8 October 2020, Info session on

CLEFSA project results

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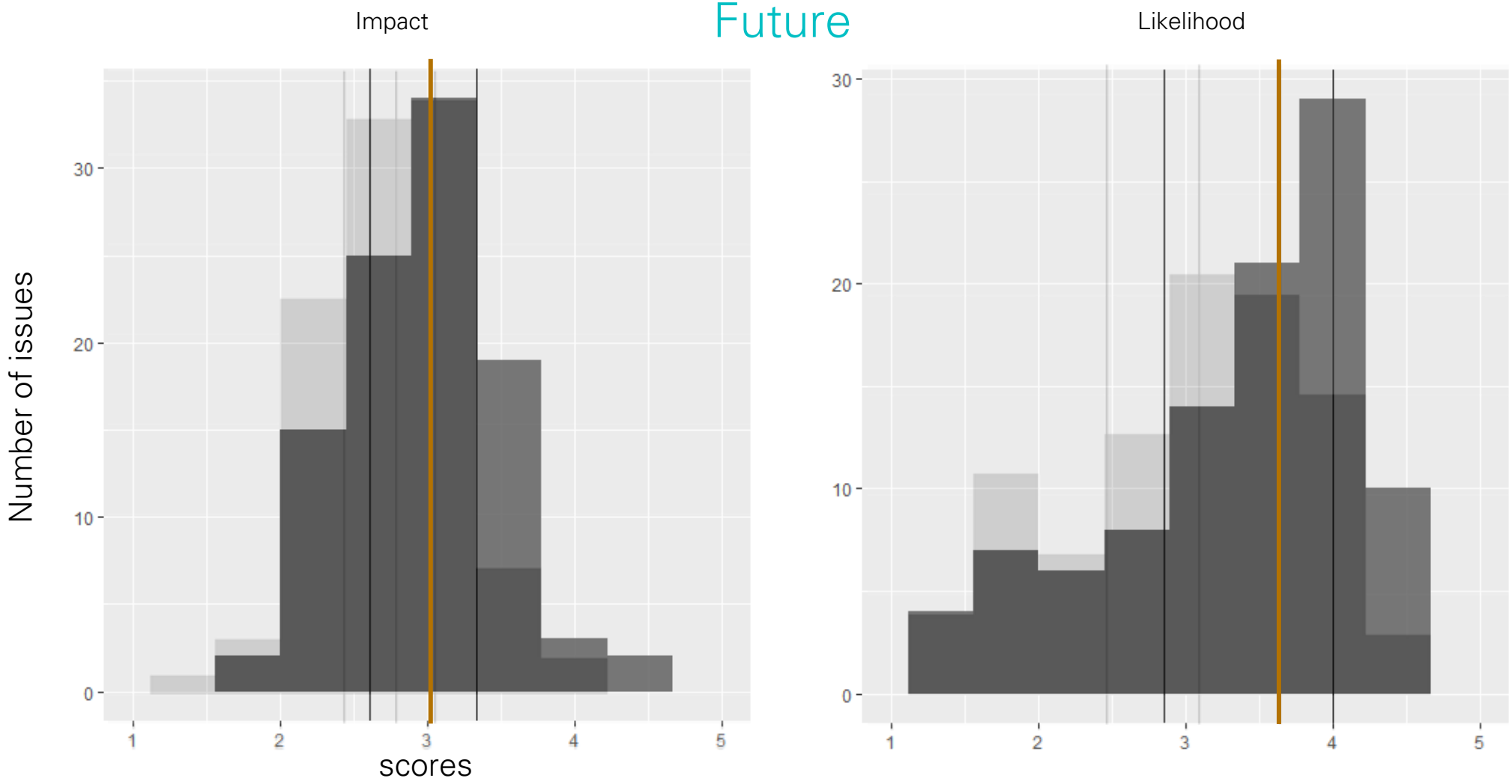
Scientific Committee and Emerging Risks unit

