

Nutrition of Lactating Jerseys: Does it differ from Holsteins?

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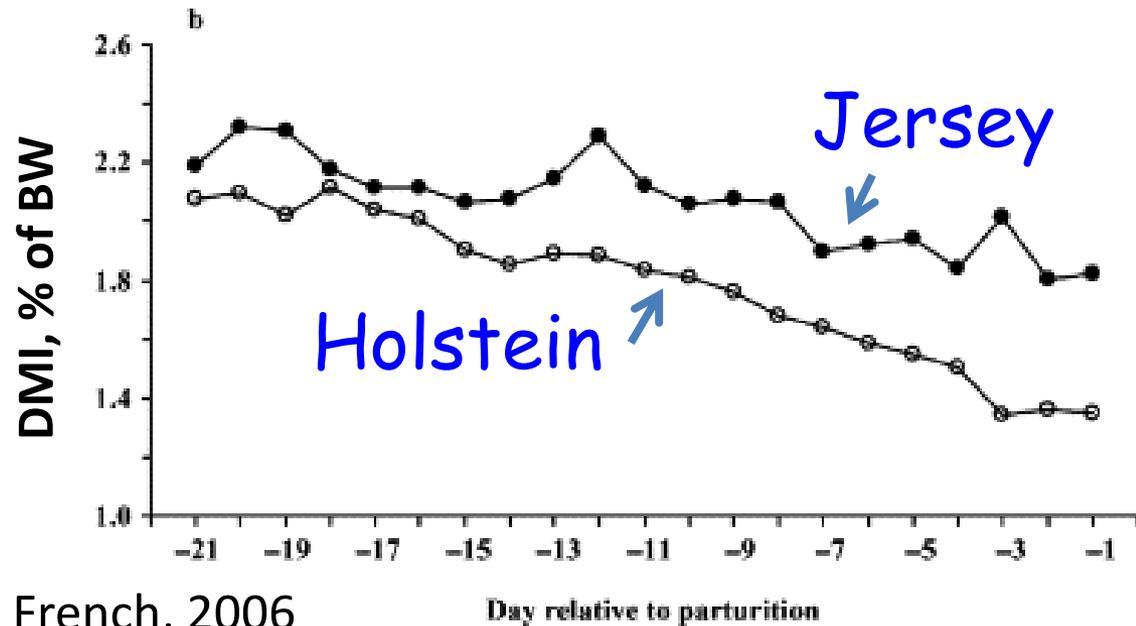
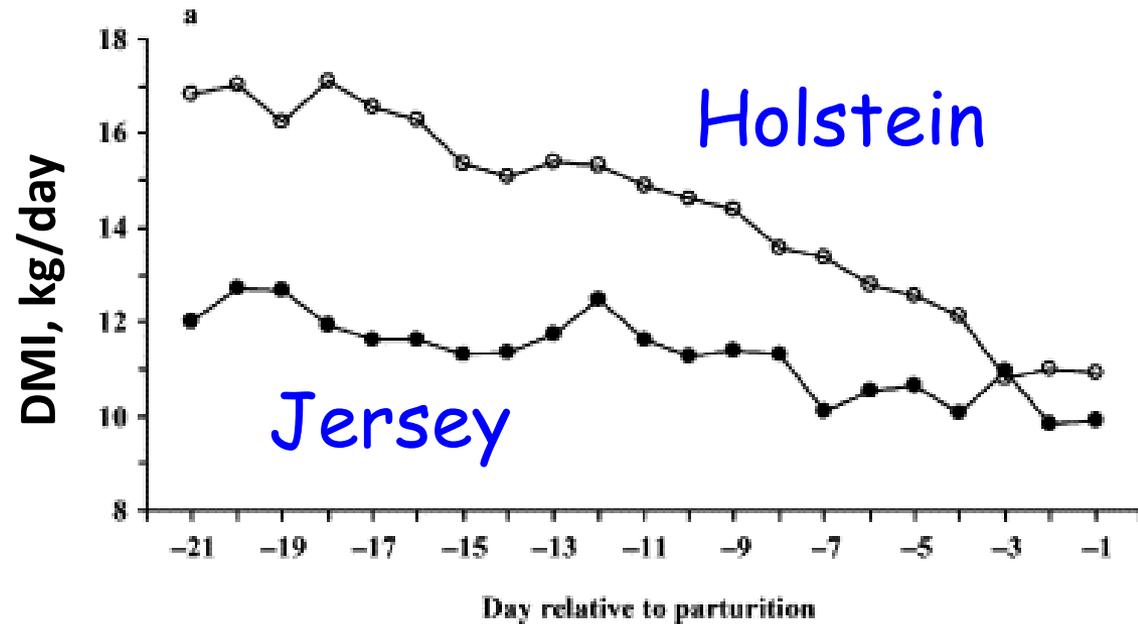
Estimating DM Intake

