PLANT SCIENCE DAYS

Peace On Earth

December, 2001

Christmas Party

The Departmental Christmas party will be on Saturday, December 15th from 4-8 p.m. at Country Lanes (go west out of town for about 3 miles-it will be on your left; if you go down a hill, you have gone too far). Following is the schedule of events:

Bowling	4-6
Dinner	6-7
Santa	7-7:30
Cleanup	7:30-8

Please bring one of the following to share: Hors d'oeuvres, a vegetable or potato dish, salad or dessert. The meat, rolls, and drinks (non-alcoholic) will be provided. Please come and join us for any or all of the above.

Dave Sands Discovers Disease in Ukraine

Based on the hypothesis that plant diseases are not unique to Montana, Dave traveled to Kiev and surrounding areas in search of diseases of Canada Thistle, Leafy Spurge and Spotted Knapweed. These three plants species are native to that region. His cohort was Rene Sforza, an entomologist working with Chuck Quimby at the USDA lab in Montpellier, France. It was a trimmed down trip: no hot water, no restaurant food and no phone calls. Based on hypothesis #2, that fungi like to move down river drainages, they looked along some pretty big rivers and found plenty of D and D (death and destruction) of these three weeds. They, being in possession of one of the 2 wonders of the modern plant pathology world (an APHIS approved containment facility, on MSU campus what more), flashed their permits at the border and brought in some 50 samples. These are being tested for their possible utility, that being for biocontrol of the worst weeds in the state. The trick will be in the concerted selection of virulent disease agents that are specific (attack only) one or another of these weeds.

Tripping in Patagonia
by Gary Strobel

In late June, I received a call from Dr. Dave Grant of the University of Utah indicating that BYU owed him about $30K. He said that he couldn't take the money directly, but only indirectly and would I have any ideas on how to spend it? I indicated that Bill Hess could use some assistance with the SEM lab and tried to make a case for encumbering the funds in that manner. About one week later Grant called again and said, " I will authorize you to organize a scientific expedition to South America and use some of my funds to pay for it." To me it sounded great and eventually everything was put together by an expert logistics person-Carlos Fida of

PanAmerican travel in Salt Lake City. Sixteen people departed Utah on the 27th of October on their way to Lima Peru. From there to Cusco, Peru and then the real journey began. Our goal was to collect as many unusual and medicinal plants as possible. In addition, we had scheduled ourselves to serve on a rotational basis to give evening seminars on our work. There were chemists, botanists, oncologists, and math researchers along.

From Cusco we were met by a truck that had been converted to a bus and headed up over the Andes on the Manu River. Suffice it to say, this was the most treacherous and highest road in the world that I had ever taken. We were lucky most of the time to have three wheels on the dirt surface. We traveled through he cloud forest of the upper Manu and eventually settled into a lodge at 10 PM. The next day the jungle greeted us with the sounds of birds and animals everywhere. Collecting began in earnest. Eventually we made our way down to the Rio alto Madre de Dios and climbed on board two canoes equipped with 50 horse Johnson outboard motors.

Torres del Paine

Then on to another lodge down that river in a blinding rain storm-nothing ended up dry. In our first foray into the Manu jungle, we were greeted by sticks being thrown at us by a troop of howler monkeys. The Manu area is said to be the most biologically diverse place on the planet, at least relative to plant life. It is for this reason that I suggested that we go there in the first place. Our goal, of course is to isolate endophytic microbes associated with these plants and that activity is going on now and being led by Uvi Castillo and David Ezra and their helpers and undergraduate students in the lab.

