

## Germination termination

A&M biology professor uses genetic sequencing to create pest-resistant strains of rice

By ARUN ARJUNAN  
The Battalion

Crop biotechnology has made headlines recently as one of the latest innovative technologies in agricultural science.

Dr. Timothy C. Hall, a Texas A&M distinguished professor of biology, and his team of researchers have developed specific genes called "stealth genes" to increase rice plants' resistance to insects and other pests.

Traditionally, toxic chemicals have been used to keep insects from damaging rice crops.

Hall said that instead of spraying plants with insecticides, genetic engineering may make the rice plants resistant to pests. He is looking to develop strains of rice that will produce insect-killing proteins, which would eliminate the need for chemical insecticides.

"We are interested in killing insects that eat rice plants, like the rice water weevil," he said. "This insect feeds on the leaves and lays its eggs on them. When the eggs hatch, larvae grow and spend about a month chewing the roots."

Hall and his research team insert the new genes in the seeds of rice plants. When the plants develop, the genes express, or produce, insect-killing proteins in their roots. Hall said ideally, this procedure should keep water weevils from eating the roots.

He said that although the process can be carried out effectively, it is not simple. Through its research, Hall's team discovered that many of the insect-killing genes were either not expressed or expressed only in the early

steps of plant growth.

"This lack of expression, also called gene silencing, is a way for plant cells to protect themselves from invasion," Hall said. "When we put the gene in, it is seen by the plant cells as an invasive event, so there are various ways in which the cells turn off the expression of the foreign gene."

Hall said gene silencing works like a human immune system. As soon as a new piece of DNA enters the genome (the complete set of genes on the chromosome of an organism), the plant recognizes it as a foreign element and silences the gene through biochemical means. Silencing mechanisms may permanently eliminate the genes.

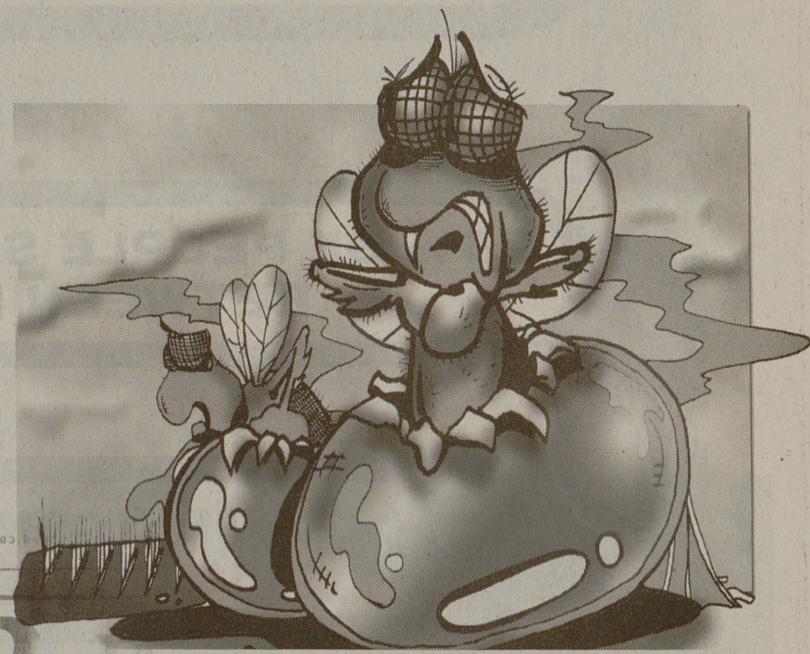
Hall and his team have encountered various silencing systems. One method of silencing involves a process known as methylation. This is when a gene is introduced and then chemically modified to distinguish the new gene from the native gene to determine if the genes are affected by the silencing mechanisms.

Hall and his team are designing fluorescent markers to highlight the position of the introduced genes in the plant genome.

"We hope to be able to tell exactly where our genes are inserted and whether it really does make a difference where the [introduced gene] is inserted," Hall said.

Hall said the rice genome sequence should be completely finished in the next few months, which should aid in the study of gene silencing.

"By changing various regions in [the introduced genes], we hope to be able to make the rice resistant to the water weevil," he said. "But we still need to learn a lot about the many ways in which gene silencing is achieved."



RUBEN DELUNA/THE BATTALION

## International antibiotic project helps prevent blindness in Africa

GENEVA (AP) — An international program to eliminate trachoma said Monday it has made major progress against the blinding disease in two African pilot projects, and will expand to target 30 million more people.

The International Trachoma Initiative said its combination of hygiene and antibiotics has cut the disease's prevalence by more than half in the programs since they started last year.

The findings from the project involving 2 million people in remote regions of Tanzania

and Morocco will be presented this week to the World Health Organization, which wants to eliminate by 2020 what it calls the world's leading preventable cause of blindness.