Accurate diet formulation requires an accurate estimate of intake

- Equations have BW, FCM, and DIM
- Most equations based on Holsteins
- For cows beyond first month, equations probably adequate for Jerseys
- Direct data not available but breed may affect early lactation DMI

Prepartum, DMI drops more for Holsteins than Jerseys.

What happens postpartum?

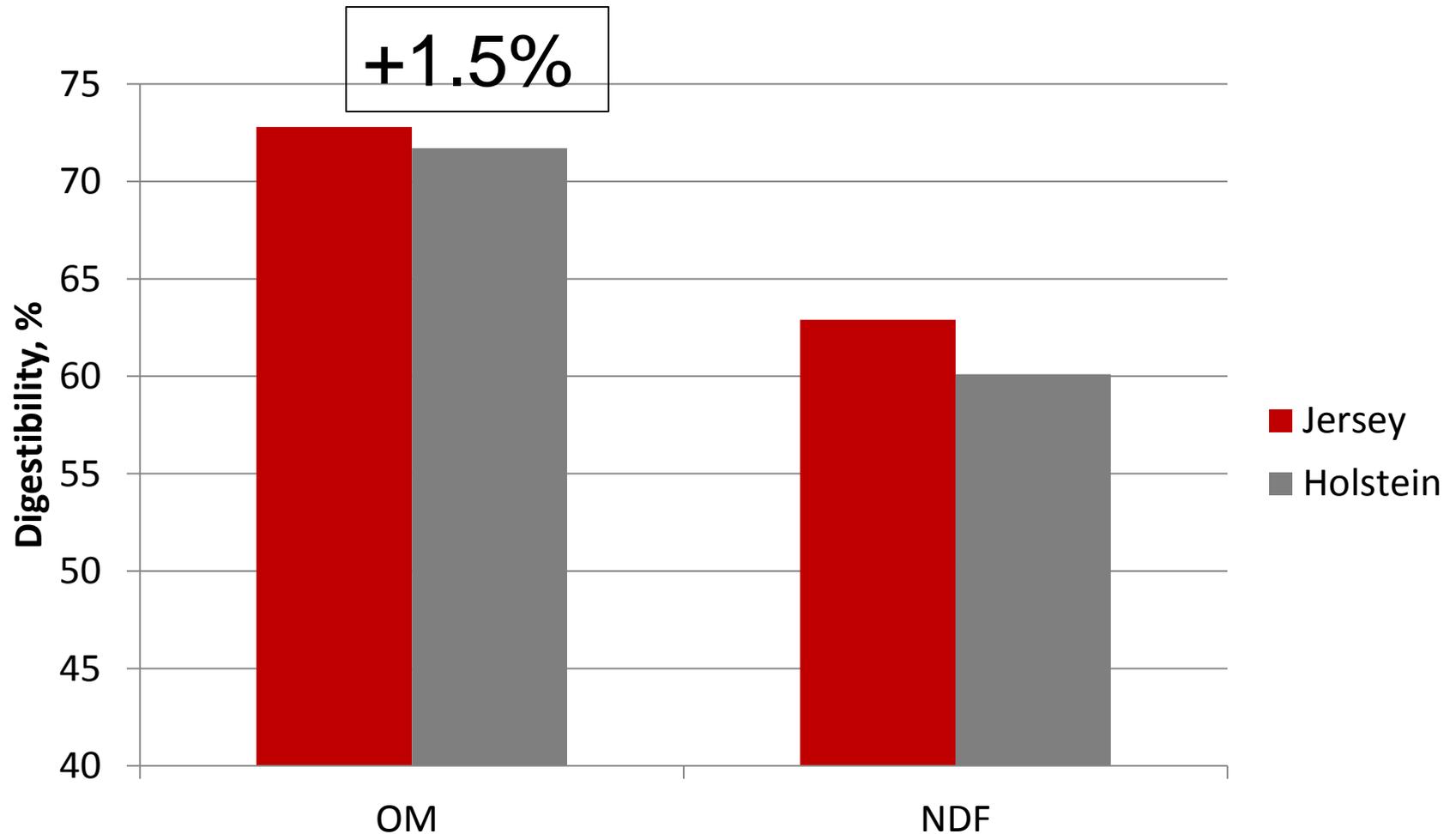


French, 2006

