



21^a CONFERENCIA
INTERNACIONAL
SOBRE **PALMA DE ACEITE**

21st International Oil Palm Conference

Palm oil in beef cattle diets

2025



**21ª CONFERENCIA
INTERNACIONAL
SOBRE PALMA DE ACEITE**

21th International Oil Palm Conference

Supplemental fat in beef finishing diets





Supplemental fat use in feedlots

Consulting nutritionist clients' using added fat:

71% *Survey by Vasconcelos and Galyean, 2007*

65.5% *Survey by Samuelson et al., 2016*

Tallow

Corn
Oil

Yellow
Grease

Fat
Blend



Reasons to feed supplemental fat

Nutritionally

- **Increases energy density of the diet**
- Improvement in feed efficiency

Logistically

- Decreases dust

Economically

- **Response to high corn prices**

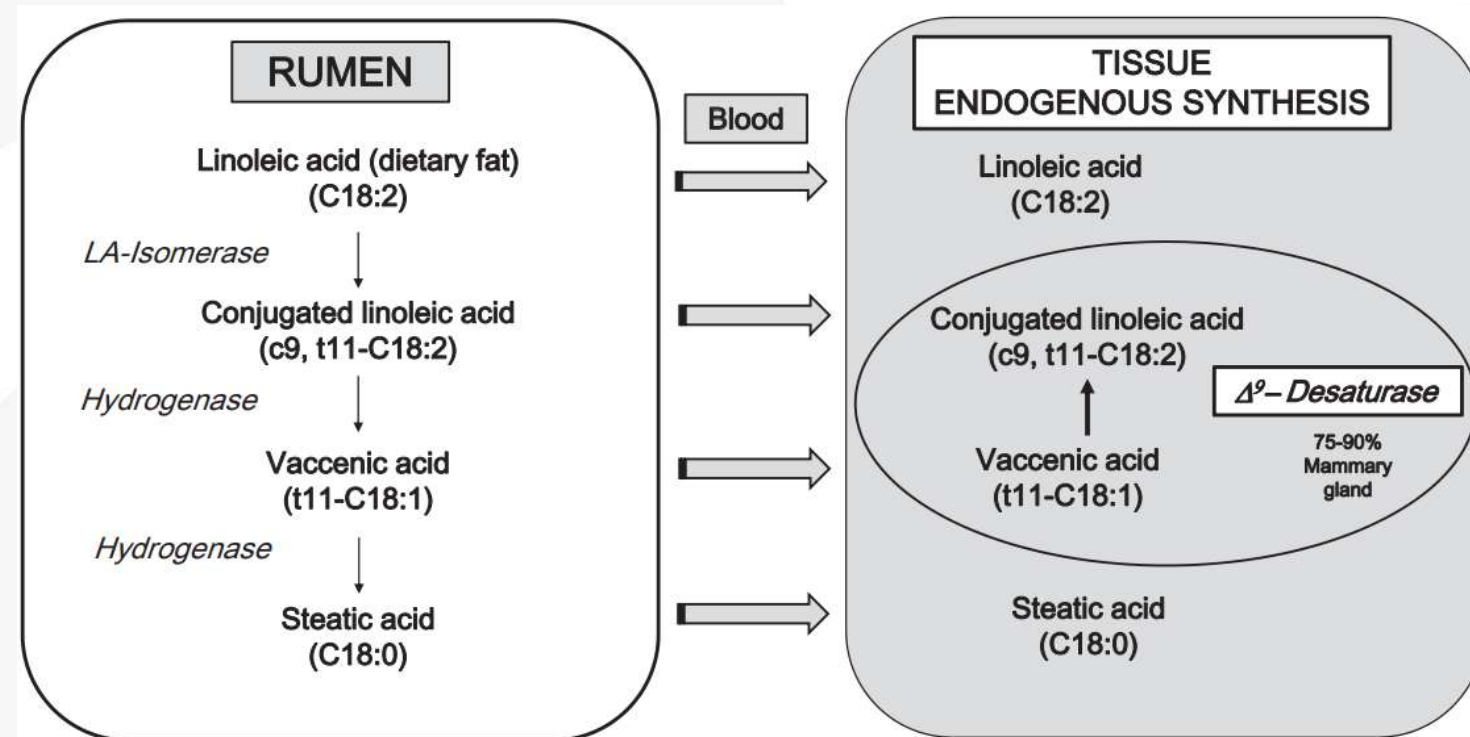
Environmentally

- Reduce methane emissions





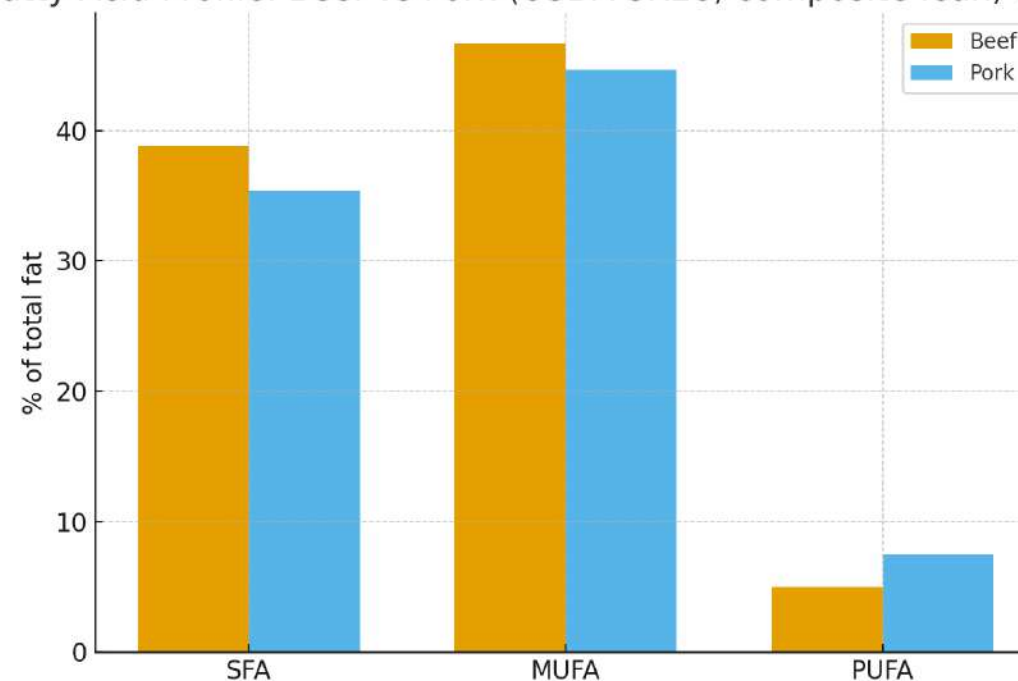
Biohydrogenation in the Rumen





Fat profile in beef and pork

Fatty Acid Profile: Beef vs Pork (USDA SR28, composite lean, cooked)





