**The crop switch.** One thing producers made plain in the January 1 special survey of planting intentions: given a choice, they'd sow what they could most profitably grow and market in their respective regions.

The new 3-year farm program—the Agricultural Act of 1970—provides continued price/income assurance to producers of the supported commodities . . . but at the same time allows farmers to adjust acreages to changing market conditions and comparable production costs (see p. 4).

The upshot, by current indications, would be some shift in crop emphasis among regions. Briefly, the January 1 intentions survey showed that if producers carry out their January 1 plans, the regional picture would change like so in '71:

- **Northwest.** Sizable expansion in spring wheat area and some increase in barley. Cutbacks for oats.
- **Southwest.** Substantially more acres in cotton, though not quite as much as the 1971 allotment permits. At the same time, more land going to grain sorghum. Texas alone, the No. 1 sorghum State in the U.S., plans a 1 million-acre increase.
- **Midwest.** Continued heavy emphasis on corn. Some States on the eastern fringe turning to soybeans; switch is due in part to effects of the Southern corn leaf blight and uncertainties about the availability of resistant seed this year.
- **Southeast.** Buttressing of recent trend away from cotton, and decidedly in favor of soybeans. Sorghum also a big favorite in the Delta.

The net indication, for farming in the 35 States surveyed, points to a moderate acreage boost for corn, a good shot for sorghum and spring wheat plantings, some increase for soybeans, and little change for cotton.

**Soybean supply still tight.** For months it's been known soybean usage is ballooning faster than production can accommodate. Things haven't changed much.

Even though producers indicated on January 1 they'd plant roughly 7 percent more acres to beans this spring, the increment in output would fall short of market requirements—after taking into account the probable carryover into the new marketing year beginning September next. Carryover is estimated at "minimum operating level," maybe 65-70 million bushels.

Meantime, prices will reflect the close meshing of supply and demand. For 1970/71, prices may average about $2.80 a bushel. They ran $2.35 in 1969/70.

**Meat explosion.** The per person use of red meat in 1971 once again is heading for a new high. Last year it was a record 185.5 pounds—3.5 above the '69 consumption.

Well over half of that amount was beef. For the first half of 1971, the beef outlook calls for little change from year-earlier levels, when usage came to 56 pounds.

Pork, however, will be up. Per capita use in the first 6 months will more than compensate for lower consumption of veal and lamb.

Overall, the January-June use of all red meats may rise by 5 pounds per person over the comparable 1970 period. This increase will probably not be sustained in the last half of '71.

**N.B. for consumers.** Economists figure retail beef prices will hold near current levels through midyear; veal prices will remain strong; those for pork to edge lower; and lamb and mutton prices to stay near the levels of last fall.

**Re finances.** This will not be the year farmers have been waiting for in terms of growth in net income. Nevertheless, prospects for easier credit and reduced interest rates will help make the going more bearable.

Recent estimates of realized net farm income in '71 indicate some slippage from last year's $15.8 billion. Farmers as a group can expect further rises in production costs, whereas marketing receipts will not go up as much. Prices for livestock, for one, will average lower this year.

The credit story is more optimistic. Reports received by USDA indicate rates will back off by as much as 1 percentage point by midyear, always depending on the recovery pace of the economy in general.

 Funds made available to lenders and borrowers will be loosening. However—due to the rise in production costs plus more favorable interest rates—demand could strengthen for short- and medium-term credit to meet current operating expenses. Some producers may have to transfer short-term obligations to long-term real estate debts.

About the interest rates for short-term credit, the decline in the case of rural banks may be less than with the city banks. Rural banks didn't raise rates as sharply as city banks in '70.

**Cotton vs. manmade.** In 1970, for the first time in a decade, manmade fibers didn't gain yardage over cotton in the market for textiles—at least on the home front. Cotton's part of mill use last year probably maintained its '69 share of 40 percent.

In the 1970/71 crop year, cotton use stands to equal or exceed the previous year's 8 million bales. Though this is still well below the 1965-69 average (8.8 million bales), it reflects a recent acceleration in cotton use.

The cotton industry has earmarked $10 million for its 1971 program for research and promotion, with one-half to go for research versus only a third of such expenditures going to research in recent years.

The Agricultural Act of 1970—for the 1971 through 1973 crops—also authorizes up to $10 million a year out of government savings for cotton research and promotion. The money is to be made available from expected savings on payments to producers under the new program.

**Foreign spotlight: Focus on grains.** Worldwide, wheat trade for the year ending June 30, 1971, may be second only to the 2.3 billion bushels of 1965/66—a year when imports by the U.S.
and food aid shipments to India and Pakistan were far higher than they will be this year.

For the United States, a surge in shipments of grains and cattle may well push our agricultural exports to an all-time high. At $3.8 billion in the first half of fiscal 1971, they were 16 percent above the same period last year and were well above the previous July-December record of $3.6 billion in 1966. Wheat grain alone accounted for about one-third of the increase thus far this year.

These prospects are evidence of a changed world grain situation: For the first time in recent years, the world's grain supply and import needs are now quite close together.

Behind this better balance is an unusual coincidence of major developments that have either reduced available supply or increased import demand. The overall impact is an expansion of world wheat and coarse grain trade, not unfavorable to the United States. Among the background developments:

- Effective steps taken by Canada and Australia, in 1970 to stem record accumulations of wheat. In addition, the U.S. wheat acreage allotment was the smallest ever.
- Drop of 8 to 9 million tons in Europe's grain supplies—down last year to lowest level since 1966.
- An increase in Eastern Europe's demand for grains, but a '70 decrease in its own production.
- Uncertainty about possible recurrence of last year's U.S. corn blight, which took a toll of perhaps 10 million to 15 million tons from the grain supply available to either U.S. or overseas users.

These factors have served as a catalyst to trade. The combined overseas outlet for Canadian, U.S., and Australian wheat is likely to be as much as 11 million tons larger than in 1969/70.

Of this, Canada and Australia will probably provide 5-7 million tons, with Canada getting the bigger portion. U.S. shipments could increase 4 million tons.

Both Canada and Australia have enhanced their positions in certain markets (notably Latin America) by using special buyer incentives.
The Agricultural Act of 1970 is a landmark of legislation in at least two ways.

It puts a ceiling on farm program benefits—payments, in effect—that any one farmer can receive. And, in controlling production, it provides for a general cropland retirement program (a single “set-aside” of a farmer’s acreage) instead of the previous crop-by-crop controls characteristic of the late 1960’s.

But perhaps the most noteworthy aspect of the new law is that it represents a change in the philosophy of farm policy.

The law is written so that farmers have considerable freedom to adjust their operations in response to actual market conditions; to specialize in enterprises that have the greatest comparative advantage; and to make the most efficient use of their farm inputs.

The approach to farm programs, as delineated by the new 3-year Act, differs somewhat from approaches of the 1950’s and 1960’s. The change reflects both the experience gained with previous programs and the changing situation in agriculture.

For example, during the early 1950’s farm policy was geared primarily to high support prices and acreage controls. The objective was to keep the Nation’s total farm income high by means of artificially high market prices, and to control supply with acreage restrictions. However, farmers changed their input mix and increased output despite acreage controls. The government bought all the output that did not clear the market. Huge surpluses resulted.

The next new farm program, in 1956, focused on the soil bank and Public Law 480 (Food for Peace)—the latter enacted a couple of years earlier.

The objective of the soil bank was to reduce farm output by taking land out of production. But participation was voluntary and payments did not adequately reflect productivity of the land. So, farmers tended to put their poorest land in the soil bank. But the program was allowed to lapse in 1960 before it could reach its full potential. P. L. 480 did allow much of the surplus commodities to be exported, but usually for soft foreign currencies or barter rather than for dollars.

In the early 1960’s, the concept of farm policy shifted again—to “supply management.” Legislation in this period provided for deliberate restriction of farm supplies with a view to raising farm prices and farm income.

Total output was to be determined in such a way that all full-time family farms would receive a fair return. The policy was expected to be enforced through marketing quotas. However, when wheat farmers rejected the supply control provisions of the wheat program in a referendum, pending legislation for other crops was allowed to die.

Then came the Agricultural Act of 1965, predecessor of the current Act.

