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NEW RULES IN THE CATTLE GAME

The rise in cattle feeding has brought about a shift in the location of beef production and in the source of feeder cattle — largely from the western and Plains states to the Southeast and Midwest. The U. S. Department of Agriculture's Economic Research Service says that these changes could be illustrated by using the feeder cattle market as the basis for a board game.

Several basic elements would be needed in order to play the game. The playing board would be a map of the United States, and the playing pieces would represent ranches, feedlots, rail lines, and highways. By maneuvering the pieces on the board, the players could get a clear picture of how the livestock industry operates and the changes that have taken place since the 1940's.

Perhaps the most obvious move to be played is the shift in the importance of feeder cattle producing areas, according to the ERS. For example, in 1935-39 the western and six Plains states combined accounted for three-fourths of all the beef cows in the United States. Despite an increase in actual numbers, the West had only 60 percent of all beef cows in 1960-64. Between the two periods, farmers in the Southeast and Corn Belt increased their stake in cow herds and calf production.

With the reduction in cotton allotments, southerners put some of their cotton land into grass and improved the quality of their herds. In the Corn Belt, high corn yields maintained land values, and grain production was more

profitable than pasture. Since the feeding of corn results in a substantial improvement in beef quality, farmers found the grain to be more valuable when marketed as beef. Consequently, the practice of feeding grain to feeder cattle in the Corn Belt has remained strong — so strong that calf production from cow herds in the Corn Belt areas, where grazing is most profitable, has increased considerably.

The next move in the cattle industry game is the change in the source of stocker-feeder cattle production. The western states' share of output of these animals decreased from 70 percent in the midforties to 62 percent in 1962. Feedlot managers want low-priced cattle that are fast, efficient gainers. Southern animals have been competing successfully with native cattle for space in many western and intermountain area feedlots.

Another move of the "pieces" in the game since the 1940's is the growth in the importance of concentrate feeding. Over the years, the number of grass-fed cattle sold for slaughter has declined gradually. The feedlot has become an even more important outlet for young cattle. In 1962, western producers marketed around 10.7 million head of stockers and feeders. About 9.6 million head went to cattle feeders within the western region — mainly in California, Kansas, Texas, Nebraska, Colorado, and Arizona. Most of the remaining cattle were shipped to the Corn Belt.

The development of trucks and improvements in highways have been important in the

changing patterns of feeder cattle movements, points out the ERS. Prior to 1930, cattle shipments were largely via railroads. For all practical purposes, the shipments were limited to areas served by rail. Shipments from the South to the Southwest, for example, were indirect and costly. Better highways and trucks have permitted feeders to be shipped efficiently in all directions.

Western Hemisphere Markets

A recent study on U. S. farm trade shows that Canada is expected to remain the dominant market for U. S. farm exports in the Western Hemisphere during the next few years. Prospects for expanding markets in Latin America appear brightest in Mexico, Peru, and Venezuela, according to the Economic Research Service.

The report shows that the Western Hemisphere takes a larger share of total U. S. farm exports today than it did prior to World War II. In 1963 the United States shipped nearly \$1 billion worth of farm commodities, or 19 percent of total agricultural exports, to Western Hemisphere countries. In 1935-39, our average sales to these countries were only \$119 million, or 16 percent of worldwide exports.

The accelerated pace of U. S. exports to Western Hemisphere countries in recent years has been maintained only through stepped-up sales to Canada. Shipments to Latin America have decreased. One of the major reasons for the decline is the loss of our Cuban market, which amounted to around \$145 million annually in the pre-Castro regime.

Although the situation is somewhat better than it was 5 years ago, U. S. trade with Latin America has been curtailed by trade barriers imposed in countries attempting to stem the outflow of foreign exchange, states the ERS.

World's First Anaplasmosis Vaccine!

