

# Plant Science Says



Dahlia grown by Deanna Nash in the Mathre Courtyard

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## Dr. MacDonald Burgess Joins Faculty

We are happy to announce that Dr. Mac Burgess has accepted our offer to fill the position of Assistant Professor of Small-Scale Agronomy/Horticulture. Mac comes to us from the University of Pennsylvania. His appointment is 70% teaching, 20% research, and 10% service and his start date is December 1, 2013. Mac, welcome to the PSPP Department!

## The Hail Storm of 2013 By Nina Zidack

Late afternoon on August 1, a hailstorm of epic proportions hit Twin Bridges, Harrison and the Manhattan/Amsterdam potato growing areas. The storm originated in Salmon, Idaho and left a 20 mile wide path of destruction all the way to Hardin, Montana.

The Madison county growing areas received 30-50% defoliation of potatoes and 70-80% yield loss on small grains. In the Manhattan/Amsterdam area, defoliation of potatoes ranged from 30% to 100%. The pea crop in that area was a 100% loss and a significant amount of the wheat and barley was also totaled. Silage corn and alfalfa were also severely impacted. For the potatoes, we won't know the total yield loss

until harvest, but previous reports have indicated a 30% yield loss with 50% defoliation and a 70% yield loss with 100% defoliation at this time in the growing season.

The repercussions of this storm will be felt by Montana seed potato growers and our customers in neighboring states for at least another two years. The yields on the early generation potatoes that are used to plant



Nick Schutter standing in a potato field with 100% defoliation. Photo courtesy of Nina Zidack.



Barry Jacobsen surveying his research plots. Photo courtesy of Nina Zidack.



Barry Jacobsen evaluating the damage to field of Silage Corn. Photo courtesy of Nina Zidack.

the bulk of our crop will be reduced and may result in planting more later generation seed stock, and will also decrease the supply available for recertification as seed potatoes outside Montana.

## **Intercultural Experience in Montréal, Summer 2013**

**By Jennifer Britton**

*"Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did do. So throw off the bowlines, sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover."* – Mark Twain

We travel abroad to see different places and people, to experience and learn from our world's diversity and share commonalities in the human condition. But how can we teach travel? Of all the pedagogical experiences in a professor's repertoire, study abroad can be one of the most challenging and rewarding. This summer for eight filled to the brim days, I led six Montana State University Environmental Horticulture and Plant Sciences students on a study abroad to Montréal, Québec. A short plane ride but a world away from Bozeman, Montana we explored our North American neighbors unique French-Anglo cultural, horticultural, design and undeniably charming *joie de vivre!*

We lodged in McGill University's New Residence Hall dorms, a perfect central downtown location and comfortable too. A busy venue at the peak festival season the lobby had a steady flow of Canadians coming for a multitude of events. On any given day, the ménage was an eclectic mix of scout troopers and people with body tattoos, sometimes both! McGill's food services provided us with lunches and a dinner, making food logistics easy and tasty. Students commented often their surprise and pleasure of the food quality both at the dorms and in general around town- there was much fresh and healthy food to be found.

In a constant flow of observation and conversation we saw, heard, and tasted the culture; and true to the non-vehicular urban experience we walked, biked, and rode the metro to gardens, parks, and open air markets. Lectures, topics, and tours in horticulture and landscape design provided students with historical and contemporary Québec knowledge. Lessons provided an opportunity for depth in experience with four

main learning objectives: Cultural, plant, park observations and blogging.

During the trip, students were required to seek a new experience beyond our time in class together. Allowed the opportunity to try something new and unique in Montréal, their cultural experience could take many forms: food, music, theatre, art or historical museum, architecture, or shopping. Shared in a written and visual exposition, students described their unique cultural exploration and phenomenological experience of who, what, where, when, and why their exploration felt "very Montreal" and what they took away from the experience. The general parting sentiment and noticeable theme was the description of Montréal as a place weaving "the old with the new," an irresistible balance of history with contemporary life.



*Old Montreal. Photo courtesy of Jennifer Britton.*

Students also kept a journal and travel sketchbook entry for everyday on the trip and constructed a camera obscura (an optical device that projects an image of its surroundings on a screen) to help them in their sketching ability. This project had two parts: First to build an individual camera obscura with the supplied material and second to use the camera at their discretion to sketch the landscape.

