

Introduction

A hypothetical accident involving the floating Russian NPP *Akademik Lomonosov* was the basis for a panel meeting organized in Oslo on April 29-30th 2019. In the scenario, a large radioactive release occurred outside the western coast of Norway (Figure 1).

The aim of the seminar was to discuss priorities and uncertainties related to selection of actions and strategies in the management of food production in transition to long-term recovery. The following stakeholders participated:

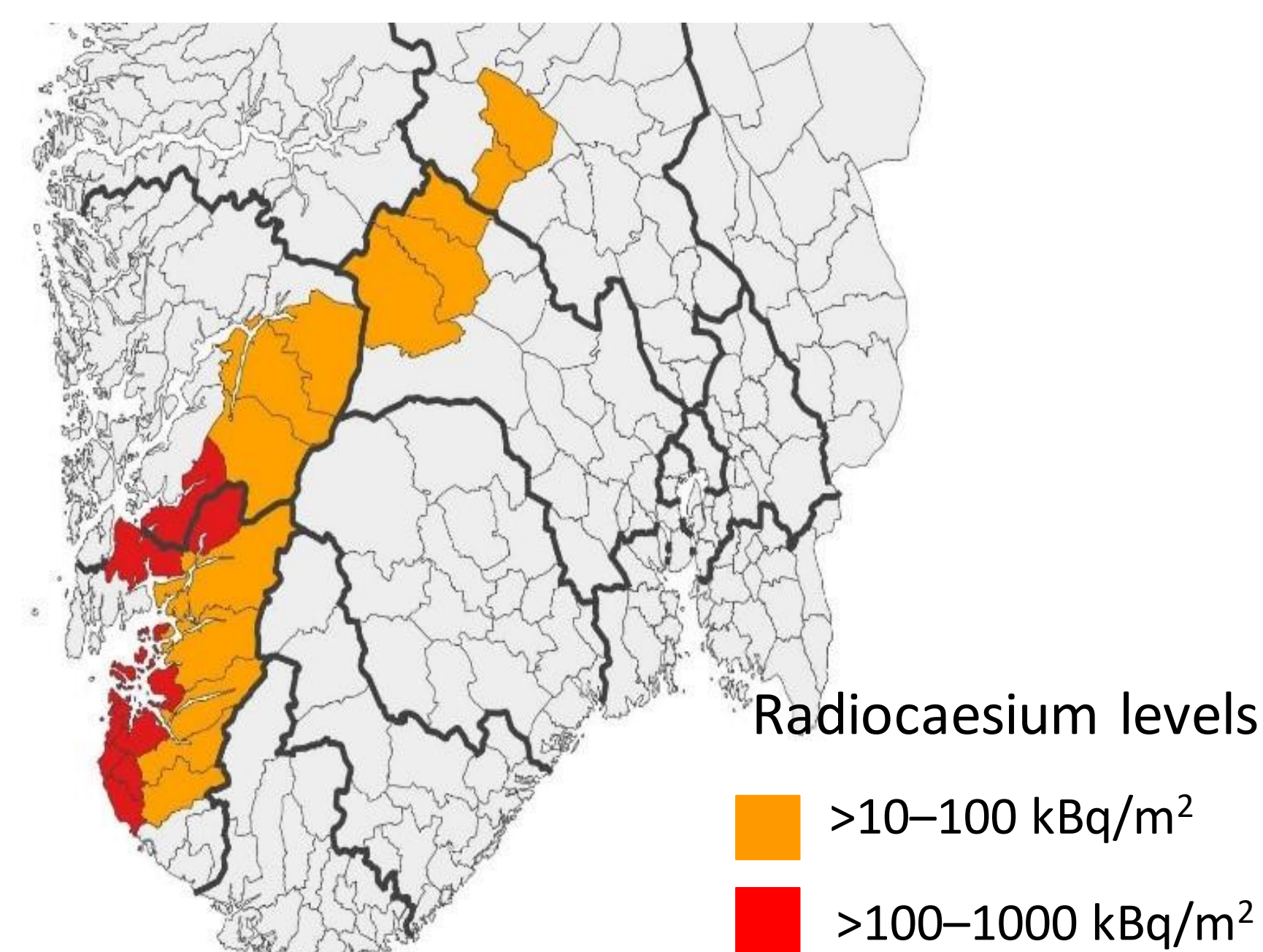


Figure 1 - Map of southern Norway showing the specified contamination zones

Materials and methods

Table 1 – Overview of suggested countermeasure strategies

Strategy	Description
Milk1 Sheep1	No countermeasures (accepting contamination).
