

# Poultry HEALTH REPORT

A National Institute for Animal Agriculture Publication

Inaugural Issue

## Scientists crack code of Marek's virus *First step in creating new vaccines*

In a step towards creating new chicken vaccines, USDA Agricultural Research Service (ARS) scientists have cracked the biochemical code of the herpesvirus that causes Marek's disease.

Severe cases of Marek's can cause cancer-like tumors, partial paralysis and other disorders in afflicted birds. Although vaccines made from benign or disabled Marek's strains are commercially available, some are failing to immunize the birds against virulent new forms of the virus that have emerged.

Bird deaths, diminished egg laying and carcass condemnation at processing plants due to Marek's cause an estimated \$1 billion in losses annually worldwide, and up



to \$100 million in the United States alone.

In recently published studies, ARS researchers led an effort to chart the nucleotide sequences for two Marek's disease strains, MDV1-Md5 vv and MDV1-GA, plus a non-disease-causing variant in turkeys called serotype 3, which is used to vaccinate chickens. Nucleotides are chemical subunits whose arrangement spells out the DNA alphabet for the virus's 100-plus genes.

Now available on the GenBank database, Marek's nucleotide coding will help speed the identification of viral genes and mechanisms by which the pathogen survives in nature, evades a host's immune system and causes disease, according to Sanjay Reddy, a medical safety officer at ARS' Avian Disease and Oncology Laboratory in East Lansing, Mich.

There, Reddy and colleagues Lucy Lee, Robert Silva and Richard Witter

are using information gleaned from Marek's nucleotide coding to study the genes it uses to produce tumors in chickens, as well as silence them.

They've also begun using gene-splicing techniques to design recombinant vaccines to better protect chickens from GA and Md5 vv, as well as other virulent Marek's disease strains.

Both are tumor-causing members of a herpesvirus family that researchers around the world have been studying for more than 20 years and, until now, only partially decoded, notes Lee, a research chemist.

## Human Illness From Egg-Related SE Declines

Although regulations governing *Salmonella enteritidis* (SE) in eggs are still pending, human illness due to egg-related SE continues to decrease.

This information was presented at a meeting of the U. S. Animal Health Association's Committee on Salmonella Enteritidis in Eggs held recently in Hershey, Pa. Dr. Charles Beard of the U. S. Poultry and Egg Association pointed out that other SE sources—such as fresh fruit, nuts and vegetables—also are an important cause of human SE illness.

Rodent control is an important part of any effort to control SE in poultry because rodents infected with the organism can spread it to laying hens.

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## Welcome to NIAA's Poultry Health Report

The need for shared information between industry, government and the research community is greater today than ever before.

On behalf of the National Institute for Animal Agriculture (NIAA), I want to welcome you to the inaugural issue of *Poultry Health Report*. This quarterly newsletter was created to provide a communications link between producers, prac-

tioners, researchers, academicians, government veterinarians and regulatory personnel.

NIAA's mission is to provide a forum for building consensus and advancing solutions for animal agriculture. This publication will be devoted to poultry health news and information. It will bring you the latest information on industry issues pertinent to poultry research,

disease control and eradication strategies. It also will be an information source for advancements in poultry production and welfare.

NIAA is proud to serve the poultry industry through this new communications tool. We expect to make continued improvements in this publication during the first year. We welcome your input and suggestions as we work toward accomplishing this goal and making *Poultry Health Report* a valuable resource for you in years to come.

—Glenn N. Slack, CEO, NIAA



## Poultry Health Report

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Glenn N. Slack, President & CEO

*Editor*

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1910 Lyda Avenue  
Bowling Green, KY 42104-5809  
ph.: 270-782-9798 fax: 270-782-0188  
e-mail: [NIAA@animalagriculture.org](mailto:NIAA@animalagriculture.org)  
Web site: [www.animalagriculture.org](http://www.animalagriculture.org)

## USDA Sets New Rules for National Poultry Improvement Plan

The U.S. Department of Agriculture has finalized rules that will provide new or modified sampling and testing procedures for participants in the National Poultry Improvement Plan (NPIP).

The proposed changes, first published in the July 20 Federal Register, will keep provisions of the plan current with changes in the poultry industry. The changes also provide for the use of new sampling and testing procedures, including new laboratory protocol for the isolation and identification of *Salmonella* from poultry and poultry environments.

