

AGRICULTURAL LAND MANAGEMENT OPTIONS FOLLOWING LARGE-SCALE ENVIRONMENTAL CONTAMINATION – LESSONS LEARNED

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Following a large-scale nuclear accident, the application of countermeasures is a key issue in the emergency, post-emergency and late phase. This presentation summarizes what is generally understood about the application of agricultural countermeasures as a land management option to reduce the radionuclides transfer in the food chain and to facilitate the return of potentially affected soils to agricultural practices in the post-emergency and late phase.

Numerous countermeasures were developed or improved since the Chernobyl accident and applied on large scale in Belarus, Ukraine and Russia, and some also in contaminated regions of Europe. The presentation does not capture the approach taken and the progress made in the development of contaminated agricultural land management options after the Fukushima-Daiichi nuclear accident.

Effectiveness of mechanical countermeasures (land removal, ploughing, ..) and their associated effectiveness and side effects are discussed.

The soil-to-plant transfer factor (TF) of ¹³⁷Cs is extremely variable among soils. The presentation discusses the importance of ionic competition and caesium selective sorption as major ruling mechanisms of caesium availability and plant uptake. In light of our knowledge on caesium bio-geochemistry, effectiveness of agrochemical countermeasures is discussed. In addition phytomanagement options such as food crop selection, phytoextraction and cultivation of technical crops (e.g. bioenergy crops, fibre crops) will be evaluated.