**21ª CONFERENCIA
INTERNACIONAL
SOBRE PALMA DE ACEITE**

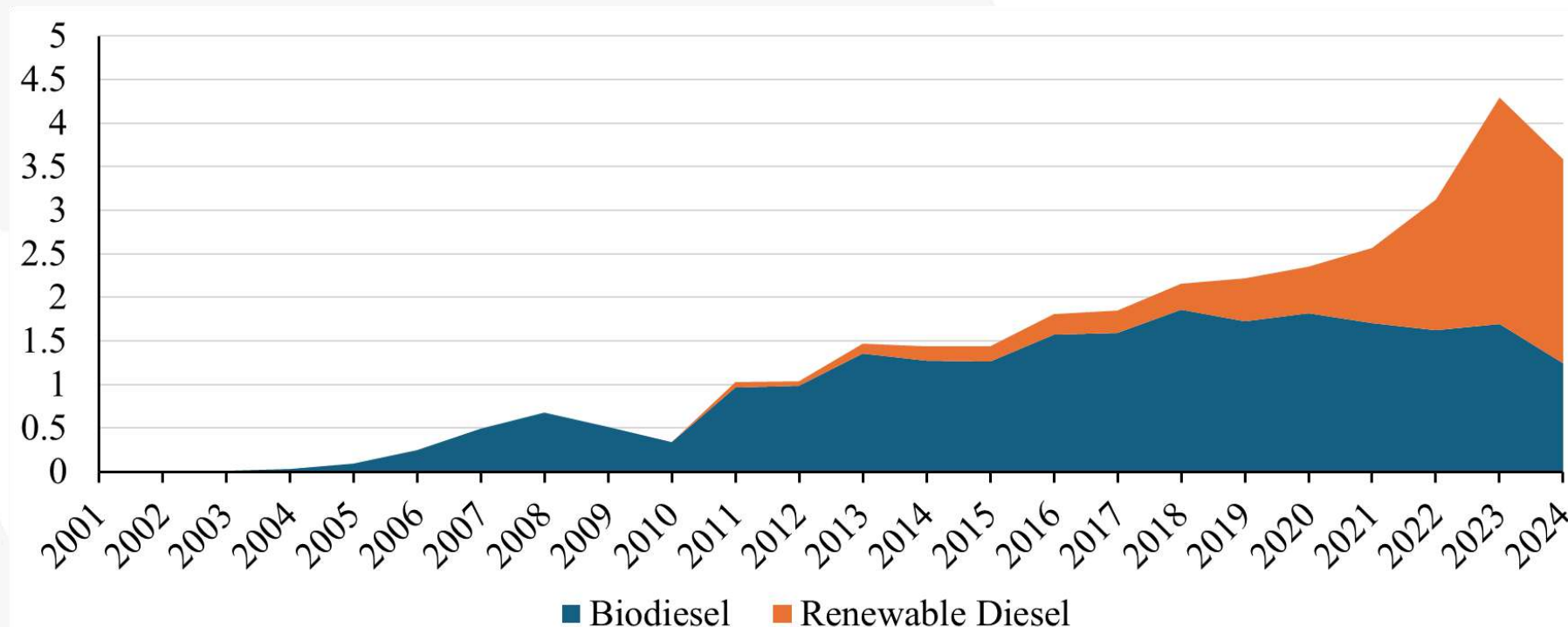
21th International Oil Palm Conference

Opportunity for palm oil in US beef diets





US Biobased Diesel (BBD) Production, Billion gallons



Feedstocks for biobased diesel (BBD)



21ª CONFERENCIA
INTERNACIONAL
SOBRE PALMA DE ACEITE