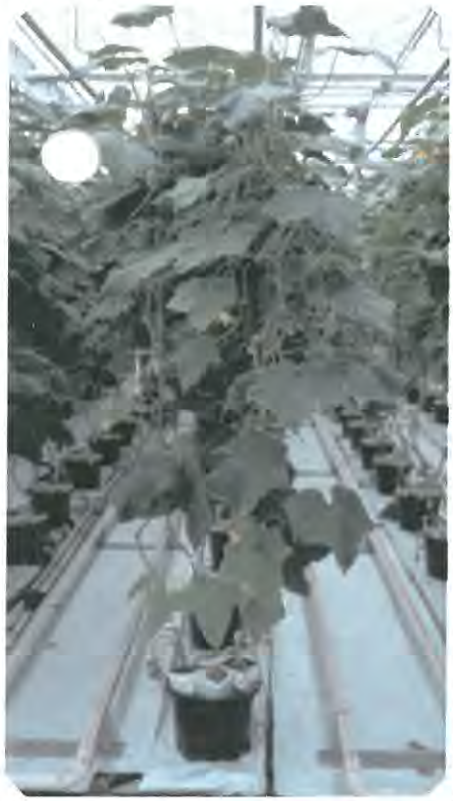
When we reached the lodge on the Manu River proper, we were all drenched. I guess that this is to be expected since we were in one of the most wonderful rainforests on earth. Added benefits to our plant collecting activities included seeing a three toed sloth, a capiberra, many monkey species, and a host of native birds including scarlet macaws taking clay at the world famous lick on the Manu river banks. On the way out, the high- light of the trip, was the sighting of a jaguar on the river bank. He stood and posed for a multitude of photos to be taken. Carlos, had arranged for the Peruvian airforce to take us out of the jungle on a twin otter which operated from a grass and water impregnated airstrip cut from the jungle. Wow! What an experience. Suzan, my wife, cried as we left. She had managed to put up with the roaches in our living quarters, lots of rain, wet clothes and muddy boots, but realized that this is one of those things in life that she will miss most-the rainforest.

Back to Lima and then on to Santiago Chile where Mr. Richard Stone and his wife of Science magazine joined the expedition. We all flew to Puenta Arenas at the southern most tip of South America- "this is patagonia"
A bus picked us up and we drove for 7 hours to the Torres del Paine national park where exists untouched beech forests. These are the same tree species that occupied ancient Gonwanaland over 100 million years ago. I suspect that some novel endophytic symbionts are to be found there, we shall see. The overall scenery here is the most magnificent in the world. Blue granite spires two miles high reach skyward. They are covered with glaciers and snowfields. Rivers filled with glacial till spill from the high reaches of this region. Guanacos wander the fields and forests nearby while Andean condors gracefully cruise overhead. This place is absolutely incredible!!

From a very early morning departure we headed to the northern patagonian area of Alerce National Park in central Chile. It is in this area that still other plants that were an original part of the gonwanaland scene now live. These are the magnificent trees known as the Alerce and they are up to 4000 years old and almost as big as the redwoods. In addition, there are the tineos, manios, the arrayans and canelos. We managed to find all of them. Now we shall see what microbial secrets they hold.

Protected Cultivation in the Netherlands
by David Baumbauer

For the month of October, I was privileged to participate in the Protected Cultivation course offered at IPC-Plant.Dier in Ede, the Netherlands. Held in cooperation with



Wageningen University, the protected cultivation course mixed classroom, laboratory, and greenhouse sessions with excursions to give students an insight into the Dutch greenhouse industry.

Due to circumstances related to the 9/11 attack, only two of the nine registered students attended the course. My classmate was Kurt Van de Wetering, from Long Island, N.Y. Kurt and I were only the second and third U.S. growers to participate in this course.

There are 26,700 acres of greenhouses in the Netherlands. Forty percent produce vegetables (tomato, sweet pepper, cucumber, and eggplant), 35% cut flowers (roses, gerbera, and mums), and the remaining 25% are divided among foliage, flowering potted plants and bedding plants.

