



# DIGESTIBILITY OF FATS IN DAIRY COWS

## What Are the Kinds and Amounts of Lipids Reaching the Intestines of Cows?

Tom Jenkins, Professor  
Department of Animal &  
Veterinary Sciences





## DIGESTIBILITY OF FATS IN DAIRY COWS

### What are the Kinds & Amounts of Lipids Reaching the Intestines of Cows?

- Nonglycerol-based
  - Waxes
  - Alkanes
- Glycerol-based
  - Triglycerides
  - Phospholipid
  - Galactolipids



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Glycerol

Triglyceride

Galactolipid

Phospholipid

C<sub>1</sub>

OH

OH

OH

OH

C<sub>2</sub>

OH

OH

OH

OH

C<sub>3</sub>

OH

OH

OH

OH

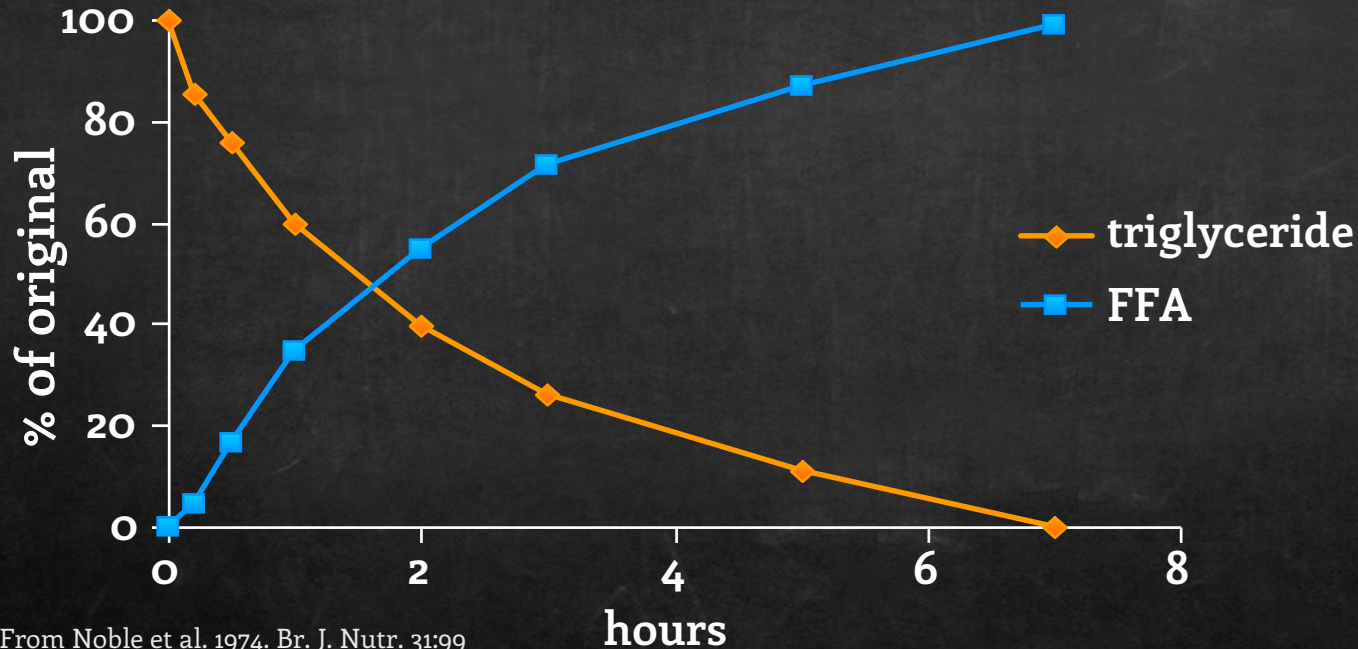




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### Lipolysis by Ruminal Microbes