21st International Oil Palm Conference

Take home points:

- Soybean oil is the largest feedstock
- Yellow grease (or used cooking oil (UCO)) has seen a recent increase
- Canola oil and tallow usage increased in 2023
- Influenced by credits

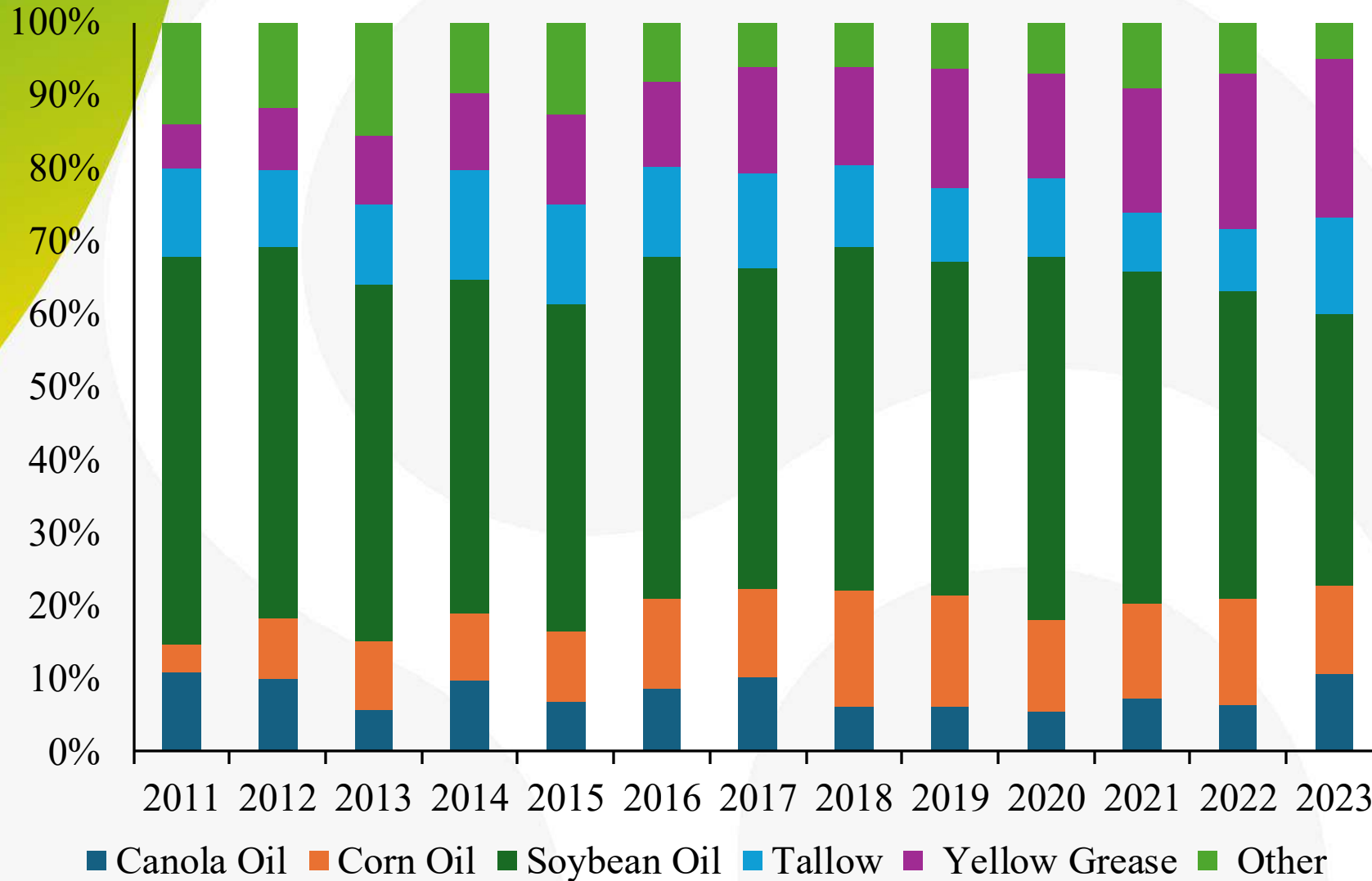
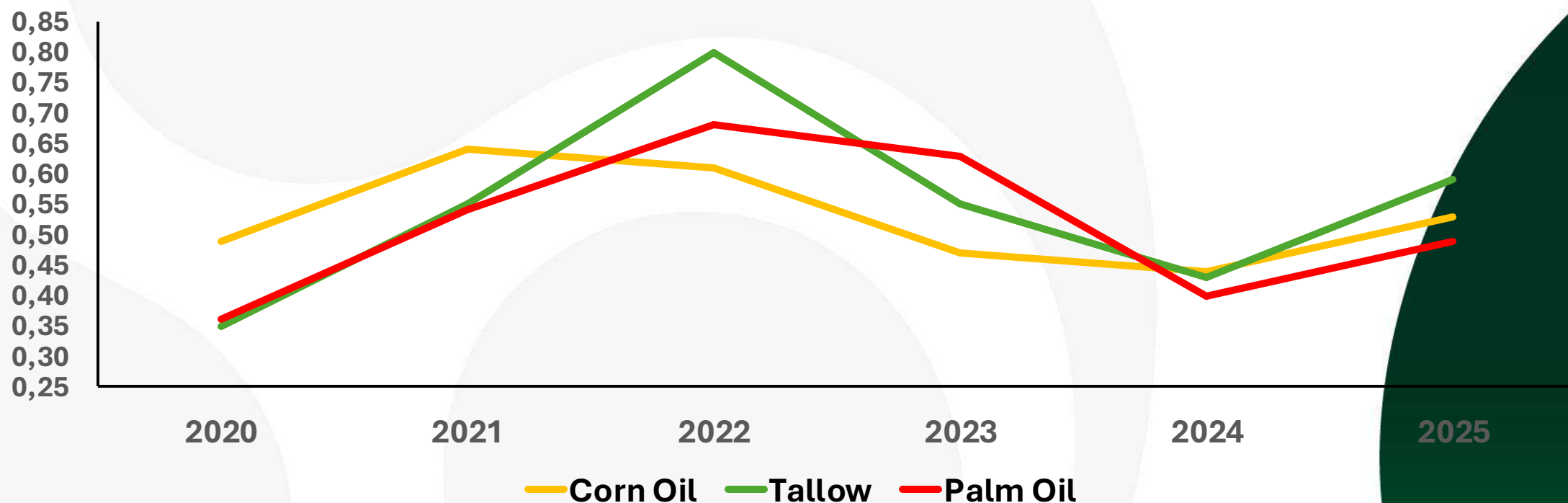