To engage their exploration of the Montreal Botanical Garden in active learning, students researched the flora on display to discover which, if any, plants might also thrive in Bozeman, Montana. Suffice it to say not many woodies! Although Montreal is a Zone 4, the less fickle spring and neutral to acidic pH lends itself to a wider planting palette.



*Mosaicultures Internationales Montreal at the Botanical Garden. Photo courtesy of Jennifer Britton.*

understand the concept and benefits of botanical gardens.

Parks also abound in Montréal; again, what's not to love? But the unquestionable jewel crowning Montréal is Mont Royal designed by Frederic Law Olmstead, the landscape architect of New York's Central Park and a multitude of other landscapes in North America. To engage students with the sense of place, they created "leave no trace" earth art with documentation. I admit I gave very implicit instructions on this assignment: NO digging, cutting or any other activity which may be construed as a legal offense! In the end, my hesitation was unfounded, as the two group projects illustrated the sensitive student character in ephemeral engagement between the student, student group, and the environment, capturing the spirit and *genus loci*.



*Class in Mont Royal Park. Photo courtesy of Jennifer Britton.*

Just look at those Maples! Students also explored the garden with a specific focus area of how plant and place come together to make unique landscapes and to



*Last night before the Jazz Club. Left to right: Kyle Anderson Jennifer Britton, Patrick Heslin, Elisa Boyd, Annalise Scheppers, Breanna Leake, and Rob Bourne. Photo courtesy of Jennifer Britton.*

Finally, to share the students experience with family and friends, and as a record of our travel together, we blogged daily with a student assigned to each day. Students were responsible to record the events complete with photos, sketches or any items that might share the class experience. The blog was their postcard home. If you would like to read more about our trip please visit us at: <http://msulandscape design.wordpress.com/>

In my final reflection as teacher and traveler, I can say yes the class integrated theoretical knowledge and technical skill, but most important, our time in Montréal instilled a joy of travel through an experience free of fear and judgment. This was not an easy task in a time when the U.S. State Department issued an unprecedented worldwide security warning (literally the night before our class began) and yet, for my first study abroad program to Québec, I couldn't have asked for a more enjoyable and playful group of students. They embraced the Québécois culture, sharing in my passion for this beautiful place, with open and easy-going exchange. They represented themselves, Montana State University and the United States as fun-loving, open, and thoughtful individuals. Most important they left people with a smile!

Upon student's feedback, I look forward to continuing and even expanding this program for the Summer of 2015 by including Québec City and the agrarian Île d'Orléans.

*À bientôt, see you soon, Québec!*

## A MYCOLOGICAL SUMMER

By Cathy Cripps

Dry weather and smoke from wildfires usually indicate a poor mushroom season, but the mycology group (Erin Lonergan, Ed Barge, Cathy Cripps and Don Mathre) did manage to collect wild mushrooms for the table and for our research. Spring brought a few morels and in July, the King Boletes and Chanterelles fruited. In July, the Bruns Lab from Berkeley came to probe our lodgepole, spruce-fir and whitebark pine forests for fungi. Data will be added to an NSF study examining fungi in forest soil on a grand scale - for all of North America.

Meanwhile, we collected fungi for a joint research effort with Andreas' Fisher's lab to examine the production of certain compounds by various groups of fungal groups. Ed and Erin managed to find the elusive *Suillus sibiricus* we needed for inoculation of our whitebark pine seedlings. Erin inoculated seedlings in Glacier Park but rains in Waterton washed out the road to our sites.

Later in July, I led a mushroom foray for the Wyoming Native Plant's Society on the Beartooth Plateau. While the alpine mushrooms are too small to consider for the frying pan, they are a unique consortium of species most closely related to those in the Arctic. They tolerate cold, a short growing season, drying winds, and high UV light. Attendees got out their hand lens to view the



Wyoming Native Plant Society. Photo taken by Don Bachman.

tiny mushrooms in a patch of dwarf willow. We also learned about the geology of the Beartooth Plateau from Phil Robertson and Ken Pearce, and were astounded by the multitude of alpine wildflowers.