Energy Nutrition

- Most studies show little difference in requirements between breeds (adjusted for BW and milk nutrient output)
- Jerseys may extract more energy from diets than Holsteins

Fiber digestibility was higher for Jerseys which may increase organic matter digestibility



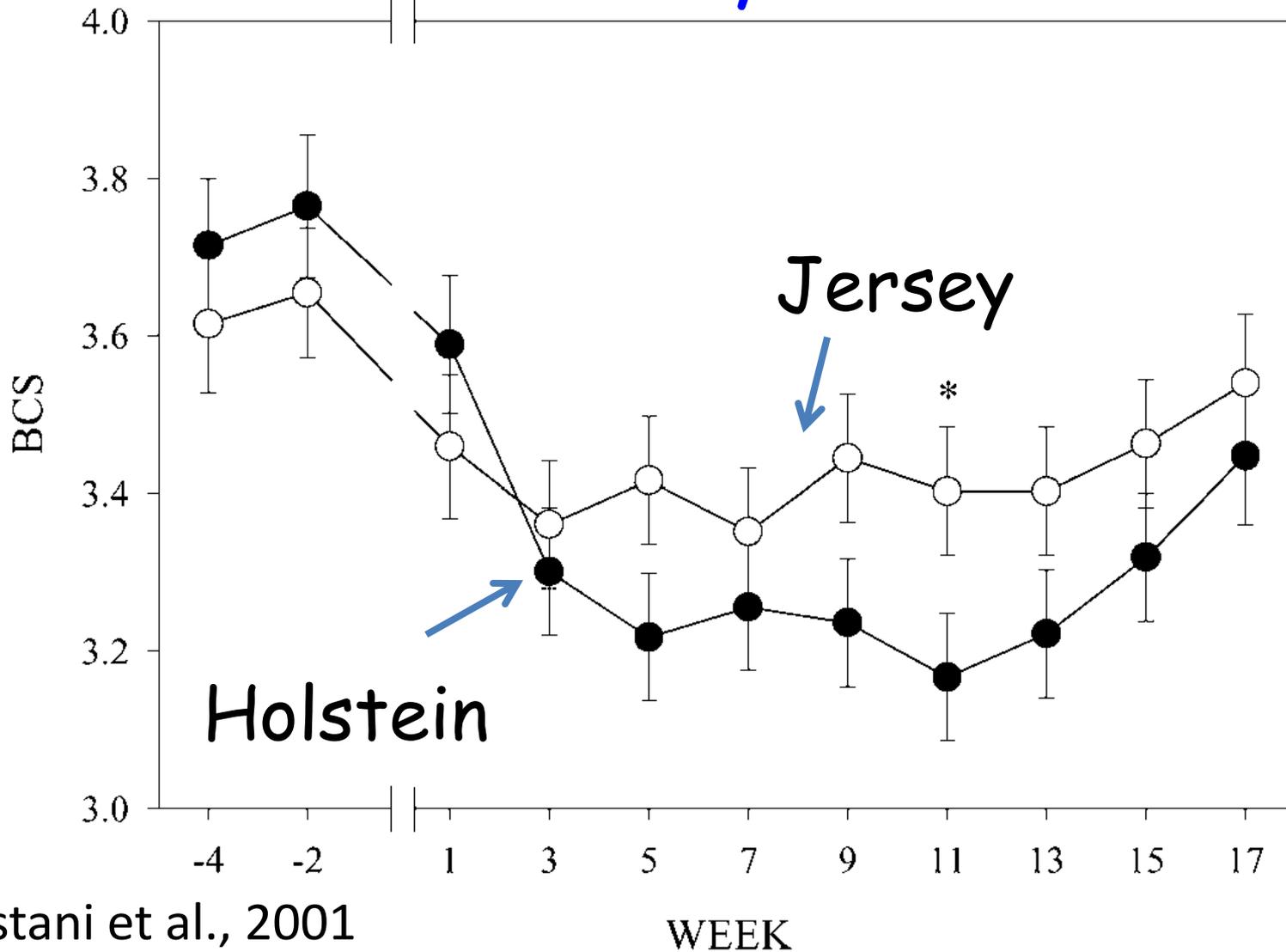
Greater Digestibility by Jerseys (in some studies) may be caused by feeding behavior

