Short communication

Needs and expectations regarding risk ranking in the food chain: A pilot survey amongst decision makers and stakeholders

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ABSTRACT

Given the large number of potential risks and the increasing budgetary restrictions, risk ranking (RR) is becoming an inevitable part of food safety. Through an online questionnaire survey, we aimed to assess needs and expectations regarding RR in a sample of European decision makers and stakeholders. Responses were collected from 51 participants. The majority expressed a need for RR, and over two thirds already had some experience with RR. The main expectation from RR was an improved transparency in management decisions. The use and impact of RR in the food chain may be improved by increasing knowledge regarding RR, facilitating communication between decision makers and stakeholders, and removing hurdles related to data availability.

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1. Introduction

Because of the complex nature of the food chain, it is exposed to a variety of hazards that may constitute a risk for public, animal and plant health. Given the different types of risks and the increasing financial restrictions, it is practically impossible to control each individual risk simultaneously and at the same level. Therefore, choices have to be made. Risk ranking (RR) has been used in the past as a tool to set priorities, assisting decision makers to focus on the most important food-related health problems and to develop strategies for addressing them (e.g., Hoffmann, 2010; Humblet et al., 2012; Vromman et al. 2014). RR also seems a logical starting point to initiate the reflection about how to reduce population health risks in the most effective manner. Nevertheless, national food safety authorities only recently started to look at RR as a means of informing priority setting (e.g., Cardoen et al., 2009; Mangen et al., 2010).

Both risk assessors and decision makers can use RR, but not necessarily in the same way or starting from the same needs and expectations. RR is often performed by risk assessors as a purely scientific initiative and not always with clear set goals from the beginning regarding prevention or management of the risks. On the other hand, decision makers may have to take measures before the RR process has been initiated or completed. A simple review of the

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scientific literature using keywords such as "risk ranking" and "management", revealed that little is known on the expectations and needs of managers and stakeholders with respect to RR, although the European Food Safety Authority (EFSA) recently stressed the importance of a good interaction between risk assessors and decision makers (EFSA 2012). Therefore, a questionnaire was designed to identify the needs and expectations of a sample of decision makers and stakeholders regarding RR and to understand if and how key players interact.

2. Methodology

An online anonymous questionnaire (Annex 1) was developed by a working group of the Scientific Committee of the Belgian Federal Agency for the Safety of the Food Chain (FASFC) in collaboration with the Staff Direction for Risk Assessment of the FASFC. The questionnaire was pre-tested by two decision makers of the FASFC and two members from the Advisory Committee of the FASFC (representative stakeholders of the food chain) and was slightly adapted according to their remarks. The invitation to the online questionnaire was sent electronically to 179 decision makers and stakeholders at national and European levels, all of which had professional activities in the food chain and were known as professional contact points. They had expressed an interest in risk ranking by their early registration for a national symposium on RR in the food chain. The contacted individuals represented decision makers, sector representatives, scientists, and food business operators (Table 1).

The questionnaire was created using Google Drive™ and consisted of four different types of questions, namely: 1) personal information of the respondent; 2) the usefulness/need of RR, 3) the expectations of RR; 4) methodological issues concerning RR. For our purposes, "needs" were defined as motivating forces for performing and applying RR in the food chain. "Expectations" were defined as expected outcomes of RR in the food chain. The questionnaire is available in Annex 1.

3. Results

The online survey before the symposium resulted in a response from 51 food chain decision makers and stakeholders out of the 179

Table 1
Individuals contacted for the online questionnaire on risk ranking.