Bruns Crew from Berkeley. Photo taken by Don Bachman

In August, I traveled south to be the Chief Mycologist for the Colorado Mushroom Fair held at the Denver Botanic Gardens. Over a thousand people attend this annual event which is held in the big ballroom at the Gardens. The room is filled with an array of booths and tables presenting a variety of mushroomy subjects. There is a display of City Mushrooms complete with sod festooned by local poisonous and edible mushrooms. The Denver Poison Center always attracts a lot of attention; I work with the leader of this group on poisoning cases. The latest spate of poisonings involves red Russulas. The other



Denver Mushroom Fair. Photo courtesy of Don Bachman.

kind of 'Dying with Mushrooms' involves learning how to dye yarn with extracts from various species. Or how about learning to make paper or felt from fungi? Mushroom artwork, books, and even clothing were on display. Many families attended as did experienced collectors and the merely curious. My job was to identify as many species of fungi as possible in 15 hours. This year, the total was 175 species and 30 were new to the Fair. That's one every five minutes! The event was capped by my talk on 'Riparian Mushrooms' presented to the Colorado Mycological Society which boasts 150 members. I was also able to visit the ancient Bristlecone pines (several



Cathy Cripps and Erin Chamberlin along with Todd Osmundson, Cathy's former graduate student, and his family. Photo courtesy of Don Bachman.

thousand years old) and collect in the alpine on Mount Evans and Guanella Pass.

My former graduate student, Todd Osmundson and his family, came through on their way to the University of Wisconsin-LaCrosse where he has a tenure track position. Pictured are Todd, Angela, Gretchen and

Clara and for all you molecular types that adds up to A, T, G and C—and yes, it was intentional.

### Advanced Disease Diagnostics Workshop

By Linnea Skoglund and Mary Burrows

Mary Burrows, Linnea Skoglund and Mareike Johnston presented a workshop on "Advanced Disease Diagnostics for Crops" on August 5 & 6. It was attended by six county ag extension agents and ten industry consultants. We even had attendees from Idaho. David May and Barry Jacobsen gave guest lectures.

We kicked off the workshop with a field trip to Ft. Ellis and a local farm where participants collected disease samples. Mary was pretty excited about the multiple disease complexes in the pivot irrigated field which resulted from a barley, corn, winter and spring wheat rotation. The farmer was



Mary Burrows, Jim Vandecoevering (BASF, Idaho) and Neal Fehringer (Fehringer Ag Consulting, Billings) tripping through the lodged wheat. Lots of "Good" root and crown diseases, FHB and bacterial leaf streak!

not as thrilled, but he was glad it provided us with a learning experience. We then spent the afternoon in the lab learning about pathogen types, the diseases they cause, and how we diagnose them. Marieke had spent the summer in the greenhouse preparing diseased material for this purpose. Using the microscopes was a new experience for many of the participants. We were afraid they wouldn't use the clinic again after we showed them how easy identifying common pathogens of field crops was, but participants assured us our jobs were safe. At a separate training later in the week, they were still marveling at how proud we were about making plants sick and killing them.

## 2013 APS Meeting By Erin Gunnink



*Austin skyline, photo courtesy of Erin Troth*

At 5:30 a.m. on August 10, David May, Riyadh Al-Khafaji, and I, all graduate students in Alan Dyer's lab, found ourselves at the Bozeman airport with the goal of reaching Austin, Texas, for the annual American Phytopathological Society (APS)-Mycological Society of America (MSA) joint meeting. In spite of the early hour and surprisingly long line through security, we successfully made our way through Salt Lake City and arrived in Austin. We were in for a shock as we walked out the doors of the Austin -Bergstrom International Airport and into a wall of heat and humidity. The Texans are, if nothing else, enthusiastic about the use of air conditioning.

Our afternoon arrival in the city allowed us only a brief respite in which we acquired pizza before hurrying off to the first APS activities of the evening. The morning of the 10<sup>th</sup> had been dedicated to various field trips throughout the area concerning a variety of topics, from fruit growing to turfgrass management. We were unable to attend any of these, and instead launched ourselves into the first of many committee meetings.

The APS committees pertain to specific fields in plant pathology. For example, the first committee that we attended was the soil microbe and root pathogen committee, a topic that was directly connected to our research. The graduate student committee focused on encouraging graduate students' participation in the society. The committee meetings were clearly focused on the theme of this year's APS meeting, "Minding the Gaps: Yielding Tomorrow's Solutions". The goal of this theme was to explore the gaps in plant pathology's knowledge base and to define where connections are failing to be made. Some examples discussed were the frequent failure of plant pathologists to connect successfully with plant breeders and the difficulty in connecting growers to pathologists and putting the appropriate tools into the hands of these growers.