Figure. Proportion of feedstock used for BBD since 2011



Prices (\$/lb) of fat sources





**21ª CONFERENCIA
INTERNACIONAL
SOBRE PALMA DE ACEITE**

21th International Oil Palm Conference

Palm oil in beef finishing diets



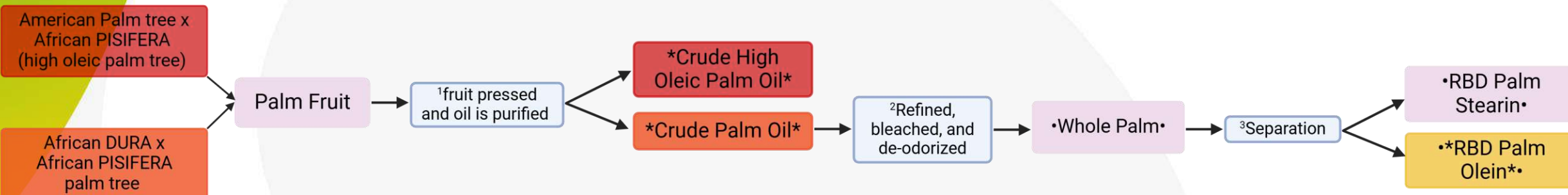


Bunge Study EXP. 1

- 320 steers (40 pens)
- 155 days on feed
- 120 briskets purchased
 - Ground hamburger
- Student: Anna Kobza

Fedpalma Study Exp. 2

- 430 steers (40 pens)
- 159 days on feed
 - 107 days fed oils
- 120 Strip loins
 - Steaks
- Student: Tate Johnson



