I am Jim Fincham, a Certified Professional Soil Scientist (CPSS). I live in the Snow Belt, east of Cleveland, OH, and I have been trying to function as a soil scientist with more than 90% emphasis in soil profile descriptions. Northeast Ohio is perhaps one of the toughest places to do this work, since according to my personal record keeping, snowfall averages 200 inches per year. Recently, it has been cold enough for frost to penetrate the snow and freeze soils up to a foot deep. This winter of 2014–2015 has been no exception.

As I contemplate my responsibilities to my fellow man, relative to what I do and how I do it, I realize my obligation to my profession is to produce the most accurate and complete profile descriptions possible. One might describe this as being a professional.

Many factors play an important role in the end product I produce. The first, most influential factor is how I obtain the most representative sample possible and maintain its integrity until I am finished describing it. My personal choice is to use a coring tool. It extracts an undisturbed sample from whatever depth I need, maintaining integrity of structure and column continuity as no other method I have tried. This is true in extremely dry as well as wet conditions. In my days of using an auger, in very dry conditions, I wound up with a pile of dust that literally told me nothing other than perhaps texture.

Using a coring tool has its drawbacks, not in effectiveness, but in the array of tools necessary to insert the tubes to the desired depth; I am required to give results to 60 inches and then extract the tubes without rendering myself physically incapacitated. I use a very large rotary hammer to drive the tubes into the soil and a foot jack to extract them.

Once I have the sample, I let it slide out of the tube into a tray mounted on the side of the Argo I use to carry all my equipment. Thus having secured a good sample, I am free to describe it at my leisure. Using this method, I can measure depth to low chroma very precisely. The tray height is about 3 ft above the ground, which means I don’t have to stoop over and can skip the chiropractor visits most of the time.

I carry a Munsell color book and use it for every sample I describe. I also keep at least a 10YR page in my pocket and use it as I do shallow cores to canvas the area I am attempting to describe. I normally will do multiple shallow cores (as many as 10 to 50 cores per acre) using a tube with a T handle to ensure that no seepages or hydric depressions are included within the area that I am flagging out. I then do two to three deep cores (60 inches) to describe what is rep-
The flagged area is where the proposed septic system is to be designed and installed. I also note on the flags, bearing my company name, the depth to low chroma for each shallow core. Using the Munsell colors pages allows me a measure of confidence that the criteria of depth to the perched water table, indicated by the depth to low chroma, is accurate in any light intensity I may be working in. Reading soil colors is best done between the hours of 10 am and 2 pm, but full sunlight is not always available, and workloads often require we work extended hours. Using the color charts at least gives me a basis of comparison with the standard color chips under whatever existing light conditions exist. In my opinion, without this comparison, I would be guessing.

Keep Your Charts Fresh
One recent experience has revealed that using fresh color charts are far more essential than I had realized. A fellow soil scientist and I met on a lot where, for whatever reason, the home owner had hired us both to generate reports for her septic permit application. We had a difference in opinion that was observed by the health district sanitarian relative to the depth to low chroma recorded on our respective reports. So we met on the lot. We both pulled samples and called the colors. The difference was obviously conflicted. We then compared Munsell color pages, and the difference between us was explained by the color chips. His chart was 20+ years of age and was badly faded. Mine was almost new and represented what the chips were supposed to look like. It was a shocking experience for me, seeing how the accuracy of our work is so drastically affected by faded, aged chips.

I have always bought new 7.5YR, 10YR, and 2.5YR pages every two to four years, simply because they get so dirty that I cannot be sure I am seeing the color accurately. Professionalism and the code of ethics we all promise to adhere to should dictate that the color charts always be referenced and be fresh when referenced, especially in low-light conditions.

I recently called Munsell and asked what their standard is for replacing color pages. Their recommendation is that the pages need to be replaced every three to five years, depending on use and where the pages are stored. Exposure to light and temperature variation oxidizes the chips more extremely than storing in a dark, temperature-controlled environment. I have yet to use my Munsell color charts in such a controlled environment.

The occupied of Certified Professional Soil Scientist is one that is growing in importance, especially with many states allowing the use of soils with shallower and shallower soil profiles relative to the depth of the perched water table. Professional soil scientists producing accurate profile descriptions are mandatory for design and installation of waste water systems to have any hope of having a functional system that can achieve some measure of longevity. In Ohio, overloaded, bleeding-out systems are almost always replaced at great expense.

My philosophy is that if we as soil scientists do not do our job, other professionals have very little chance of designing, installing, or maintaining functional, long-lived systems.

As a final observation, I mentioned the vehicle that I use to facilitate my work with a greatly reduce level of effort and injury. The Argo is the only vehicle I have found that will go just about anywhere I need to go. In winter, I put tracks on it and move reliably in 3 ft of snow. It carries my generator, sampling tubes, foot jack, rotary hammer, water bottles, backpack, Munsell color book, spare parts, etc. and accomplishes it all while being a very enjoyable machine to drive. It also prevents my slipping, falling, and tripping over logs, branches, stumps, and rocks. It will cross streams and ponds fairly well and climbs grades of up to 30 degrees. The older I get, the more I appreciate that I am able to continue working with the aid of the Argo. If I had to work on foot, I would be severely limited in the quality and quantity of work I could perform, much less enjoy the longevity I have experienced.