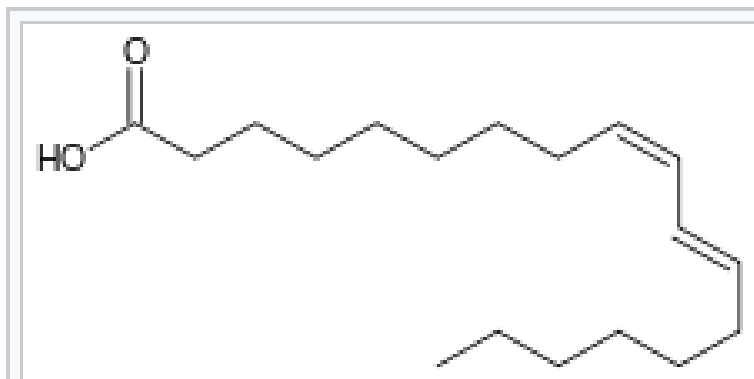


# Fatty Acids in Milk Study Missouri Producers 2018



Conjugated **linoleic acids** (CLA) are a family of at least 28 isomers of **linoleic acid** found mostly in the **meat** and dairy products derived from ruminants. CLAs can be either cis- or trans-fats and the double bonds of CLAs are conjugated and separated by a single bond between them.



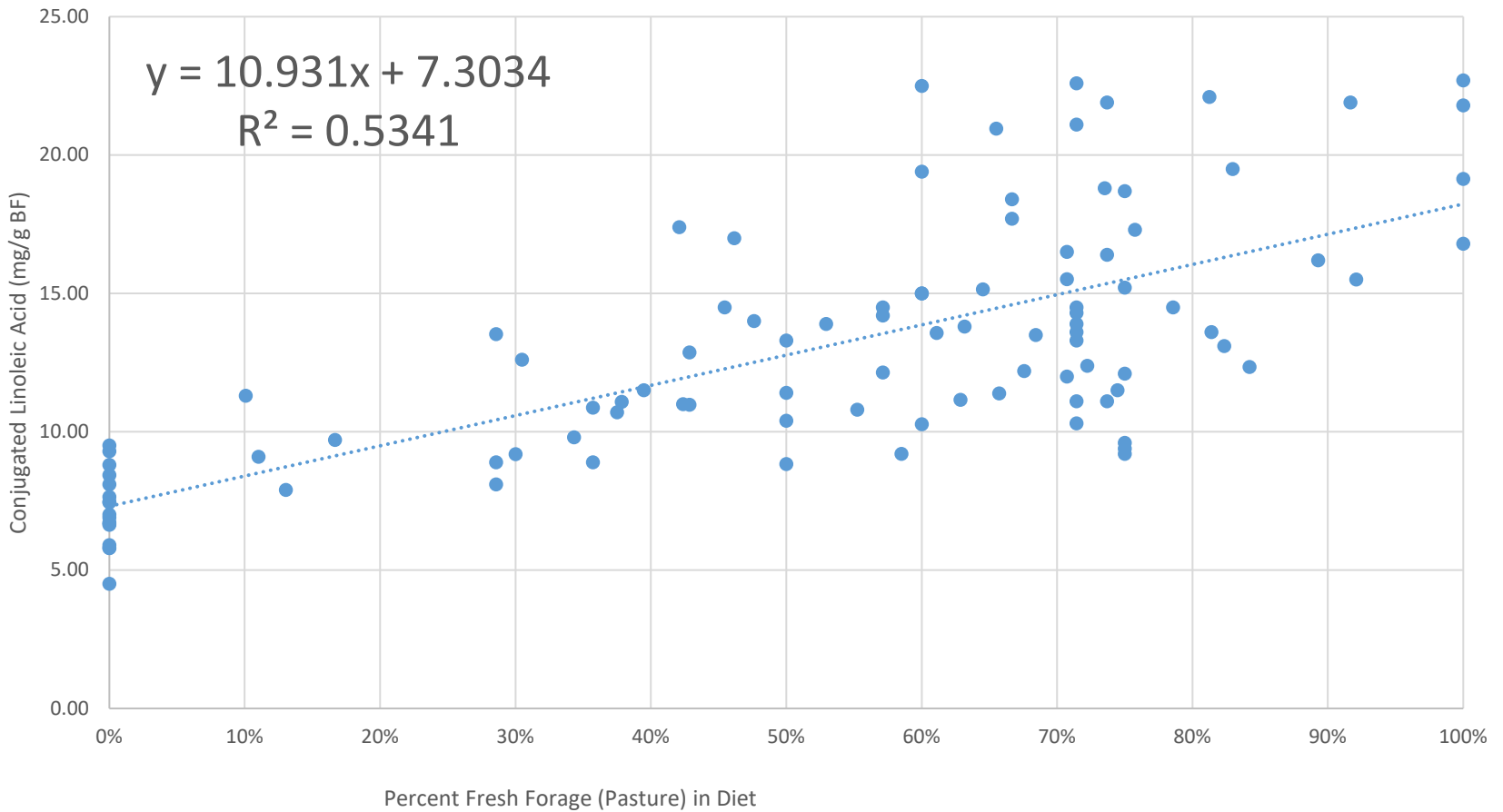
Rumenic acid, an example of conjugated linoleic acid



