



Soil Science as a Field Discipline - Experiences in Iowa, USA

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Effective field understanding of soils is crucial. This is true everywhere but especially so in Iowa, a 15 million hectare state in the central USA's "corn belt." Iowa is intensely farmed and almost exclusively privately owned. Many regions of Iowa have had over 90% of their land area in row crops for the past 60 years. In these regions two very common land management strategies are tile drainage (1.5 million km total) and high rates of fertilization (e.g., 200 kg N/ha-yr for cropland) Iowa also has problematic environmental issues including high rates of erosion, excessive sediment and nutrient pollution in water bodies and episodic catastrophic floods. Given the preceding the Agronomy, Environmental Science and Sustainable Agriculture programs at Iowa State University (ISU) offer a strong suite of soil science classes - undergraduate through graduate. The objective of this presentation is to review selected field based soil science courses offered by those programs. This review includes contrasting and comparing campus-based and immersion classes. Immersion classes include ones offered at Iowa Lakeside Laboratory, as "soil judging" and internationally. Findings over the past 20 years are consistent. Students at all levels gain soil science knowledge, competency and confidence proportional to the amount of time spent in field activities. Furthermore their professional skepticism is sharpened. They are also preferentially hired even in career postings that do not require fieldwork. In other words, field learning results in better soil science professionals who have highly functional and sought after knowledge.