NPIP is a cooperative federal-state-industry mechanism for controlling certain poultry diseases.

The plan consists of a variety of programs intended to prevent and control egg-transmitted, hatchery-disseminated poultry diseases. Provisions of the plan are changed as new information becomes available. These changes are based upon recommendations made at national conferences by official delegates representing participating flock owners, breeders, and hatchery owners from all cooperating

states, in accordance with Chapter 1, title 9 of the Code of Federal Regulations.

The NPIP has active control programs for *Salmonella pullorum*, *Salmonella gallinarum*, *Salmonella enteritidis*, *Mycoplasma gallisepticum*, *Mycoplasma synoviae*, and *Mycoplasma meleagridis*.

## Participate in NPIP

If you have access to the Internet, you can participate in the National Poultry Improvement Plan (NPIP) with just a few clicks of the mouse. Visit the Web site, [www.aphis.usda.gov/vs/npip](http://www.aphis.usda.gov/vs/npip), and look for the "How to Become a Participant" link. Then simply click on the e-mail link next the state where your hatchery, independent flock, or business is located and send the state NPIP agency your request to participate.

The response form asks you to provide a few basic details about yourself and your business. Also describe the type of poultry you handle or breed. A simple click sends your request on its way.

## New Virus Test Kit Introduced for ALV-J

A new commercial blood test kit based on Agricultural Research Service technology detects chicks infected by an extremely virulent strain of avian leukosis virus, ALV-J.

It is the first commercial product to result from an emergency ARS response to an ALV-J emergence in the United States that reached epidemic proportions in

1996. The epidemic produced shortages of breeding stock that threatened the poultry industry's ability to meet the burgeoning demand for chicken on America's dinner table.

The new ALV-J kit, made by Synbiotics Corp. of San Diego, Calif., is one of two such kits in the world. The other kit was developed through a similar response by researchers abroad. To meet this worldwide threat, ARS works with scientists throughout the world as part of an ever-expanding consortium of private industries, universities and government agencies. The U.S. Primary Breeders Veterinary Roundtable has funded some of the ARS research as part of its long-



term reliance on ARS for industry-sustaining research.

Biochemist Lucy Lee, at the ARS Avian Disease and Oncology Laboratory in East Lansing, Mich., made this kit possible by finding a way to isolate and clone the gene that produces the protein coat that protects the live virus. Chicken cells react to the coating because that is the first thing they detect when the virus invades.

The U.S. Department of Agriculture has patented Lee's techniques. ARS is the chief scientific research agency of USDA.

Breeders can use the kits to reduce ALV-J infection. They can take blood samples from chicks to see if the chicks have antibodies indicating exposure to ALV-J. Lee and other researchers in the United States and abroad are using the gene for research in developing an ALV-J vaccine.

ALV cannot infect people or any other animal except chickens. It has largely been found in the birds raised by primary broiler breeders, the birds that are the parents of the birds delivered to consumers.

## NIAA Postpones International Tour

The National Institute for Animal Agriculture (NIAA) has postponed the international study tour to France it had scheduled for December 2001.

"The uncertainty caused by the terrorist actions of September 11, the subsequent build-up of military forces, and the potential impact this could continue to have on air travel are the reasons that the NIAA board of directors have taken this action," said Glenn Slack, NIAA president and chief executive officer.

Slack said that he and the organization are still very much committed to providing this continuing

education opportunity for animal agriculture and animal health professionals. "The program for the study tour to France was shaping up to exceed expectations," said Slack. "This was going to be a very unique opportunity for our participants. It will be a unique opportunity for participants in 2002."

Slack is working with Dr. Will Hueston, director of the Center for Animal Health and Food Safety at the University of Minnesota College of Veterinary Medicine, who is serving as the program coordinator for the study tour, and with contacts in France to identify a suitable date to reschedule for 2002.

## Foreign Animal Diseases Advisory Committee Appointed

The U.S. Department of Agriculture has announced the appointment of 18 people to serve on the Foreign Animal and Poultry Diseases Advisory Committee.

The committee collectively provides information on methods, techniques and policies directed at preventing the introduction of foreign disease. The committee also advises the Secretary of Agriculture on the industry support for programs.

