



Soil science teaching in schools: practical results in Saint-Petersburg

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The school program in Russian Federation does not include Soil Science as separate course. School children can receive some information about soil science from Physical Geography and General Biology lessons: about main soil types (Podzols, Chernozems et al), soil fertility and some biogeochemical functions. These data are very limited having little time in school schedule. At the same moment the Soil Science is the most ecological tools of learning. It is easy to prove. Soil is declared as the function of mineral parent materials, biota, climate, relief, time and anthropogenic influence. And from other side the Ecology is the study of the biological objects and the surrounding interactions. So the object of Soil Science is one of the objects of Ecology. Saying more the Soil Science consolidates basic knowledge of geography, biology, chemistry, physics, mathematics and may be good simulator for repetition and fixing the basic school education. Meanwhile, last years the programs of early specialization in Saint-Petersburg have been started. It means the orientation of school children in humanitarian or natural sciences. Biology, Geography and Ecology are divisions where soil science is claimed. The Department of Soil Science and Soil Ecology of Saint Petersburg State University assists in realization of these school education projects. Three years of collaboration of Saint-Petersburg University with different city schools showed that most interesting topics are follows: urban soils, soil pollution, fertility of suburban arable soils, green houses gases emission from soil, health and toxicity of soils. The university collaboration with schools is developing in three directions: 1) scientific consultations of the projects; 2) elective courses; 3) open lessons. The elective courses are particularly interesting new form of school teaching. School education in Russia is compiled by the theoretical studies mainly. It is because of as small part of practice in official school program as poor school equipment for practical work

realization. Elective courses apply mainly practical works. For example, Nadporozhskaya M.A. elaborated and conducts the elective course specialized in Soil Science on the base of Soil biochemistry laboratory of Biological Research Institute. Pupils recognize the main physical and chemical soil properties and methods of their analyses doing the model experiments during the classes. The open soil science lessons was constructed as the 2-4 hours game. Class room is organized as small laboratory with essential equipment at every desk. Pupils should find practical solution of suitability for plant growth doing chemical and physical estimations of selective soil samples and comparing the results with tables of soil properties and plant requirements. The practical studies are characterized by comparatively short time of realization, because school children have not a lot of time to conduct wide and serious scientific experiments of course. Nevertheless 6 - 8 months after pupils are able to present their reports on annual Dokuchaev Reading for Young Scientists, organized by Soil Science and Soil Ecology Department and Dokuchaev Central Museum of Soil Science. Abstracts of the reports are published in Proceedings books, where papers of school children are adjoined with abstracts of university students and young scientists. Thereby, collaboration between University professors, school teachers and pupils allow involving young persons to the investigations and to popularize of soil science in schools. Thus, Saint-Petersburg State University evolves first experience of continuous soils science educational systems from School to the University in Russia.