It was designed to hold up farm income while reducing market prices and ridding the country of surpluses. Farm income was bolstered not so much by government supported prices as by direct payments to farmers—and by diversion payments for taking land out of production. Hence the market price was not artificially high and U.S. farm commodities could move freely in inter-
national export-import trade. 

Farm surpluses gradually shrank in the late 1960's because of expanding demand for farm products and the production controls.

Regardless of how effective the 1965 Act was, from the government's point of view it was very costly. As for the farmer, acreage limitations imposed for most crops restricted the pattern of production and did not allow for compensating adjustments in the location of production.

Now we come to the present act—signed by President Nixon on Dec. 8, 1970 to apply through 1973.

Cropland retirement in the 1970 Act is not new. But the current program is essentially one of general land retirement on a part-farm annual basis rather than the commodity supply management of earlier years.

As before, a farmer participates by retiring land to conserving uses. The old "diverted acres" are now called "set-aside." But there is one big difference:

Under the previous program, farmers could substitute between wheat and feed grains. But if they grew all of one crop and none of the other they were ineligible for price support payments on the crop not grown. Under the 1970 Act, they will be permitted, within limits, to substitute among all crops (exceptions are the allotment crops—tobacco, rice, peanuts, sugar, and extra long staple cotton).

And, as long as a farmer complies with the set-aside and conserving base requirements, he receives direct payments and is eligible for price support loans.

The set-aside is used because American farmers have the ability to overproduce for both foreign and domestic markets by a substantial margin. Hence some land surely will be taken out of production.

However, on the rest of the land the farmer will be given an opportunity to shift his production both according to market needs as he sees them and in line with the most efficient use of his resources.

Such shifts hopefully will enable farmers to cut their production costs and thus raise their farm income. At the same time, our agricultural products will be more competitive in foreign markets.

The aim of this policy is to achieve acceptable levels of farm incomes for the Nation as a whole without disturbing the market mechanism, and do it at lower government cost.

The ceiling on amount of payment to any one producer under commodity programs is new. Previous programs set no limits.

When programs to support farm incomes were initiated nearly 40 years ago, most farms were relatively small, family-operated units. Program beneficiaries were therefore farm families of moderate means.

But as some farmers subsequently increased the amount of land and capital they controlled, they also reaped larger benefits from government farm programs.

In recent years, many producers received government payments that were considerably larger than the entire incomes of many nonfarm people. By 1970, public concern over this situation was sufficient to cause the change of policy under the new legislation. (1)
Corporations Control 7% Of Commercial Farmland

Farming corporations accounted for 1 percent of all U.S. commercial farms in 1968 and controlled 7 percent of the land used by commercial farms in the 50 States.

The largest number of corporations were in California (1,673) and in Florida (1,215).

Nearly two-thirds of the farming corporations in the survey were family corporations; some 14 percent were owned and controlled by individuals; and 20 percent were of other types such as those controlled by groups or by unrelated individuals.

Other survey findings included:
- Corporate farms had gross sales of farm products totaling $3.3 billion in 1967, the year prior to the survey. Their sales accounted for 8 percent of all U.S. farm sales.
- Nearly a fifth of the 13,300 corporations had farm product sales of less than $20,000. One fourth sold $40,000-$99,999. Slightly over a tenth sold $500,000 or more.
- Average size of holding (owned or rented) was 60 million acres of all the commercial holdings.
- The regionally, the Mountain States had the biggest holdings, averaging 11,423 acres. This area also accounted for more than half the total land operated by corporations in the 50 States.
- A majority of the corporations had crop enterprises as opposed to livestock. Among crops, hay predominated. After it came corn, wheat, other grains, soybeans, vegetables, cotton, fruit, and certain specialty crops. Of livestock, beef cow herds were first, then fed cattle, milk cows, and hogs.

EVERYBODY'S FARM

If all the land used for farming in the United States were divided equally among U.S. families, what would be your family's share?

The answer is slightly more than 27½ acres. To the city dweller or suburbanite this would seem like room to roam. But the average farmer, accustomed to more than 385 acres, might feel a bit cramped.

About 22 of your 27½ acres would be actually in your farm. A little less than 9 acres of your farm would be cropland; nearly 10 would be pasture, grassland, or range. You also would have about 1½ acres of woodland which you use for grazing, and 1½ acres in farmstead, roads, and nonfarm uses.

In addition to land in your own farm, you would run livestock on about 5½ acres of land rented or leased from the government. About half would be grassland, pasture and range, and the rest would be woodlands—mostly lands administered by the Forest Service.

Although your farm contains nearly 9 acres of cropland, you planted less than 6 acres to crops in 1970. The rest of it was in fallow, held out of production under government programs, or idle for one reason or another. You had nearly 3½ acres in grains, over half of which were corn and wheat. You had over an acre in hay, and a soybean field of eight-tenths of an acre. Most other crops were on garden-sized plots.

Your herds and flocks present some puzzling biological problems. You had only one-fourth of a dairy cow but she managed to produce 2,287 pounds of milk in the year. The beef cattle herd of 1.8 head dropped three-fourths of a calf, while your lone hog had a litter of 2 pigs. Only four-tenths of a sheep roamed your pasture.

You had 5.2 hens during 1970. They laid 113 dozen eggs. You also produced 58 broilers, but only 214 turkeys.

Your family farm was valued at $4,086 on the 1970 real estate market. As the year began, you had $460 worth of livestock and poultry on hand and $211 worth of crops. Investment in machinery and motor vehicles amounted to $671.

If you are a city man, this farm may give you more elbow room than you are accustomed to, and perhaps something of the spirit of agrarian living. But, as every farmer knows, it won't make you rich.

Your 27½ acres grossed $1,068 in 1969. Production expenses took $752 of that, leaving you a net income of only $316.
Mechanization Could Ease Lot of Broomcorn Grower

Broomcorn, which goes to make the business end of the common broom, is one of the few U.S. crops that is still harvested by hand.

But with the way labor costs are soaring these days, many broomcorn farmers can just about break even. The withering demand for the old-fashioned broom isn’t helping the situation either.

Now, the broomcorn growers of America are getting mechanized. Scheduled for field-testing by mid-year is a mechanical harvester being developed under a joint project of USDA, Texas A&M University, the Economic Development Administration, and the broom and broomcorn industry.

Many in the industry are convinced this machine will do the job as well or better than hand labor. If successful, the harvester could cut harvesting costs in half.

Broomcorn (technically, not corn but a variety of sorghum) was once produced commercially from Massachusetts and Virginia to the West Coast. In recent decades this crop has been squeezed out of prime farmland to lower value and marginal acres in the Southwest.

Nearly all the U.S. production now comes from about 100,000 acres in Oklahoma, Colorado, New Mexico and south Texas. The farm value last year was approximately $6 million. Currently, broomcorn sells between $300 to $400 per ton.

Numerically, broomcorn farmers have declined with the fall off in demand for brooms. As recently as 1964, 1,400 farmers grew the crop in combination with wheat, grain sorghum, and livestock. Today they probably number no more than 500.

But even for the remaining farmers, high costs of labor are becoming prohibitive. Moreover, manual farm labor is getting in short supply. In some areas it is becoming nonexistent for “stoop labor” crops.

Direct labor costs may be as much as 30 percent of broomcorn’s production expenses. For the other major crops of the region—such as wheat and grain sorghum—labor costs account for roughly 15 percent.

The most laborious part of harvesting broomcorn is cutting the “brush” that grows up from the center of the 4-to-15 foot high stalk. A ton of cured brush contains as many as 70,000 individual brushes. At present, each must be cut or pulled by hand. In subsequent operations, care must be taken to avoid tangling the fibers.

Making money in broomcorn depends critically on getting the crop in on time—a period of a week to 10 days once it reaches a peak of ripeness.

Also, the customary practice of sun drying the brush for 2 or 3 days in the field runs the risk of damage from rain and other weather hazards. This underscores the need for a second step in broomcorn mechanization—a centralized plant for drying and bundling the broomcorn to a uniform end product. USDA and the industry plan to undertake this phase of mechanization as soon as the mechanical harvester is commercially available.

Good quality broomcorn has long and straight fibers ending in many small branchlets. A light green color is preferred in the U.S. and Canadian markets.

The shorter fibers go to make the inside of the broom; the medium fibers, the broom’s shoulders; and the longest fiber, which is also the best quality, makes the outside.

No other fiber, natural or man-made, is as well suited as broomcorn for making household floor brooms and whiskbrooms.