Group	Number	Sub-total	Total
Decision makers			
National level			
Management of the FASFC	20		
Management of FPS	8		
Ministries	3		
European level			
European Commission	15		
Chief veterinary officers	28		
Chief plant health officers	27		
Management of the European agencies	43	144	
Sector representative			
National level	5		
European level	2	7	
Scientists			
National level	1		
European level	1	2	
Food business operators			
National level	15		
European level	11	26	179

FASFC: Federal Agency for the Safety of the Food Chain; FPS: Federal Public Service Public Health, Safety of the Food Chain and Environment.
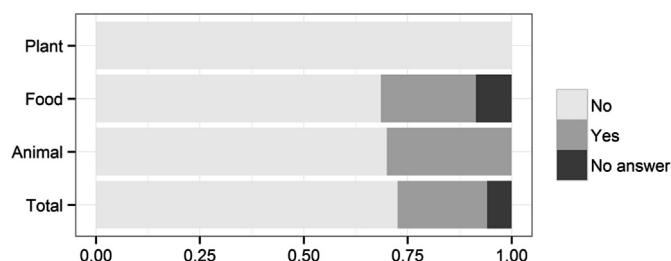

Fig. 1. Proportions of decision makers and stakeholders that did receive training in Risk Ranking based on the results of an online questionnaire (N = 51).

contacted persons, i.e., a response rate of 28%. The profile of the respondents (if mentioned) was mainly decision maker (34), followed by sector representative (8), food business operator (4), and scientist (3). The fields of competency were food safety in general (35), animal health (10), and plant health (6). The median years of professional experience was 14.5 years with little variation in years of experience between the fields of competency.

Some qualitative open questions showed that communication between risk assessors (i.e., scientists) and decision makers could be improved through two way interactions, workshops, and RR as a joint exercise. The qualitative open question on the expectations of RR revealed that respondents expected an RR to result especially in more transparency (24/51 or 47%) and in a priority setting aiding management decisions (24/51 or 47%). Further expectations were a quantitative approach (12/51 or 24%) rather than a qualitative approach (3/51 or 6%), as well as a correct assessment of the uncertainty (9/51 or 18%) and a standardized and scientific approach (4/51 or 8%).

Thirty five respondents (69%) answered that they had already conducted an RR exercise in the past, of which 13 less than one month ago, 19 less than one year ago and 3 more than one year ago. Eight respondents (16%) indicated that they did not see a need for conducting an RR.

The reasons for conducting an RR in professional activities or organisations were, in decreasing order, public health assessments (32), policy preparation (27), budget (22) and the need of an RR in reports on trade (2). The majority of these RR exercises had been conducted at the national level (31), followed by the local (7), European (7), regional (2) and global (2) level.

The reason for not performing a structured RR was in 38% of the cases the lack of knowledge on how to do this.

Fig. 1 shows that most decision makers and stakeholders active in the food chain had not received any formal training in RR until now. This is in contrast with higher proportions of the respondents reporting to have read and consulted RR literature (Fig. 2).
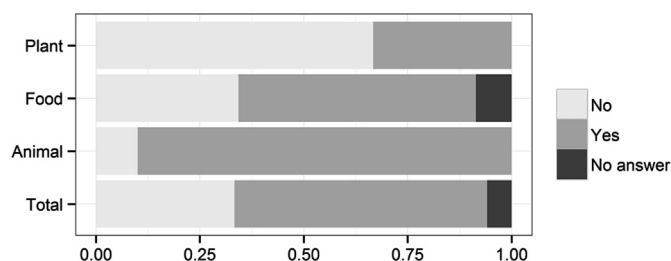

Fig. 2. Proportions of decision makers and stakeholders that read and consulted reports on Risk Ranking, based on the results of an online questionnaire (N = 51).
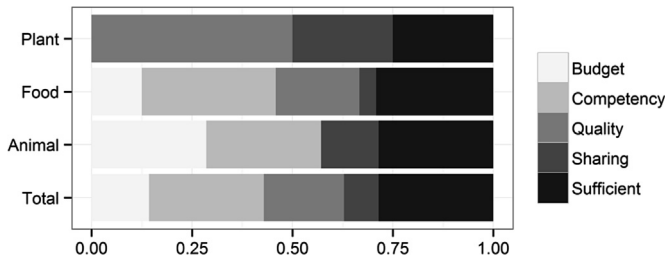
Fig. 3. Proportions of data collection problems encountered by decision makers and stakeholders, based on the results of an online questionnaire (N = 35).

