



# California 2012

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## The Details

The excursion to California (USA) took place from 4<sup>th</sup> to 18<sup>th</sup> of March 2012. A total of 19 participants from the subjects' agriculture and horticulture of the University of Applied Sciences Dresden, Faculty for Agriculture/Landscape Management, joined the field trip.

### List of participants

<b>Students</b>	<b>Organiser</b>
Chaveco-Ojeda, Anamaria	Schroeder, Prof. Fritz-Gerald
Domurath, Nico (Ph.D.)	
Fiebig, Antje (Ph.D.)	
Friedrich, Theresa	<b>Co-workers</b>
Johann, Hempel	Brohm, Daniel
Krowarsch, Lars	Schuetz, Andrea
Lux, Guido (Ph.D.)	
Odrich, Matthias	
Rose, Christiane	<b>Others</b>
Ruehleemann, Lars (Ph.D.)	Koehler, Gerd (Bildungswerk Gartenbau Sachsen e.V.)
Scharff, Claudia (Ph.D.)	Kriedel, Anne-Katrin
Schroeder, Hans	
Storm, Adrian	
Ziegler, Kathleen	

At this point, we would like to thank Prof. Schroeder for the entire organization of the trip. We want to thank Ms Terpe from the German Academic Exchange Service for her efforts and the sponsorship. Furthermore, a special thanks to all companies and institutions for the deep impressions of their work. Last but not least, we are very grateful to our sponsors who have enriched this excursion too.

### List of sponsors

Agromais GmbH, 48351 Everswinkel  
 Baumann Saatzuchtbedarf, 74638 Waldenburg  
 Blickfang GbR, Dresden  
 BROHM-Express, 03044 Cottbus  
 Buschmann & Winkelmann GmbH, 14547 Klaistow  
 Fa. Ammerlaan, 26871 Papenburg  
 GaLa-Bau Proschwitz, 04600 Altenburg  
 GEFOMA GmbH Großbeeren, 14979 Großbeeren  
 Gerhard Schulz Gartenbau KG, 26871 Papenburg  
 Grünanlagen Uwe Pügner – Landschaftsgestaltung, 08340 Schwarzenberg  
 Hempel & Rülker GmbH, 01328 Dresden  
 IfU Diagnostic Systems GmbH, 09244 Lichtenau  
 INTEGRAR GbR, 01277 Dresden  
 Jahntaler Jungpflanzen Tänzler GbR, 04758 Hof/Sachsen  
 Köhler, W., 09648 Mittweida  
 Obstbau GbR Volker Görnitz & Sohn, 01640 Coswig/Sörnewitz  
 Rijk Zwaan Welver GmbH, 59514 Welver  
 Verband ehemaliger Dresden-Pillnitzer e.V., 01326 Dresden

With three cars we drove about 2,000 km in two weeks. The field trip started and ended in San Francisco. The complete route through the Northern California is represented in Fig. 1.

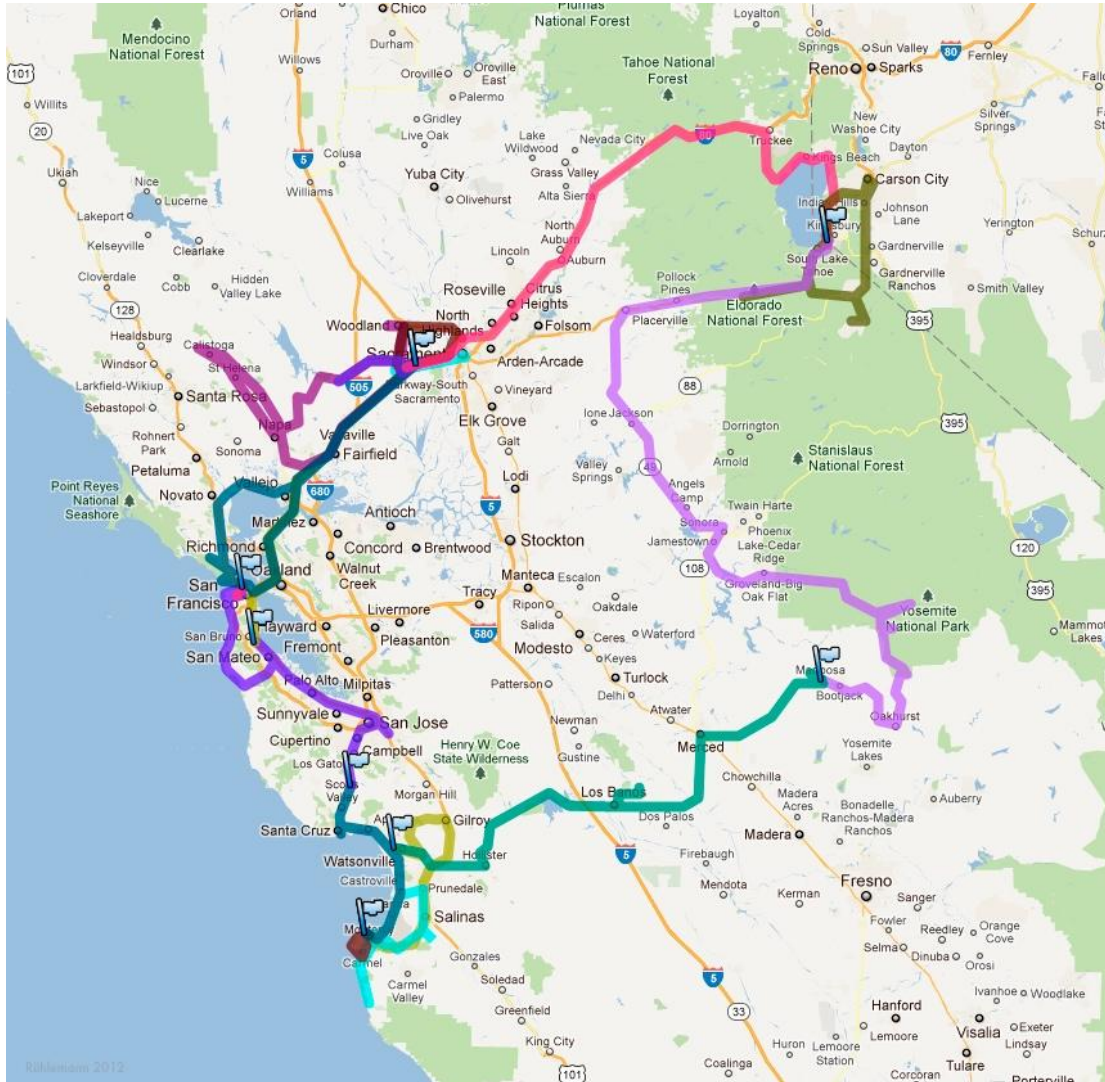


Fig. 1: The route through the Northern California (RUEHLEMANN)

In the following report every day is told by another participant. Because of that it includes subject-specific as well as personal impressions of the field trip.



## Monday, March 05, 2012

By Guido Lux

After our first night in California our group met Prof. Heiner Lieth at the campus of the UC-Davis at 8 am. Heiner Lieth is a professor of horticulture at the UC-Davis and a crop ecologist specializing in greenhouse and nursery production, soilless culture and applications of photovoltaic energy production in agriculture. He teaches both, greenhouse and nursery management as well modeling plant growth of horticultural crops and the use of computers in science and technology. He gave us an introduction about the UC-Davis in general and the Department of Plant Sciences in particular.



**Fig. 2: Prof. Lieth with our group on the campus of the UC Davis (Lux)**

Bruno, who was a student of horticulture at the UC-Davis and is now an employee in the work area of greenhouse management, show us various project work for teaching and research in the greenhouses of the department. Various topics are dealt by students and researchers like hydroponic systems, breeding, and the use of technologies (photovoltaic, LED lighting, nutrient sensing) in greenhouses. After this part we visited the Alumni Center of the UC-Davis, which has a great importance for the identification and, not least for the financing of university. At 10 am we had an appointment with Prof. Muhammad Marrush at the Department of Plant Sciences. He showed us very interesting issues on the topic of fertilization and plant physiology, which are the subject of his lectures and exercises.

**Fig. 3: Muhammad Marrush explain the hypogeal growing of plants (Lux)**



After lunch we were greeted by Mrs Deborah Golino, the director of the Foundation Plant Services (FPS), which is a department of the

UC-Davis not far away from the campus. Mrs Golino told us some facts about the department and the areas of work and led us through the facility where we could see the graftage of wine grapes. The FPS itself is a service department in the college of Agricultural & Environmental Sciences at the University of California, Davis and participates in The National Grapevine Importation Program. It is the largest national program for importing grape selections into the United States and the FPS serves quarantine facility with laboratories for disease detection as well as field planting. Since 1995 until 2006 over 640 new selections have been imported into the United States, including new varieties, clones and rootstocks. After visiting the facility, Mr Richard Hoenisch, the Teaching and Education Director of the National Plant Diagnostic Network (and the husband of Mrs Golino), shows us the huge field of the FPS, where first of all a large number of grape vine cultivars were growing. California in general and the central valley in particular offers the best growing conditions for a number of plants, e.g. they have a precipitation of approximately 1,000 mm (most between October and March) and 320 days with sunshine per year. In addition to that the loess soil in these area arrive a deep of up to 240 feet. Irrigation during the summer is necessary.

