



Dairy lipids, the fat navigator for lean growth

Formulation of more concentrated feed is a prerequisite in current diet formulation. Fat provides more energy and creates 'free space' in the formula to include also more proteins, indispensable for muscular growth. This strategy becomes even more efficient by innovative products, like Volamel Compass, supporting the 'fat housekeeping process' in a more holistic way.

Volamel Compass, the fat navigator

The innovation is in the MFGM (fig 1), representing a unique and valuable lipid-containing component of cow's milk for young animal feed. The functionality of this complex membranous structure is versatile and clearly different from the classic cellular membrane. By supplementing Volamel Compass fat digestion/absorption is still supported, but the focus shifts towards fat metabolism. The ultimate goal is lean (and healthy) growth.



Dynamic versus static energy

MFGM-supplementation, early in mammalian life, induces metabolic modifications with beneficial consequences on fat physiology later in life (defined as 'metabolic programming'). Once fat has been absorbed and assimilated into chylo- (mammals) or portomicrons (avians), the neonate can evacuate this fat towards different pathways: (1) 'inert' fat storage, (2) 'dynamic'

fat 'consumption', for maintenance or protein assimilation. In every animal, both pathways are present in a certain equilibrium (fig 2). The Fat Navigator shifts the balance between both main pathways, towards the 'dynamic' consumption of the fat, favoring muscular growth.

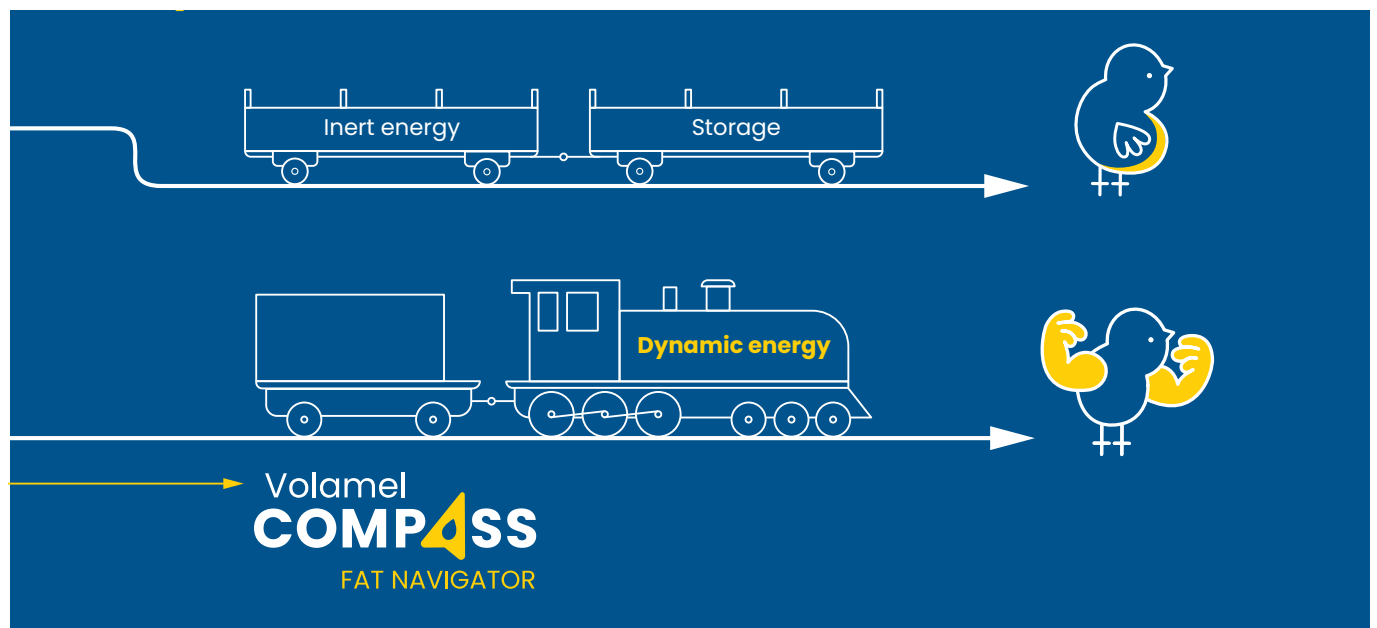
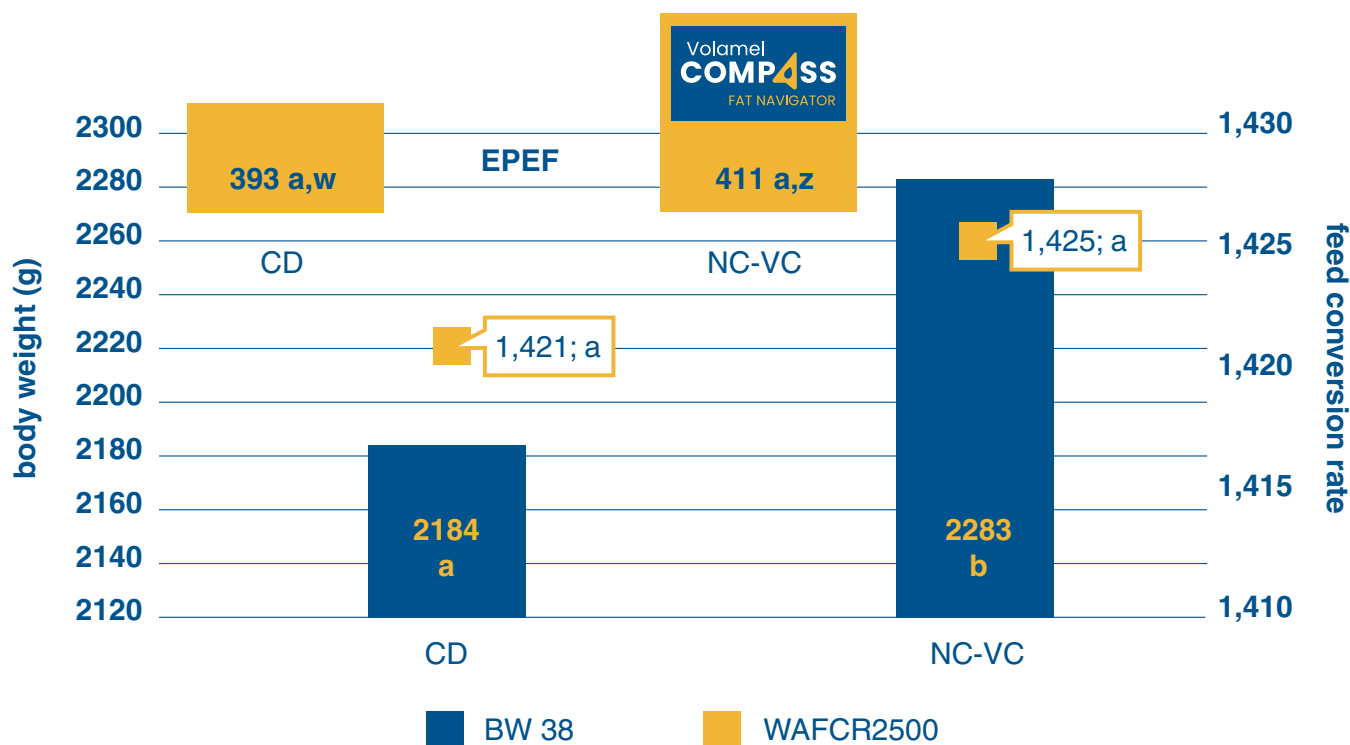