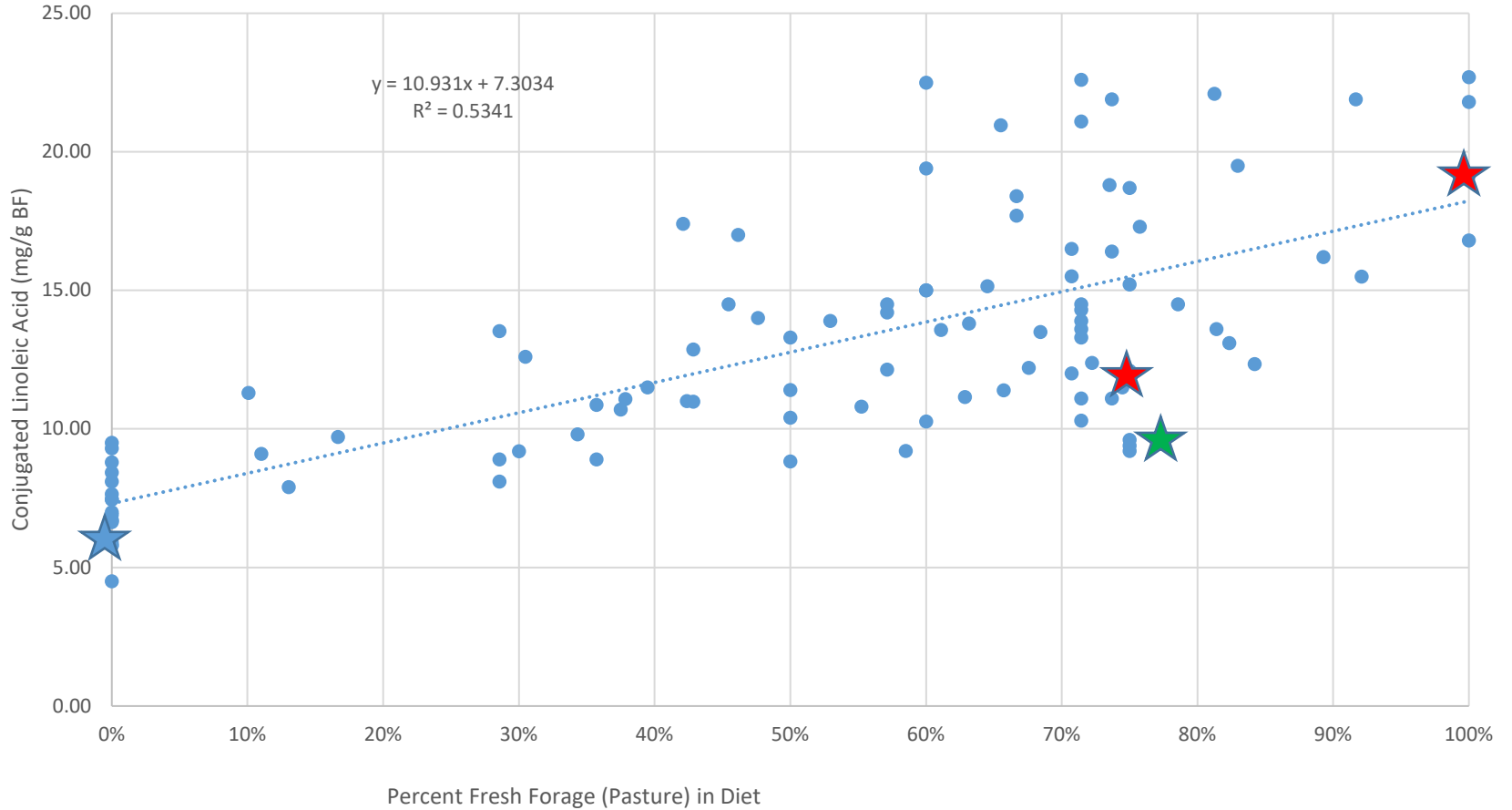
# CLA and It's Benefits?