**Fig. 4: Graftage of wine grapes in the facilities of the Foundation Plant Service (Lux)**



Back on the campus of the UC we completed the official part of these day with a talk with a representative of management

who told us, what an extraordinary position the university has in comparison with other universities in the United States. With a budget of 3.3 Billion Dollar per year (117.6 Million annually in private support) the UC-Davis teaches 30,950 students (undergraduates, graduates and professionals) in 2011. With a growing international focus – the University has more than 2400 international students and 139 agreements of cooperation in 39 countries – the UC-Davis is one of the best universities in the United States with top positions in various rankings. We finished the day in the evening with a short trip to Sacramento, the capital of California, where we visited the Capitol where the parliament of California meets. In this evening the so called “Occupy-movement” demonstrated in front of the Capitol and lots of police officers were on site.

## Tuesday, March 06, 2012

By Adrian Storm

### **Monsanto (Semini), Woodland**

At Monday, 6<sup>th</sup> march, our group visited the breeding-station of Monsanto, in former times Semini, in Woodland (CA).

In the beginning, some facts about the company Monsanto. The company was founded in 1901 in St. Luis, Missouri as a chemical company. In 1960 they started an agricultural part in his company. Today Monsanto produces seeds, herbicides and do breeding-research in 55 research stations in 90 countries. 4,000 employees in Asia, Europe, North- and South America working for the company. Monsanto scientists became the first genetically modify a plant cell in 1982. The seed production contents the produce of genetical modified and regular bred crop seeds, e. g. tomato, tomato rootstock, pepper, eggplant, cucumber, onion, carrot, sweet corn, broccoli, cauliflower, cabbage, lettuce, spinach and many other crop-species. Worldwide Monsanto have 402,981 hectares of vegetable greenhouses, 23% of the area in soilless hydroponic systems. 10% of the greenhouses are glass greenhouses, the other 90% are plastic greenhouses.

The Woodland Station was established in 1972. 144 acres ( $\approx 58.3$  ha) the station contests, is owned land and 200 acres ( $\approx 81$  ha) are leased additional. Furthermore they have approximate 290,000 square feet ( $\approx 26,100$  m<sup>2</sup>) of greenhouses and screen houses. Space for research, development and management on 120,000 square feet ( $\approx 10,800$  m<sup>2</sup>) of building space. 200 full-time employees working in the station, about 190 of them in research and development. At this time in the Woodland station run breeding-programs with tomato for fresh market and processing, hot pepper, watermelon, pumpkin, squash, onion and melon. 3,000 varieties were bred in the station from 1972 up to today.

Our visit began at 9:00 am with a presentation. After that we went on a guided tour through the labs and the research institutes f. e. a lab for quality management and ingredients-analyses. The non plus ultra of the labs was the in the year 2010 built PCR-lab, with modern machines for PCR-investigations, on machine with 65,000 sets per hour and the second and newer one with 300,000 sets per hour – worldwide leading technology.

Many members of the group and I think it wasn't self-evident to seen that high-technology – so we are very thankful that Prof. Schroeder and Semini had made that visit possible.





Fig. 5: Members of the CA-expedition (SCHROEDER)

### **Napa Valley**

At Afternoon we visited the Napa Valley, which is located in the north of San Francisco and the Bay Area. The tradition of winegrowing in this area started in the 1860's. At the beginning of the 20<sup>th</sup> century the grape phylloxera epidemic destroys nearly all vineyards. The next shock for the Californian winegrowers was the prohibition in the 1930's, so the Californian wine production runs down. The running up began at the early 1960's through better quality and better business. Today, there are about 300 winegrowers and 43,000 acres ( $\approx 17,400$  ha) vineyards again in the Napa Valley.

In the Mediterranean climate are mostly grown the varieties Merlot, Cabernet Sauvignon, Zinfandel and Chardonnay.

On our Napa Valley day-trip we visit the famous Beringer Vineyards in Napa, one of the largest wineries in California. It was established by German immigrants in the 19<sup>th</sup> century.  
[www.beringer.com](http://www.beringer.com)

The next stop was in Calistoga, to see the Geyser there. [www.oldfaithfulgeyser.com](http://www.oldfaithfulgeyser.com)



**Fig. 6: Beringer Vineyards in Napa (STORM)**



**Fig. 7: Geyser in Calistoga (STORM)**

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## Wednesday, March 07, 2012

By Claudia Scharff

This morning we had two dates at the UC Davis on our schedule. Firstly, we met Jean VanderGheynst at 9:00 am at Kemper Hall. She is a Professor of Biological and Agricultural Engineering and serves as the Associate Dean for the College of Engineering at UC Davis. The College of Engineering was founded in 1962. 15 undergraduate programs are offered and 3,250 undergraduates are currently registered. Jean lead us through the research facility and informed

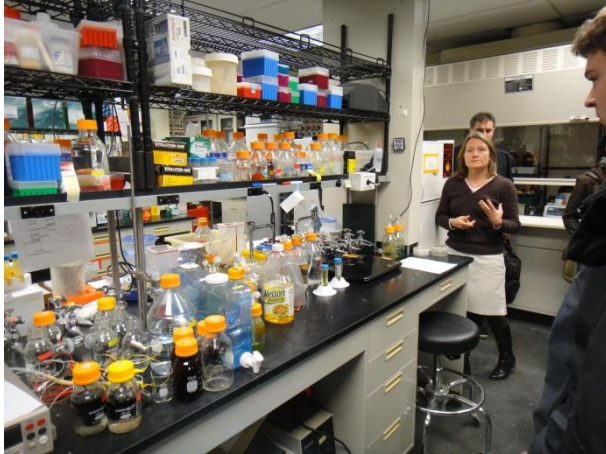


Fig. 8: Jane in her lab

us about aspects of her research work. Among other topics, her research involves components of microalgae for the production of biofuels. She is investigating starch as inexpensive opportunity to sugars for biofuels and other products.

She told us that algae are produced for fish farming and water treatment in California and that the company 'Solazyme' uses microalgae for the production of algal fuel and bioproducts of algae. Another point of her research work is the identification of novel organisms and enzymes for an efficient biological conversion of cellulosic feed-stocks to biofuels. After a short discussion about plant breeding systems and food prices, we got an informative tour to the labs and algae reactors. At the end, Jean told us that they would be interested in corporations and exchange programs with us. [www.vandergheynst.engineering.ucdavis.edu/index.html](http://www.vandergheynst.engineering.ucdavis.edu/index.html), [www.engineering.ucdavis.edu/about/index.html](http://www.engineering.ucdavis.edu/about/index.html), [www.solazyme.com](http://www.solazyme.com)

Afterwards, we met John Labavitch at Plant Reproductive Biology Laboratory at half past 10. John is a professor of the UC Davis Plant Sciences Department and has a collaborative effort with Jean for microalgae studies. Additional, he is chair of the Section of Agricultural Plant Biology. He works on cell wall metabolism in important aspects of plant development. He lead us to the labs and explained the structure of the department and soft money scientists. They are involved as individuals or groups in several international programs. Two programs are centered in Plant Sciences. The Public Intellectual Property Resource for Agriculture (PIPRA), which is a

collaboration of about 50 universities and research centers and the Seed Biotech Center. Through the collaboration with Jean, he started working with algae. John can use the experience in this field, because the cell wall of algae has similar characteristics to the cell wall of higher plants. His specific areas are efficient cell lysis strategies to obtain the wanted components of microalgae. [www.plantsciences.ucdavis.edu/faculty/labavitch/index.htm](http://www.plantsciences.ucdavis.edu/faculty/labavitch/index.htm), [www.pipra.org](http://www.pipra.org)

Subsequently at 12:00 pm we started our next date, which was a surprise for us. We met Gene and Jo Ellen Trapp in Davis where Prof. Schroeder has lived for one year in 2000/2001. They welcomed us warmly and served us a fantastic lunch in their garden. At 1:00 pm, together with



Fig. 9: Gary in the Butterfly & Hummingbird Garden

Gene and Jo Ellen we had a small walk and reached the Butterfly & Hummingbird Garden at West Area Pond. The Garden was planted in 2007 by the Friends of West Pond, a volunteer association. There we met Gary, who is - in addition to Gene and Jo Ellen - a member of the association as well. The **West Pond** is a stormwater detention basin and serves as flood control. The area around the pond is tight clay soil and provide habitat for several animals and plants.