Special though it is, the common broom can’t compete successfully with vacuum cleaners—for cleaning carpets—and with mops for hardwood and tile floors. Lately, the plastic synthetic broom is also giving the real thing a run for its money.

The growing popularity of wall-to-wall carpeting largely accounts for lagging broom sales, along with the surge in apartment construction. These new dwellings—many of them built for single renters and small families—devote less space to kitchens, basements, porches, and sidewalks, i.e., broom territory.

The railroad industry, once a steady customer for brooms by the thousands, long ago stopped buying them for clearing tracks and switchers of ice and snow. Today the job is done by electric heaters and steam equipment.

In 1930, broom use (including imports) totaled about 50,000 tons of broomcorn equivalent. By 1969 consumption had dropped to less than 25,000.

Domestic production of broomcorn meanwhile shrank from 46,000 tons in 1946-50 to 23,000 in 1963-67 and approximately 15,000 in 1970.

The difference in total use and production was made up by imports, mainly from Mexico. (5)

Hybrids and Brisk Demand Spur Sorghum Production

When the first commercial varieties of hybrid grain sorghum came on the market in 1956, farmers took to them almost immediately. They adopted these higher yielding types even quicker than they did hybrid corn seed back in the thirties.

Today’s sorghum grower gets a grain yield almost three times greater than he did prior to the development of hybrids. The 1970 yield averaged over 50 bushels to the acre.

U.S. production of grain sorghum
has also soared—from 200–250 million bushels in the mid-1950's to about 700 million in 1970. This, despite acreage cutbacks under the feed grain program.

But it took more than the yield factor to maintain growers' interest in this crop: grain sorghum's usage is at record levels.

The time hybrid sorghum entered the picture was also about when the cattle feedlot industry in the West and Southwest entered a period of rapid expansion. In the eight States producing the bulk of the U.S. sorghum crop, the number of cattle on feed more than doubled during the decade of the sixties.

The major sorghum States are Nebraska, Kansas, Oklahoma, and Texas—places where the hot and dry climate doesn't favor corn or soybeans.

Feedlot operators progressively turned to using more locally produced sorghum, and less corn that had to come in from the Midwest.

Other ingredients fed along with sorghum in cattle rations had long been available in the West and Southwest—cottonseed meal and hulls, molasses, urea, and roughages.

As sorghum production dovetailed with the growth in the cattle business, the grain's usage in cattle rations jumped sharply. In the 1960-69 period, sorghum feeding increased by a yearly average of 25 million bushels. In 1969/70, feeding reached 652 million bushels, the highest ever.

Another 9–13 million bushels of the annual supply goes for feed, industrial uses, and seed. Also, over 100 million bushels are exported.

So fast has domestic demand risen that sorghum usage has outstripped production in most years since 1961. Year-end carryovers are getting smaller, as is the total annual supply. For the marketing year beginning October 1970, the supply is estimated at 955 million bushels—smallest in 12 years.

Producers' prices are mirroring the tighter supply situation. Prices to farmers this year are seen averaging somewhat above the $1.89 per cwt. received in 1969/70. (6)

Wheat Feeding Surges As Use Heads to Postwar High

Extensive use of wheat as feed for U.S. livestock has been a dead issue for the past 20 years. But it has now come very much alive.

The resurgence of wheat feeding became apparent a couple of years ago when it suddenly soared to 176 million bushels—more than triple the usage in 1967/68.

This year (ending June 30, 1971), use of wheat as feed may reach 235 million bushels. If so, it would rival the record levels of 25 years ago when World War II wheat was moved into feed channels with the help of a government subsidy.

Main reason for the revival of wheat feeding is, of course, the extremely competitive price relationship of wheat and corn that has developed in recent months. The spread between the two is likely to remain narrow and continue to make wheat an attractive feed item.

Hard winter wheat will probably be the most favored for feed this year, since it is in large supply. (Total wheat supplies for 1970/71, at about 2.24 billion bushels, are off slightly from the 2.28 billion bushels a year earlier.)

Another factor that implies continued heavy use of wheat for feed is the changing attitude of many farmers toward the full potential for wheat usage.

Commercial feed manufacturers and large feedlot operators have viewed wheat as a feed for sometime. They have responded accordingly when wheat/feed grain price spreads narrowed.

But many wheat growing farmers with accompanying livestock interests have been slower to alter their image of wheat. They have continued to regard it mainly as a crop to bring in cash even when its price is at feed grain levels.

In recent years, however, there's been an increase in the volume of wheat "fed on farms where grown." Though these statistics are somewhat restrictive in concept, they indicate the comeback of on-farm use of wheat for feed in the United States.

Woodland Moonlighting

There's an often overlooked income-increasing possibility for northern New England dairy farmers who find it unfeasible to expand their dairy herd.

If they can manage their dairy enterprise with greater efficiency, they have time for forestry work to augment the family income through sales of hardwood pulp, pine sawlogs, or Christmas trees.

A sociologist team has developed models for four sizes of northern New Hampshire farms, where average farm size was 264 acres. Depending on labor efficiency in both dairy and woods work—and value of the timber product—a farmer's returns from a timber enterprise alone could run as high as $6,500 with average management. (7)
Agriculture—in going about its essential business—is changing the ecology. But concern about environment is only a new chapter in a story going far back.

"The earth is fast becoming an unfit home for its noblest inhabitant," warned George Perkins Marsh in the mid-1800's. One of America's first conservationists, Marsh said that unless somebody did something, man would soon reduce the world to "a condition of impoverished productiveness, of shattered surface, of climate excess, as to threaten the deprivation, barbarism and perhaps even extinction of the species."

The conditions that Marsh described had been centuries in evolution, and in America went back to the exploitation of the land by our earliest settlers. By them, the land was seen as an essential provider of food, and later as an equally essential source of profit. The land had to be cultivated quickly... and by whatever means possible.

As they migrated westward, Americans relentlessly farmed the land for survival, generally at the expense of nature's protective ground cover. In the West, it was the wind more than water that was the major force of erosion. In 1935—during the Dust Bowl—great clouds of middle America's soil were hanging over Washington, D.C. and blowing into the Atlantic.

Until the 1930's, relatively few people were interested in the environment. Washington and Jefferson were early conservationists who, among other things, promoted crop rotation as a way to preserve the soil's natural fertility. Several lesser known men such as Jared Elliot, Samuel Dean, and Solomon Drown also argued for the conservation of our natural resources. Following them, Theodore Roosevelt's administration (1901-1909) took a general interest in conservation, especially preservation of our natural forests and the irrigation of arid lands.

But in the thirties a large segment of the citizenry was aroused by the abuse of the land. Depression, drought, and the Dust Bowl set the
stage for launching a set of emergency and long-range programs aimed at reclamation, improved farming, and watershed development.

Agencies such as the Civilian Conservation Corps, the Soil Conservation Service, and the Tennessee Valley Authority didn’t immediately solve problems that had been smoldering for a couple hundred years. They did, however, open the way to a successful attack on what had been America’s greatest environmental threat—the misuse of its natural resources.

About the time that the country was generally waking up to the danger of erosion and mismanagement of the land, agriculture’s ecological problems were only beginning.

In 1939, a Swiss chemist formulated a synthetic compound called “dichlorodiphenyltrichloroethane,” Most people didn’t worry about the jaw-busting name. They just called the compound DDT.

During World War II, DDT proved a Godsend. In 1944 it was the key factor in breaking a typhus epidemic in Naples. From then on it was used extensively to control lice and mosquitoes. Wartime problems with typhus and malaria were significantly reduced as a result.

After the war, factories that had been turning out DDT for the military began to produce it for farmers. Until about 1945, synthetic organic chemicals accounted for only about 10 percent of the total dollar sales of farm pesticide chemicals. Today, synthetic organic pesticides account for more than 90 percent of the pesticides produced.

DDT, of course, has not been the only insecticide on the market. Nor has it been the only chemical aid sold to farmers. The use of fungicides has also increased in the past couple of decades. And herbicide sales have gone up faster than insecticides or fungicides. Similarly, new chemical fertilizers have found expanding markets.

The problems resulting from these chemicals are well known—the increasing resistance of insects to pesticides, chemical buildups in streams and the soil, and damage to wildlife.