Fig. 4. Reasons for not sharing data, based on the results of an online questionnaire (N = 23).

An important aspect of RR is the required data collection preceding the RR procedure. Most decision makers and stakeholders (35/51 or 69%) reported difficulties related to data collection. Fig. 3 shows the reported reasons for data collection problems, with the most important hurdles being the lack of data and the limited capacity to design, organise and conduct data collection activities.

Likewise, difficulties related to data sharing were reported by 23 or 45% of the respondents. The reasons for the lack of data sharing were divers ranging from data exchange compatibility problems, again the lack of competency to share data and ownership issues (Fig. 4).

4. Discussion and conclusions

In 2012 EFSA stressed the importance of a good interaction between risk assessors and decision makers. Understanding the concerns of both therefore becomes crucial. This paper reports on the perception and view of decision makers and stakeholders on food safety related RR. A similar exercise, with the aim to capture the perceptions of decision makers, was conducted with specific reference to health inequalities (Petticrew, Whitehead, Macintyre, Graham, & Egan, 2004). In the latter study, British and international policy advisors were questioned on how research evidence influences public health policy making, and how its relevance and utility could be improved. To the best of our knowledge, however, no such information is available with respect to food safety RR.

The majority of decision makers and stakeholders sees a need for RR, and over two thirds already has some experience with RR. With respect to expectations, stakeholders and decision makers expect from an RR exercise an improved transparency of the decision process and the possibility to advice policy on what the important risks are.

The information we collected through an online survey further highlights that decision makers and stakeholders active in food chain clearly lack formal training in RR. Improving the communication between risk assessors and decision makers was also raised as a decision makers and stakeholders' need. Petticrew et al. (2004) already noticed that in the interaction between decision makers and scientists, the latter need to be
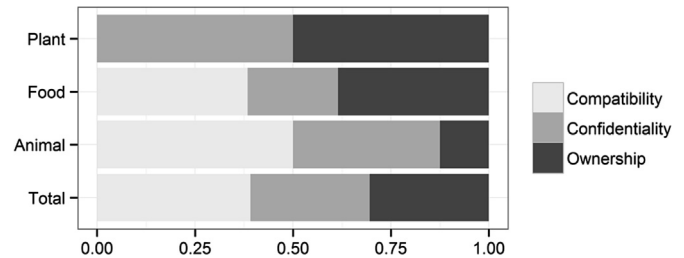
aware of the needs of the former. Indeed, decision makers do not ask for p-values or uncertainty around estimates. What they need are alternatives or rather an understanding of the consequences of action or inaction. It is further clear that transparency on what is not known is important (Petticrew et al., 2004). To convince decision makers and stakeholders, presenting RR results appropriately and at the right time (often, publications appear when decision makers have other priorities) is also needed. Furthermore, it has been reported by Anders and Schmidt (2011) that most approaches to risk prioritization developed to date are based on measures of health outcomes and do not systematically account for other factors that may be important to decision making, such as the economic and social dimensions of food safety.

From our study it further appears that decision makers and stakeholders demand an improved interaction between all the key-players in the field of food safety. The lack of knowledge was indicated as a hurdle for not starting or conducting an RR. It was also clear that the decision makers and stakeholders use RR and that they do consult and read RR reports, but without a training allowing them to fully understand the results.

Data collection and data sharing are not optimal but seen as important elements in an RR.

We acknowledge that our study shows a number of limitations. Given the rather limited response rate, a potential selection bias may have occurred. Furthermore, our sample mainly consisted of decision makers. Nevertheless, these results provide indications of what is present in at least a part of the population of decision makers and stakeholders and are a first step in addressing the knowledge gap concerning the needs and expectations of decision makers and stakeholders regarding RR in the food chain. By better understanding these needs and expectations, future RR activities may be designed in a more optimal way, and managers will be able to meet the challenge of marshalling the data and information needed to guide their decisions on priorities for controlling food-borne risks.

