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GUEST EDITORIAL

Education, training, and professionalism for soil scientists

Cliff Montagne

In today’s world, the professional soil scientist faces new challenges as well as the traditional ones. Today’s soil scientist works in a small yet large world with burgeoning communications and information systems and rapid advances in technologies. In this rapidly changing, complex world, the professional soil scientist must still make and communicate common-sense decisions and get along with people.

The Western Regional Work Planning Committee of the National Cooperative Soil Survey (NCSS) is concerned with production of new professional soil scientists as well as continued vitalization of currently employed soil scientists. The following remarks were compiled from a panel on Education, Training, and Professionalism for Soil Scientists at the 1984 Western Regional Work Planning Conference of the National Cooperative Soil Survey and are outgrowths of the author’s participation on Committee 4, Educational Requirements to Meet Future NCSS Needs.

Education

The well-educated soil scientist is capable of performing science, but to be effective the scientist must also be a leader, facilitator, and decision-maker who uses teamwork and communication to accomplish specific tasks and deliver products. Thus, a university science education must provide a broad, basic background that not only facilitates competence in science and mathematics but also includes broadening in humanities, fine arts, and social science, while developing skills in thinking, writing, communicating, decision-making, and teamwork. This background will help prepare a confident, flexible, and resourceful individual who can react to a variety of situations and be trained for a variety of tasks. The well-educated soil scientist integrates the goals and objectives of the specific task at hand into a broader awareness of the world at large. This broad purpose of education—competence in thinking, communicating, and accomplishing—may be the highest educational goal of the university. Notice, this does not require a versing in the technological details of soil science.

Training

Training provides specific knowledge and technique to perform a specific task and is accomplished both at the university and on the job. In today’s increasingly complex world, the tendency is to focus on training in a narrow and highly complex specialty. Such knowledge is necessary but quickly outdated. Soil scientists must obtain adequate training via specific courses in the discipline of soil science, both at the university and later in agency or other professional training courses. Training is critical to the continued health of the soil science profession, but it must always be given in context of a tool to accomplish a task. Training should be given in the broader context of education. One who is well trained should first be well educated so the training will be properly applied.

Some students concentrate on a broad education and leave school without adequate training. Others become highly trained but lack the adaptability of a broad education. Students should be counseled to seek the optimum blend of education and training.

Professionalism

A professional is one who applies advanced training and education to a field of endeavor with enthusiasm, attention to detail, and quality. A professional does the best possible job. Dr. Richard Arnold, the director of Soil Survey Operations, Soil Conservation Service, says a professional must be excited, challenged, and enthusiastic. This will promote a satisfying and creative career within the profession. Education can provide the broad skills, and training can provide the specific disciplinary knowledge and skills, but how does one become a professional? Both the academic and the soils community at large can encourage professionalism in various ways.

Soils educators can make students aware of the profession of soil science by serving as “example professionals” to their students and by promoting student clubs, soil judging teams, and field trips and in-
ternships, which expose students to practicing soil scientists. Professionalism should be advocated and illustrated from a university student's first exposure to soil science. This may set long-lasting patterns that can carry through one's entire career.

At levels beyond the university, professionalism must be advocated, practiced, and encouraged by the body of practicing soil scientists. The ARCPACS certification program is a major step in this direction, as are state societies of soil science. A buddy system for new professionals could pair up an entry-level soil scientist with an experienced mentor who would be sure to orient the new soil scientist and encourage the development of a sound and rewarding professional career.

Professional soil scientists accomplish creative work. For the greatest value, their work should be reviewed, polished, and perfected, then published. Professionals have an obligation and opportunity to publish and share results of their creative work.

Conclusion

Soil science faces great challenges and opportunities as the per capita natural resource base shrinks and the technological and information bases expand. As we enter the information age, soil science must produce well-educated and well-trained professionals who can blend highly specialized technical knowledge with team-centered, practical problem-solving. Broad-based, quality education serves as a foundation upon which training and professionalism rest. The professionals of soil science must, in turn, continue to develop their professionalism. This includes monitoring, contributing to, and improving the education and training of soil scientists.