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FEWER MAN-HOURS FOR LIVESTOCK PRODUCTION

Larger flocks and herds, modern equipment, and better management result in less labor for each unit of livestock, reports the Economic Research Service. This trend has been evident since the early 1900's — and particularly since the late 1930's.

Man-hours used for livestock production include labor for hauling and preparing feed, feeding, cleaning barns and pens, moving animals to and from pastures or ranges, general care, and selling the output. The time spent in producing feed and maintaining pastures and farm buildings is not included.

The most spectacular changes in labor needs have been for the production of turkeys and broilers. Labor used per unit of turkey output in the United States in 1960-62 averaged only 12 percent of the requirements of a quarter century earlier. Labor used per 100 pounds of broilers was also reduced to 12 percent of the 1935-39 average.

The size of the poultry flocks has shown substantial changes, too. The average flock of turkeys raised in 1959 contained about 950 birds, or 13 times the 1939 average. From 1954 (the first year data were reported on the number of broilers per farm) to 1959, sales of U. S. broilers rose from 16,000 to 34,000 birds per farm.

In the 1930's, almost 150 man-hours a year were required per milk cow for feeding, milking, care, and related chores. Use of milking machines, automatic feeders, feed and litter carriers, barn cleaners, convenient water systems, and milking parlors reduced the labor required per cow in 1960-62 to fewer than 100 hours. Bulk handling of milk and use of pipeline installations have also helped to reduce time requirements.

The new methods and equipment have enabled dairymen to increase the size of their herds. In 1939, there were five milk cows per farm in the United States; by 1959, the number had risen to nine cows. Most dairy chores can be done for a large herd in approximately the same time needed for a small one; consequently, the trend to larger herds has helped to reduce the number of man-hours required per cow.

Although labor requirements were lowered, improved breeding, better feeds and feeding methods, and superior management have re-

Labor Used for Livestock Production

Product	Man-hours per hundredweight	
	1960-62	1935-39
Milk cows[1]	1.3	3.4
Beef cattle	2.9	4.2
Hogs	2.2	3.2
Eggs[2]	0.6	1.7
Broilers	1.0	8.5
Turkeys	3.0	23.7

[1] Per hundredweight of milk.
[2] Per 100 eggs.
SOURCE: U. S. Department of Agriculture.

FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

sulted in more milk per cow. National milk production was almost 7,200 pounds per cow in 1960-62, compared with 4,400 pounds in 1935-39.

The time used for production of beef cattle and hogs decreased almost as much as did the requirements for dairy and poultry output. Man-hours per unit of production have been reduced about 30 percent since the late 1930's.

Fat Lighter Than Lean

A technique first discovered by Oklahoma Agricultural Experiment Station scientists is now being used widely in technical meat research throughout the United States, as well as other parts of the world. The Oklahoma scientists were the first to use the specific gravity technique for estimating the amount of lean meat in swine carcasses.

According to the experiment station, the method is based on the fact that fat is lighter than muscle in water. The procedure is to weigh the carcass in air and then weigh it in water. The fatter the carcass, the lighter it is in water; the leaner the carcass, the heavier it is in water. The Oklahoma specialists think this method is probably one of the best ways to estimate the leanness of carcasses, for research purposes, and is as near to chemical analysis as is any other method.

Heavy Grazing Reduces Water Intake

The continued heavy grazing of Southern Great Plains ranges may seriously restrict the soil's ability to absorb moisture that is needed for grass production. Agricultural Research Service scientists have found that the water-intake rate of ranges heavily grazed for 20 years was only about one-half that of lightly grazed ranges, according to G. O. Hoffman, Range Specialist with the Texas Agricultural Extension Service. The water intake was 2.27 inches per hour after heavy grazing, 3.64 inches after moderate grazing, and 4.41 inches after light grazing.

The reduction of vegetative cover by heavy grazing was the major reason cited for the decrease in water intake. Mr. Hoffman emphasizes the importance of managing grazing intensity in order to obtain the greatest benefit from moisture on loamy, fine sandy soils in the Southern Great Plains.

In the research, short, sod-forming grasses — including blue grama, sand dropseed, fall witchgrass, and sand paspalum — predominated in the heavily grazed pastures. These grasses had replaced such taller species as sand bluestem, little bluestem, switch grass, and sand lovegrass.

The studies revealed that continued heavy grazing compacted the soil more than did light grazing. This compaction further reduced the ability of the land to absorb rain. Grazing intensity had little or no effect on the amount of either organic matter or nitrogen in the soil.

During the 20-year grazing period, an average of 12 acres per year was allowed for each mature beef animal for heaving grazing, 17 acres per animal unit for moderate grazing, and 22 acres per animal unit for light grazing. Precipitation averaged about 23 inches per year but varied from 10 to 42 inches.

Crambe Shows Promise in Texas

Crambe, a potential new oilseed crop, is showing promise in work being done at Texas A&M University and the Lower Rio Grande Valley Research and Extension Center at Weslaco. Dr. Eli Whiteley, Associate Professor in the Soil and Crop Science Department at Texas A&M, says that the new crop grows especially well in the Blacklands, south Texas, and the Lower Rio Grande Valley.

Crambe is in the same plant family as mustard and rape and will grow in almost all areas where wheat is produced. Oil from the plant contains up to 60 percent erucic acid, an industrial chemical now obtained from imported rapeseed oil.

Insect Resistance to Pesticides

Insects that cause damage to stored agricultural products show signs of developing resistance to pesticides similar to that previously noted in field insects. Preliminary reports from Agricultural Marketing Service researchers

show that at least some species of insects damaging to products in storage no longer can be controlled with the same pesticides or amounts of application which formerly were effective.

