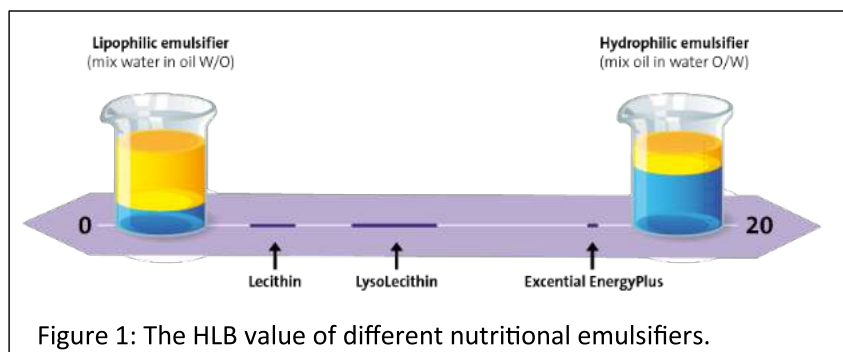


# The power of a nutritional emulsifier in Nile Tilapia farming

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The intensity and production of Nile tilapia farming have been increasing over the past decades, and further expansion of the sector is expected. However, the tilapia farming business has been experiencing many challenges such as the demand for increased efficiency fueled by the increasing feed prices and sustainability issues. In order to cope with these challenges, the industry's focus is on optimizing expensive components in the fish diet such as fat and protein. One viable strategy to increase efficiency is the use of a nutritional emulsifier, like Excential Energy Plus from Orffa Additives BV. This emulsifier is known to have the optimal Hydrophilic-Lipophilic Balance (HLB) (Figure 1). The intestine is an



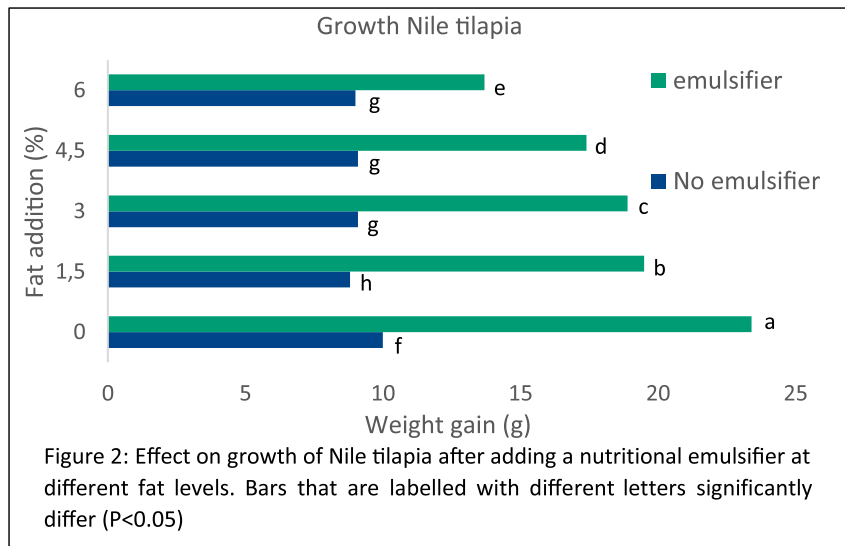
aqueous environment, which explains why a nutritional emulsifier with a high HLB value is more optimal.

To test the efficacy of Excential Energy Plus, two experiments were performed in Thailand. The first one, performed at the Mahasarakham University by Dr. Eakapol Wangkahart (2022),

tested the effect of adding Excential Energy Plus at 350 g/MT on different fat levels. The experiment showed that addition of the nutritional emulsifier increased the growth significantly, regardless of the fat level (Figure 2;  $p < 0.05$ ). Besides growth, also feed intake, FCR and Protein Efficiency Ratio were significantly improved ( $p < 0.05$ ).

Looking at the blood parameters it could be observed that the addition of Excential Energy Plus improved non-specific immune response and the anti-oxidative capacity of the fish. Additionally, it was also observed that fillet yield and enzyme activity were elevated after adding the nutritional emulsifier.

