

Agri-Math

Incorporating Agriculture into Academia

Agri-Math
<i>Accountant</i>
<i>Agricultural Loan Officer</i>
<i>Agricultural Statistician</i>
<i>Agricultural Commodity Broker</i>
<i>International Sales Person</i>
<i>Shipping and Receiving</i>
<i>Agricultural Applications Software Developer</i>
<i>Database Administrator</i>
<i>Computer Analyst</i>
<i>Computer Service Support Technician</i>
<i>Information Laboratory Specialist</i>
<i>Machinist</i>
<i>Crop Insurance Specialist</i>
<i>Turf Manager</i>
<i>Toxicologist</i>
<i>Computer Services</i>
<i>Soil and Water Specialist</i>
<i>Automation Specialist</i>
<i>Land Surveyor</i>
<i>Nutritionist</i>
<i>Landscape Architect</i>
<i>Microbiologist</i>

Agriculture is counting on you!

If you have an interest in solving math problems, finances, statistics, calculations, and other areas related to math, then agriculture offers many opportunities for you!



This brochure showcases careers relating to math, introduces you to people working in different careers, highlights Wisconsin colleges and technical schools, and provides other opportunities that agriculture has for you!

It is designed as a guide along with the publication

“An Agricultural Career for You” from the Wisconsin Agribusiness Council, which showcases the seven agricultural career pathways.

Math is used in so many different ways on farms, for example, farm finances, calculating fertilizer and herbicide rates, estimating the capacity of silos; and in agribusiness, for example,

in all related finance and business reports, figuring out sales and discounts for customers, inventory and storage; in government and regulatory agencies, for example, calculating crop yields, manure storage requirements, figuring percentages; and farm finance, for example, calculating loans and interest rates, mortgage payments, cost of production.

The list is endless of how you can use your interest in math within agriculture!

Your skills and knowledge can lead to an exciting career!

But I'm not from a farm . . .

A common misconception is that you must be from a farm in order to pursue an agricultural career!

That's not true!

Understanding agriculture will certainly help you pursue a career agriculture.

How do you learn about agriculture if you're not from a farm?

- If your school offers agricultural education classes take them.
- Get involved in FFA contests that offer you chances to develop your business skills

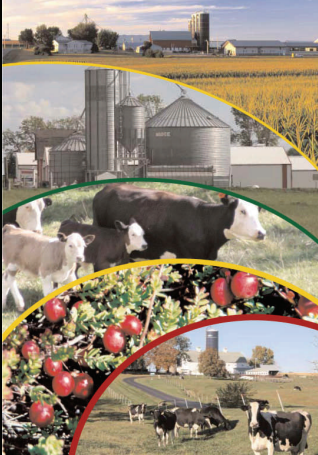
(i.e., farm management career development events, job interview contests)

- Get a job working on a farm or in a related interest.

I like to

- Work on story problems
- Figure out measurements and weights
- Develop graphs and charts
- Analyze reports and make calculations

Wisconsin Agriculture
Importance and economic impact



Wisconsin Farm Facts is a brochure that features facts and statistics about Wisconsin Agriculture. Math skills are used to collect and analyze data by the Wisconsin Agricultural Statistics Service.

What classes should I take?

If you like math, then a combination of classes from both your mathematics department and agriculture education department will prepare you for further education

Understanding basic math concepts, calculations, and equations is essential. Your school's required math classes (normally algebra, geometry, and trigonometry) are a great

start. If your school offers statistics and calculus, try to fit them into your schedule.

And, if your school offers agriculture education, an introductory class to agriculture will help you find areas that might be of particular interest. Many agricultural education programs also offer a farm/business management course, leadership classes,

and other specialized courses.

If you are interested in water quality testing, then a class in natural resources would be beneficial. If you want to go into agricultural finance, then taking some large animal courses will help you understand the terminology and issues producers face.

Math Scenarios: What kind of math problems might you encounter?

You manage a dairy operation

- You milk 2000 cows everyday
- You have 10 employees
- You have 3000 acres of crops

Math problems

1. How much high moisture corn do you need for one year to feed 2000 cows and 1500 replacement heifers.
2. How much manure and waste products do they produce daily? How much does your manure storage system hold? Will it hold enough to get you through the winter?
3. Payroll— how will you keep track of the hours employees work? What type of system do you use to figure their paychecks (i.e., Social Security, FICA)?
4. How do you calculate the amount of seed corn needed to plant 1500 acres? How much herbicide and pesticide is needed?
5. Your bulk tank (semi trucks) hold a certain amount of milk. If each cow averages 75 pounds of milk per day, how much storage do you need per milking?