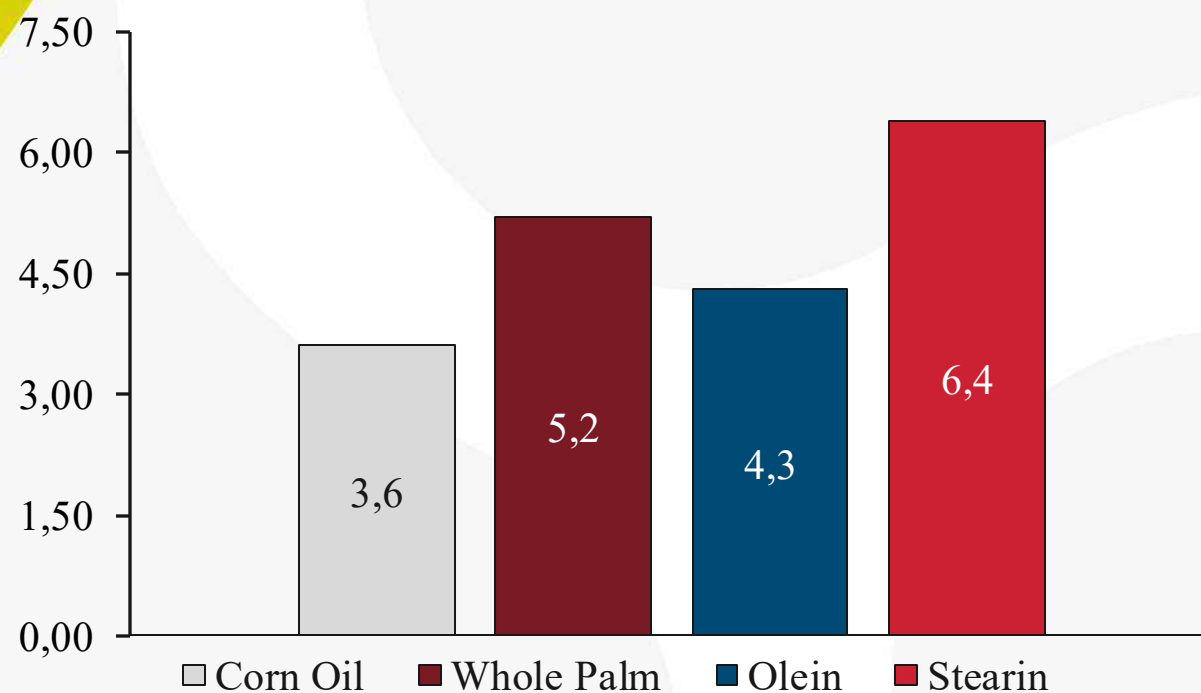
Bunge study:

Fedeplama study:



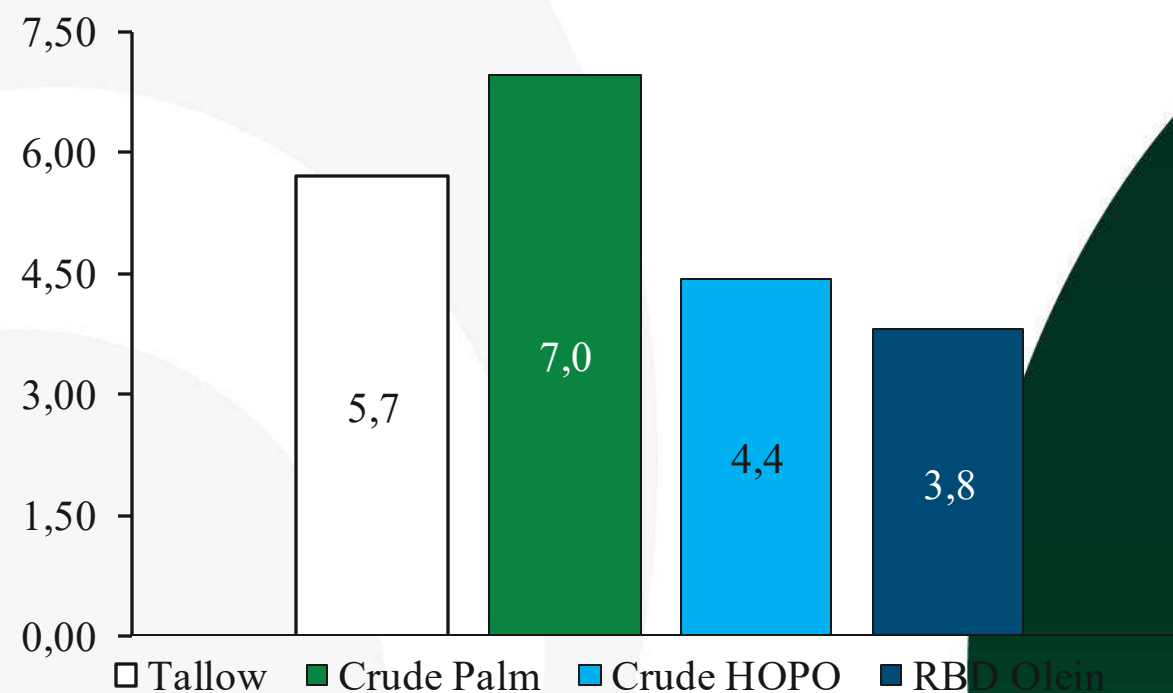
Relative value of fat sources

% Improvement in G:F from No Oil



Kobza et al. 2023

% Improvement in G:F from No Oil



Johnson et al. 2024

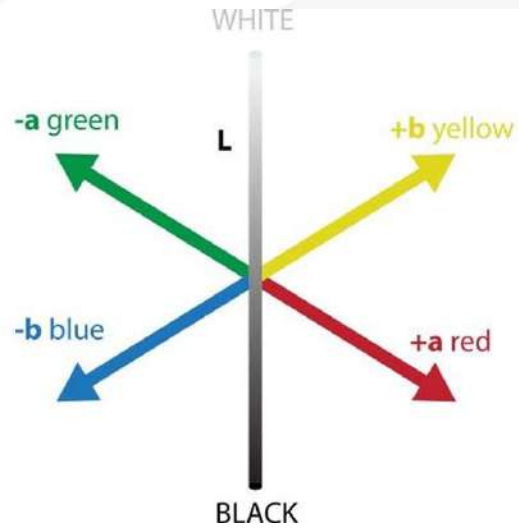


Fatty Acid Composition of Oils in Exp. 1

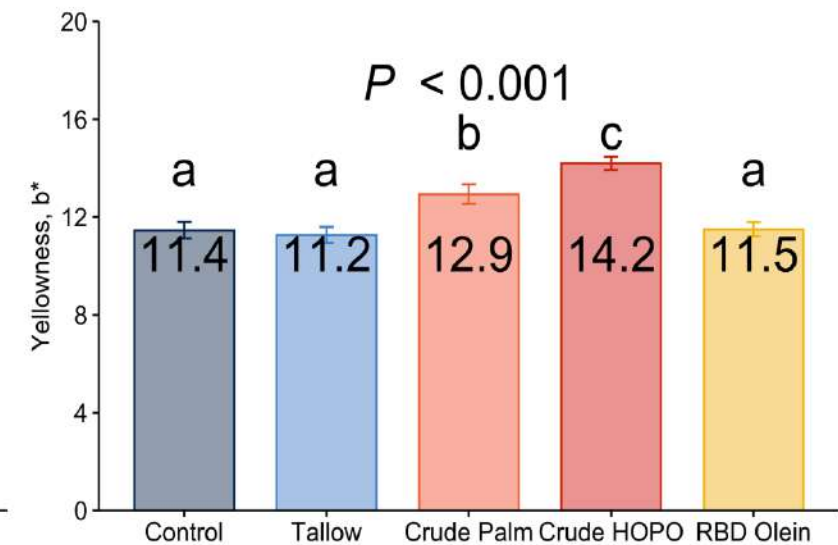
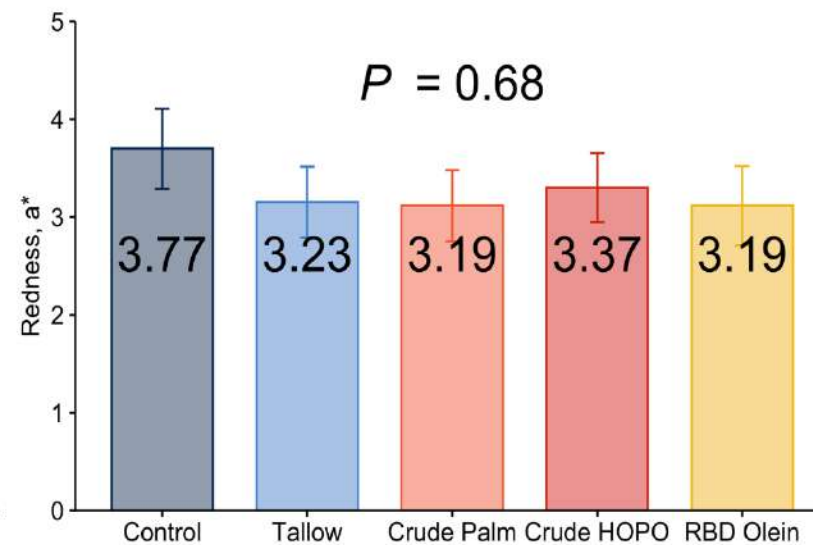
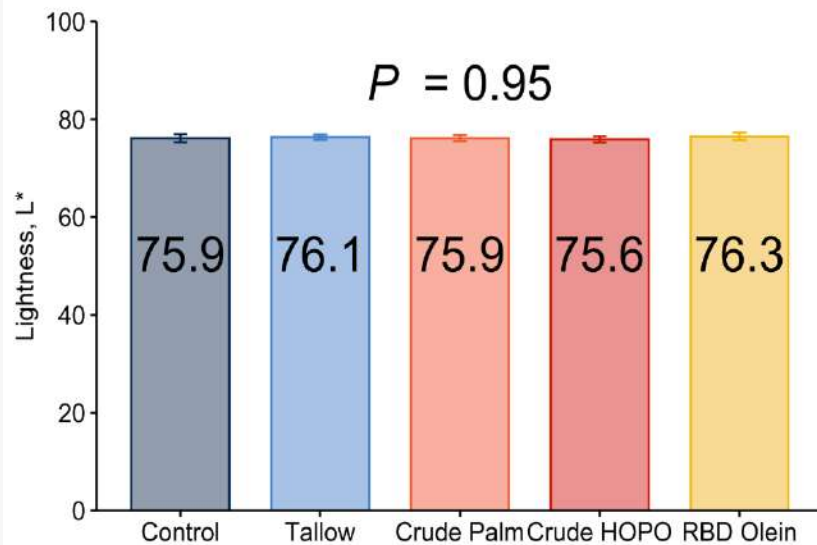
Item	Corn Oil	Whole Palm	Olein	Stearin
Oil FAME				
14:0	<0.1	1.3	1.1	1.2
16:0	16.2	41.8	39.9	61.4
18:0	1.6	4.5	4.3	5.0
18:1n-9	26.9	41.3	44.0	26.7
18:2n-6	54.1	9.7	10.1	5.4
18:3n-3	1.2	<0.1	<0.1	<0.1

