

# Meat Analyzer Measures Fat Content At A Glance

A device that measures the fat content of ground beef accurately and instantaneously has been invented by two scientists of the U. S. Department of Agriculture (USDA).

The first commercial version of this fat tester was demonstrated last week in New York City.

It is designed to give supermarkets and butcher shops an inexpensive tool that can guarantee consumers ground beef of specific fat content. Possibilities are good that the tester can be adapted to measure the amount of fat in other ground meats, including pork, lamb and chicken.

This new food quality analyzer was devised by electronic technician George F. Button Jr. and engineer Karl H. Norris of USDA's Agricultural Research Service (ARS) at Beltsville, Md. It is a product of continuing ARS research to develop instruments capable of measuring quality in foods and other agricultural products. The inventors have applied for a public-service patent on the fat tester.

Although fat content largely determines the quality of ground beef, butchers have had no easy way to measure it. Most have relied on experience and judgment to pack ground beef

with different amounts of fat for their customers. Laws limiting fat content and requiring accurate labeling have made the amount of fat in ground meat a critical factor. Some supermarkets are using a chemical test of fat content to guide butchers, but a faster, easier test has been needed. The ARS-developed analyzer meets these requirements.

This hand-portable instrument is simply placed on top of a package of ground beef. A meter needle immediately points to a dial number indicating the percentage of fat in the package. Range of the dial is 0 to 50 percent. Fat content can be measured either through the usual plastic wrapper or with the wrapper removed.

Tests of the analyzer with ground beef varying in fat content from 10 to 35 percent were made at Beltsville under the direction of Dr. Anthony W. Kotula, ARS food technologist. Meter readings in these tests agreed with results of standard extraction procedures within a standard error of one percent.

Basic principle of the fat tester is light reflectance. Using modern electro-optical technology, the shape of the reflectance curves of meat samples can be analyzed to reveal the fat content of the samples. The reflectance curves for ground meat show a slight dip in the near-infrared portion of the spectrum between 930 and 950 nm (nanometers, or billionths of a meter). This dip reflects the amount of fat in the meat.

The instrument developed by Button and Norris uses four flashlight lamps mounted in a tube to illuminate the meat

sample. The reflected radiation is collected by an optical scanning system that incorporates a vibrating mirror and interference filter, coupled to a silicon solar cell. The output from the solar cell is amplified and sorted into two measuring signals, one representing the average reflectance of the meat sample and the other the change in reflectance noted by the scanner between 930 and 950 nm. A solid-state computer circuit then processes the two signals to produce appropriate needle deflection on a meter calibrated directly in percent fat.

## Twin Valley FFA Members To Hatch Game Bird Eggs

In an effort to prevent the loss of many game birds, members of the Twin Valley FFA will attempt to hatch pheasant and quail eggs from nests damaged during routine farming operations.

With the removal of many farm fencerows the pheasants and quail are forced to lay their eggs in hay fields. At about the time the farmer is mowing hay, the birds are starting to incubate their eggs. Members of the Twin Valley wildlife committee have borrowed incubators from the high school science department

to try to save some of the eggs from destroyed nests.

Farmers destroying nests while doing routine operations are urged to contact one of the following wildlife committee members to have the eggs picked up:

West Nantmeal Area — John McNeill, 286-5642; Honey Brook Area — John Miller, 273-3177; Robert Evans, 273-3995; Geigertown Area — Ron Dannecker, 286-6152; Geoffrey Fultz, 582-3649; Green Hills Area — Jeff Boltz, 856-7668.

The eggs should be kept warm until the FFA member arrives to pick them up. After the eggs are hatched, the members will raise the young birds until they are self sufficient and then release them either around their homes or in the environmental education area of the school district.

Robert Evans  
Wildlife Committee Chairman

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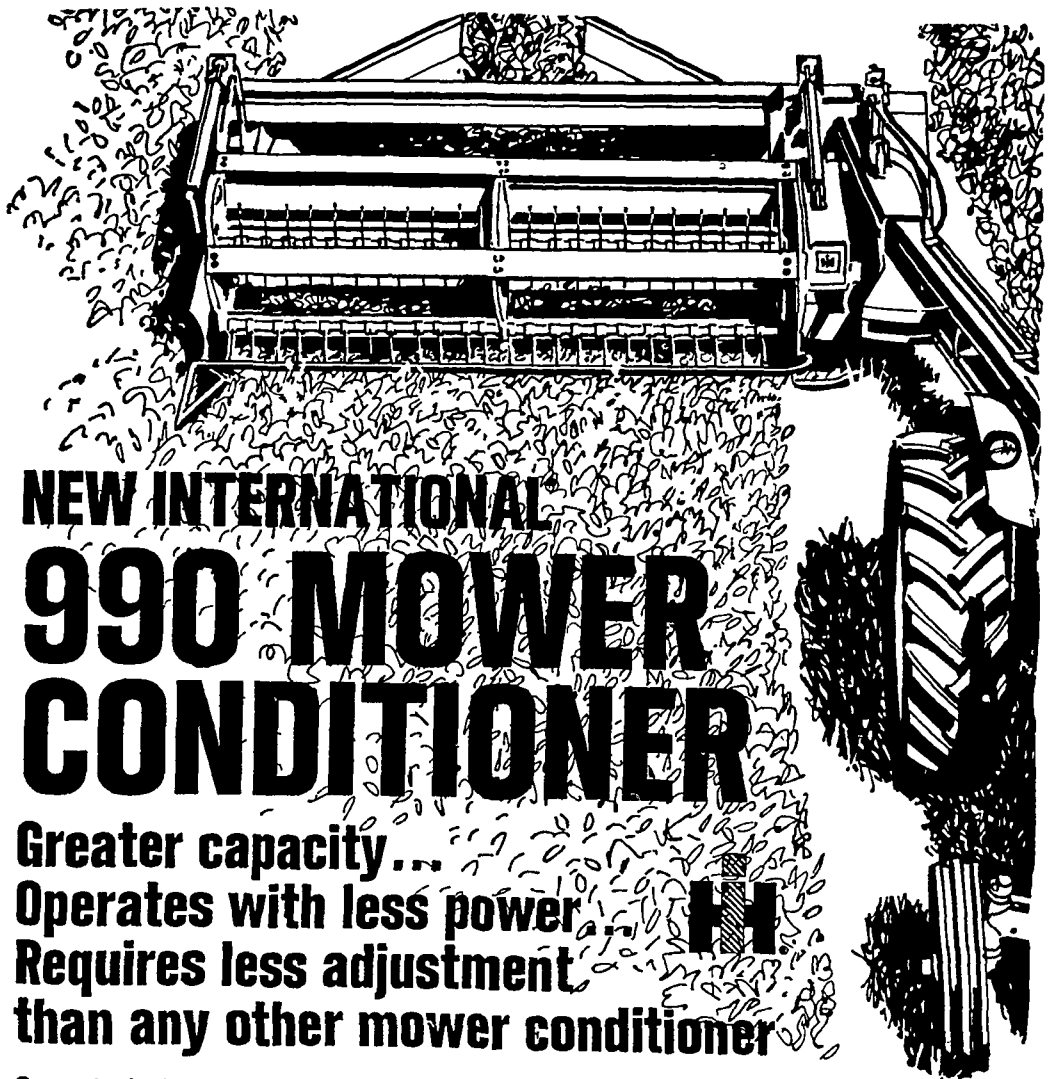
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