- More evenly distributed meals
- More time spent eating/lb. DMI
- More time spent ruminating/lb. DMI

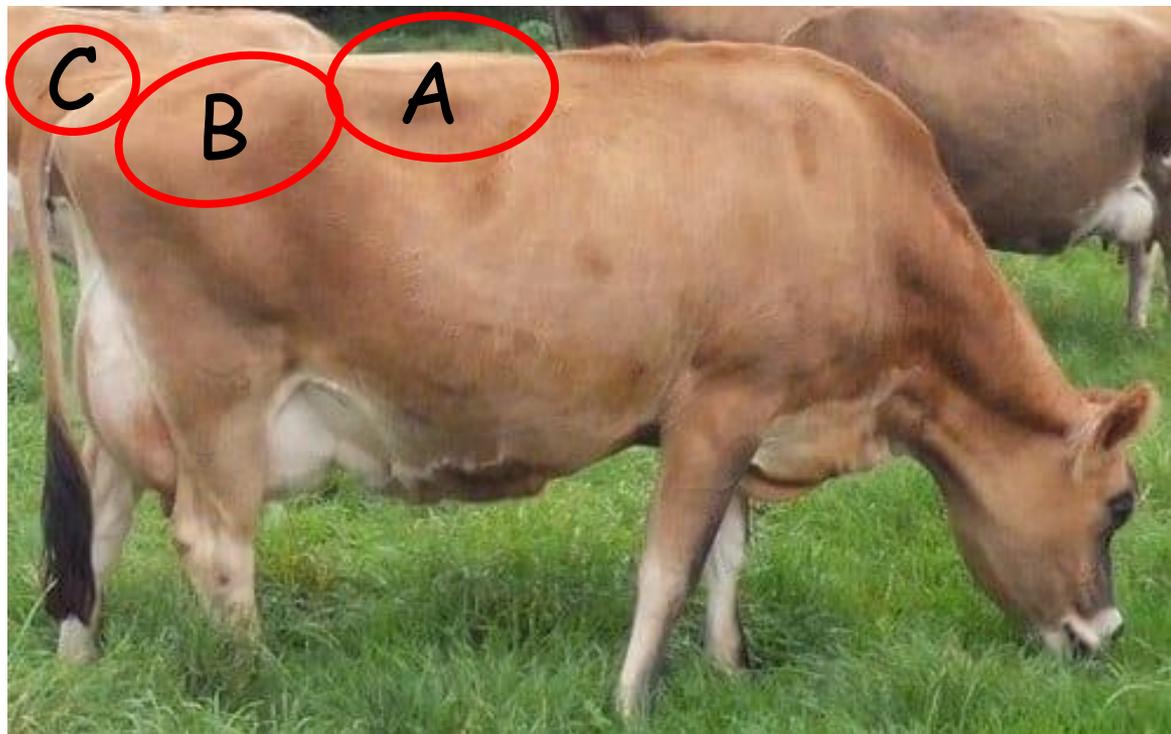
Greater chewing time/lb DMI may increase particle breakdown leading to greater digestibility