- Immune system
- Anti-carcinogenic
- Anti-obesity
- Cardiovascular

# Percent Pasture Fed on Concentrations of Conjugated Linoleic Acid in Milk

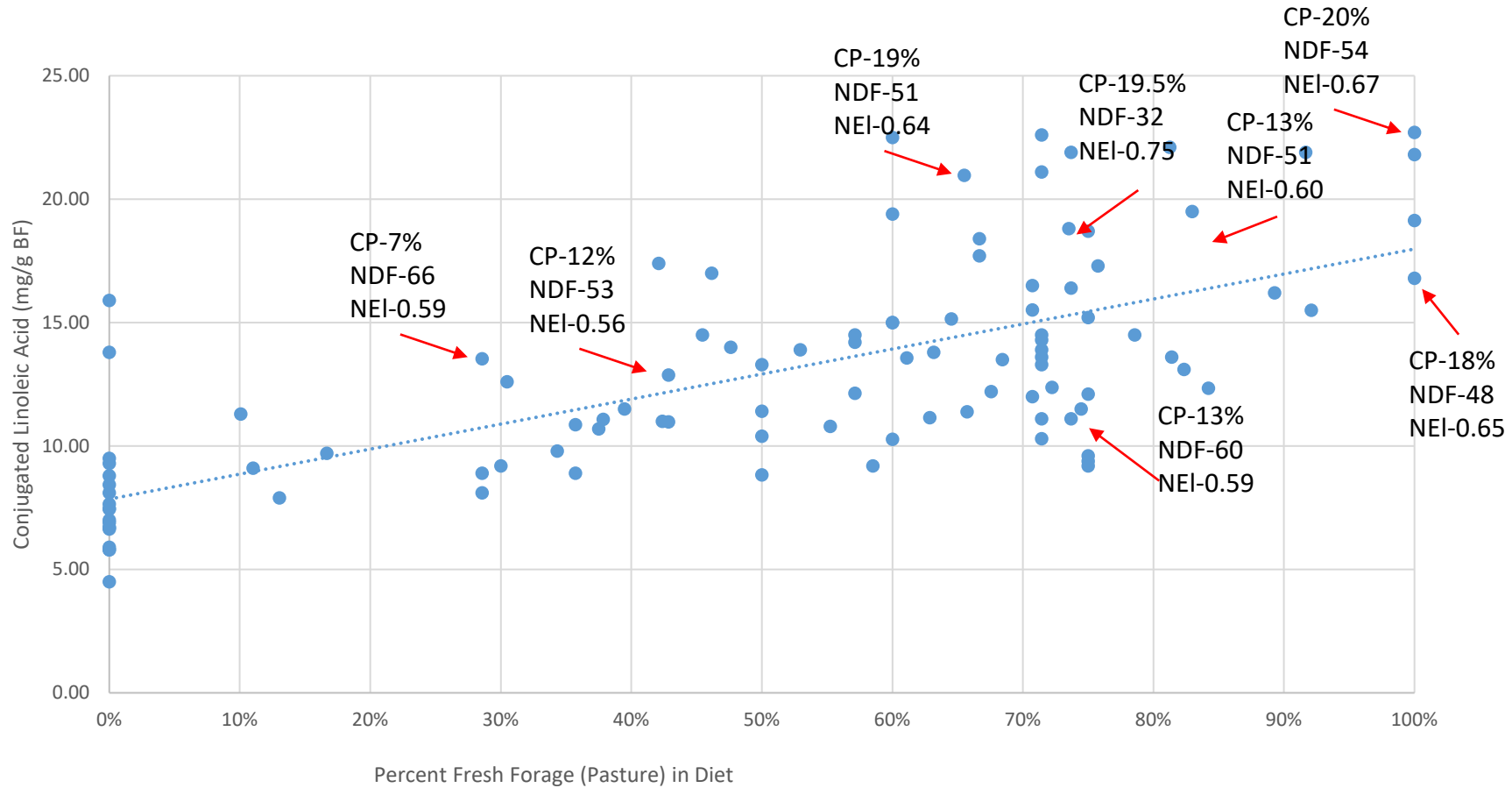


Percent Pasture Fed on Concentrations of Conjugated Linoleic Acid in Milk