In one survey, insects from a warehouse where malathion had been applied required 4½ times the dosage used on a laboratory strain of the pests in order to achieve the same control results. The AMS specialists have also found indications of resistance to pyrethrum in insects from Florida warehouses. In order to obtain further information on this significant development, AMS researchers have started a project to determine which species of insects affecting stored products may be developing resistance, the degree of resistance, and how widespread it may be.

The development of resistance by stored-product insects is especially important, according to the AMS. Only a very few insecticides are approved for use where stored products are involved, as these commodities often are already processed and there usually is not much time for the effects of the insecticide to dissipate before the product reaches the consumer.

The AMS says that substitute insecticides are difficult to develop because of the high safety factors required for those materials to be used against stored-product insects. Furthermore, three or more years may be needed to obtain the research data required for the approval and establishment of proper safeguards for a promising new insecticide.

Despite the difficulties involved, AMS reseachers are continuing projects aimed at discovering promising new insecticides to be used on stored products in place of those to which insect resistance has been detected. In addition, work is being done on nonchemical means of insect control to achieve protection of stored products.

Metergate for Irrigators

An experimental device for diverting and measuring the amount of irrigation water applied to fields promises to help farmers avoid wasting water by overirrigation, according to the U. S. Department of Agriculture. The device, called an L-metergate, was designed by Dr. Cyril W. Lauritzen, Soil Scientist with the USDA's Agricultural Research Service, in cooperation with the Utah Agricultural Experiment Station.

Dr. Lauritzen says that the prevention of waste by irrigation can make a major contribution to water conservation. Irrigation accounts for 46 percent of all water diverted from the Nation's rivers and streams.

The experimental L-metergate has the advantage of being leak-free, low-cost, and easy to install and operate. Conventional turnouts, or lateral headgates, are relatively watertight when new but often become leaky because they are easily damaged in closing. Dr. Lauritzen says that additional research is needed to calibrate water flow throughout the gate at various openings under usual installation conditions.

Two Thin Dimes

The U. S. homemaker paid an average of about 20 cents a week more for a market basket of farm food in 1963 than she did in the previous year. The retail cost of the market basket averaged $1,078 for the year 1963, or approximately 1 percent above 1962. The cost would have advanced even more, however, if increased marketing charges had not been largely offset by decreased returns to farmers, according to the Economic Research Service.

The value to the farmer of the foods in the market basket was $394 in 1963, a figure $15 less than a year earlier but 1 percent above the postwar low in 1956. In other words, the farmer's share of the consumer's food dollar spent in U. S. retail stores declined to 37 cents — the smallest share since 1934, when it was 34 cents.

The charges for marketing the food amounted to $684 in 1963, an increase of $26 over 1962. The ERS asks the question, "Where then did the 20 cents extra the housewife spent

actually go?" Transportation costs did not rise. Neither did the prices of most goods and services bought by food manufacturing firms. On the other hand, there was an increase in the amount that food marketing firms paid for such items as rent and depreciation on equipment.

After-tax profits of food manufacturers did not increase. They amounted to 2.2 percent of sales in the first 9 months of 1963 — the same level as in 1962. After-tax profits of a group of 16 leading U. S. food chains for the first 9 months of 1963 averaged 1.2 percent — unchanged from the previous year.

The ERS says that some of the retail price increase for food probably resulted from higher labor costs. Hourly earnings of food marketing employees were 3 percent higher in 1963 than in 1962; however, this gain was partly offet by increased output per man-hour.

Climatized Poultry Houses

More ventilation and insulation systems are being installed in Texas poultry houses each year, reports W. S. Allen, Agricultural Engineer with the Texas Agricultural Extension Service. Mr. Allen says that insulation not only keeps cold winter weather out of the houses but also repels heat from the sun.

Many problems can arise when chickens are confined in poultry houses. Too little air movement contributes to diseases and poor production of the birds. On the other hand, too much air movement is also undesirable. Since 1,000 hens deposit almost a barrel of water in the air each day, removal of this moisture creates a problem.

The specialist states that there are several types of ventilation and insulation systems that can be used for poultry houses. One method is to insulate the ceiling of the building and ventilate the structure through side flaps. Another is to install insulating material in the ceiling and walls and use forced ventilation to remove moisture and heat from the poultry house.

Requirements for insulating and ventilating chicken houses vary, depending upon such factors as the size of the birds and the number of chickens in the poultry house. The system of insulation and ventilation selected should be designed for maximum economy and long life, according to Mr. Allen.

Phosphated Wheat

Wheat receiving a fall application of 40 pounds of superphosphate per acre appeared to have better spring growth and greater winter hardiness than nonphosphated wheat in experiments at the North Central Texas Research Station at Denton, reports Daniel I. Dudley, Superintendent. In late March, wheat receiving the phosphate treatment was as much as 1 foot tall, while that in some untreated plots was only 5 inches in height.

Results of the experiments indicate that wheat producers with limited fertilizer budgets may find it profitable to spend more money on phosphate if they cannot afford complete fertilization. Phosphate fertilization may be most important to wheat growers if the crop is to be grazed. Wheat with phosphate seemed to get off to a better start at the Denton station this spring and immediately showed greater growth than unfertilized plots. Mr. Dudley says that the same reaction could be expected over much of the north-central part of Texas.

Research on the benefits of phosphate is by no means complete. Observations at the Denton station have been made from work being done by Agronomist Pat Rich, who is conducting experiments on the long-term effects of wheat-milo rotations with different management and fertilization programs.

Bobby Sanderson of Evergreen, North Carolina, has discovered a way to trick sows into accepting orphan pigs, reports the U. S. Department of Agriculture. All of the pigs are dusted with talcum powder; consequently, the sow cannot tell her own offspring from the "visitors" she is to adopt. Mr. Sanderson uses this method to even up litters when a sow has too many pigs to feed.