



## NEW TECHNOLOGY TO BOOST TILAPIA FARMING

By Dennis Ohuru

A new potentially game changing technology expected to greatly boost fish production and increase profit margins for tilapia fish farmers has been introduced

**YY**-Technology by Til-Aqua International, a company based in the Netherlands, which prides itself in producing an all-natural male tilapia stock, is set to change the fortunes of farmers experiencing low production from breeding tilapia in ponds.

Tilapia is a highly prolific fish and keeping males and females together spells doom as controlling breeding and preventing spawning is difficult. Ponds fill up and space and food become limited, leading to reduced growth rates and stunting. The pond also ends up with fish of all ages and sizes, making it economically difficult for a farmer.

To counter this, farmers have been practising mono-sexing, which entails separating male from female tilapia. Most farmers prefer males as they grow faster and are larger than females. They also consume less than females, who spend most, if not all of their energy in reproduction and brooding.

The practice of breeding only male tilapia also ensures that there are no early maturation and uncontrolled reproduction cases.

Normally, the breeding of mono-sex tilapia has been done using a variety of methods, including manual sexing, hormonal (Methyl-Testosterone) sex-reversal, and hybridisation.

Due to its simplicity, hormonal sex reversal has become widespread around the world. However, this technology has disadvantages such as hampering the development of a fingerling's immune system, which results in high mortality rates and negative effects on fish in the later stages of their lives.

Additionally, the testosterone feed needed to make the hormonal sex reversal possible is often in fine powder form, which is less than optimal for fingerlings at least three weeks old, because of its tiny granules. Getting the dust-like feed into a pond is also a challenge.

This testosterone-based feed also presents a health hazard to the people administering it, especially, if they don't wear protective attire or lack the technical know-how of administering it.

YY-Technology uses the natural capacities of tilapia and environmentally friendly genetic selection to produce all-male tilapia without using any hormones.

"We do not use any hormones, only a temperature change in the first days after hatching to change

the sex from male to female. The end product of the YY-Technology is a complete normal male with normal XY-chromosomes," said Mr Eric Bink, of Til-Aqua, during an interview with Smart Farmer at the University of Eldoret Agribusiness show.

The YY system is founded on genetic manipulation of sex. This is achieved through sex reversing a male with XY chromosomes into a female using the high temperature procedure. The resultant female is partnered with a normal male with XY chromosomes. The result is a mixture of offspring with different hormonal characteristics in different percentages.

"A small percentage of that offspring are males with YY chromosomes. We cross these males with normal females possessing XX chromosomes, resulting in an almost 100 per cent population of XY males. These XY males are the natural male tilapia, which we refer to as NTM," he said.

Til-Aqua uses the concept of YY technology to produce two strains of natural male brood stock, a silver

strain, which performs well in freshwater systems, and a red one that does extremely well in salty water systems. As a result, every fish farmer is covered.

Til-Aqua sells a complete do-it-yourself package, including a quarantine for new brood stock important to a hatchery, spawning tanks with hapas and a low energy incubation system.

Included is Til-Aqua's natural male tilapia line.

To ensure that ecological and health standards are met, the State Department of Fisheries imposes regulations to be adhered to by any farmer who wishes to use YY technology in Kenya.

A buyer should source from an established hatchery with a worldwide reputation; supplies shall be vetted by the department. All hatcheries shall also be authenticated and licensed, and regular inspections made to ensure adherence to laid-down operating procedures. The department also monitors the YY brood stock progeny production, supply and performance.