Trusted science for safe food

efsa
European Food Safety Authority

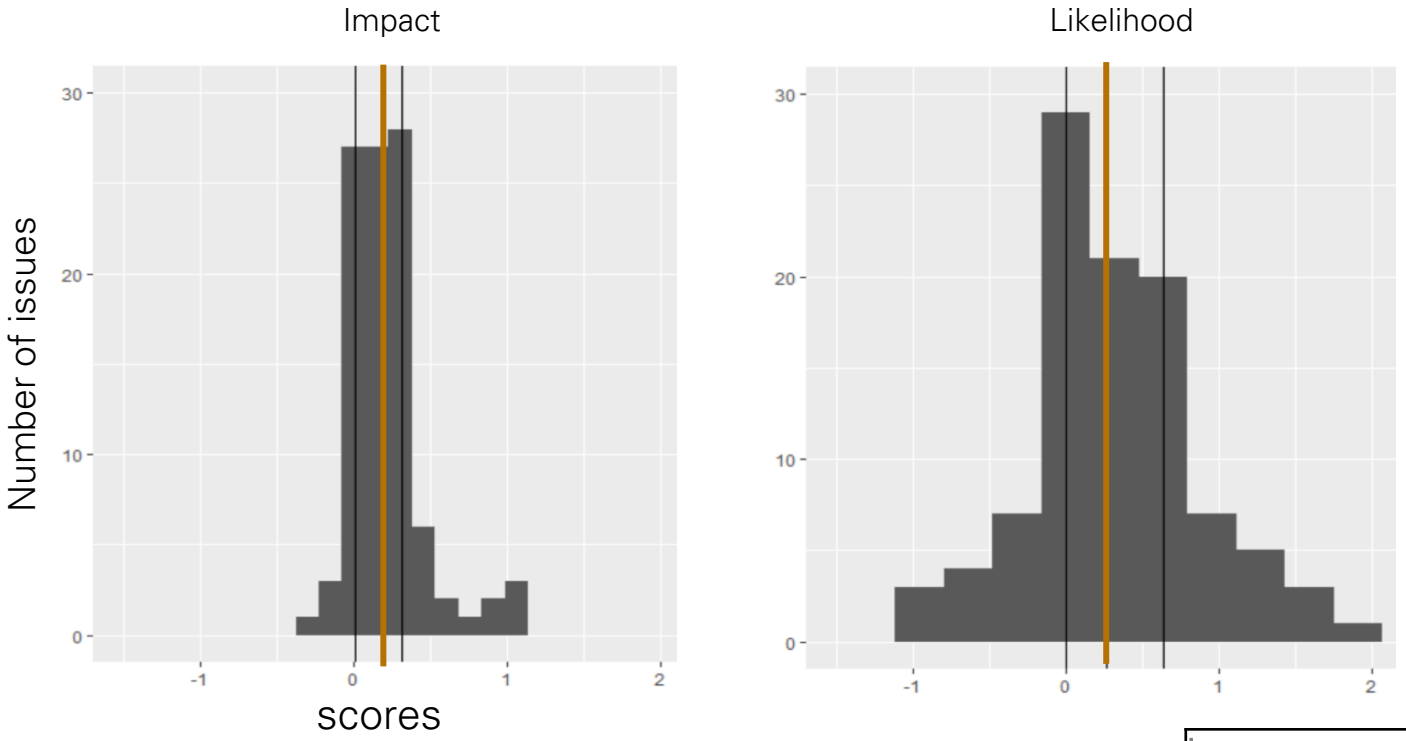
Overall effects of climate change

Future



Higher impact and likelihood of emergence in the future

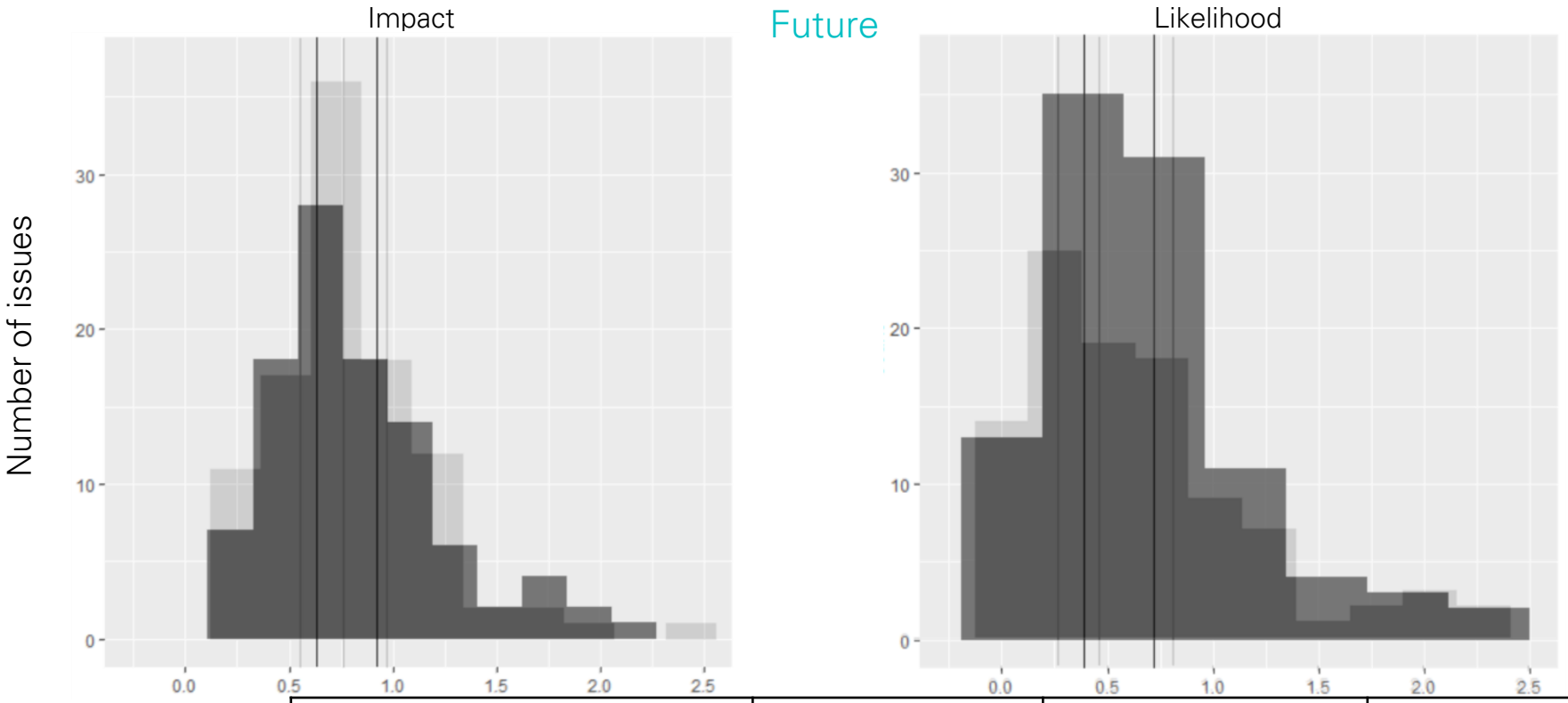
Indicators of the effects of climate change (delta)



Higher delta for likelihood

Impact	*Climate change may have a positive or no effect on the impact of the considered hazard with respect to the reference condition*	*Climate change may have a mild detrimental effect on the impact of the considered hazard with respect to the reference condition*	*Climate change may have a moderate detrimental effect on the impact of the considered hazard with respect to the reference condition*	*Climate change may have a serious detrimental effect on the impact of the considered hazard with respect to the reference condition*
	[-0.2;0.01]	[0.01;0.17]	[0.17;0.29]	[0.29;1.08]
Likelihood	*Climate change may have a positive or no effect on the likelihood of emergence with respect to the reference condition*	*Climate change may mildly increase the likelihood of emergence of the issue with respect to the reference condition*	*Climate change may moderately increase the likelihood of emergence of the issue with respect to the reference condition*	*Climate change may seriously increase the likelihood of emergence of the issue with respect to the reference condition*
	[-0.9;0]	[0;0.26]	[0.26;0.64]	[0.64;2]

