

ISTRO 2006 Post Conference Tour

Following the 2006 ISTRO conference in Kiel Germany, a tour of some of the important soil tillage research sites in Eastern Germany was organized. This tour stopped at many of the leading institutes for agricultural research in Eastern Germany as well as several sites highlighting the culture of the region. The tour was guided by soil scientist Julia Kruemmelbein and Imke Janßen and included many other scientist and tour guides at each stop, all of which were extremely informative and enjoyable.

The first stop of the tour was to visit the magnificent palace and park at Sanssouci. In 1744, Frederick the Great, started a vineyard that would become the grounds for his summer palace in Potsdam, Germany. The palace was named Sanssouci, which means “Without a Care”, and is a place with an architecture design to blend the wonders of the natural world with art and philosophy.

Sanssouci Summer Palace in Potsdam



The next day, the tour visited the Leibniz-Institute for Agriculture Engineering Potsdam Bornim which is the largest institution for agriculture engineering research in Germany. While there, we were given a demonstration of the on-going research into precision agriculture instruments. These consisted of various soil sensors, including Mobile Electrical Sensor, Resistivity Tomography Geotom, EC-probe, Ground Penetrating Radar Ramac, and Four-Penetrometer Array, as well as crop sensors, Crop-meters, and Laser measuring devices. We also visited the field sites for bioenergy and N cycling on sandy soils research. Further, we visited ongoing research for the production and utilization of biogas and the industrial scale bio-conversion of starchy agricultural raw material (the main product was lactic acid).



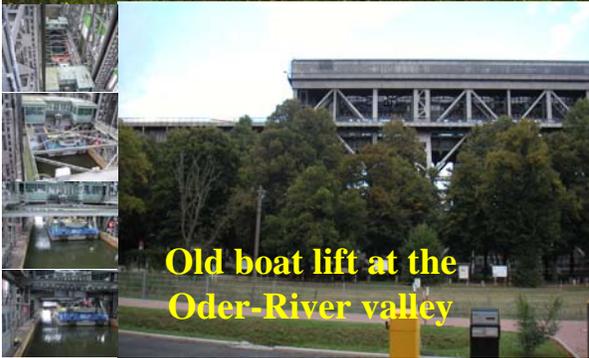
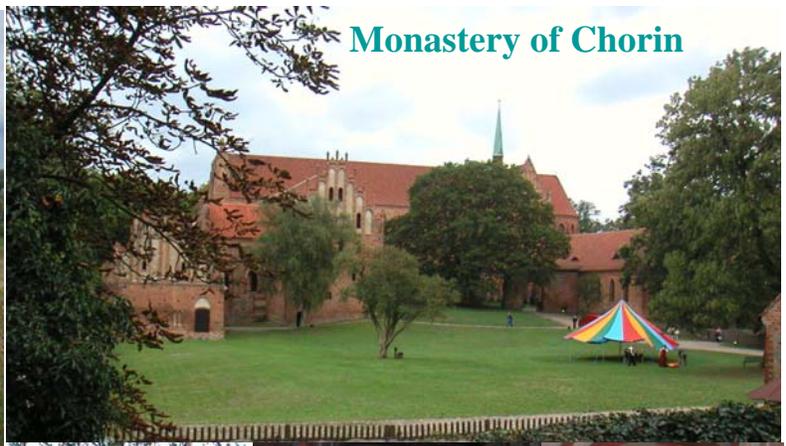
Latter we toured the “Instructional Soil Path at the Vineyard Hill” near Chorin. This was a series of permanent soil pits established with teaching materials for school age students to learn about soils. The teaching material includes “Bodo” the soil jumper (*i.e.*, a cartoon like character) that describes the soils that students find. We also visited the site of the “Monastery of Chorin” which was established as a Cistercian Monastery in the year 1258 (completed in the 14th century) and became the center for economic and cultural development for the next 3 centuries. The monastery was a very impressive building complex (German early Gothic brick architecture) in a beautiful setting. We also stopped by the old boat lift at the Oder-river valley at Niederfinow, which provides a navigable channel between the Baltic sea and the North Sea. We were able to watch as a boat and barge were lifted 36 m (water and all) by the amazingly engineered boat lift. The lift has been in operation since 1934 and will lift boats up to 1000 tons.

