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# An operational hygiene inspection scoring system for Austrian high-risk companies producing food of animal origin

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## Abstract

This study investigates factors associated with operational hygiene of milk, fish and meat producers in Austria using official control data collected in 2014 and 2015. The control inspections (n = 352) were routinely performed by the state authorities comprising a survey as well as food and environmental sampling. The survey, developed in cooperation with official control in advance, was divided in four modules dealing with specific aspects for the three mentioned food categories as “conditions of the goods and their handling” or “microbiological criteria”. The operational hygiene inspection scores were concluded from numerical indicators for the status of operational hygiene and quality management. From 2014 to 2015, the operational hygiene inspection scores of milk and meat increased and of fish decreased. This indicates an improvement of hygienic management in Austrian milk and meat companies. One factor indicating the general fulfillment of the four survey modules was determined by factor analysis. The results confirm that companies with food rejections, meaning food samples deemed as unsafe (Regulation EC No 178/2002, 2002, article 14), wrong labelling (Regulation EC No 1169/2011, 2011) or insufficient hygiene (Regulation EC No 852/2004, 2004), received a lower score than companies without rejections. The design of a scoring tool for milk, fish and meat industries by using the survey in combination with routine data was achieved as objective of this study. Additionally, the analysis of sampling data on *Listeria* detection revealed a clear correlation: The detection of *Listeria* in companies without food rejections was statistically significantly lower than in companies with food rejections. In order to provide a better insight into the contamination status (e.g. *Listeria*) of high-risk companies the present study shows a method to combine results of a routine survey with available data from national control authorities.

**Keywords:** hygiene inspection, score, high-risk companies, food of animal origin, official control

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## 1. Introduction

1           Within the European Union general principles and requirements concerning food are set at  
2           EU level. An integrated approach to food safety “from farm to table” covers all sectors of the food  
3           chain. The main objectives of the general food law (EC No 178/2002, 2002) are: (1) guarantee  
4           of a high level of human life and health, including protection of consumer interests in relation  
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