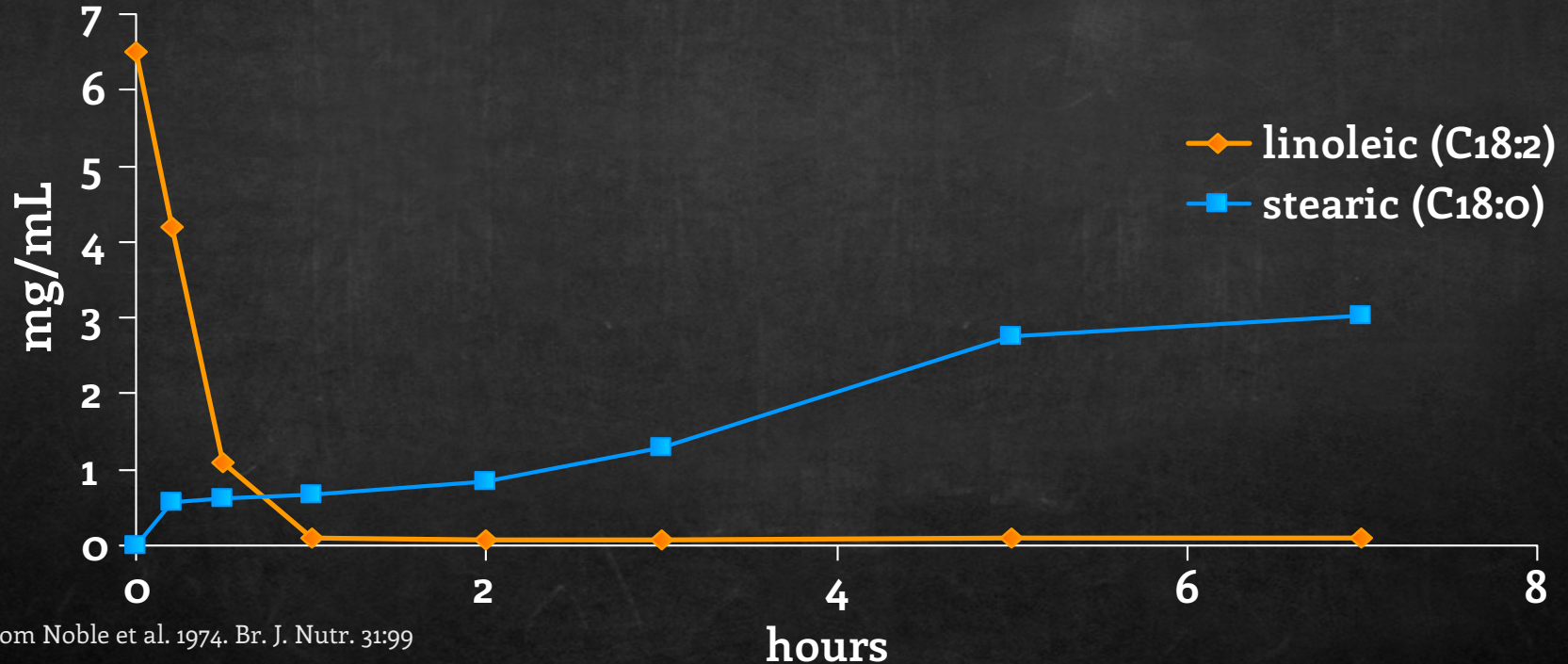




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#### Biohydrogenation Unsaturated FFA to Saturated FFA



From Noble et al. 1974. Br. J. Nutr. 31:99



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### What are the Kinds & Amounts of Lipids Reaching the Intestines of Cows?

|        | Intake g/d |
|--------|------------|
| C12:o  | 10.44      |
| C14:o  | 11.11      |
| C16:o  | 206.89     |
| C16:1  | 5.23       |
| C18:o  | 40.53      |
| C18:1T | 14.22      |
| C18:1C | 225.28     |
| C18:2  | 343.49     |
| C18:3  | 78.32      |
| Other  | 19.11      |
| Ration | 954.63     |





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|        | Intake g/d | Lipolysed g/d | Duodenal g/d |
|--------|------------|---------------|--------------|
| C12:0  | 10.44      | 10.16         | 10.44        |
| C14:0  | 11.11      | 9.55          | 11.11        |
| C16:0  | 206.89     | 160.13        | 219.31       |
| C16:1  | 5.23       | 5.13          | 4.84         |
| C18:0  | 40.53      | 35.38         | 526.48       |
| C18:1T | 14.22      | 13.32         | 76.98        |
| C18:1C | 225.28     | 188.39        | 74.99        |
| C18:2  | 343.49     | 322.76        | 47.33        |
| C18:3  | 78.32      | 75.50         | 4.27         |
| Other  | 19.11      | 18.23         | 59.91        |
| Ration | 954.63     | 838.55        | 1035.68      |



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