THE AGRICULTURAL OUTLOOK

Big supplies of farm products in early 1969. Larger supplies of livestock and crop products are likely to dampen early 1969 farm prices. But expected gains in cotton, oilseeds, fruit, and vegetable marketings may bring total cash receipts to producers slightly above those in the first half of 1968.

Slower gains in demand for food and less price rise likely in upcoming months. With prospects for more beef, pork, chicken, citrus fruits, and vegetables, early 1969 retail food prices for food at home may average about the same as a year earlier; prices for food eaten away from home are expected to continue 4 to 5 percent above a year earlier.

Farmers had record amount to spend in 1968. Latest estimates show farm people in 1968 had about double the $1,100 per person of disposable personal income they had in 1960. The reason: estimated gains not only in farm income but also in off-farm earnings.

Gross farm income overcomes 3-percent rise in production cost. Farm production expenses this year are expected to reach a level of around $36 billion—up about $1.25 billion from 1967. But gross farm income will probably show a higher rise than expenses, leaving a realized net farm income of around $15 billion, compared with $14.2 billion last year.

No big change seen in market basket statistics in first half of 1969. The farm value of USDA's market basket of farm foods will probably decline in fourth quarter of 1968. The decline may continue in the first half of 1969, bringing farm value to around the year-earlier level. However, the farm-retail spread probably will widen (offsetting farm value decline) so retail cost of the market basket is not expected to change appreciably from late 1968. The farmer's share of the consumer dollar spent for foods in the market basket during the first half of 1969 probably will average 38 cents—1 cent less than in the first half of this year.

U.S. wheat production, carryover up. The 1968/69 bumper crop pushed October 1 wheat stocks up 9 percent from a year earlier to 1,690 million bushels, the highest for that date since 1965. If domestic and export demand continues as estimated, a carryover of some 600 to 650 million bushels next July is possible. That would be approximately 100 million bushels over the 537-million-bushel estimate of the 1968 carryover. If use falls off, the July 1969 carryover could be over 700 million bushels.

Strong consumer demand for meat continues. And it is likely to do so through 1969, though any increase in demand will probably be less than in 1968. Producers stepped up red meat production this year and next year is likely to see another rise. Consumer demand for meat, continuing strong, is expected to increase less than in 1968, taking some buoyancy out of prices. With larger red meat and poultry output, 1969 prices to farmers may average a little lower than this year.

No change in milk production in the cards for 1969. Next year's milk output is expected to plateau near 118 billion pounds—the same amount estimated for 1968. Milk cow numbers will probably drop again in 1969, but sharp gains are in prospect for output per cow and should make up the difference in total milk production. Prices farmers receive for milk from now through March 1969 are expected to be 5 percent higher than year-earlier prices.

Though 1968 cotton crop is 46 percent larger than 1967, use eats into stocks. The November cotton crop estimate of 10.9 million running bales is 46 percent over 1967's very small crop, but 22 percent under the 1962-66 average. Though use is expected to be smaller than the previous year, it is likely to be larger than production. Thus, much of this year's cotton consumption may be drawn from privately-owned stocks which totaled 6.3 million bales last August.
Owning farmland, or tilling farmland, likewise doesn't make a farmer.

There are lots of people who own farmland but aren't farmers. In fact, nearly two-fifths of America's farm real estate assets are owned by people who list their professions as nonfarm pursuits.

And about a fourth of the work done on U.S. farms is performed by hired workers—few of whom live or work on farms year-round.

Who then is a farmer—if he's not simply a landowner or a farmworker? And what, basically, does he do?

In the modern context, a farmer is a man who makes the decision to mix land, labor, and capital to produce food and fiber.

The land, the labor, and the capital aren't always the farmer's own. In fact, full ownership of all these resources is the exception rather than the rule for many of today's most successful farm operators.

Cash on the barrelhead is one way of doing business. But it can put a pretty sizable dent in a farmer's savings if he uses cash to buy outright all the resources he needs.

Consequently, many farmers today make money by the judicious use of other people's money. And they don't aim for full ownership of all resources.

The 1964 Agricultural Census showed that 42 percent of all U.S. farmers rented all or part of the land in their farms. In this fashion, they acquired the use of land at a fraction of its purchase price.