Milk2 Sheep2	Normal plowing and fertilizing with K. Supplement with clean feed if required
Sheep3	Sheep grazing in contaminated fields are rounded up early and moved to improved pastures before slaughter
Milk3 Sheep4	Use of Prussian blue: - mixed into fodder - sustained release bolus - salt licks
Sheep5	Use of less contaminated pastures
Milk4, Sheep6	Remove the top layer of soil, then plow and fertilize.
Milk5 Sheep7	Stop production of milk/lamb. If possible, replace with other agricultural production

Participants discussed the suggested countermeasures (Table 1) in groups. A support sheet was used to help them structure the output (Table 2)

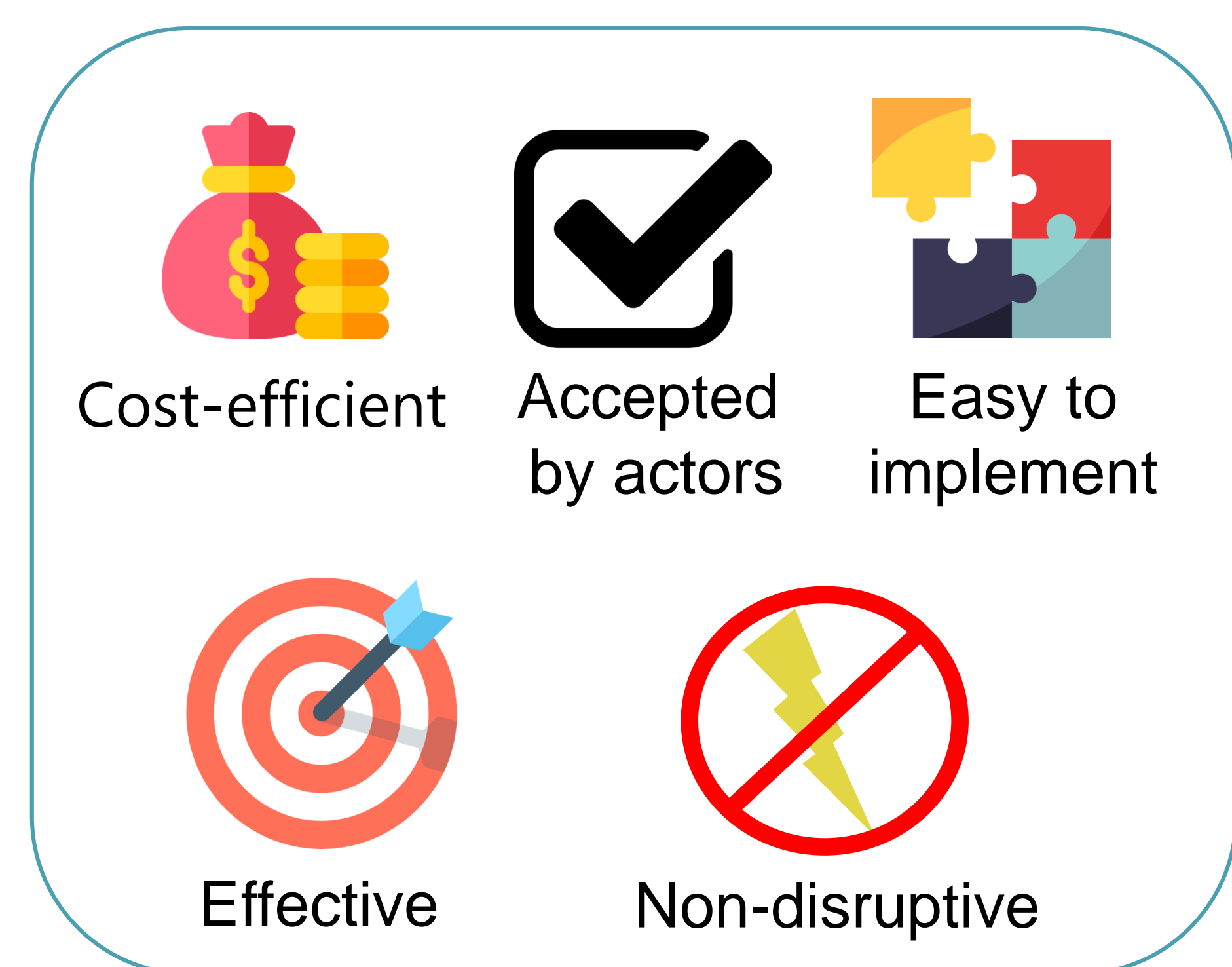
Table 2 – Support sheet for group discussions

