

# *PLANT SCIENCE SAYS*



# *HAPPY HALLOWEEN!*

*Vol. 10, Number 9*

*October, 2007*

## **Dr. Huang Arrives**

Dr. Li Huang, our newest faculty member arrived in mid – September to start her position as Assistant Professor of Plant Genetics. Her office is in 213 PBB and her lab is in 338 PBB. Please welcome her to the department.

## **New Ag BioScience Complex**

Following is an update from Sandra Germann, Director of Development for the College of Ag, on the teaching facility that will be rising up on the north side of our building sometime in 2008. There is a site map at the end of the newsletter.

The Animal Bioscience Complex consists of two buildings, one constructed and owned by MSU designed for teaching and research in animal, range, and natural resource sciences and one constructed and owned by the USDA-Agricultural Research Service designed for research in animal and range sciences, specifically bovine genome applications.



## Teaching Facility

The design of the MSU Animal Bioscience Teaching Facility, which will house the Department of Animal and Range Sciences, consists of two floors of classrooms, laboratory classrooms, a distance delivery

facility and resource rooms, such as a computer lab, and a range learning center. The third floor offers physiology and nutrition laboratories that will be used by MSU faculty to train the next generation of scientists. Offices for faculty, staff and graduate students finish out the building design.

There are a number of facilities and resources focused specifically on range sciences in the Animal Bioscience Teaching Facility. A 1,140 square foot Range Lab with a 30 student capacity is designed for teaching laboratory sections of the range and natural resources curriculum. A 1,056 square foot Range Learning Center will provide resources for students for range plant identification and constituent access to current research and outreach programs.

With secured funding: The new facility will have a robust, cutting-edge audio/visual infrastructure to allow recording and archiving, or live distribution of lectures, meetings and presentations over the Internet. A number of new technologies and methods are available to provide several media formats to remote locations, even over slow links. This will allow rural Montanans to enjoy and participate in College of Ag educational opportunities. Finally, the building will be interconnected to allow simultaneous viewing of events in some or all of the classrooms. These events can take place on- or off-campus. In addition to high-tech multimedia sharing, the building will contain collaboration space and interactive technology displays. One room is dedicated to technology transfer and will have full videoconferencing capabilities built in. Common areas will have interactive technology available, allowing students, staff

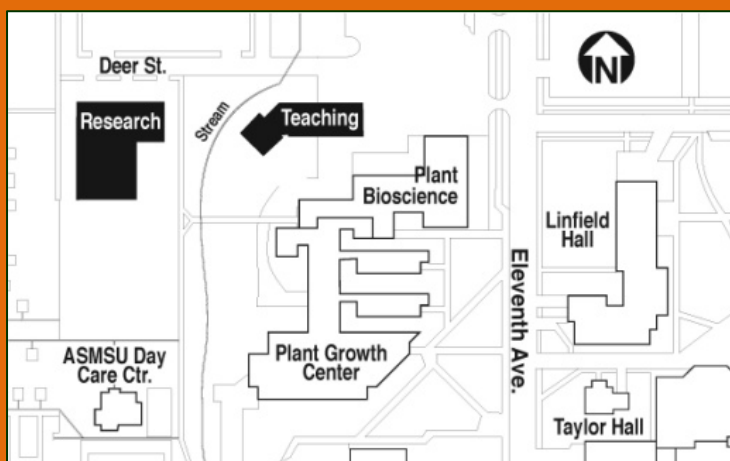
and visitors to learn more about the College, Experiment Stations and agriculture-related events in the state.

The cost of the building originally was estimated at 12.5 million, but with the increase in construction costs, the cost will be closer to 16 million to complete the entire project. Fundraising efforts are ongoing for the last three million needed to complete the project in its entirety. Groundbreaking is expected to occur in 2008 for at least phase one of the possible two-phase teaching facility.

Research Facility

Note: This facility is still in the fundraising stage and does not have a firm start date for construction.

The \$24 million research building funded, built, and staffed by USDA-ARS will be dedicated to work on functional bovine genetics in partnership with the MSU College of Agriculture, USDA-ARS in Miles City and the U.S. Meat Animal Research Facility at Clay Center, NE. The goal is to unlock the genetic information needed and apply this science to enhance the efficient production of safe, consistently high-quality meat products.



Securing federal funding for the USDA-ARS Research Facility is a top priority for Montana's U.S. Senators Max Baucus and Jon Tester and Representative Denny Rehberg. The architects contracted for the USDA-ARS Facility are collaborating with the architects contracted for the MSU Facility. They all met on campus for two days in

September, 2007, showing progress in moving the project forward.

