

How Can We Double the Contribution of Improved Farmed Types to Aquaculture Production in the Next Ten Years?

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ABSTRACT:

In contrast to livestock and crop production in agriculture, aquaculture production is, to a significant extent, still based on wild genetic resources. The Report on *The State of the World's Aquatic Genetic Resources for Food and Agriculture* (SOW) showed that 89 percent of countries reported that aquaculture depends on wild caught resources to some extent. Furthermore, 45 percent of countries responded that genetically improved aquatic organisms did not contribute to national aquaculture production or only did so to a minor extent. In spite of the fact that selective breeding permits the accumulation of genetic gain in each generation, and is documented as a highly cost-effective strategy for strain and variety development, only 26% of different farmed types for all species used in aquaculture, reported across all countries, were based on selective breeding (FAO, 2019).

As a follow up to the results of the SOW report, FAO has drafted a Global Plan of Action (GPA) to be considered by the Commission on Genetic Resources for Food and Agriculture and, if endorsed, adopted by the FAO Conference, in their upcoming meetings. This is a rolling plan with an initial time horizon of ten years. It identifies four priority areas including one area to 'Accelerate the development and uptake of genetic improvement of aquaculture farmed types with a focus on the expansion of selective breeding programmes'. Here, the goal is to create an enabling environment to double the contribution of improved farmed types to aquaculture production in the next ten years.

The objective of this presentation is to review and discuss the reasons for the slow adoption of genetic improvement in aquaculture up until now and identify actions that can significantly accelerate this adoption.

The GPA includes four strategic priorities to reach the goal of this priority area: 1) Improve understanding of the properties, benefits and potential risks (and effective risk mitigation mechanisms) of genetic improvement technologies and their application to AqGR; 2) Promote greater adoption of well-managed, long-term, selective breeding programmes as a core genetic improvement technology with a focus on major aquaculture species; 3) Establish national and/or regional development strategies and programmes for species and farmed types, responsive to market and societal needs, to unlock the full potential of AqGR; and 4) Raise capacity of stakeholders in aquaculture to develop improved farmed types. Furthermore, a total of 28 different actions are listed in the GPA to facilitate these four strategies, some of which will be discussed in this presentation.

KEYWORDS:

Genetic improvement, aquatic genetic resources, selective breeding, Global Plan of Action, farmed types