

MMC Students Learn About Plants At The Botanical Lab

BY BRENDA K. JOHNSON
P&D Correspondent

Biologist Dr. James Sorenson has taught at Mount Marty since 1991. He continues to discover the advantages of the greenhouse in the still new Otto Ulrich Botanical Laboratory. Controlled are air temperature, humidity, air movement, and direct light. He still has more than a month in the lab's first academic year of use. Last August he moved plants from windows and grow lights in Bede Hall to the new greenhouse. Now he has more natural light and environmental controls for projects.

He added crossbeams for hanging plants and is considering using space under plant tables for shade plants. About half the table space is filled with ferns, aloe, mosses, cacti, Crown of Thorns and other euphorbias, and flowering plants. Students have a diversity of living plants to observe and study. When their text addresses a plant's characteristics in class, they can see that living plant growing in the greenhouse.

"I want to show them that plants are more fascinating than they thought previously," he said. He requires that students read an article on "plant blindness" because we live in a culture where plants are so much a part of our environment that they go unnoticed.

He grows stock plants for cuttings such as coleus or Joseph's coat, and plants that produce many vegetative offspring such as air plants and spider plants. These are useful because the genes are alike in vegetative offspring. Genetic factors are controlled in experiments. He uses ordinary houseplants for many demonstrations.

"I'm trying to get students interested in plants for the rest of their lives," Sorenson said. Requirements for his botany course include that they grow a plant from seed to seed, and that each student designs and carries out an experiment using plants.

"Some students have not done an experiment by themselves before," he said. Most of the students are interested in a career in some form of health care. Experimental questions generally originate with students. They experience the scientific method when they use a control group, keep accurate data, make careful observations, and combine library research



PHOTO: BRENDA K. JOHNSON
One of the Mount Marty student-originated experiments is about the direction the morning glory twines around a stake when it grows, and if it is possible to change it.

and actual findings. Students are responsible for the plants in their care. Experiments are conducted in the natural light of the biological laboratory or under grow lights.

SAMPLE OF STUDENT EXPERIMENTS

With human growth hormones or performance enhancing drugs an issue in sports, one of the students is looking at the impact of gibberellin, a plant growth hormone, on common plants. The dicot coleus and the monocot spider plant received three different concentrations of gibberellin and growth data will be taken.

One student is looking at the impact of different concentrations of alcohol on plants. That student is using Brassica rapa, a plant that cycles quickly from seed to flower to harvest, to see the possible impact on the plant's stages.

Another student is testing shamrocks (*Oxalis* sp) that close their leaves at night to study their behavior under different day lengths of light. Will its circadian rhythm be altered or remain the same? Humans likewise have bio-rhythm patterns.

Auxin is a plant growth regulator that causes plants to bend toward the light. One student plans to counter natural auxin that a plant produces, with introduced auxin to see plant response.

One student wants to know



PHOTO: BRENDA K. JOHNSON
A Mount Marty student wants to know if flies that the Venus flytrap digests, actually help the plant grow.

if magnets in the soil impact the growth of plants. That student is locating magnets in various positions around the test plants.

Morning glory plants are said to twine in the same direction around a stake. The student plans to first see if this is true, and then come up with a way to counter the twining direction.

"I tell students that one of the hardest parts of an experiment is getting started. Once started, it takes on a life of its own," he said.

Tiny vegetative air plants are growing under different colored plastic to see if they grow differently because of variable light. As with many of the projects, the student weighs plants and measures them before and after treatment.

One student is growing tomato plants in natural light of the greenhouse and under grow lights to see plant differences.

Venus flytraps are being used to find out if the digested flies add to the growth of the plants that are fed. Early in the experiment only some traps were fed but all traps were tripped, and the empty traps reopened days sooner than those fed.

A previous student had

explored anesthetizing the traps of Venus flytraps. The student found that a dental topical Lydocaine did not work because it is a sodium channel blocker. With more library research, Sorenson guided a student to consider Verapamil or other calcium channel blockers that did inhibit the traps from closing.

Sorenson has often used previous students' results to verify them in a repeated experiment. The challenge of finding more accurate results in a follow up experiment has appeal to some students. Of course, as in the scientific method, questions lead to more student-generated questions; ones students may be especially motivated to find answers.

