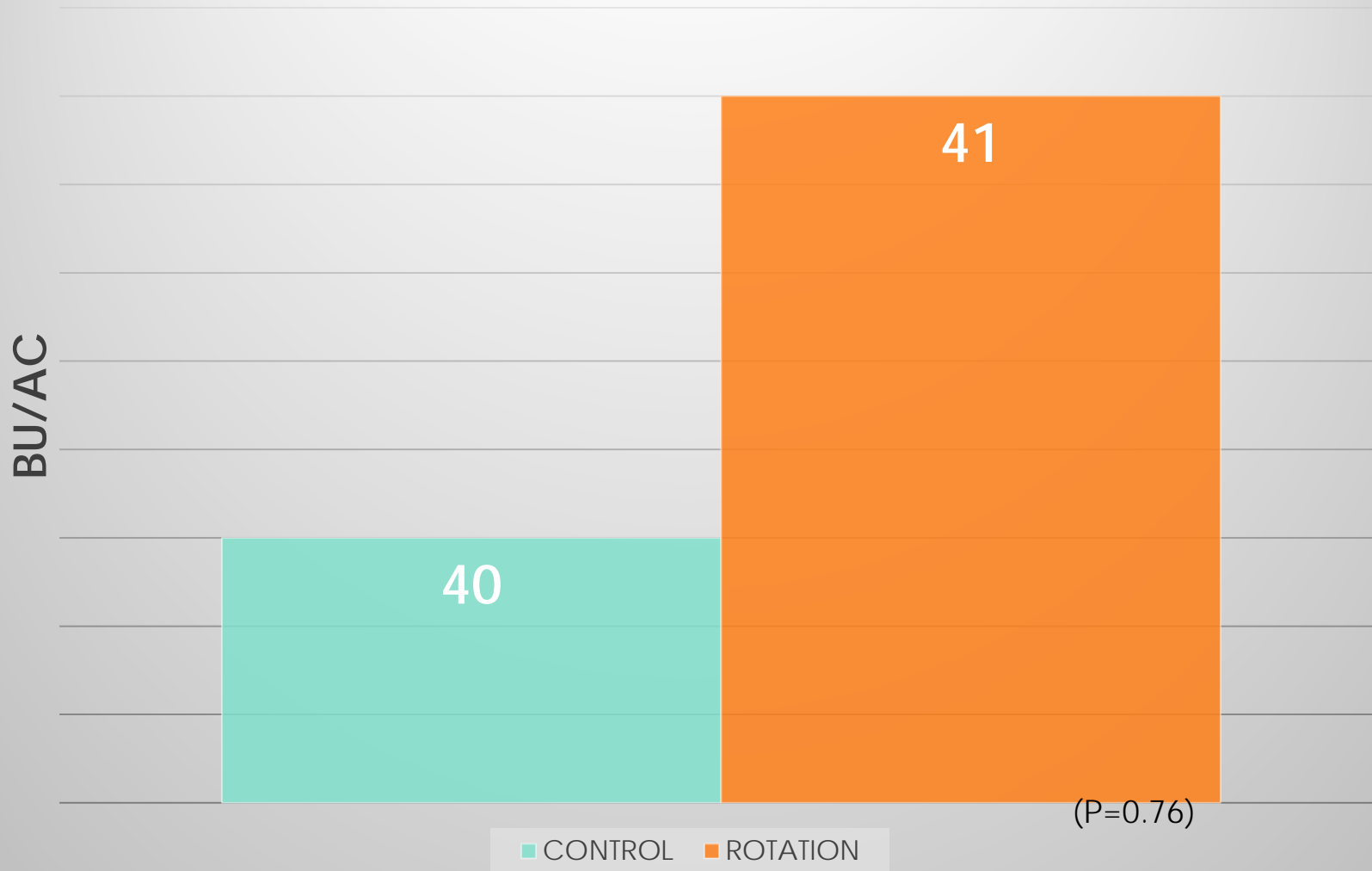
Maintaining a Living root &
Keeping Soil Covered with
Residue

COVER CROP MIX AND COST

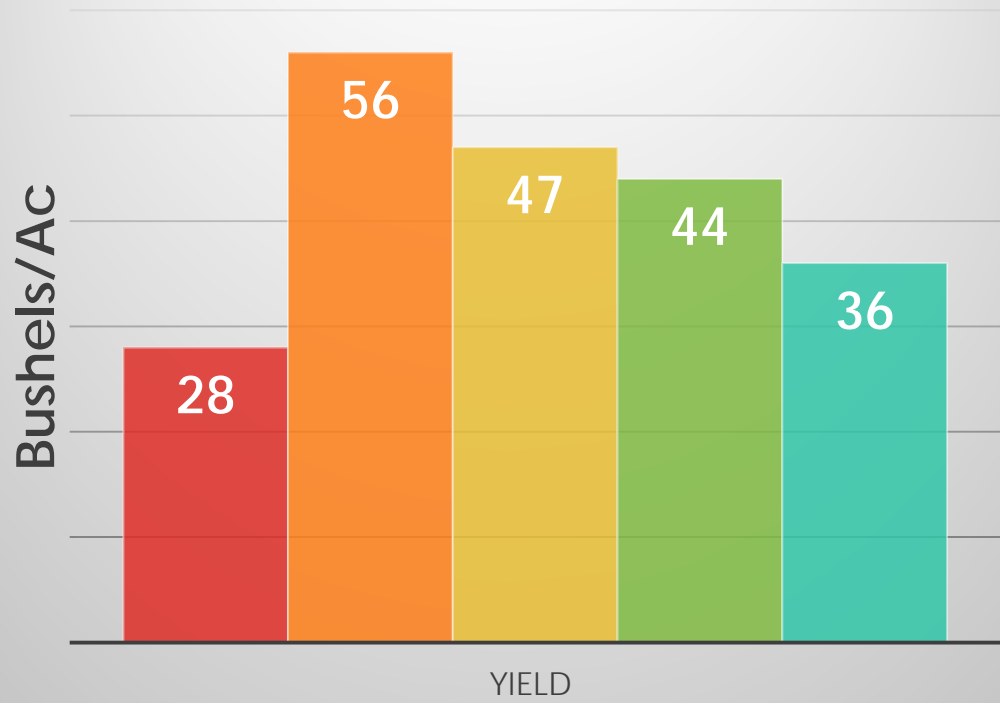
Crops	#/Acre	\$/#	Cost/ Ac, \$
Sunflower	2	4.50	9.00
Everleaf Oat - 114	20	0.37	7.40
Flex Winter Pea	20	0.40	8.00
Hairy Vetch	5	1.75	8.75
Winfred Forage Rape	1	3.50	3.50
Ethiopian Cabbage	1	4.00	4.00
Hunter Leaf Turnip	1	3.50	3.50
Cost/Ac			44.15
Farming Cost & Property Tax/Ac			23.85
Cover Crop Cost/Ac			68.00
Cover Crop Grazing Cost/Cow, \$			36.55



HARD RED SPRING WHEAT 5 YR AVERAGE: CONTINUOUS vs ROTATION

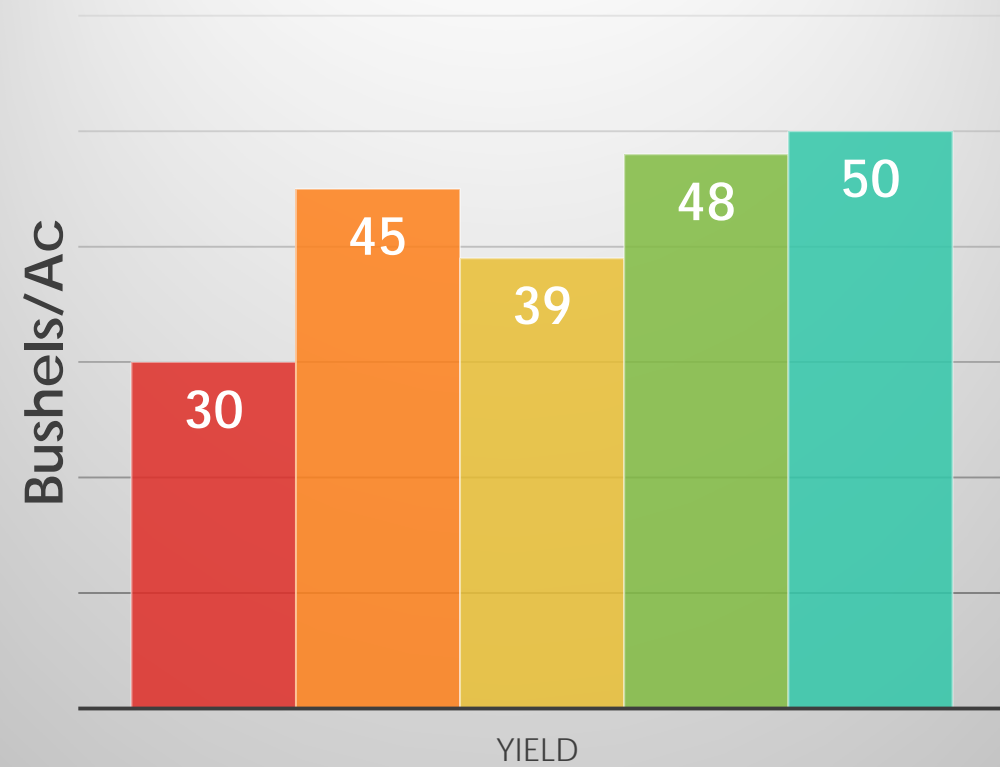


Spring Wheat - Control



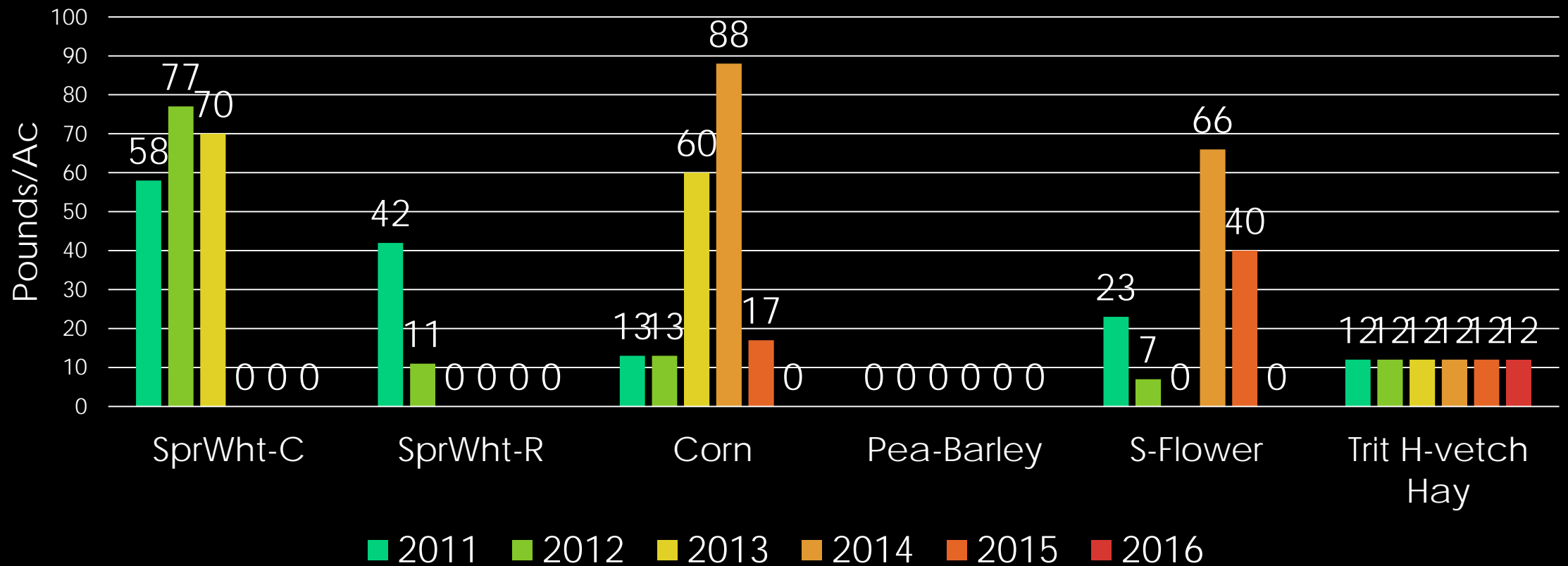
2011 2012 2013 2014 2015

Spring Wheat - Rotation



2011 2012 2013 2014 2015

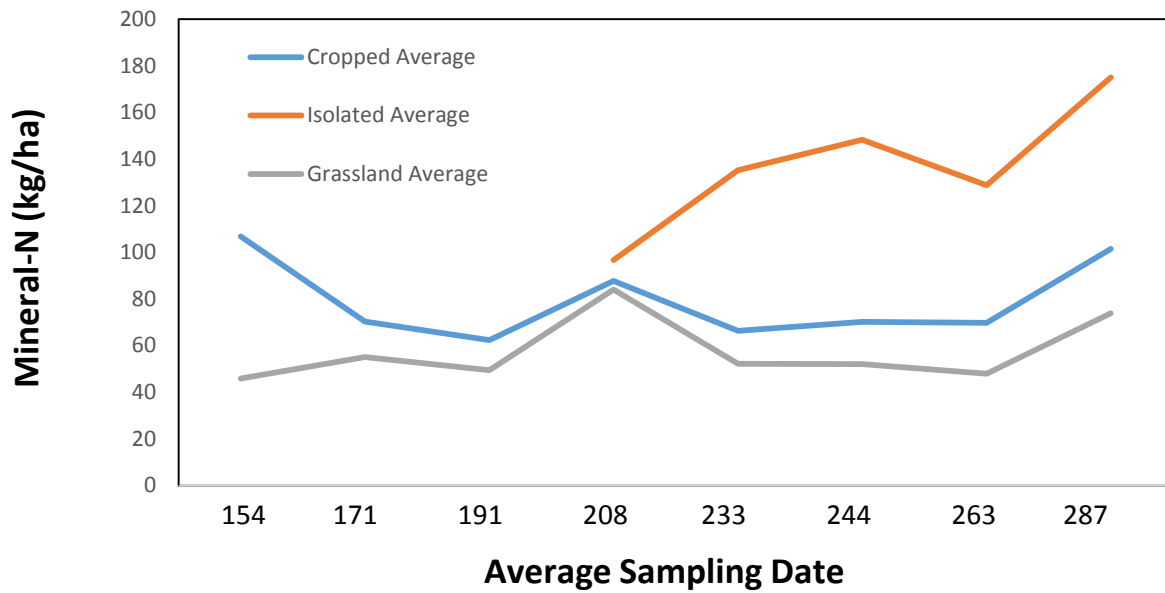
ANNUAL NITRATE-N FERTILIZER APPLICATION (2011-2016)