But for years, the use of chemicals by farmers has been essential to assure abundant harvests of high quality.

In monocultures, a pest or disease attack can spell disaster unless the problem is immediately controlled. The corn blight that moved into parts of the South and the Midwest last summer provided an eye-opening example.

Precisely how much of our agriculture’s progress has been due to use of chemical fertilizers and pesticides would be hard to determine. Overall, however, crop production since 1940 has gone up 55 percent and livestock output, 66 percent.

In the case of livestock, developments in engineering and management systems, and other technological advances, have enabled farmers to feed large numbers of livestock in restricted areas. Beef feedlots have been greatly expanded and there’s been a shift toward large scale dairy, egg, swine, turkey, and broiler enterprises.

But progress in livestock production has also created a mammoth waste disposal problem, much in the same way as higher crop yields have been accompanied by fertilizer runoff and pesticide residues.

A 1,400-pound cow produces about 10 tons of manure a year. The Nation’s livestock collectively produces in the neighborhood of a billion tons of manure annually. As the number of livestock operations with large concentrations of animals increases, the problem of safely disposing of the animal waste becomes more crucial. Adequate disposal systems for the economical handling of large volumes of manure at specific locations have not been developed.

The salting up of soils through irrigation is another worrisome area with many imponderables.

Without adequate drainage to carry irrigation water below the plants’ root system, salt content in the soil builds up and crop yields suffer. And when drainage is sufficient, there may be an increase in salinity levels in streams and other water bodies.

In California, the Salton Sea—5 years ago a fresh water lake—is now slightly saltier than the ocean as a result of the inflow from irrigation systems. If the salt concentration goes much higher, the hatchability of fish eggs will be adversely affected, as will the future of water-based recreation in the Imperial Valley.

Still another problem—the erosion of soil by water—is now less troublesome than it was before the widespread use of certain conservation practices. Nevertheless, according to one estimate, 3 billion tons of sediment are being deposited each year in this Nation’s reservoirs and valleys. Another 1 billion tons are carried by rivers to the ocean.

Silt-laden water bodies not only endanger fish and wildlife, but also create real problems for hydroelectric plants and other industries needing a clear water supply.

Many of the environmental problems that have developed in agriculture since World War II still seek solution. Research work, however, is going on continuously—especially in the pesticide area. With the restrictions now placed on chemicals, the need for new control’s is pressing.

Scientists are therefore intensifying their studies of nonchemical ways to control insects, including male sterilization, use of trap devices, the introduction of natural predators to destroy harmful plants and insects, and the development of new plant varieties resistant to disease and insect pests—to name only a few.

But all this work takes time, and a lot of money for research. For example, for such crops as tomatoes and wheat, scientists need as many as 10 years to breed resistant varieties and to produce enough seed for commercial use.

Not only is research needed on biological and physical aspects for improving the environment, but also in...
Small Roads Aid Ozarks
More Than Superhighways

Highway construction often plays a prominent role in plans to stimulate economic development in rural, poverty-riddled areas.

But the priority given to road building may not be valid for all depressed localities. Take, for example, the Ozarks Economic Development Region—a 125-county section carved from Arkansas, Oklahoma, and Missouri.

Poverty, like the region's spectacular valleys, cuts deeply into the Ozarks' character. Per capital income is even lower than in Appalachia. And in the past, area residents have been highly dependent on agricultural employment.

Despite the business generated by a burgeoning tourist and recreation industry, employment opportunities remain low. And behind that lush scenery that awes tourists lurk the familiar trappings of rural poverty—including the marked absence of young people.

Heading east or west through the Ozarks Region poses no major problem—it's fairly well served by the interstate highway system.

Several U.S. numbered roads lace through the north-south routes—but no interstates. And there are few highways in the mountainous areas.

To determine the impact of highways in the Ozarks Economic Development Region, a recent study by the Economic Research Service took mileage counts of all rural roads for the years 1954, 1959, and 1963. The roads fell into two basic categories: access roads (all multilane, Federal and State highways) and feeder roads (all local and unpaved roads). Total mileage for each road type was compared with 1959 incomes or 1960 employment statistics.

Results showed that multilane highways don't necessarily stimulate economic activity, but are a follow-up feature of high incomes and employment levels. Local roads, however, usually precede high employment.

All told, highways were not a crucial factor in spurring economic development in the Ozarks Region.

If highways are built, those that would best serve the area's interests are two-lane paved, State-numbered roads to link existing national routes, and paved county roads to connect outlying rural areas with urban centers. (9)

Second Home "Towns"
Success at Lake Latonka

Before bulldozers start clearing land for a new second home community, many planners, businessmen, and civic leaders want to know how the local economy will be affected.

For answers, they might look to the Lake Latonka development—over 1,000 acres of northwest Pennsylvania cropland converted to a 1,600-lot recreation subdivision surrounding a 270-acre lake. The development began in 1964. All lots were sold by 1966.

Developing the Lake Latonka community cost about $7 million between 1965 and 1970. The investment is estimated to have increased business activity during this period by as much as $14 million. About one-fourth of the activity would involve local businesses in the lake development area.

It was expected that money to purchase lots would be borrowed from institutions where buyers resided permanently—mostly in the Pittsburgh and Youngstown, Ohio, areas. Surprisingly enough, over 75 percent of these funds were secured from lenders in the Lake Latonka area.

Moreover, most of the buyers tapped local funds to finance home construction. Interest on these loans has introduced substantial quantities of "outside" money into area coffers.

Local merchants have felt the impact too. Through 1970, lot owners spent an estimated $3 million for recreation equipment, home furnishings, and other purchases evolving from use of their lots.

Up till now, maintenance expendi-

Charting Agriculture's Course

Economists and others who follow trends in U.S. agriculture are invited to write for a free copy of the new 1970 Handbook of Agricultural Charts.

Over 150 charts and tables are featured in the Handbook's five sections, including—The Domestic Situation (prices received by farmers back to 1910), The Family (costs of raising a child to age 18), Population and Rural Development (employment outside metropolitan areas), Commodity Trends (for nine principal commodities), and Foreign Production and Trade (agriculture's contribution to the U.S. balance of payments).


The charts are also available as black and white photos or color slides, singly or in full series. Prices: glossy photos $1.50 each (8x10 inches) and $1.20 (5x7); slides, 90 cents each and $10 for the set. Write the Photography Division, Office of Information, USDA, Wash. D.C. 20250. (10)
tures for the second homes have been minimal. By 1975, however, homeowners will probably be spending a third of a million dollars annually to keep their properties in shape. Presumably, this will generate over half a million dollars in local business activity.

Before being purchased by the development company, the Lake Latonka site was assessed at less than $30,000. And it yielded less than $2,000 in annual tax revenues.

Development, however, has boosted tax resources tremendously. Over a 2-year period, the area’s two townships, Jackson and Coolspring, had a 50-percent increase in tax collections—without raising tax rates.

Transforming farmland into a recreation community hasn’t hindered the region’s agricultural output either. When acquired by the developer, only part of the Latonka location was being used for farming. And similar land resources, lying idle, were close at hand. (14)

House Is Not Always Ideal “Home” for Oldsters

“Mrs. Lewis is an 81-year-old widow living in a substandard house over 60 years old. Her total 1969 income was $1,320. Her tax bill was $566.00, an increase of $161.00 over 1968. All she had left for living expenses was $764.00.”

This case, drawn from Michigan housing hearings, points up a worry of older Americans: finding housing suitable to their needs at prices they can afford.

As people grow older, their homes become a more integral part of their lives. Many older people want to move to smaller quarters or to a rented apartment—especially after a spouse dies. Some want to move to warmer climates.

But they can’t. Their incomes are usually eroding and they are caught in a squeeze between rising costs of housing and their fixed, often very low income levels.

In some cases, their plight may even be aggravated rather than helped by urban renewal and redevelopment that forces them to move.

One proposal to alleviate this situation is the establishment of a public corporation that would buy, sell, rent, and renovate residential property for senior citizens.

Such a corporation might buy the home of a sick, aged person and pay his nursing home costs. It might remodel a large house so that several oldsters could live there at reasonable rent.

It might also help older people to relocate in retirement villages or in other communities. To do this, it would advance a down payment on the new dwelling unit at a modest charge. The older person could retain his own home until he found out whether he wanted to remain in his new environment. (15)

Birthrate of Rural Woman Outpaces City Counterpart

Country living goes hand in hand with larger families, or so it seems from statistics on birth rates.

