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Social Pressure & Technology in the Dairy Industry

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PALMITIC ACIDS IN RUMEN DIETS

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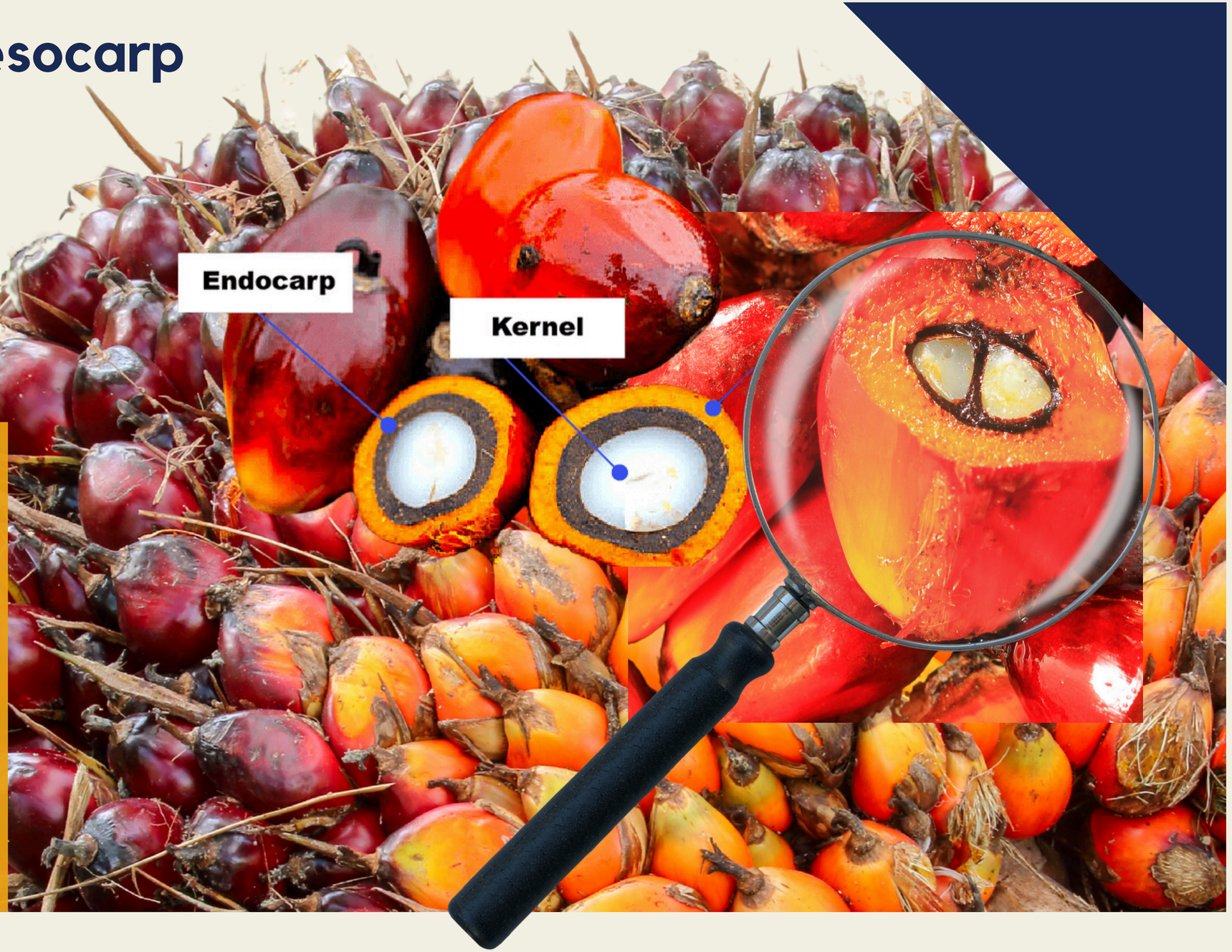
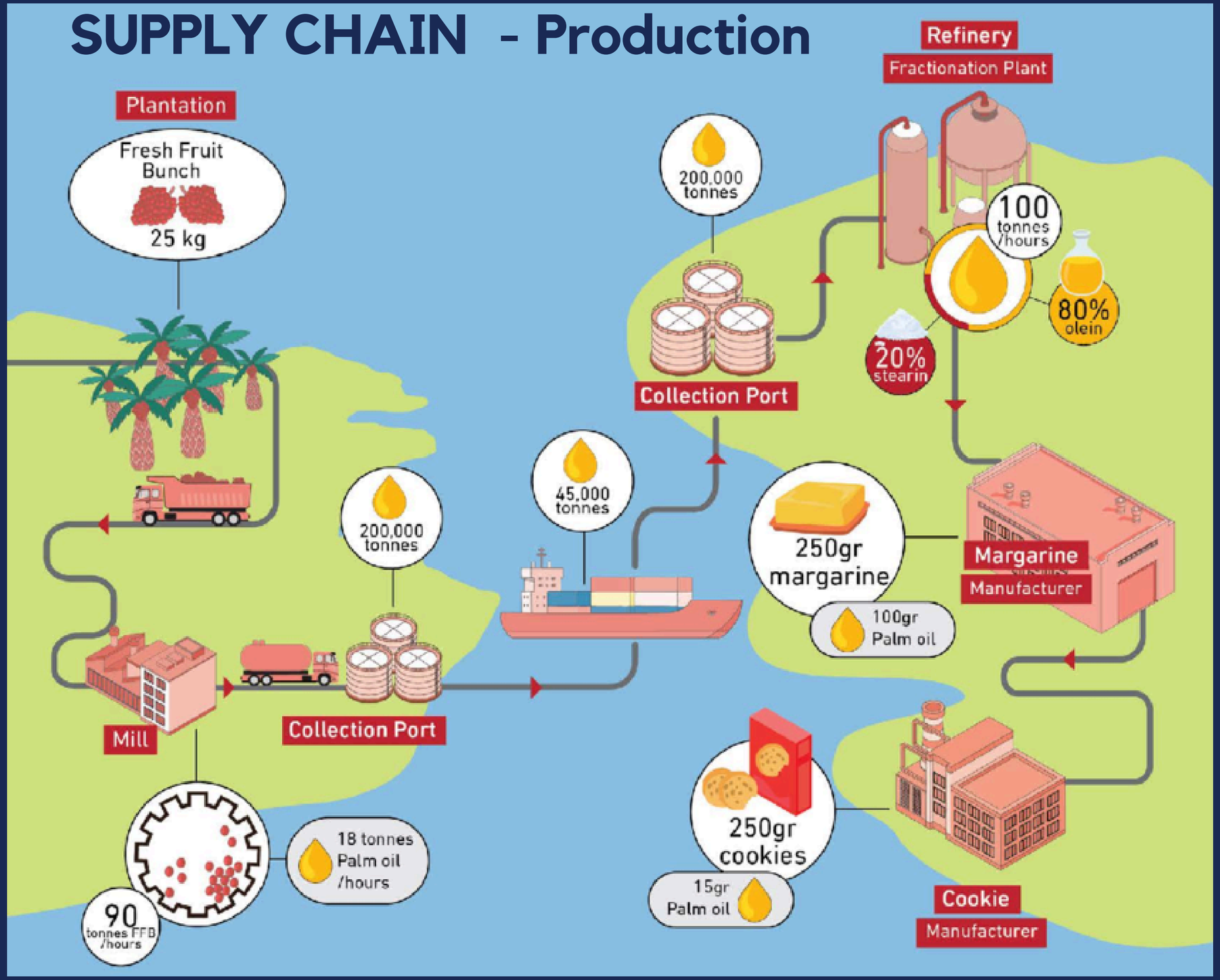
- Types of products available in the market

