



# **INFLUENCE OF WEANING DATE (EARLY OR NORMAL) ON PERFORMANCE, HEALTH, AND CARCASS CHARACTERISTICS OF MAY BORN ANGUS CALVES**

**M. M. Stamm<sup>1\*</sup>, C. S. Schauer<sup>1</sup>, V. Anderson<sup>2</sup>,  
B. Ilse<sup>2</sup>, D. M. Stecher<sup>1</sup>, D. Drolc<sup>1</sup>, and D. Pearson<sup>1</sup>.**

**<sup>1</sup>Hettinger Research Extension Center, NDSU, Hettinger, ND  
<sup>2</sup>Carrington Research Extension Center, NDSU, Carrington, ND**



# BACKGROUND

- **Cow-calf production (ranching) is an important ag enterprise ( ND and SD)**
- **Estimate > 5.23 million head cattle worth over \$5.4 billion (USDA NASS, 2005)**
- **Calves produced in early spring months and sold at weaning**
- **Region has been impacted by drought past 6 years**

# BACKGROUND

- Regional producers use early weaning as a management tool in times of drought
- Other reasons for early weaning (Myers et al., 1999):
  - Feed in short supply or poor quality
  - Cows are poor milkers or first calf heifers
  - Cows calve late
- Past early weaning research focused on March calving cow herds
- Little research on May-June calving cow herds

# **ADVANTAGES OF EARLY WEANING**

- **Lowers nutrient requirements for cow**
- **Increases pasture carrying capacity**  
reduced forage demand by cow
- **Gives cow time to regain body condition**
- **May improve cow reproductive performance if weaned early enough**
- **Improves efficiency of gain on EW calf**
- **May improve quality grade of EW calf**
- **Can market cull cows before seasonal market lows**

# **DISADVANTAGES OF EARLY WEANING**

- **Requires more labor**
- **Higher nutritional requirements**
- **Requires facilities and feed for calves**
- **Greater focus on vaccinations and health program**
- **Possible increased health problems**
- **Possible EW calves may have lower carcass weights or become fatter at lighter weights**
- **Increased cash costs up front**

# **EARLY WEANING CONSIDERATIONS**

- **Complete castration, dehorning, and branding at least 10-14 days prior to weaning**
- **Vaccinate calves against clostridial and viral infections prior to weaning (1 month)**
- **Treat for internal and external parasites**
- **Provide protection from flies**
- **Consider use of growth implants**
- **Fence line wean to reduce stress?**
- **Does it fit my production system?**

# **EARLY WEANING CONSIDERATIONS**

- **Decide destination for calves:**
  - **Sell straight off cow**
  - **Background**
  - **Retained ownership**
- **Creep feed calves to aid in starting calves on feed**
- **Provide access to good quality, clean water**
- **Monitor calves frequently (2-3X/day) for signs**
  - **Respiratory disease**
  - **Digestive disturbances**
  - **Scours**
  - **Coccidiosis**
  - **Intake level**

# **CALF BACKGROUNDING STUDY OBJECTIVE**

**Evaluate effects of early or normal weaning practices on May born calves:**

- Calf growth**
- Calf health**
- Carcass characteristics**



# EXPERIMENTAL PROTOCOLS

**48 Angus steer and heifer calves**

**Randomly assigned to weaning date : EW = Sept. 19 or NW = Nov. 15; 24 steers and heifers per wean date**

**EW calves = 417 lbs, 139 d of age; NW calves = 559 lbs, 197 d of age**

**Calves stratified by BW, sex and randomly allotted to 12 pens (4 calves/pen; 6 reps/wean date)**



**Dry hay receiving ration 14d**

**Growing diet composed of barley silage, whole shell corn, oat hay, 27% CP supplement containing Rumensin<sup>®</sup>, calcium carbonate, 44% SBM, and Deccox<sup>®</sup> medicated crumbles.**

