"Don't Need This House No Longer . . ."

Gone is this old stuccoed building, and in its place are foundations laid for a new Science Library. The old building was private home of a professor until 1938, when the block of land where it stood was bought by the university and added to the campus, so Bear Down Gym could be built.

In 1939 the building became nursery school for the Home Economics School. That was its role until the federal bee laboratory moved in, in the summer of 1953.

Frank Todd and his co-workers held sway until this past spring. In May they moved out, and in June the building was razed. The bee people, by the way, will soon have a new home on U of A farm property near the Dairy Research Center.

Interim bee lab this summer is El Merendero restaurant — and that's no coffee break, because the restaurant moved out before the bee scientists moved in.

Cost-Size Relationships Affecting Arizona Dairies

William E. Martin and James S. Hill

An article in the Fall, 1961 issue of Progressive Agriculture pointed out that Arizona farms were becoming bigger and fewer. Why is this occurring? Should we expect this trend to continue?

Farms tend to expand to the size that allows the most efficient operation — that is, the size where per-unit costs of production are at a minimum. Generally, per-unit costs of production for any group of firms producing the same product will follow a "bowl shaped" pattern. Costs are high for small firms, lower for larger firms as their fixed costs (overhead) are spread over more units of output, and then high again for very large firms as management encounters coordination difficulties. See Curve 1 in our graph as an example.

The authors are assistant professor and research associate, respectively, in the Department of Agricultural Economics.

When Times Are Good . . .

If the price received for the product is quite high, firms of all sizes may co-exist. Large firms may have the largest total profits but even small, high-cost firms will receive some profit. However, whenever profits exist there is a tendency for the total output of the industry to expand. After all, everyone would like to share in the wealth. And as total output expands, the price of the product will fall.

As prices fall, the smaller, inefficient firms try to expand in order to lower per-unit costs. Very large firms may have to contract in an effort to remain competitive. The results are that all firms tend to converge on a single, most efficient size of operation. Because of the many variables present in real life, this theoretical optimum is never attained by all firms, but the tendency is still there.

Varied Managerial Ability

One major modification of this tendency is that managers have different abilities. While the cost curve may turn up for the typical manager in the industry, some managers of above average ability may expand production without sacrificing efficiency. Such a situation is illustrated by Curves 2 and 3 in the graph. For these managers, the size of the firm is indeterminant. Once their firm has reached a certain minimum size, it may be expanded or contracted at will without affecting per-unit costs. The only restraint on ex-

(*continued on next page*)

June In

Cochise County

KAWT, Douglas—Check local listings
KWCT, Willcox — Mon. thru Fri., 7:45 a.m.

Coconino County

KCLS, Flagstaff — Tues. and Thurs., 8:20 a.m.
KGLS, Flagstaff (Home Agent) — Thurs., 9:45 a.m.
KPGE, Page — Fri., 2:30 p.m.

Graham County

KATO, Safford — Sat., 9:30 a.m.

Maricopa County

KTAR, Phoenix — Mon. thru Sat., 5:30 a.m.
KUPD, Phoenix — Mon. thru Sat., 5:30 a.m. and 12:25 p.m.
KPHO, Phoenix — Mon. (cotton report) 12:40 p.m.; Thurs. (dairy and livestock report) 12:40 p.m.

Navajo County

KDJI, Holbrook — Tues., 12:45 p.m.

Pinal County

KPIN, Casa Grande — Mon. thru Sat., 6:55 a.m.; Mon. and Fri., 9:30 a.m.; Tues., Thurs. and Sat., 12:20 p.m.; Fri., 5:00 p.m.; Sat., 7:00 a.m.

