

Soil Science Institute and Soil Geomorphic Investigations Training for Soil Scientists

The Secretary of Agriculture Memorandum No. 1301 (November 5, 1951) directed the USDA Soil Conservation Service soil survey program and the soil survey program of the Bureau of Plant Industry, Soils, and Agricultural Engineering to resolve some soil survey issues. Secretary's Memorandum No. 1328 (October 14, 1952) transferred all personnel and funds of the Bureau's Division of Soil Survey to the Soil Conservation Service (SCS) and designated SCS as the single agency responsible for all soil survey activities in the Department of Agriculture. Charles Kellogg was named Assistant Chief of the USDA-SCS Soil Survey.

Kellogg was proactive in encouraging field soil scientists to increase their knowledge in the science and use of soils information. He encouraged field soil scientists to read selected technical soils publications, work in different locations, attend formal training at universities, etc. The development of the Soil Science Institute, initiated by Kellogg, was quite successful.

During the late 1950s, Kellogg asked Martin Cline of Cornell University to develop a short course in the soils curriculum that soil scientists from the States could attend. Cline was from time to time on a split appointment with the USDA/Cornell University.

Below are notes from Dick Arnold indicating that the initial course (developed in 1957 or 1958) lasted for a week or two and that the participants were mainly from New York. Following these notes is Cline's summary on starting the Soil Science Institute.

The first sessions of the Soil Science Institute (SSI) were in 1960. There were about 30 soil scientists from SCS enrolled in the first sessions with a few from the United States Forest Service or Bureau of Lands and Management. The length of the first sessions was 6 weeks and later reduced to 4 weeks.

States, in general, selected their more productive and creative soil scientists to attend the Soil Science Institute. Most of the state soil scientists, assistant state soil scientists, and soil correlators and, later, the soil scientists on regional/national soils staffs within SCS/NRCS have successfully attended one of the institute's training sessions.

Records indicate that there has been a Soil Science Institute training session held each year from 1960 to 2001. In 2002, the course was redesigned as the Soil Geomorphic Investigations. There were no sessions held in 2005. All of the training sessions for the Soil Science Institute and the Soil Geomorphic Investigations have been hosted by a National Cooperative Soil Survey university. USDA-SCS/NRCS reimbursed the universities for a portion of the training cost.

Between 1960 and 1983, all of the Soil Science Institute's sessions, with the exception of one session held at Oregon State University, were hosted by Cornell University and Iowa State University. Since 1983, about 15 different National Cooperative Soil Survey Universities have hosted training sessions for the Soil Science Institute or the Soil Geomorphic Investigations.

Mark Crouch, Training Coordinator at the National Soil Survey Center in Lincoln, Nebraska, provided a very accurate listing from 1983 to the present. The list from 1960 to 1983 was developed through email, telephone calls, website information, discussions over coffee, and personal contact.

Several presumptions were made as records were incomplete. It is possible that in one year, probably in the late 1970s or early 1980s, the SSI was not held due to funding. For many of the early years, the SSI was held at Cornell University or Iowa State University, with the exception of one session held at Oregon

State University. Assumptions were made for the following years: 1963 at Cornell, 1966 at Cornell or Oregon State, 1967 at Cornell or Oregon State, 1969 at Cornell, 1975 at Cornell, 1978 at Cornell, and 1982 at Cornell.

Major contributors to the development of the list from 1960 through 1982 were Jim Culver, retired soil scientist, National Soil Survey Center; Dick Arnold, retired Director of Soil Survey Division; Tom Fenton and Jerry Miller, Iowa State University, Professional Soil Classifiers of Iowa; Tom Hallmark and Charles Thompson, Texas A&M; Marlin Cline, Cornell University; Ellis Knox, retired National Leader for Soil Investigations; Nancy Harner, wife of Rod Harner, who attended the 1962 session; Joe Nichols, retired head of soils staff in South Region; John Brubacher, retired State Soil Scientist of Michigan; and Steve Scheinost and Paul Bartlett, soil scientists in Nebraska.