You own a landscape business

- You have 150 lawns you care for
- You have a landscape design service
- You have a greenhouse and nursery for general public sales

Math problems

1. If the average lawn takes two hours to mow and trim, how many lawns can be done per day? How many employees do you need in the lawn care division?
2. If you are laying sod for a new lawn, how do you calculate how much sod you will need? What dimensions and measurements do you need?
3. You raise bedding plants in your greenhouse. You use a 4" pot for the geraniums. The benches are 4' x 10'. How many pots can you get per bench?
4. Knowing the correct ratios for mixing the fertilizer for the greenhouse bedding plans. If you need enough to cover 300 square feet of plant material, what is the dilution rate?
5. You are having a 20% off sale on your bedding plants. They normally are \$15 per flat. What is the sale price?

Amber Bennett, Badgerland Financial

"I always enjoyed using mathematics and it was one my favorite subjects in middle school and high school," said Bennett. "Although, I must admit that in those early years, I didn't know exactly how mathematics would help form my career choice."

During high school Bennett said she decided to take college preparatory courses in advanced math and pre-calculus and traditional courses in accounting, science, and agriculture to help prepare her for whatever career path she would one day choose.

"Through pursuing a bachelor's degree in agricultural economics and a master's degree in business administration, it fascinated me that I could use math, study business trends and the general economy, and help agricultural producers improve efficiencies in their operations."

Bennett outlined how she uses math.



Specifically, I use mathematics to help agricultural producers reduce risk, increase revenues, decrease expenses, and increase profits," said Bennett. "I gather financial information from producers and analyze it via a software package that computes numerous mathematical equations and ratios. I then study this information, interpret how it applies to the producer's situation and future plans. Then I convey this information in the form of financial recommendations to the producer. These recommendations help the

producer make wise business decisions and help the loan officer make good lending decisions."

Mathematics are involved in all of the financial services that we provide to farmers and agribusinesses—loans and leases, income tax preparation, accounting services, real estate appraisals, life insurance, and crop insurance.

Her advice for students is to get a well-rounded education by studying many different subjects and then begin to focus on what really interests you.

"It is very possible to blend two or three subjects of study and have a fun and fulfilling career—algebra, geometry, calculus, statistics, actuarial science, accounting, and other mathematical studies can lead to careers in agricultural finance, agricultural and mechanical engineering, animal nutrition and welfare, crop protection, insurance and risk management, commodity marketing, accounting, business consulting, and more," said Bennett. "The possibilities are endless!"

Pete Giacomini, AgSource Cooperative Services

"When I'm hiring an employee for whatever type of position, the applicant can have drop-dead academic credentials in math, science, and English but with no evidence of outside activities it waves a red flag that the person might not have adequate social skills," said Giacomini. "I'm interested in a person who has it all—academics and activities."

Communication!

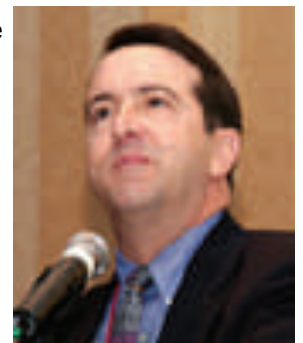
"It is getting tougher and tougher to find someone who can put two sentences together," said Giacomini. Students need to work on the basics and put forward a 'whole deal' package!"

Skills that he uses everyday in the agri-math industry include organization, communication, bridging generations, basic forms of communication from telephones, letter writing to pagers, Internet, networks, PDAs, text messages, and facebook.

"We need to take a look at the agriculture infrastructure and analyze how far behind we really are as far as high speed Internet. For example, farmers in Finland use their cell phones to send in milk weights to an information processing center. In the USA, some are still using dial up.