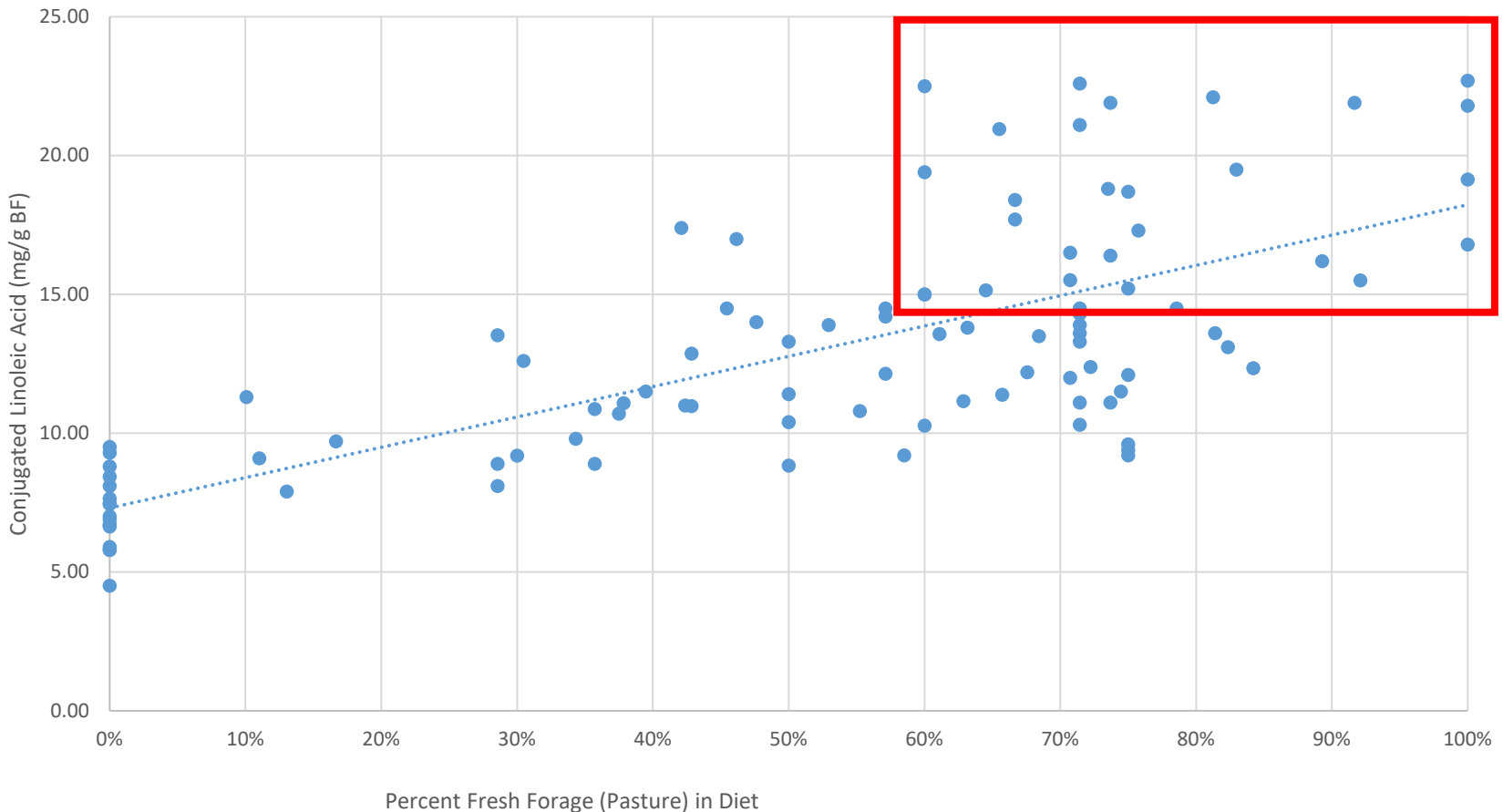


- ★ Whole Milk off shelf
- ★ Grassfed Whole Milk off shelf
- ★ Organic Whole Milk off shelf

# Percent Pasture Fed on Concentrations of Conjugated Linoleic Acid in Milk

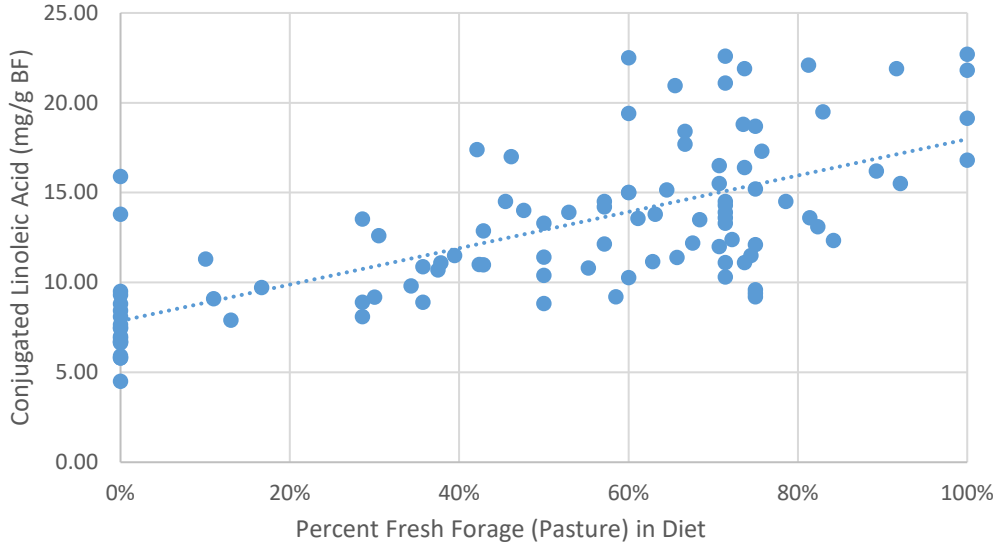