With Gene and Jo Ellens' help we were able to see a turtle, wild ducks, wild geese, a gray heron and honeycombs in a tree through a telescope. Along our way we could also see different plant like rosemary (*Rosmarinus officinalis*), California poppy (*Eschscholzi californica*), Rose Hybride, California Redwood (*Sequoia sempervirens*), mahonia (*Mahonia aquifolium*), oaks, Western Redbud (*Cercis occidentalis*), Australian Casuarina and Acacia. They lead us to a 40 years old housing complex where we met Derek. Derek lives with 7 other people in an eco-friendly house. The project is called 'Sunwise- Co-op'. In their garden they had 'Hugelkultur' and bees for honey production as well as chicken. [www.facebook.com/FriendsofWestPond](http://www.facebook.com/FriendsofWestPond), [www.daviswiki.org/Sunwise\\_Co-op](http://www.daviswiki.org/Sunwise_Co-op)

In the afternoon we visited the Heidrick Ag History Center in Woodland. There, you can find the world's largest and most unique collection of antique agricultural equipment. It is divided in to



two areas: the Fred C. Heidrick Antique Ag Collection and the Hays Antique Truck Museum. Next to the history of agriculture techniques, we could see historic vehicles from the late 19<sup>th</sup> and the early 20<sup>th</sup> century for several applications in agriculture, military and generally transport facilities. At half past four we left the museum for our next date on the schedule. [www.aghistory.org](http://www.aghistory.org)



Fig. 10: The view to the basketball court

Our last highlight for this day started after a small dinner in typical American style at 7:00 pm. We went to a basketball game, Sacramento Kings vs. New Orleans Hornets in the Power Balance Pavilion in Sacramento. We saw an exciting play with terrific entertainment during the breaks. At the end,

6.8 seconds remaining in the game, John Salmons made the important basket so: that the Kings won over New Orleans, leading with one-point (99-98) after a playtime of 2 hours and 10 minutes.



## Thursday, March 08, 2012

By Theresa Friedrich

Thursday morning. The sun is shining through the palm tree tops in front of the Motel 6 in Davis. Unambiguously, this is a day for short trousers and sunglasses. We had a nice Breakfast at Cindy's Restaurant with fat burritos for the boys and sweet pancakes for the girls. A short meeting with Prof. Schroeder and the next adventure can begin. Today we are tourists.

The tour is starting at 8:30 am. Hop onto the SUV's and go! On the way to the Muir Woods National Monument, we pass rocky areas, pretty valleys and little old towns. Driving down the highway, winding roads and alleys make Claudia, our today's driver, smile. Smart Houses with white fences and flourishing landscapes accompany our way at first, than it changes into a rocky countryside with mossy trees. And then 12 miles north of San Francisco, we arrive at our first destination.

The Muir Woods National Monument is a remnant of ancient old-growth coast redwood forests that blanketed many northern California coastal valleys before the 1800s. It was named after the conservative botanist John Muir. The 560-acre park includes six miles of trails. Four Bridges make short loop walks possible. We decide to walk the loop walk 3 with a length of 1 mile. A part of this way we are accompanied by the Ranger Dave Miller, from whom we receive very interesting information. He tells us, that Redwoods are coniferous evergreen plants, which can flourish only in coastal California's fog belt, where frequent summer fog supplies critical moisture during the day. Fire benefits to the long-term health of the forest. Fire clears the floor of duff so redwood seeds can reach the mineral soil. Yet in established forests like the Muir Woods, burl sprouting accounts for most reproduction of redwoods. A burl is a mass of dormant buds that grows at the base or on the roots or sides of redwoods. When a tree is injured or tissue near a burl is affected, the burl may sprout. Redwoods can reach over 250 feet of height and some are at least 1,000 years old. Most mature trees are 500 to 800 years old. Secondary to the redwoods there are the giant Sequoia. These trees grow larger in bulk but are less tall than the coast redwood. To walk in the forest and see these giant trees of all ages, the rotting logs and diverse undergrowth like redwood sorrel is a delight. On the walk's end there is a gift shop selling snacks and souvenirs. After quick refreshment we have to move on. Next Stop: the Muir Beach.

Just after going down the mountains, a sea breeze is in the air. Muir beach is a beautiful area full of wildlife and the water is great for swimmers, surfers, fishermen and kayakers. Monarch butterflies in the pine trees, salmon in Redwood Creek, frogs in the pasture and gulls up in the

air are among the animals we are able to watch. 150 homes of mainly full-time occupants are lucky enough to enjoy the beach and the magic of this place every day. Actually, nobody would ever like to leave this healthy piece of paradise and so we spend a little time taking pictures, climbing up the cliff, enjoying the salt water on our naked feet and catching shafts of sunlight. Absolutely, this is a place to be perfectly happy. But we have to move on. Heading south on Highway 101 to our next destination: the Golden Gate Bridge.



**Fig. 11: The Golden Gate Bridge (ODRICH)**

The Golden Gate Bridge is acclaimed to be one of the world's most beautiful bridges and San Francisco's landmark. With its tremendous towers, sweeping main cables, and great span, it is a sensory beauty featuring color, sound, and light. The 1.7-mile long suspension Bridge was built in 1937, constructed by Joseph Baerman Straus and links San Francisco with Marin County. The Bridge can be a very busy place, also the viewpoints. It is estimated that about nine million people from around the world visit the Bridge each year, but today we are lucky and can catch an undisturbed view to the Golden Gate. It is incredibly beautiful. And the weather is perfect. This is a unique experience for every one of us. The Skyline, Alcatraz, Bay Bridge and Golden Gate combined in one screen. One million photographs seem insufficient. From every point of view the bridge is awesome with its bright red. Not without reason it has been declared one of the modern Wonders of the World by the American Society of Civil Engineers.

Eventually, we decide to go into the city of San Francisco. We go down the Lombard Street, take a look at the Cityscape and then we watch the sunset from the harbor. We watch sea lions and fishermen while the sun is going down slowly, dipping the sky into a breathtaking red behind the

Golden Gate Bridge. The Rest of the evening we spend in town eating shrimps and chips, listening to buskers, visiting the wilderness gallery of Rodney Lough Jr. and laughing a lot.

The way back to Davis is quiet. Everyone is lost in thoughts of the day. And with a smile we say good night full of expectations what the next days will bring to us.



**Fig. 12: California Redwood (*Sequoia sempervirens*) in the Muir Woods National Monument (ODRICH)**

## Friday, March 09, 2012

By Andrea Schuetz

### Robert Mondavi Institute

At 7:45 am Heiner Lieth announced the plan of the day. First stop was the Robert Mondavi Institute (RMI) for Wine and Food Science at the UC Davis. The RMI houses two departments under one roof the Viticulture and Enology and the Food Science and Technology. Both institutes are world-renowned in the research of healthy and safe foods. The institute was a gift to the UC Davis from Robert Mondavi a famous wine producer in California. The building was built after the LEED Platinum standard. LEED® stands for Leadership in Energy and Environmental Design, a rating developed and certified by the U.S. Green Building Council. The certification level is determined by energy savings, water efficiency, carbon-dioxide emissions reduction, indoor environmental quality, wise use of resources, and sensitivity to the impact of the building on the surrounding environment or community. At the RMI we met Dr. Roger B. Boulton who guided us through the institute. Dr. Boulton is one of the Professors and also a Chemical Engineer in the Enology Department of Viticulture and Enology Agricultural and Environmental Sciences. His work contains fermentation and reaction kinetics; physical and chemical stability of wines; the mathematical modeling, computer simulation and control of enological operations; winery design (winemaking equipment selection, winery design and layout) and the economics of investment and operation. The winery includes a large experimental fermentation area the J. Lohr Vineyards and Wines Fermentation Room. There are 152 200-liter research fermentation tanks and 14 2,000-liter fermentation tanks. Next year it will be possible to wirelessly control and monitor the temperature and sugar of the wine. The special bottle cellar named by the Jackson Family, it provides space for about 8,000 bottles of wine. The ceiling is made of old wood from water pipes and the floor from glass of broken wine bottles. In the RMI there are also three controlled-temperature rooms, barrel and bottle cellars, an analytical lab and a classroom. The winery is used for research and teaching and courses for professionals. [www.greenrmi.ucdavis.edu](http://www.greenrmi.ucdavis.edu)



**Fig. 13: The experimental fermentation area at the Robert Mondavi Institute (BROHM)**

### **California Center for Urban Horticulture**

Afterwards we met Missy Gable from the California Center for Urban Horticulture (ccuh) she gave us a lecture about the current projects and the UC Davis Arboretum. The Arboretum is a 100 acres park which serves for plant cultivation and recreation for humans. 100 plants are tested under the California climate conditions at the Arboretum. The plants have to be tolerant of drought and heat than they belong to the “Arboretum All-Stars”. These plants are recommended for nurseries and home gardeners. The second project she presented was the Honey Bee Project. Its intention is to encourage people to protect the bees. Interested home gardeners can attend lectures at the UC Davis about bee biology, beekeeping and bee-friendly plants. [mjborel@ucdavis.edu](mailto:mjborel@ucdavis.edu), [www.ccuu.ucdavis.edu](http://www.ccuu.ucdavis.edu), [www.ccuu.ucdavis.edu/projects/arboretum/arboretum-all-stars](http://www.ccuu.ucdavis.edu/projects/arboretum/arboretum-all-stars)

Later that morning Prof. Schroeder gave a lecture about strawberry cultivation in Germany. At this time we were able to visit the Arboretum.