The next day we started the tour with a visit to the memorial and museum for A.D. Thaer, at his former administrators house in Moglin. Albrecht Daniel Thaer founded an agricultural school in Moglin, which became the Prussian Academy of Agriculture. He was an early pioneer for agriculture education in Germany and many of his ideas are still relevant today. The museum included several examples of ag tools and tillage instruments that he developed for improved agriculture in Germany.

Instructional Soil Path at the Vineyard Hill



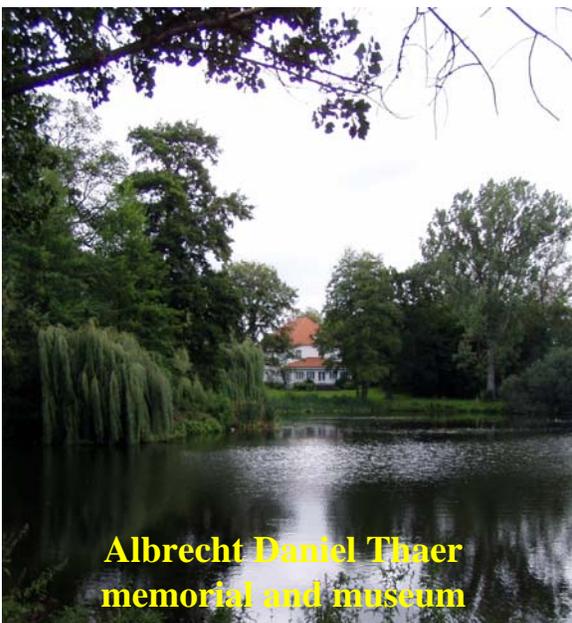
Monastery of Chorin



Old boat lift at the Oder-River valley



We then stopped at the Libniz-Centre for Agriculture Landscape and Land Use Research (ZALF) and toured some of their ongoing research. The tour included visiting a wind tunnel used for studying wind erosion and automated water runoff measuring equipment used to monitor water erosion on field scale plots, as well as sites where tillage erosion and biomass production systems were being studied.



Albrecht Daniel Thaer memorial and museum



Libniz-Centre for Agriculture Landscape and Land Use Research (ZALF)



We then visited several sites and examined soil pits in the region to take a look at the agriculture in that part of Germany. This included a visit to the Komturei Lietzen farm where ongoing conservation tillage studies are being conducted.

The next day we visited the open-cast lignite coal mining region near Cottbus, Germany. After visiting the view point at Groitsch of the active open-cast lignite mining, we were introduced to the scientific research programs regarding mine soils and forest ecosystems restoration following open mining. We visited the field sites where technological aspects of lignite mining and restoration measures were discussed. This included methodological approaches, specific aspects of chemical and hydrological mine soil properties, substrate characteristics, water and element budgets, preferential flow, soil organic matter, and roots and mycorrhiza. In addition, the group was transferred into the mine by special vehicles to view the worlds largest specialized mining equipment and to visit the various active mine working levels.



The next morning we started the day with a tour of the Spreewald area of Germany. This is a low lying area of Germany where houses and farms are situated on high spots and water canals are used instead of roads. The tour includes a very peaceful boat trip and guided tour through the area with a boat captain poling us through the village of the region.



Our next stop was at Tharandt Germany at the Campus of Forest Science, Tech. University of Dresden. Heinrich Cotta who was known as the “pioneer of forest sciences”, established the school as a private forestry school (Royal Saxon Academy of Forestry) in 1811. Since 1928 the institution has been an integral part of Dresden University of Technology. Tharandt is famous for the world’s first forest-botanical garden. More than 2000 plant species exist along 10 km of trails. We toured a small part of this with a visit to the area dedicated to the trees of the United States of America laid out in a mock map area of the USA. Furthermore, we were introduced to a major research area in the nearby Tharandt Forest. The Tharandt area is a traditional and prominent place of interdisciplinary research: *e.g.*, it includes the experimental watershed Wernersbach, several micro-climatological, hydrological, and ecophysiological monitoring stations (spruce, beech, grassland, arable field), soil and various sites where forest yield is measured.