## Percent Pasture Fed on Concentrations of Conjugated Linoleic Acid in Milk

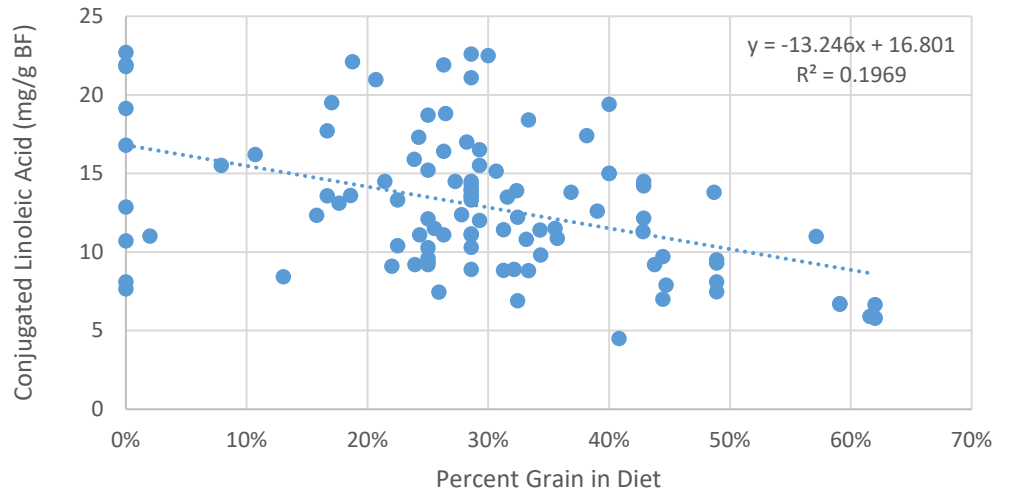


- Appears to be able to go down to 60% fresh forage BUT.....
- Nutritive value of the fresh forage MUST be excellent (>20% CP, >0.65 NEI)