**Target gain = 2.5 lbs**

# EXPERIMENTAL PROTOCOLS

- Calves vaccinated with 7 way clostridial (1x), 5 way ML viral (2x), Mannheimia hemolytica (1x), and Hemophilus somnus (1x)
- Calves implanted with Ralgro<sup>®</sup> implant
- Calves observed daily for signs of respiratory disease (2-3X/d)
- 2 d weights taken on individual calves at start and end of performance trial; interim weights taken d 36, 52 and 64 to evaluate calf growth performance and health status

# EXPERIMENTAL PROTOCOLS

- Diet samples collected d 14, 32, 54, 67, and 78
- Data measured: Weight Gain (ADG), Feed intake, Feed: gain, Cost of gain. Nutritional components measured: DM, Ash, CP, NDF, ADF, Ca, P, K, and Nitrate concentration
- Performance data analyzed as a randomized complete design using SAS PROC MIXED procedures with pen as experimental unit; mean separation by Least Significant Difference ( $P < 0.05$  level)

# DIET INGREDIENT COMPOSITIONS FED TO EW AND NW CALVES

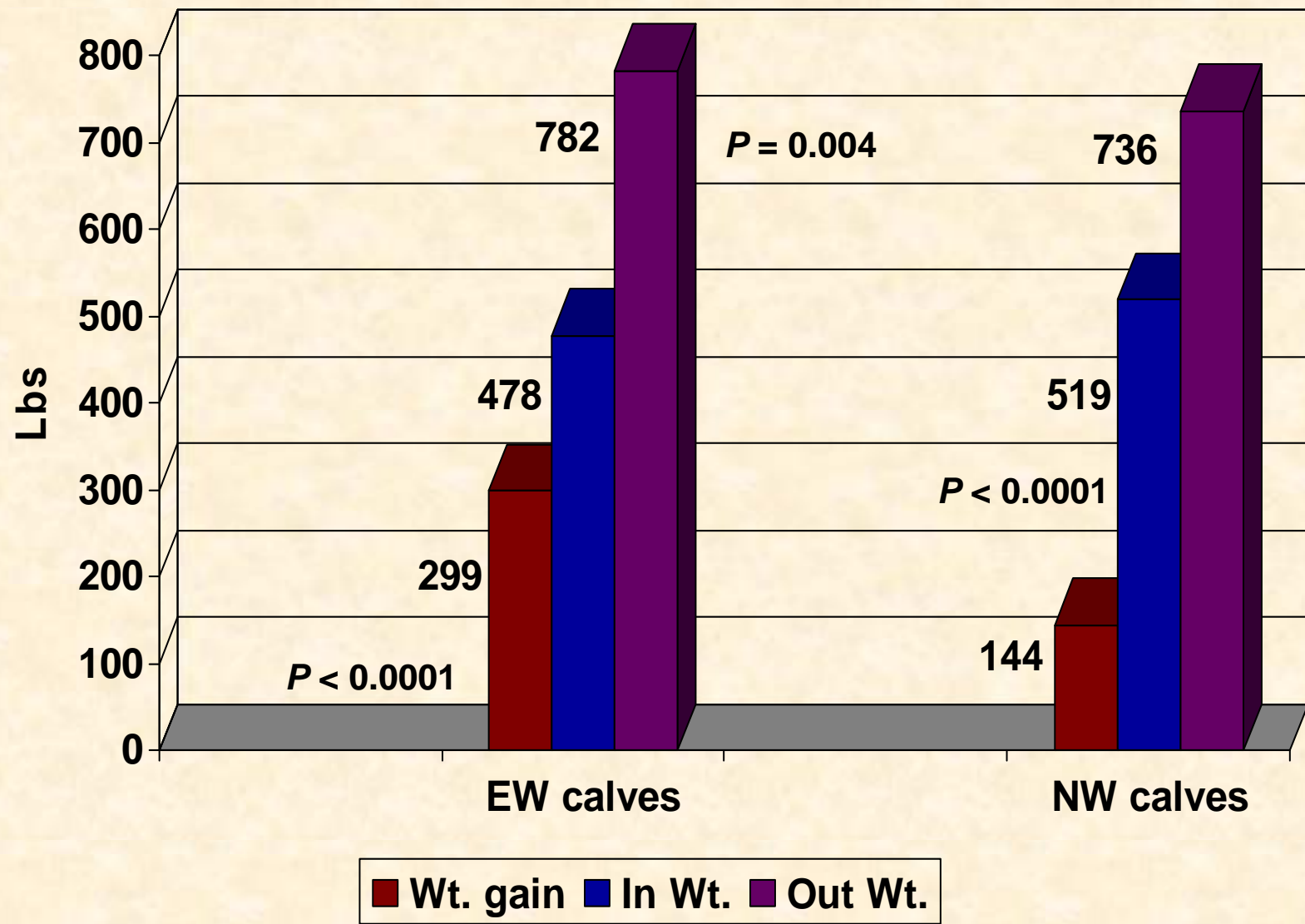
Ingredient	Percent Dry Matter Basis		
	EW Receiving	NW Receiving	Growing
Alfalfa-Grass hay	22.15	---	---
Barley hay	12.80	---	---
Oat hay	13.05	12.30	13.25
Mixed hay	---	35.90	---
Barley silage	---	---	30.05
Whole shell corn	43.40	39.90	43.80
Supplement pellet <sup>a</sup>	7.15	5.20	7.02
Deccox <sup>®</sup> med. crumbles	1.45	1.60	2.20
Soybean meal, 44%	---	4.50	2.88
Calcium carbonate	---	0.60	0.80