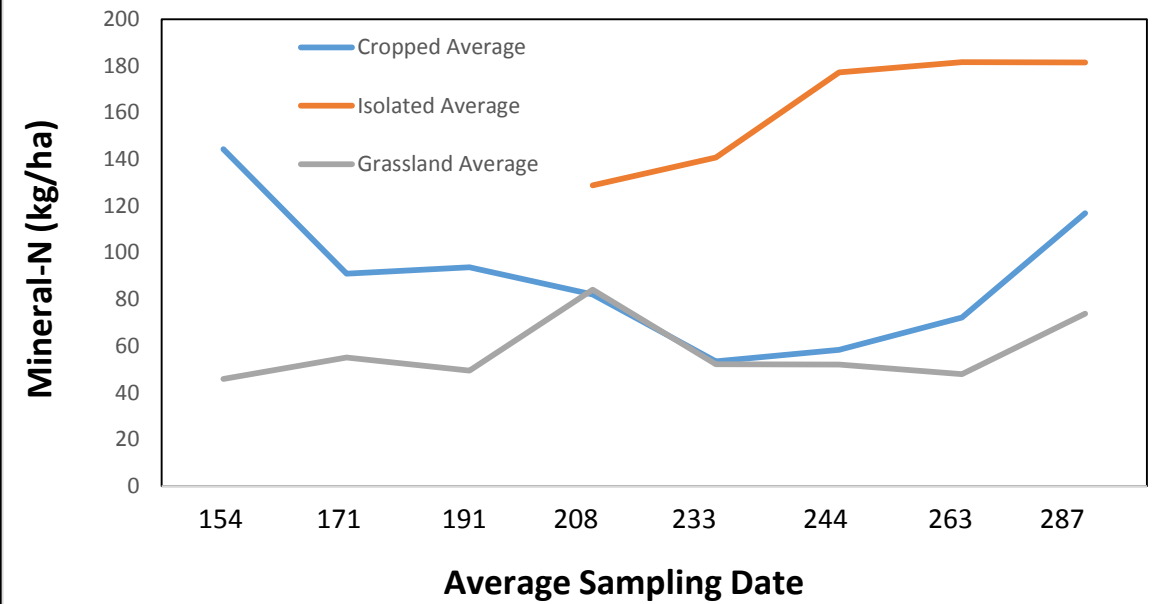


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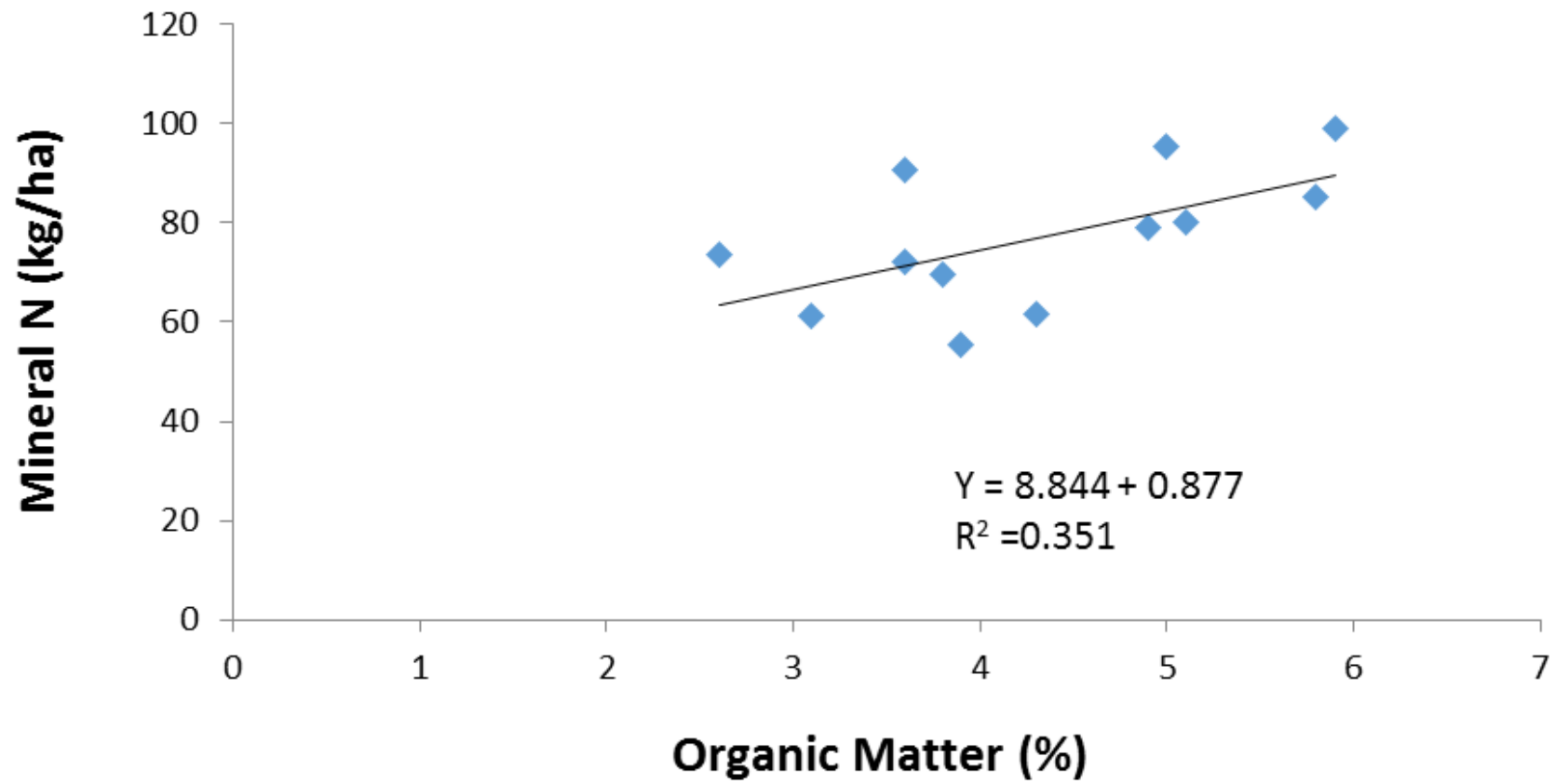
Spring Wheat Mineral-N (2014 and 2015) - Control



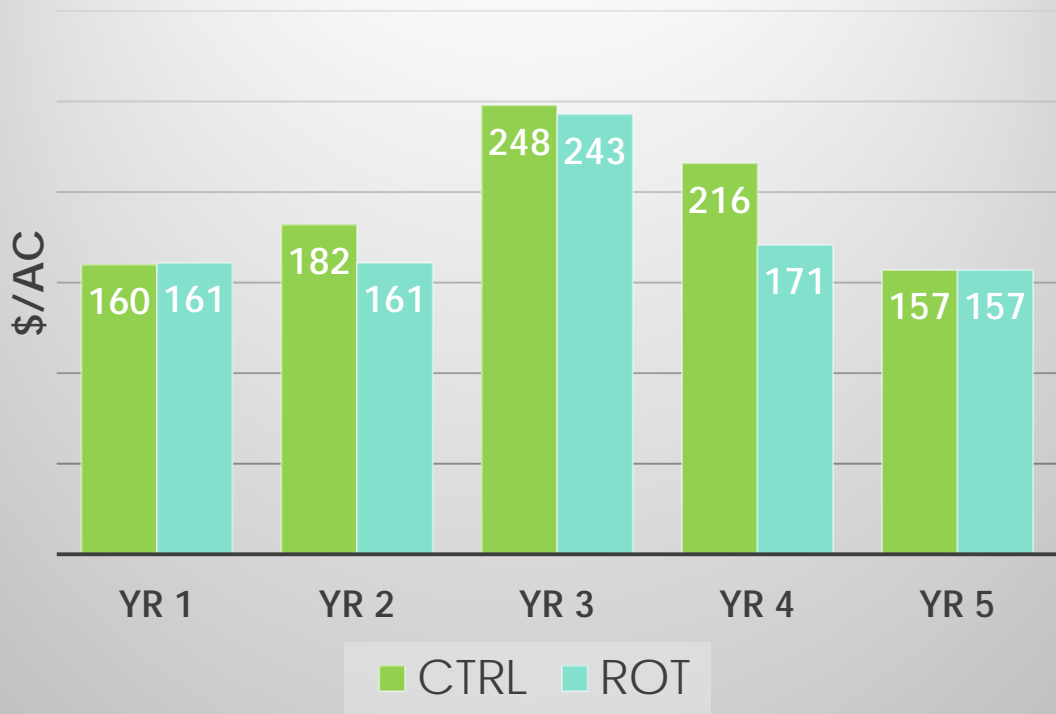
Soil Mineral-N (2014 and 2015) - Rotation