SHARING A HOBBY

Sorenson sends a message to his students on Valentines Day with his hobby red amaryllis blossoms more lasting than the friendly gift of his plants. He started with one bulb and a set of instructions at home and now he has lots of amaryllis plants. He repots the bulb in soil about six weeks or longer, before he wants it to bloom. Leaves grow dark green



PHOTO: BRENDA K. JOHNSON
Dr. James Sorenson, biologist at Mount Marty College, shares his interest in growing amaryllis plants. He displays them in the study area as they bloom.

in the natural light of the botanical laboratory. As the blooms open, he finds spots near the student study areas or hallways to display them.

After the plant ceases blooming he keeps the amaryllis in sunlight and submerges the pot in soil outdoors in summer. Pot soil of similar temperature to ground soil in summer may benefit the plant. When leaves die down in the fall, he lifts the pot out of the soil and tips the pot on its side.

"You let the bulb dry out completely. You can dig the bulb out and re pot it in new soil, but you don't have to," he said. "I started with one bulb and there are twenty or thirty in pots. I've given some away." Some of his bulbs have five or six blooms per stalk with this technique.

Sorenson has shared his interest in plants with many students in the botany, ecology, and genetics courses he has taught at Mount Marty the past twenty-four years.

"My parents always had a garden. That's probably an important factor (to his interest in plants). My parents inadvertently did that," he said.

As for teaching and researching with plants, he said "It was probably a course in college. I never thought about plants living and you could do experiments with them. You can look into cellular processes just like animals."

Award Earned



SUBMITTED PHOTO

Toastmasters International presented Stan Sudbeck, Hartington, Neb., with his Competent Communicators Certificate. He is a member of Avera Sacred Heart Hospital Toastmasters Club.

Certified



SUBMITTED PHOTO

Larry Leet, Senior Vice President and Manager of First Dakota Trust & Investments, is pleased to announce Todd Woods (pictured) has earned the Certified Trust & Financial Advisor (CTFA) designation from the Institute of Certified Bankers (ICB), a subsidiary of the American Bankers Association in Washington, DC

An Honored Guest



SUBMITTED PHOTO

Recreational Activity Director Jeff Thurman (right) welcomes V.F.W. Auxiliary State President Vicke Rossi as she made her annual visit to the State Hospital. Vicke along with auxiliary representing of the Veteran Administration Voluntary Services for the Human Services Center were Dorothy Stange, President Joyce Stahlecker, Sandy Meisenheimer, Jane Slowey and Judy Potts, were giving a tour of the Hospital Activity Center. Following the tour the clients participated in a monthly sing along, with the Post #791 Ladies Auxiliary donating and serving refreshment.

MEETINGS

KEYSTONE CHAPTER #33, OES

Keystone Chapter #33, OES, met Thursday, March 19, at the Masonic Temple, Yankton, beginning with a potluck supper at 6:15.

Chris Bryan, Worthy Matron, presided at the meeting. She reported on her attendance at Official Visits in Sioux Falls, Armour, and Presho.

Worthy Patron Charles Bryan reviewed the meaning of the organization's obligation and led the chapter members in renewing it.

Secretary Carol Frey and Treasurer Jim Frey will present Virgil Rauch, Springfield, with his 50 year membership pin.

WM Bryan led the group in St. Patrick's Day activities after the meeting.

The next regular meeting will be at the Masonic Temple in Yankton, on Thursday, April 16, 2015, at 7:30. Masons will be honored. Kathryn and Dick Buechler are on the lunch committee for that meeting.

YANKTON REGIONAL AVIATION ASSOCIATION

Thirty-eight members and guests attended the YRAA meeting on March 15 in the terminal at Chan Gurney Airport. The potluck dinner meeting was the 17th annual "Chili Feed." Attendees came from Avon, Jefferson, Menno, Mission Hill, Scotland, Tyndall, Vermillion, Yankton, Hartington, and Norfolk. President Petra Wilson welcomed everyone to the meeting.