<sup>a</sup> 27% Commercial supplement (as fed): 27% CP, min Ca 2.0%, min P 0.7%, min K 0.7%, min Vitamin A 27,000 IU/lb, min Vitamin D<sub>3</sub> 1,700 IU/lb, min Vitamin E 100 IU/lb, and Rumensin<sup>®</sup> 225 mg/lb.

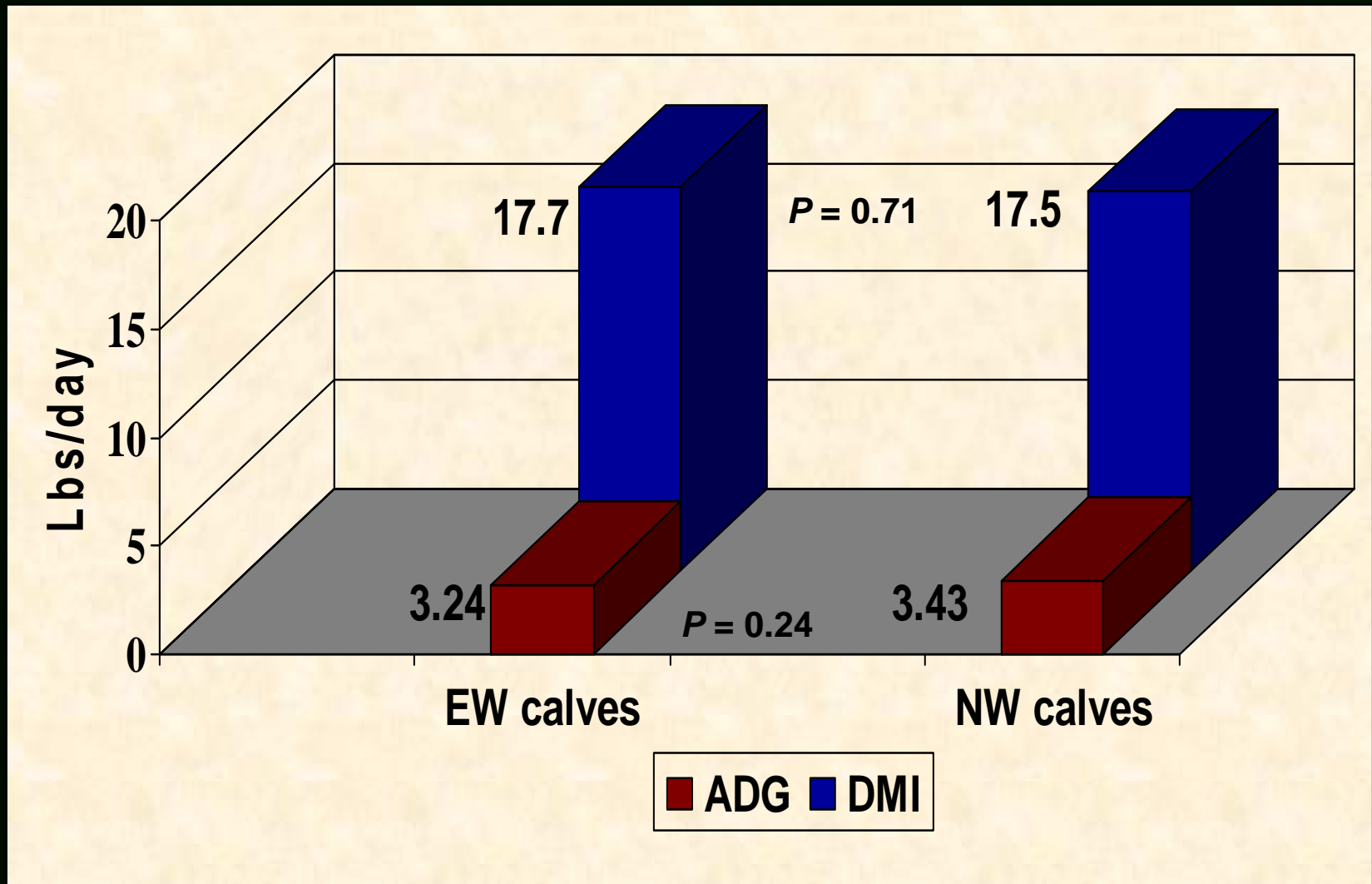
# DIET NUTRIENT COMPOSITIONS FED TO EW AND NW CALVES

Diet	Percent Dry Matter Basis		
	EW Receiving	NW Receiving	Growing
DM, %	94.22	95.80	63.26
CP, %	14.30	13.20	13.00
ADF, %	26.20	26.30	24.30
NDF, %	45.60	48.30	41.05
Ca, %	0.87	0.75	0.59
P, %	0.38	0.43	0.48
K, %	1.79	1.84	1.90
Nitrate, ppm	1200	2500	1950
NE <sub>m</sub> , Mcal/lb	0.79	0.77	0.80
NE <sub>g</sub> , Mcal/lb	0.54	0.51	0.54
Rumensin <sup>®</sup> , mg/h/d	256	256	320
Deccox <sup>®</sup> , mg/h/d	154	154	206