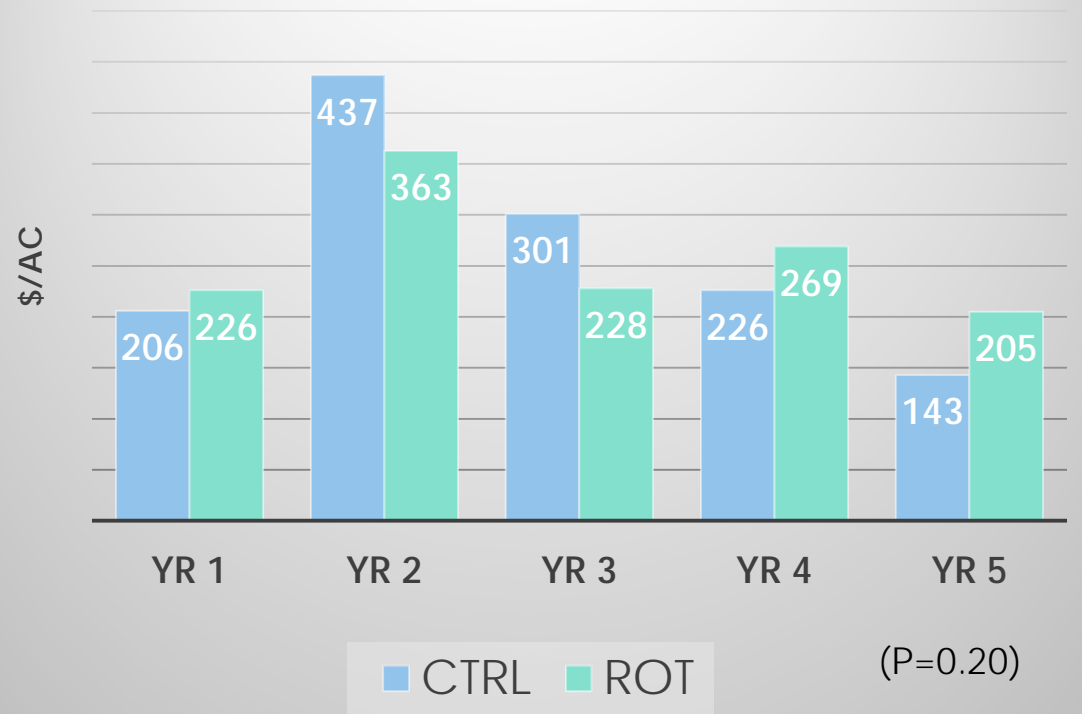
Mineral N vs. Organic Matter



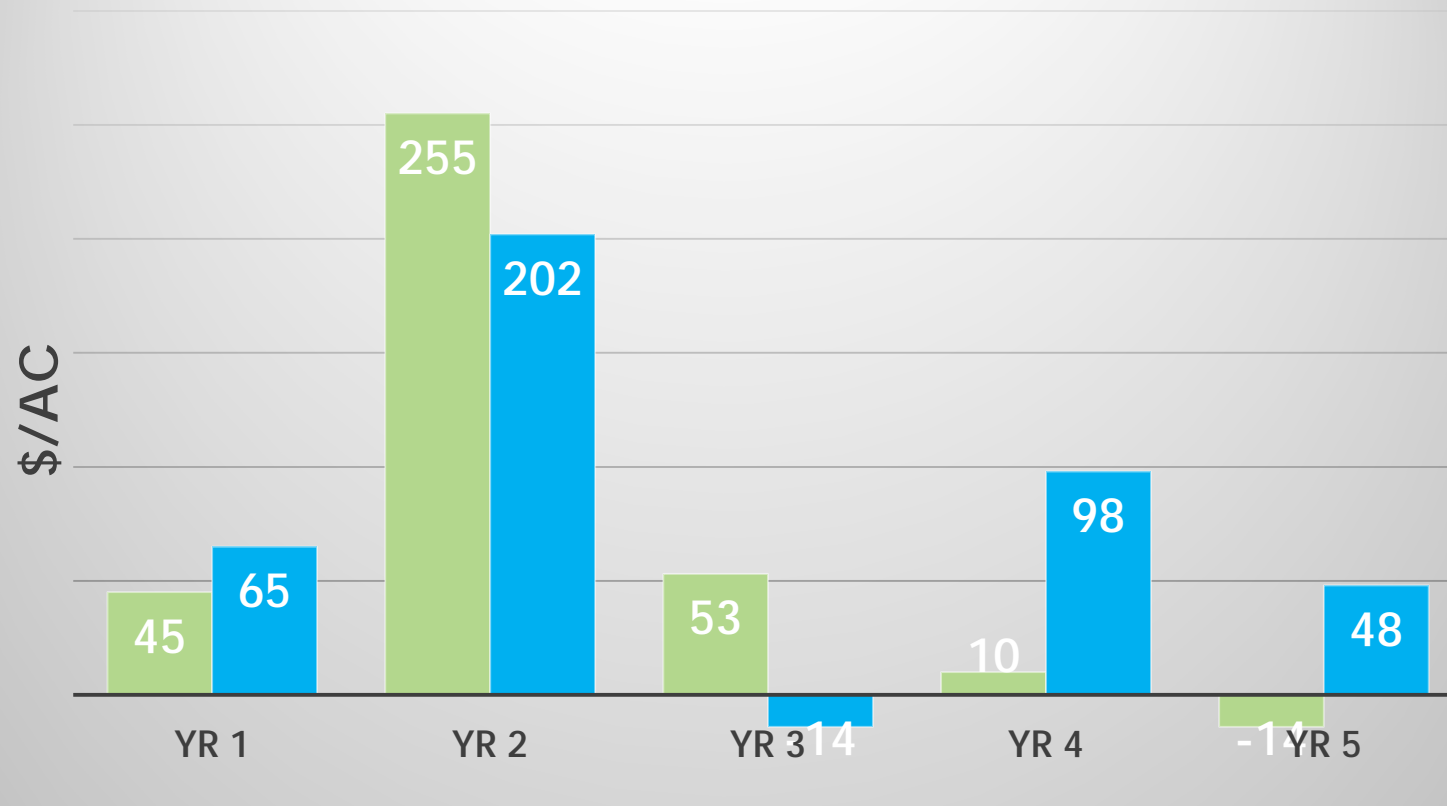
INPUT COST/AC



GROSS RETURN



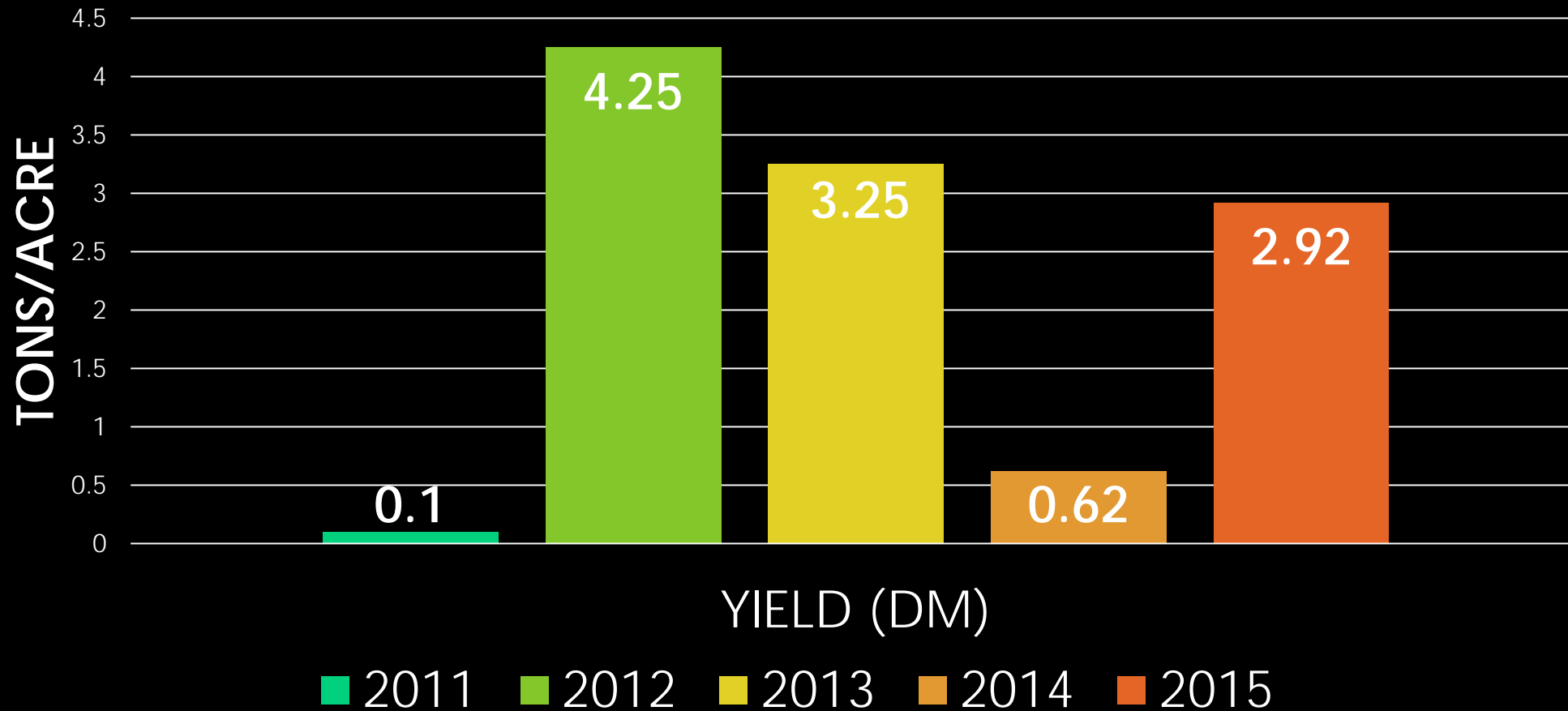
NET RETURN



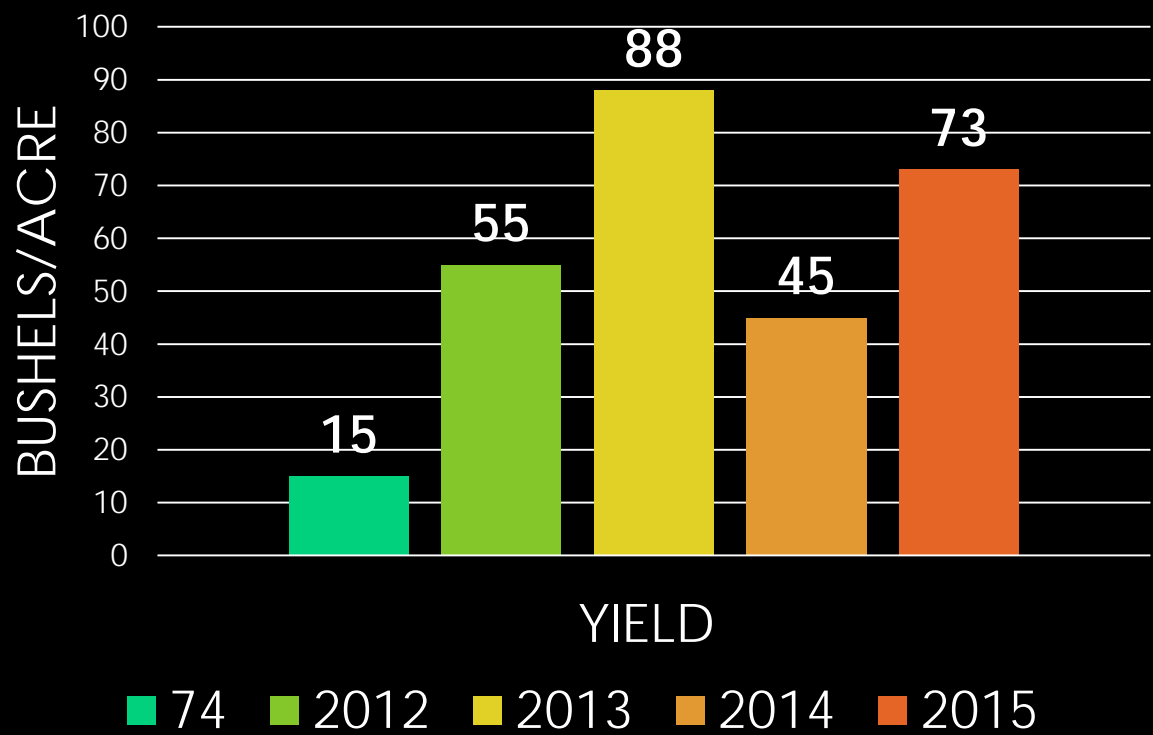
■ CTRL ■ ROT

(P=0.15)

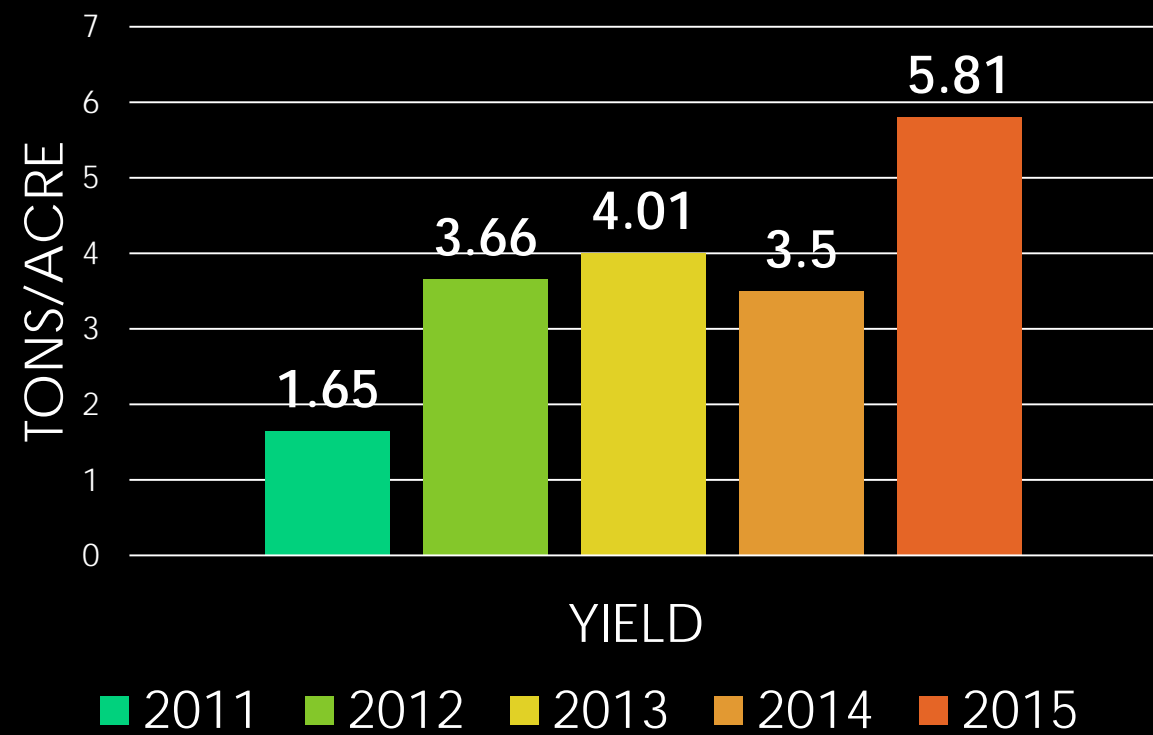
MULTI-SPECIES COVER CROP



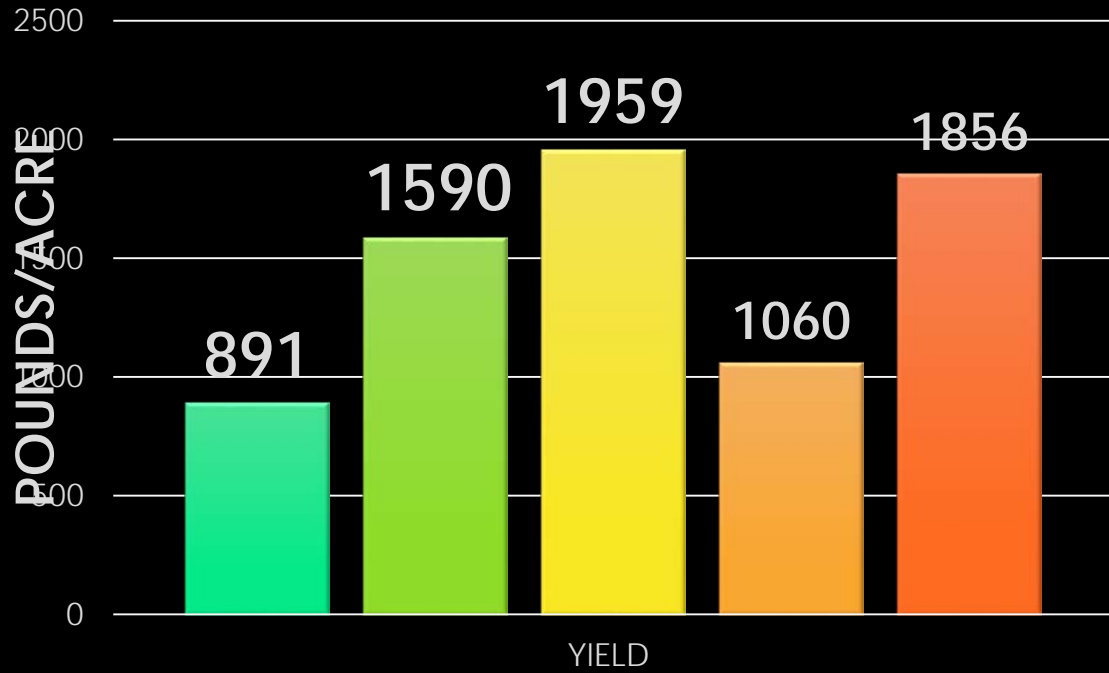
CORN - GRAIN



CORN - SILAGE

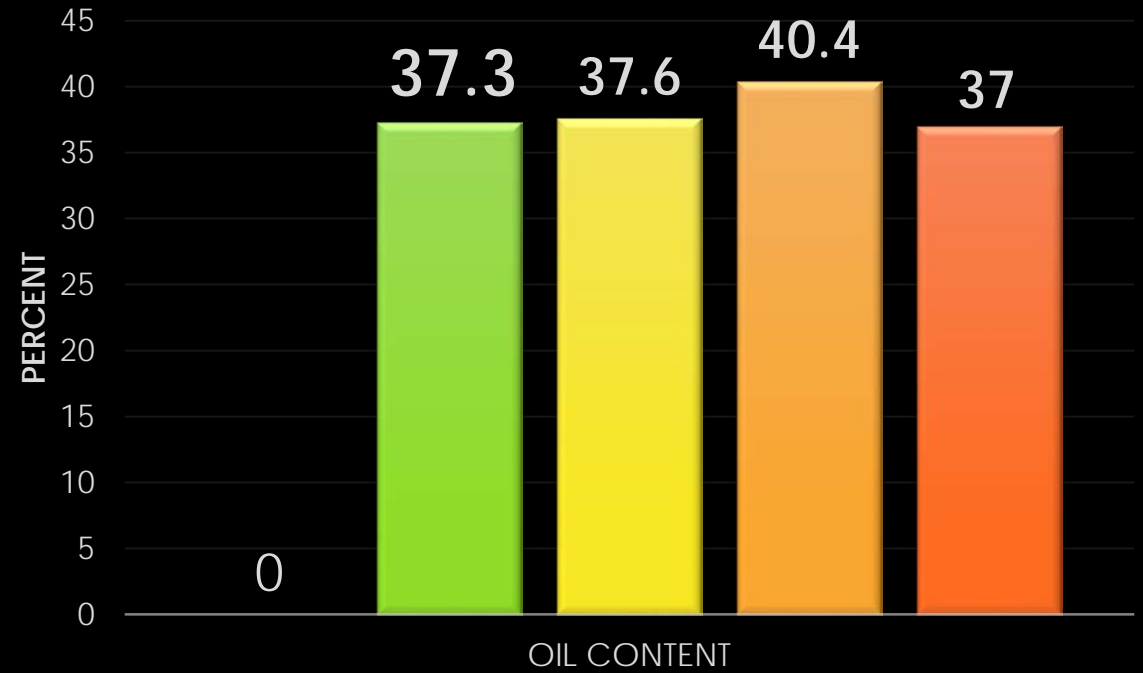


SUNFLOWER



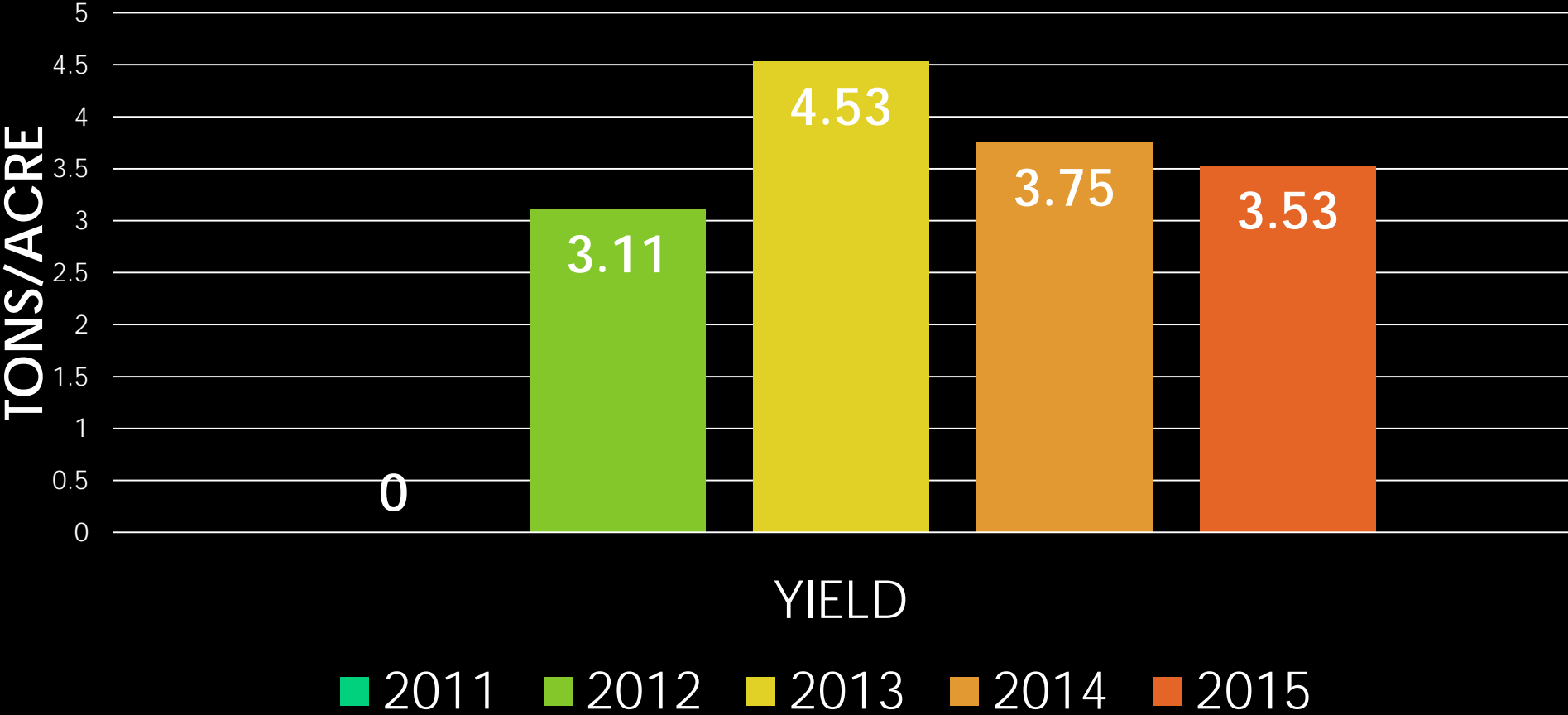
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SUNFLOWER