Palm Fruit Mesocarp

MESOCARP / FRUIT	71-76%
KERNEL/ FRUIT	21-22%
SHELL / FRUIT	10-11%
OIL /BUNCH	21-23%
KERNEL / BUNCH	5-7%



SUPPLY CHAIN - Production

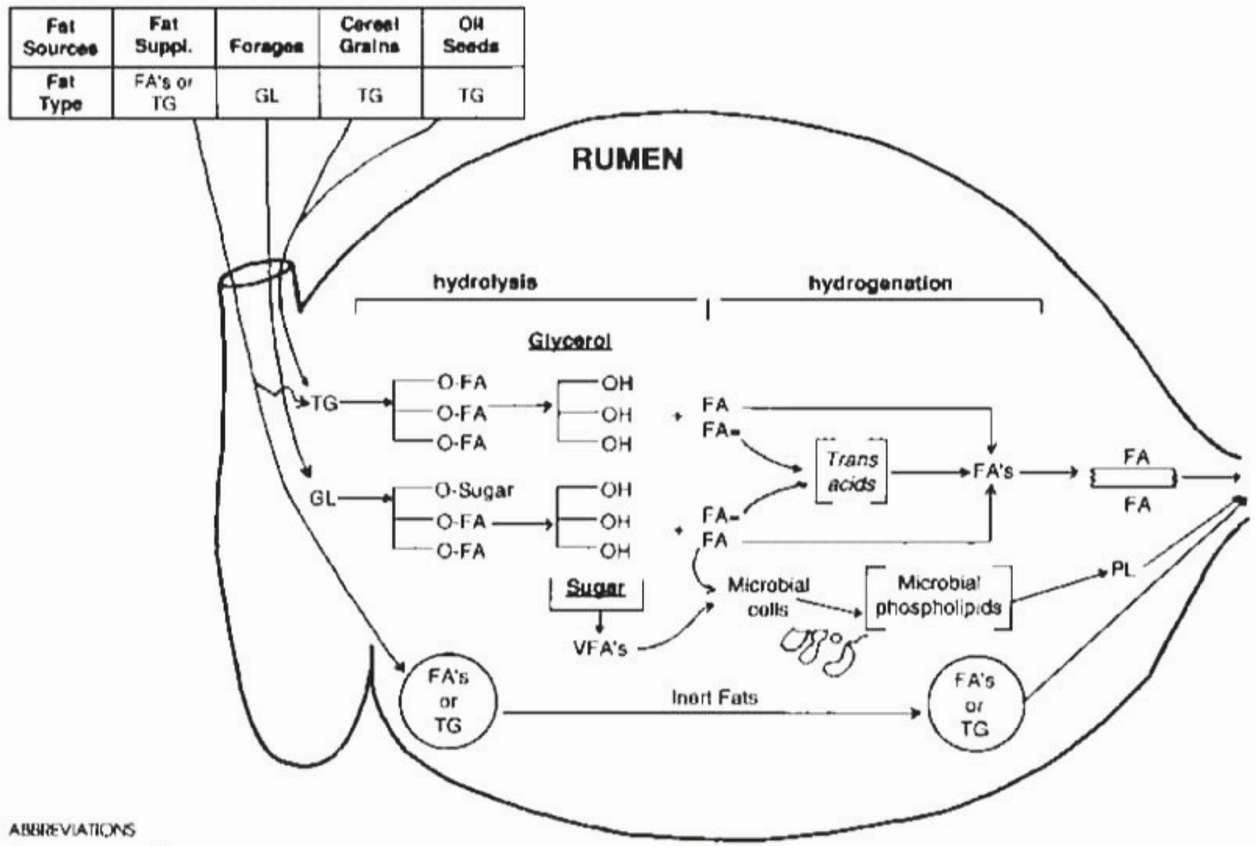


WHAT IS PALMITIC ACID?

FATTY ACID CHAIN LENGTHS	NAME	CRUDE PALM OIL	PALM FATTY ACID DISTILLATE	PALM STEARIN
C12:0	LAURIC ACID	0.23	0.36	0.25
C14:0	MYRISTIC ACID	1.09	1.51	1.45
C16:0	PALMITIC ACID	44.02	39.82	62.2
C16:1	PALMITOLEIC ACID	0.12	0.29	0.07
C18:0	STEARIC ACID	4.54	44.7	5.0
C18:1	OLEIC ACID	39.15	11.41	24.8
C18:2	LINOLEIC ACID	10.12	0.12	5.9
C18:3	LINOLEIC ACID	0.37	0.92	0.3
C20:0	ARACHIDIC ACID	0.38	0.05	0.45

