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# Utilizing Corn Ethanol By-Product and Sorghum Silage in Dairy Farms to Preserve the Ogallala Aquifer

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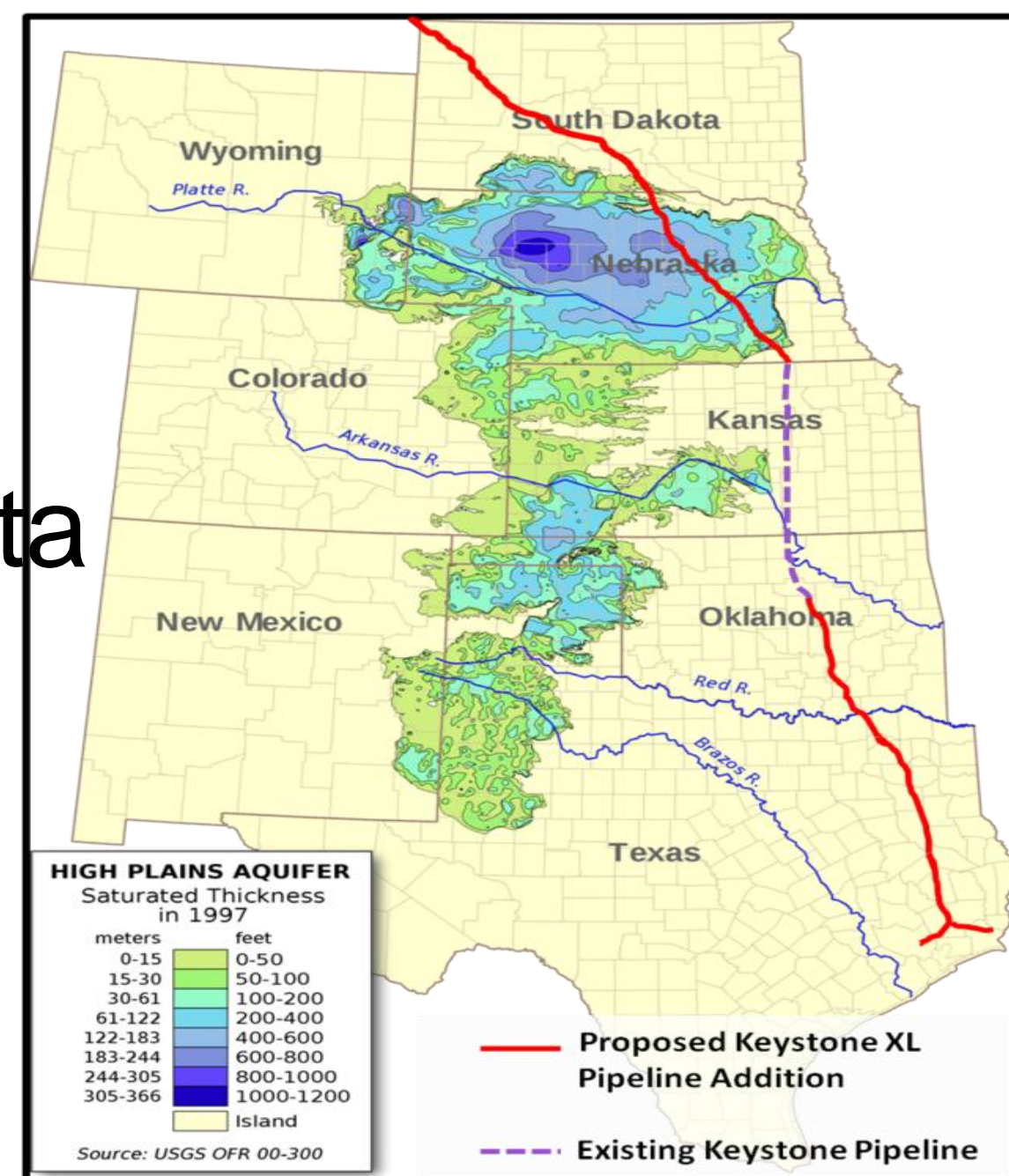
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## INTRODUCTION

### □ Ogallala Aquifer (OA):

Texas, Oklahoma, New Mexico, Colorado, Nebraska, Wyoming, and South Dakota (GOWDA, 2019);



### Corn Silage

- High yield
- High starch digestibility
- Supports high milk production
- High irrigation requirement
- Water-intensive system

### Sorghum Silage

- Drought tolerant
- Lower starch digestibility
- Adapted to semi-arid regions
- Lower water demand
- Efficient under water limitation

### □ Corn ethanol by-products (wet corn gluten feed):

- High energy, protein, and digestible fibers (NASEM, 2016).

### □ Previous study (2024):

- One Trak (OT) - Cargill Branded Feed, Blair, NE
- ✓ Replaced alfalfa hay (13%), canola meal (7.7%), dried distillers grains plus solubles (10%);
- ✓ 40% OT;

- Reducing the water required to produce these crops.

## RESULTS

### □ Results from the previous study:

	CN	OT	P-value
Dry matter intake	22.4	24.0	0.02
Milk Yield (kg/day)	32.2	33.4	0.04
Energy-corrected milk	36.3	38.5	0.09

- Cow fed the OT diet showed 6.6% higher energy-corrected milk compared to the control diet;

## HYPOTHESIS

### Replacements:

Corn silage → Sorghum silage

Alfalfa hay, canola meal, dried distillers grains plus solubles, and the mineral and vitamin supplement. } One Trak

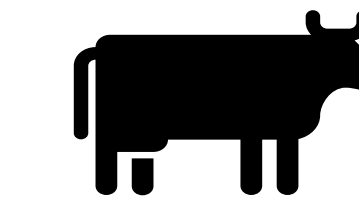
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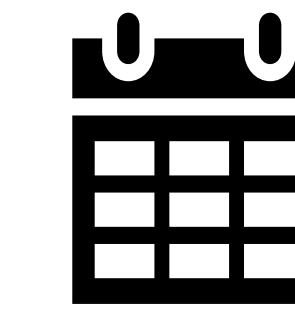
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## MATERIALS AND METHODS



### Animals:

- \* 24 cows (Holsteins x Jerseys);
- \* 2 pens (electronic gates);



### Experimental Design:

- \* Adaptation period (d -45 to d -15);
- \* Covariate period: (d -15 to d -1);
- \* Experimental period: (d 1 to d 60);



### Treatments:

- \* Control vs One Trak;



### Management:

- \* Milking: 0600 and 1800 h;
- \* Feed delivery: 0700 and 1500 h;

## CONCLUSION

- We aim to combine both strategies from our research group by replacing alfalfa hay with corn milling products and replacing corn silage with sorghum silage processed with a technology that enhances berry processing and digestibility (Duhatscheck et al., 2024).

## REFERENCES

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