**New Employees**

**Tamara Vook – Montana Seed Growers Association**

My name is Tamara Vook and I have a dual position with the Montana Seed Growers Association and the Montana State Seed Lab.



I am a returning Montana native after my husband's retirement from the Navy. In 2004, I graduated from the University of Hawaii with a Bachelor's Degree in Botany.

I enjoy traveling, photography, and long distance motorcycle riding with my husband.

**New Graduate Students**

**Amber Weitzel (Talbert)**



Hello, everyone! My name is Amber Weitzel and I am a new graduate student. I grew up in the blink-and-you'll-miss-it town of Wolf Creek, Montana. Before coming to MSU, I

attended the University of Mary in Bismarck, North Dakota. I moved to Bozeman a few years ago and received a Bachelor's degree in Organismal Biology this past spring. Currently, I'm doing my Master's work in spring wheat genetics in Luther Talbert's lab. In my spare time (Ha! Grad students don't have spare time!), I like to hang out with my family and friends, go to movies, listen to music, and sketch. I enjoy camping, fishing, and hiking and I can't wait for the warm weather to return!

### **Yukiko Naruoka (Talbert)**

I came to the U.S. last fall, after I married my American husband in Japan. I had received a Master's degree in agriculture from the Tokyo University of Agriculture and Technology, and had been employed at a seed company for four and half years in Japan.



At the university, I was mostly working on an ecophysiological study of rice (yield, photosynthesis, leaf senescence, root activity, cytokinin). After I joined the company, vegetable seed production and carrot breeding were my main jobs. In my free time, I enjoy training in Aikido (Aikido is a Japanese martial art). I have been training in Aikido for 12 years and still continue training in Bozeman. Aikido is a part of my life, and actually, I met my husband at an Aikido dojo in Japan. My

husband has just started working as a state trooper in the Bozeman area, so everyone, drive safely!

### **Grants**

Cathy Cripps, "Restoration Whitebark Pine Seedlings on Dunraven Pass," The National Park Service.

Chaofu Lu, "Biochemical Genomics: Quizzing the chemical factories of oilseeds." National Science Foundation. 9/1/2007 - 8/31/2011 (Subcontract from Washington State University).

### **Patents**

Gary Strobel. Pestacin, and isopestacin novel antioxidants. U.S. provisional patent, now full patent pending March 07 as 7,192,939.

Gary Strobel. Endophytic streptomycetes from higher plants with biological activity. US. Pat No 7259004.

### **Publications**

Strobel, S. and G.A. Strobel. 2007. "Plant endophytes as a platform for discovery-based undergraduate science education." *Nature-Chemical Biology* 3: 356-359.

Verma, V.C., S.K. Gond, A. Kumar, R.N. Kharwar, and G.A. Strobel. 2007. "The endophytic mycoflora of bark, leaf, and stem tissues of *Azadirachta indica* A. Juss (Neem) from Varanasi (India)." *Microbial Ecology* 54: 119-125.

Strobel, G.A., Kluck, K., Hess, W.M., Sears, J., Ezra, D. and Vargas, P.N. 2007. "Muscodor albus E-6, an endophyte of *Guazuma ulmifolia*, making volatile antibiotics: isolation, characterization and experimental establishment in the host plant." *Microbiology*.153: 2613-2620.

Strobel, G.A. 2007. "Biotechnology for Beginners." Chapter on *M. albus*. Elsevier, N.Y. ed Reinhard Renneberg Zin, N.M., Sarmin, N.I.M., Ghadin, N., Basri, D.F., Sidik, N. M., Hess, W.M. and Strobel, G.A. 2007. Bioactive Endophytic Streptomycetes from the Malay Peninsula. *FEMS Microbiol. Lett.* 274: 83-88.

Parrott D.L., K. McInnerney, U. Feller and A.M. Fischer (2007). "Steam-girdling of barley (*Hordeum vulgare*) leaves leads to carbohydrate accumulation and accelerated leaf senescence, facilitating transcriptomic analysis of senescence-associated genes." *New Phytol.* 176, 56-69.

Cripps, C.L. and E. Horak 2007. "*Arrhenia auriscalpium* in arctic-alpine habitats: world distribution, ecology, new reports from the southern Rocky Mountains." Pp. 17-24. In: T. Boertmann and H Knudsen, eds., *Arctic and Alpine Mycolgy 6. Meddelelser om Gronland, Bioscience* 56.

Lu, C. and J. Kang. "Generation of transgenic plants of a potential oilseed crop *Camelina sativa* by *Agrobacterium* -mediated transformation." *Plant Cell Reports* (Published online 9/27/2007).