Annex 1. Questionnaire

Needs and expectations of decision makers and stakeholders regarding risk ranking in the food chain

The goal of this survey is to identify the needs and expectations of decision makers and stakeholders regarding risk ranking in the food chain and to present the result at the Symposium of the Scientific Committee of the Belgian Food Safety Agency, entitled "Risk ranking in the food chain" on Friday 29 November 2013, Brussels, Belgium (http://www.fasfc.be/scientificcommittee/symposium2013).

For this survey, the terms that will be used are defined as follows:

- **Food Chain**: any and all possible stages that are proceeded (1) during the course of breeding and rearing of animals and growing of crops, starting from the biological material and all necessary raw materials, (2) during the course of production of foodstuffs and feed, from the stage of production up to stage of consumption.
- **Hazard:** A biological, chemical or physical agent with the potential to cause an adverse health effect in the food chain.
- **Risk:** A function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard(s) occurring in the food chain.
- **Risk ranking** is a process of ranking risks as the proper starting point for risk-based priority setting and resource allocation for decision makers to focus attention on the most significant (public, animal or plant) health problems and develop strategies for addressing them.
- A **decision maker** (or policy maker) is a person or group of persons being part of an entity having the authority to set the policy framework of an organization and might have an interest in or explicitly demand or be involved in the execution of risk ranking.
- **Stakeholders** are any person**, group or organisation with an interest in or affected by the policy making.**
- A **need** is the motivating force for performing and applying risk ranking in the food chain.
- An **expectation** is the expected outcome of risk ranking in the food chain.

This survey is divided into four different sections:

- Personal information
- Is risk ranking useful/needed?
- Expectations of risk ranking
- Methodological tools for risk ranking

This anonymous survey is send to various stakeholders and decision makers at national or European level with responsibilities in the food chain.

Each respondent should complete only one form available at the following URL address exclusively: https://docs.google.com/forms/d/19-bIyB78XH0J47ME7ZUKMEK6tMX6pFSvb4u10YlQ3XE/viewform

Please, complete the following survey in your convenience before **November 4th, 2013**.

Thanks a lot for your appreciated collaboration.

On the behalf of Prof. Niko Speybroeck and Prof. Claude Saegerman, members of the Scientific Committee of the Belgian Food Safety Agency

Part 1: Personal information

Question 1.1.: What is your profile?

Click on the appropriate response:

○ Competent authority decision maker

○ Food business operator in the food chain

○ Sector representative

○ Other (please specify.........................)

Number of years of professional expertise: ………….

Give maximum 3 keywords describing your expertise (in decreasing order of importance):

- …………………………………..……..

- …………………………………..……..

- …………………………………..……..

Question 1.2.: Which area(s) is (are) in your field of competency (one or more categories are possible)? Click on the appropriate responses:

○ Animal Health (food producing animal diseases and zoonoses)

○ Public Health

○ Plant health

○ Food safety - Chemical Risks

○ Food safety - Microbiological Risks

○ Food safety - Physical Risks

○ Animal Welfare

○ Other (Please, specify: …………....................)

Part 2: Is risk ranking useful/needed?

Question 2.1.: Is risk ranking performed in your professional organisation?

○ yes   ○ No   ○ I don't know

If No or I don't know: ☞ **Go to question 2.4.**

If yes: Describe the most recent applied example:

....
....

This last risk ranking exercise has been performed:

○ last week   ○ last month   ○ last quarter   ○ last year   ○ before last year

○ I don't know

Question 2.2.: What is (are) the reason(s) for conducting a risk ranking in your professional activities or organisation? Click on the appropriate response(s):

○ Policy preparation

○ Budgetary reasons

○ Commercial reasons

○ Public health reasons

○ Other reasons (please specify: ……………………………………………...............)

Question 2.3.: At which level risk rankings are conducted in your professional activities or organisation? Click on the appropriate response(s):

○ Local level?

○ Regional level?

○ National level?

○ European level?

○ Global level?

