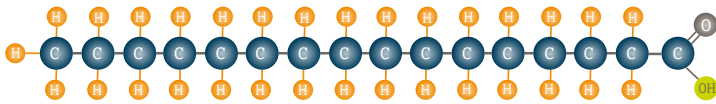


NUTRITION GUIDE

FAT FEEDING - the role of fatty acids

Many dairy farmers use fat supplements as an energy source to improve milk production and fertility. However, what we describe as 'fat' is actually composed of individual 'fatty acids' and it is the balance of these different fatty acids which results in a particular response when supplemented to dairy cows.

Structure of palmitic (C16:0) fatty acid



There are five major fatty acids in dairy diets and each has a unique mode of action and potentially a different role to play at different times during the lactation.

| Fatty acid | Name | Challenge to solve | When to feed | Why |
|------------|----------------|---|--|--|
| C16:0 | Palmitic acid | To lift milk fat% | Most beneficial in mid to late lactation | Increases partitioning of nutrients to milk to improve fat production. |
| C18:0 | Stearic acid | - | - | Digestibility decreases with increasing intake of C18:0. No supplementation required. |
| C18:1 | Oleic acid | To improve body condition score To increase milk yield To improve fertility | Most beneficial in early lactation | Improves digestibility of total diet fat and increases partition of nutrients to improve body condition. Also promotes development of eggs to improve fertility. |
| C18:2 | Linoleic acid | - | - | Plentiful in diet. No supplementation required. |
| C18:3 | Linolenic acid | To improve fertility | Early lactation | Improves embryo survival to increase fertility. |

Volac Wilmar offer a range of products containing the key fatty acids requiring supplementation in a dairy cow's diet.

Fatty acid profile of Volac Wilmar products (% total fatty acids)

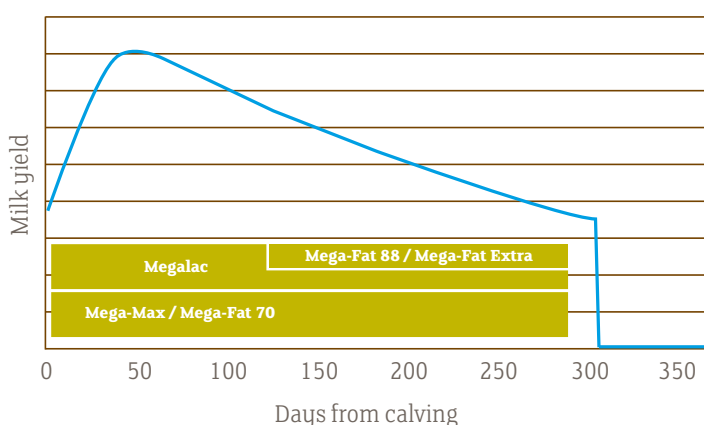
| Fatty acid | Megalac (2.0) | Mega-Max (2.0) | Mega-Fat 70 | Mega-Fat 88 | Mega-Fat Extra |
|------------|---------------|----------------|-------------|-------------|----------------|
| C16:0 | 48 | 58 | 70 | 88 | 97 |
| C18:0 | 5 | 5 | 3 | 8 | 2 |
| C18:1 | 36 | 28 | 20 | 0 | 0 |
| C18:2 | 9 | 6 | 5 | 0 | 0 |

Based on fatty acid profile, individual products can be targeted to specific parts of the lactation or to meet particular objectives on farm. For example:

Megalac - use in early lactation to increase milk production, body condition and fertility, but can be offered throughout lactation to improve milk production

Mega-Max - optimum balance of fatty acids to improve milk yield, milk fat, fertility and body condition throughout lactation

Mega-Fat range - particularly beneficial for increasing milk fat production and to increase milk production in mid-late lactation



Where does milk fat come from ?

- 1 Around half is produced directly in the udder from acetate and butyrate resulting from digestion of fibre in the rumen
- 2 Around 45% comes directly from fat in the diet
- 3 The remainder comes from body fat – more comes from body fat in early lactation when cows are losing body condition

THE CONCLUSION

Choose the correct supplement based on fatty acid profile to optimise production, fertility and profit