Fatty Acid Profile of Ground Beef

Item	No Oil	Corn Oil	Whole Palm	Olein	Stearin	SEM ²	P-Value ³
Fatty Acid, g/100 g FAME ⁴							
14:0	3.70	3.78	3.46	3.46	3.48	0.241	0.81
16:0	26.78	26.73	27.22	26.60	26.80	0.579	0.96
18:0	10.58	11.35	10.56	11.45	10.43	0.469	0.38
18:1n-9	47.96	47.71	47.95	48.02	48.29	0.772	0.99
18:2n-6	1.40 ^c	1.67 ^a	1.60 ^{ab}	1.52 ^{bc}	1.63 ^{ab}	0.052	<0.01
18:3n-3	0.09	0.10	0.11	0.09	0.09	0.023	0.96

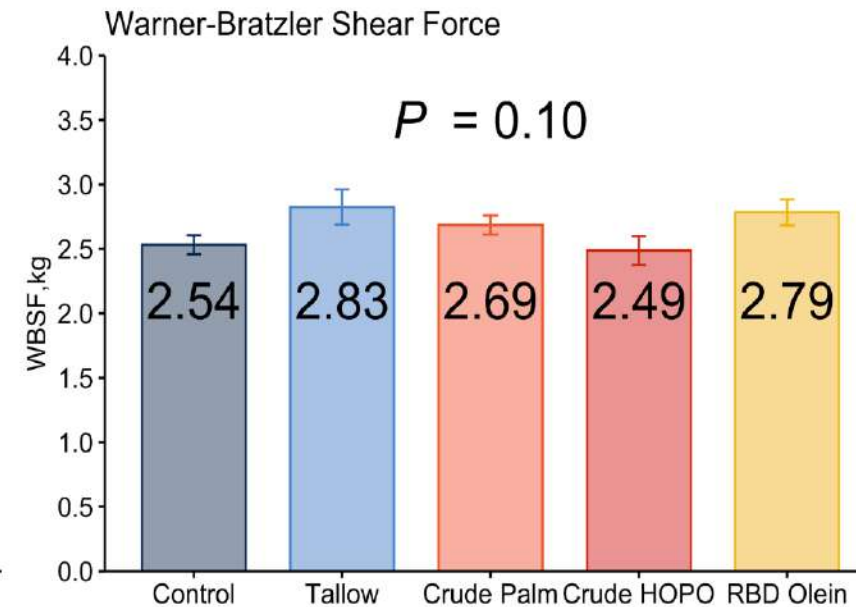
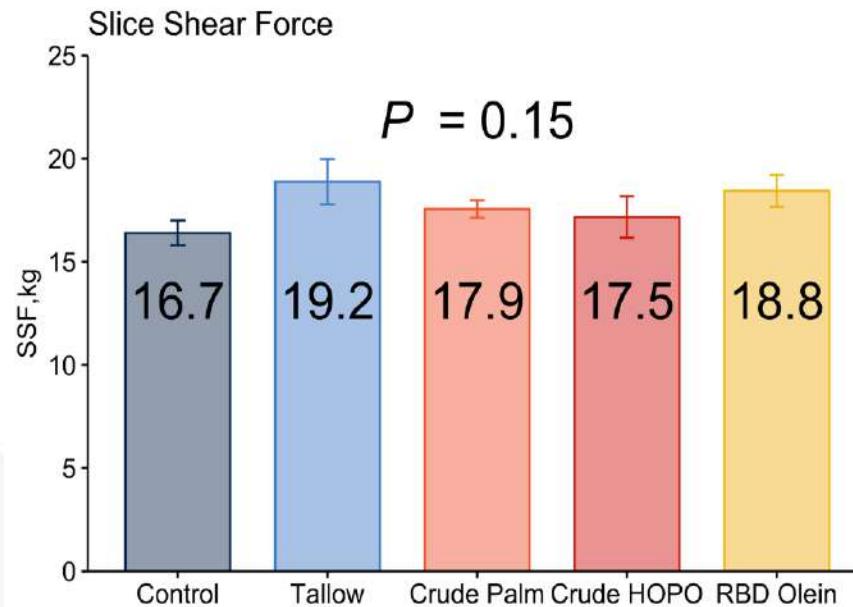