The initiative was established in 1998 through a public-private partnership between the New York City-based Edna McConnell Clark Foundation and drug giant Pfizer Inc., which donated its oral antibiotic Zithromax to the program.

The Tanzanian and Moroccan projects combined Zithromax with health education

that emphasized facial hygiene.

Pfizer will now contribute 10 million doses of the drug — valued at \$14 per dose — and \$6 million to cover operating expenses over the next three years, the initiative said Monday.

It said \$27.4 million will be contributed over the next five years by the Clark Foundation, the Bill & Melinda Gates Foundation, and Britain.

The money will be used to target millions more people in the six countries where the

initiative is already underway — Ghana, Mali, Morocco, Sudan, Tanzania and Vietnam — and start new programs in other countries.

Trachoma once was a threat worldwide. With improved sanitation, it was eliminated from North America and Europe.

But it still has left some 6 million people blind in developing countries and affects an estimated 150 million.

It is easily transmitted, with blindness following multiple infections that leave scarring

on the inside of the eyelids, causing it to turn inward and damage the cornea by brushing it constantly with the eyelash.

Infections are spread person-to-person, mostly by children as they rub red, sticky eyes or by flies that pick up the germs from faces unwashed because clean water is so scarce that families walk miles for a mere bucket.

Since the 1950s, treatment had meant applying an ointment of the antibiotic tetracycline directly to the eyes twice a day for six weeks. The thick ointment stung and children in particular did not comply.

recipe for... **HOLIDAY CHEER**

**Ingredients:**

- 1 sprig of mall shopping
- 1 gathering of family and friends
- 1 dash of common sense
- 1 mug under mistletoe
- 0 drinks are needed if you are a minor, pregnant, intending to drive, or an alcoholic
- 3 cups of holiday spirit (optional)
- 3 cups of water (more to taste)

**Directions:**

**Assemble your ingredients**  
(Before going out to celebrate, make a plan about your drinking behavior and how to get home safely)

**Guarantee the quality of your ingredients**  
(Never leave your drink unattended and always know what you are drinking)

**Recipe is best prepared on a full stomach**  
(Eat a high protein meal before drinking to slow absorption of alcohol)

**Add 1 cup holiday spirit, alternating with as much water to taste. CAUTION: More than 3 cups holiday spirit per recipe may spoil your holiday cheer**  
(Drinking no more than 1 drink per hour while alternating alcohol free drinks, like water, and setting a limit at 3 drinks, will maintain a lower blood alcohol concentration)

**For the best Holiday Cheer:**  
**use ingredients in moderation**

**STUDENT LIFE**  
Alcohol and Drug Education Programs  
Ph: 845-0280

TEXAS A&M UNIVERSITY  
...a part of the Division of Student Affairs

## THE BATTALION

### SPRING '01 STAFF APPLICATION

If you can write, edit, design pages, draw, use a camera...  
Texas A&M's award-winning student newspaper  
is looking for you.

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-mail: \_\_\_\_\_

Major: \_\_\_\_\_

Classification: \_\_\_\_\_

Number of hours you will take in the spring: \_\_\_\_\_

Expected graduation (semester): \_\_\_\_\_

How many hours per week would you be available for work at *The Battalion*? \_\_\_\_\_

**OPENINGS INCLUDE:**

Please check the position(s) for which you are interested. If you are interested in more than one position, number them in order of preference with 1 being your top choice.

**Staff**

- \_\_\_ News Reporter
- \_\_\_ Science & Technology Reporter
- \_\_\_ Feature Writer
- \_\_\_ Entertainment Writer
- \_\_\_ Sports Writer
- \_\_\_ Columnist
- \_\_\_ Web Designer
- \_\_\_ Radio Reporter
- \_\_\_ Photographer
- \_\_\_ Graphic Artist
- \_\_\_ Cartoonist
- \_\_\_ Page Designer
- \_\_\_ Copy Editor

**Staff Applicants\***

- 1) Why do you want to work at *The Battalion*, and what do you hope to accomplish?
- 2) What experience do you have that relates to the position for which you are applying? (include classes, seminars, etc.)
- 3) What changes do you feel would improve the quality of *The Battalion*? (Give special attention to the section for which you're applying.)

\*Please type your responses on a separate piece of paper, and attach a résumé and samples of your work (stories you have written for publications or classes, pages you have designed, photos taken, drawings made or other creative samples) — just show us what you can do.

**Deadline: 4:30 p.m. Friday, Dec. 8 for staff positions. Turn applications in at 014 (basement) Reed McDonald Building. Interviews will be scheduled immediately after the application deadline.**

Best wishes for a safe and happy holiday!!!