

“Consumer evaluation to (sensory properties) farmed and wild
captured fish for the Norwegian and Dutch Market”

Version 01

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Workplan

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1. Introduction

Sensory analysis of fish has been already for many years an important research area at the Department Environment, Quality, Technology & Nutrition (EQTN) of the Netherlands Institute for Fisheries Research (RIVO). Trained expert panels to assess the quality of fish products (e.g. cod, plaice, herring, salmon and shrimps) after processing and during storage are available. These panels are an integral part of on-going research programs on the quality of fish or are involved in contract research for industry or consumer organizations.

For matjesherring, a typical Dutch lightly salted, enzymatic ripened herring with high fat content, a unique panel is available. This panel has shown to be an effective instrument in the process optimization of matjesherring. In addition to this, each year two sensory experts of RIVO are involved in the "National matjesherring test" organized by a national news journal. Approx. 75 retailers in the Netherlands are visited without pre-announcement for a quality assessment of matjesherring.

Further, RIVO is one of the leading research institutes with respect to the development and implementation of the Quality Index Method (QIM) for the freshness assessment of fish. A strategic alliance QIM Eurofish of a few fish research institutes (RIVO, IFL and DIFRES) has been launched at the Seafood exhibition in Brussels 2001 to enhance the QIM implementation in Europe.

Finally, RIVO is one of the two DLO institutes responsible for a consumer panel organization TasteNet. TasteNet has the unique facility that approx. 1500 consumers from various areas in the Netherlands can be involved in testing of food (products) in household situations.

1.1. Consumer research RIVO

Last year some initiatives have been taken by the Department Environment, Quality, Technology and Nutrition (EQTN) of the Netherlands Institute for Fisheries Research (RIVO) with respect to consumer oriented fish product development and research of consumer perception and evaluation of quality.

The consumer oriented fish product development is focused on the upgrading of byproducts from plaice with the aim to develop fish sausages, which may be used on the bbq or as a part of a mixed meal. This approach was based upon the need from the industry. The products with different composition (upgraded byproducts, extra oil) were tested by approx. 750 consumers in their household situation. Texture was one of the important attributes in this project. Texture was measured instrumentally and within the TasteNet consumers were asked about texture.

The economic market for fish products is increasingly being market led instead of supply led. This observation requires the fish supply chain to add extra consumer value to their products. In this respect, consumer fish quality monitoring exceeds the traditional focus on 'freshness' and hygiene. Consumer quality perception is based upon the parameters they consider important and upon the cues they consider informative within their range of knowledge. Moreover, consumer motives to buy fish differ between consumer groups and individuals.

In order to meet the need of consumers for product diversification, as well as to allow the fish supply chain to adapt adequately to consumer (changing) demands, it is necessary to know which parameters consumers attend to when purchasing and evaluating fish. Therefore the current RIVO project "Consumer Quality Indexing for Fish" aims to develop adequate consumer quality indications for (fresh) fish. This information should be traceable and manageable throughout the supply chain.

An overview of the considerations concerning consumer quality, and possible consumer quality parameters that could meet the above criteria is established based upon the results of qualitative interviewing and discussions with regular fish buyers. The results of the group discussions confirm most of the cues the consumer associates with product quality, as they are known from literature, particularly sensory characteristics and freshness. Consumers are generally using some of the information that is already represented on the products now, but they do not always understand their exact implications. The information gathered can lead to an abundance and subsequent ignorance of the information, even when understood. Variety between, but also within species, shelf-life information, origin, and brand labelling has special opportunities to add extra value to the products. It seems that consumers are willing to pay for this extra value they can use.

However, it has also become clear that there is a general consumer lack of knowledge of fish. For example, consumer's concepts of 'freshness' do not necessarily accord with that of objective definitions or with expert judgements. Consumers therefore use different cues to judge these quality aspects. This special (lack of) knowledge should be considered when choosing information to be presented and the way it is presented.

1.2 State of the art conclusions

It is concluded that the strength of sensory research at RIVO is the expertise on the sensory analysis with expert panels and the QIM methodology.

TasteNet is a unique facility however striking examples with respect to fish to show the potential power for the market (processors, retailers) are lacking.

The consumer oriented research is in development and should be strengthened in the coming years.

2. Collaboration with Norwegian Institute for Fisheries Research and Aquaculture

During a few visits at the Center Economics and Marketing (CEM) (Head Roger Richardsen) of the Norwegian Institute for Fisheries and Aquaculture (NIFA) and the linked Fisheries College of the University of Tromsø (Prof. Svein Ottar Olssen, Department Consumer Science), a few research consumer oriented research subjects, carried out by the two Nordic centers, have been discussed.

Elements in the research study with salmon tested among French and German consumers are of interest for studies to be developed in The Netherlands. The on-going studies with farmed spotted wolffish (Steinbit) and the marketing strategy to be developed based upon interviews with top-chief cooks in France may be of interest for the Dutch situation in case of farmed fish in general or in particular to farmed African catfish.

The consumer response to farmed cod is an actual important research topic at NIFA. The sensory properties of farmed fish established by experts seem to differ from wild cod in particular with respect to texture.

Also the general interest of NIFA in the relationship between sensory results of expert panels, instrumental analysis and consumer perception of quality attributes is a research area of common interest.

CEM of NIFA can be considered as the outstanding consumer oriented **fish** research group in Europe. However, their efforts are mainly focussed on national funded research projects (e.g. Nordic Research Council). CEM has the intention to broaden their scope by collaboration within Europe. The TasteNet facility from RIVO (DLO) is also considered by CEM as a unique tool which could be implemented in their research.

It is therefore concluded that a collaboration between NIFA (CEM) and EQTN in the area of consumer oriented fish research will be of benefit for both parties. In the period October 2001-2002 this collaboration will be worked out with emphasizes on the consumer evaluation to (sensory properties) of farmed and wild captured fish of importance for the Norwegian and Dutch market. Besides the consumer response to sensory properties the attitude of the consumer to wild captured or farmed fish in the context of sustainable fisheries, and welfare are important issues to be taken into account.

3. Workplan October 2001- October 2002

3.1. Aim

The general aim is to develop expertise about the consumer evaluation to fishery products with emphasis on the following:

- The differences in the evaluation of consumers to (sensory properties) of farmed and wild fish in comparison with the assessment of experts. In this context also the instrumental analysis of texture will be incorporated if appropriate.
- The implementation of the TasteNet facilities of DLO in common consumer panel tests of interest for the Norwegian and Dutch fish market.

Furthermore the possibilities for the (re)submission of a European consumer oriented research proposal (EATFISH) will be investigated within the context of the last call of the 5th framework (March 2002).

3.2 Activities

The activities are as follows

- General orientation of the on-going research projects within NIFA.
- Analysis available data on the consumer evaluation study to farmed cod by multivariate techniques.
- Development experimental design for a large consumer evaluation study to farmed fish versus wild captured fish from Norway and the Netherlands (e.g. cod, sole, African catfish) including the inquiry list for consumer.
- Pre-study if necessary with a small group of consumers, expert panel and instrumental analysis (texture).
- Experimental consumer study with TasteNet (preparation consumer portions, distribution samples, collecting data, analysis data).
- Reporting (if appropriate in the form of a draft publication).
- Presentation at TasteNet workshop in the Netherlands.

It will be clear from this workplan that the activities will be developed in co-operation with the fish sensory research group of EQTN.

If feasible a comparison will be made with a limited consumer group, which received the test products in a standardized meal under "lab conditions". This comparison will offer the possibility to highlight the advantage of TasteNet versus a small consumer test with volunteers under lab conditions.