In an outreach effort to follow this "Minding the Gap" theme, the two plenary sessions invited speakers from different industries to talk about the influence of plant pathology in



*Mary Burrows and Marieke Johnston (in back with microscope) have attendees enthralled.*

Don Mathre joined us over beer and wine in the atrium to give a retrospective of important impacts of diseases on wheat in Montana during his tenure at MSU.



*Don Mathre (with Rose Malisani, Cascade Co Ext.) discusses great moments in wheat pathology in Montana for workshop participants. Photo courtesy of Linnea Skoglund.*

The second morning, Mary taught about epidemiology and carried out a tabletop exercise to demonstrate disease spread from single vs. multiple sources. The participants graphed their 'epidemics' and learned how disease prediction models differ from reality. Barry led a lecture/discussion about fungicides. Back in the lab, there was a demonstration of fungicide modes of action on wheat stem rust and *Ascochyta* blight of pea.

Due to high interest, plans are in the works for a repeat, - with improvements - for next year.

industry and making connections. These talks, as well as the opening ceremony, MSA Karling Lecture, and the second plenary session, can be viewed online. (<http://www.apsnet.org/meetings/annual/Pages/livestream2013.aspx>)

This theme was the focus of other events throughout the convention as well. Talks, consisting of 15-minute technical sessions and 30-minute special sessions, focused on a myriad of subjects. Fusarium Head Blight, caused by *Fusarium graminearum*, and its production of the vomitoxin deoxynivalenol, or DON, were popular subjects that several presenters covered. Bacterial blights, fungal genomics, virulence, fungal systematics, and several diseases of citrus were also the focus of multiple talks. One particularly interesting series of talks concerned the transition from unique names for fungal anamorphs and teleomorphs to one name for the entire fungal life cycle, sexual or asexual. Unfortunately, presentations concerning both root and crown diseases and nematodes were sparse. The posters displayed in the Austin Convention Center followed a similar pattern of topics, and the mycologists' posters could always be counted on to have the best photos.



*Riyadh discovers the Nematology section of the bookstore. Photo courtesy of Riyadh Al-Khafaji*

Outside of the meetings, Riyadh, David and I explored downtown Austin. We checked out the 6<sup>th</sup> street entertainment district, the surprisingly pink capitol building, and wandered through part of the University of Texas. One evening at dusk, we walked to the Congress Ave Bridge to see millions of bats depart from their home under the bridge and take to the sky. No wonder there were so few mosquitoes.

This was a first trip to the annual APS meeting for all three of us. Now that we

know what to expect, we all hope to present papers at the meeting next year in Minneapolis and encounter some now-familiar faces.

### **New Grad Students Jamin Smitchger (Norm Weeden)**



I was born and raised in Monroe, Washington, and I completed my bachelor's degree in Agricultural Technology and Management and master's degree in Crop Science at Washington State University in 2008 and 2010, respectively. I

decided to gain work experience after earning my master's degree. I found a job working under Dr. Alan Schreiber at a research farm/commercial farm located in the south-central Columbia Basin area of Washington State. In addition to being the farm's agronomist for crops grown commercially; over the course of two years, I also managed field research projects valued at over half a million dollars for large agrochemical companies (such as Dupont, Syngenta, Dow Agrosiences, Bayer CropScience, ISK, Valent, and Nichino America) and various grower commissions (such as the Washington Blueberry Commission, the Washington Asparagus Commission, and the Washington Commission on Pesticide Registration). I also gained experience growing crops such as potatoes, corn, irrigated wheat, asparagus, blueberries, wine grapes, onions, alfalfa, raspberries, lavender, eggplant, pumpkin, carrots, leeks, pears, apples, blackberries, etc., and I thoroughly understand many of the challenges that growers face in the real world.

This fall, I have started a Ph.D. program in Plant Genetics under Dr. Norman Weeden. My research projects will involve improving stem strength/lodging resistance in field pea and improving resistance to fusarium wilt, fusarium root rot, and powdery mildew in field pea. I look forward to interacting with the wonderful people that I have met at Montana State University and using my past experience to make the world a better place to live.

### **Roshan Kumar Acharya (Jamie Sherman)**

I am Roshan Kumar Acharya from Nepal. I completed my B.S. in Agriculture from the Institute of Agriculture and Animal Science (IAAS), Tribhuvan University, Nepal. I am joining the PSPP Department this fall as a Graduate Research Assistant for Dr. Jamie



Sherman. I am interested in working on the molecular aspects of plant breeding.