### **Fieldtrip with Heiner Lieth**

On the field different plant varieties from the Arboretum are tested on their heat and drought-tolerant under natural climate conditions. Therefore different levels of irrigation were studied by a field experiment. Those field experiments are necessary because of the Californian climate conditions. The winters are rainy and the summers are hot and dry. Next to the field there was a shade house. This house provides shade to the plants. The roof over the plants consists of a tense net. Next to the net shade house was a second shade house. The roof of this house is made with a thin film photovoltaic material developed by the company Solyndra. This photovoltaic panel has the ability to convert energy from the sun efficiently. In the first year of the Solyndra house, all photovoltaic panels were used. But it turned out that it was too dark for the plants. In the next year every second photovoltaic panel was taken out and the plants grow better. [www.solyndra.com](http://www.solyndra.com)

### **Citrus nursery Four Winds Growers**

The Four Winds Growers is a family business which was established in 1950. Their Citrus nursery is located in Winters near the Lake Berryessa. They produce healthy dwarf citrus trees and introduce new citrus varieties. In addition to more than 60 varieties of citrus trees (Orange, Mandarin, Lemon, Lime, Grapefruit and Kumquat) they also grow trees of Avocado, Blueberry, Cane Berry, Fig, Grape, Guava, Olive, Persimmon, Pomegranate and fruit trees like Apple. The favorite varieties they offer are the Kieffer Lime and the Meyer Lemon. The leaves, zest, and juice of the Kieffer Lime can be used for cooking because of its high concentration of aromatic oils. The Meyer Lemon fruit has a mystical flavor which combines lemon with a hint of tangerine. It is easy to grow and blooms twice a year. All trees grow in containers and are irrigated by drip irrigation. For irrigation they take the water from the river because the family has old water rights. For disinfection the water is treated with ozone. The ozone treatment the water is able to absorb the fertilizer better. All trees are top grafted. That means the root and the top of the trees are different varieties. The root variety is able to adapt better to the soil properties and the top variety has the better fruit quality. Both properties are united in one tree for the best growing. You can buy the trees in most nurseries and garden centers in California. There is also the possibility to order trees via the internet. [www.fourwindsgrowers.com](http://www.fourwindsgrowers.com), Four Winds Growers, 3373 Sackett Lane, Winters, CA 95694.



**Fig. 14:** At the nursery Four Winds Growers, on the right George the head of the company (KOEHLER)

In the evening Heiner Lieth invited the whole group to a big American barbecue.



**Fig. 15:** Heiner Lieth (ODRICH)

## Saturday, March 10, 2012

By Anamaria Chaveco-Ojeda

### 116 miles to sun and ice- Trip to Lake Tahoe

A really sunny morning after a really nice farewell party by Heiner. The most of us are tired. But sunglasses are good to hide the eyes behind them. But that's no reason to start the trip later to Lake Tahoe. Today, we have many things to see, no plants and fields, but a really nice landscape.

Today we have to drive a distance from 116 miles. Start is in Davis and the final destination is Lake Tahoe.

In the morning we visited the farmers market in Davis. It was amazing. All the colors and in every area it smells so good. You could buy apples, oranges, fresh meats, eggs with two yolks, some snacks and many, many more. But it was not cheap there. For ten eggs you have to spend 8 bucks. On many booths we take a little sample. It was great.



Fig. 16: Farmers market in Davis (SCHARFF)

After one hour the trip to Lake Tahoe goes forward. Some cultural impressions don't have to fail. So we have a small stop in an historic old town named Auburn.

That's the oldest gold rush town in California.

It was established in 1849. It's located 32 miles northeast from Sacramento. Originally where gold was first discovered in Placer County, today it's a location for special events all the year around, a weekly farmers market, too. Highlights are the wine and food festival, classic car shows, the world famous Amgen Cycling Race and many more.

You could enjoy in one of the 14 restaurants or visit one of 40 quaint shops and services. Also you can see the Old Town Gallery and featuring the work of more than 60 local artists, all in one historical building.

Four museums show you the history of the old gold rush town.

Then we start to the last part of the long way to our final destination: Lake Tahoe.

Lake Tahoe is the largest alpine freshwater lake in Sierra Nevada. It's located between the border of the states California and Nevada, west of Carson City. Its depth is 501m.

The lake was formed about two million years ago. It is known for the clarity of its water and the panorama of surrounding mountains on all sides.



**Fig. 17: In front of the Sierra Nevada Mountains (ZIEGLER)**

It late today, now we look for a nice place to sleep. Mr Schroeder booking a room in the Horizon Casino Resort in the state Nevada for us. It's near the Lake, in the center of Lake Tahoe. Just 5 minutes to walk to the beach

A little private beach and the world is okay and it's easy to relax this evening.



## Sunday, March 11, 2012 Tour I

By Matthias Odrich

After a long night at the casino and a short night in bed, the day (03/11/12) began as usual around 7:00 in the morning. The night before, the goals for that day were agreed upon, such as the hot springs on the one hand and on the other hand, the casino town Reno and the capital of Nevada - Carson City.

After a hearty breakfast including waffles, toast, sausage, egg, or cottage cheese with fruit, everybody met for vehicle classification in the hotel's lobby.

Fortunately, in a short time, the 16 seats were divided quickly between the 16 persons without a lot of discussion. Three other persons of the group wanted to go skiing.

Around 9:00 am, we launched our car towards Carson City. If you travel by car in the U.S. 50 km or more it isn't boring. The gigantic mountain ranges and the vastness of

the country impressed us again and again.

After some time we crossed a mountain range and looked down into endless expanse, as it seemed. At first glance, everyone thought it was just desert and desolation. At second glance, a town could be seen – Carson City.

Carson City is Nevada's state capital since 1861.

Currently, about 55,000 inhabitants are living in the town.

Previously, the main income came from mining; now, tourism brings the money in to the town.

The railroad museum in the city was our first day's destination (2180 South Carson Street, Carson City, Nevada 89701, Phone: 775-687-6953). The museum houses treasures from the past and the operators are trying to keep the "old ladies" on the move as well. Many exhibits were purchased by Hollywood, where they rose to fame in many movies. The total of 65 vehicles includes 40 locomotives, which were built before 1900. In addition, 31 locomotives were operated on the tracks of the famous Virginia & Truckee Railroad. With an entry fee of \$ 6 per person, admission appears not really justified after leaving the main hall. Because the operators recognized the





interest of the group, a glimpse in to another hall was possible. The insights in this hall were all very impressive. Greatest satisfaction gained, however, Gerd, who has a special interest in historic railroads. Thus, the flashes of cameras in the hall seemed to never stop. After everybody had left the hall, one person was still missing: Gerd. The old ladies drew him in to their spells so much, he did not notice the factory doors closed again.

After everyone had come together again, we took a small city tour. A short side trip to "Work and Western" brought some of us new clothes and also a nice meeting with a saleswoman who was in Germany for some time 40 years ago. She told us about her memories and that she would like to come back again to Germany. After this nice meeting we continued the journey towards Sparks. There we wanted to convince ourselves of the dimensions described over and over again of a typical American shopping mall.

And the descriptions were true! Numerous labels are displayed with incredible assortment ... we just could not find the bargains.

The highlight was a sports-shop, which took unprecedented dimensions. And, finally: there it was possible to hunt the long-promised bears.

After we gained the impression of unlimited possibilities, we drove back to Lake Tahoe.

On our way we visited - typical for America – the game town Reno by car. The city is currently

living from gambling, which was legalized in 1931 in Nevada. Thus arose the name "Little Las Vegas". The "serious" part of town is the University of Nevada. More than 9,000 students are enrolled there.



We were back at Lake Tahoe around 16:30 and made a small city tour of South Lake Tahoe. Happy and satisfied we enjoyed the dinner and finally did what you do every evening in South Lake Tahoe: Gambling!

## Sunday, March 11, 2012 Tour II

By Hans Schroeder

### IT'S SUNNY, IT'S BRIGHT, IT'S HEAVENLY

**Location: South Lake Tahoe, CA – Heavenly Mountain Resort**



**Fig. 18: View over lake: Prof. Schroeder, Hans Schroeder and Claudia Scharff**

Waking up in the morning wasn't hard as the goal was set to climb the top of the mountain. Making our way through the usual morning traffic we finally reach the ticket and ski rental center "California Lodge" of the Heavenly Mountain Resort. The ski resort is located at the state line of California and Nevada. The total area is about 2,000 ha and includes almost 100 runs and 30 lifts. The highest peak is located on the Californian site with a peak elevation of 3,068 m. The average snowfall per year is 9 m. Skiing is possible from November to April sometimes May.

Grabbing our helmets, boots and skis at the ski rental we take the gondola "Aerial Tramway" up to the "Lakeview Lodge". Claudia is afraid as we overpass the slope of the world cup race track. Prof. Schroeder and I have fun making her believe that we have to go back down on this slope at the end of the day. We finally reach the top and take first pictures of North America's highest alpine lake "Lake Tahoe". The height is new for us and especially the size of the skiing area is just huge and we first have to figure out where to go to not get lost. This unexpected and bizarre mountain range makes us feel like being in a different world.

The environment is made up of different tree species as the most common ones are: junipers, ponderosa pines, jeffrey pines, lodgepole pines, red fir, whitebark pine and giant sequoias. These trees are growing under harsh conditions in the mountain forests of the Sierra Nevada. In addition to the rough landscape little creeks pop up once in a while and either run into each other or just disappear as fast as they have come up. After several hours in the snow we make our way back to the lodge.

## Sunday, March 11, 2012 Tour III

By Theresa Friedrich

Today we are separated into three Groups. It is Sunday and that means free disposal over the day for each SUV. Our little Group decides to drive to the Grover Hot Springs State Park on the east side of the Sierra on the edge of the Great Basin Province.