Francis Serr and Alan Fenner briefly talked about their participation in a bus trip to see the Strategic Air & Space Museum at Ashland, Nebraska. A Board meeting will be held in April to discuss a possible LifeTime membership in the YRAA. Young Eagles Rallies for giving free airplane rides to kids aged 8 to 17 years old will be planned for May, June, and October in Yankton, and an event at Vermillion. John Lillevoid talked about his recent flight through Mexico to Guatemala and reentry into the U.S. via Key West, Florida.

The next YRAA meeting is set for April 19. For more information about the YRAA contact Steve Hamilton at 605-665-8448 or skyhawk@iiv.net.

TOASTMASTERS CLUB 6217

On March 19 Toastmasters (T) Club 6217 met at noon in the Pavilion Conference Room with Joyce Stevens giving a warm Irish Blessing as an invocation and Greg Stach as Toastmaster.

(GE) Jan Schiferl introduced her team. They were: Jesse Bailey, timer; Eileen O'Connor, evaluator; Chelsi Hames, "ah/um" counter; and Stan Sudbeck, grammarian. Sudbeck's Word of the Day was "vivacious," meaning lively; vivid. Sudbeck tracked the use of the word of the day along with interesting phrases; "tom foolery" and "Irish jail".

A speech was given by Muriel Stach, she did a speech from the interpreted reading manual telling a story speech. She told the story of the fox and the heron, with her moral of the story being those not married yet find yourself a good Irish companion. Stach was evaluated by O'Connor who praised her for her a great vocal variety, use of language and picturesque speech. It was overall a very entertaining speech.

Sandy Spady used "St. Patrick's" as her theme for table topics. Sudbeck gave a little view of what it would be like to survive on the ship that St. Patrick did. Jane Miller gave an inspiring open statement for St. Patrick's Day but chose not to break out in song during it. Bailey gave a great description of what apparel Stevens and Hames wore for an add. O'Connor gave a great description of her good luck symbol which is her Benedictine pin. Steve Anderson recalls a prank his older brother played on him with a four leaf clover. Stach gave a picture of his specialty dance which he has named Greg's Irish Jig. Schiferl's new law someday is everyone is to be kind to one another; oh how we all wish for this law would be passed. Stach sang a beautiful rendition of her favorite morning song.

Toastmaster and Club President Greg Stach ended the meeting with an Irish Blessing and reiterated the April 9 Speech contest at the Pavilion.

NORTHEAST NEBRASKA RC&D

Wakefield welcomed the Northeast Nebraska Resource

Conservation & Development (RC&D) Council to their public library for its recent meeting. Mayor Mike Looft provided an update on the many advances in infrastructure and new business development under way in the community. It's a very impressive list!

Two new projects were approved. Another Grant Writing Workshop will be held featuring speakers from Nebraska foundations and the state's Economic Development Department. No date has been set yet. The Council is hoping to purchase pop-up canopies and tables that will not only be for their use, but also that of the public. And they'll be assisting the PrairieLand RC&D with their Continuous No-till & Soil Health Education grant.

The Knox County Cemetery Tour is coming together and will be held Saturday, August 22nd. This will be a one-day motor coach tour featuring ghost towns as well as a number of cemeteries. Judy Carlson, Brad Kellogg, and Chance Jacobsen will serve as step-on guides.

Wakefield is hosting the April 11 Heritage Museum Network meeting. This is free and open to the public. It begins at 10 a.m. at the Library Museum followed by a tour of the Depot Museum. After lunch Rajja Weiershauser and Brad Kellogg will share the "Weigand Story."

Several new books are now available in the RC&D office gift shop. Brad Kellogg has written "The Ailes of the Forgotten Graveyard," a compilation of stories from the past learned from painstakingly researching numerous cemeteries. Lin Brummels has written a chapbook of poems called "Hard Times" which recognizes what people sometimes face living in rural communities. The introduction section of the book "Ankle High and Knee Deep" states that it represents what more than 40 rural farm women have learned from being in mud, manure and other "offal."

The RC&D Council looks forward to continuing their service to citizens through projects that will make life better for people in Antelope, Cedar, Dixon, Knox, Madison, Pierce, and Wayne counties.

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