

# Researchers scramble to hatch stronger eggs

ELIZABETHTOWN — The average US laying hen produced a record 243 marketable eggs last year, but the total could have been as high as 260 per hen if only eggs had sturdier shells.

Shell breaks are a costly problem.

First of all, breakage means a direct cash loss to producers," says USDA economist Allen Baker.

"However, breakage creates all kinds of other problems as well appearance, for example. One broken egg in a carton can soil other eggs, causing them to be classified as 'dirties,' which reduces their market value."

"Dirties" can't be sold to consumers as edible eggs. Instead, they are diverted to "breakers," sold at a lower price for use in processed foods.

"A more serious problem — quality deterioration and possible bacterial contamination — can leave producers or processors with a carton of eggs of little or no market value," adds Baker.

The danger of breakage begins as soon as the egg leaves the hen. In fact, by some research estimates, roughly seven percent of the nation's eggs never get out of the chicken house because the shells are inadequately formed or too fragile for the mechanized collection process which has probably increased the breakage problem.

Fragile shells aren't likely to make it through the mechanical gathering, washing, and packing process of modern assembly-line egg production operations.

Studies on breakage, completed in California during the early 1970's, indicated anywhere from 23 to 11.8 percent of eggs were cracked or smashed en route from the nest to the carton. Most breakage (71 percent) had already occurred during the initial transport, 13 percent during loading, washing, and drying, and 16 percent during weighing, grading, and packing.

Just how hard would it be to make a tougher eggshell?

"Difficult, but we hope not impossible," admits USDA egg expert George Mountney, who coordinates an eggshell quality research program with scientists at 15 land grant colleges. Federally funded, as well as by some state sources, the research is called Project S-131—Eggshell Quality in Avian Species."

One S-131 researcher, David Roland of Auburn University, recommends that producers change the usual feeding time for layer hens from morning to evening, when the hen naturally starts producing calcium for eggshells.

"It occurred to me that if feed goes in the hen's body as the calcification process is beginning, all the food nutrients would go directly into the bloodstream and possibly produce a stronger eggshell," Roland says.

Another researcher, Joseph Soares, Jr., of the University of Maryland, is studying the relationship of vitamin D to the female hormone, estrogen.

"Vitamin D is changed into

estrogen by the hen's body, and we have found conclusive evidence that hens with more estrogen produce stronger eggshells," says Soares.

The 'thick and thin' team at Penn State University seems to have proved out Soares' theory. In experiments under the guidance of Edward Buss, selected items of hens that produce thicker than average eggshells showed a much higher percentage of natural estrogen levels in their bodies than other breeds of hens that usually produce a thinner than normal shell.

Other researchers are studying the influences of housing and environment, marketing channels,

and disease control on the eggshell problem. S-131 research, indicates that 77 of every 100 eggs won't reach collection points because of weak or missing shells.

Roland estimates that about five billion unusable eggs were produced — eggs worth about \$60 million based on 1980 retail prices. Of course, such an increase in production might have lowered retail prices — also lowering the \$60 million estimate. But some producers and processors say that new markets could absorb the extra eggs without a serious blow to prices.

They cite additional export possibilities, the increased demand in the processed food

industry, and the increased need for eggs in fast food chains.

But sales from five billion additional eggs would not be chicken feed, even in the multi-billion dollar egg industry where producers have generally suffered losses in the last few years. Last year, producers lost an average 32 cents at the wholesale level for every dozen eggs sold.

This year, producers face cost increases for all inputs, particularly feed. Reduced breakage could give producers a critical edge. "It's logical," Roland says, "If we can improve eggshell quality and reduce breakage, producers could market something they already have."

## Berks 4-H building fund reaches half-way mark

LEESPORT — The Berks County 4-H Community Center Building Fund Campaign has passed the half-way mark with 54.6 percent of the \$550,000 goal reached.

Campaign Chairman, Ezekiel S. Ketchum said \$300,414 has been raised thus far in the drive.

"The key to the success of this community effort depends on how aggressively we utilize the working days remaining before the final report scheduled for June 4 to get this job done," he said.

Thus far, the drive's four fund

raising divisions have reported the following results.