We are starting at 9:00 am Lars, our today's driver is doing a great job. And so we are driving relaxedly and safely through a landscape characterized by open pine forest, sagebrush and meadows. And even though we lose our way from time to time, the outing is very enjoyable and we have a lot of fun. Singing in the Car, dancing on the streets and taking millions pictures on every viewpoint we pass, are just a few of the things we do. And then four miles west of Markleeville, at the end of Hot Springs Road we arrive, after three hours driving, at the Park. It is windy but the sun is shining and the alpine meadow and the pine forest are very beautiful. Some of us are so impressed by the landscape that they spontaneously decide to take a walk through this nice nature and hike in the meadow next to the hot springs, instead of soaking. For those of us, who decide to go into the hot springs, a wonderful 104°F hot pool is waiting. This is a perfect place to remove you from bad thoughts and have a nice spa mineral day. And the best: The hot springs side is free of sulfur, so we do not have to worry about bad smell. We really enjoy the calm and the panoramic view. It is an awesome feeling, sitting in this hot water, watching the pines bend in the wind and seeing the snow fall slowly up at the top of the mountains. We savor these moments, talk a little bit and gain an absolutely deep relaxation. After 2 hours our hikers are back. And even though we would like to spend so much more time at this great place, our skin is softening and so we move on.

It is just early afternoon and so we think about what we could do next. Some of us really want to visit a bigger city and so we make the prompt decision to go to Carson City. The Consolidated Municipality of Carson City is the capitol of the state of Nevada. Visiting this town means to take

a journey back to the frontier days. Carson City has been the capitol since the state became a territory in 1861 and has plenty to offer. Casinos, Restaurants, historic sites and the Kit Carson Trail, on which we walk a little time, are just some of the things you can visit. The Kit Carson trail is one of the most popular routes and named in honor of the famous scout for whom John C. Fremont christened the Carson River, from which the city took its name. The 2.5-mile walking path follows a painted blue line and bronze medallions next to the sidewalks. Along this way we see historic homes, museums, like the Nevada State Museum and lots of statues, which should take us on a trip down memory lane. We spend some time and then we have to go on. 25 miles on Highway 50 back to our Horizon Casino Resort in Stateline. If we would have more time, we surely would go into Reno, another big city in Nevada, but it is late in the afternoon and so we have to return.

The rest of the day, we talk to the other groups and swap our experiences. Some of us pass the late evening with gambling, others spend it in the Spa, swimming and laughing a lot. A late dinner, some more conversations and then another wonderful day of our journey is drawing to an end. This is our last night at Lake Tahoe, tomorrow we will be on our way to Mariposa.



**Fig. 19: The Grover Hot Springs State Park (RUEHLEMANN)**

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## Monday, March 12, 2012

By Kathleen Ziegler

Today is already Monday, which means that our first week in California is already over. On our today's excursion we went to the Yosemite National Park.

Contrarily to the slightly chaotic check-in on our arrival to the Horizon Hotel, we could check out without any incidents. After having done minor changes to the seating plan and also Matthias having found his seat, we started the 5-hour drive to the national park at about 8:00 am. It was a cloudy day, but, due to the fact that we were in CALIFORNIA no one allowed anything to spoil the good mood.

From Highway 50 we changed to Highway 49, which we left after 75 miles in order to follow Highway 120. We drove directly through Groveland and had lunch there. First we went into a saloon, where some of us took a retarded beer. A few of our group went to the Pizza Factory in order to take their lunch there. From Groveland it only took us another 30 minutes to get to the national park, where we arrived at about 3:00 pm. For entering the park with our cars we had to pay a fee of \$20. In order to get to the view points, where we took a lot of pictures for our families, we first had to drive through a big forest. At about 3:15 pm we made a stop at the first waterfall called



Fig. 20: Bridalveil Fall (ZIEGLER)

“Cascade Creek”. Unfortunately it has not been snowing that much last winter and therefore the rivers and waterfalls only carry a little water. The next stop also was a waterfall called the Bridalveil Fall (picture), which, translated into German, means something like „Brautschleier“.

The water falls down from 188 meters height is one of the few waterfalls that even carry water in the winter months. After having only driven a few meters we had a marvellous view on the “El Capitan”, a rock that is especially interesting



Fig. 21: El Capitan (ZIEGLER)



for hikers who can do tours of 1,000 meters in 1-2 days there. And those, who prefer spending the night on the rock, can just take their tent with them.

Around 4:30 pm we finally reached the landmark of the national park, the „Halfdome“. Besides the beautiful landscape I was especially impressed by the cloud formation in front of the Halfdome, as I have never seen anything like this before (picture). Nevertheless, some people were hard to impress.

After having taken some pictures of the rock we continued with our trip and, as the weather was just beautiful and one had a stunning view, it was decided to go to the Glacier Point. On our way to there we passed another view point that gave an impressive view. The interplay of shadow and sun was wonderful, almost unique.

Of course, we were not the only ones at the view point. We met a group of students from Rochester, for example. All of the students carried a camera before their eyes in order to make an experiment, which consisted of comparing the points of view of teachers, an experienced eye so to say, and students, an inexperienced eye.

After a short stop we went on heading towards our destination. Much to our disappointment we were not able to get there, as the road was blocked by snow and we were not able to pass. Nevertheless, we still got our highlight, as suddenly a coyote appeared, who waited patiently until everyone had taken some pictures and we continued our trip.



Fig. 22: Grizzly Giant (ODRICH)

Coyotes, by the way, belong to the family of dogs, who are quite similar to small wolfs. They can be found everywhere in North America, from Alaska to Mexico. As they have adapted themselves to several kinds of living space, it is possible for them to live in forests as well as in the fields.

Quickly we found a new destination – the Mariposa Grove. From there we were also able to enjoy the sun set. Finally we decided to move on to the 0.8 miles further situated “Grizzly Giant” and, of course, we did not regret it. Shortly after entering we saw the „Fallen Monarch“, a fallen Red Wood.

Another impressive picture gave us the „Bachelor and 3 Graces“. From there it only took us a few moments until we saw the Grizzly Giant (picture). He is about 64 meters high and so big, that I was very difficult to fit him into one picture. We estimated his branches to a radius of about 2 meters.

About 50 feet further we came across the next highlight. Here you were able to actually go through a Red Wood. After having taken some more pictures we went back to our cars as it already was 7:30 pm and dark we decided to go to Mariposa in order to look for a Motel. Due to the fact that we have not made any reservation beforehand I was not so sure of us being successful with finding a hotel fast, but already in the first Motel “Mariposa Lodge” we found space for all 19 persons. Furthermore, to my mind, this hotel has been the best one in these 2 weeks. Shortly after our arrival some of us went out to look for some food. Because the Mexican restaurant had closed at 8:00 pm we took our dinner in a Chinese restaurant and let the day fade away calmly.

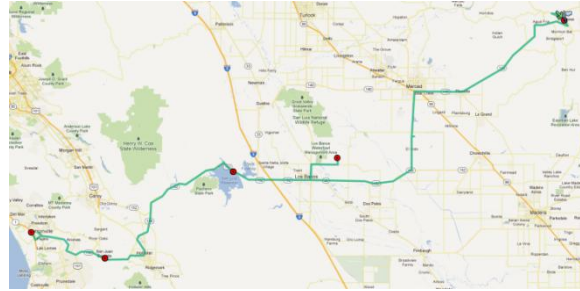
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## Tuesday, March 13, 2012

### Day Report for the 13th of March 2012

Tour from Mariposa to Watsonville  
via Los Baños, San Luis Reservoir and Casa  
de Fruta

By Lars Ruehle



The 9<sup>th</sup> excursion day started with a visit to two historical sites in Mariposa. The site of Mariposa town was first home to the Southern Miwok Indians and named after the flocks of Monarch butterflies seen overwintering there by early explorers in 1806. The town is located in the foothills of the Sierra Nevada at 594 m above sea level and has 1,373 inhabitants (census 2003). Mariposa was founded as a mining camp after Prospector Alex Godey discovered gold in the spring of 1849 at the *Las Mariposas* ranch. Gold could be found here because the area is located at the southern end of the Mother lode, a name given for the long alignment of hard-rock gold deposits a 1.5 – 6 km wide and 190 km long zone in the Sierra Nevada of California. After a flood during the winter of 1849/50, the town was moved about 1 km upstream to the current location, called Logtown at the time and was later renamed to Mariposa.

During a visit to the local cemetery the group was able to see the diversity of immigrants (many of them Germans) that had lived and worked in Mariposa.

