Feed Additives Are the Yeast of Diamond V Mills’ Business

Fermentation is more than making fine wine and leavened bread. It can also help improve animal health and production.

Diamond V Mills, headquartered in Cedar Rapids, uses yeast fermentation biotechnology to produce feed additives that aid the digestibility and improve the palatability of the feed.

The company was founded in 1943 and since then has created a worldwide marketplace for its products, with distributors throughout the U.S. and in more than 30 countries. Its products are available worldwide.

The fermentation process combines baker’s yeast with raw ingredients from cereal grains like yellow corn and hominy, and liquid ingredients such as corn syrup and cane molasses. The unique, two-phase process developed by Diamond V ferments selected yeast to produce Nutrilites, or nutritional metabolites.

When ingested by livestock, the metabolites become a rich food source for microbes, called microflora, which are found in the intestinal tract of the animal. Animals with healthy microflora are less likely to be affected by feed changes and inclement weather. A healthy population of microflora can increase feed digestibility. According to Diamond V research, yeast culture may increase the available energy from feed, aid in weaning of young animals, and potentially help improve growth rates in some animals.

Livestock producers and animal breeders combine a small amount of Diamond V Yeast Culture products with the standard ration. Yeast Culture is fed to dairy and beef cattle, swine, poultry, horses, sheep, goats, as well as pets and other animals.

Since 1996, Diamond V Mills and Kirkwood Community College have collaborated in a research laboratory. The Diamond V Technical Center is located on the Kirkwood campus near Cedar Rapids. Ten researchers from the company are located at the Technical Center and the college conducts agriculture and veterinary classes in the building.

Corporate headquarters for the company recently moved to a new building on the Cedar River and near the center of downtown Cedar Rapids.

Diamond V Mills also has a history with Iowa State University. Stuart Reeves, Technical Center Manager, serves on the Biotechnology Grant Review panel. Diamond V Mills has funded ISU research, including a project by Tony Pometto in the Food Sciences Department. The company recently funded a grant to ISU’s Biotechnology Outreach Education Center.

If you would like more information on what Diamond V Mills can do for you, contact corporate headquarters at 1-800-373-7234, or visit the web site at www.diamondv.com.

– Dena Huisman, ISU Office of Biotechnology

News Around ISU

William Lord Is Interim Vice Provost for Research

William Lord, Palmer Chair in electrical and computer engineering and a distinguished professor of engineering, has been named to serve as interim vice provost for research and advanced studies and dean of the Graduate College until a new vice provost is selected. Patricia Swan resigned the vice provost position in late December. The ISU Office of Biotechnology is part of the Office of the Vice Provost for Research and Advanced Studies.
Prem Paul Named Associate Vice Provost for Research

Prem Paul, a professor of veterinary microbiology and preventative medicine, has been selected to be the associate vice provost for research. His new duties are to manage the research aspects of the vice provost’s office, including working with the Office of Biotechnology and other research entities at ISU. Paul has been associate dean of research and graduate studies in the College of Veterinary Medicine. Photo courtesy of Biomedical Communications.

The Business of Biotechnology

2000 Iowa Biotechnology Association Annual Conference to Be Held September 20

The Iowa Biotechnology Association (IBA) has announced that its annual conference for the year 2000 will be held at the University of Iowa’s Memorial Union in Iowa City on September 20. The focus of the conference will be genetics, including new technologies, information mining techniques, results and applications from genetic sequencing, and ethics in genetic science. Workshops are being planned to focus on entrepreneurial issues in the life sciences, advancing understanding of biotechnology, and linking industry and academia.

For more information, contact the IBA at 1200 Valley West Drive, Suite 206-7, West Des Moines, IA 50266, phone 515-327-9156, fax 515-327-1407, or visit the IBA web site at http://www.iabiotech.ftechg.com.

Directory of ISU Biotechnology Faculty on the World Wide Web

Research in Biotechnology 2000, a printed directory of the more than 265 biotechnology faculty at Iowa State University, is available on the Office of Biotechnology homepage at http://www.biotech.iastate.edu. The directory lists researchers by department, by research interests, and in alphabetical order to help you locate just the person you need. A brief description of each researcher includes contact information, research interests, and a description of current research.

The directory also contains information about each of ISU’s instrumentation facilities for biotechnology research, technology transfer opportunities, and an overview of ISU’s entire biotechnology program.

Sharing the Science

Outreach Education Center Can Help Industry with Biotech Education

Iowa State University’s new Biotechnology Outreach Education Center is available for biotech education events for K-12 and adult educators, students, industry personnel, or other public audiences. Mike Zeller, biotechnology outreach education coordinator, and Lisa Lorenzen, biotechnology industrial liaison, can work with industries to plan basic or advanced hands-on biotechnology training for employees or clients.

Each of the two laboratories in the Biotechnology Outreach Education Center can accommodate 20 participants for a total seating capacity of 40. The center is located in the Molecular Biology Building at the northwest corner of the campus. An adjacent parking lot provides easy access for participants.

To schedule an educational event, industry representatives should contact Mike Zeller or Lori Miller at the ISU Office of Biotechnology, phone 515-294-9818, or e-mail mzeller@iastate.edu or lorimill@iastate.edu.

Representatives from an industry and an ag awareness group in Canada were recent visitors to ISU’s Biotechnology Outreach Education Center. They learned about the scientific principles of biotechnology and ISU’s public education program. Mike Zeller (left) helped the group gain some hands-on biotech experience.