Percent Pasture Fed on Concentrations of Conjugated Linoleic Acid in Milk

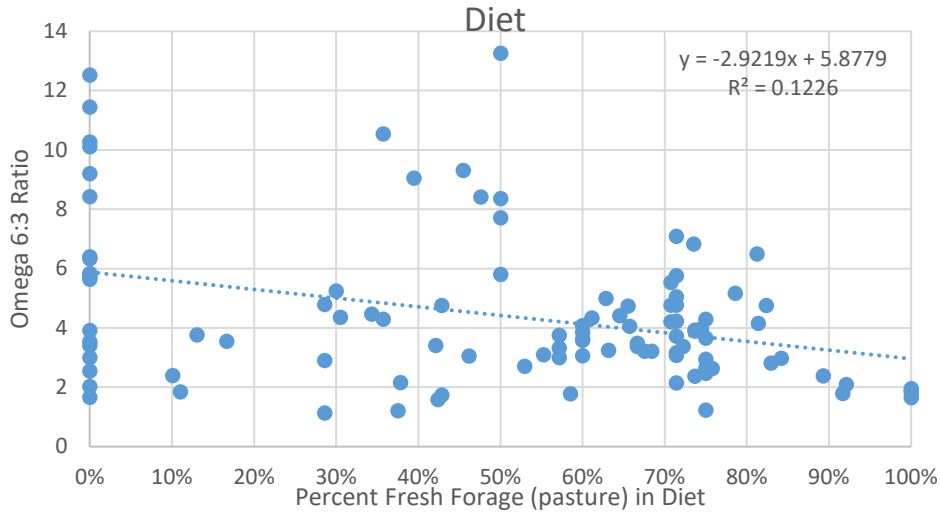


Percent Grain Fed on Concentrations of Conjugated Linoleic Acid in Milk



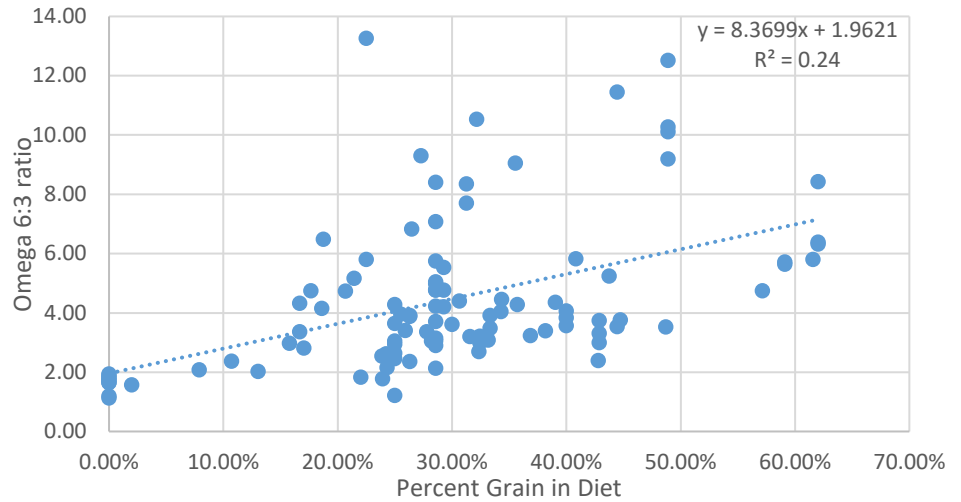