Gennidakis, S., S. Rao, K. Greenham, R.G. Uhrig, B. O'Leary, W.A. Snedden, C. Lu and W.C. Plaxton. "Bacterial- and plant-type phosphoenolpyruvate carboxylase polypeptides interact in the hetero-oligomeric Class-2 PEPC complex of developing castor oil seeds." *The Plant Journal* (Published article online: 26-Sep-2007).

## Plant in Early Fall but Choose Your Plants Wisely

By Cheryl Moore Gough

As I mentioned last time, late summer and early fall are a great time to take advantage of the local nurseries' end-of-season sales. But not all plants offered will thrive or even survive in many of our areas, and it just doesn't make a lot of sense to plant certain types of plants at all at this time of year.



Trees, shrubs, and herbaceous perennials. Early fall is a great time to plant containerized perennials or balled and burlapped shrubs and trees. But remember, not all plants being sold in local stores will thrive in your location, and it isn't just the cold winters. Other factors are also important, like wind, aspect, and soil pH.

Plants that require acid soil, like rhododendron and bearberry, also known as kinnikinick, are not adapted to most areas. Check out the plant's requirements. Read the label. Query the garden center employees. If in doubt, pass that plant by for one that you know is adapted in your neighborhood. If you choose to plant something you think is unique, that nobody in your neighborhood grows, there just might be a good reason why you haven't seen it there. If you need help selecting the right trees and shrubs, get a copy of Extension Publications' EB 123, "Tree & Shrub Selection Guide - A resource for Montana landscaping projects" from your local MSU Extension Office or online through Extension Publications' website, <http://www.montana.edu/publications>.

Annuals. Unless you're planning a garden party and need color for one or two days, planting annuals this time of year is a complete waste of money. Many counties have had freezing temperatures already, and the rest will have them very shortly. Of course, if you just have to have those flowers for the next few days or weeks, plant away! Purchase them with the knowledge they will only last a short time.

Bulbs. By all means, plant spring flowering bulbs in early fall, just be sure they are adapted to your conditions. Not all bulbs will overwinter successfully, so to avoid disappointment, do your homework. In our part of the world, crocus, narcissus, tulips, and grape hyacinths are always good choices. And get your irises in the ground right now! Again, read labels. Ask questions. If you order from a catalog, pay particular attention to when bulbs are shipped. Mid-October shipping dates are too late for much of our area, since you should plant to get the bulbs into the ground by Columbus Day at the absolute latest. Skip the bone meal...it doesn't do much good in most Montana soils. A good resource to help select bulbs is also available through Extension Publications. *MontGuide 199903AG, Choosing Biennials and Perennials for Montana Gardens*, is available for free download at their website, or you can

request it from your local MSU Extension Agent.

Vegetables. In much of this area, garlic is best planted mid-September to mid-October. Select the largest cloves and be sure to plant them root-end down! In locations with minimal snow cover, mulch your garlic to moderate the soil temperatures. Early fall is also a great time to divide and transplant rhubarb. Try seeding your spinach in October for an early spring treat.

In general, pay attention to facts. Watch out for appeals to your emotions. "Easy to grow", "Outstanding selection", "New and improved", "Bigger and Better"-- all nice phrases, but they don't give you any solid information. "USDA Hardiness Zone 5", "Acid-loving" or "Low pH required" can all serve as real red flags to growers in much of this area. "Grows ten feet in a season" - ask the nurseryman, "Where does it grow ten feet in a season? In Montana? Colorado? South Carolina?"

Be aware of your local climatic restrictions, and it's a good idea to err one USDA hardiness zone cooler than your location. If in doubt, contact your local MSU Extension Office.

### **Bob's Byte**

#### **Pando (a way to email large files) (Irene Decker filling in)**

First of all, you can access Pando by going to [www.pando.com](http://www.pando.com). You will



need to download it to your computer in order to use it, but we'll get to that here in a second. Basically, Pando is a free software program that aims to make downloading, streaming and sharing large files a whole lot easier. And as if that wasn't enough, they manage to make it as simple as possible and fun too. So, if you ever need to e-mail a large file attachment or publish a downloadable video to the Web or IM a folder to one of your friends, Pando is what you need!

Pando makes it very easy to manage your downloads with the small .pando attachments they use. They're a smaller file type, so you don't have to worry about size limits and you never have to worry about them bogging down your e-mail Inbox. For example, if you send a large file to one of your co-workers, they will receive an e-mail saying they have a Pando file waiting to be downloaded. Then, as long as they have Pando installed on their computer as well, they can open the file with just a quick click. Also, once you e-mail the file to your recipient, you don't have to worry about it from there on out. You don't have to be connected to your computer for them to open the file, it's all done automatically. It's super easy, compact and so convenient!