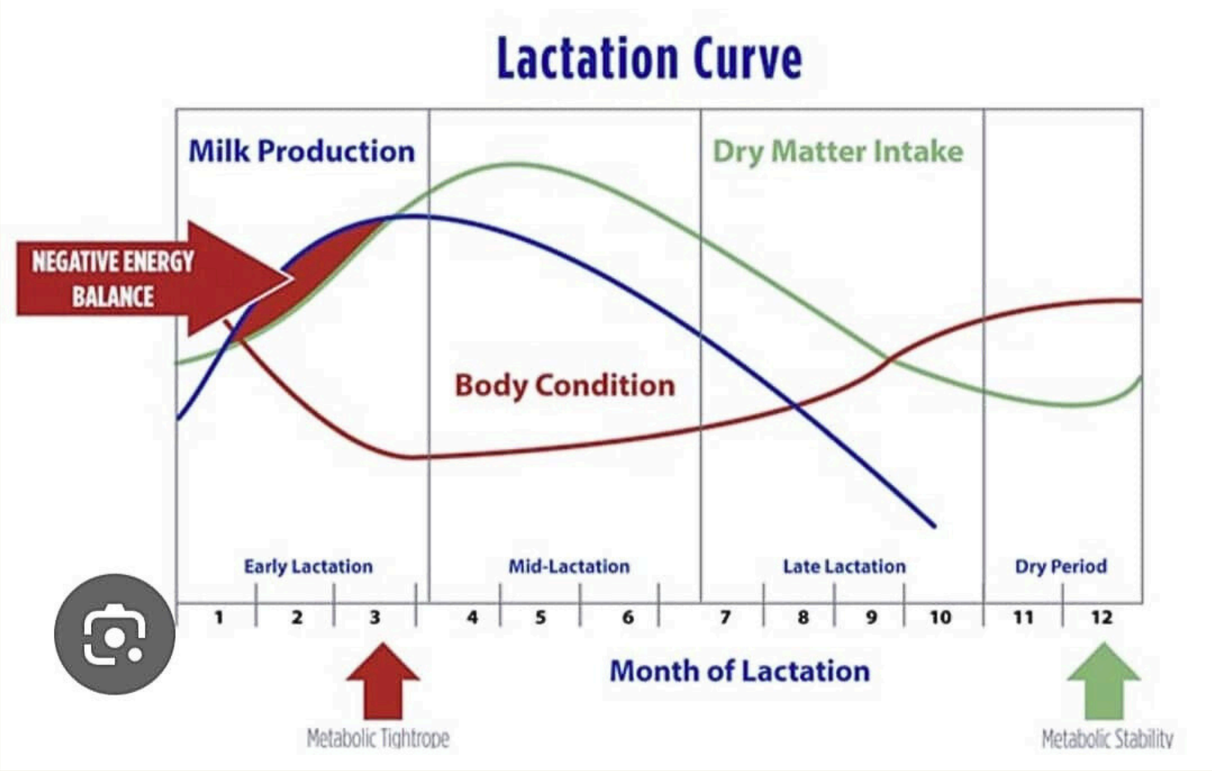
Lipids metabolism of dairy cows

Figure 1. Fat digestion in the rumen. Reproduced from Davis (1990).



ABBREVIATIONS

Gl-glycolipids; TG-Triglycerides; FA's-Mixture of fatty acids; FA-saturated fatty acids; FA- -Unsaturated fatty acids, VFA's Volatile fatty acids, PL-Phospholipids; *Trans* acids-Intermediates in the hydrogenation process; ▭ FA-Fatty acids attached to food particles.



LACTATING COWS NATURALLY HAVE LIMITATIONS WITH FEED INTAKE, PARTICULARLY WITH DRY MATTER FEED.

AS A RESULT, A DAIRY COW'S DIGESTIBILITY IS REDUCED WITH INCREASED FEED INTAKE (TYRELL AND MOE, 1975).

