

剥ぎ取り除染を行った農地において 表土剥ぎ取りおよび客土が地力に与える影響

好野 奈美子^{1*}、小林 浩幸²、高橋 義彦¹、斎藤 邦人³

¹ 国立研究開発法人 農研機構東北農業研究センター (〒960-2156 福島県福島市荒井原宿南 50)

² 国立研究開発法人 農研機構中央農業総合研究センター (〒305-8666 茨城県つくば市観音台 3 丁目 1 番 1 号)

³ 内外エンジニアリング株式会社 (〒110-0015 東京都台東区東上野 1 丁目 28 番 12 号)

Effects of Soil Stripping and Dressing for Decontamination of Radioactive Materials on Soil Fertility of Agricultural Land

Namiko YOSHINO^{1*}, Hiroyuki KOBAYASHI²,
Yoshihiko TAKAHASHI¹, and Kunihito SAITOU³

¹Tohoku Agricultural Research Center, National Agriculture and Food Research Organization
(50 Harajukuminami, Arai, Fukushima 960-2156, Japan)

²Agricultural Research Center, National Agriculture and Food Research Organization
(3-1-1 Kannondai, Tsukuba, Ibaraki 305-0856, Japan)

³Naigai Engineering Co.,Ltd. (1-28-12 Higashiueno, Taito, Tokyo 110-0015, Japan)

Summary

Farms that were highly contaminated with radioactive materials following the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi nuclear power plant accident were decontaminated by removing topsoil and subsequently dressing with fresh soil. We investigated the chemical properties of soils following such decontamination on farms in Iitate village, Fukushima. The nitrogen content of dressed soil was considerably lower than that of the subsoil that was not stripped for decontamination, as a result of which the amount of dressed soil greatly affected the soil fertility of decontaminated farms. The potassium (K) content of soil differs markedly depending on the type of soil dressing material used; accordingly, the type of soil dressing material affected the soil K content on decontaminated farms. On most of the decontaminated farms where sandy soils were used as the soil dressing material, soil exchangeable K contents were less than 25 mg K₂O/100 g, which is the criterion value for inhibiting cesium absorption in rice and soybean cultivation. However, even in the soil dressing material from agricultural land, soil K content after soil dressing was generally lower than that before soil dressing. During fallow management and at the restart of cultivation on decontaminated farms, it is important to know in advance the chemical properties of soil and take the necessary measures based on this information.

Key Words: Farm decontamination, Soil dressing, Soil fertility, Potassium

和 文 要 約

東京電力福島第一原子力発電所事故によって高濃度の放射能に汚染され、表土剥ぎ取り除染および客土が行われた福島県飯館村 3 地区 27 圃場の土壌化学性を調査した。その結果、客土材の全炭素および全窒素含量は剥ぎ取られなかった下層土に比べて有意に低いため、客土の量が除染農地土壌の肥沃度を左右すると推察された。また、客土材の由来によって交換性カリ含量が異なるため、客土材の選択が除染農地土壌の交換性カリ含量を左右することが判明した。山地由来の客土材を客土した場合、ほとんどの圃場で作土中の交換性カリ含量が 25 mg K₂O/100 g Soil に満たなかった。ただし、畑地由来の客土材であっても客土された後の交換性カリ含量は客土前よりも総じて低下していたため、除染農地における休閑管理や作付再開の際には土壌化学性を把握し、それをもとに対策を講じる必要がある。