Dresden

Forestry Town of Tharandt

Zwinger

Zwinger

Tharandt Forest

Forest-botanical garden

Semper Opera House

Frauenkirche Church

We ended the day with a guided tour of the city of Dresden. Dresden (etymologically from old Sorbian *Drežiany* meaning people of the riverside forest) is the capital city of the German Federal State of Saxony. Meissen is located 25 km to the west of Dresden and is most famous for the invention as well as production of European porcelain. Dresden has a long history as capital and Royal residence for the Kings of Saxony, with centuries of extraordinary cultural and artistic splendor. The bombing of Dresden in the last weeks of World War II and 40 years of GDR changed the face of the city dramatically. The city has undergone significant reconstruction in recent years, especially since the reunification of Germany in 1990. Since then, the city has become an important cultural, political, and economic center in the Eastern part of the Federal Republic of Germany. Dresden is called the "Florence of the Elbe", with its unmatched collection of baroque architecture. Dresden is famous as one of the most beautiful cities in Europe. The walking tour took us by the Semper Opera House, Zwinger Baroque buildings enclosing a picturesque garden courtyard, Dresden Frauenkirche Protestant Baroque church, Katholische Hofkirche (Roman Catholic Church), Dresden Castle, including the Grünes Gewölbe, Albertinum Museum, and the Brühl's Terrace overlooking the Elbe river.

The next day we visited Julius-Kühn-Feld Halle, and the world`s second oldest, still working, long-term fertilization experiment. The experiment was founded by Julius Kühn in 1878 to investigate the yield efficiency of mineral fertilization and its effect on soil fertility in comparison to farmyard manuring and no fertilization. More recent investigations focus on the nutrient dynamics and the stability of soil organic matter (SOM), due to the different fertilization and cropping systems.



Next we visited Bad Lauchstädt experimental sites including the Static Fertilization Experiment, which was founded in 1902 by Schneidewind and Gröbler to investigate the influence of different fertilization on yield of crops and the quality of the harvest products. Since 1992 the experiment belongs to the UFZ Centre for Environmental Research Leipzig-Halle in the Helmholtz Association. Now the experiment is fundamental for basic research about processes in the system soil-plant-atmosphere-water.



Our next stop was at Ökoversuch. Since 1988, a complex field trial has been conducted in the dry areas of the loess region at the experimental site in Bad Lauchstädt. This study compared an integrated and an organic system, with or without animals as well as different treatments of soil tillage.

Weimar LL Thüringen subsoiling experiments



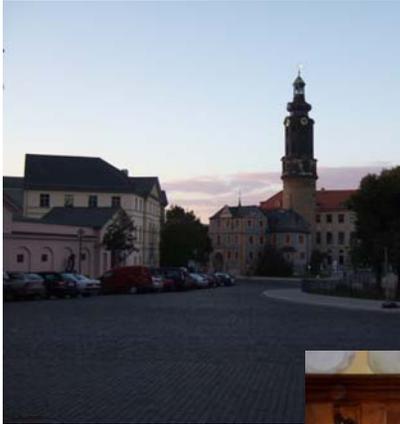
We also visited the continuation of the Weimar LL Thüringen subsoiling experiments and the effects on subsequent wheeling/soil strength and soil structure remelioration. Next we saw a huge lysimeter experiment where 2 m deep masses of undisturbed soils were being studied.

Lysimeter experiments



We finished the day with a tour of the beautiful and historic city of Weimar. Weimar was the home of the classic authors Goethe and Schiller and the home of the classical composer Johann Sebastian Bach. That evening we concluded the ISTRO tour with a wonderful meal in one of the traditional restaurants in Weimar.

Weimar



Tour Participants