My hobbies include exploring new places, dancing and singing and serving my new friends Nepalese spicy food

items although I am not a professional cook. I like Bozeman very much as the topography is similar to my home country in many ways - mountains, valley, rivers etc. However, I am desperately waiting for winter to come as it will be my first experience with snow.

### Course Focus

#### **BIOB 318 - Biometry - Jack Martin**



If you told someone you were taking a course called Biometry, most would not know what that course is about.

Biometry has its origin in two

Greek words, bios (life) and metron (measure). Thus, biometry means measurement of life. A more practical definition is the application of statistics to solution of biological problems. So topic included in Biometry include: descriptive statistics (measures of center and spread of data), basic ideas about probability distributions, concepts of statistical inference (interval estimates and hypothesis testing) and relationship between variables (linear correlation and regression).

The format is three lectures periods per week. Lectures notes, assignments, problem solutions, data files, Excel help, sample exams and current exam solutions are available on Desire2Learn. Students use statistics capabilities within Microsoft Excel to do out of class exercises. This 3 credit course is offered each Fall semester. This semester there are 65 students representing majors from four colleges at MSU.

Since I am in the Plant Sciences and Plant Pathology department, what would qualify me to teach a course like this? I am reminded that R. A. Fisher, who contributed much to statistics and genetics during the

20<sup>th</sup> century, said "I believe sanity and realism can be restored to the teaching of Mathematical Statistics most easily and directly by entrusting such teaching largely to men and women who have had personal experience of research in the Natural Sciences." In that light, my degree program was in plant breeding with a minor in statistics. My research has been in plant breeding, and I have encountered many applied statistics problems over the years. I believe those experiences help me to relate these topics to students.

### **The Media Visits Strobel's Lab**

On July 30, Marsha Walton of the NSF and videographer (Bill Campbell) from Livingston met with Gary Strobel and his employees in his lab to do a filming session on the development of the Paleobiosphere and its implications for use in studying the origins of crude oil. Also in the session were Bozeman Daily Chronicle staff writer Ms. Gayle Schontzler and a photographer along with Adam Bell of KBZK. Strobel has also been advised that Science magazine will do a news piece on the Paleobiosphere in the near future. The instrument mimics the ancient earth by having a damp atmosphere, a constant flow of sterile air and the presence of plant material and a hydrocarbon producing fungus all suspended over bentonite shale. After incubation, the shale is harvested, dried, and subsequently subjected to high temperatures in a specially designed oven. This causes the release of hydrocarbons that were made by the fungus and trapped by the shale. The whole process takes three weeks and representative molecules in each of the four classes of organic substances found in diesel



*Videographer Bill Campbell shown with undergraduate student George Schaible. George was responsible for isolating the fungus used in the Paleobiosphere and Ms. Tess Mends did the ITS sequencing of the organism. Photo courtesy of Gary Strobel.*



## Random Sample

### Out of Oil? Just Add Fungi

The long-held view of the origin of shale oil—a buried leaf cooking for 70 million years under pressure from mud and sand—might leave out a vital component of the process: fungi. A new experiment suggests that endophytic fungi—fungi living symbiotically inside plants—can generate hydrocarbons as they eat away at their decaying hosts. Gary Strobel, a plant microbiologist at Montana State University in Bozeman, says that fungi could have speeded up oil production by tens of millions of years.

Strobel calls his experiment the Paleobiosphere (pictured), a kitchen-sink-sized contraption designed to simulate a Cretaceous-era rainforest floor. Strobel mixed leaves from maple, sycamore, and aspen trees with a fungus that grows inside semitropical Key lime trees, then sandwiched the concoction between two layers of bentonite shale and flooded the whole thing with water a few times. A mere 3 weeks later, the growing fungi had digested the leaf matter's sugars, starches, and cellulose, converting them into a variety of hydrocarbons that seeped into the shale layers—closely resembling the oil-rich Montana shale around Strobel's lab. "Not all of the hundreds of compounds found in diesel are present in this simple experiment, but representative molecules in each of the major classes of hydrocarbons are there," he explains.

Entrepreneur Bryan Blatt hopes to use Strobel's hydrocarbon-producing fungi to churn out new biofuels. His company, Endophytics LLC, will announce its first patent on a promising organism this month. "We just don't have to sit here and assume that at some point there's an end to the oil," he says.



*Strobel, G. 2013. "Out of Oil, Just Add Fungi", Science, 341:827.*

can be recovered from the trapped shale. The oven, the paleobiosphere and the stainless steel carbotrap columns were all made in Bozeman by Eric Booth in his father's garage. The work has implications to our understanding on how crude oil may have been produced and trapped in the ancient earth.