Scientists with the Oklahoma Agricultural Experiment Station have developed the world's first successful vaccine for anaplasmosis in cattle. Anaplasmosis, a blood disease, is the fourth most costly cattle disease in the United

States. The disease results in losses to Oklahoma cattlemen of approximately \$7 million annually.

The new vaccine substantially reduces death losses, as well as weight losses and other damaging symptoms of anaplasmosis. Although it does not always prevent animals from contracting anaplasmosis, the vaccine greatly reduces the severity of the disease. The Oklahoma scientists have found that the vaccine protects an animal for at least a year.

Two doses of the vaccine are required, according to the experiment station. Cattle in Oklahoma should be vaccinated between December and May. The anaplasmosis vaccine will be available through veterinarians in the fall of 1965.

Live Oak Decline Widespread in Texas



Widespread destruction of live oak trees in Texas during the past 35 years has resulted from what researchers believe to be a specific fungus, points out Dr. R. S. Halliwell, Assistant Professor in the Plant Sciences Department of Texas A&M University. Dr. Halliwell says that live oak decline was first observed in the vicinity of Austin in 1933. Since that time, the "disease" has spread to most of the live oak habitats of Texas.

Occurrence of the disease in many new areas during the past year has caused growing concern among both tree owners and researchers. The disease shows little preference as to locality or environmental conditions. It affects both cultivated and forest trees, young as well as old trees, trees on both acid and alkaline soils, trees on sandy and heavy clay soils, and trees in humid and dry climates.

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Yellowing of leaves is the first outward symptom of an infected tree, according to Dr. Halliwell. Leaf yellowing may occur on certain branches or on the entire tree. If the whole tree is affected, it usually dies within a week or

two; otherwise, the decline takes from 1 to 2 years. The heartwood of infected trees has a brown discoloration and a faint odor resembling acetic acid.

The specialist says that no satisfactory control for live oak decline has been developed as yet. However, live oak tree owners can reduce the chances for their trees to become infected by removing all infected trees immediately after detection and by maintaining the trees in a healthy condition through supplying sufficient amounts of moisture and plant nutrients.

More Efficient Tomato Packing

By making minor changes in their packing lines, many packinghouse operators can pack tomatoes at lower costs, reports the U. S. Department of Agriculture. Moreover, the improvements would help hold down retail prices, which reflect marketing costs.

Marketing researchers with the Agricultural Research Service say that the recommended changes in the tomato packing systems could reduce handling costs at some packinghouses by as much as \$7,000 a year. Examples would be packing plants handling an annual volume of 200,000 60-pound containers or 300,000 40-pound containers. Although they are based on systems used in Florida packinghouses, the improvements apply to other states, according to the ARS specialists.

In the Florida studies, the most efficient tomato packing system was operated by 17 workers, who handled a volume that would require as many as 31 workers using less-efficient procedures. In the system, check weighing was done at the end of the packing line rather than at each packing station. In addition, a drop-side-bin packing method improved slower stations, and a backstop improved faster, open-spout stations. A container chute and a 90-degree conveyor were also used at each station.

Details of the Florida studies are included in Marketing Research Report MRR-691, *Reducing Costs of Packing Mature-Green Tomatoes at Florida Shipping Points*. Single copies of the report may be obtained, without

charge, from the Office of Information, U. S. Department of Agriculture, Washington, D. C. 20250.

Dairymen Can Overcome "Summer Slump"

Good dairy management during hot weather can maintain August milk production near the May level, reports the U. S. Department of Agriculture. Dairymen have long complained about a "summer slump"—generally considered a result of hot weather. However, research indicates that reduced milk yield is not primarily due to heat exhaustion in cattle.

After exposing dairy cows to a variety of temperature-humidity combinations in an artificial climate laboratory, Dr. Robert E. McDowell, Dairy Scientist with the Agricultural Research Service at Beltsville, Maryland, has found that cows can adjust exceptionally well to the direct effects of heat and humidity. He says that the more trials they run, the more convinced the scientists are that milk flow tends to decrease largely because of summer-time problems which are the indirect—and not the direct—result of hot weather. Dr. McDowell recommends that herd managers take the following steps to overcome problems brought on by hot weather.