More uniform eating pattern may help stabilize rumen pH

Jerseys tend to lose less body condition in early lactation



Jersey cows tend to deposit subcutaneous fat different than Holstein ...



- Fat depth may be less at rib (A) and thurl (B) (Rastani et al., 2001)
- Fat deposition between tail head and pins (C) may be greater

... thus be cautious when scoring Jersey cows to not let the fat deposition around the tail over influence your body condition score.

Jerseys may be less sensitive to acidosis

- With high grain, inflammatory response was less with Jerseys (Luan et al., 2016)
- Meal pattern may allow greater starch diets
- Direct research needed to verify

Protein Nutrition

Formulate for metabolizable protein

-Feed rumen bacteria

-Bypass protein supplies the rest

1. No reason to expect breed effect on bacterial requirement (RDP)
2. On a milk protein basis, no reason to expect breed effect

Dietary Protein Example

1450 lb Holstein, 77 lbs milk @ 3% P (2.3 lb)
1000 lb Jersey, 64 lbs milk @ 3.6% P (2.3 lb)

| | <u>Hol</u> | <u>Jer</u> |
|---------------|------------|------------|
| MP maint, lbs | 1.9 | 1.6 |
| MP milk, lbs | 3.5 | 3.5 |
| Diet CP, % | 15.8 | 16.8 |
| RDP, % | 10.1 | 10.1 |
| RUP, % | 5.7 | 6.7 |
| NUE (lb/lb) | 28 | 31 |

Protein Nutrition

1. At equal milk protein yields, Jerseys need greater diet CP% (not lbs.)
2. Extra CP should be mostly bypass
3. Current data suggest amino acids needs similar between breeds
4. Milk protein yield/protein intake usually greater for Jerseys