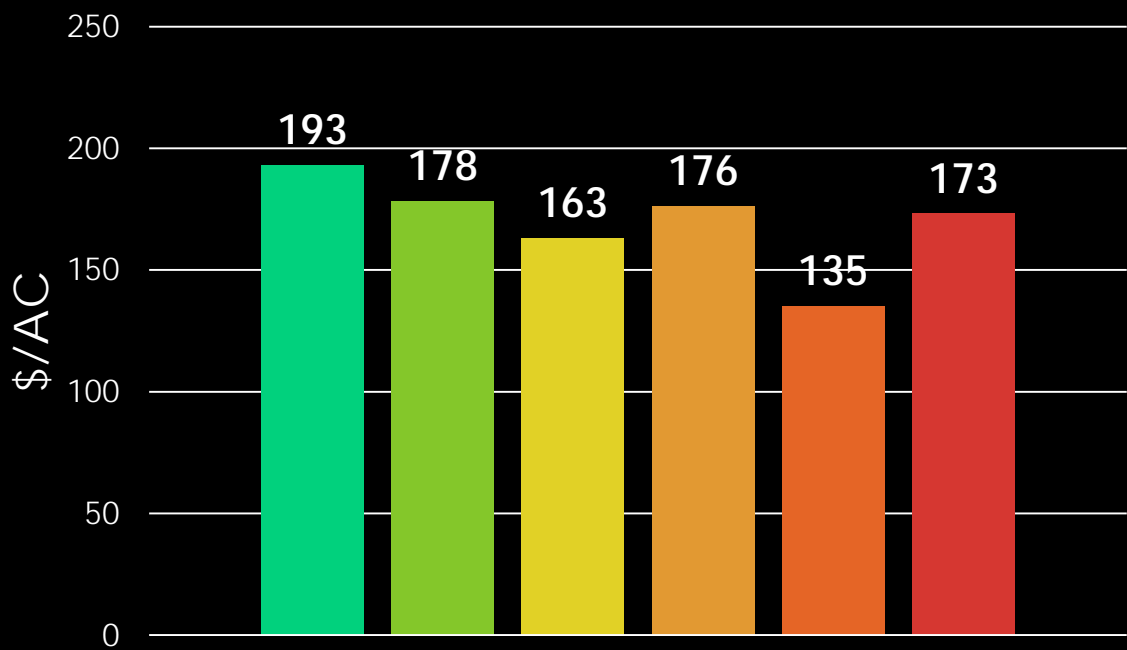


2011 2012 2013 2014 2015

FIELD PEA-BARLEY FORAGE



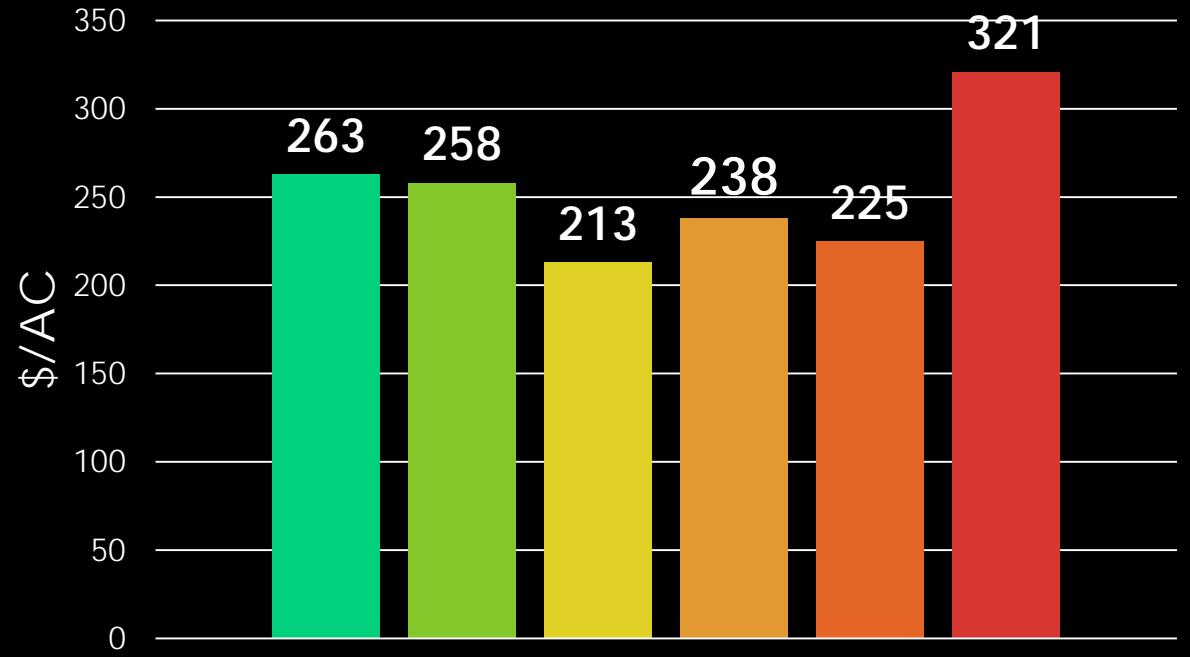
CROP ROTATION: 5-YR INPUT COST



■ HRSW-CTRL ■ HRSW-ROT ■ CVR CROP
■ CORN FORAGE ■ PEA-BARLEY ■ SUNFLOWER

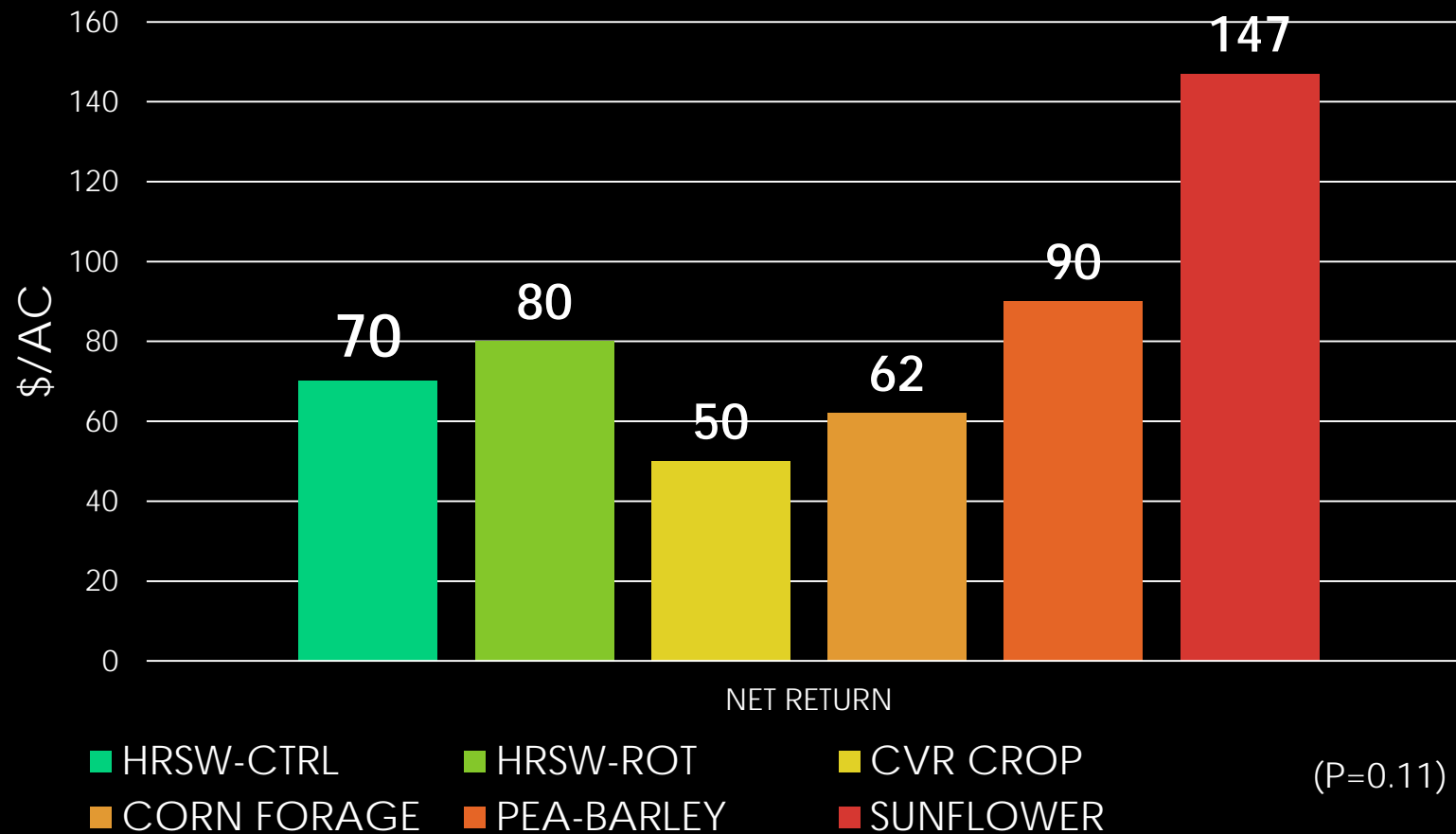
(P=0.0001)

CROP ROTATION: 5-YR GROSS RETURN



■ HRSW-CTRL ■ HRSW-ROT (P=0.02)
■ CVR CROP ■ CORN FORAGE

CROP ROTATION: 5-YR NET RETURN



Control Wheat



Rotation Wheat



MAY – JUNE CALVING

- Opportunities:
 - Less Facilities
 - Less Calving Difficulty (Dystocia)
 - Reduced Labor and Handling
 - Focus on Other Work
- Match 3rd Trimester Feed Requirement to the Environment
- Potential to Capture More Profit
 - Graze Cover Crops
 - Retained Ownership
 - Extended Grazing
 - Perennial Pasture and Annual Forage Grown on Cropland

CALVING DATE SUCCESS FACTORS

	Mar-Apr	May-June
Bull Turnout Date	Jun 1	Aug 1
Avg Calving Date	Mar 15	May 25
Start of 3 rd Trimester	Dec 12	Feb 12
Weaning Age	205	205
Weaning Date	Nov 9	Dec 16
Weaning Weight	598	599
Adj 205 Day Weight	640	639

	Mar-Apr	May-June
% of Cows Calving	98.5	97.4
% Calf Death Loss	6.5	3.7
% Cows Weaning Calves	92	94

COMPARISON OF WINTER FEEDING METHODS

1. HAY CONTROL – HAY AND SUPPLEMENT
2. GRAZE COVER CROP, CORN AND SUNFLOWER RESIDUES
3. GRAZE STOCKPILED GRASS PASTURES AND CORN RESIDUE

- 2-Year Study
- 144 May-June Calving Cows
- 48 Cows/Treatment
- Wintering Period – 134 Days
(November – April)
- Owned Land

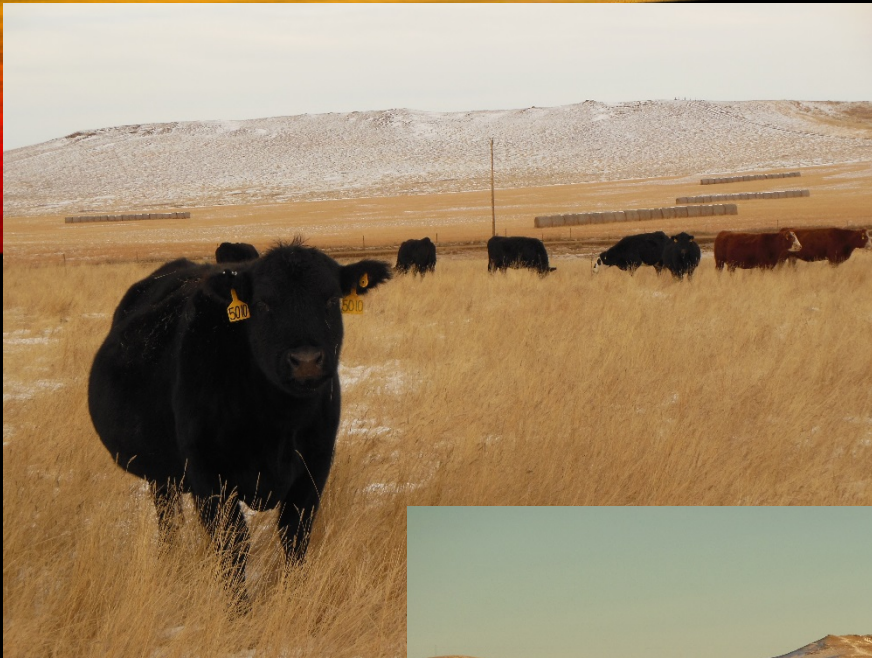
- Supplement:
2.0 Lb/Cow/Day
(32% CP); \$339.25/T
- Hay Cost: \$65/T
- Breeding Started August 10
- Farming Cost Charged to the
First Enterprise