- Provide sufficient high-quality feed and avoid mature pasture grasses.
- Keep animals from having to travel far to feed, water and shade.
- Allow grazing only during the cooler hours of the day.
- Control biting insects, which are worse during the late evening and night.
- Provide adequate shade and plenty of fresh, cool water.

Milk Cooling Time

Agricultural Research Service scientists have completed the first stage of research to determine how fast milk should be cooled in a bulk tank. Milksheds regulate the cooling rate of milk, usually specifying that it must be

lowered to 50° Fahrenheit in 1 hour. Although no research results are available to support the 1-hour cooling period, the time is considered to be within a safe limit.

Fast cooling of milk is costly, however, and may cause a portion of it to freeze, resulting in possible harm to the flavor. Slow cooling also can be dangerous. Bacteria multiply much more rapidly at higher temperatures, and if cooling is too slow, the milk can deteriorate noticeably.

ARS specialists have taken as long as 4 hours after milking to cool high-quality milk from the cow's body temperature to 50° Fahrenheit. They have found that the 4-hour cooling period permits excessive bacterial growth, even in milk of the highest quality. Indications are that milk of uniformly high quality can be cooled safely to 50° Fahrenheit in 2½ hours.

The specialists emphasize that these preliminary findings apply only to research conditions. They are conducting tests with milk having higher bacteria counts in bulk coolers of various designs, hoping to cover all of the conditions a typical milk hauler may encounter on his route. The research is expected to yield objective information upon which to base the optimum time limit for cooling milk in bulk tanks, according to the ARS.

Dietetic Peanuts



Peanut fanciers with weight problems may have less cause for concern in the future, points out Secretary of Agriculture Freeman. A new low-calorie peanut can now be produced by a process that removes 80 percent of the oil (about three-fourths of the calories), leaving intact the original good flavor and high protein content. When it goes into commercial production, the product should open up new markets for peanut farmers, whose production has been increasing faster than the public's appetite for peanuts.

Exploratory studies have shown that the same process used with peanuts might be used

to produce low-calorie pecans, walnuts, almonds, Brazil nuts, cashews, and other nut meats. The shelled nuts are brought to the proper moisture content and placed in a hydraulic press to remove most of the oil, which constitutes about one-half of the peanut's weight. The pressed kernels return to their original shape and size when soaked in water.

Salt, sugar, spices, or other flavoring can be added to the peanuts during the "reconstitution" period. After drying, the low-calorie nuts are ready for eating, for roasting, or for use in candies and other foods.

CMT Limitation Reported

Studies of mastitis in dairy cattle indicate that the California Mastitis Test (CMT) is valuable for determining the severity of infections on a herd basis but that the test may be misleading when it is used on individual cows, reports Dr. James W. Smith of the Agricultural Research Service.

For the past 7 years or longer, the CMT has been available as a test which farmers could use during the milking process. The test provides a rough estimate of the severity of inflammation in a cow's udder. In many instances, farmers have used CMT results as a basis for deciding to discard milk or to remove a cow from the herd.

In order to use the CMT, the dairyman mixes a small amount of milk from each quarter of a cow's udder with an equal volume of a chemical reagent. The resulting degree of gelling is rated by several categories. These categories reflect roughly the number of udder tissue cells in the milk—an acceptable method of expressing the extent of udder inflammation.

ARS specialists consider the CMT to be dependable for showing whether the milk contains a high number of tissue cells but say that intermediate numbers cannot be interpreted accurately. The specialists suggest that the dairyman keep a day-to-day lookout for abnormalities in the cow's milk. Clots, flakes, blood, and wateriness in a milk sample require a careful follow-up check on the cow's health.