Farmers can also rent a lot of the machinery, equipment, and even the livestock they need.

In parts of the West, rental of beef cows has developed into an important industry. Landowners can thus stock their farms without any major capital commitment by renting cows from private cattle owners—those in turn gain tax advantages via the capital gains treatment of income from breeding stock.

Rental contracts for dairy cows have also been developed in the Northeast and North Central dairy regions. They are particularly worthwhile for farmers who are just entering the dairy business, as well as men who are getting out of it.

An older farmer with a small, high quality dairy herd can retire from dairying gracefully by renting out his cows to other dairymen. He gets a good rental in-

**WHO IS A FARMER?**

*Today's farmer isn't always the man who owns the land or works it. He's really the man who puts together the resources that are needed to produce food and fiber.*

Mr. Jones owns stock in an auto company. Mr. Smith works there assembling parts. Neither, however, can be termed an automobile manufacturer in the true sense of the word.

December 1968
come while the renter gets a good
cow for much less than it would
cost to buy.

Another form of rental is found
in the case of service and equip-
ment. In the Great Plains Region
—America's granary—many big
wheat growers have never owned
a combine. Reason: They custom
hire this service from a man who
specializes in combining and
therefore avoid the expense of
owning and caring for costly ma-
chinery. At the same time they're
assured the services of a profes-
sional operator.

Under the custom hire system
small farms have access to the
same advanced technology used on
large farms—and thus they can
achieve many of the economies of
large farms.

Custom hiring is a common
practice in the harvesting and
ginning of cotton, the drying of
peanuts, the grinding and mixing
of livestock feeds, and the applica-
tion of gaseous and liquid fer-
tilizers. In some parts of the
country, custom beef feeding lots
and custom dairy operations are
also gaining importance.

Money capital, too, can be
rented. The interest on a loan, in
a sense, is the rent the farmer
must pay for money's use.

Properly used, debt can be a
powerful tool for acquiring farm
resources. With debt, a farmer
can acquire land with a minimum
downpayment. This entitles him
to all services of the land, plus the
full returns to ownership, includ-
ing the appreciation in the land's
value.

Debt can also be used to buy
the machinery and equipment,
livestock, and other resources the
farmer needs. Operating loans for
annual production expenses are
available from banks, Production
Credit Associations, the Farmers
Home Administration, individu-
als, and dealers who supply pro-
duction inputs.

The enterprising farmer often
finds the returns to use of operat-
ing funds are much greater than
the cost of those funds.

Joint account farming or ver-
tical coordination are still other
tactics that can be used to acquire
resources.

Joint account farming is close-
ly akin to tenant farming. Put
simply, it means that a farmer
agrees to share the returns from
farming with a landowner as pay-
ment for the use of land.

There's no simple way to de-
scribe vertical coordination. It
can involve the farmer with any
or all of the off-farm firms that
supply his inputs or market his
output. However, vertical coordi-
nation is most often accomplished
through contracts—and each con-
tract is written differently.

In some cases, the farmer may
relinquish an agreed-upon share
of his returns to the contractor
who provides him with inputs.

In other cases, the farmer may
produce goods for the contractor
for a specified price. From that
point on, the contractor reaps the
profits or takes the losses, depend-
ing on market prices.

Recent estimates show about
95 percent of U.S. broiler output
is produced under contract, as are
95 percent of the broiler-type
hatching eggs; nearly 35 percent
of the table eggs; 85 percent of
the turkeys; a tenth of the hogs;
30 percent of the beef cattle; 25
percent of the lamb and mutton;
nearly all of the citrus fruits; and
90 percent of the vegetables for
canning and freezing. (1)

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One Sure Way To Kill Pests Not
Enough for Most Farmers Today

To plant a seed.
To watch it grow.
To catch a greedy grub
Nipping at it so.
—Child's Rhyme

Oldtimers used to say the only
sure way to kill a pest insect
was to put it on a wooden block
and strike it sharply with another
wooden block.

Fortunately for the U.S. e-
conomy, very few of today's farms
depend on this method to kill an
insect, weed, or fungus. Instead,
they rely on a corps of efficient
chemical agents to do the job.

