



ROBUSTFISH

NEW POSSIBILITIES FOR GROWTH AND ROBUSTNESS IN ORGANIC AQUACULTURE

ABSTRACT

According to the EU regulation on Organic Aquaculture the organic fish production shall exclusively be based on organic fry from 2016. In organic farming, medication is only allowed within very strict limits. Hence, the robustness of the fry to diseases is crucial, e.g. to one of the most serious trout fry diseases, Rainbow Trout Fry Syndrome (RTFS), caused by *Flavobacterium psychrophilum*. Recent research indicates that the robustness of the fry seems to be related to larval developmental rate and to the dietary content of specific Ω -3 fatty acids (HUFAs). Combined with stress and RTFS challenge tests, it will be investigated if these two factors can be included in strategies to increase the robustness of the fry. Further, the effect on health and welfare of water treatments using approved agents in organic aquaculture is tested. Finally, ROBUSTFISH will provide knowledge about market conditions for organic aquaculture products, consumer attitudes and development potentials of organic aquaculture.

CONCLUSION

ROBUSTFISH is expected to create growth in the organic aquaculture production as well as spin-off to improve the productivity of the conventional trout farming by lower disease prevalence, reduced medication and lower environmental impact.

AIM

ROBUSTFISH addresses the following issues:

- Selection of stress resilient and immune-competent robust fry early in development
- Impact of dietary lipid sources on stress resilience and immune-competence of the fry
- Consumer preferences and competitiveness of organic aquaculture products



METHODOLOGY

In addition to Management and Communication (WP1) ROBUSTFISH project consists of 5 Work Packages (WP2 - WP6).

WP2: SELECTION OF ROBUST FRY

Fry will be sorted in relation to swim-up behavior for first feeding. The sorting device consists of a screen incubator, artificial spawning nests, and an emergence route. The larvae lay dormant in the incubators until they reach an appropriate developmental stage and swim-up searching for feed. Fry will be sorted into four fractions with different first feeding time. Stress resilience of the fry in each fraction will be tested.

WP3: DIETARY FATTY ACIDS AND FRY PERFORMANCE

Selected broodstock fish and fry will be fed three types of experimental diets, containing only vegetable oils without EPA and DHA and with two different inclusion rates of fish oil. The influence of the contents of HUFAs in broodstock and fry diets on stress resilience and immune-competence of the fry will be investigated (WP2 & WP4).

WP4: IMMUNE-COMPETENCE

The immune-competence of fish from WP2 and WP3 will be investigated by experimentally challenging the fish with the bacterium *Flavobacterium psychrophilum*.

WP5: WATER TREATMENT

Water treatment with easy degradable disinfectants (peroxygen compounds) will be tested and related to residual decay on organic farms to identify optimal procedures. Welfare aspects related to water treatment procedures will be investigated.

WP6: VALUE CHAIN AND MARKET ISSUES

Consumer studies in Germany and Denmark will be performed to disclose the attitudes towards organic aquaculture products. Market surveys will be performed through the value chain and potential price reduction following increased organic farming identified.



More information
icrofs.org/Pages/Research/ORG_RDD2_Robustfish.html

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