Strategy no.				
Zone/contamination level	Benefits	Disadvantages	Prerequisites and uncertainties	Other comments
10-100 kBq/m ²				
100-1000 kBq/m ²				

At the end of the seminar, all participants also received an individual questionnaire – with the possibility to give scores from 0-7 to the different strategies

Results

Based on the group discussions 5 main factors influencing the choice of countermeasures were identified:



To see how consideration of these factors would affect decisions on the countermeasure strategies (Table 1), one can look at the individual prioritization scores (Figure 2):

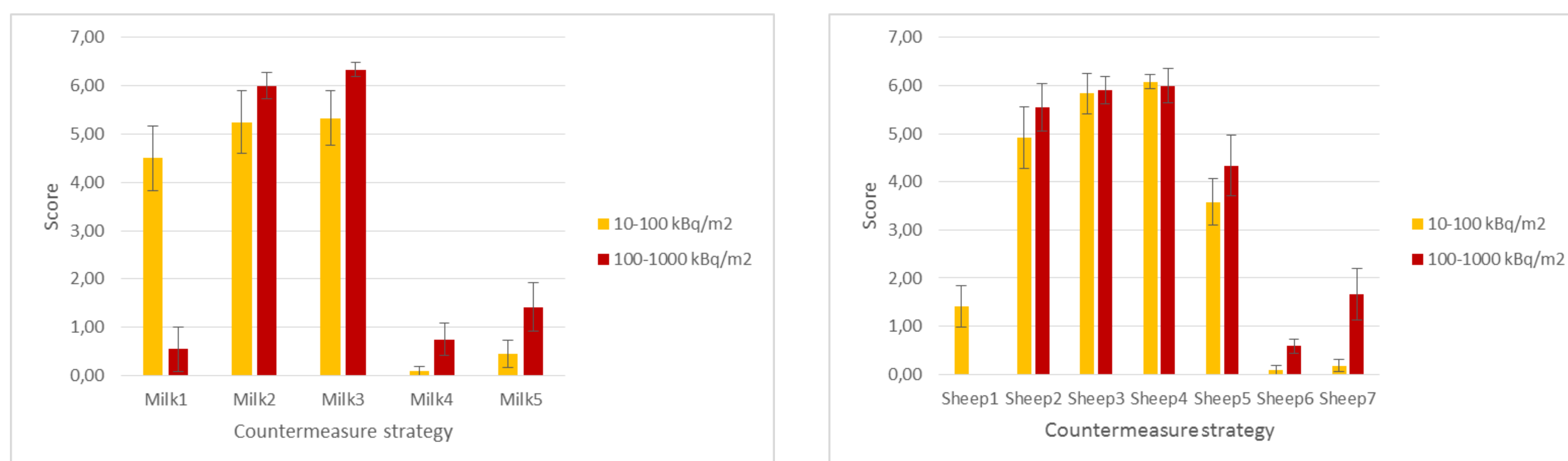
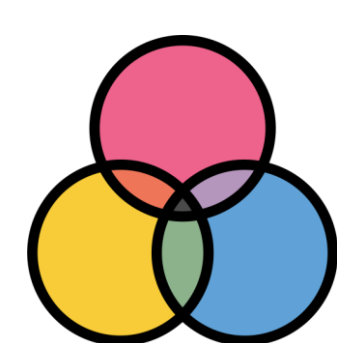


Figure 2 - Average priority scores (±standard error) of the countermeasure strategies for cow milk and sheep production based on individual responses

Conclusions



A single countermeasure will not likely be enough in many cases, therefore a combination should always be considered



Local conditions are very important for both the applicability of a particular countermeasure and how effective it will be



Monitoring/measurement programs are extremely important for mapping contamination, identifying sensitive or less sensitive areas, documenting effect of countermeasures and building trust to the strategy and products



A great deal of uncertainty is associated with the consumer response to the countermeasures and food products from the affected areas.