Santa Cruz County

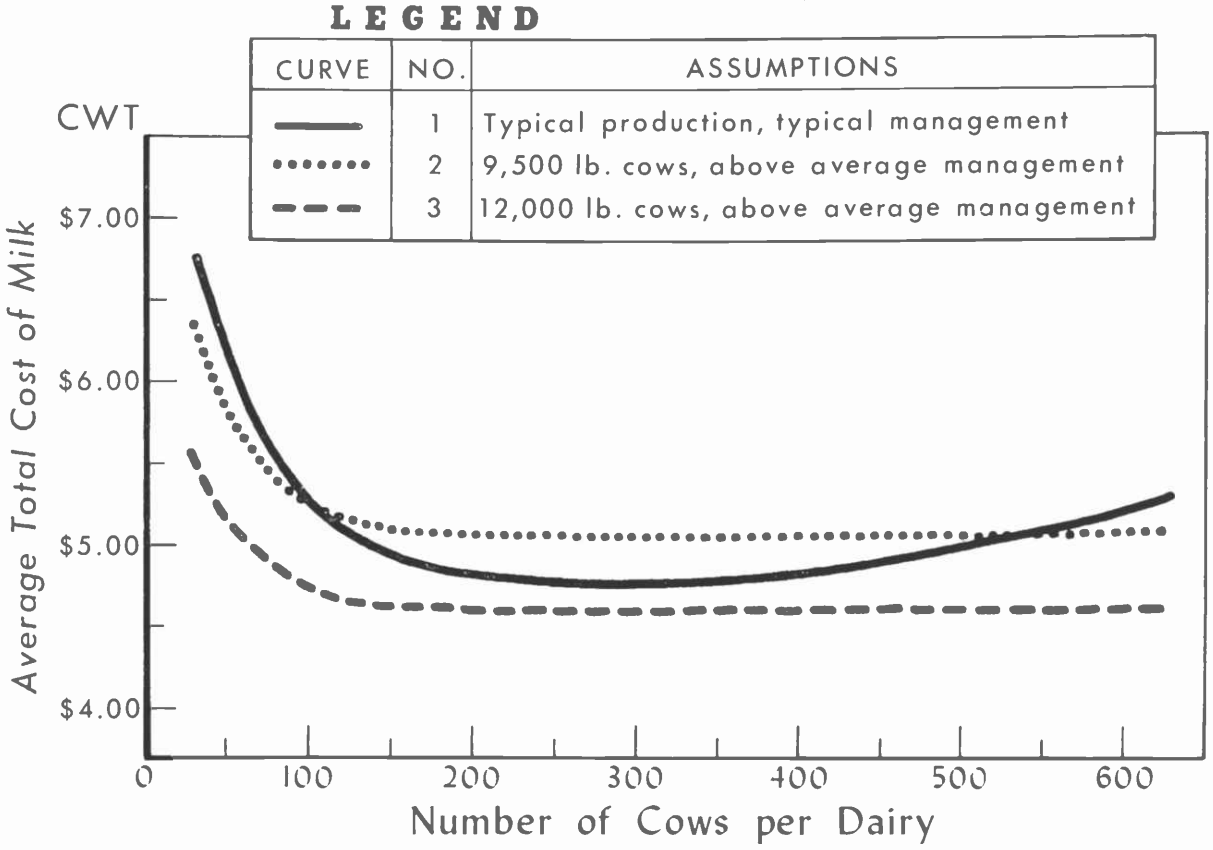
KNOG, Nogales — Mon., 6:30 a.m.

Yavapai County

KYCO, Prescott — Mon., Wed. and Fri., 5:55 p.m.
KNOT, Prescott — Mon., Wed. and Fri., 5:35 a.m.

Yuma County

KYUM, Yuma — Mon. thru Fri., 6:25 a.m.



LONG RUN AVERAGE total cost curves, Central Arizona Dairies, 1960.

(*continued from previous page*)
pansion is the owner's ability and desire to bear additional risk.

These theoretical concepts formed the basis of a recent study of Arizona's dairy industry. Detailed information was gathered on each input of the productive process by a farm survey of 37 central Arizona dairies. Supporting price and cost data were obtained from businessmen and others working with and selling to dairymen.

The objective was to determine the least-cost sizes for Arizona dairies. Once these sizes were known, one could make inferences about the industry's future pattern of growth.

Selected results are set forth in the graph. Curve 2 shows the cost of producing a hundredweight of milk in alternative sizes of dairies under the assumptions of above average management if average production per cow is equal to 9,500 pounds of milk per year. Both implicit and explicit costs are included. That is, such costs as depreciation of buildings and equipment and interest on invested capital are included, as well as direct costs such as feed and labor.