### Omega 6:3 Ratio in Milk vs Percent Pasture in Diet

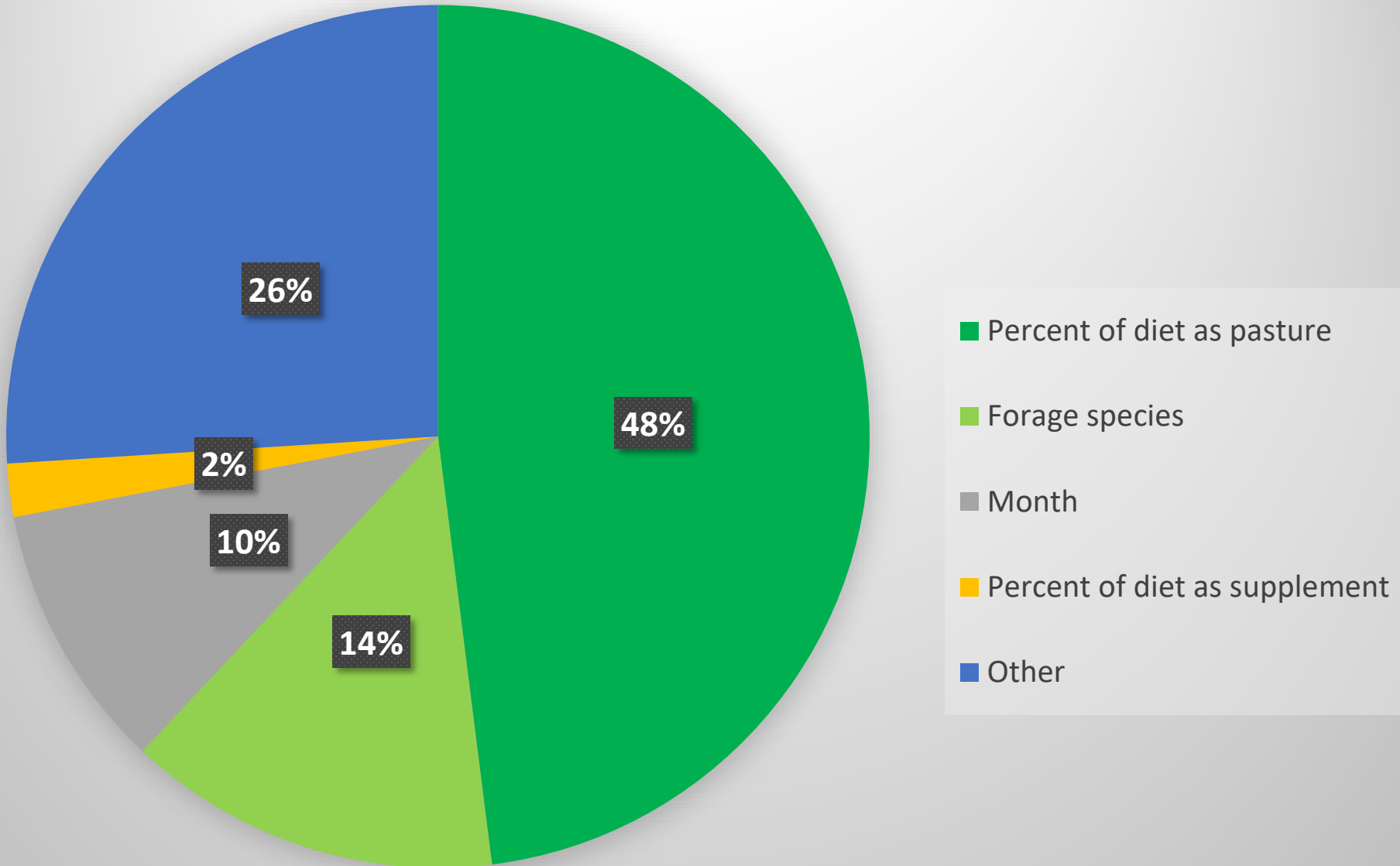


The typical western diet contains an extremely high n-6:n-3 ratio, (on the order of 15:1), that can lead to essential FA deficiencies when compared to eastern diets, where the ratio is near 4:1 (Trautwein, 2001).