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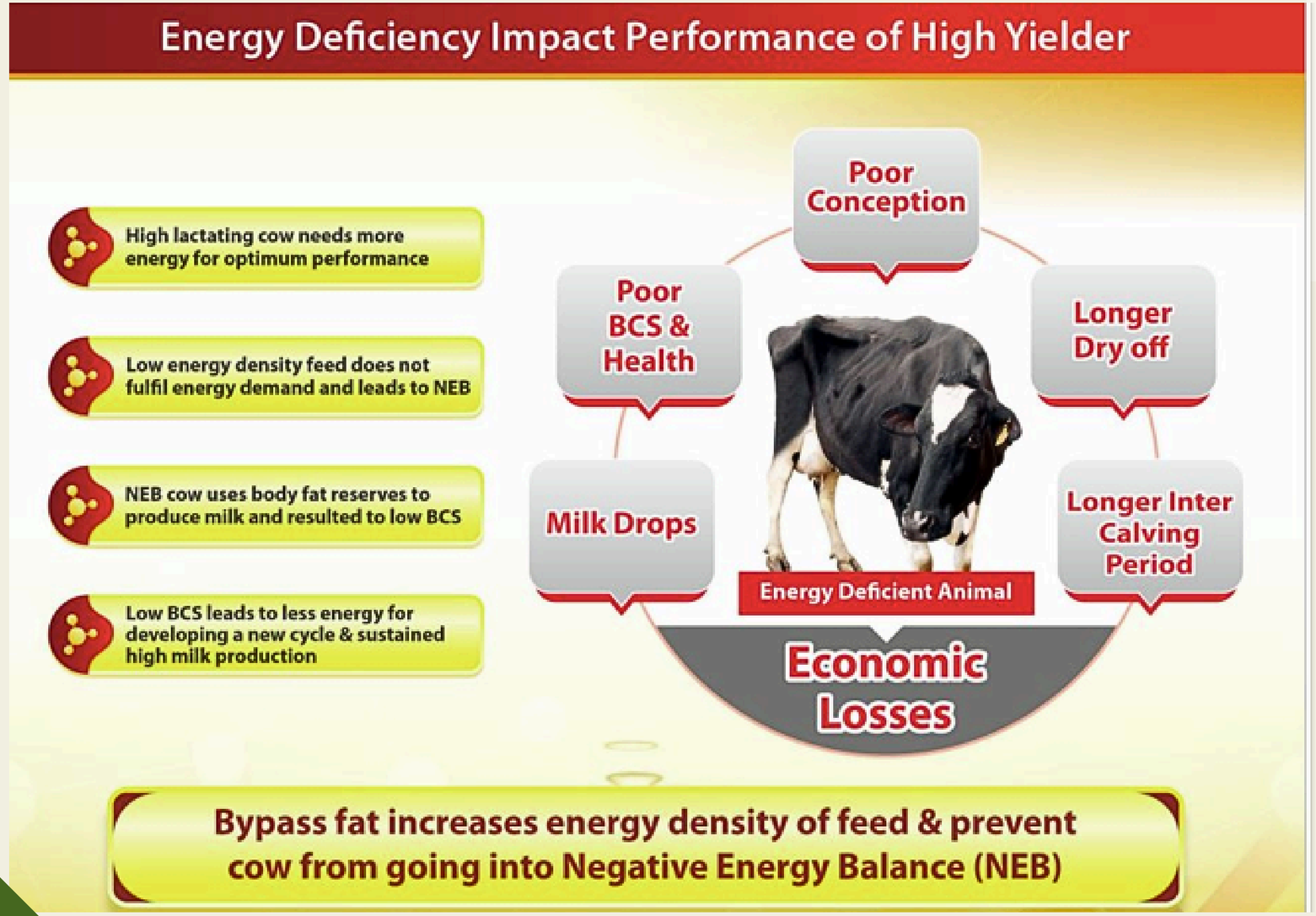
COUNTERACTING NEGATIVE ENERGY BALANCE (NEB)



BENEFITS OF BYPASS FATS

- Boost energy levels
- Improve immune function
- Improve metabolic function
- Resulting milk benefits

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BYPASS FATS IN RUMEN DIETS

01 FATTY ACIDS

02 TRIGLYCERIDES

03 CALCIUM SALTS

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BYPASS FATS IN RUMEN DIETS

01 FATTY ACIDS

- Produced in oleochemical factory
- Splitting of oils to produce fatty acids
- Fatty Acids is fractionated via distillation process to produce a high palmitic fatty acid of a purity up to 98%
- Produce is beaded / flaked and bagged into 25kg Kraft paper bags for export

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BYPASS FATS IN RUMEN DIETS

02 TRIGLYCERIDES

- Produced from the re-fractionation of RBD Palm Stearin
- Product palmitic content increases to 75%
- High melting point of 58°C
- Insoluble at rumen temperatures
- No harmful effect on rumen fermentation

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BYPASS FATS IN RUMEN DIETS

03 CALCIUM SALTS

- Produced from PFAD or DFA
- Saponification with calcium oxide
- Ca-Salt is inert if PH remains more than 5.5
- In acidic pH of abomasum, Ca-salts dissociated & then absorbed efficiently from the small intestine

Limitations to note:

1. **Pungent Soapy taste - poor palatability**
2. **Not completely Rumen inert**

Rumen pH	% Dissociated	% Bypass
4	90	10
4.5	76	24
5	50	50
5.5	24	76
6	9.1	90.1
6.5	3.1	96.9

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PURE ENZYMES FACILITY

- Strategic location in 50km from the container terminal of Port Klang, Malaysia
- Close proximities to refineries and oleochemical complexes of Port Klang
- Fractionation capacity of 300mts per day
- 3 beading plants running a total of beading and packaging of 90mts per day
- Blending of additives and lecithin to create protected rumen fats

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Ask Me Anything

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