Greenhouse growers in the Netherlands have a challenging combination of strict environmental regulations, and high labor and energy costs that drive the need to have the most technologically advanced greenhouses. The typical Dutch greenhouse features computer control of the environmental control, irrigation/fertilization, and carbon dioxide enrichment systems. Pot filling, transplanting, and internal transport of the plants are routinely carried out by automated equipment. Over 160 of the firms have onsite electricity generation plants (co-gen), which produce electricity for the greenhouse, and the waste heat from the turbine is used to heat the greenhouse. Surplus power is sold back to the utility. The most sophisticated have scrubbers on the exhaust flue to remove the carbon dioxide, which is used to enrich the air within the greenhouse. With an average monthly power bill of $12,000 at the PGC, these co-gen setups caught my attention.

Crops are marketed primarily through auction houses. On the morning we toured the Aalsmeer Auction facility (the building covers 118 acres), 9000 carts of flowers and potted plants were sold. The auction starts at 6:30 am and finishes by 10:30am. Flowers bought are ready for shipment by 12:30 pm. Product sold at Aalsmeer comes from through out Europe, the Middle East and Africa and is shipped worldwide.

The course finished up with a trip to the Horti-Fair in Amsterdam. This trade show features plant material from around the world (the South African booth alone was worth the ticket cost) and all the hardware needed to produce greenhouse crops. Sixty-four thousand people weave their way through the RAI convention center over the course of four days.

Wageningen is a delightful university town of 35,000. It has a bustling pedestrian mall for a town center and two open air markets each week. The town windmill grinds grain on Friday and Saturday. While I was in class, Cathy and the girls explored the art museums, zoos, national park and open air museums that were only a short bus ride from town. We enjoyed the warmest and driest October in over 200 years!

Special thanks goes to the Office of International Studies – Faculty travel grant program for supporting this experience.

Bob's Byte

Hint for Outlook users:

If you routinely receive email from an organization or individual you can have Outlook automatically move your messages from your inbox to the folder of your choice. You can also have Outlook automatically delete these messages. Outlook has the ability to do a number of automated actions. If you take a few minutes to explore the actions

that the rules wizard can perform you can simplify your email sorting and tracking.

To modify Outlook to automatically move messages:

Click on Tools
Click on Rules Wizard
Select new
Select type of rule to create
ie: check messages when they arrive
Click next
Select the condition ie: If you receive an email from XXXX place a check mark in the box that will check for specific words in the sender's address.
Click on specific words and fill in the box with XXXX (use appropriate name)
Click on next
Select the option that you wish to do with the message
ie: move it to a specified folder or perhaps just delete it.
Click on specified folder and choose the folder (or create a new one) that the message should be moved to.
ie folder XXXX.
Click OK
Click next
Add any exceptions if you wish.
Click next
Supply a name for the rule you have just created
Click Finish
Click OK.

Now every time you receive a message from XXXX it will be moved to folder XXXX. A number in () will show up next to the folder when a new message has been added automatically.

Preserving your Christmas Tree
by Bob Gough

Once you purchase or cut your Christmas tree, it's time to worry about keeping it as fresh as possible for as long as possible. Don't bring it into the house until shortly before Christmas, keep it away from heat sources, trim its butt, and give it plenty of moisture.

Filling your tree's plant stand with plain fresh water works fairly well to keep the foliage fresh, but you can also try a do-it-yourself mix that works even better AND will fireproof your tree as well. As you know, dry trees become a fire hazard, and only a spark or two from a faulty wire can mean disaster and a tragic holiday for all. Here's the formula for success.

Fill a two-gallon bucket with hot water to within an inch of the rim. Add two cups of corn syrup, two ounces of liquid bleach, two pinches of Epsom salts, one-half teaspoon of Boraxo, and one teaspoon of chelated iron. Stir the ingredients thoroughly, then stand the tree in the solution outside for a day or two to let its tissues fill. While the tree is in the house, keep the tree well-filled with this solution throughout the holidays. The corn syrup provides sugar for metabolism which increases the tree's uptake of water. The boron makes the sugar move through the tree faster, and the Epsom salts and chelated iron keep the tree green. The chlorine stops mold from forming in the sugar-water mix. Molds clog the vessels in the butt and prevent the tree from taking up water. So there you have it...a homemade mix to fireproof your Christmas tree and keep it fresh to boot!