### Level 3 Master Gardener Training By Toby Day, Extension Horticulture

Another group of Level 3 Master Gardeners were trained August 22-24 in Bozeman. This year, there were 30 trained Level 3 Master Gardeners from eight counties. The majority of the Master Gardeners were from Cascade, Lewis and Clark, Yellowstone and Gallatin counties; however, many Master Gardeners from smaller communities across the state also attended.

The training started Thursday night at the Story Mansion. We were able to use this facility because the Gallatin County Master Gardeners planted the annuals and weeded the perennial beds at the Mansion this year. For many of the Level 3 Master Gardeners, the first night is a bit of a surprise as they are not taught about gardening or IPM, but

rather we train them in personality recognition using Real Colors®, a program often used in Extension.

The Real Colors® Personality Instrument is a simple, easy to administer system for identifying the four temperaments (Blue, Gold, Green or Orange). It provides users with an effective tool for understanding human behavior, for uncovering motivators specific to each temperament and for improving communication skills. The Level 3 Master Gardeners are trained in this system because they may be expected to oversee many of the Level 1 and Level 2 Master Gardener volunteers during their volunteer hours in the communities they live in. On Friday, the participants presented their



*Charles Hart answers questions at the MSU Insect Collection at Marsh Labs.*



*The tours were definitely hands-on. Here, Willie Weith, Cascade County Master Gardener holds a hissing cockroach.*

pre-assigned urban insect and disease topics to the group. Each presentation had to include IPM practices, life cycles and control measures for homeowners. This training was designed to mimic outreach to a client in their community. They also had tours of the Plant Growth Center, the Schutter Diagnostic Lab and walking tours around campus and the local area for more hands-on training. In the evening, they toured the Horticulture Farm, had an insect diagnosis talk, and got an inside tour of the

MSU insect collection. I want to thank David Baumbauer, Linnea Skoglund, Hilary Parkinson, Mike Ivie and Mike's grad students – Frank Etzler and Charles Hart for helping teach the Master Gardeners and give tours of the great things we do at MSU in the PSPP department.

Saturday was an informal tour in which the Master Gardeners were able to see the Master Gardener and MSU Extension booths at the Gallatin County Farmer's Market. They also were given a tour of Rocky Creek Farm by owner and former MSU Extension Specialist, Pete Fay. The training ended Saturday afternoon back at the Story Mansion. This informative and important training will help educate and facilitate the Master Gardener program in many communities throughout the state.

### Montana Ag Live! Schedule

#### September 15

Craig Carr, MSU Range Ecologist, "Montana Rangeland Fire Issues and Changing Range Ecology".

#### September 22

Prashant Jha, Weed Scientist at Southern Ag Research Center, "Developing Herbicide Resistance in Montana's Agriculture".

#### September 29

Dr. John Dudley, School Crisis Management, Lincoln, Nebraska, "School Safety Issues in Rural Montana".

#### October 6

Joel Schumacher, MSU Agricultural Economist, "Financial and Estate Planning, a Must for Many Rural Montanans".

#### October 13

Vince Smith, MSU Economist, "Changes in the New Farm Bill.

#### October 20

Greg Pederson, Research Ecologist with the United State Geological Survey located at the Northern Rocky Mountain Science Center, "Climate Changes and How They Affect Agriculture."

### Recipe of the Month

#### Baked Tortillas

Four large tortillas  
1 can refried beans  
1/2 onion  
1.5 lbs ground beef or chicken

Peach Mango Salsa -  
Costco  
1 small can diced chilies  
Cheddar Cheese  
(optional)  
Guacamole and sour  
cream (optional)  
toothpicks



Spread a generous amount of refried beans on 1/2 of each tortilla, then add a layer of chopped onion, either cooked ground beef or chopped cooked chicken, Peach Mango Salsa and then the diced chilies (cheese also if you want cheese - see picture). Fold the tortilla over and insert a few toothpicks Bake at 350 for about 15 minutes. Serve hot with sour cream and/or guacamole.

### September Birthdays

Tracy Dougher	1
Irene Decker	5
Rosemary Keating	15
Vipan Kumar	17
Gary Strobel	23
Mary Bateson	24
Bill Dyer	26
Afaf Nasseer	26
Mark Young	27
David Baumbauer	27