Figure 2: Volamel Compass converts dietary fat into dynamic energy



Broilers and dairy, an innovative combination



(Fig 3): Broiler growth performance (body weight at 38 DOA; BW38, weight-adjusted FCR with 2500 g as reference BW; WAF-CR2500) and European Production Efficiency Factor (EPEF). Significant differences ($P < 0,05$) indicated by different letters.

Different trials were set up with broilers to validate this concept also for avians. At TRANSfarm (KULeuven), 270 broilers (Ross 308,) were randomly assigned to two diets: (1) control (CD) and (2) energy-restricted diet (50 kcal ME in starter, 90 kcal ME in grower and finisher) with 500 ppm Volamel Compass. Diet was wheat-soy based mash, containing soybean oil and lard. Supplemented broilers showed an increase ($p < 0,05$; figure 3) in slaughter weight, keeping the FCR at a comparable level and increasing the EPEF ($p < 0,1$). The ROI ends up into 8. Broilers' carcasses showed a smaller abdominal fat pad and a reduced degree of hepatic lipodosis. Flock uniformity was increased with 5 to 10%.

Parameter	CD	CD-VC
Live body weight (g)	3353a	3403b
WAFCR3200*	1.444	1.435
Dressing%	69.5	69.3
Breast meat%	31.4x	32.4y
Br:AFP**	14.48a	17.76b

* WAFCR3200: weight-adjusted feed conversion rate, correction towards body weight of 3200 g.
 ** Br:AFP: ratio of breast meat% versus abdominal fat pad mass.

Table 1: Effect of Volamel Compass on broiler performance parameters (supplementation period 0-10 DOA).

Applicability of the 'programming' hypothesis within broilers was assessed by limiting the supplementation to the first 10 days (i.e. starter phase; 500 ppm 'on top'; ILVO, UGent), while looking into the longer term effects at slaughter age (43 DOA). Besides a better growth performance (table 1), also dressing percentage or breast meat% were increased. Birds showed a significant increase in breast meat-to-abdominal fat pad ratio, implicating not only a beneficial impact on growth performance, but also on the balance between fat accumulation and muscular growth, which is in favor of the protein accretion.

As a conclusion, we can state that navigating the dietary fat more towards 'dynamic energy', really makes sense and results in clear economic benefit. The fat navigator not only results in a better performance, but also delivers better broilers from a meat quality perspective.