

FARM AND RANCH BULLETIN

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TOOLS OF THE TRADE

Modern methods and implements have greatly increased farm productivity, but they often have required a large capital outlay, says Paul E. Strickler of the Economic Research Service. For example, domestic shipments of farm machinery and equipment are valued at around \$2 billion annually. The American farmer often spends the major part of his budget on the machines that help in planting, working, and harvesting his crops. Better technology, larger size farms, and up-trending gross farm income contribute to the increasing utilization of farm machinery.

One indicator of this increased use of farm machines is expenditures for gasoline and other petroleum fuel and oil, which are used mainly for field work. Between 1959 and 1964, expenditures for farm fuel rose 15 percent to reach a total of nearly \$1.8 billion. A larger number of tractors and trucks, together with an expansion in such activities as crop drying, irrigation, and pest control, helped account for the increase.

Another gauge of the growing use of farm machinery is the money that farmers spend to hire machines and crews. For example, the 1964 Census of Agriculture showed 17 percent fewer farms reporting 8 percent more money spent on machine hire, custom work, and contract labor than in the census which was taken 5 years earlier. Despite the 15-percent decrease in U.S. farm numbers between 1959 and 1964, growth was reported for many types of farm machinery. Comparisons show that —

- Truck numbers increased 7 percent to a total of over 3 million.
- Wheel and crawler tractor numbers rose to a total of nearly 5 million, including a 2.5-percent gain for wheel types. Purchases of used tractors apparently increased substantially, while technological improvements — such as high flotation tires, dual tires, four-wheel drive, and tandem hitching — made wheel tractors more competitive with the crawler type.
- An increase of almost a quarter-million units, due partly to the inclusion of motor-tillers, brought the combined number of garden tractors and motor-tillers on farms to about 700,000.
- The number of pick-up balers increased 71,000 during the 1959-64 period.
- Hay conditioners (which were reported for the first time in 1964) totaled almost 200,000, while the number of farms reporting crop driers rose 50 percent during the period to 76,000.
- Bulk milk tanks on farms increased from an estimated 140,000 in 1959 to the 200,000 level in 1964.

Replacement of worn and obsolete equipment accounts for a large proportion of machinery purchases and provides an opportunity for many farmers to step up to the use of bigger machines. Purchases of corn harvesters offer a good example. A surge in field shelling of corn has accelerated the retirement rate for

corn pickers and has boosted the number of picker-shellers that farmers buy.

Pull-type grain or bean combines frequently are replaced by self-propelled units having a bigger harvest capacity. As a result, 80 percent of the combines shipped in recent years have been the self-propelled type. Some farmers have even found that although they own pull-type models, it pays to hire custom-operated combines.

Partly as a result of replacement by newer models, there are more machines on farms than are presently in use or usable. This fact was highlighted in 1964, when instead of asking farmers to report all equipment owned, census takers requested that the respondents report only that which had been used in the two preceding years. The decline in the reported number of grain and bean combines, from 1.04 million in 1959 to 0.91 million in 1964, is attributable partly to the more realistic method of reporting.

A Paying Proposition

A rancher in De Witt County, Texas, is realizing an extra \$3.51 per acre by using chemical weed and brush control measures in a range management demonstration, reports Texas A&M University. The demonstration is on the Will Rob Miller ranch near Westhoff.

One pasture on the range was treated with an aerial application of 2,4,5-T, diesel oil, and water, while a similar pasture received no treatment. The cost for the chemicals and application amounted to about \$3 per acre, but this cost was more than offset by the extra beef raised. The treated pasture produced an average of over 65 pounds of weaning calf per acre, and the untreated pasture yielded only about 49 pounds an acre.

Clipping tests revealed that grass on the treated pasture produced 6,300 pounds of air-dry forage per acre, while the untreated pasture yielded only 2,965 pounds an acre. Because of less competition for moisture from weeds and brush, soil moisture in the treated pasture averaged more than 2 percent higher than that in the untreated pasture.

The treated pasture was stocked at the rate of one animal unit to 6.5 acres, and the untreated pasture was stocked with one animal unit to 8.0 acres. A shortage of grazing in the untreated pasture necessitated the feeding of hay to the cows, at a cost of \$1.71 per acre. Texas A&M University says that the demonstration indicates that chemical weed and brush control used with a deferment program will be a paying proposition for most ranchers.

Chicken Feed



Barley, oats, or wheat can be substituted for corn as the only grain in rations for chicken layers when the rations contain at least 12.5 percent protein, reports Dr. Robert J. Lillie, Poultry Nutritionist with

the Agricultural Research Service. In order to compare the four grains, supplies were purchased on the open market without regard to source.

The protein and energy content of the grain rations were equalized with protein at the rates of 10.0, 12.5, and 15.0 percent. Energy levels of the rations were 630, 735, and 840 calories per pound, respectively. Energy and protein were adjusted by adding or subtracting soybean meal, fat, and fiber. Mineral and vitamin levels were above minimum requirements.

During two 48-week tests, White Leghorn pullets (placed on trial when they were 20 weeks of age) laid just as well on feed containing barley, oats, or wheat as they did on that including corn when the rations contained from 12.5 to 15.0 percent protein. Feed consumption per dozen eggs produced was about the same for all the grains.

Corn has been the traditional grain in layer rations. However, with the spread of egg production to regions where corn is not grown extensively and with the gradual trend toward a narrower price gap between corn and other grains, some producers may at times want to substitute other grains for corn, according to the ARS.

Smaller Honey Crop in Prospect

The 1967 honey crop in the 48 contiguous states is indicated at 219 million pounds, or 11 percent below the 1966 production, according to the Statistical Reporting Service. Yield per colony of bees is expected to average 45 pounds of honey, compared with 52 pounds last year. The estimated production is based on 4.8 million colonies of bees on hand as of July 1, 1967, reflecting a 1-percent increase over the year-earlier level.

