

YY-Technology versus Hormone Sex-reversal

The Tilapia industry, where all male is preferred, yearly tons of Methyl-Testosterone is consumed worldwide.....

This giant use of hormones in animal production is not only weird in a modern society, where sustainability and food-safety have top-priority, but gives also a bunch of side effects. (Mixed sex is in most cases no option: slow growth, reproduction AND females in mixed sex females have a higher FCR due to social interaction; *New insights on growth, feeding, and social interactions in tilapia (Oreochromis niloticus)*. Fauconneau Benoît, Toguyeni Aboubacar, et al 1997) Modern YY-Technology makes use of the natural abilities of Tilapia and environmental friendly genetic selection, to produce All Male Tilapia without the use of any hormones! Therefor Til-Aqua calls their product Natural Male Tilapia (NMT). After 12 years of selective breeding we are now ready for today with our **99% male-ratio** in our Wildtype *Oreochromis niloticus* (Til-Aqua Silver) with an excellent performance under all kind of conditions.

| | YY-Technology | Hormone sex-reversal | Remark |
|-------------------------------------|---|---|--|
| Male Ratio | Silver: 99% Red: 96% | 65-95% | Results with hormone sex-reversal varies. Depends on skills and environment. YY-Technology ALWAYS work |
| Handling | Once sexed and stocked: only harvesting | Once sexed and stocked: harvesting and every batch hormone feeding | |
| Feed | Different sizes and sorts of feeds during the first weeks | Powder feed prepared with hormone for 3 weeks – often poor quality | Only one batch of same feed for hormone preparation. Often bad quality powder feed. Literature: Evangeline E. Jaravata, Annabelle A. Herrera and Jose S. Abucay, 2004 <i>Impact of the Quality of First Food on Digestive Enzymes and Development of the Anterior Intestine and Hepatopancreas of Genetically Male Nile Tilapia (GMT), Oreochromis niloticus L. ISTA, Philipines, Pages 316-334</i> |
| Genotype and escapes | All males are normal males (XY) = Natural Male Tilapia | The sex-reversed females to males are genotypically still female (XX) | Sex-reversed males produces all female offspring in Nature generating an sex-unbalance in the ecosystem |
| Mortality | Quasi zero ; only culling | Up to 75% mortality from swim-up until 5 gram and more | High mortalities accepted by farmers who use hormones (Examples : Mexico, Colombia, Thailand, Ghana). See “Immune System” |
| Immune System | No effect | Hormone effects immune system of fish causing high mortalities. | Literature: Sayeed and Moneeb, 2015, <i>Haematological and biochemical characters of monosex tilapia cultivated using methyl-testosterone</i> Harris and Bird, 2000 , <i>Modulation of the fish immune system by hormones</i> |
| Effect on human welfare | None | None but doubts about effect on vital organs, muscles and libido | Literature: Meghowon and Mojekwa, 2014, <i>Testosterone and its effect on Fish, Man and Environment</i> |
| Legal procedures and control | No need | In most of the countries the use of hormones is forbidden but turning a blind eye | Preparation of feed with hormones by spraying with no protection. Workers/feeders are in daily contact with this hormone |

Let's make this industry hormone-free

For links to articles and more info: www.tilapia-sg.com