# WEANING DATE IMPACT ON BACKGROUNDING PERFORMANCE



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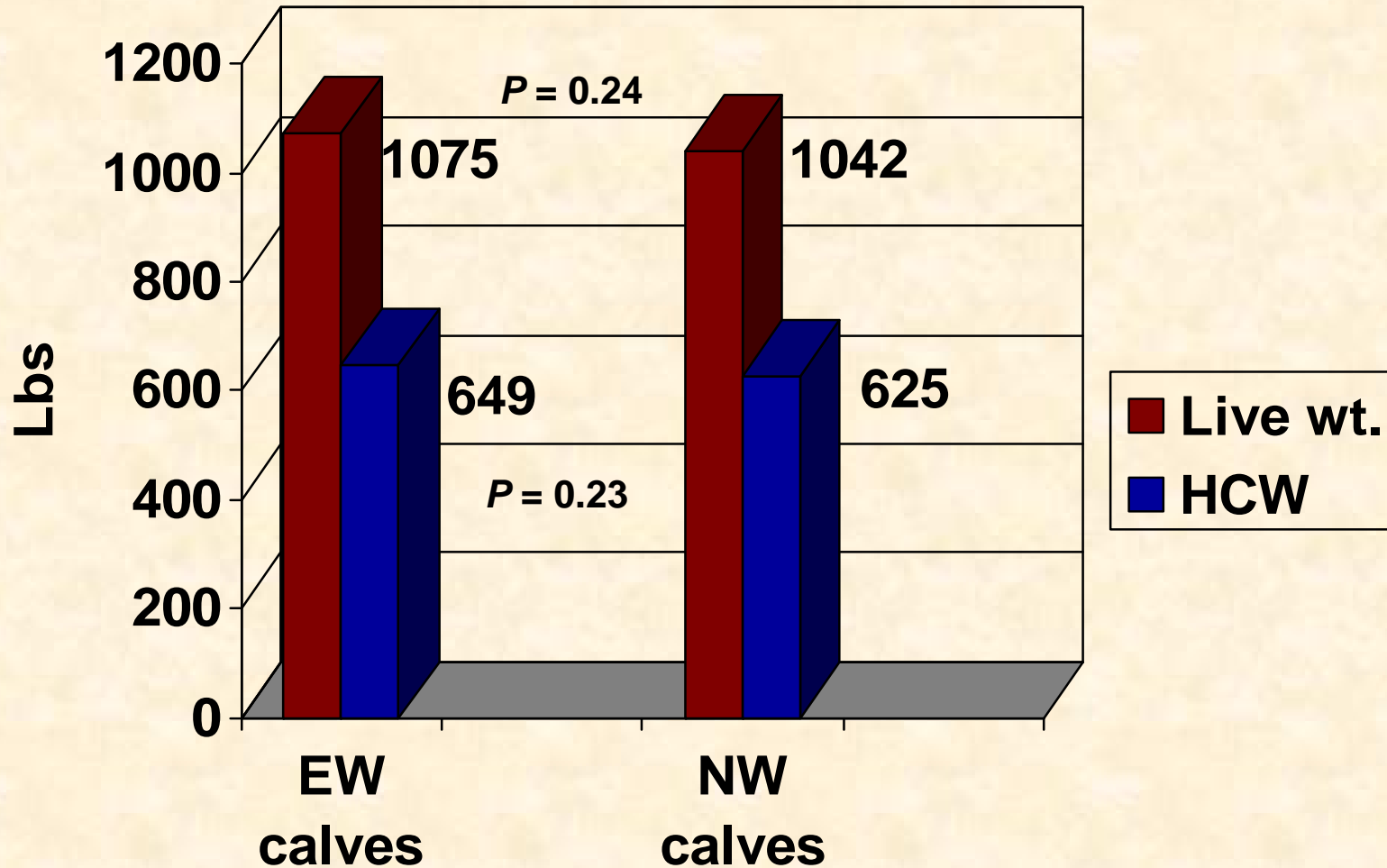
Item	EW calves	NW calves	SEM <sup>a</sup>	P - value <sup>b</sup>
Feed: gain	5.51	5.25	0.18	0.35
Mortality, %	4.17	0	0.03	0.35
Respiratory treatment,%	12.50	33.33	0.08	< 0.10
Vet Med Costs, \$/h	15.37	14.50	3.50	0.86
Feed Cost of gain, \$/lb	0.52	0.47	0.02	0.11
Total Cost of gain, \$/lb	0.57	0.58	0.04	0.76

<sup>a</sup>Standard Error of Mean; n = 6.

<sup>b</sup> P-value for separation of treatment means.



# WEANING DATE IMPACT ON CARCASS CHARACTERISTICS



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Item	EW calves	NW calves	SEM <sup>a</sup>	P-value <sup>b</sup>
Marbling Number	483	465	14.8	0.43
Backfat, in.	0.56	0.53	0.05	0.68
REA, in. <sup>2</sup>	11.8	11.08	0.43	0.27
KPH, %	2.41	2.50	0.53	0.29
USDA YG (adjusted)	3.04	3.19	0.22	0.65

<sup>a</sup> Standard Error of Mean; n = 6.

<sup>b</sup> P-value for separation of treatment means.

# IMPLICATIONS

- **EW calves were younger and lighter BW at weaning; EW calves heavier at study end**
- **Weaning date did not affect ADG, DMI, or feed conversions of EW Calves**
- **Weaning date did not influence calf health, mortality, or carcass characteristics**
- **Early weaning of calves born between April 15 and June 15 viable option**
- **More research needed to assess EW effects on backgrounding and finishing phases of late spring born calves**

# QUESTIONS??