COWS: EXTENDED GRAZING SEASON

- Cover Crop
- Corn and Sunflower Residue



Cows: Extended Grazing Season



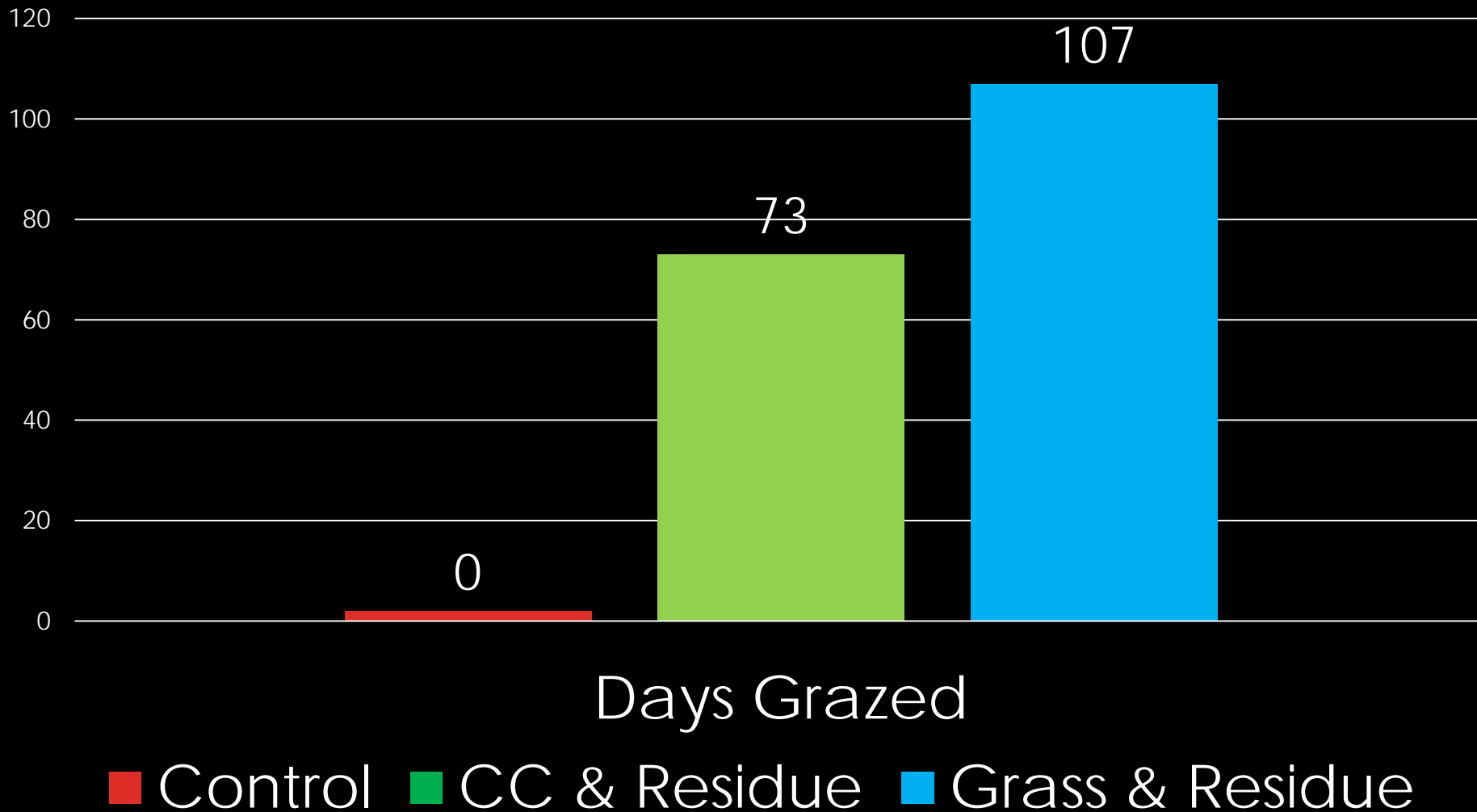
- ▶ Stockpiled tame pasture
- ▶ Corn stalk residue



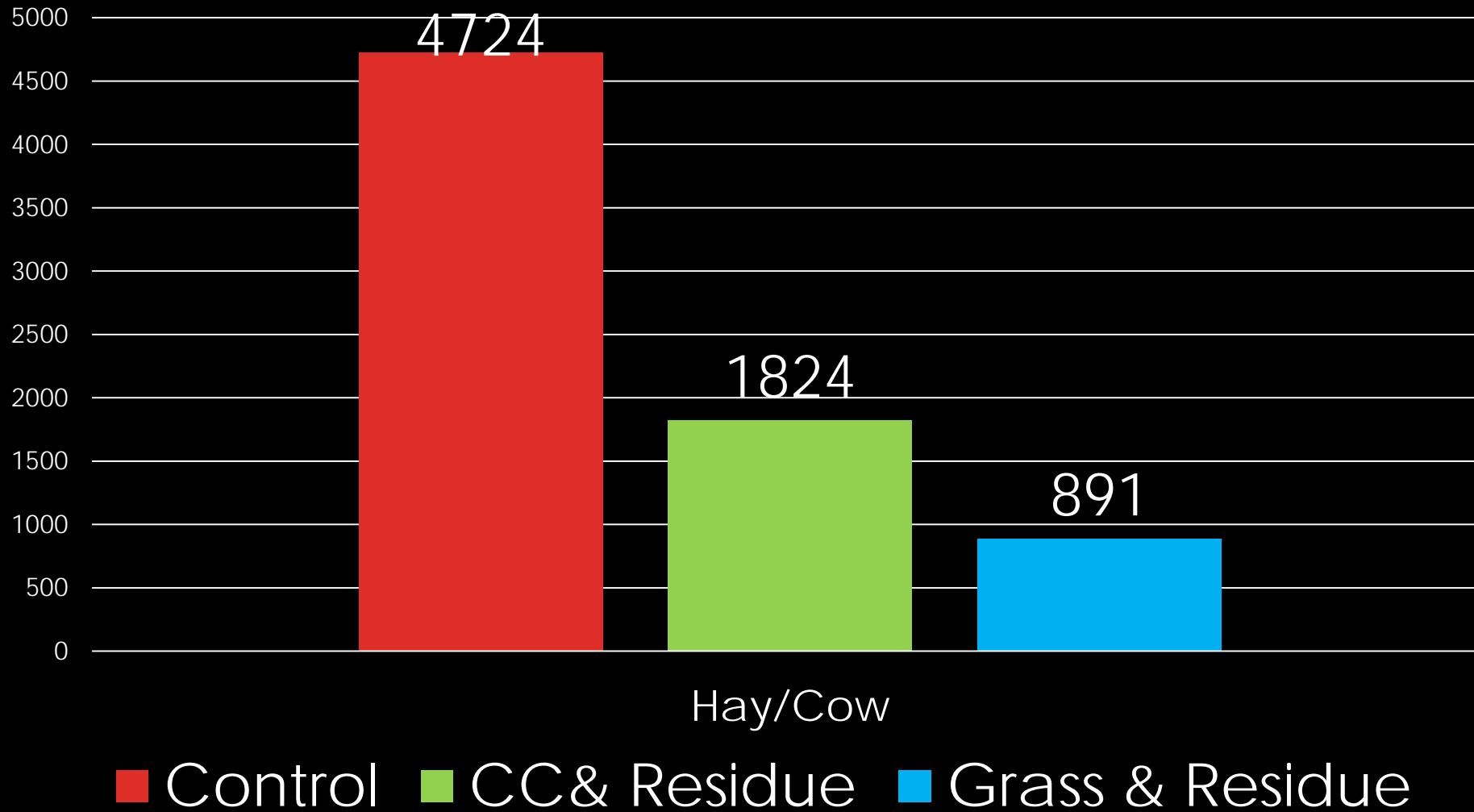
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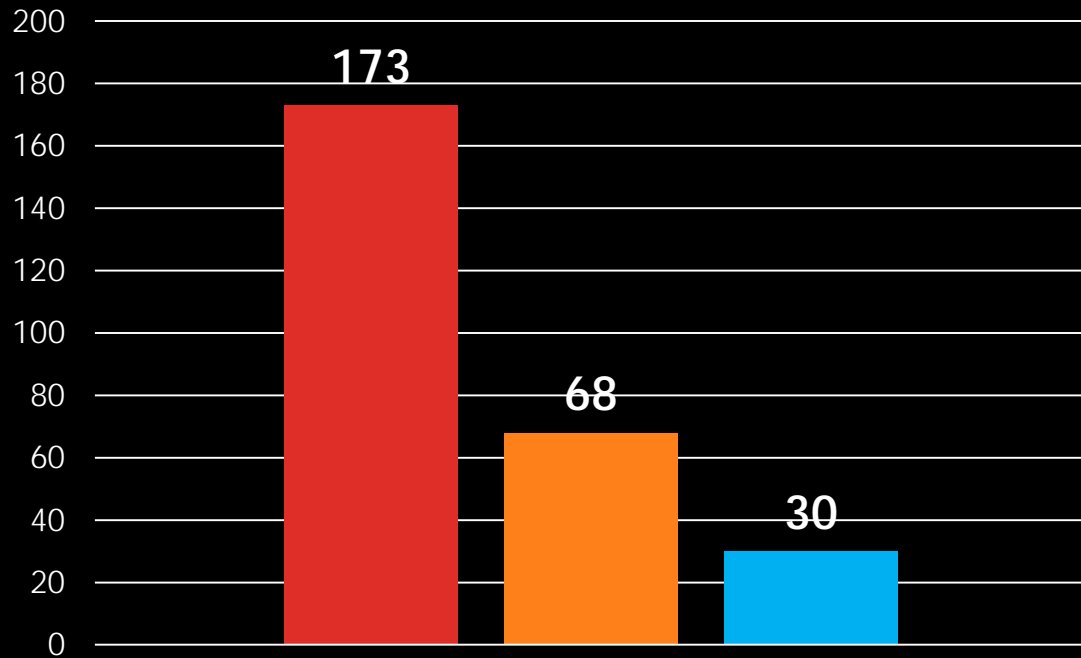
DAYS OF WINTER GRAZING



WINTER HAY FED PER COW

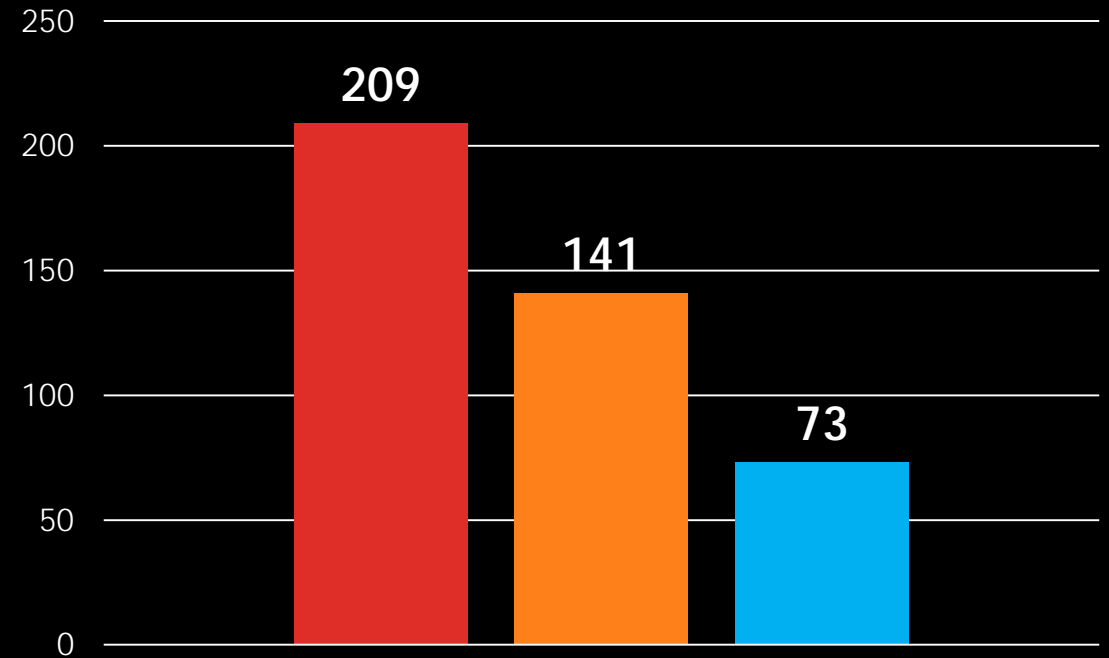


Hay Cost/Cow, \$



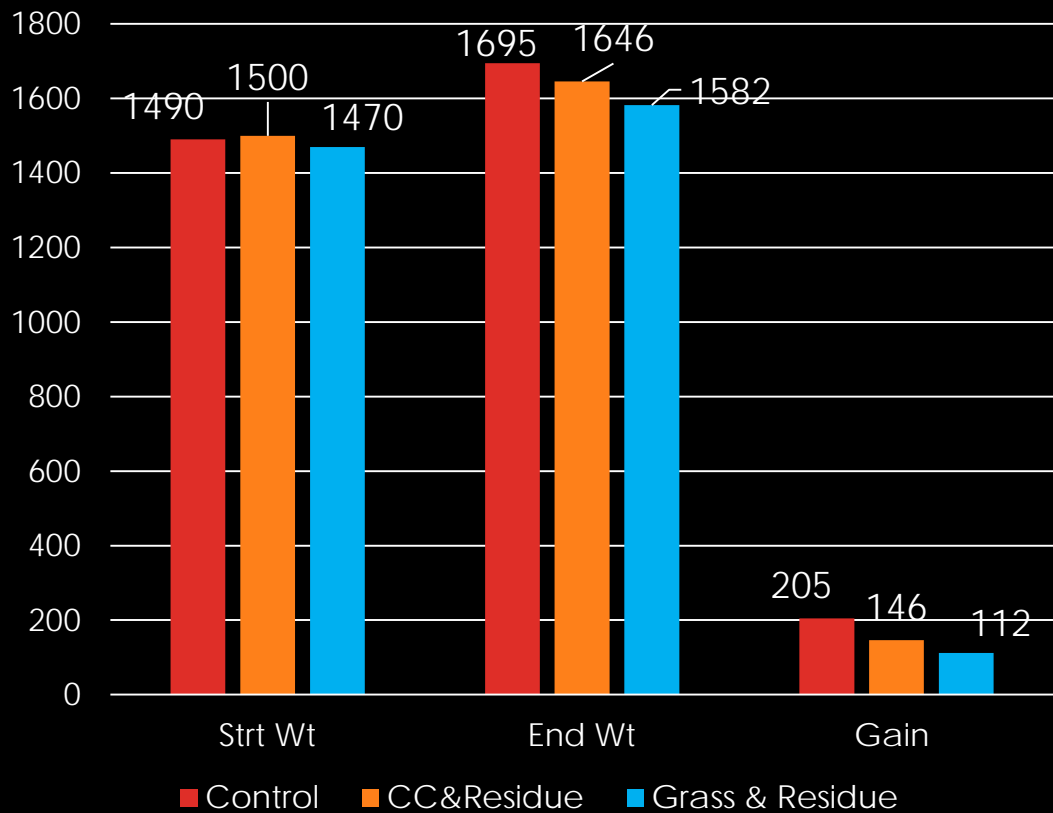
■ Control ■ CC & Residue
■ Grass & Residue