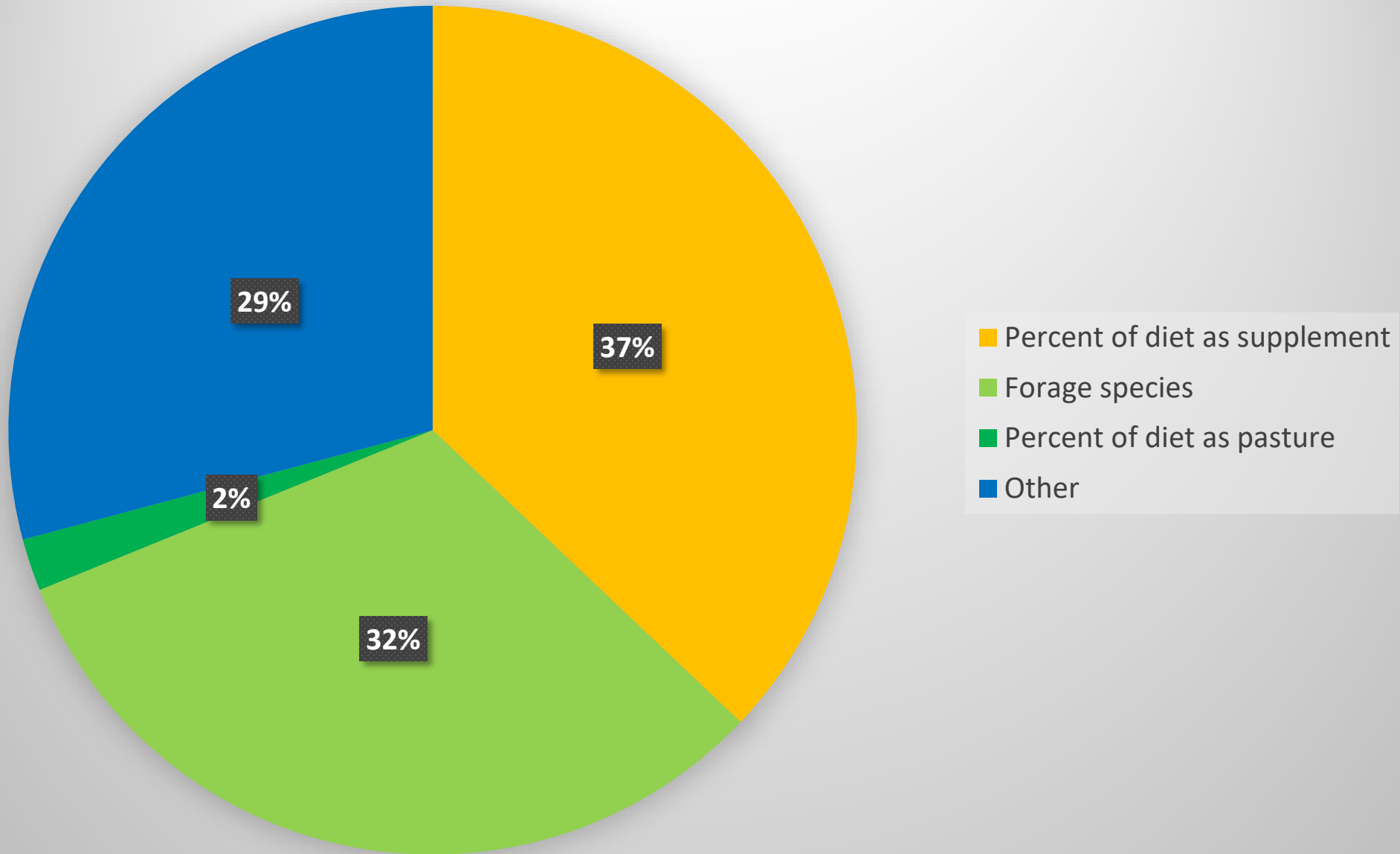
### Omega 6:3 ratio vs Percent Grain in Diet



## Important Factors that Explained Variation in Milk CLA



## Important Factors that Explained Variation in Milk Omega 6:3 Ratio



# Predictor Variables in Step Wise Multiple Regression Model to Evaluate CLA and C6:C3 Ratio

	CLA	C6:C3 Ratio
• Percent Fresh Forage	48%	2%
• Percent Grain	2%	37%
• Percent Butterfat	NA	NA
• Forage Species	14%	32%
• Month	10%	NA
• Farm	NA	NA
• Cow Type/Breed	NA	NA