Question 2.4.: <u>In case a structured risk ranking is not performed</u> in your professional organisation, please specify the reasons (in decreasing order of importance):

1
………………………………………………………………………………………………….……..

2
………………………………………………………………………………………………….……..

3
………………………………………………………………………………………………….……..

Question 2.5.: Within each category selected in question 1.2 what are, to your personal opinion, the three main <u>needs</u> (topics, hazards, bottlenecks,...) to perform risk ranking? (please order these in decreasing order of usefulness/need)?

EXAMPLE OF RESPONSE:

Animal Health
1. List of diseases in wild life to be monitored
2. Reliable data to perform a evidence-based risk ranking
3. Better diagnostics regarding tuberculosis

The three main needs in each area under your competency are:
Animal Health
1. ………………………………………………………………….
2. …………………………………………………………………
3. ………………………………………………………………….
Public Health
1. …………………………………………………………………
2. …………………………………………………………………
3. ………………………………………………………………….
Plant health
1. ………………………………………………………………….
2. ………………………………………………………………….
3. …………………………………………………………………
Food Chain - Chemical Risks
1. …………………………………………………………………
2. …………………………………………………………………
3. ………………………………………………………………….
Food Chain - Microbiological Risks
1. ………………………………………………………………….
2. ………………………………………………………………….
3. …………………………………………………………………
Food Chain - Physical Risks
1. …………………………………………………………………
2. …………………………………………………………………
3. …………………………………………………………………
Animal Welfare
1. ………………………………………………………………….
2. ………………………………………………………………….
3. ……………………………………………………………………
Other (Please, specify: …………...................)
1. …………………………………………………………………
2. …………………………………………………………………
3. ………………………………………………………………….

Part 3: Expectations of risk ranking

Question 3.1.: What do you expect from a structured risk ranking exercise? Please order these in decreasing order. EXAMPLE OF RESPONSE: e.g., Complete transparency, traceability, qualitative approach, quantitative approach, taken into account the uncertainty...

1.   …………………………………………………………….

2.   …………………………………………………………….

3.   …………………………………………………………….

Part 4: Methodological tools for risk ranking

Question 4.1.: Have you had training in risk ranking methodology?

○ Yes   ○ No

Question 4.2.: Did you read/consult reports on risk ranking in the last year?

○ Yes   ○ No

Question 4.3.: Do you think it is necessary to further scientifically develop the risk ranking methodology?

○ Yes   ○ No   ○ I don't know

Question 4.4.: Have you ever encountered problems regarding <u>data collection</u>?

○ Yes   ○ No   ○ I don't know   ○ Not concerned

If yes: give the main reasons of problems in decreasing order of importance

1.   ……
   ……………..
2.   ……
   ……………..
3.   ……
   ……………..

Question 4.5.: Have you ever encountered problems regarding <u>data sharing</u>?

○ Yes   ○ No   ○ I don't know   ○ Not concerned

If yes: give the main reasons of problems in decreasing order of importance

1.   ……
   ……………..
2.   ……
   ……………..
3.   ……
   ……………..

Question 4.6.: Which are your three main suggestions to improve?

A) interaction between **<u>decision makers</u>** and **<u>scientists</u>** in risk ranking in decreasing order of importance?
1. ……
  ……………..
2. ……
  ……………..
3. ……
  ……………..

B) interaction between **<u>stakeholders</u>** and **<u>scientists</u>** in risk ranking in decreasing order of importance?
1. ……
  ……………..
2. ……
  ……………..
3. ……
  ……………..

C) interaction between **<u>stakeholders</u>** and **<u>decision makers</u>** in risk ranking in decreasing order of importance?
1. ……
  ……………..
2. ……
  ……………..
3. ……
  ……………..

Many thanks for your kind collaboration!

The results will be presented at the next Symposium of the Scientific Committee of the Belgian Food Safety Agency, Friday 29 November 2013, Auditorium Pacheco, Brussels, Belgium

http://www.fasfc.be/scientificcommittee/symposium2013

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