Total Winter Feed Cost/Cow

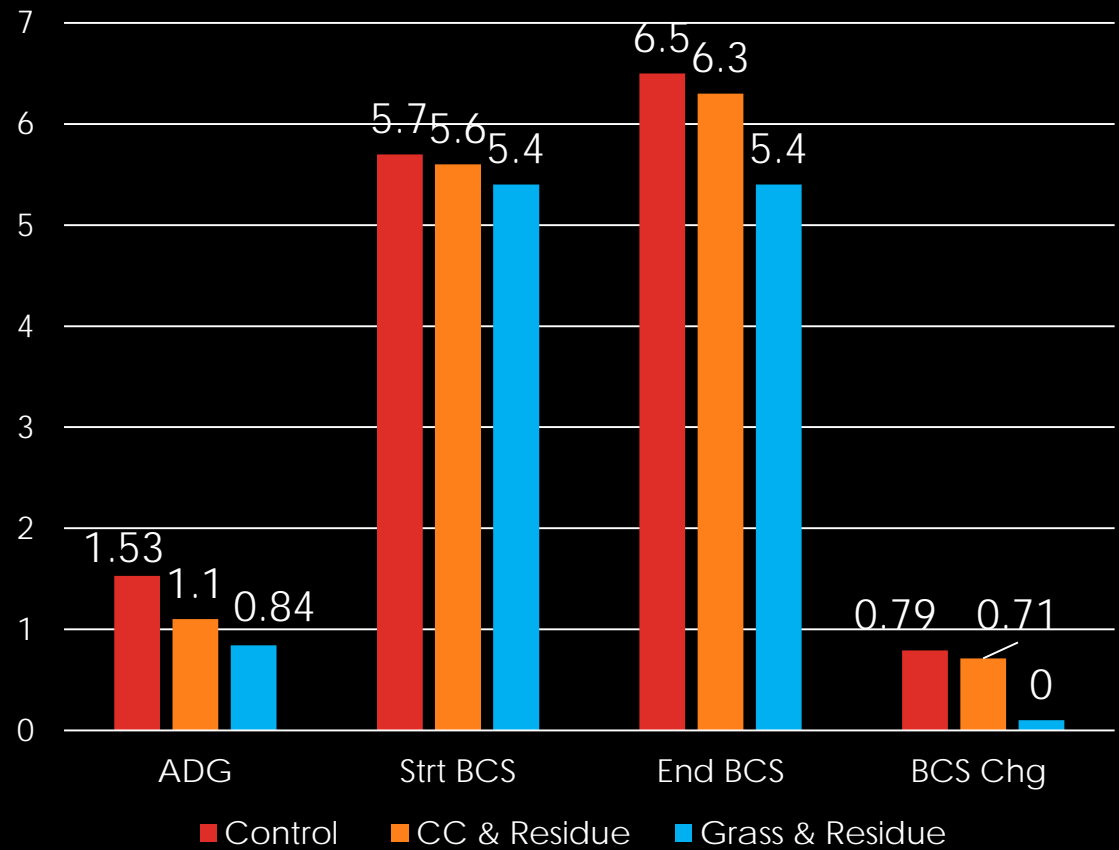


■ Control ■ CC & Residue
■ Grass & Residue

Cow Wt. Gain, lb

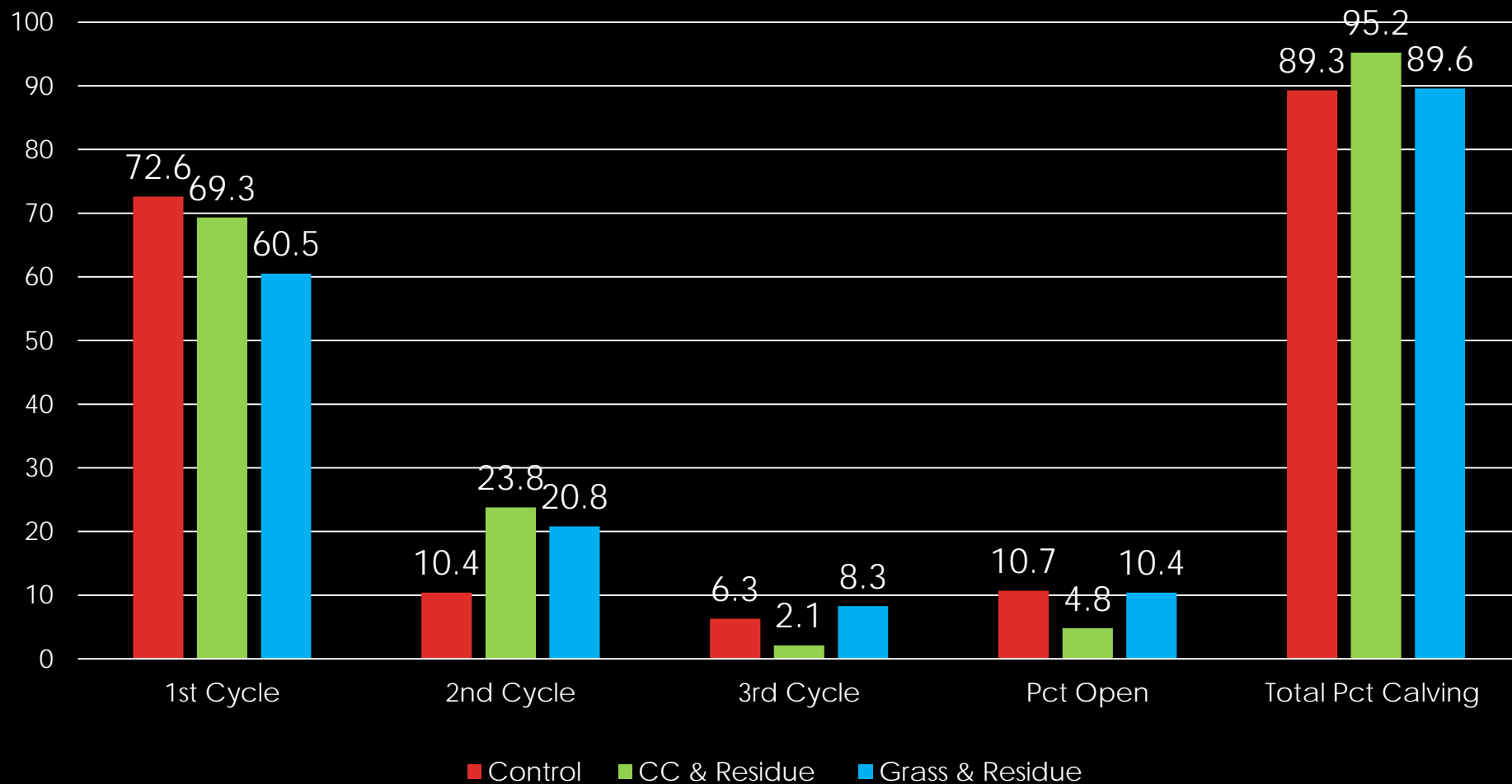


BCS Change



REPRODUCTIVE PERFORMANCE

Breeding Cycle Calving Percent



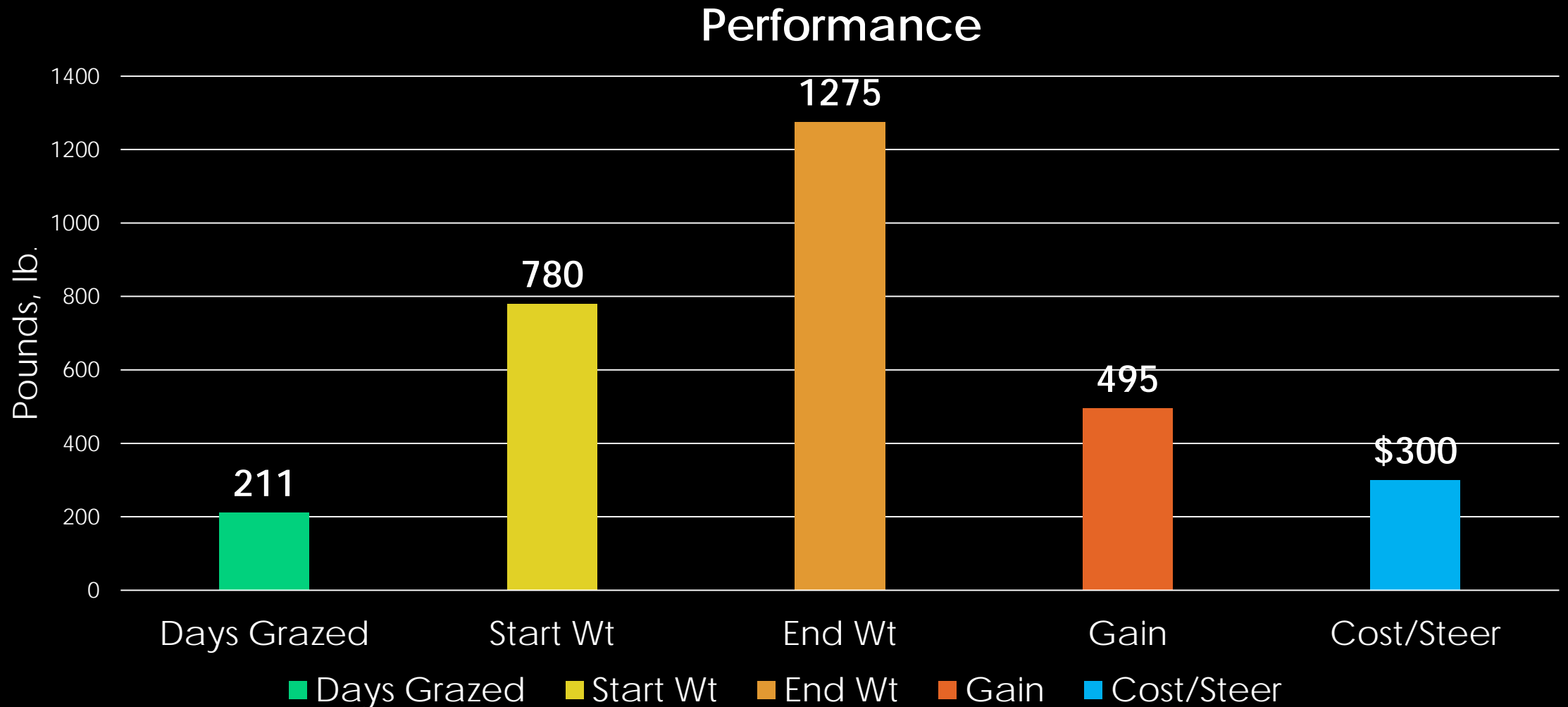


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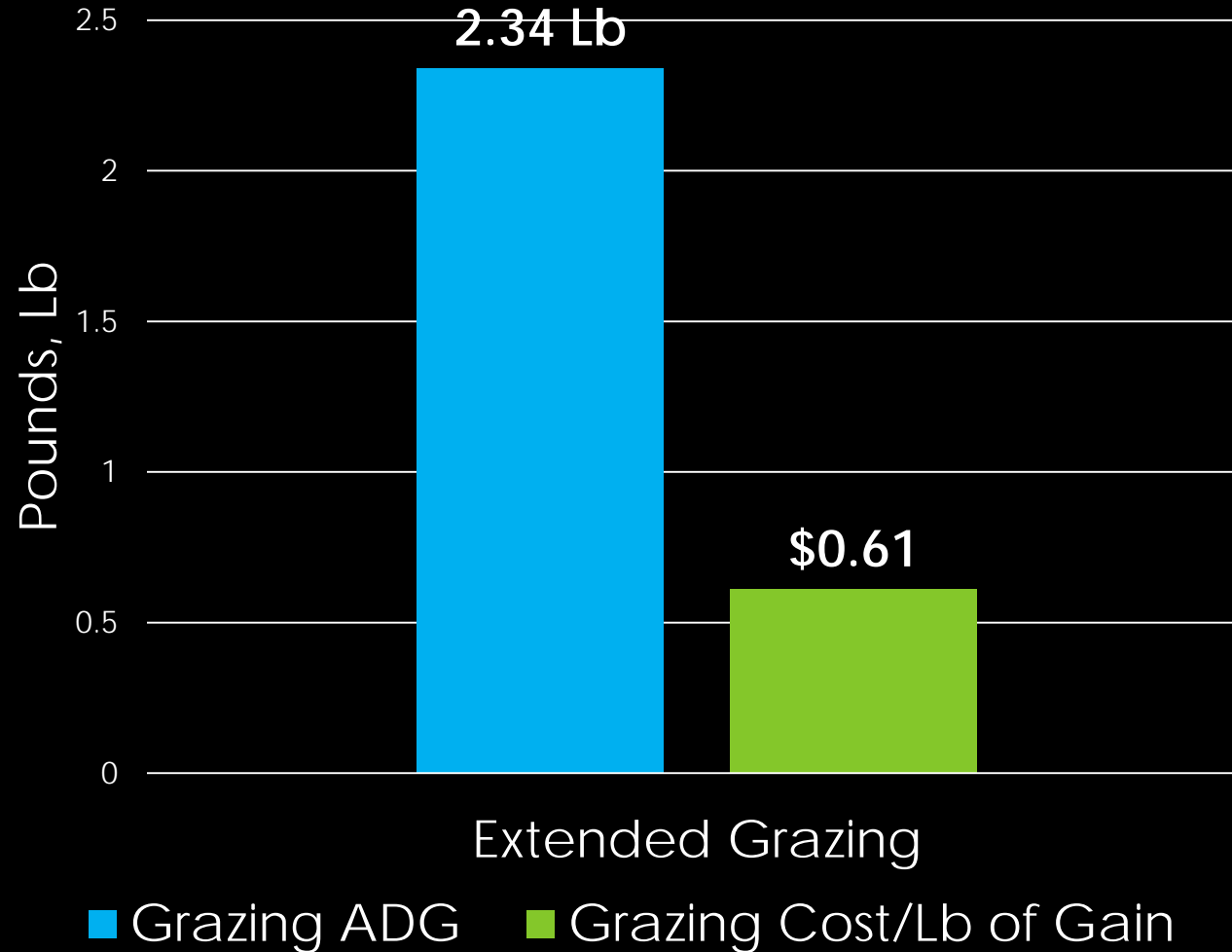
RETAINED OWNERSHIP TO END OF GRAZING



YEARLING STOCKER GRAZING PERFORMANCE



GAIN & GRAZING COST/LB OF GAIN



GRAZING SEQUENCE COST/STEER



YEARLING STOCKER ANNUAL FORAGE GRAZING NET RETURN

	\$
Annual Cow Cost	603
Backgrounding Cost	153
Grazing Cost/Steer	300
Total Cost	1056
End Grazing Steer Value	1256
Grazing Net Return/Steer*	200
Net Return/Ac	186
*(As of 1-19-2017)	

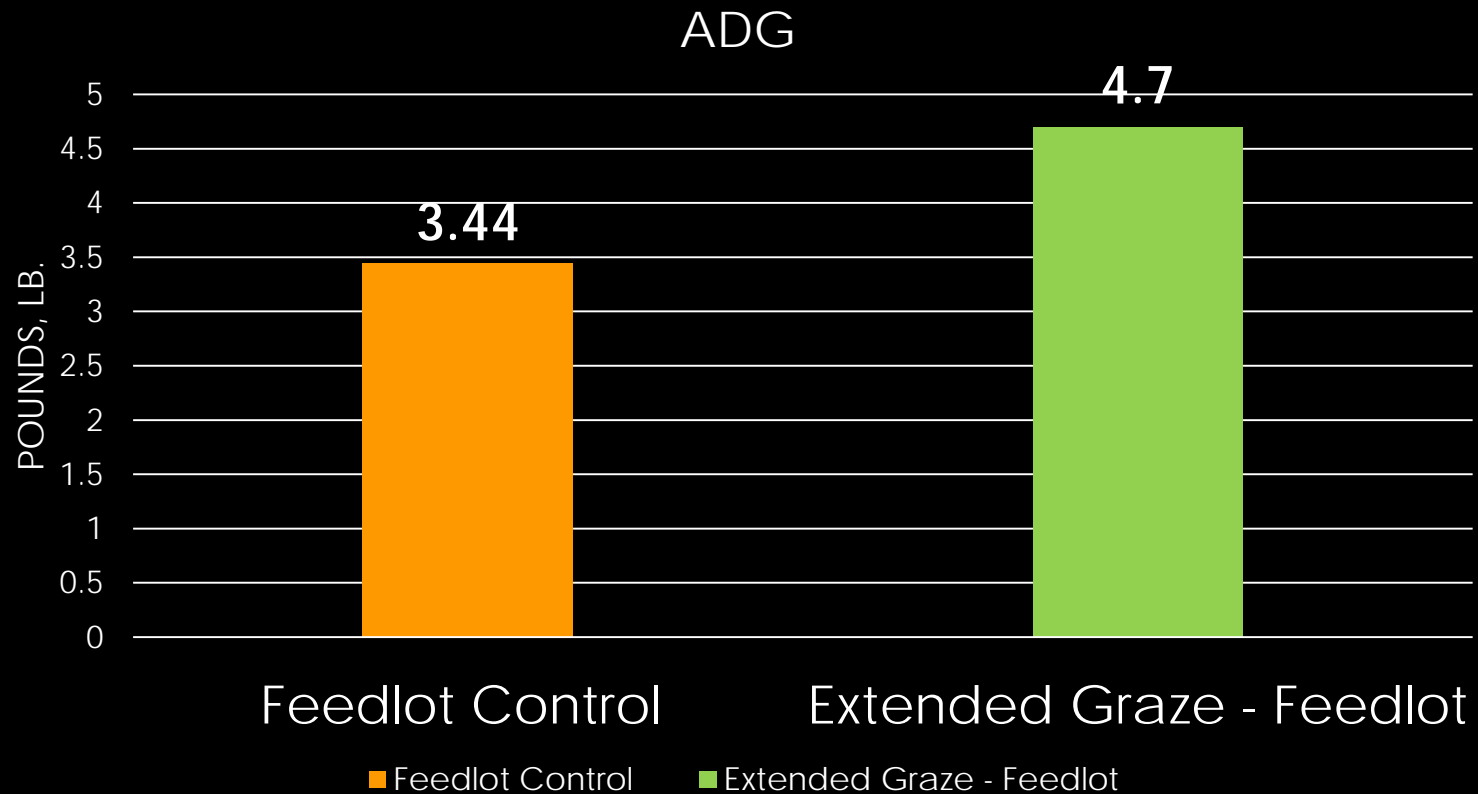


Stocker Retained Ownership – From End Grazing to Slaughter



Feedlot Days On Feed :
Control – 211, Graze - 82

YEARLING STOCKER FEEDLOT ADG (82 DAYS ON FEED)