Dick Arnold's Comments:

“The very first attempts were in the late ‘50s after Charles Kellogg asked Marlin Cline to consider such an effort. Marlin brought in some soil scientists mainly from New York in ‘57 or ‘58 for a week or two, and tried out a curriculum on them. It was tough sledding as I remember, but Cline was well organized (as usual). I think he and Kellogg decided to add more subject matter and not just pedology, so that meant a big reorganization of materials, instructors, and so forth. It was the intent to move the Institute around the country and I think Ellis Knox, then at Oregon State, held it one year but then declined after that. As of now, I do not know which year that was. You are correct, I did come down from Guelph and taught the soil and geomorphology section in 1965. After moving to Cornell in late 1966, we then picked up the Institute for several years, and then convinced Tom Fenton to alternate with us, and later it was spread across the country. Most of those later ones will be on the list from 1983 on.

The early ones were six weeks in the winter time, and we ran into psychological problems and concerns with a number of the participants. That, of course, was never the intent so we changed it to 4 weeks to ease the burden for many of the participants. It more or less stayed about 4 weeks for quite a few years after that. And when it changed to the Geomorphology Institute, I do not know what the guys do with it now.”

Marlin Cline's Comments:

Dr. Marlin Cline, Chair of the Agronomy Department from 1963 to 1970, wrote *History of Agronomy at Cornell* that includes information from 1868 to 1980. The comments below are from pages 236 and 238 of this document. There is a photograph of the first 1960 Soil Science Institute participants on page 237. This manuscript can be viewed at <http://css.cals.cornell.edu/cals/css/about/history.cfm>.

“At the request of the Soil Conservation Service of USDA, the Department initiated a special 6-week short course for Soil Survey employees of the SCS under the Extramural Division of the University in 1960. The course known as the Soil Science Institute enrolled 30 students selected by SCS as its more promising employees for instruction in basic soil science, including the fundamental principles of the basic sciences that contributed to it. Although the content varied somewhat from year to year, the course consisted mainly of sections on soil chemistry, soil physics, soil fertility, soil mineralogy,

soil classification, geomorphology, and plant physiology, each involving between 18 and 30 contact hours.

The course was taught annually for the first three years at Cornell. By 1964, the extra faculty time and effort involved had encroached on regular duties so much that the faculty requested relief. Thereafter, the course was taught in alternate years by Iowa State University. It continued on that basis until 1976. Usually 2 or 3 employees of the U.S. Forest Service were included.

The students were mature individuals mainly with academic training to the Bachelor's Degree level and mainly at least 10 years removed from formal university training. Most were weak in basic mathematics, chemistry, physics, and botany either because of weakness of undergraduate studies or because of long periods during which those subjects were used little. On firm instructions from SCS, the applications of the basic sciences to soils were emphasized, for it was the intent to create a corps of scientifically oriented personnel as leaders for the National Cooperative Soil Survey.

It was obviously impossible to train the group to a high level of even elementary scientific proficiency in the breadth of subject matter included. That was not the intent. The faculty's strategy was to present the fundamental principles and ideas of their subjects in the simplest form possible with examples of their applications and references for self-study after the students returned to their respective positions.

The pressure on the students was enormous. Few had anticipated the intensity of the course. The fact that they were examined and graded, in contrast to the usual in-service training courses to which they had been accustomed, hung heavily over their heads. They were in class for 5 50-minute periods 5 days each week for six weeks with problems and library assignments for evenings and weekends. There were, in fact, a few who became physically ill under the stress during the life of the project. Nevertheless, once the individuals returned to their jobs, most looked back on the Soil Science Institute as one of the most rewarding experiences of their professional careers. Currently there are few of the more responsible positions of the SCS Soil Survey that are not staffed by graduates of this program."



The first Soil Science Institute, 1960. Faculty, kneeling, left to right: Dawson, Cline, Peech, Miller, Zwerman, Lemon, Hodgson.



Soil Science Institute participants at Cornell University, 1964.