Over a third of all farmers
growing crops used herbicides in
1966. Well over a fourth used
fungicides. About 4 percent used
insecticides. About 4 percent used
fungicides. And 8 percent used a
hodgepodge of other pesticides.

These findings are based on a
nationwide Economic Research
Service survey of 9,600 farmers
in 417 counties in the 48 contigu-
ous States.

Weed killers. Today's farmer
uses herbicides—chemicals that
kill or inhibit plant growth—
mainly as a substitute for labor
and equipment in killing weeds.
Use of these chemicals has in-
creased tremendously in the last
10 or 15 years.

Only 11 percent of corn acre-
age, for example, was treated
with herbicides in 1952. But by
1966, 57 percent of corn acres was
treated. Similarly, weed killers
were used on only 7 percent of
cotton acreage in 1958. By 1966,
over 50 percent of cotton plant-
ings was getting the treatment.

Weed killers are used mainly on
row crops. Half the 1966 acreage
planted in corn, cotton, rice, pea-
nuts, and potatoes were treated
with herbicides, but seldom were
they used on tobacco, hay, or
many fruit crops.

About 37 percent of all farmers
used weed control chemicals on
more than 1 out of 4 of their
acres—not counting pasture and
open range where controlling
weeds is not so important.

Only 12 percent of the smaller
farms with annual sales under
$2,500 used herbicides on slightly
more than 1 out of 10 of their
crop acres.

On the other hand, almost
two-thirds of the larger farms
selling more than $40,000 a year
had almost 4 out of 10 of their

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The Farm Index


THE NATION’S FIRST SOIL SCIENTIST

Returning to family lands at Coggins Point, Va., after serving briefly in the War of 1812, Edmund Ruffin sees something that disturbs him. Fellow farmers in older sections are deserting unprofitable fields for new lands out West. “Why is this once fertile land now barren?” Ruffin asks. And in searching for the answer, he uncovers secrets that open the way to scientific study of the soil.

While reading and experimenting with “worn out” soils, Ruffin became convinced that current farm methods caused soils to become acid and therefore barren. He was sure that adding lime and fertilizer, controlling erosion, and rotating crops would not only restore soil fertility but they would also boost crop yields above old levels. Some farmers jeered at his theories but Ruffin persisted, discussing the results of his experiments in the American Farmer in 1821.

The next year he published a 242-page volume, “An Essay on Calcareous Manures”—which became one of the most widely studied works on American agriculture in the 19th century. In 1833, he founded the Farmer’s Register, a publication that spurred agricultural advances for a decade.

Unfortunately, Ruffin was unable to change the ways of the average farmer who would benefit the most by adopting new farming methods.

Even when Ruffin was a member of the Virginia House of Delegates and of the State Board of Agriculture, people rejected his ideas. Disillusioned, he resigned from both positions.

Nevertheless, many of Edmund Ruffin’s ideas eventually took hold, and he is remembered today as America’s first soil scientist. (3)

THE FARM

crop acres treated with herbicides.

Insect control. Insecticides—chemicals used to kill or inhibit insects—represented 55 percent of 1964 farm pesticide expenses.

In 1966, about 29 percent of all farmers were using these products.

Only about 5 percent of all farm acres were treated to control insects, however. But when you subtract land not normally treated—such as pasture and open range—this share rises to 12 percent.

The 1966 tobacco, peanut, fruit, and vegetable crops showed the most extensive use of insecticides. Over 80 percent of tobacco acreage got insect control treatment.

Nationwide, only about 19 percent of farms with annual sales of under $2,500 used insecticides, while 58 percent of those with sales over $40,000 used the chemicals. About 6 percent of cropland (not including pasture) on the smallest farms was treated. But usage ran to 21 percent on the largest farms.

Fungicides, etc. The number of farmers using fungicides—disease control chemicals—was small, in 1966, considering all crops and regions.

Only about 4 percent of farmers used fungicides, and then only on about 1 percent of their total crop acreage. Citrus and apples got most of the fungicides. Other fruits, vegetables, and peanuts got a lesser share.