The following people will serve two years on the Foreign Animal and Poultry Diseases Advisory Committee: John B. Adams, National Milk Producers Federation; Tobin Armstrong, Armstrong Ranch; John H. Blackwell, Food Marketing Services International, Inc.; Richard E. Breitmeyer, state veterinarian, California Department of Food and Agriculture; Corrie Cabell Brown, University of Georgia; Richard Crawford, McDonald's Corp.; Gus Reuben Douglass, West Virginia Department of Agriculture; Carol A. Ecker, Clayview Animal Clinic; Robert J. Eckroade, University of Pennsylvania; Niall D. Finnegan, American Veterinary Medical Association; Don Alvado Franco, National Renderers Association, Inc. and the American Protein Producers Industry; James M. Niewold, Hog Haven, Inc.; June M. Reed, self employed; Jeremiah T. Saliki, Oklahoma State University; Charles Richard Sherron, self-employed rancher; Fred Small, self-employed rancher; Wesley H. Towers, state veterinarian, Delaware; and Saul T. Wilson, Tuskegee University.

Committee members serve a two-year term.

Survey says consumer views on irradiation are changing

# Bioterrorism Scare Heightens Concern Over Safety of Food Supply

American consumers may be warming up to the idea of irradiation. Coverage of bioterrorist activity in the U.S., and the use of irradiation technology to eradicate anthrax spores in contaminated U.S. mail, has brought the benefits of this technology to the forefront, according to a national survey.

The survey, conducted in November, found that consumers have moved from trepidation to a strong level of support for irradiation—with more than half (52%) saying that the government should require irradiation to help ensure a safe food supply.

Porter Novelli, a global public relations firm that regularly conducts opinion research on food, nutrition, health and social issues, conducted the survey among 1,008 U.S. adults.

"In the past, consumers expressed concern for irradiation, specifically for food use," said Bill Layden, senior vice president of Porter Novelli. "Consumers are beginning to understand that irradiation is similar to pasteurization...that it is the next generation

in technology with proven benefits that could protect the food supply now."

Just last year, only 11% of consumers said they would buy irradiated foods if they were available. But, in the survey conducted in November, almost two-thirds (64%) of the consumers surveyed said they are concerned about con-



tamination of the U.S. food supply with anthrax or other biological agents. Fifty one percent of those surveyed agreed that irradiation could be used

to kill anthrax and other biological agents.

Food irradiation is the process of exposing food products to ionizing energy for a specified length of time. The Food and Drug Administration (FDA) has determined that the process is safe and effective in decreasing or eliminating harmful bacteria and has approved irradiation of a variety of foods, including meat, poultry, fresh fruits, and vegetables.

"Irradiation has the ability to

make food safer by destroying harmful microorganisms that can cause food to spoil and can cause illness," said Michael Osterholm, Ph.D., director of the Center for Infectious Disease Research and Policy at the University of Minnesota, and an expert in both food-borne disease and biological weapons. "Its use can help reduce or eliminate health threats from such pathogens as Salmonella, Campylobacter, *E. coli* 0157:H7 and even anthrax."

American astronauts have been eating irradiated food in space since the 1970s. Patients with weakened immune systems are sometimes fed irradiated foods to reduce the chance of a life-threatening infection.

"It will be important to engage in public education efforts on the benefits and safety of this technology to maintain confidence in its usefulness," said Christine Bruhn, Ph.D., director of the Center of Consumer Research at the University of California–Davis.

To date, irradiated foods have not been widely available in the marketplace, but consumer acceptance could convince food processors and manufacturers to implement the technology.

## Vaccination Cuts SE Prevalence

Vaccination reduces the prevalence of *Salmonella enteritidis* (SE) in the commercial egg industry, according to a recent study.

Citing data from flocks enrolled

in the Pennsylvania Egg Quality Assurance Program (PEQAP), Dr. Armando Mirande from Biomune Company presented his conclusion during a recent meeting in Hershey, Pa. of the United States Animal Health Association's Committee on Salmonella.

From January 1997 to December 2000, a non-vaccinated group of flocks showed 2.1%, 2.47%, 1.62% and 2.45% of all SE-positive

manure samples during 1997, 1998, 1999, and 2000, respectively. For the same years, a vaccinated group of flocks showed 0%, 0.19%, 0.29% and 0.23% SE-positive samples.