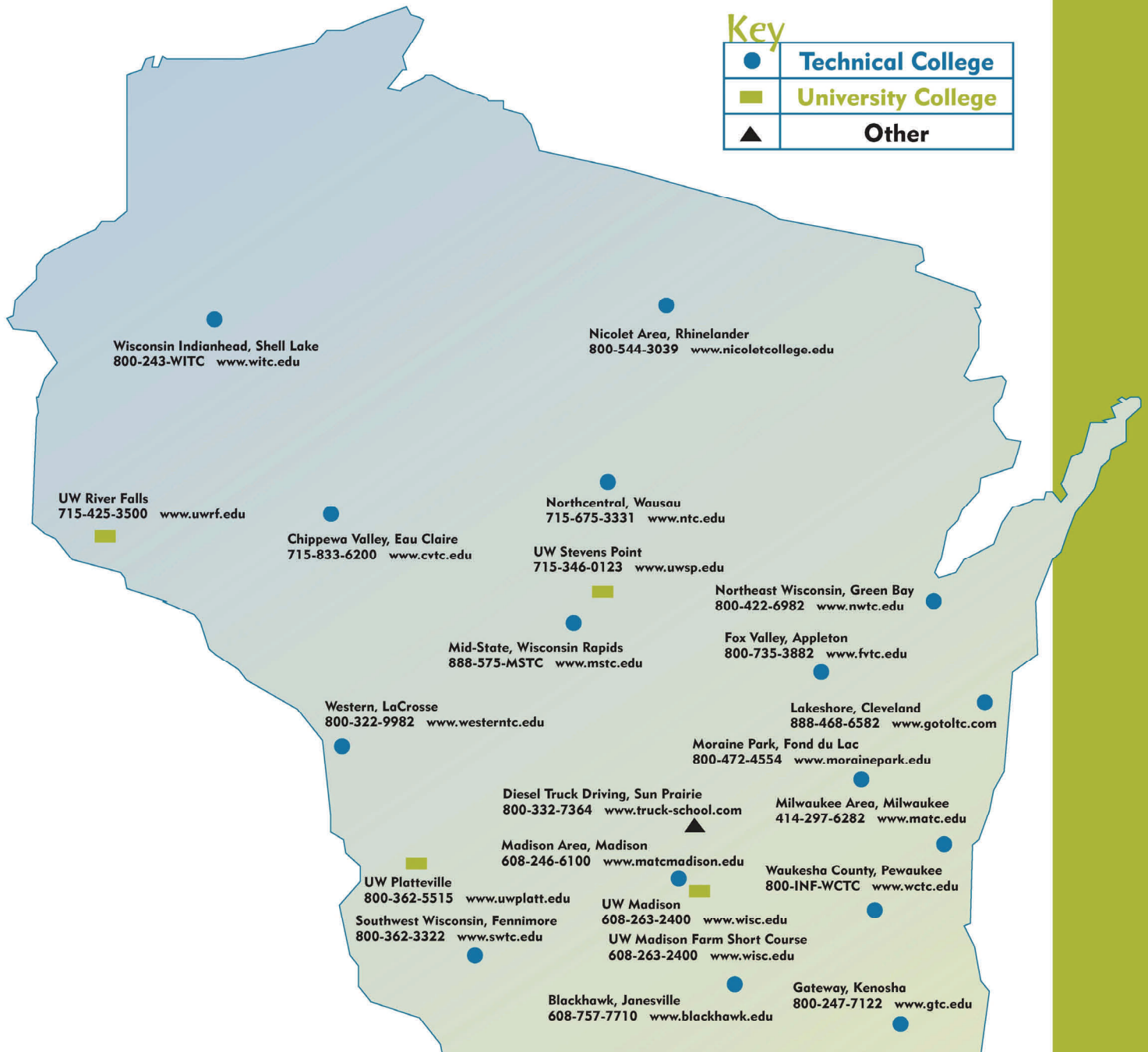
Compare it to the 1930s when electricity was brought into the rural areas.

"We need communication," said Pete. "It is our biggest challenge."



AgSource Cooperatives Services is a producer-owned cooperative dedicated to providing comprehensive agricultural testing, record management and information services through three primary areas of Agronomy, DHI and Food and Environmental.

After You Graduate



“Incorporating Agriculture into Academia” is a project coordinated by the Wisconsin Farm Bureau– Ag in the Classroom Program and the Wisconsin Agribusiness Council. The project was funded with a USDA Ag in the Classroom Enrichment Grant. To learn more about these programs, visit their websites–



www.wisagclassroom.org



www.wisagri.com



www.agclassroom.org