According to the 1960 Census—the latest published figures—rural women nearing the end of childbearing age (35-44 years) had borne an average of 3.3 children. This was roughly 50 percent more than was needed to maintain the population at a constant level.

The birth rate required to replace a generation is 2.1 children per family (2 children to replace the parents, plus .1 to offset deaths of children).

In urban areas, in contrast, women had averaged only 2.4 children—or 15 percent above what’s needed to maintain population.

The figure for rural areas may have tapered slightly since 1960, but is still above 3 children per family. The urban figure has risen somewhat.

Demographers point out there has never been a generation of American rural women whose reproduction rate was lower than that of urban women.

Among the possible reasons: children are often an economic asset in farmwork; unmarried females in rural areas tend to move to the cities to get jobs; and birth control is less widely practiced in the countryside, due to cultural isolation and relative lack of access to family planning information and services. (12)

Canoe Trail Takes A Moneymaking Bend

How can a community capitalize on a meandering river?

Some enterprising individuals and organizations in Wadena County, Minn., have developed their Crow Wing River into a moneymaking canoe trail and camping site. The project was launched in 1964. An estimated $50,000 was spent in 1967 by users of these facilities.

About one-third of the fee-paying canoeists are in family groups averaging 6 to 7 members, and 40 percent of the users are 15-19 years old.

Equipment purchases and rentals accounted for about 44 percent of expenditures by canoeists, food 36 percent, auto services 6 percent, and lodging 2 percent.

To complement the canoeing setup, the Neighborhood Youth Corps developed a 55-mile saddle trail—suitable to hiking and snowmobiling. Canoers share their 14 campsites with the riders and hikers. (26)
CUTTING COTTON COSTS

The cotton industry, to enhance its marketing position, seeks ways to trim expenses in every phase of production, beginning on the farm.

To prosper and grow in the future, the cotton industry is trying to cut production and marketing costs—and increase efficiency as well.

Over the past decade, competition from manmade fibers intensified, along with competition for land from alternative crops, such as soybeans. Cotton captured a little less than 40 percent of the domestic fiber market in 1970, compared with 65 percent in 1960. Blends of cotton and synthetics (usually polyester) displaced many 100-percent cotton fabrics—with cotton often at the short end of the combination.

Guarded optimism, however, prevails for the 1970's. Current research may help the cotton industry pare costs and maximize quality and efficiency.

To enhance cotton’s marketing position, expenses must be trimmed at all levels—beginning on the farm. Cost reduction research at the Delta Branch Experiment Station in Stoneville, Miss., has been expanded to include planting and weed control tools, insect control, plant breeding and harvesting.

Last year, the Stoneville Experiment Station tested a modified stubble planting method. Stalks from the previous harvest were shredded and subsoiled in the fall. And in spring the seedbed was hipped (top couple inches of soil turned) once or twice.

This method proved far superior to conventional stubble-bedding, which requires several treatments of expensive herbicides to control spring weeds.

The modified stubble planting sys-
tem resulted in better stands, faster growing seedlings, and yield increases of about 5 percent. Moreover, the cost reduction was over $6 per acre.

Postplanting practices, particularly for weed control, have received intensive study in recent years. Although chemicals have gained wide usage for this purpose, the number of required applications is costly in time and money.

Three changes in current cultivation practices will be tested at Stoneville this year. Crossplowing will be reintroduced to control weeds between rows and eliminate time-consuming hoe labor. Only one treatment of postemergence herbicide will be applied in the conventional manner. And a flame cultivator with a water shield will be used in place of most postemergence herbicide applications.

Cross plowing will facilitate use of a sensing postemergence applicator—a new tool that sprays herbicides only when a cotton plant is sensed.

Using all three methods might easily result in a 60-percent reduction in the quantity of herbicides used. Also, it would reduce the number of trips over the field—costly in man-hours.

Mechanical harvesting has revolutionized the cotton industry, causing tremendous reductions in time and labor. In 1970 almost all the cotton crop was mechanically harvested, compared with about half in 1960.

But research continues for more efficient harvesting machines. A 4-row cotton combine is now being tested at Stoneville. If and when all the kinks are worked out, this machine should prove far more efficient than the standard 2-row picker, and less costly in field time.

As the name implies, the new harvester combines several operations, including cutting and shredding stalks. This reduces preplant costs for the next crop.

To be effective, however, improvements on the farm must be matched at the processing level.

Additional conditioning and cleaning equipment have been installed in most gins to facilitate ginning of machine harvested crops. And ginner have added new high speed gin stands and related equipment to complement the faster harvesters.

Investments per gin rose to about $500,000 in the mid-1960's and have probably increased since then. But as a result of increased efficiency, ginning costs have risen only gradually—despite increasing wage rates.

In warehouse and compress operations, labor still accounts for nearly half the costs. Labor requirements for grading cotton quality according to USDA specifications could be drastically reduced with the development of instruments to perform this task.

Packaging is another operation with labor-saving potential. Cotton is now being baled by machines that produce about 35 bales per hour. Several men are usually required to operate each machine.

A new packager is being developed that can be operated by only one or two men. Hopefully, it will produce more compact bales—at a higher hourly rate—to eliminate the need for successive compressing operations.

Cost-conscious textile firms are trimming expenses also. Some firms have combined two or more processing stages. For example, some are doing both spinning and weaving, or weaving and finishing. And a few textile companies have combined all operations from spinning to retailing.

In 1966, the Cotton Research and Promotion Act was enacted with the express purpose of expanding cotton markets. Upland cotton producers contribute a $1 per bale assessment; a significant part is for research directed to cutting production and marketing costs.

Research and promotion activities for the 1970's will probably be expanded to strengthen cotton's competitive position with manmade fibers. And work will undoubtedly continue for an optimum quality 100-percent cotton fabric that's permanent press and soil resistant. (16)

**Giant Ships Promise Bigger Hauls, Lower Rates**

What’s marine architecture got to do with marketing grain? More than the average person might think, with closer ties in store for the future.

Over the next decade, world demand for grains of all types—for all uses—promises considerable expansion. And the United States is the world's leading producer of wheat and all other grains combined.

Forecasts show foreign livestock eating over 500 million tons of coarse grain annually by 1980. The biggest feed importers: Western Europe and Japan.

Worldwide wheat use is predicted to reach 355 million tons by decade's end, about a 30-percent increase over present levels. Chances are Japan will be our largest customer.

Developments in the maritime industry point to larger ships plying the seas with our grain and other exports. During the past 5 years, average cargo capacity has risen dramatically—up to 24,000 tons for bulk carriers and 31,000 tons for tankers.

And that's just a beginning. Today there are tankers capable of carrying over 300,000 tons. Bulk carriers of 185,000 tons and tankers of 760,000 tons are predicted for 1980.

On a per ton basis, building and maintenance expenditures are far less for these giant ships than for their smaller counterparts. For example, 1968 per-ton construction costs on a 50,000-ton ship were $100, compared with $75 on a 260,000-ton vessel.

The most notable savings per ton are on crew costs—a 500,000-ton ship requires roughly the same size crew as her 50,000-ton sister.

All told, the floating giants could offer grain exporters 50-percent reductions in freight rates.

But with the savings come some problems. The greatest drawback is that relatively few ports and access channels are deep enough to accommodate these massive ships. In the United States, only the Puget Sound harbors can handle a ship carrying
Plant Site Counts Big
In Pea-Freezing Business

A food processing plant in an unfavorable location is like a gas station on the wrong side of the road. Neither is likely to show much profit.

This is one reason why locations of food processing enterprises are continuously shifting away from their original sites. These locations were often chosen because of local or regional considerations, such as nearness to production areas.

But with the passing of years, markets for processed food products have become “nationalized.” Production stages have been integrated. The economies of large-scale operations have in general been proven.

As a result, many old plant sites have been abandoned in favor of ones with national or international dimensions and advantages.

This trend has greatly augmented the capital outlays needed for optimum sized new plants. Selection of the best possible location has thus become more critical.

The locational options for new plants—not for shifts of current operations—were studied for a single industry: frozen green pea processing.

(This food industry has been one of the Nation’s fastest growing. Output has grown from a mere 25,000 pounds in 1937 to around 430 million pounds today. Over the same period, consumers have increased their average yearly helping from about 2 1/2 ounces to about 2 1/2 pounds.)