Like I said before, you can also share files with Pando. With this feature, you can publish downloadable video, photo or any audio files to the Web and you can share any files or folders up to 1 GB in size. And what's even better, you can do all of it right through the comfort of your own e-mail. You don't have to register for another e-mail program, you can do everything exactly the same. Also, once you download Pando, it puts an icon into your system tray that tells you the progress of your downloads. It will let you know if they're finished downloading or if you have any that are pending. It's so cool! Along with all of that, Pando is 100 percent clean. It contains no spyware or adware and it is completely free. (Now, I'm not bashing YouSendIt, but to use that service in full, you have to pay for the additional features. Yes, they have a free version too, but you don't get as much with it). Pando, on the other hand, allows you to use everything at no cost to you whatsoever! That in itself is awesome, don't you think?!

So, if you think you're ready to download Pando, set aside a few minutes and go to this site: <http://www.pando.com/download>. When you get there, choose the operating system you use (it works with Windows Vista, XP, 2000 and with Mac OS X 10.3.9 or later) and then click on the big orange button that says "**Download Pando Now!**" Once it starts up, hit **Run** twice and then just follow the rest of the directions. It's a

very easy download. Don't think that just because it's a hefty program, it's going to be difficult to get up and running. It really couldn't be any easier!

Once it's installed, you can start sending and receiving files right away. So, if you ever run into a predicament where you have a large file to send and you can't figure out how to do it, turn to Pando. Again, you can check out Pando and all that comes along with it right [here](#). I've already used Pando myself many times and I absolutely love it. So, here's your homework: Give Pando a try today and then let me know what you think.

### Recipe of the Month

Both recipes contributed by Oiver Zietlow  
Coconut Banana Lime Bread with Lime Glaze

2 c all-purpose flour  
 ½ t baking soda  
 ½ t salt  
 1 c granulated sugar  
 ¼ c butter  
 2 large eggs  
 1½ c mashed ripe banana  
 ¼ c plain low-fat yogurt  
 3 T dark rum  
 ½ t vanilla extract  
 ¾ cup flaked sweetened coconut  
 Cooking spray  
 1 T flaked sweetened coconut  
 ½ c powdered sugar  
 1 ½ T fresh lime or lemon juice



Lightly spoon flour into dry measuring cups; level with a knife. Combine flour baking soda, salt, stirring with a whisk.

Place granulated sugar and butter in a large bowl; beat with a mixer at medium speed until well blended. Add eggs, one at a time, beating well after each. Add banana, yogurt, rum, and vanilla; beat until blended. Add flour mixture; beat at slow speed just until moist. Stir in ½ c coconut. Spoon batter into a 9.5 inch loaf pan coated with cooking spray; sprinkle with one tablespoon coconut.

Bake at 350 for one hour or until wooden pick inserted in center comes out clean. Cool in pan 10 minutes on a rack; remove from pan. Combine powdered sugar and juice stirring with a whisk; drizzle over warm bread. Cool complete only wire rack.

### Sesame Chicken and Noodles

This simple, Asian-inspired pasta toss contains less fat and sodium than similar take-out fare without sacrificing its flavor. For added taste, toast the sesame seeds first.

8 ounces uncooked spaghetti  
 ½ cup fat-free, less-sodium chicken broth  
 ¼ cup natural-style, reduced-fat creamy peanut butter (such as Smucker's)  
 2 tablespoons sesame seeds, divided  
 1 tablespoon brown sugar  
 2 tablespoons rice vinegar  
 2 tablespoons low-sodium soy sauce  
 1 tablespoon fresh lime juice  
 ½ teaspoon hot pepper sauce (such as Tabasco)  
 2 teaspoons canola oil  
 ¾ pound chicken breast tenders, cut into 1-inch pieces  
 ¼ teaspoon salt  
 2 cups matchstick-cut carrots, chopped (about 4 ounces)  
 1 ½ cups thinly sliced green onions (about 1 bunch)

