

Long term countermeasures and emergency preparedness in Norway

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The Norwegian Food Safety Authority in brief

- Established on 1 January 2004 following the merger of:
 - The Norwegian Food Control Authority (SNT)
 - The Norwegian Agricultural Inspection Service
 - The Norwegian Animal Health Authority
 - The Directorate of Fisheries' seafood project
 - The local government food standards agencies
- Consists of three administrative levels
 - Head office
 - 8 regions
 - 54 district offices
- Headed by Joakim Lystad, Director General
- Approx. 1,300 employees

The main goals of the Norwegian Food Safety Authority

The mission of the Norwegian Food Safety Authority is to promote:

- Safe, healthy food
- Healthy plants, fish and animals
- Ethical keeping of fish and animals
- Environmentally friendly production
- Good quality, honest production and fair trade
- Internal goals: a future-oriented and efficient organisation

In other words: the NFSA is the national authority concerning all food production from the farm/fjord to the fork

In other words: the NFSA is responsible for all counter-measures concerning food in case of a nuclear incident



Chernobyl - Effect in Norway

Due to wind and rainfall the days following the accident in Chernobyl, Norway actually became one of the most affected countries in Europe

Affected areas in Norway happened by chance to be in the heart of the grazing land for sheep and lambs, a meat production form we like to present as the purest of the pure

In addition, the South Sami population with its restricted diet is especially affected

Countermeasures, still in use today

1. Zonation

Regulation 2005-06-25 No. 693 Ovine and bovine animals from rough grazing land: Zonation

- *Observation zone*: areas categorized as action zones in 1988

Based on experience, weather, amount of mushrooms and monitoring the zones are every year declared as:

- *Free zone*: no measures/actions
- *Action zone (tiltakssone)*: the average of radioactive caesium in bovine/ovine meat > 600 Bq/kg

The monitoring that is performed is the following:

- “*Summer monitoring*”: Measurement of a few living animals and milk from selected herds by NRPA → prediction of level of radioactivity
- *Live monitoring*: Measurement of a wide range of animals when sheep/lambs are returning from rough grazing → either slaughter or a number of weeks of clean feeding before slaughter
- *Analysis of meat*: Sampling of a percentage of slaughtered animals → intended to be a confirmation of the two above

Countermeasures still in use today

1. Zonation, cont.

Action zones: The average of radioactive Cs in bovine/ovine meat > 600 Bq/kg. Consequence:

- Prohibition of slaughter (preliminary)
- Alternative feeding in a specified period of time, the length of it depending on level of measured radioactive Cs in the flock (economic support from the Government for this feeding)

Government's intention:

- Save all meat from bovine and ovine animals – avoid non-approval/cassation
- Ensure food safety
- i.e. both an economic aspect (support of animal holders), and a food safety aspect (consumers)

Countermeasures still in use today

2. Reindeer meat

Regulation 2008-06-19 No. 712 Radioactivity in reindeer meat

Parallel situation as presented for ovine/bovine animals, but some special challenges:

- More focus on the economic aspect (other systems of economic compensation than for ovine/bovine)
- Health authority's concern for the animal holders and their families due to their diet (reindeer meat, inland fish, berry, etc.)
i.e. private consumption, not ordinary sale

Challenges and prospects

Equipment:

- Laboratory equipment and transportable instruments for live monitoring have now been in constant use for over 20 years since the Chernobyl accident

Prospects:

- Rough grazing means no working of the soil – the level of radioactivity in the soil and its flora will follow a natural, very slow, degradation – i.e. we will have to live with these problems for a very long time still
- Better survey, e.g. mapping by helicopter, may give possibilities for a better classification of areas to avoid by grazing animals, and areas to prefer

In case of "another Chernobyl"

Will we be better prepared this time? How and why?