Tentative results of the study suggest that from a minimum cost standpoint, green pea freezing should be dispersed—with a few large plants in the East, Midwest, and West.

The analysis also suggests that:

—The Washington-Oregon-Idaho complex will keep its dominant position in green pea freezing, but its proportion of the total pack might decrease in the future.
—States with the greatest apparent potentials for expansion under present cost structures are Delaware (and adjacent Maryland counties), New York, Pennsylvania, and Wisconsin. But with small to moderate cost changes, a sizable amount of Wisconsin output could shift to Michigan.

—Illinois and Minnesota may drop back significantly in frozen pea output. The same is likely to be true of California, because of high cost structures.

However, slight changes in raw product costs, labor wages, length of season, overhead budgets, freight rates and taxes could change optimum locations and shift production to adjacent States.

Considering the total frozen pea industry, use of large plants would reduce costs. But the selection of a State or area in which to locate is probably more important (within limits) than a plant’s size, or its specific location within an area. (18)

New Law Brings Stricter
Controls to Egg Marketing

Controls over the marketing of eggs and egg products have been tightened under a new Egg Products Inspection Act signed into law in late 1970.

Effective June 30, 1971, the Act will require continuous inspection, under USDA supervision, of establishments that process frozen, liquid, and dried eggs for human use. In the past, such inspection has been on a voluntary basis.

The Act will also prohibit—beginning June 30, 1972—the distribution of unwholesome shell eggs and their use in food products.

A key objective of the law is to prevent dirty, leaking, and cracked eggs from being sold to the consumer, or from being used in manufactured egg products without proper controls. Strict controls are needed because these kinds of eggs may contain harmful bacteria.

The inspection program requires plant approval by USDA officials and pasteurization of all egg products, specifies plant operating procedures, and provides for testing of the finished products.

But specifically exempted from the Act’s requirement is any egg dealer who (1) has an egg processing plant that receives or breaks only clean, whole eggs—those within the limits allowed under consumer grade standards; (2) sells eggs or processed egg products from his own flock directly to household consumers; (3) has an annual egg output from a flock of 3,000 hens or less; or (4) sells, transports, possesses or uses only eggs that meet tolerances for restricted eggs under U.S. consumer grade standards.

Egg producers who ship nest-run eggs to a handler to grade for a retail market would not be directly affected. Producers with grading operations (over 3,000 hens) will be subject to spot inspections—as will all other egg packers—to assure their eggs are being handled as prescribed by the Act. (19)
Shoppers and Shoe Uppers

If the shoe fits, do you wear it? Or do you quickly cast it off, along with its mate, and relegate it to the box it came in?

After you buy a pair of shoes, how many second thoughts do you have about your choice?

Are the shoes really comfortable? Did they "break in" fast? Do they shine up easily and brightly? Are they resistant to scuffs... scratches... water? And do you think you got your money's worth?

Answers to these and a number of other questions about shoes were sought through a consumer survey of a representative group of about 1,100 men and women in the Philadelphia metropolitan area.

The study was designed to ferret out suggestions for improvements in leather that might make more footwear customers better satisfied.

The researchers focused their attention primarily on consumer reactions and attitudes toward materials used for shoe uppers.

Leather is, of course, the most time-honored of these materials.

But a relatively new class of manmade materials for shoe uppers that, in some ways, closely resembles leather has been developed. These manmade substitutes have made, and continue to make, sizable inroads in the footwear market. The competitive position of leather could hardly be appraised adequately without comparing consumer's attitudes toward the two. (The new synthetic material about which users were questioned was Corfam—solely because it was the first material of its type to be marketed and thus most likely to be known to the most consumers. Use of the trade name does not constitute an endorsement by the USDA.)

A few questions also were asked about canvas and other fabrics and traditional synthetics that have been on the market for some time.

The survey came up with the following findings:

Leather. In general, leather uppers got good marks for durability, shining well, and providing good support.
any of the respondents also indicated leather uppers look good for a long time, fit well, are a good buy, and are easy to care for.

The predominant improvements wanted were better waterproofing, greater flexibility and softness, and more resistance to scuffing.

Many men and women also expressed the wish that leather were easier to care for and didn't have to be polished so often. And a lot of men would welcome a leather that is more resistant to perspiration damage.

Synthetic leather (Corfam). The wearers rated this material especially high for ease of care. A large majority also indicated that Corfam shoe uppers look good for a long time and provide good foot support.

Another key point brought out was the Corfam owners' assertions that it has scuff and water resistance—two qualities that people wanted, but often found lacking, in leather. However, some mentioned that Corfam shoes are expensive and have to be fitted carefully.

The majority of owners did not dislike anything about their Corfam shoes. Among those who did, perspiration problems and inflexibility were the main faults found.

As for other types of synthetic materials for shoe uppers, most of the men and women questioned were hard pressed to come up with favorable comments. Low cost appears to be the main appeal. But the impression that these synthetics are "cheap" materials tended to dull the luster of inexpensiveness mentioned as an advantage.

Canvas or cloth. Shoe uppers made of these materials were said to be washable, good for sports or leisure wear, lightweight and comfortable. The chief disadvantages volunteered by respondents included nondurability, not enough support, and lack of water resistance.

In the course of the survey, considerable incidental "intelligence" was gathered that might be of use to persons in a position to improve the quality of leather.

People who rated a potential improvement as "very important" also indicated a willingness to spend more money for shoes so improved.

Mothers were most anxious to see more effective scuff and scratch resistance and waterproofing in their children's leather shoes.

Only about 1 woman in 10 said she spent $16.50 or more for a pair of dress shoes; 4 out of 10 men, however, said they paid the higher prices for dress shoes.

About one-third of all the group owned sports shoes. And a majority of the women owned boots. (20)

U.S. Tea Drinking Rises In An Instant

"All the tea in China" barely resembles what Americans sip over bridge tables, or Londoners serve up with crumpets.

Almost all tea used in the U.S. and Great Britain is black. China's is green. And since black tea is basically a 19th century innovation, that stuff dumped gleefully into Boston Harbor back in 1773 was green too.

Though usually grown in different locales, black and green tea—the two main types—are dried leaves of the same plant. Black tea, however, goes a step further—it's fermented.

Before reaching American consumers, about 80 percent of the black leaves get broken. But not by accident. Breaking the leaves produces a stronger brew and intensifies the flavor.

While slightly more expensive than the whole leaf type, broken grade tea is nonetheless preferred by the two largest tea-importers—Great Britain and the United States. Continental Europeans, however, generally find their cup of tea made from whole leaves.

Tea totallers report that the average American still drinks less than an eighth of the amount downed by his British counterpart. But tea drinking in the U.S. rose 20 percent per capita over the past decade.

Happily for those legions of Americans gulping more tea, prices have remained relatively stable. The average price for a package of 48 tea bags was 64 cents in 1970—the same as in 1960.

Though some still like it hot, a "spot of tea" has come to mean a moisture-beaded glass of iced tea more often than not. Aided by the convenience of instant tea—and mixes with added lemon and sweeteners—an estimated two-thirds of our tea is served over ice.

Virtually ignored 20 years ago, instant tea accounted for nearly 40 percent of total tea use in 1970. While the familiar tea bag still corners around half the market, loose tea is gradually being shoved into obscurity. Instant tea's the culprit, but it's also responsible for brisker tea sales.

Americans will probably be sipping even more tea over the next decade, but at a declining rate. And chances are, instant tea (including mixes) will bag almost half the market by 1980. (22)

Prices and Wages Don't Control Bread Demand

Americans spend about 9 percent of their total food money for bakery products. Once past the eclairs and pecan pies, consumers spend nearly half this amount for just plain bread.

Data on quantities of bread produced and eaten are scarce. And census figures are available only for certain years. Existing data show, however, that demand varies with season, reaching its highest level in the summer months—the "sandwich season."

Overall demand for bread changes very little with fluctuation of prices or income. Prices do have a slight impact. For example, if bread prices rose 10 percent, use might drop as much as 3.7 percent. But if personal disposable incomes (earnings after taxes) rose 10 percent, the increase in bread purchases would probably be less than 1 percent (21)
Though Brazil has about half of South America's land and people, its agriculture is not yet making full use of resources at hand.