Curve Two Losing Money

Not even the most efficient operators depicted by Curve 1 are covering all of their costs. Only by living on their depreciation and/or by accepting little or no return on their capital investment can they remain in business.

Curve 3 depicts the costs of 12,000-pound dairies with above average management. With a price for milk of about $4.85 per hundredweight, herds of above 85 cows are covering all costs and in addition receiving a return for management. Smaller herds cannot make a profit even with this high level of production. Therefore, there is a tendency to expand to at least 85 cows; further profits may be obtained by expanding to 150 or more cows.

While the costs depicted by Curve 3 are possible, only a few Arizona dairymen are achieving this level of efficiency. Curve 1 presents the typical case. Small dairies typically have low average production in addition to high investment costs. Costs drop rapidly as average production increases and fixed costs are spread over more units of output. Typically, the minimum cost unit is around 300 head. Thereafter, management problems (including both feeding difficulties and lower production per cow) cause per-unit costs to rise.

150-Cow Unit Efficient

Conclusions from this analysis are that even inefficient operators can lower per-unit costs by expanding their herd size to 150 cows. Therefore we may expect the many Arizona herds with less than 150 cows to attempt expansion. Since not all operators will wish to expand, or be able to expand, many of these small herds will be absorbed by other operators during the expansion process.

The better operators will find that they can produce just as efficiently with more than 150 cows as with only 150 cows. These operators may expand as they wish. Thus, the prevailing tendency will be to have 150 cows or more.

However, many operators attempting expansion beyond 150 cows will encounter management difficulties. Today's price-cost squeeze will not allow inefficiency. Therefore, these operators will tend to reduce their herds to the number that they can handle efficiently, or else go out of business. Thus, the majority of Arizona dairies can be expected to stabilize at around 150 to 200 head of cows.

We can now answer the two questions posed in the opening paragraph of this article: Farms get bigger and fewer in order to gain cost efficiency; and, at least in dairying, since the majority of Arizona dairies now milk less than 150 cows, we may expect the trend toward larger and fewer farms to continue.

For further details see: Martin, William E., and James S. Hill, *Cost-Size Relationships for Central Arizona Dairies*. Arizona Agri. Exp. Sta. Tech. Bul. 149. Sept. 1962.

U.S.D.A. Sees Upswing In Nation's Agriculture

U. S. agricultural policies and programs in 1961-62 have produced a decided upswing in the agricultural economy, with benefit to farmers, businessmen and consumers.

Farm income is higher, food prices are stabilized, farm assets are higher, agricultural exports are at a new high. We are sharing more of our abundance at home and abroad.

Surplus grain stocks have been reduced. Crop production is more in line with needs. Our soil, water and forests are better protected, and a revitalized rural renewal program is surging ahead with new life.

Farm Income Higher

Net farm income in 1961 was $12.8 billion, $1.1 billion higher than 1960 — highest net income since 1953 — and expected to stay at this level in 1962. Gross farm income increased from $38 billion to $40 billion — almost $2 billion more in spending power.

Net income per farm rose from about $2,960 in 1960 to $3,360 in 1961 — up 13½%. Hourly returns rose from 83 cents to 99 cents an hour for all farm labor and management. A small part of this reflects a change in census definition.

Food Prices Stable

Food prices remained relatively stable. Food-at-home prices rose less than 2% from 1960 to mid-1962. All food prices rose 2.4%, the same as the entire Consumer Price Index. We spend less of our take-home pay for food than ever before — about 20% in 1962 compared with 26% 15 years ago. We spent the same proportion in early 1962 as early 1961 — 19.7%.

Food is safe and wholesome. USDA inspected 40.5 billion pounds (liveweight) of meat in fiscal 1962 compared with 39.4 billion pounds in 1961. Condemned as unwholesome in 1962 were 320 million pounds. Inspected poultry increased from 7.5 billion pounds (liveweight) in fiscal 1961 to 8.1 billion pounds in 1962. USDA condemned as unwholesome 188 million pounds of poultry in 1962. Meat, poultry, dairy products, fruits and vegetables also are graded to enable consumers to know quality of food purchased.

Farm Assets Higher

Farm assets showed a good gain also. Total agricultural assets were about $200 billion in 1959, 1960 and 1961, with a big jump to $207 billion in 1962.

—USDA News Letter