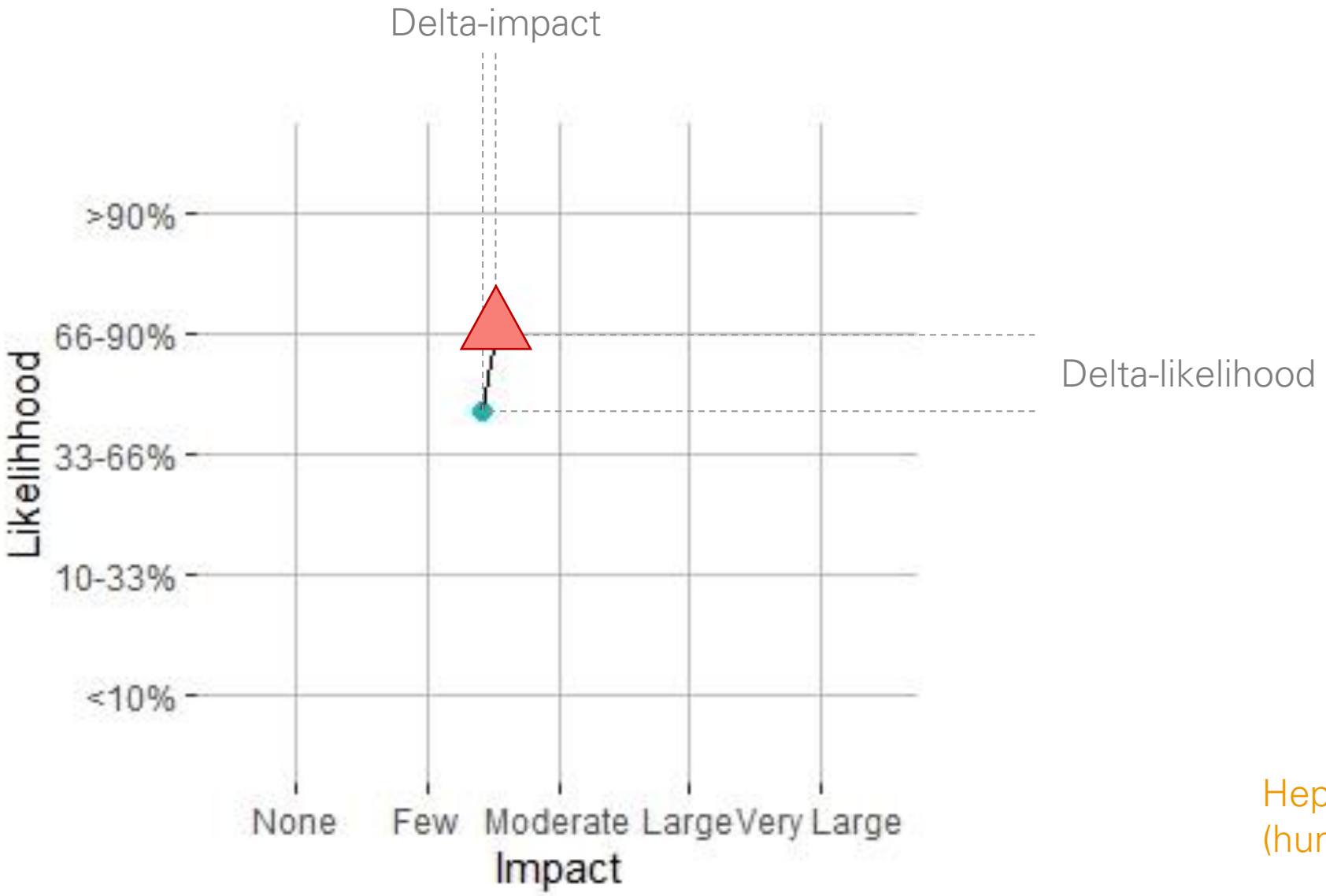
Indicators of the uncertainty (dispersion)