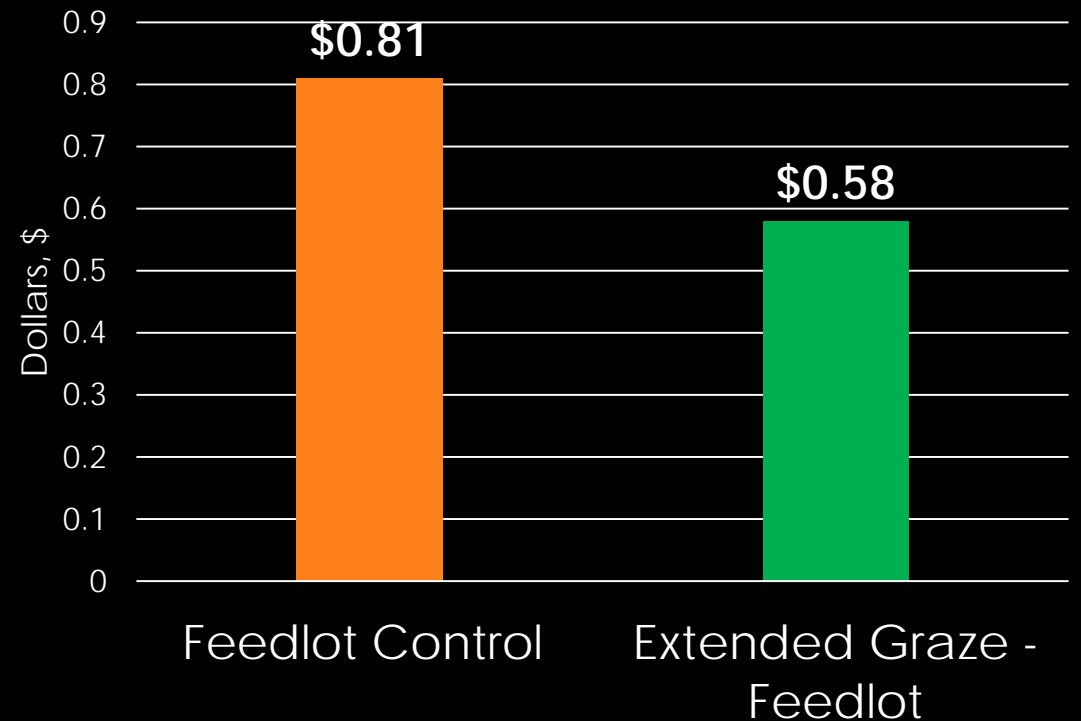


YEARLING STOCKER FEEDLOT PERFORMANCE

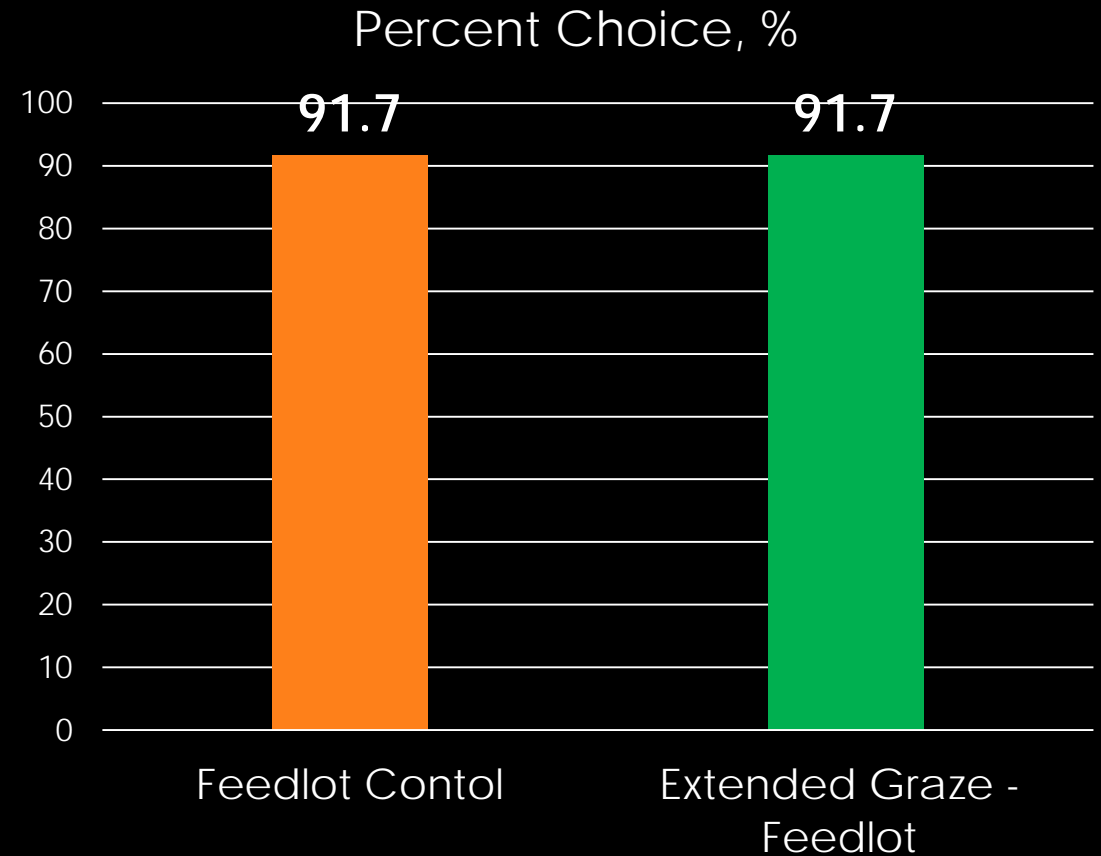
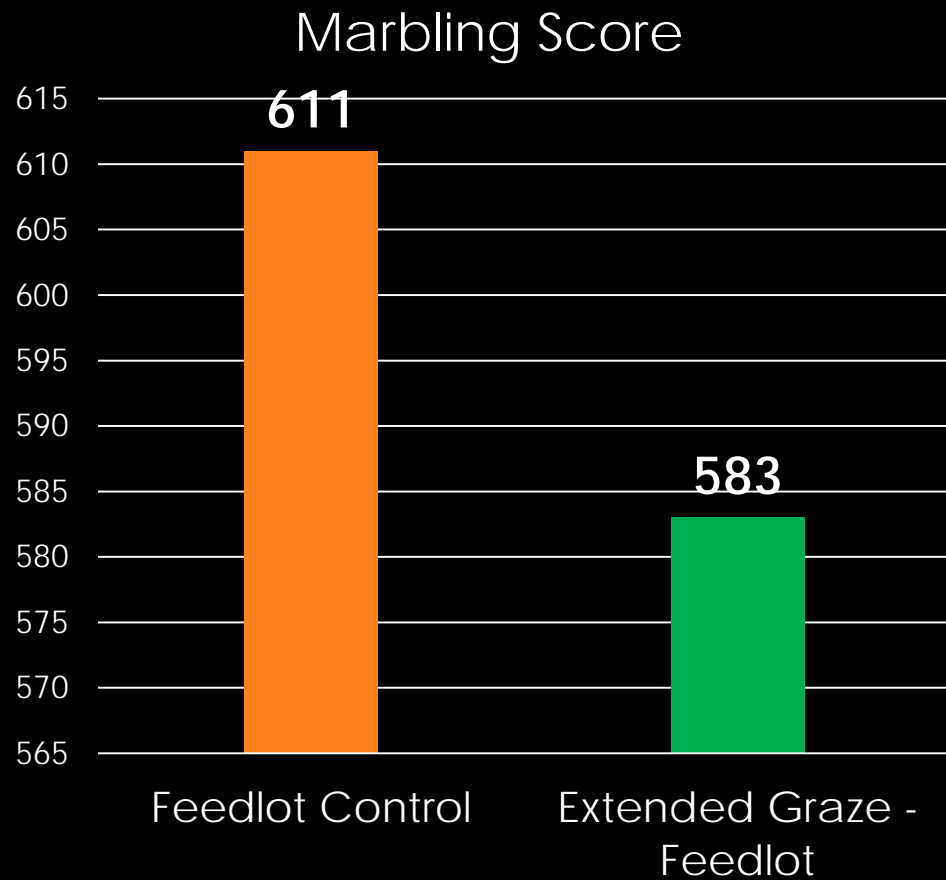
Feedlot Feed Intake & Efficiency



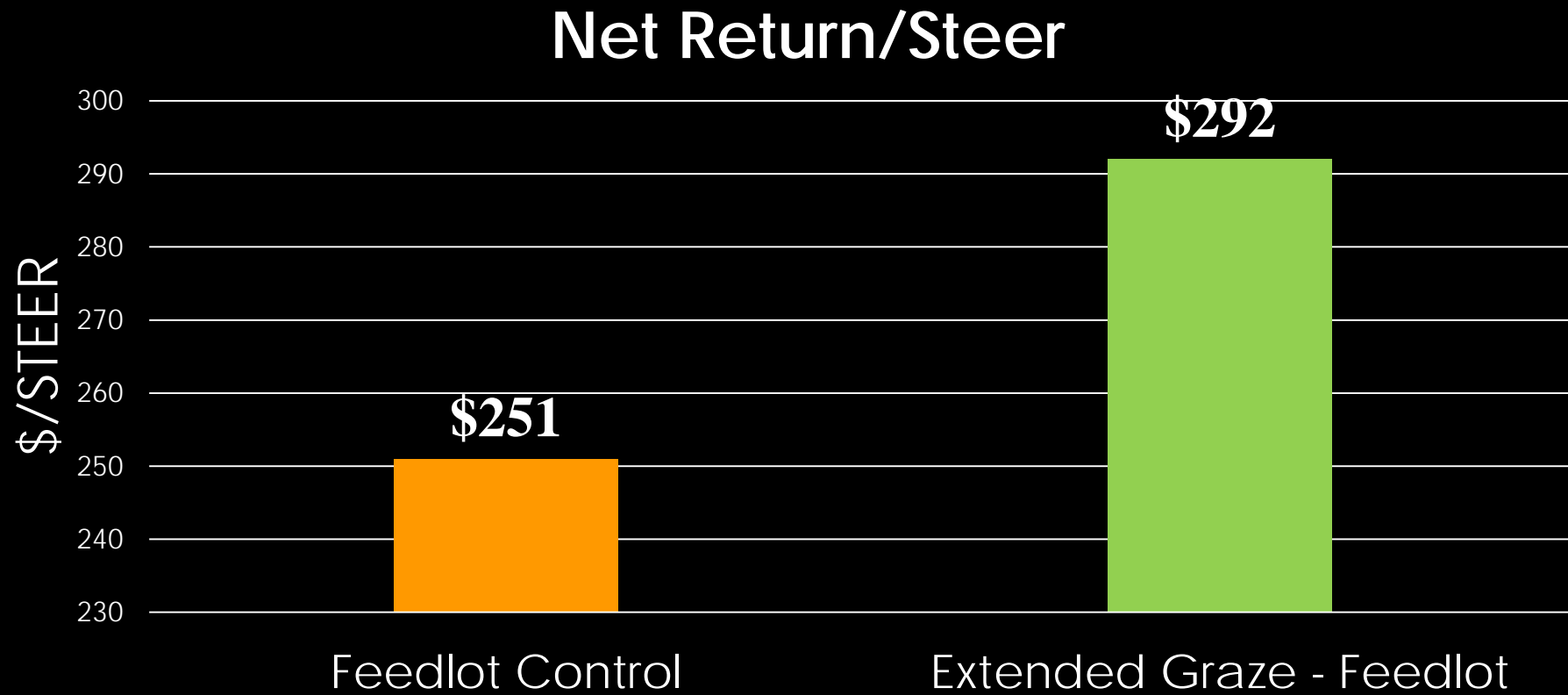
Cost/Lb of Gain



YEARLING STOCKER MARBLING SCORE AND PERCENT CHOICE



YEARLING STOCKER FEEDLOT NET RETURN



As of 1-20-2017

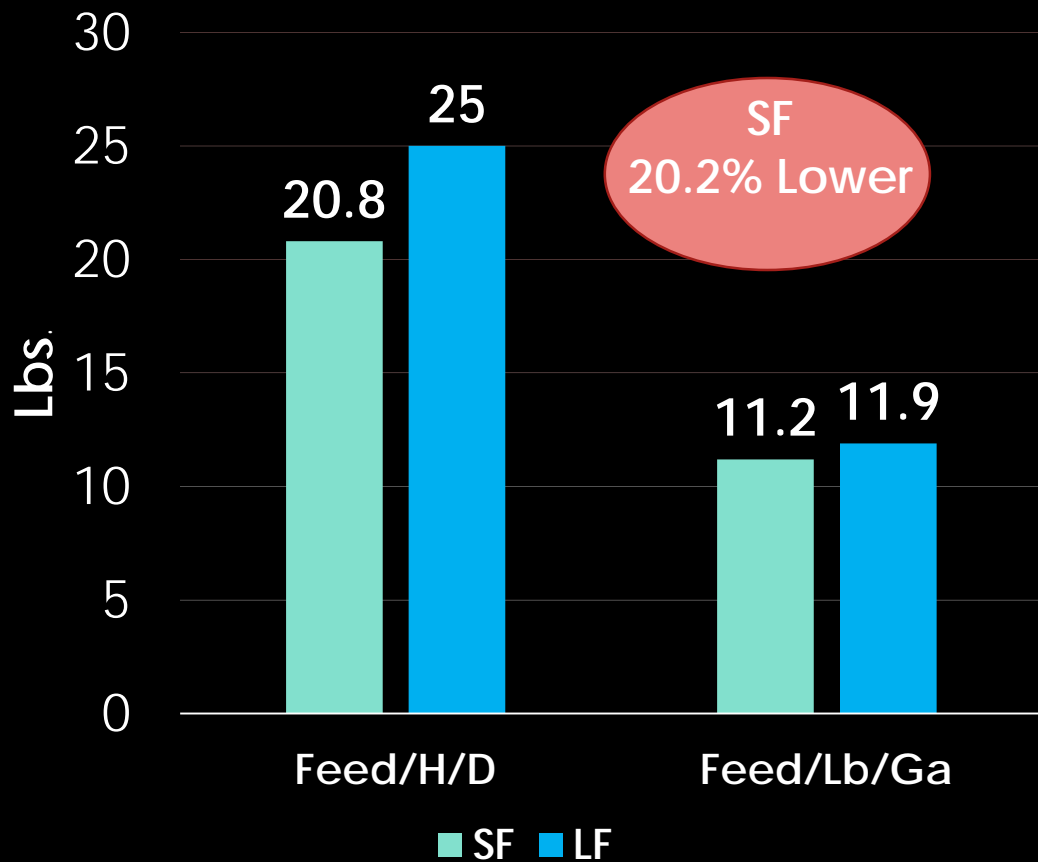
FORAGE DEVELOPED REPLACEMENT HEIFERS

(EFFECT OF FRAME SCORE ON GROWTH, FERTILITY AND ECONOMICS)

