EGU2020-4030
https://doi.org/10.5194/egusphere-egu2020-4030
EGU General Assembly 2020

Highlighting the importance of topsoil in human life through a soil education program

Aiki Masuda[1], Emi Yokoo[2], Hideaki Hirai[3], and Akiko Deguchi[4]
[1]Sakushin Gakuin High School, Utsunomiya, Tochigi, Japan (fancyaiki1121@gmail.com)
[2]Utsunomiya Girls' High School, Utsunomiya, Tochigi, Japan (emuyokoomobile.821@au.com)
[3]School of Agriculture, Utsunomiya University, Japan (hiraihideaki1960@gmail.com)
[4]School of Education, Utsunomiya University, Japan (deguchia@cc.utsunomiya-u.ac.jp)

This study aims to highlight the importance of topsoil in human life from the viewpoint of daily rice consumption in Japan. A questionnaire on rice and/or soil was distributed to elementary, junior high, and high school students and university students in order to investigate how much they know about soil and its importance. The results were reported using an earlier study (Hirai and Hirai, 2015). The findings revealed that most of the students recognized the soil function of plant production, but few recognized the area of paddy fields required to produce the amount of average rice consumed per person per year in Japan. In order to convey the importance of topsoil, an interactive class on "rice" was conducted with students in October 2019, as part of a soil education program. Before it, a rice hill with topsoil of 15 cm was taken from a paddy rice field and kept in a plastic container. We chose rice as the topic because Japanese students can easily relate to it. Students were told that to produce 150 g of edible rice, 70 g of dried rice is used. As part of an activity, they were asked to: 1) Count grains in 2 g of dried rice, and then calculate the number of grains in 70 g dried rice, 2) Observe a rice hill with topsoil , 3) Count the number of panicles of the rice plant and the number of rice hull in a panicle, 4) Multiply the number of rice hull with the panicle number to obtain the total number of rice hulls, and 5) Measure the total area and the weight of the topsoil. Thus, the students could understand how many rice hills with topsoil of 15 cm depth with a certain area are required to produce 150 g of edible rice. The students were also asked to touch and feel the soil and the rice plants, following a presentation about their learnings and findings. After this activity, a lecture from a professor of soil science was delivered. Moreover, the following questionnaire survey was conducted before and after the soil educational program aiming at recognizing the importance of soil. The number of participating students was 19, consisting of 5^{th} and 6^{th} graders of primary school and 1^{st} to 3^{rd} graders of junior high school. The following questions were asked: Q1. Would you like to have places with soil around where you live? Q2. If you prefer to have a place with soil around, what are the reasons behind it? Q3. Would you like to know more about soil? The number of students who answered Q2 with "because having a place with soil stops groundwater from drying up" increased from 5 to 15 after the program. In case of Q3, the number of students who answered "I would like to know as much as possible" increased from 10 to 18. Moreover, it is noteworthy that attendants stressed on touching the soil and measuring the area under rice plant cultivation.