Mineral Nutrition

No breed effect

- Phosphorus, selenium

Breed effect

- Calcium, copper

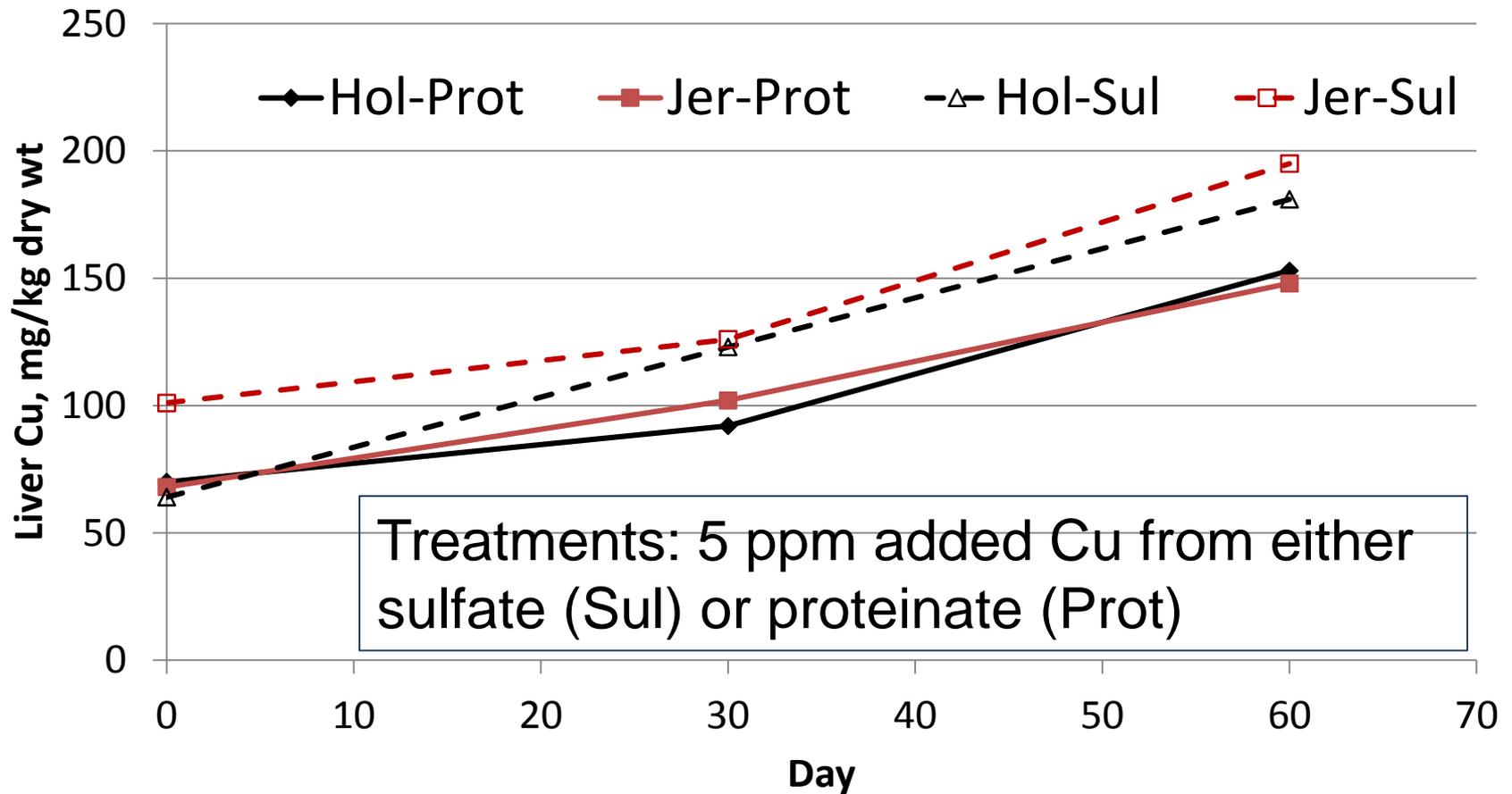
Breed effect unlikely

- Magnesium, sodium, potassium, chloride, sulfur, cobalt, iodine

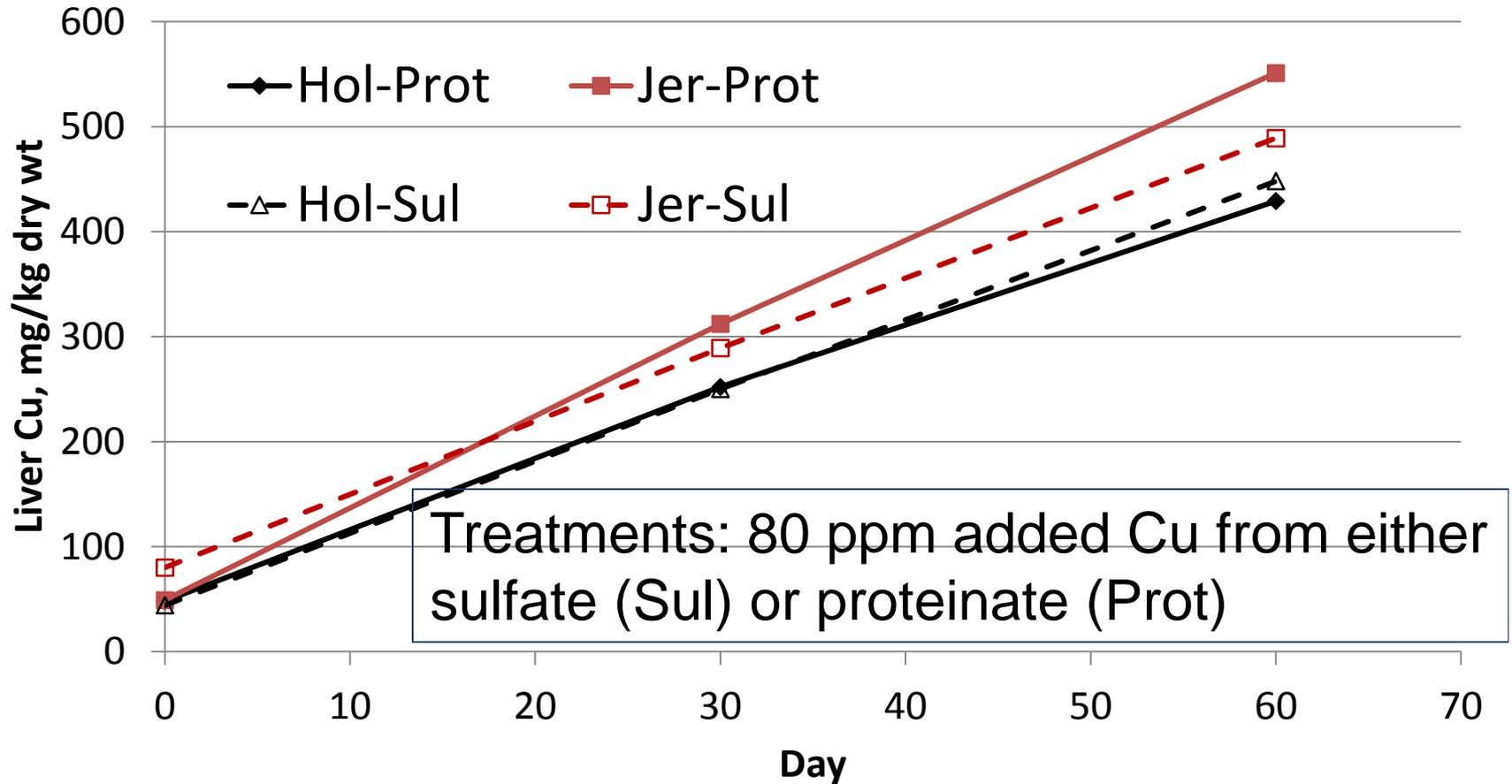
Breed effect unknown

- Iron, manganese, chromium, zinc

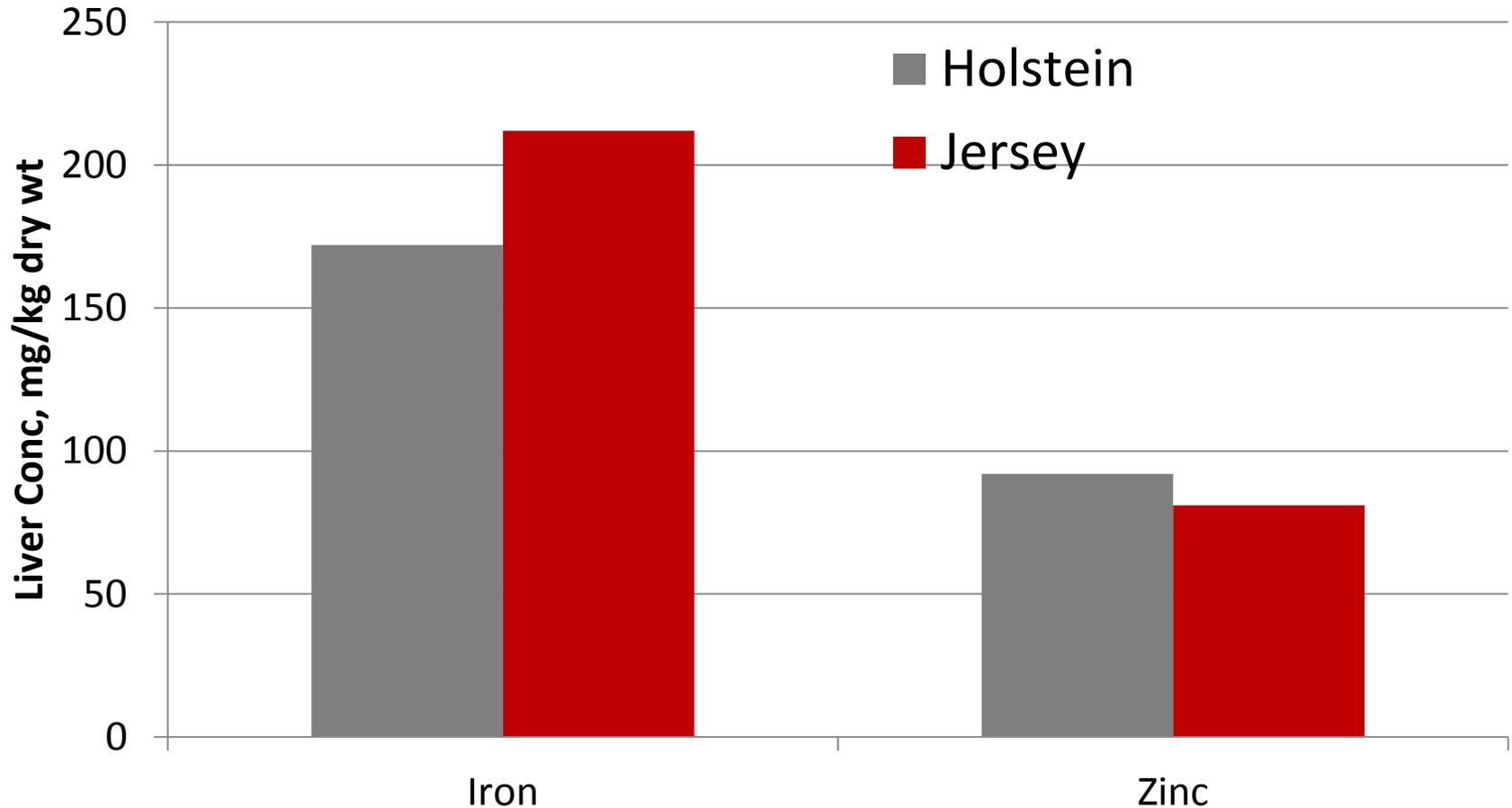
At 11 ppm of total diet copper: No difference in liver Cu between Jersey and Holstein



At 86 ppm of total diet copper: Jersey has greater liver copper



At typical diet Fe and Zn, breed affects liver concentrations



Mineral Nutrition

1. For most minerals, data from Holstein is probably ok. **1 to 1.2X NRC is fine**
2. Jerseys accumulate more liver copper but 1.2X NRC is fine (~15 ppm total diet)
3. Calcium metabolism is different but during lactation, probably doesn't matter
4. Some data suggest Jerseys may need more dietary Zn

Vitamin Nutrition

1. Vitamin E likely similar to Holstein data

- Lactating: ~400 IU/day
- Dry : ~800 IU/day
- Prefresh: ~1600 IU/day

2. Vitamin A likely similar to Holstein data

- Lactating (<60 lbs milk): ~50,000 IU/day
- Add 5000 IU for every 10 lbs > 60 lbs
- Dry: ~55,000 IU/day

Vitamin Nutrition

3. Vitamin D likely greater than Holstein

- Lactating: ~20,000 IU/day
- Dry : ~15,000 IU/day

Cattle grazing in summer sun
make substantial vitamin D

4. No information regarding biotin ~14 mg/day

Thank You

For more dairy related information go to:

Dairy.osu.edu



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