Instrumentation Facilities

Two New Instrumentation Facilities for Biotechnology Research

The MicroArray Facility and the Proteomics Facility have brought the number of instrumentation facilities for biotechnology research to 15. ISU’s biotechnology instrumentation facilities offer services to on- and off-campus researchers and students.
MicroArray Facility
The MicroArray Facility located in Agronomy Hall provides access to equipment for the production and analysis of MicroArray chips that can be used for the study of global patterns of gene expression. Users must provide their own gene targets for the chips and prepare their own chips. The MicroArray Facility is not a fee-for-service facility. Instead, because MicroArray technology is an emerging field, users are essentially active participants in a collaborative research effort. Users pool their resources and experience. For more information, contact Patrick S. Schnable, Professor-in-Charge of the facility, phone 515-294-0975, fax 515-294-2299, or e-mail schnable@iastate.edu.

Proteomics Facility
The Proteomics Facility is located in the Molecular Biology Building at ISU. The Voyager DE-Pro MALDI-TOF mass spectrometer of the Iowa Genomics Frontiers Cluster provides proteome analysis opportunity for accurate mass determination and for fragmentation with post-source decay. After training, the users operate the mass spectrometer themselves. The mass spectrometer is intended for high throughput peptide mass fingerprinting to identify proteins. In addition, the mass spectrometer will also be used for development of novel methods for a proteomics project. Because proteomics is an emerging technology, users of the Proteomics Facility are essentially active participants in a collaborative research effort. Users of the facility pool their resources and experience. For more information, contact Parag R. Chitnis, phone 515-294-1657, fax 515-294-0453, or e-mail chitnis@iastate.edu.

Welcome to ISU

Douglas Jones Joins Biotech Faculty

Dr. Douglas Jones, an assistant professor of veterinary pathology, is a recent addition to ISU's biotechnology faculty. Jones arrived at Iowa State after a 14-year stay in Philadelphia, PA, where he earned his veterinary and Ph.D. degrees and did postdoctoral studies in immunoparasitology.

Jones's research involves understanding the host factors that influence the development of resistance and susceptibility to infectious disease. His laboratory is focusing on the host-pathogen relationship of the protozoan parasite Leishmania in mice. The long-term goal of the work is to determine methods of immunomodulation that can be used for vaccination strategies or to alter the host immune response in the presence of a chronic infection. Jones is receiving start-up funds from ISU's Office of Biotechnology to help establish his research program at Iowa State.

Dr. Kanthasamy's research focuses on understanding the cellular and molecular mechanisms associated with the neurodegenerative disorder Parkinson's disease. He is also interested in developing mechanism-based neuroprotective strategies for the treatment of this chronic and progressive disease. He received start-up funds from the Office of Biotechnology to help establish his research at ISU.

Kanthasamy may be contacted at the Parkinson Disorders Research Program, Department of Biomedical Sciences, 2062 Veterinary Medicine, ISU, Ames, IA 50011-1250, phone 515-294-2516, or e-mail akanthas@iastate.edu.

Research News Briefs

View the full text of these and other ISU biotechnology news releases online at http://www.biotech.iastate.edu/news_releases/

Altered Corn Kernels May Produce TGE Vaccine
The director of ISU's Plant Transformation Facility is studying how corn could be used to protect pigs from the virus that causes transmissible gastroenteritis (TGE). Using current technology, the research attempts to insert DNA from the TGE virus into corn seeds so the plant's kernels could serve as an oral vaccine. Contact Kan Wang, Plant Transformation Facility, at 515-294-4429 or e-mail kanwang@iastate.edu.

Pneumonia Protection for Sheep and Cattle
The possibility of increasing the level of naturally occurring
antimicrobial peptides in sheep and cattle to provide greater protection from pneumonia is being studied by an ISU veterinary pathologist. The pneumonia being targeted is caused by the bacterium *Mannheimia (Pasteurella) haemolytica*. Contact Mark Ackermann, Veterinary Pathology, 515-294-3647, or e-mail mackerma@iastate.edu.

**Dollars for Research**

The following are some of the grants recently awarded for biotechnology-related research at ISU. For more information about establishing research relationships with ISU biotechnology researchers, please contact the Office of Biotechnology. See the address in the box on p. 3.


**New Technologies Available from ISU**

Genetic Transformation of Maize Inbred Line with Enhanced Agronomic Traits . . . A maize inbred line of an elite genetic background that can be genetically transformed and regenerated into fertile, transformed progeny with strong performance for agronomic traits such as grain yield, vigor, height, and maturity. Reference number 02646.

New Method for Control of Foodborne *E. coli* 0157H:7 . . . A treatment with blood plasma and an optimum amount of specific antibodies that reduces or eliminates *E. coli* 0157H:7 from contaminated meat, fresh fruits, and vegetables. Reference number 02490.

Iowa State University is seeking industrial partners to develop and/or commercialize the above technologies. Interested parties should contact the Office of Intellectual Property and Technology Transfer, 310 Lab of Mechanics, Iowa State University, Ames, Iowa 50011-2131; Tel: 515-294-3893; FAX: 515-294-0778; E-mail: licensing@iastate.edu. Please cite reference number. Full text of these and other technology descriptions can be found at http://www.public.iastate.edu/~isurf.