New Employee
Suzanne Mickelson

Suzanne Mickelson will be managing the Barley breeding and genetics program for the next two years during the absence of Dr. Tom Blake. Suzanne completed her PhD this fall in the Plant Breeding and Plant Genetics program at the University of Wisconsin under Shawn Kaeppler. Her thesis focused on the inheritance of maize growth and flowering response to phosphorus deficiency and the influence of mycorrhizal isolates on growth of maize inbreds under phosphorus deficiency. Suzanne also completed her MS degree in the Plant Breeding and Plant Genetics program working on the inheritance of leaf angle and tassel traits in maize.

Suzanne is married to James "Mick" Mickelson, Assistant Professor of Weed Science in the Department of Research Centers. Mick works at the Southern Ag Research Center in Huntley. Suzanne grew up on a grain and livestock farm in southern Illinois. She is looking forward to working with the faculty and staff in Plant Sciences and Plant Pathology as well as the grain producers of the state.

Lanae Accepts New Position
Lanae, our account tech has accepted the position of accountant for Entomology. She will start December 17.

Lanae did a great job for us and we wish her well in her new position.

Poetry by David Sands

Gl[illegible]

We can choose our friends
And sometimes our foes,
But like 'em or not,
We get GMO's.
They may solve problems
Of production and weeds,
But fear itself,
Fills some of our needs.
Now I like to eat flounder,
And then strawberry pie,
But mixed together?
I would rather die!
Now think of the poor fish
Who donated his genes,
So that our plants may persist
When the Fahrenheit hits 'teens.
The fish gave his soul,
With no pun intended,
To help Farmer Brown,
Avoid the frost he fended.
Now genes are like cliche's,
The best ones hang around,
In [illegible]ips and yeast,
And even in hounds.
Most people think
That natural is best.
But even spinach
Won't pass the Ames' test.
Given all the data,
'Though half of it wrong,
"Sue the geneticists"
Is the name of the song.
Come pestilence and famine,
The GMO's we now protest,
Will deliver safe genes,
That are nutritionally best!

On The Personal Side

Note from Cathy Cripps:

Many of you saw the block of sawdust I was carrying around with huge Shittake Mushrooms growing out of [illegible] Someone thought it would make a great Christmas gift, and asked for more information, so here it is: The mushroom growing kit is available from Garden City Fungi (just west of Missoula) for $24.95 (either Shiitake or Oysters). The kits are Made in Montana, and are likely to fruit much better than those from out of state. You could probably put your order in now, and have it shipped closer to Christmas. The website is: http://www.gardencity.com or email: info@gardencityfungi.com or come talk with me about it.

Baby Shower for Martha

The baby shower for Martha has been postponed until after they return from Cambodia with their son.

December Birthdays

Denny Hall	1
Ted Clack	3
Bill Grey	4
Fletcher Meyer	4
Todd Osmundson	4
Nancy Blake	6
Martha Mikkelson	6
Anna Merritt Stinson	8
Cathy Seibert	21
Cheryl Petersen	23
John Ansley	23
Sue Brumfield	26
Dick Pohl	29
Lucy Cooke	30

Recipe of the Month

Something healthy:

Sesame Broccoli

1 bunch broccoli cut into flowerets (about 4 cups)
1 medium sweet red pepper cut into 1/4 inch wide strips
2 t. vegetable oil
1 t. dark Asian sesame oil
1 clove garlic, minced
1 piece (1 inch) fresh ginger, peeled and cut into very thin slivers
3 T teriyaki sauce
1 t. fresh lemon juice
1 t. sesame seeds, toasted

1. Steam broccoli and pepper for 5 to 7 minutes or until they are crisp tender
2. Meanwhile, heat vegetable and sesame oils in nonstick skillet. Add garlic and ginger; stir-fry until fragrant, about 30 seconds. Stir in teriyaki and lemon juice; heat through. Toss vegetables in sauce to coat. Garnish with sesame seeds.