Much of Brazil's agriculture is somewhat like the banana tree that grows most everywhere throughout the country.

It has been luxuriant, thriving. Mostly, it has benefited from favorable, natural conditions—and little from modern technology.

The virility of Brazilian agriculture is summed up compactly in its 4.5-percent average growth rate during the past 20 years. And, since output grew even faster than the highly fertile population, agricultural production per capita rose 1.5 percent yearly.

This is a high batting average in the league of developing nations. For 54 of the developing countries, the agricultural growth rate has averaged only 2.8 percent in the 1950's and 1960's. Per person farm output for the group as a whole barely kept up with the population increase—and did not accomplish this until 1969.

In looking at Brazil's experience, other developing nations may find something to emulate. After all, many of their problems and potentials are quite similar to those of Brazil.

Moreover, Brazil's progress appears to demonstrate that agricultural advances are inevitable sooner or later—unless physical or technological barriers are insurmountable. And agricultural growth, in turn, generally stimulates general economic well-being.

But there's a catch to Brazil's development story.

The rate of agricultural growth peaked at 6 percent in 1967. It slackened in 1968 and 1969. And, despite the total increase in output of farm products, gains in productivity per worker and per unit of land have been small—even prior to 1967.

Brazilians thus continue to be among the "poor" of the world. Their incomes (now around $250 per
zila has relied mainly on its vast land mass and big reservoir of labor to make half the gains it has made. And much of it does not respond well to known yield-increasing techniques.

Among the negative factors in Brazil's problem, what seem to be the most basic?

Geographic handicap. Most of Brazil lies on a vast, rolling plateau—with only one wave of mountain ranges. It runs north and south, fairly close to the coast, and forms a barrier that for over 400 years has helped keep most of the population encamped along the eastern edge of the country. Moreover, the country's great and navigable rivers have not helped much in opening up the country or bolstering its economy. A large freighter can go at last 2,300 miles up the mighty Amazon—a river that makes the Mississippi look almost narrow. But the Amazon leads to no vital cities.

The land itself. Quantity does not necessarily mean quality when it comes to Brazil's soils. True, many areas produce an abundance of coffee, cocoa, cotton, corn, and a wide variety of other crops. But yields in general tend to be average, or less, among those of Western Hemisphere countries. U.S. wheat and bean yields are more than double those in Brazil, and our corn and cotton yields are three times as large.

Sizable areas of Brazil are enormous swamps and arid wastelands. Cultivable land is relatively low in natural fertility. And much of it does not respond well to known yield-increasing techniques.

Brazil is bigger than the U.S. "lower 48"

As recently as 1966, more than one out of 10 Brazilian farm properties were cut off by impassable roads for at least 2 months of the year. Though considerable progress has been made in constructing a highway network, transport is still a basic problem.

There are about 20,000 miles of railroad tracks, but most of them are short-haul lines that do not penetrate far inland. Since many are of different gauges, rolling stock cannot be used interchangeably.

Mechanization. Close to three-fourths of Brazil's farms continue to use only human muscle for power. That this is one of the main constraints on labor productivity has been recognized, but unresolved, for a century or more.

Most Brazilian farmers simply have not "taken" to mechanization—or in many cases, not even to animal power. For some as yet unexplained reason, profits from use of nonhuman power have been too small to warrant extensive use of work animals or machines.

Technology. Here again, few Brazilian farmers have adopted "improved" practices (use of fertilizer, for example).

Unfavorable prices, or nature of the soil and other environmental factors may sharply restrict the transferability of technology from abroad and within areas of Brazil as well. Plant varieties are a case in point. Brazil has far to go to provide its farmers with sufficient varieties fully adapted to the ecological diversity of its 2,480-mile length and breadth.

Moreover, fundamental problems of tropical agriculture may block effective use of some products or techniques that succeed in temperate climates.

There have, nevertheless, been a number of innovations (notably, introduction of soybeans) that have been accepted and proved highly successful. But Brazil will have to expand its research investment considerably before the potentials of its untapped resources and undeveloped territory can be realized.

Almost certainly, land will contribute more than any other factor toward increasing agricultural output in Brazil during what remains of the 20th century.

Only 30 percent of Brazil's 618 million acres was being used for agriculture in 1960. Most of the land being cropped is in the older, settled States along the coast. Here, the percentage of area in farm ranges as high as 60 to 75 percent. If the same proportion of frontierlands—the vast, hollow spaces in the middle and western portions of the country—could be brought under cultivation, crop area would be trebled. (23)
Japan's Plans Call For More Rice as Cattle Feed

Burdened by an overly big rice carryover, Japan is strongly encouraging use of rice in mixed feed production.

Feed processors are expected to use 500,000 metric tons of old-crop surplus rice by March 31. And the Japanese government plans to release another 1 million tons of rice to processors for use in feed manufacture during the marketing year ending Oct. 31.

For 1971-72, the Ministry of Agriculture and Forestry in its budget awaiting approval by the Japanese Diet provides for $1.3 billion to finance rice programs. About two-thirds of this amount would be allocated to the Food Agency’s Special Account for Rice Purchases and Resale Operations. The other third ($425 million) would be used to finance payments to farmers for diversification of land from rice in 1971.

Japan’s new policy is based on two premises. One is the assumption that livestock production will continue to expand during the early 1970’s. The other is the government’s need to reduce its rice carryover—and in doing so, cut down considerably on burdensome storage costs. At the end of October 1970, stocks were a record 7 million tons.

Although feed grain prices were at high levels in 1970, the use of rice in feed processing is not expected to lower price levels in 1971.

The purchase cost of the rice crop by the Japanese government in 1970 ranged from $305 per metric ton (paddy) to $421 per metric ton (milled) as compared with $305 per ton paddy and $419 per ton milled in 1969. The milled rice price was about three times that estimated for imported milled rice and prices to farmers for government purchased rice averaged roughly $383 per metric ton (paddy). This price was only slightly above that of the previous year. However, it was the first time that prices were varied in an attempt to encourage production of high quality rice.

Imported feed grains such as corn and milo from the United States were quoted at $78 and $72 per metric ton late in 1970, while Canadian and Australian barley were priced at about $76 per ton.

Historically, Japan has been a large importer of rice, but imports have declined sharply the past 3 years.

In 1965, Japan imported 967,000 metric tons of rice, but by 1970 imports had dwindled to only about 20,000 metric tons. Primary suppliers in 1965 were the United States and Taiwan. Thailand provided practically all the small 1970 imports.

Most of these were of the special glutinous variety the Japanese use in pastries, but even this trade will probably be discontinued in 1971.

A new feature of Japan’s policy to liquidate stocks is evidenced in exports of rice which began in 1968 with the sale of 377 metric tons. By 1970 Japan’s exports of rice were estimated at 600,000 metric tons and are expected to remain at this level in 1971. The leading export outlets in 1970 were the Republic of Korea (307,000 metric tons) and Indonesia (151,000 metric tons).

Japan’s own food consumption requirements for rice are now stabilized at about 12.5 million metric tons per year.

Government stocks of old rice at the end of October 1971 will be about 6.5 million metric tons (brown rice). This takes into account the old rice to be fed to livestock and poultry, exports, and decline in home use.

The Ministry of Agriculture and Forestry’s 1970 rice production program, with the objective of decreasing rice production by 1.5 million metric tons, was only partially successful. On a brown basis, the production of 12.9 million tons was about 1.1 million tons below 1969. This decline was achieved through a 10 percent reduction in area planted in rice. The government purchased 110,000 hectares of paddy area for public uses and paid $970 per hectare to farmers for diversification of 240,000 hectares of rice land to other farm uses. (24)

Egg and Milk Sales Rise Sharply in Korea

South Koreans have increased their spending for eggs and milk, fruit, and seaweed more than for any other foods in recent years.

However, demand for almost all agricultural products has increased rapidly with an expanding population, and a gradual upgrading of diets. Although there is a continuing need for food grains—especially rice, wheat, and millet—in both rural and urban areas, the gaining popularity of nongrain foods is striking.

The uptrend in total use of eggs and milk is the sharpest, at 14.6 percent yearly.

Urban Koreans spend about 10 times as much as their rural counterparts on these two commodities. They spent about $6.3 million on eggs in 1964, $12 million in 1968, and an estimated $17.4 million at the beginning of this year—judging by projections in a Food Consumption Study published by the Yonsei University in Seoul.