Higher uncertainty for impact

Confidence level indicator			
Impact/description	*High confidence*	*Medium confidence*	*Low confidence*
Impact/range	[0;0.68]	(0.68;1.03]	(1.03; 2.13]
Likelihood/description	*High confidence*	*Medium confidence*	*Low confidence*
Likelihood/range	[0; 0.37]	(0.37;0.71]	(0.71;3.51]

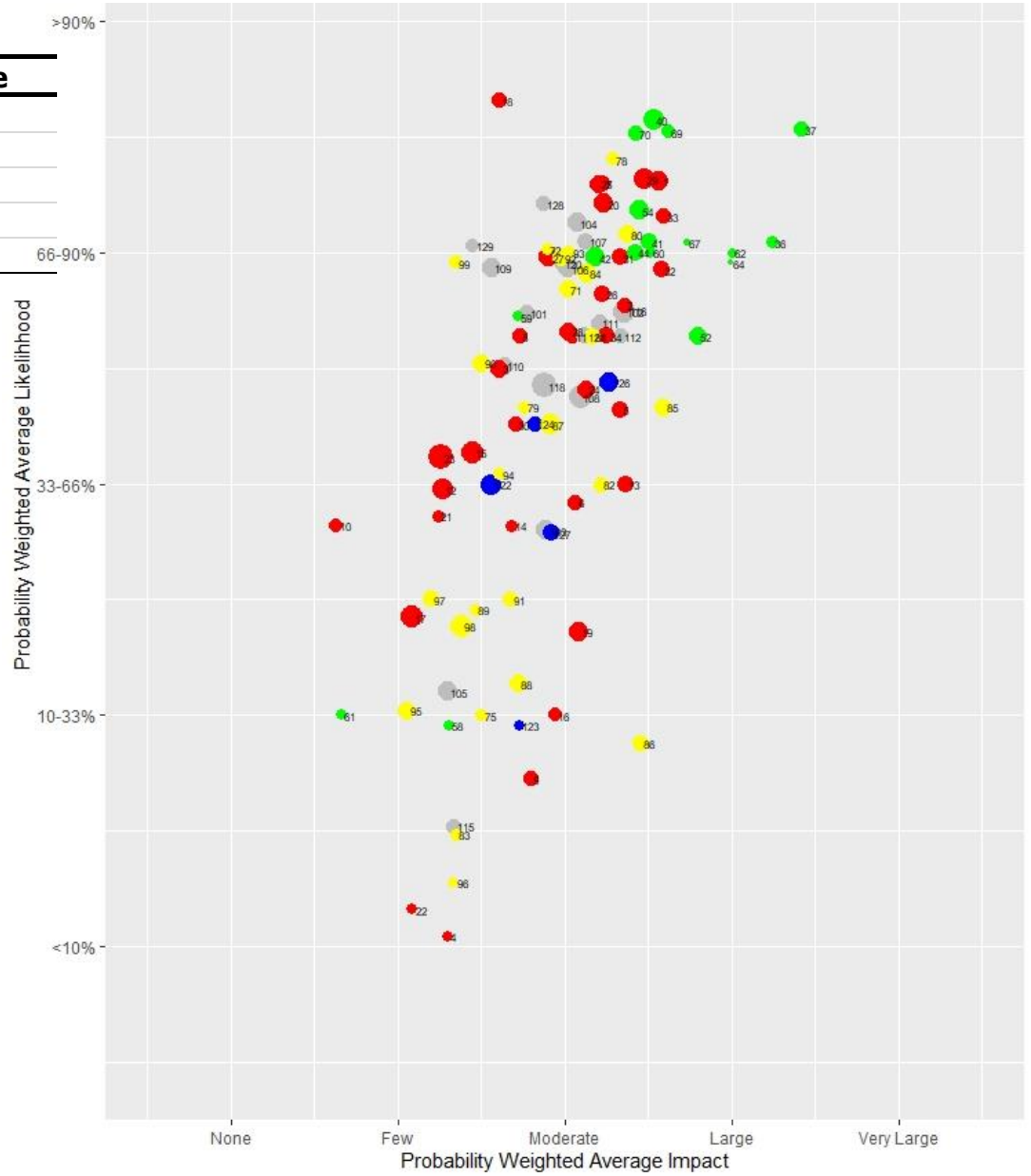
Indicators of the effects of climate change (delta)