The second experiment was an on-farm evaluation to test the efficacy of Excential Energy Plus in ponds. Over a period of 92 days, Nile tilapia were fed either a commercial control diet or the same control diet with Excential Energy Plus at 350 g/MT on top. The trial was done on a farm, in regular ponds to come as close as possible to a normal production situation. During and after the feeding trial, the survival, growth performance and feed efficiency were measured and calculated. Survival, fish health and feed intake were unaffected by the addition of the nutritional emulsifier. However, when looking at growth after 92 days, it was observed that fish fed the nutritional emulsifier had a significantly higher growth (499.7 g) compared to fish not fed the emulsifier (435.5 g) ( $p < 0.05$ ; Figure



3). Additionally, the FCR showed a trend towards significance ( $p < 0.1$ ), as the FCR improved when fish were fed the nutritional emulsifier.

(1.44) compared to fish fed the same diet without the nutritional emulsifier (1.70).

With the rising feed prices and the demand for increased efficiency, the use of nutritional emulsifiers is a suitable strategy. Excential Energy Plus, an emulsifier with a high, optimal HLB

value for the intestinal environment, is already widely used in livestock and aquaculture and known to improve growth performance and feed efficiency. Especially the positive effect on fat, protein and energy digestibility is a very powerful tool in the optimization of nutrients. Next to that, the use of Excential Energy Plus is linked to an increased health status, enzyme activity and fillet yield in Nile tilapia.

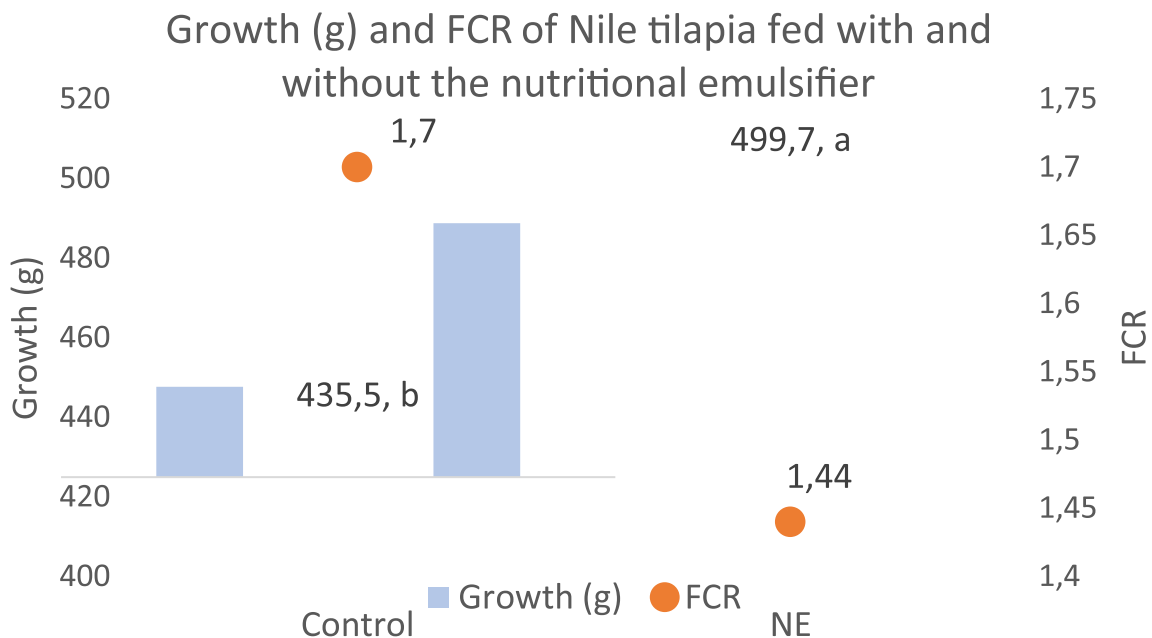


Figure 3: Growth and feed conversion ratio (FCR) of Nile Tilapia fed diets with and without a nutritional emulsifier. Bars that are labelled with different letters significantly differ ( $P < 0.05$ )