[www.mariposaresearch.net/MARPUBCEM.html](http://www.mariposaresearch.net/MARPUBCEM.html)

The next stop had been planned to be at the Mariposa Museum and History Center (founded in 1957) where through original documents, artifacts and art work the group was able to discover how gold was formed and extracted. Many original letters written by Horace Snow from 1852 to 1854 provided accurate descriptions of the 'life in the mines' more than a century ago. Besides one could see how the store of the Gagliardo family was operated from 1854 to 1960. Some of the merchandise dated back to 100 years ago. [www.mariposamuseum.com](http://www.mariposamuseum.com)

After this visit the group left Mariposa and traveled to Los Baños (36 m AMSL) located on the west side of the San Joaquin Valley. Los Baños (named for the nearby Los Baños Creek) was built as a 'company town' and headquarters for the vast Miller & Lux ranching empire. Henry Miller born 1827 in Brackenheim/Germany as Heinrich Alfred Kreiser was at one point one of the largest land-owners in the United States owning 5,700 km<sup>2</sup> directly and controlling nearly 57,000 km<sup>2</sup> of cattle and farm land in California, Nevada and Oregon. Heinrich aged 15 first moved to England where he worked as a butcher, the same profession that many of his ancestors had before him. In 1846 he immigrated to New York City where he continued to work

as a butcher. There he met Henry Miller and both decided to participate at the Gold Rush in California. Miller was able to raise the money first and bought his steamer ticket (New York – San Francisco via Panama) but Heinrich persuaded him and he sold the ticket to Kreiser. Aboard the ship he discovered the ticket was non-transferable and therefore he came to California in 1850 under the name of Henry Miller with only \$ 6 Dollars in his pocket. After the fire of 1851, he built up a thriving butcher business in San Francisco. The partnership with Charles Lux was started in 1858 and the company expanded rapidly, shifted emphasis from meat products to cattle raising and soon became the largest producer of cattle in California. Miller played a major role in the development of much of the San Joaquin Valley and is credited with being the first to introduce the crops of cotton, rice and alfalfa to the valley. Some of his descendants continue to farm the area around Los Baños as Bowles Farming Company. The group was able to visit this Company thanks to the connections that Lars Ruehlemann had established with Greg F. Palla, Executive Vice President & General Manager of San Joaquin Valley Quality Cotton Growers Association. Bowles Farming Company generously provided a lunch over and Mr Philip Bowles, President at Bowles Farming Company gave a presentation about the area and its specific characteristics like the variable Clay Loam Soils, the crops grown (cotton, alfalfa, processing tomatoes, grain) and the management including precision farming of 4,250 ha of irrigated land and the non-irrigated areas. While the Company is moving towards drip irrigation the majority is still 90 % flood irrigation and the remaining part through siphon pipes. The water used comes from the San Joaquin River, Lake Shasta (430 km north) and from the Sacramento-San Joaquin River Delta. After the presentation the group had the opportunity to see machinery for cotton farming and land leveling in person. A test drive with a John Deere tractor on tracks concluded the visit to Bowles Farming Company.

[www.de.wikipedia.org/wiki/Henry\\_Miller\\_\(Viehzuechter\)](http://www.de.wikipedia.org/wiki/Henry_Miller_(Viehzuechter)), [www.bowles-farming.com](http://www.bowles-farming.com)



**Fig. 23: Cotton harvester at Bowles Farming Company (RUEHLEMANN)**

The group continued to travel to the San Luis Reservoir (approximately 19 km west of Los Baños) to gain even greater understanding of the water management and the California State Water Project. [www.water.ca.gov](http://www.water.ca.gov), [www.cdec.water.ca.gov](http://www.cdec.water.ca.gov)

Continuing on to Watsonville the group visited Casa de Fruta (Santa Clara County), a large specialized market for fresh fruit, dried fruit, nuts and value added products. Here the group could experience firsthand how products should be displayed to reach higher appreciation by the customer and what prices can be realized once a product is refined. [www.casadefruta.com](http://www.casadefruta.com)

This visit completed the program for the 9<sup>th</sup> excursion day that included the management of crop growing inputs, harvesting technology and the marketing at the point of sale.



Fig. 24: Casa de Fruta (RUEHLEMANN)



## Wednesday, March 14, 2012

By Daniel Brohm

### *Driscoll's and Syngenta Flowers*

Wednesday (14<sup>th</sup> of March) began with wet streets, caused by a rainy night. We drove outside of Watsonville to Aromas in the upper end of the Pajaro Valley. Here at Driscoll Strawberry Associates, Inc., we visited the first company of this day. First of all we entered the direct sale Driscoll's Berry Shop. All imaginable kinds of Driscoll's merchandise items are available here and of course fresh berries in premium quality.

### *Driscoll's®*

Driscoll's is a producers' organization for premium class berry fruits with a company value of 1.5 billion dollar. They provide strawberries, raspberries, blueberries and blackberries. Major tasks of Driscoll's are active marketing measures, breeding, growing strategies, young plant production and growers advisory service. The maxim of the company is: First-class products on 365 days of the year. To achieve this aim, the company has three growing areas in California. They are located in Oxnard, in Santa Maria and here in Aromas. The unique valley situation and the closeness to the sea are responsible for a mild micro climate which is most beneficial for berry production. Different to Germany, the harvest starts at 6:30 am and is possible all day long. There is no danger of overheating of the berries.

Ian Greene the Research Extension Manager welcomes us kindly. First of all we got information, that a couple of important positions are occupied with Germans. So Dr. Thomas bred a lot of the company-owned varieties. Matthias Witten, a former student of our faculty(!), now manages the raspberry production in this area.

At the beginning of our walkabout we visited the distribution center of the local production area. Here, all the delivered ready-to-sale berries are subjected to very hard quality controls. Six to eight bowls are taken out of a whole stillage. A lab investigation of the most important parameter brings out if the berries follow the stringent requirements. If the quality is not good enough, the whole stillage is blocked for resale. The strict quality checks are necessary to get the best prices for the berries - so the growers love and hate this system in equal measures.

After the quality check all products are chilled down. Therefore the palettes stay in a row in front of a huge fan that sucks out all warmth within two hours. The relatively small fifo\*-style cold warehouse is constructed only as a distribution center. The products leave Driscoll's the same day they came in. There wouldn't be enough space to store the harvest of one day. The distribution of the berries takes place on the road only. Driscoll's even provides the east coast of the US. Two truck drivers need three days for such a long trip.



Fig. 25: At Driscoll's® (KOEHLER)

Besides the marketing, advisory in the field of growing plays a major role in the successful story of Driscoll's. Most important topic is plant protection. Therefore and for other issues a particular research team is responsible. Ian Greene, the research manager himself overviewed the more than 20 research topics to us. Beside the threat of the Spotted Wing Drosophila (*Drosophila suzukii*) the upcoming prohibition of methyl bromide against *Verticillium*-infections in the Californian soils is on top of the list. Here, a new method called Anaerobic Soil Disinfection (ASD) was tested successfully by the researchers. Huge amounts of organic matter are spread on the fields as a carbon source. The areas are irrigated and sealed for three weeks with a totally impermeable film (TIF). Soil organisms expend the whole oxygen, as a consequence all pathogens die.

After a little berry breakfast (quality check(!) → passed) we were pleased to have such a deep insight into the company. We left Driscoll's not without the information of anytime offers of internships and vacant jobs.

### **Syngenta Flowers**

The second visit of the day was the breeding station of *Syngenta Flowers* (f.k.a. *Goldsmith Seeds*) in Gilroy.

The breeding company has been transferred to *Syngenta Flowers West* three years ago. During this process around 8 million dollars has been invested for important improvements. The whole test area has a size of 50ac (~20 ha). There are two other breeding stations of *Syngenta Flowers* in the world: Ainkhouzen and Andijk (both Nederland). Focuses of the breeding activities are ornamental annuals, biennials and perennials. Customers can buy the plants as seeds or as cuttings.

The two breeders Jennifer Ehrenberger and Shifeng Pan welcomed us in the beautiful garden of the company. After a short introduction of every single participant (in English language) we entered the upcoming seasonal plant exhibition. Growers from all over the world come here to see the *Syngenta* innovations.

The pride of the current season is 'Calliope', an early, dark-leafy *Geranium* hybrid. Other species has been presented as well, like: *Tagetes*, *Chrysanthemum*, *Dianthus*, *Cyclamen*, *Petunia*, *Begonia*, *Pansy*, *Polemonium* and many more. All of the new varieties are tested on places in the whole area of the United States to assure best quality under most conditions. *Syngenta* uses predominant classic breeding methods for its ornamental assortment.

To guarantee no impact of any diseases the labs of the breeding station are forbidden for visitors, but we can have a look into one lab through a window. The work in a lab can be very monotonous. To counteract mental effects the workplaces are equipped with a Surround Sound System. The researchers from *Syngenta Flowers* also were interested in our research subjects. After a short exchange we made a group photo at the company-own Koi pond. Thank you Jennifer, Shifeng and *Syngenta Flowers*!

Then we went to Pacific Grove at the Monterey Bay. Here we have found a nice motel for the next two nights (directly at Lovers Point Park!).



Fig. 26: At Syngenta Flowers with Jennifer and Shifeng on the right side (BROHM)

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**Thursday, March 15, 2012**

**Vegetables and more**

**Visit of Tanimura and Antle in Salinas – Vegetable Crops**

By F.-G. Schroeder



**Fig. 27: Tanimura and Antle (SCHROEDER)**

Tanimura & Antle ([www.taproduce.com](http://www.taproduce.com)) is an industry leader in vegetable crop production. In November 2012, T&A celebrates the 30<sup>th</sup> anniversary of a partnership that has grown over the years. From the very beginning there have been more Tanimura family members than Antle family members. To make a fair and true partnership, each family gets a single vote. This was the vision of George Tanimura and Bob Antle when the company was created back in 1982, and continues today.