1. J. C. True
2. Donald Barron?
3. Joe Nichols
4. Leslie Kick
- 5.
6. Robert Modesitt
7. Ernest Hayhurst
8. John Newton

9. James McDonald
10. Jay Weaver?
11. Kenneth Hinkley
12. Walter Ellyson?
13. Jack Chugg
14. Dr. Marlin Cline, Staff
15. George Huddleson
16. Elbert Bell

17. Charles Thompson
18. Rodney Preator
- 19.
20. Dr. Murray Milford, Staff
21. Sidney Pilgrim
22. Dr. Peech, Staff
23. Dr. David Bouldin, Staff
24. Dr. Miller, Staff
25. Maynard Koppen?
26. Clayton Spears
27. F. Ted Miller

Location and Dates of Institute Sessions, 1960-2011

Date	SSI/SGI	HOST	Training Lead
2011	SSI	KANSAS STATE UNIV	NSSC
2010	SGI	UC-DAVIS	NSSC
2009	SGI	ALABAMA A&M	NSSC
2008	SGI	PENN STATE UNIV	NSSC
2008	SGI	NEW MEXICO STATE	NSSC
2007	SGI	UNIV OF IDAHO	NSSC
2007	SGI	NSSC/UNIV OF NEBRASKA	NSSC
2006	SSI	NORTH CAROLINA STATE UNIV	NSSC
2005	NONE		
2004	SGI	IOWA STATE UNIV	NSSC
2003	SSI	WASHINGTON STATE UNIV	NSSC
2002	SGI	NEW MEXICO UNIV	NSSC
2001	SSI	NORTH CAROLINA STATE UNIV	NSSC
2000	SSI	ALABAMA A&M	NSSC
1999	SSI	NORTH CAROLINA STATE UNIV	NSSC
1998	SSI	TEXAS A&M UNIV	NSSC
1997	SSI	UC-DAVIS	NSSC
1996	SSI	NORTH CAROLINA STATE UNIV	NSSC
1995	SSI	CORNELL UNIV	NSSC
1994	SSI	IOWA STATE UNIV	NSSC
1993	SSI	TEXAS A&M UNIV	NSSC
1992	SSI	TEXAS A&M UNIV	NSSC
1991	SSI	CORNEL UNIV	NSSC
1990	SSI	UNIV OF FLORIDA	NSSC
1989	SSI	IOWA STATE UNIV	NSSC
1987	SSI	UNIV OF FLORIDA	NSSC
1986	SSI	TEXAS A&M UNIV	NSSC
1985	SSI	IOWA STATE UNIV	NSSC
1984	SSI	TEXAS A&M UNIV	NSSC
1983	SSI	CORNELL UNIV	NSSC
1982	SSI	CORNELL UNIV?	
1981	SSI	IOWA STATE UNIV	TOM FENTON
1980	SSI	CORNELL UNIV	STEVE SCHEINOST -NE
1979	SSI	IOWA STATE UNIV	TOM FENTON
1978	SSI	CORNELL UNIV?	
1977	SSI	IOWA STATE UNIV	TOM FENTON
1976	SSI	CORNELL UNIV	PAUL BARTLETT - NE
1975	SSI	CORNELL UNIV?	
1974	SSI	IOWA STATE UNIV	TOM FENTON
1973	SSI	IOWA STATE UNIV	TOM FENTON
1972	SSI	IOWA STATE UNIV	TOM FENTON
1971	SSI	CORNELL UNIV	JOHN BRUBACHER

Location and Dates of Institute Sessions, 1960-2011

1970	SSI	IOWA STATE UNIV	TOM BURRUSS VIA JERRY MILLER
1969	SSI	CORNELL UNIV?	
1968	SSI	IOWA STATE UNIV	TOM FENTON
1967	SSI	CORNELL OR OREGON STATE?	
1966	SSI	CORNELL OR OREGON STATE?	
1965	SSI	CORNELL UNIV	JIM CULVER
1964	SSI	CORNELL UNIV	ROBERT MODESITT VIA JERRY MILLER
1963	SSI	CORNELL UNIV?	
1962	SSI	CORNELL UNIV	OTSUKI/HARNER VIA NANCY HARNER
1961	SSI	CORNELL UNIV	CLINE
1960	SSI	CORNELL UNIV	FIRST SESSION - CLINE