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Risk-based integrity audits in the food chain – a framework for complex systems

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# 1 Risk-based integrity audits in the food chain – a framework 2 for complex systems

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## 7 Abstract

### 8 *Background*

9 Food chains have changed dramatically due to technical and demographic changes  
10 over the last decades. Although efforts are made to ensure high quality and integrity,  
11 food-borne outbreaks and food scandals still happen to an undesired extent.

### 12 *Scope and Approach*

13 This commentary paper aims to give insight in the current approach in the European  
14 food control and audit system, the underestimation of complexity and the role of trust  
15 in food control and auditing. Furthermore, the need for complex systems thinking in  
16 risk-based auditing is discussed and a framework to structure complex system risk-  
17 based auditing is proposed.

### 18 *Key Findings and Conclusions*

19 The current food control system seems to cause a reactive vicious cycle, which leads  
20 to more and stricter regulations and standards on every level. A new paradigm in  
21 risk-based auditing is needed that acknowledges the behaviour of complex systems  
22 to ensure trust along the food chain. The proposed framework for complex system  
23 risk-based auditing may enable a systematic analysis of audit triggers, audit goals

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