- Frame Score Groups:
 - Small 3.5; Large 5.6
- 3 increasing gain growth phases:
 - **Phase 1** (209 days: Oct 13 – May 10)
 - Wintered at modest gain – 0.60 Lb/Day
 - Unharvested corn and hay
 - **Phase 2** (58 days: May 10 – July 6)
 - Grazed crested wheatgrass
 - ADG: SF – 1.03; LF – 1.33 Lb/day
 - **Phase 3** (85 days: July 6 – Sept 29)
 - Feedlot: TMR - 80% alfalfa and 20% (21% CP Supplement)
 - ADG: SF – 1.87; LF – 2.14



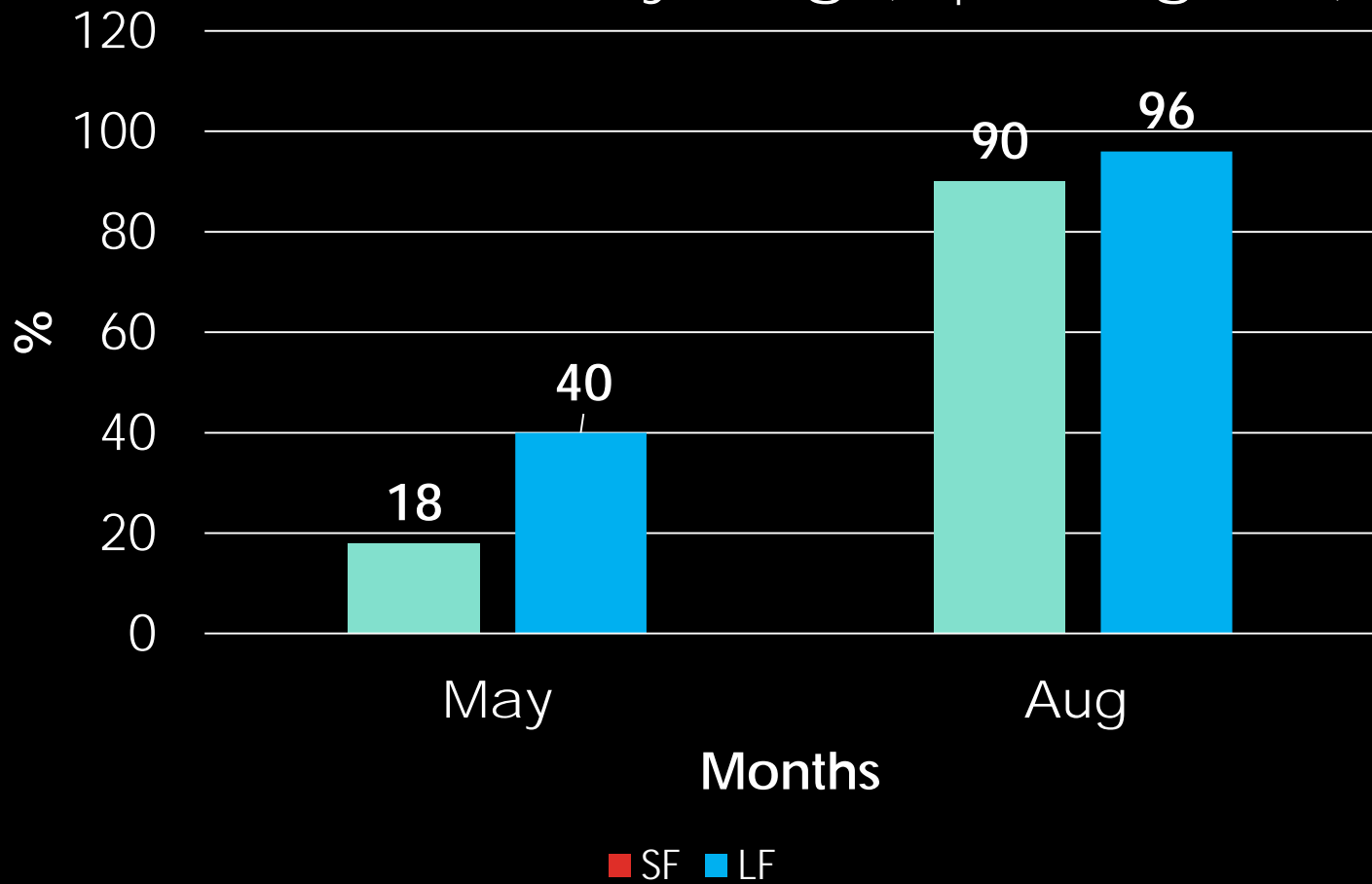
Feed Intake & Efficiency



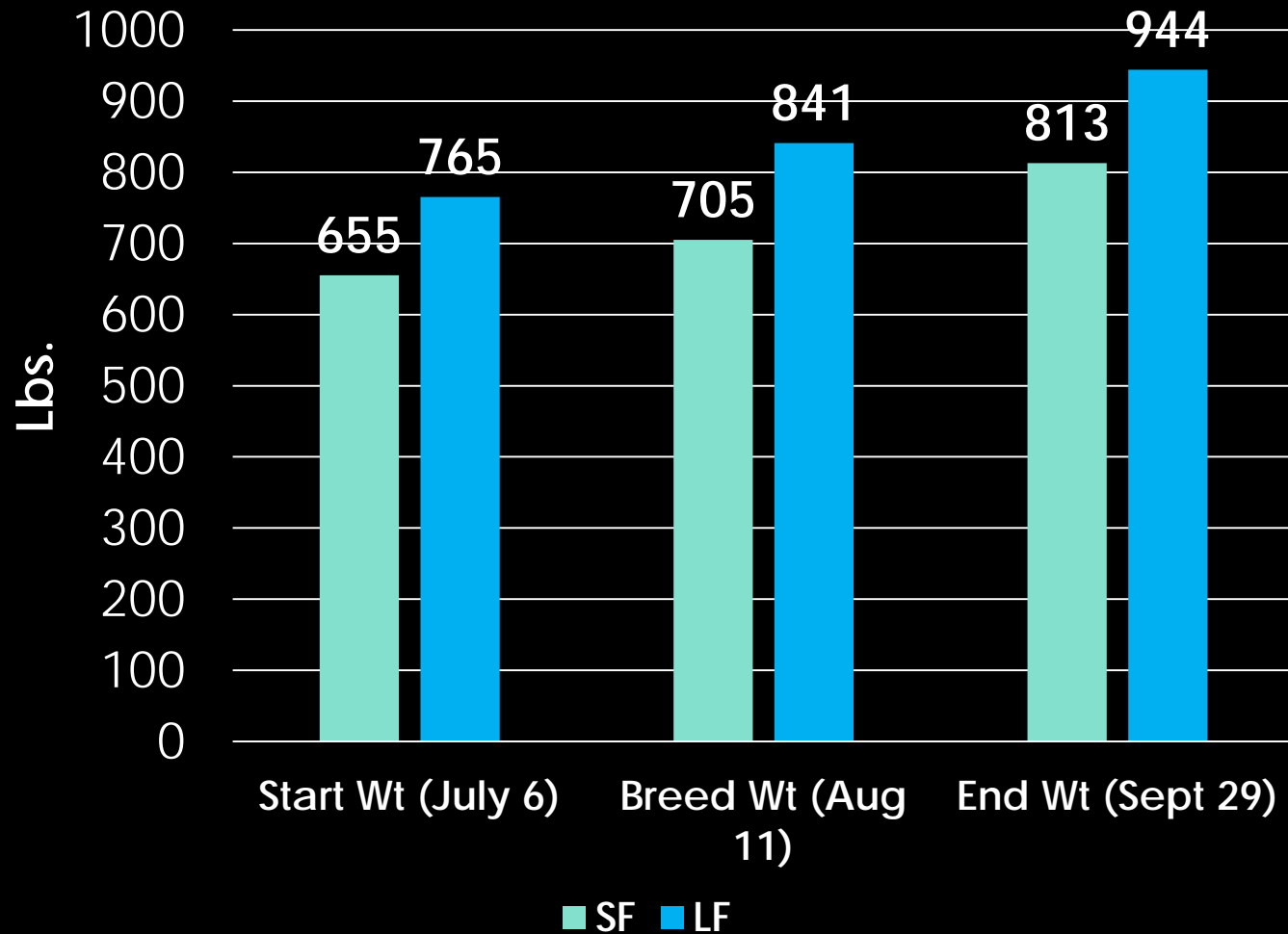
Feed Cost & Cost Efficiency



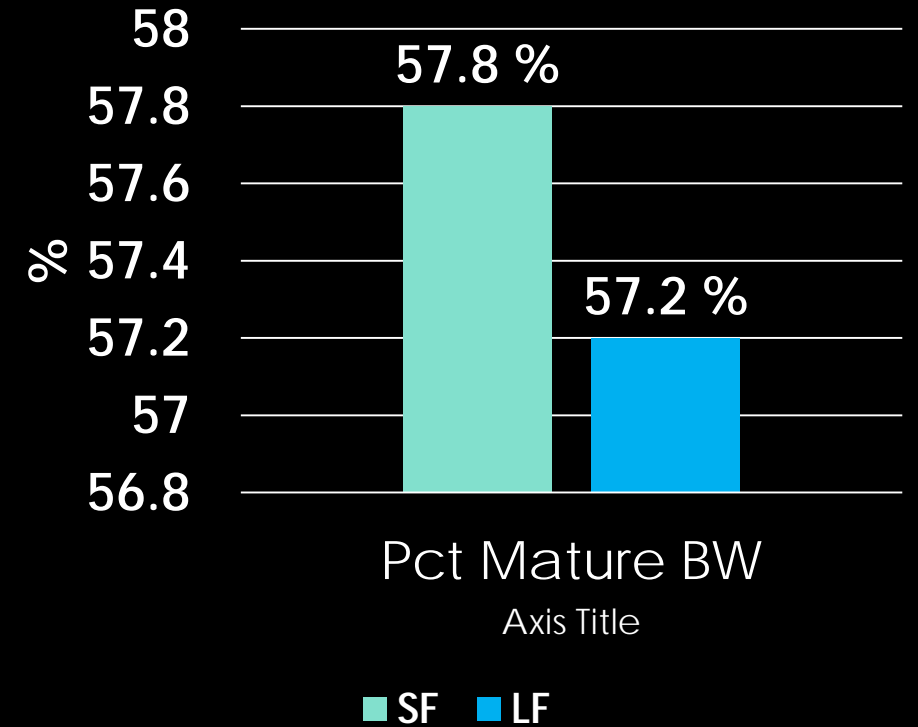
Percent Cycling ($P_4 > 1 \text{ ng/mL}$)



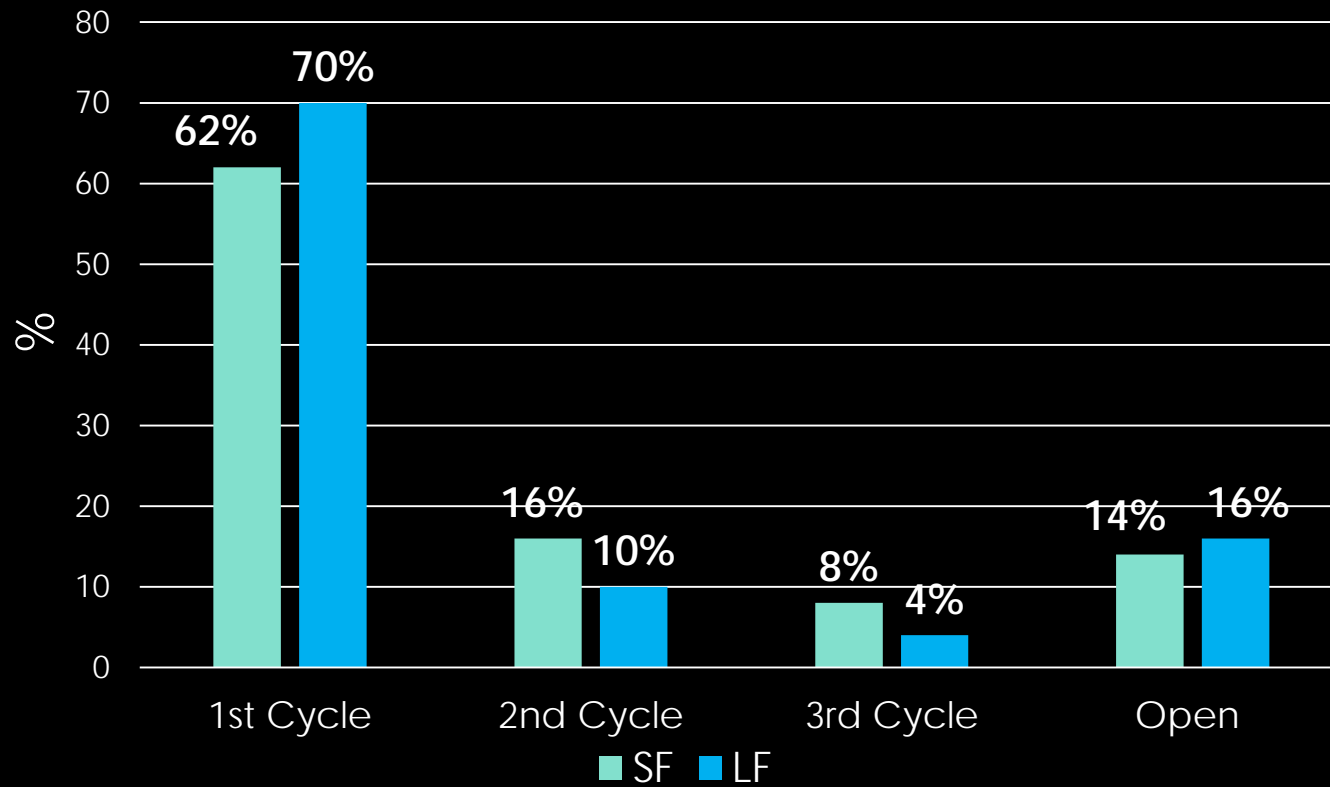
Feedlot Breeding Weight Change



Start Breeding: Heifer Percent of Mature Body Weight



Breeding Cycle Pregnancy Percent



Grazing and Feed Cost/Heifer





Thank You

09.11.2013