Fat Color





Estimates of beef tenderness



•"Tender" (Minimum Threshold):

- SSF: 20.0 kg
- WBSF: 4.4 kg

•"Very Tender" (Minimum Threshold):

- SSF: 15.3 kg
- WBSF: 3.7 kg

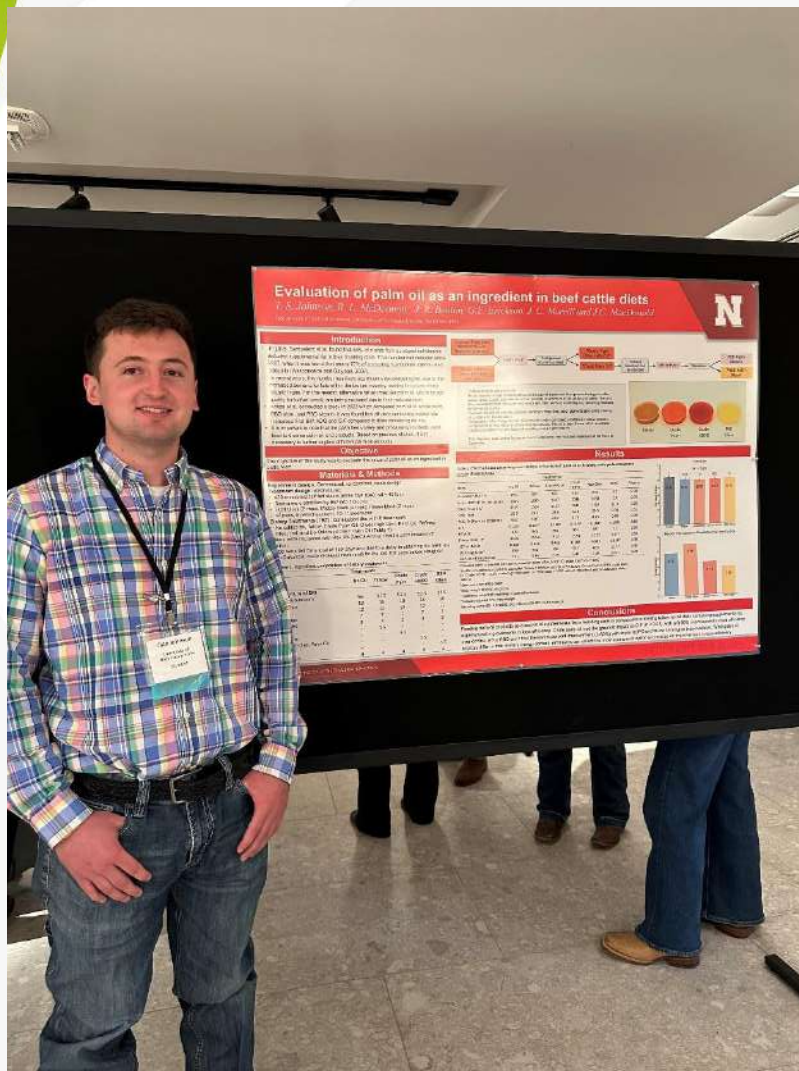


Conclusions

- Palm oil can be utilized as a fat source in beef feedlot diets
 - RBD Olein and Crude HOPO feeding value similar to corn oil
 - RBD Stearin and Crude Palm feeding value similar to tallow
- No negative impacts on meat quality expected
 - Small differences in 18:2 and tenderness
 - Not likely to impact the eating experience



**21ª CONFERENCIA
INTERNACIONAL
SOBRE PALMA DE ACEITE**
21st International Oil Palm Conference



Thank you, Fedepalma!



21^a CONFERENCIA INTERNACIONAL SOBRE PALMA DE ACEITE

21th International Oil Palm Conference