Analysis of the PEQAP data for the four-year period showed an 89% reduction of SE in environmental samples (manure swabs) and a 93% reduction in eggs in SE-bacterin-vaccinated flocks when compared to contemporary non-vaccinated flocks.

## Veneman Announces Grants for Animal Disease Preparedness

Agriculture Secretary Ann Veneman announced the distribution of nearly \$2 million in grants in thirty-two states in remarks at the 47th Annual Conference of the National Chicken Council.

The grants will bolster emergency animal disease prevention, preparedness, response, and recovery systems.

"These grants will be used to help various states better prepare and coordinate emergency preparedness activities and coordination related to animal disease protection," said Veneman. "Funding will be used for training, equipment purchases, and to conduct emergency preparedness exercises to help strengthen these important programs."

Grants have been awarded in the following states: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Iowa, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New

Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Washington, West Virginia, and Wisconsin.

Grants were also awarded to the National Emergency Management Agency and several native-American agencies to assist with livestock and wildlife surveillance.

**The goal of the grant program is to assist states in meeting and exceeding animal disease response standards set by a steering committee of the National Animal Health Emergency Management System (NAHEMS).** NAHEMS is a comprehensive system that includes federal, state and community governments, voluntary organizations, academic institutions, and industry groups.

In remarks at the conference, Veneman also called for the establishment of a permanent agriculture infrastructure investment fund

that continuously protects the country's agriculture.

"We need to take a stronger, more proactive approach to the infrastructure needs of our producers," said Veneman.

"This includes examining our pest and animal disease protection systems, our labs, research, and food safety programs."

Veneman noted that these are not programs typically addressed in a farm bill. However, today, farmers and producers face many new and emerging issues including, BSE, various strains of *E. coli*, Salmonella and biosecurity, which were not commonly discussed during previous farm bill debates.

"However, today, we live in a different world," said Veneman. "As our farm policy report indicates, we must take a different look at how we structure farm policy. We cannot afford to risk our food and agriculture system by failing to adequately address these and other critical issues."

## USDA Increases Veterinary Presence at Ports of Entry

The U.S. Department of Agriculture has added 18 veterinarians for homeland defense. Their duty: to protect American agriculture against the entry of agricultural products that may contain foreign animal diseases such as foot-and-mouth disease and bovine spongiform encephalopathy.

These new veterinarians will provide guidance and training on working with and handling animal products, animal by-products and international garbage. They will

work cooperatively with USDA's plant protection and quarantine officers when dealing with issues involving foreign animal diseases.

**They also will act as a liaison between APHIS' plant protection and quarantine and veterinary services programs; conduct port reviews; and continue to work closely with state agricultural officials, thereby improving the federal-state partnerships critical to protecting American agriculture.**

"The addition of these veterinarians to USDA's comprehensive agricultural quarantine inspection program is part of Secretary Ann Veneman's continuing effort to bolster the United States' agriculture infrastructure," said Bill Hawks, under secretary for USDA's marketing and regulatory programs. "We are always looking at ways to continue to improve our strong safeguarding programs."

The new veterinarians will be working for USDA's Animal and Plant Health Inspection Service's plant protection and quarantine program and will be stationed in Florida, Georgia, Virginia, Pennsylvania, New York, New Jersey, Michigan, Illinois, Puerto Rico, Texas, Arizona, California, Washington, and Hawaii.

# Report Urges Increased Investment in Animal Health Protection System

Recommendations from an eight-month review of the nation's system for safeguarding livestock and poultry producers from the introduction of foreign animal diseases has been jointly released by the United States Department of Agriculture (USDA) and the National Association of State Departments of Agriculture (NASDA). USDA commissioned the report and selected NASDA to conduct the independent review.

The report, compiled by a panel representing state animal health officials, university and private animal health specialists, and livestock producer groups, noted the success of USDA's Animal and Plant Health Inspection Service (APHIS) in preventing, controlling, and eradicating animal diseases, but urged increased federal funding to upgrade laboratory and diagnostic facilities and the staff of APHIS' Veterinary Services (VS), in order to meet the "rising and vital challenges of animal health issues in the U.S." The report also stressed the need to create an Emergency Operations Center, a National Surveillance System, and a National Response Plan.