- New organisation of involved nat. authorities (KU)
 - Kriseutvalget = Crisis committee for nuclear preparedness
 - Has meetings 3-4 times/year and is responsible for the management and continual devel of nuclear preparedness
- New organisation of the NFSA
 - In 1986 there was no NFSA and 5 different authorities were involved in countermeasures concerning the food chain
- Contingency plans
 - There is a better general preparedness in the community concerning all crises, incl nuclear events
- Much more knowledge
 - We gained a lot of experience and we are still learning

Emergency preparedness in the NFSA

- **We have contingency plans concerning many different potential emergencies, including nuclear incidents**
- **Our contingency plan for nuclear incidents describes amongst other things:**
 - general principles for handling a nuclear incident
 - the responsibilities of the NFSA in case of a nuclear incident
 - the most likely management options necessary in the acute phase of an emergency (EURANOS Food handbook)
 - a list of laboratories that the NFSA has contracts with and that can analyse radioactive substances
 - the localisation of the 20 instruments for live monitoring

Our list of the most likely management options in the acute phase of an incident

- **Pre-deposition phase**
 - 3. covering of standing crops
 - 5. Protection of harvested crops
 - 6. short-term sheltering of dairy animals
- **General applicability**
 - 11. Restriction of the entry of food in the food chain
- **Soil/crops/grassland**
 - 13. Application of lime to arable soils and grassland
 - 14. application of potassium fertilisers to arable soils and grasslands
 - 16. early removal of crops
 - 21. shallow ploughing

Our list of the most likely management options in the acute phase of an incident

- **Animal products**
 - 24. addition of AFCF to concentrate ration
 - 26. administration of AFCF boli to ruminants
 - 27. administration of clay minerals to feed
 - 29. clean feeding
 - 30. decontamination techniques for milk
 - 31. distribution of saltlicks containing AFCF
 - 32. live monitoring
 - 33. manipulation of slaughter times
- **Societal**
 - 40. dietary advice
 - 41. food labelling
 - 42. local provision of monitoring equipment
 - 44. raising intervention limits
 - 45. restrictions on gathering wildfoods

Challenges in implementing needed measurement options

- Scenario: major radioactive fall-out in the south-middle of Norway, mid-June
- Situation: all sheep and many cows are out grazing “in the wild”, that is in the mountains or forests, crops have started to grow, but are not big enough for an early harvest, the first harvest of fodder has not yet been done etc.
- What measurements should be implemented, and what challenges do they involve?
 - The only possible way to protect sheep, cows and reindeer in the wild is to try to distribute saltlicks containing AFCF.
 - How does one get a hold on enough saltlicks? How does one distribute saltlicks to where the animals are, and quickly enough?
 - For other household animals administering of AFCF, or just keeping them indoors during a certain time might be enough

Challenges in implementing needed measurement options (cont.)

- For crops - if possible, one might try to cover standing crops
 - Herculean task to cover all crops, an exception might be for those crops that are usually covered at the beginning of the season – in this case the machinery and plastic needed may be available. For all other crops just obtaining enough plastic will be a challenge, and the task of covering will be quite difficult.
- Fish, farmed and wild – the only possible option might be to move the fish farms to a place with more current. But probably this is neither necessary nor possible.
 - The biggest challenge here will be information. Probably the fall-out will not be a big problem for fish health or quality – however, we know from long experience that the market is extremely sensitive to all “dangers”, real or imagined.

Challenges in implementing needed measurement options (cont.)

- Drinking water: the radioactivity will most probably not pose a problem to the quality of the drinking water
 - Here again the biggest challenge will be information to the public, to reassure people that it will be safe to drink the water
- Other areas:
 - Food production plants should take care to protect food manufacturing from radioactive pollution by for instance closing ventilation systems for a certain amount of time. This may however cause a humidity problem which again can produce a problem of hygiene
 - Wild animals, wild berries/mushrooms/fresh water fish etc: restrictions on hunting and gathering wildfoods are possible options – again information is the most important measure

In summary - major challenges for the NFSA

- Information: Some have called the Chernobyl accident an information crisis - in case of a new incident the public will want an endless amount of information concerning basically everything
- Analysis: There will probably be a huge demand to analyse all kinds of food and drink and our capacity of analysis is probably not big enough to cover public demand, and demands from an export market
- As of today: it is a challenge to raise awareness among our employees of the need to be prepared for this kind of emergency