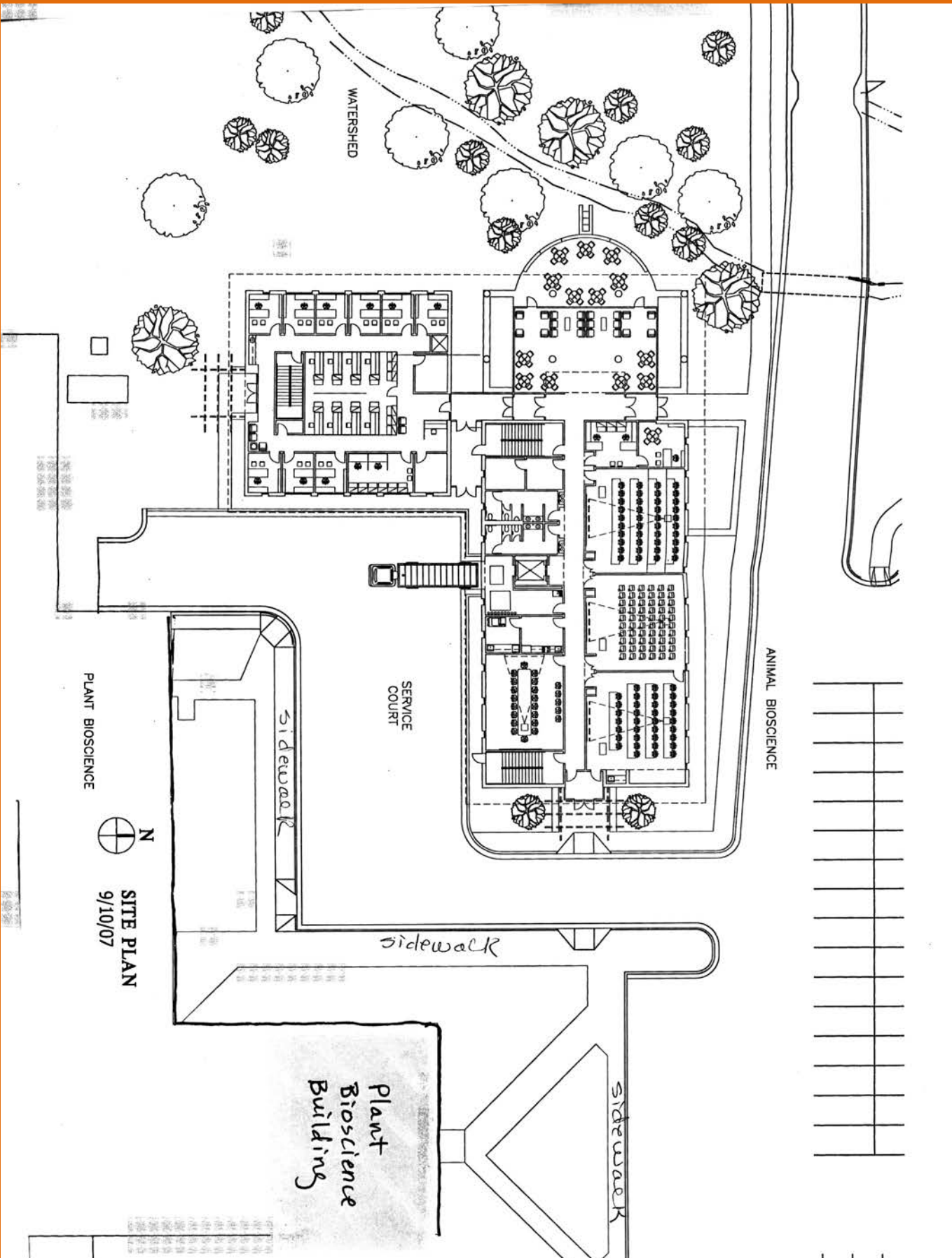
Cook pasta according to package directions, omitting salt and fat. Drain, reserving 2 tablespoons cooking liquid. Combine broth, peanut butter, 1 ½ tablespoons sesame seeds, and next 5 ingredients (through hot pepper sauce).

Heat the oil in a large skillet over medium-high heat. Sprinkle the chicken with salt. Add chicken to pan; sauté 3 minutes. Add carrots and onions; sauté 2 minutes or until chicken is done. Stir in broth mixture. Add reserved cooking liquid and pasta to pan, tossing to coat. Top with remaining 1 ½ teaspoons sesame seeds; serve immediately.

### October Birthdays

|                 |    |
|-----------------|----|
| Crystal Maier   | 2  |
| Hope Talbert    | 5  |
| Florence Dunkel | 10 |
| Bob Sharrock    | 11 |
| Jamie Sherman   | 20 |
| David Parrott   | 27 |
| Ahmed Shokry    | 28 |
| Peng Liu        | 31 |





PLANT BIOSCIENCE



SITE PLAN  
9/10/07

Plant  
Bioscience  
Building

SERVICE  
COURT

sidewalk

sidewalk

ANIMAL BIOSCIENCE

WATERSHED