"A dramatic national and international acceleration in trade of animals and animal products, together with exponential increases

in worldwide travel, mail parcels and emerging animal diseases have converged to significantly raise the stakes for animal disease control," the report stated. "This review finds APHIS performance adequate in handling most assigned roles, and even heroic in some historical efforts to eradicate diseases that have infected U.S. livestock, but resources are fast becoming overwhelmed. This review calls for improvements in areas including, but not limited to, staffing, equipment, surveillance, detection, applied research, communications, and border security. Many of the committee's recommendations will require increased federal funding," the report stated.

The stakeholder panel, composed of 42 members, was organized into four committees, which examined key areas including domestic detection and surveillance, exclusion, international information, and response. Gus R. Douglass, commissioner of the West Virginia Department of Agriculture, chaired the review team, which oversaw the work of the four committees and produced the final report.

"The recent foot-and-mouth disease outbreak in Europe was a wake-up call for us," Douglass said.

"The best minds in the U.S. have come together in this report to protect the future viability of animal agriculture. These recommendations now await acceptance and action by the Secretary and by the Congress. As we are in a security mode, a major part of this report is security related."

NASDA Executive Vice President Richard W. Kirchhoff noted that USDA has already increased funding for APHIS, adding nearly \$40 million to the current budget and another \$174 million next year for infrastructure improvements. "Agriculture Secretary Veneman has acted swiftly to increase resources to APHIS," he said. "We hope that Congress will make it a priority to ensure we have an effective safeguarding program that is fully funded. The new farm bill provides an excellent opportunity to do just that."

The NASDA Research Foundation coordinated preparation of the report under a cooperative agreement with the APHIS. NASDA is the national association representing the state commissioners, secretaries, and directors of agriculture throughout the United States.

For more information, the report can be downloaded from NASDA's Web site by visiting [www.nasda.org](http://www.nasda.org).

## California Group Urges Funding for Regional Food Safety Center

California Poultry Federation (CPF) President Bill Mattos says that creating a regional center for food safety is the type of collaborative effort that deserves consideration as the state considers how best to use \$64 million in federal funds.

Mattos made the case for federal funding when he appeared at the

final of five listening sessions being held around the state by the California Department of Food and Agriculture (CDFA) to gather advice from agricultural organizations on how \$64 million in federal funds should be allocated.

The funds are part of the Emergency Agricultural Assistance Act of 2001 designed to provide assistance to California's specialty crops and commodities.

"With ongoing concern over agro-terrorism, it makes sense for

the state to look at the most efficient use of these funds," Mattos says. "Everyone in agriculture benefits from an enhanced food safety system. It's an issue that will become more critical in the future. The state should act now to make efficient use of these funds."

Collaborative efforts such as the Western Institute for Food Safety will help coordinate existing food safety efforts between industry, educational institutions and the public.

## Scientists Discover, Sequence New Turkey Virus

A never-before-described virus that infects young turkeys has been identified and its DNA sequence deciphered by USDA scientists in Athens, Ga. The virus, which has caused problems for southeastern poultry producers since the early 1990s, is now circulating throughout the United States.

The virus is associated with Poulter Enteritis Mortality Syndrome (PEMS). This highly infectious, transmissible disease of young turkeys causes severe diarrhea, stunted growth and high death rates in young flocks. PEMS is also associated with lifelong changes to the turkey immune system and leaves the birds highly susceptible to other infectious agents. PEMS outbreaks have cost the turkey industry millions of dollars in annual losses.

Agricultural Research Service (ARS) scientist Stacey Schultz-Cherry's unit at the Southeast

Poultry Research Laboratory in Athens isolated the avian disease-causing organism, called an astro-



virus. Scientists isolated this small virus—also associated with diar-

rhea outbreaks in humans and other animals—from turkey poult infected with PEMS. Schultz-Cherry's group has devised diagnostic tests and will now focus on how the virus causes disease and how it affects the immune response. This information may lead the way to vaccines for the emerging disease.

This particular astrovirus appears very stable and resistant to disinfection, so the research results could also be used to develop kits to test for virus present in poultry houses that have been cleaned. Currently, poult producers can only rely on proper disinfection and biosecurity procedures to prevent infection of their flocks. A patent on the sequence was filed in July 2001, and the sequence is available for licensing.