Honey production in the states of the Eleventh Federal Reserve District (Arizona, Louisiana, New Mexico, Oklahoma, and Texas) for 1967 is indicated to be 21 million pounds, which is 15 percent less than the 1966 outturn. The number of bee colonies is placed at 470,000, or 14,000 fewer than a year ago. Honey yield per colony of bees is expected to average 45 pounds in 1967, compared with 51 pounds last year.

Serious Screwworm Situation

Animal health officials and Texas livestock producers are gravely concerned over the rapidly rising number of screwworm cases being confirmed in the State. Dolph Briscoe, Jr., of Uvalde, President of the Southwest Animal Health Research Foundation, says that recent floods in south Texas and rainfall throughout central and west Texas pose the greatest threat to the screwworm program since eradication was achieved in 1964. Numerous cases have been reported throughout the hill country and southward in the overwintering area.

The Southwest Screwworm Eradication Plant at Moore Field, near Mission, survived Hurricane Beulah and resulting floods without serious damage; however, strong winds from the hurricane may have blown many fertile native screwworm flies into south Texas from below the barrier zone in Mexico. The danger is that the buildup of native flies could occur in any part of Texas and, if unreported, could cause the screwworm situation to get out of control rapidly. Livestock producers are urged to be particularly vigilant in checking their animals and in sending worm samples to the Mission laboratory immediately for diagnosis.

Cattle Feeding in Texas and Oklahoma

The Economic Research Service says that Texas and Oklahoma have an abundance of the basic needs of the cattle feeding industry: (1) feed grains and roughage, (2) feeder cattle and calves, and (3) water. The North Central Region traditionally has been the center of cattle feeding, but its share of the total number of cattle on feed decreased from 77 percent in 1950 to 62 percent in 1966. At the same time, sharp gains occurred in the shares of the West and Southwest.

The number, size, and capacity of feedlots have changed significantly in Texas and Oklahoma since 1955. The number of Texas feedlots with a capacity of 1,000 or more head of cattle increased from 61 in 1955 to 245 in 1966. The capacity of these lots rose from a total of 160,000 to 884,000 head. The ERS states that cattle feeding is expected to continue its expansion in Texas and Oklahoma as a result of the ready supply of resources, rapidly growing population, rising incomes, and shifting tastes and preferences for beef in the Southern Plains.

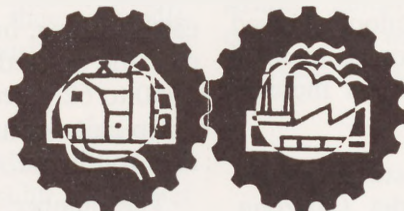
Numbers of cattle on feed increased 124 percent from 1950 to 1966. This growth has brought a new look to livestock marketing, with the predominant change occurring in the terminal markets. The proportion of slaughter cattle bought by packers in terminal markets decreased from 75 percent in 1950 to 37 percent in 1966. By 1964, there was a significant shift to direct buying by packers and country dealers. Auction markets also furnished substantial volumes of slaughter animals by 1964.

The increase in direct marketing has had a definite impact upon the other aspects of the livestock and meat economy. Large numbers of finished cattle are being sold direct from the feedlot to the packer. In 15 selected states, feedlots with capacities of 1,000 or more head were reported by the National Commission on Food Marketing to have sold 71 percent of their finished cattle directly to packers on a live-weight basis in 1964. The ERS says that direct methods of selling likely will increase as larger proportions of slaughter cattle originate from the feedlots.

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TOMORROW'S FOOD AND FIBRE — EVERYBODY'S BUSINESS

A Chip Off the Old Block

Sales of wood chips by the Texas lumber industry exceed \$6.5 million annually, according to a study by Texas A&M University. The chips are small particles of wood which are used in making pulp. They usually are one-half of an inch square and one-eighth of an inch thick and are made by chipping sawmill slabs, veneer cores, poles, and cull crossties.

Texas A&M University researchers say that this aspect of the lumber industry began in 1954 as a cooperative effort between pulp and paper mills and a group of sawmill operators to explore the feasibility of producing chips from wood residues for making pulp. Sales of wood chips have provided a needed stimulus to many Texas lumber producers. In addition, the chips have been an important factor in assisting pulp and paper mills in meeting the increasing demand for paper and allied products. There are about 49 firms engaged in this activity, and continued growth in production of wood chips is expected.

Cause of Low Digestibility of Grass Discovered

Low digestibility — a characteristic of certain grasses, such as reed canary, coastal Bermuda, and tall fescue — is caused by their relatively high silica content, reports Dr. Peter

J. Van Soest, Nutritionist with the Agricultural Research Service. Silica is a flinty compound that forms the basic structure of sand. Dr. Van Soest says that grasses actually metabolize silica and incorporate it into cell walls; in contrast, legumes do not take up silica.

Statistical studies by Dr. Van Soest showed that the indigestibility of grasses unexplained by known factors (such as lignin content) is closely related to silica content. Studies with artificial ruminants revealed that when silica is chemically removed, the digestibility of grasses improves.

Silica interferes with the digestibility of other grass components. For every additional unit of silica contained in a grass, digestibility decreases three times. The ARS says that Dr. Van Soest's findings can be helpful to farmers by making more accurate evaluation of the nutritive content of grasses. Moreover, new breeds of grasses may be developed that will not accumulate silica.

Half of the Nation's farmers do not hire any workers at all; consequently, the hired labor force is found on the larger farms — those that sell \$10,000 or more of farm products annually. In 1964, 89 percent of all expenditures for hired farm labor were on the 27 percent of farms with gross sales of \$10,000 and over, according to the Economic Research Service.