Hepatitis A
(human health)

2D visualisation of all issues (future scenario)

LIKELIHOOD OF EMERGENCE	Score
Very Unlikely: ≤10%	1
Unlikely: ≤ 33%	2
About as likely as not: ≈50%	3
Likely: ≥66%	4
Very likely: ≥90%	5

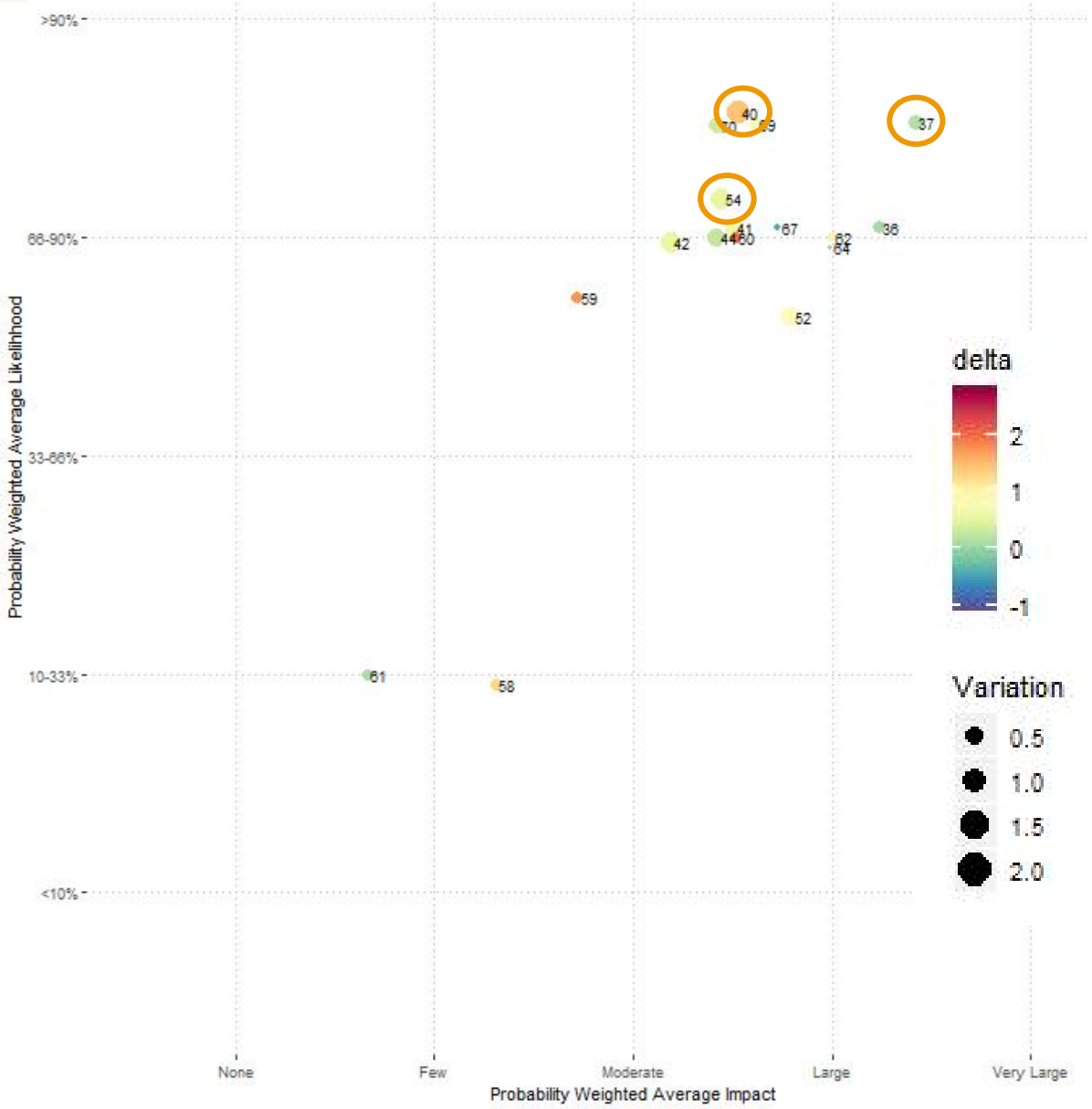


variation
1
2
3

UNCERTAINTY

IssueType
animal health and welfare
biological hazards to human health
contaminants
nutritional quality
plant health

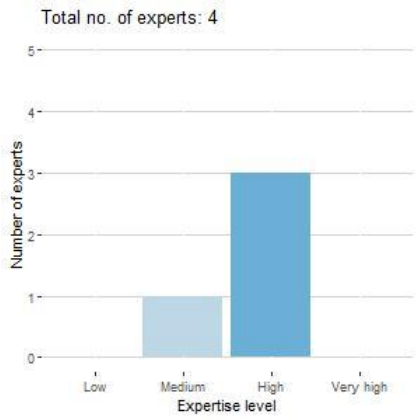
2D visualisation of plant health issues (future)



Experts: 3

36	Potential establishment of the apple snail in the EU
37	*Xylella fastidiosa* and its insect vectors
40	*Ceratitis capitate*
41	Spread of Tomato leaf miner, *Tuta absoluta* in tomato
42	Pine processionary moth
44	Codling moth *Cydia pomonella*
52	Brown marmorated stink bug
54	Olive fruit fly (*Bactrocera oleae*)
58	Spodoptera frugiperda
59	Huanglongbing (HLB)
60	Wheat stem rust and yellow rust
61	Wheat blast
62	Wheat fusarium head blight
64	*Citrus tristeza* virus
67	*Ralstonia solanacearum*
69	Heat and drought stress
70	Heavy rainfall and floods

Factsheets

Heat stress in Swiss dairy cows								
EFSA's scientific area	Animal health and welfare	Biological hazards to human health	Contaminants	Nutritional quality	Plant health			
	☑	·	·	·	·			
Source	CLEFSA experts	EFSA	CLEFSA Survey	EREN	StaDG-ER	TIM	MediSys	Literatur e
	·	·	☑	·	·	·	·	·
Description	With the increased air temperature due to climate change, the risk of heat stress in livestock increases too. Analyses based on the Temperature-Humidity-Index could demonstrate this effect. In dairy cows, rising temperatures at high humidity have a negative effect on feed intake and milk yield and thus changes the quality of milk. Further, prolonged heat stress can affect reproduction, growth and health of animals.							
Supporting information	https://www.agrarforschungschweiz.ch/artikel/2012_03_1749.pdf							
Impact on other areas								
Scoring experts								

	climate change	confidence level	
Impact	Climate change may have a serious detrimental effect on the impact of the considered hazard with respect to the reference condition (Delta value: 1.079)	Medium (Variance: 0.738)	
Likelihood	Climate change may seriously increase the likelihood of emergence of the issue with respect to the reference condition (Delta value: 1.424)	Medium (Variance: 0.393)	

Additional sources of uncertainty

Characterisation

Ambiguity	• Different understanding and interpretation of the issues and criteria
Expert group composition	• Number of experts involved for each issue characterization • Level of knowledge of an expert on the considered issue
Divergences in the assessment between experts	• Different expertise, different background knowledge
Scenario selection and its uncertainty	• Missing variables describing climate change conditions • Need for disaggregate to single element of climate change (e.g. temperature only)

Additional sources of uncertainty

Analysis

Probability distribution choice

- How close the chosen form of distribution (Pert) represents the expert judgment

Dependency between sources of uncertainty

- Dependency between the two criteria, impact and likelihood, and among impact subcriteria