Diagnostic companies could utilize the technology to make testing kits available to turkey producers.

## California State Veterinarian Receives Two Awards

California State Veterinarian Richard Breitmeyer was honored twice during a recent national meeting. The awards were presented at a joint meeting of the United States Animal Health Association (USAHA) and the American Association of Veterinary Laboratory Diagnosticians (AAVLD).

William T. Hawks, Under Secretary for the U.S. Department of Agriculture's Marketing and Regulatory Programs, presented Breitmeyer with the APHIS Animal Health Award, citing among other things his service to Agriculture Secretary Ann Veneman in developing USDA's response to the



foot-and-mouth disease outbreak in the United Kingdom in the early part of this year.

Breitmeyer's second award of the evening came from state regulatory officials. Dr. Tom Hagerty, retired Minnesota state veterinarian and president of the National Assembly of Chief Livestock Health Officials, presented the National Assembly's annual award to Breitmeyer for his outstanding contributions to U.S. animal health in the regulatory field. Hagerty noted that the recipient of

the award must be actively involved in these activities at the time the award is given.

Breitmeyer received his DVM degree from the University of California-Davis in 1980. He also holds a Masters in Preventive Medicine degree from UC-Davis. He has served as California State Veterinarian and Director of Animal Health and Food Safety Services since 1993.

He also is chair of USAHA's Food Safety Committee and has been a leader in developing food safety and quality assurance plans with several livestock and poultry commodity groups in California. These plans now serve as models for the rest of the nation.

Breitmeyer also serves on the executive committee of the National Institute for Animal Agriculture board of directors.

## FSIS Delays Implementation of Water Retention Rules

The Food Safety and Inspection Service announced in early January that it will delay by two years the implementation date of the final rule on retained water in meat and poultry products.

According to a notice in the Federal Register, processors will be given an extension until Jan. 9, 2003 to ensure time for more effective compliance with the rule. The final rule was originally intended to take effect on Jan. 9 of this year.

The final rule limits the amount of water retained by raw, single-ingredient meat and poultry prod-

ucts. Meat and poultry carcasses and their parts will not be permitted to retain water unless it is "an unavoidable consequence of the processes used to meet food safety requirements."

Products with retained water must be labeled accordingly. This rule will provide consumers with more information about what is in the meat and poultry they purchase, and will assist them in making informed choices, FSIS said.

FSIS delayed the rule's effective date in response to a petition from four trade associations representing

meat and poultry industries. The industry groups had requested an extension until August 2004.

FSIS has decided, however, that a one-year postponement of the effective date "will allow sufficient time for the meat and poultry industry to prepare for implementation of the rule."

The final rule on water retention also made several technical amendments in the sections of the poultry products inspection regulations that concern poultry chilling practices. Those changes went into place on Jan. 9, 2002.

### News Briefs

**Fueled by fowl?** Chicken manure that has been liquefied, cooked and sterilized by heat and intense pressure can be blended with diesel to power an engine with no significant difference in performance. That's according to a West Virginia University chemical engineering study. The blend of 65% diesel and 35% liquid waste could reduce U.S. needs for foreign oil while providing an environmentally friendly option for poultry waste.

Scientists predict that farmers could someday have self-contained

units to dispose of waste, produce fuel and then use that fuel to help power diesel generators or farm equipment at a lower cost.

**Cuba receives U.S. poultry.** Poultry meat was included on the first cargo of U.S. food shipped to Cuba since it became a Communist nation. A December shipment included 500 tons of frozen chicken leg quarters to help the island nation recover from Hurricane Michelle. The sales were allowed under a law passed last year that exempts food and medicine sale from U.S. trade sanctions that were imposed in 1959.

However, no private U.S. or government financing of sales was allowed.

**Burger King to upgrade menu.** Fast-food restaurant Burger King plans to introduce a new chicken sandwich in 2002 as part of a major turnaround plan developed by its new management team.

Christopher Clouser, the company's executive vice president and chief marketing officer, said the chicken sandwich is part of an overall strategy to provide more variety for the customer. An English muffin eggwich will provide a new option on the breakfast menu.

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