The Tanimura & Antle families combined their years of experience and knowledge to establish a produce company unrivaled in its quality products, innovation and dedication to growers, customers, consumers and employees. As one of the largest independent lettuce growers in the United States, Tanimura & Antle farms more than 35,000 land acres (about 14,000 land ha with 1.8 crops per year, 25,000 grow ha) of rich, fertile farmland in the Salinas valley. During the winter time from October to March T&A moves to Yuma (Arizona.) T&A ships a full line of premium fresh produce products throughout North America, Europe and Asia. Shipping in Northern America runs with about 300 Trucks per day and aircraft or ships are used for overseas.

T&A has furthermore an Innovative Employee Programs running for more than 2,500 employees. These programs are offered to foster long-term employment satisfaction and high employee retention. Tanimura & Antle employees enjoy a wide range of benefits. Unlike many other agricultural companies, our seasonal work force is not excluded from benefits, but rather offered additional benefits to reward the special contributions that they bring to the success of our

company. The work is organized in 1 or 2 shifts and the minimum labor costs are 11 to 12 US\$/hour. The income can be increased up to 20 US\$/h by job performance and good quality.

Some of these benefits include: [www.taproduce.com/trade/employee-practices.php](http://www.taproduce.com/trade/employee-practices.php)

- A comprehensive benefit package that includes medical, dental, vision and life insurance.
- A 401(k) retirement plan and matching contribution program.
- A discretionary profit sharing program.
- A cost free Employee Assistance program (EAP).
- Access to an on-site preschool and childcare facility with licensed, bilingual instructors.
- Scholarships to children of our employees going to college.
- Free voluntary bus transportation to all of our harvest locations.
- An effective safety program that rewards employees who are accident free.
- Regular opportunities and training for advancement.
- Paid holidays, paid jury leave and paid bereavement leave.
- Service bonuses and end-of-season incentive pay.
- An annual orientation program communicating the above in both English and Spanish.

### **Vegetable crops**

The production follows a strong planting schedule, thus a year round production of all vegetable can be realized. Vegetables are just grown under best growing conditions, which offer the Salinas Valley and the maritime climate. Harvest start is 7:00 am in the morning, the climate is influenced by the near pacific. T&A grows just according the Integrated Plant Management System. There is a non-compete agreement with an organic grower to grow not organically. Main crops are Iceberg lettuce, Broccoli, Lettuce, different Artisan Lettuce, and Hydroponic Butter Lettuce. Furthermore the T&A Specialty Vegetable program offers more than 40 diverse commodities like herbs, Radish, Beets, Brussels sprouts, Kale or Napa Cabbage. The product line Tanimura & Antle Artisan® Family of fresh produce includes exclusive select seed varieties that have been carefully chosen for premium flavor, quality and variety. All Artisan lettuces are field-packed for optimum freshness, and packaged in specially designed clamshells to protect the leaves and keep them fresher longer. All vegetable crops are grown on USA family farms using sustainable growing practices. At T&A, food safety is priority one. For quality management and food safety of T&A products GAP standards are used. All food safety programs are quality assured through many in-house and third-party auditors that follow strict policies and procedures to ensure you the safest product possible. Thus, there is no manure used as compost anymore, just green waste compost is allowed.



Varieties of various breeders worldwide are used for production and product lines like “Artisan”. The seed production itself is organized by T&A in their own company. All lettuce crops are seeded directly in the field and chopped by hand few times. With this treatment plants are separated and weed can be chopped down. After harvest the vegetable are packed directly at the fields and transported to the cooler facilities. Vacuum or ice water is used for fast precooling. A vacuum cooler need 40 min to cool down lettuce for a full truck load. Trucks for shipping are organized by appointment. Each box gets a bar code label with all information about the vegetable. Beside the open field production a large greenhouse operation was built for hydroponic lettuce production.



Fig. 28: Lettuce field at T&A (SCHROEDER)

### **Marketing**

The sales group is working on telephones or marketing is organized via contracting with all supermarket chains in US. Supply and demand make the price, which is set mostly for a week. Higher quality and image gets a higher price at the open market. Branding and convenience product are no topic anymore. Products should be fresh, tasty and sustainable. For advertisement local TV, Internet with visitor webpage and facebook are used.

### **Internships or hiring now!**

The Tanimura & Antle College Level Internship Program has a long history of providing junior and senior level college students the opportunity to continue their agricultural education in a real world environment. Many of the past T&A interns have gone onto management careers with T&A or other companies within the agricultural industry.

The Tanimura & Antle Internship Program is a paid internship and interns are expected to have the basic skills required for the internship for which they are applying. Internships are available year round and the timing and duration of internships has been created to facilitate students on either quarter or semester academic calendars.

### **T&A Internships**

Students interested in one of the available internships listed below should send an email to [internships@taproduce.com](mailto:internships@taproduce.com) identifying the business area they are seeking an internship opportunity in, along with a cover letter and resume that explains their field of study, career goals, grade level and why they feel they are qualified for the internship they are requesting.

Followed interns are offered:

Cooling - Distribution Center Maintenance Internship, Human Resources Internship, Marketing Internship, Plant Breeder Internship, Production Ag Internship, Quality Control - Food Safety Internship, Sales Product Manager Asst. Internship, Vendor Managed Sales Asst. Internship.



Fig. 29: The group at the "T&A Salon" (SCHROEDER)

### **Steinbeck Center in Salinas**

The National Steinbeck Center is located at One Main Street, in the heart of historic Oldtown Salinas, the birthplace of Nobel Prize-winning author John Steinbeck. Open seven days a week year-round, we are the perfect beginning or end to any trip to Monterey Bay Region.

### **Boot Barn Salinas - outfit today's cowboy from head to toe**

Don't miss the Boot Barn of Salinas member of the Boot Barn chain ([www.bootbarn.com](http://www.bootbarn.com)).

Nothing symbolizes strength, independence and freedom like an American Cowboy. Cowboys are the reason the west was won and why it lives on today. Today's cowboy is not very different from the cowboy of old. The clothes, the hat, the boots and the values are still very much alive in today's west. The Boot Barn offer everything a man or wild-west woman needs to continue that western tradition.

The one thing that will make or break a cowboy's day are a pair of men's boots. Men's cowboy boots are where everything starts. Comfort is everything to a cowboy. Don't forget to finish it off your cowboy look with a classic men's belt, cowboy shirt and men's cowboy hat. The only thing I missed was a Mustang horse or a Cowgirl!



**Fig. 30: Prof. Schroeder and Gerd Koehler (SCHROEDER)**

The old men rules! fgs



*The sea is as near as we come to another world*

— Anne Stevenson

 Monterey Bay Aquarium

By Nico Domurath

**03/16/2012**    **Monterey Bay Aquarium/ 17-Mile Drive**

The last day in Monterey began with a thin coffee at the reception of the motel. Some of us were still marked by the evening before. So, it seemed to be the perfect day to switch over from the professional part of the excursion to touristic deals.

First stop of the day was the **Monterey Bay Aquarium**. It is affiliated with the Monterey Bay Aquarium Research Institute (MBARI), a not-for-profit oceanographic research centre in Moss Landing, California founded in 1987 by David Packard of Hewlett-Packard fame. The Aquarium is located on the site of a former sardine cannery on Cannery Row of the Pacific Ocean. It was founded in 1984, after the fishing grounds of sardines in the up to 1,000 m deep water right in front of the Bay and the canning industry were exhausted. Still, Monterey Bay is one of the most diverse marine-life areas on earth.

The aquarium shelters among numerous smaller exhibits also some bigger tanks. The superior reservoirs include flora and fauna of whole ecosystems. The centrepiece of the Ocean's Edge Wing is a 10 meter high 1.3 million litre tank for viewing California coastal marine life. This tank is of special technical interest: first, the open tank top allows sunlight in; second, raw seawater from the Bay is circulated (aquarium pumps in total 7,500 litre per minute of ocean water, night and day, through the more than 100 exhibit tanks); third, a wave machine at the top of the tank allows water movement, which is a necessary precondition for keeping Giant Kelp, which absorbs nutrients from surrounding water and requires turbidity). Visitors are able to inspect the creatures of the kelp forest at several levels in the building. The second exhibit of note is a 4.5 million litre tank in the Open Sea galleries, which features one of the world's largest single-paned windows. The Open Sea galleries inspires visitor by showing great white shark (*Carcharodon carcharias*) and as one of only a few