Fruit consumption is increasing at the rate of 11.4 percent per year, from $11 million in 1964, to $20 million in 1968, and an estimated $29 million by 1971.

Spending for seaweed jumped from $17 million in 1964 to $24 million in 1968, and by 1971 was expected to reach $30.5 million. There are numerous varieties of seaweeds, but two are especially popular—Laver in the cities, and Dulse in rural areas. Both are economical substitutes for vegetables.

According to the Food Consumption Study total food expenditures were expected to rise from $1.4 billion in 1964 to $2.2 billion by 1971.

The United States continues to be one of Korea’s principal trading partners. In 1969 we provided almost one-third of the country’s agricultural imports, including over 960 million pounds of rice and 48 million bushels of wheat.

In addition, we furnished about 80 percent of all net economic aid received by the country. (25)

This report presents results of a survey to evaluate consumer acceptance of foam-mat dried grapefruit juice crystals and to provide insights into consumers' reactions to crystals made from other citrus fruits. (See November 1970 Farm Index.)

AGRICULTURAL PRODUCTIVITY IN COLOMBIA. L. Jay Atkinson, Foreign Development and Trade Division. FAER 66.

Although agricultural output has expanded less rapidly than nonagricultural production in Colombia since 1950, development of the two sectors appears consistent. Increases in area and yields since 1950 were largest for crops produced with mechanization, especially cotton, rice, and sugarcane.


An analysis of returns on irrigated farms of the Texas High Plains indicates that the ability to defray water costs over the long run is likely to be somewhat lower than the price paid for water on many farms in 1966.


Emphasis in this report is on the descriptive aspects of change in the dairy industry for the areas covered by the report. Selective data from the Census of Agriculture and Dairy Statistics reports are printed into one publication so that observation and comparison of trends are more convenient for the researcher.

THE IMPACT OF NEW INDUSTRY ON LOCAL GOVERNMENT FINANCES IN FIVE SMALL TOWNS IN KENTUCKY. Charles B. Garrison, University of Tennessee, in cooperation with the Economic Development Division. AER 191.

New manufacturing plants often cost rural communities more than they return in tax revenues, though the fiscal impact on a new plant is not always uniform among the various units of government affected.


Total farm-mortgage lending by Farmers Home Administration, Federal Land Banks, and 17 Life Insurance Companies during the last half of 1969 was highlighted by an 18-percent decline from a year earlier in new money loaned.

PROCEEDINGS OF A SYMPOSIUM: SECONDARY IMPACTS OF PUBLIC INVESTMENT IN NATURAL RESOURCES. Natural Resource Economics Division. MP 1177.

The symposium's principal objective was to provide a setting where government and university economists could discuss and evaluate the theoretical and practical issues in measuring secondary effects of resource development.

CATTLE FEEDING IN THE UNITED STATES. Ronald A. Gustafson and Roy N. Van Arsdall, Farm Production Economics Division. AER 186.

This report makes use of available published reports and statistical data, together with judgments of a number of research analysts concerned with problems and potentials of the cattle industry. (See August 1970 Farm Index.)


In 1967 a workable input-output methodology for generating multipliers for sectors of the national economy was devised. Now a method has been found for breaking out the household sector; it is covered in this report.


This report provides 115 pages of survey data basic to the study (MRR 907) published earlier under the same title.
P.L. 480 CONCESSIONAL SALES.

While some objectives of P.L. 480 have changed, certain goals have been retained throughout the program. It has always been a stated objective of P.L. 480 to encourage economic development and to promote in other ways the foreign policy of the United States. Also, throughout the program there has been the humanitarian aim of feeding hungry people around the world.


Supply and demand projections for agricultural products in Denmark show how consumption patterns are expected to change as incomes and price levels change and as urban areas expand.

FARM TENURE AND CASH RENTS IN THE UNITED STATES.
Robert D. Reinse1 and Bruce Johnson, Farm Production Economics Division. AER 190.

Leasing farms on a cash basis is increasing because, with continued farm expansion, part ownership is on the rise and more part owners are paying cash for the land they rent. Rental is no longer a temporary step to full ownership, but has become an effective and often permanent way to gain control of land resources.

CONSEQUENCES OF CHANGING PRODUCTION STANDARDS FOR MANUFACTURING GRADE MILK.

Higher production measures recommended by the USDA and the U.S. Public Health Service for manufacturing grade milk cover animal health, water supply, sewage disposal, milkhouse, cooling and cleaning equipment, and animal housing. (See August 1970 Farm Index.)

FARM REAL ESTATE MARKET DEVELOPMENTS.
Robert D. Reinse1, Farm Production Economics Division, CD 75.

National farmland values rose 4 percent during the year ended March 1, 1970—the smallest rate of advance in 7 years. Real estate reporters indicated the tight credit markets contributed most to the slowdown. Another factor was general uncertainty over future wheat, feed grain, and cotton programs.

Article Sources

State publications indicated by (*) may be obtained only from the experiment station or university cited. Manuscripts and special material are usually available only on request to authors.

1. Robert Davis and James Vermeer, FPED (special material).
3. Wayne V. Dexter, Office of Management Services, and Earl E. Miller, FPED (special material).
8. David M. Brewster, ESAD, and Roger Strombahn, NRED (special material).
12. E. Grant Youmann, EDD. Older Americans: Needs and Services (manuscript).
18. Consumer and Marketing Service (special material).
23. Mary Long, FRAD (special material).
25. Uel Blank, University of Minnesota, and Sterling H. Stipe Jr., NRED. The Economic Impact of the Crow Wing Canoe Trail in Wadena County, Minnesota (manuscript).

NOTE: Unless otherwise indicated, authors are on the staff of the Economic Research Service (ERS) with their divisions designated as: Economic and Statistical Analysis Division (ESAD); Economic Development Division (EDD); Farm Production Economic Division (FPED); Foreign Development and Trade Division (FDTD); Foreign Regional Analysis Division (FRAD); Marketing Economic Division (MED); and Natural Resource Economics Division (NRED).
Economic Trends

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<td>275</td>
<td>284</td>
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<td>Livestock and products</td>
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<td>323</td>
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<td>Prices paid, interest, taxes and wage rates</td>
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<td>373</td>
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<td>Family living items</td>
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<td>Retail cost</td>
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<td>983</td>
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<td>1,216</td>
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<td>Farm value</td>
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<td>696</td>
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<td>Farmers' share of retail cost</td>
<td>Percent</td>
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<td>41</td>
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<td>Volume of farm marketings</td>
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<td>102</td>
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<td>Cash receipts from farm marketings</td>
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<td>47,229</td>
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<td>Crops</td>
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<td>Livestock and products</td>
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<td>Average value per acre</td>
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<td>Total value of farm real estate</td>
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<td>Gross National Product:</td>
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<td>Billion dollars</td>
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<td>Consumption</td>
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<td>Government expenditures</td>
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<td>Net exports</td>
<td>Billion dollars</td>
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<td>2.6</td>
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<td>Personal income, annual rate</td>
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<td>365.3</td>
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<td>Total retail sales, monthly rate</td>
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<td>29,303</td>
<td>29,419</td>
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<td>Retail sales of food group, monthly rate</td>
<td>Million dollars</td>
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<td>6,436</td>
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<td>Total civilian employment</td>
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<td>Agricultural</td>
<td>Millions</td>
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<td>Rate of unemployment</td>
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<td>Workweek in manufacturing</td>
<td>Hours</td>
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<td>Hourly earnings in manufacturing, unadjusted</td>
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<td>Industrial Production:</td>
<td>1957-59 = 100</td>
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<td>173</td>
<td>171</td>
<td>162</td>
<td>163</td>
<td>162</td>
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<td>Manufacturers' Shipments and Inventories:</td>
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<td>Total shipments, monthly rate</td>
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<td>Total inventories, book value end of month</td>
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<td>Total new orders, monthly rate</td>
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<td>55,138</td>
<td>54,190</td>
<td>54,573</td>
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Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

Footnotes:
1 Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1969-70—estimated monthly. 2 Annual and quarterly data are on 50-State basis. 3 1967 Average. 4 Annual rate seasonally adjusted third quarter. 5 Seasonally adjusted. 6 As of November 1, 1969. 7 As of November 1, 1970.
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