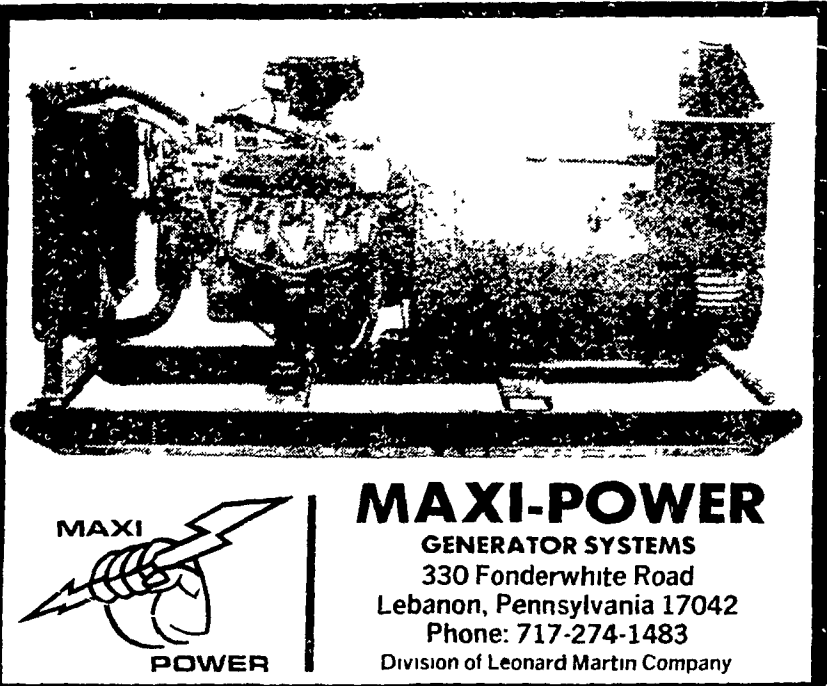
William F. Dietrich, Sr., President of Dietrich's Milk Products, Inc., and chairman of the Reading Division, the largest fund raising unit, a total of \$168,490 subscribed for 67.3 percent of its \$250,000 goal; Gail Malsbury, Chairwoman of the 4-H Family Division, \$82,299 or 102.8 percent of the unit's \$80,000 goal, has been contributed.

Michael J. Kraynyak, Assistant Vice President, Bank of Pennsylvania, \$17,690 or 14.7 percent for Berks County; and William D.

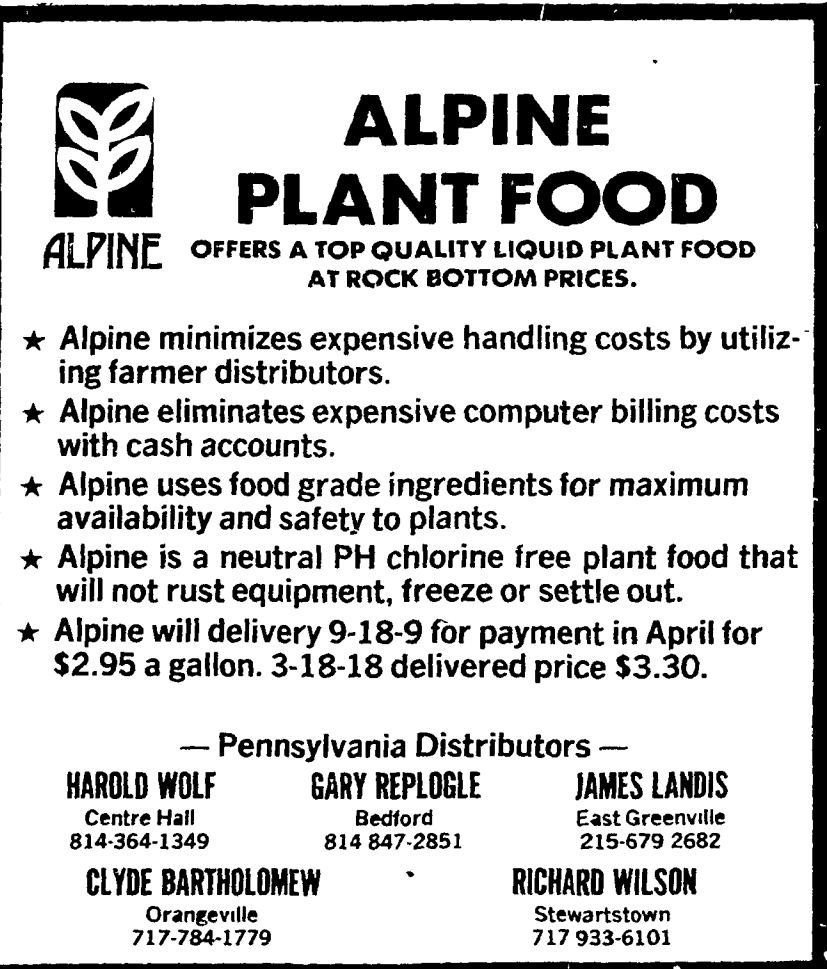
Angstadt, Vice President, Reading Bone Fertilizer, \$32,035 or 32 percent of the Agri-Business Division quota of \$100,000.

Clyde A.B. Myers, County Extension Agent, said that groundbreaking for the Community Building will begin in June with construction during the summer and fall months, with scheduled occupancy for the latter part of the year.

When completed, the new facility will have a 10,000 square foot open area for large meetings, shows, and recreational activities with seating for 800 spectators.



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