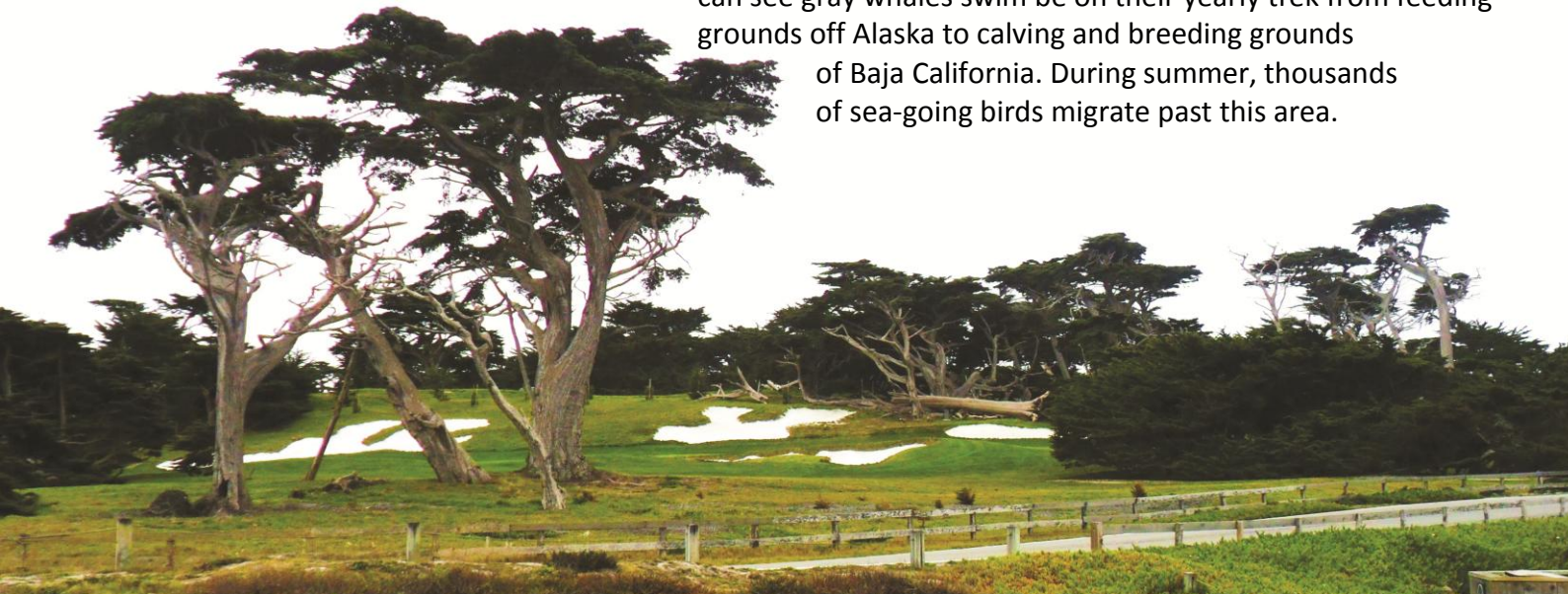


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aquariums in the world to exhibit both bluefin (*Thunnus orientalis*) and yellowfin tuna (*Thunnus albacares*).

Overall, you can easily spend half a day at the aquarium. However, you should not wear the typical magnifying glasses for visits of museums and expect to get more in-depth information. The concept of the aquarium targets to more show easily consumable and colorful the incredible opulence of the seas - which isn't the worst intension at all.

In the afternoon we went in for a scenic-tour after a short self-organised lunch break. Our destination was the famous **17-mile drive**. Fortunately, the sky was only covered on this day. The weather changed from liquid sunshine to no sunshine. This together with freshening wind resulted in a unique atmosphere with the roaring sea for cruising-down the coastal road through Pebble Beach and the Del Monte Forest along with a breath of fresh air. Pebble Beach is a small coastal resort destination, home to the famous golf course, Pebble Beach Golf Links and part of the larger census-designated place of Del Monte Forest. It is a habitat area of the same location, which originally occupied considerably more area prior to urban development of the 20th century. The forest is dominated by Monterey Pine but it is also the habitat to numerous rare and endangered species including Hickman's potentilla (*Potentilla hickmanii*) and Yadon's piperia (*Piperia yadonii*), both of which are federally protected species. The Del Monte Foundation comprises a volunteer board of 12 members working to preserve the open space. Except for two representatives of the Pebble Beach Company, all must be property owners and residents of the Forest. A look at the list of residents is very interesting too (e.g. Conduleezza Rice and Clint Eastwood). But not only the inhabitants are famous. There are some very well-known spots like the stately Lone Cypress, the historic Spanish Bay or the turbulent Point Joe, where you can explore a variety of wildlife. From December to March you can see gray whales swim be on their yearly trek from feeding grounds off Alaska to calving and breeding grounds of Baja California. During summer, thousands of sea-going birds migrate past this area.





## Saturday, March 17, 2012

By Lars Krowarsch

Our day started in Monterey Bay with Rain. Which is quite unusual for California. Our planned destination was San Francisco. After a while we had to do a stop at the gas station, our SUV's needed to be filled up again. At noon we arrived at our first planned stop - Santa Cruz. It's located approximately 72 mi south of San Francisco. The nickname of Santa Cruz is surf city. The City of Santa Cruz was chartered in 1866. Important early industries included lumber, lime and agriculture. Late in the 19th century, Santa Cruz established itself as a beach resort community. Santa Cruz is now known for its moderate climate, the natural beauty of its coastline and redwood forests, alternative community lifestyles, and socially liberal leanings. It is also home to the University of California, Santa Cruz, a premier research institution and educational hub, as well as the Santa Cruz Beach Boardwalk, an oceanfront amusement park. It has around 60.000 people and the University has around 15.000 Students. We had still rain, so we decided just to take a snack and continue our route.

Next stop Vine tasting at "La Nebbia Winery" in Half Moon Bay, CA. It was quite good, even though I was the driver of one car, but the others had much fun, and the vine was good, as far as I heard.

On our way to San Francisco, we went to Moffett Fields NASA Ames Research Center. NASA's Ames Research Center is located at Moffett Field, in California's Silicon Valley. The National Advisory Committee for Aeronautics selected Ames to be its second aeronautical research laboratory on Dec. 20, 1939. Ames became part of the National Aeronautics and Space Administration (NASA) when that agency was formed in 1958.

NASA Ames Research Center is a key facility for many of NASA's missions and projects. Come to the Exploration Center and you can see, what they are doing at this amazing NASA facility. You can find a model of a space shuttle. Real Moon Rock, a lunar sample retrieved by the crew of Apollo 15 from the Moon's Hadley-Apennine region. This sample is part of the 169 pounds retrieved from the lunar surface during the crew's 66.9-hour stay on the Moon. Ames develops tools for a safer, more efficient national airspace and unique partnerships benefiting NASA's mission. Ames is a leader in information technology research with a focus on supercomputing, networking and intelligent systems. The center also has strong expertise and facilities in support

of fundamental space biology, biotechnology, aerospace and thermal protection systems, small satellite missions, nanotechnology, simulation and modeling, wind tunnels, air traffic management and human factors research.



**Fig. 31: NASA Visitor Center (KROWARSCH)**

After that, we continued our journey to San Francisco. We visited the Golden Gate Park, which is a public park with over 1,017 acres/412 ha. Configured as a rectangle, it is similar in shape but 20% larger than Central Park in New York, to which it is often compared. It is over three miles (5 km) long east to west, and about half a mile north to south.



**Fig. 32: The Beach in San Francisco (KROWARSCH)**

We only needed to cross the street and we were at the beach. Just waiting for the sunset. As you can see on the picture, we had strong winds from the sea. But finally we were lucky, the cloud deck changed to scattered conditions and we could see the sunset.

It was St. Patrick's Day, and after we arrived at the Hotel, which was located on the Lombard Street, we decided to go out, celebrating St. Patrick's Day. It is an Irish feast day, but celebrated in many countries such as Great Britain, Canada, the United States, Argentina, Australia and New Zealand. Green items of clothing are traditionally worn and the streets are often filled with revellers drinking and making merry from early afternoon until late at night. According to the legend, St. Patrick used the 3-leaved shamrock to explain the Holy Trinity to the Irish people. So you see items with shamrock on it everywhere. People are wearing green hats or green shirts with shamrock on it.

## Sunday, March 18, 2012

By Christiane Rose & Johann Hempel

### San Francisco

a city which offers much more than the huge amount of concrete in the financial district, the most famous bridge in the world – The Golden Gate Bridge, the crookedest street – Lombard Street, the most multicultural history – China Town, Russian Hill.

San Francisco is most interesting for horticulturists concerning the numerous parks across the city. In this case the Golden Gate Park receives a lengthy citation.

Golden Gate Park is the biggest park of San Francisco and coincidentally the most versatile.

First you can become fitter while going skating, biking, walking, golfing or fly fishing at one of the romantic ponds.

Additionally it is possible to go on a cultural journey of discovery amongst Dutch windmills and the Japanese Teagarden.

Your knowledge will be trained well at California Academy of Sciences. Because of a sophisticated education program knowledge is transmitted to children as well as adults.

The Steinhart Aquarium reflects the enormous variety of aquatic creatures and is placed in the basement. Basic themes are explained on changing shows at the planetarium. Currently the show deals with the theme of the big bang up to the incurrence of living cells and organisms.

The story of evolution is complementarily narrated in another wing of the museum. Topically the rainforest dome is demonstrating the climate in different areas and the problem of global warming. Next to the museum is the botanical garden. It is subdivided into different thematic gardens - extremely lovely arranged.

The highlight of every horticulturist will undisputably be the greenhouse. It is placed in the eastern part of the park. This conservatory was built after a model of Kew Gardens in England. It shows the Victorian architectural style which can be found at many buildings in the city. In 1995 the building was closed because of heavy damages for an indefinite period of time. Staying there we were favoured by fortune since the conservatory was open to visit. A lot of extraordinary ornamental plants as well as crop plants are ready to be gazed at in amazement.

What this all amounts to is that San Francisco shows its green heart in big size but even in the rearmost corner of the streets.



Fig. 33: The Conservatory - Greenhouse in the Golden Gate Park (ROSE)