Ten percent of farms with over $40,000 in annual sales reported fungicide use. Only 2 percent with sales under $2,500 reported using it.

Other pesticides—defoliants, desiccants, growth chemicals, and miticides—were used extensively on only a few crops. Acres so treated came to only a small percentage of total crop acreages.

(Miticides, incidentally, are chemicals used to kill or inhibit mites.)
To avoid losing everything in one bad price year, potato farmers traditionally have either had to limit their operations or diversify their crops.

Since 1950, however, many potato farmers in Idaho and elsewhere have turned to contract farming in order to help minimize their risks and create a more favorable credit base to get operating money.

These potato grower-processor contracts specify that the grower furnish the processor the yield of a given number of acres for an agreed-upon price per hundredweight.

They differ from most grower-processor contracts in that the price per hundredweight is an integral part of the document signed by the farmer.

With other farm commodities the price is usually either not specified or is determined later, according to a formula spelled out in the contract.

To the potato grower, the fact that the price is negotiated before planting means that he will know within fairly narrow limits how much he will make, and he can make production decisions accordingly.

By reducing price uncertainty, contractors have contributed to the dramatic expansion of the potato industry since 1950.

Other factors contributing to this expansion include new methods of processing and preserving potatoes, new marketing techniques, and the subsequent increased consumer demand for potatoes and potato products.

Estimates indicate that total potato acreage in Idaho has increased from an annual average of 146,000 acres in 1950-52 to nearly 300,000 acres in 1965-67.

And total Idaho production of potatoes rose during the same period from an average of about 27 million hundredweight in 1950-52 to over 65 million hundredweight in 1965-67. (4)

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Conservative Wheat Farmer Gets Bankrupt in 10 Years—On Page 7

You’re a wheat farmer who originally postulated, you would have been better off following almost any one of the five strategies except the first one, Strategy A, the most conservative.

The results showed that you—as a wheat farmer—would have made a $9,000 down payment on your land.

You owe $21,000 on your mortgage, payable monthly over the next 30 years at a 5-percent rate of interest.

And you have $4,000 cash in the bank to start your next season’s crop on its way to harvest.

What would be your best strategy for maximum growth over a 30-year period?

A. To build equity in the land as fast as possible?
B. To refinance land purchases up to 2,000 acres and then build equity?
C. To rent the extra acres but otherwise build equity in the land?
D. To increase land size up to 2,000 acres without building equity, and use the surplus money not used to pay off the principal, for stocks, bonds or other off-farm investments?
E. To rent the extra acres and invest the surplus money off the farm?

Economic Research Service analysts correlated each of the five strategies with actual wheat crop yields and weather conditions that occurred on a typical wheat farm in Montana over a 30-year period.

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When Montana Farmers Start To Think Big, They Think Livestock

The average Montana farmer—like most farmers everywhere—tries to earn more from his farm. To this end, he is likely to enlarge his farm, start or add to a livestock enterprise, or use a combination of these courses.

From 1954 to 1966, these methods were the most popular among those used by farmers who increased their net incomes in the Treasure State.

An Economic Research Service analysis of Montana agricultural statistics shows that during the 12-year period:

- The number of farms in the State decreased while the size of the average farm grew.
- Farmers were more selective in choosing specialized farming operations and less inclined to diversify.
- More acres went to livestock, and less to crops.
- Farm production expenses rose, with livestock, fertilizer, and interest rates on farm mortgages going up the fastest. Yet gross farm income tended to keep pace with costs of production.
- The average net farm income increased statewide, partly because of farm enlargement and also because farmers made more profitable use of land, fertilizer, and new crop varieties.

For the many smaller farms with net farm income below the State average, intensified farming—maximum use of land through irrigation, fertilization, and other improved farming methods—may be the answer.

For those on the upside of the State's average net farm income, a different kind of problem arises. As farms grow fewer in number and larger in size, and as farmers turn increasingly to livestock enterprises, farm resources become more firmly fixed.

As a result, farming decisions tend to become longrun and there is less opportunity for year-to-year production and land use adjustments—which are traditionally characteristic of the Montana farmer. (22)

Wheat's Origin Is Unknown, But It's Grown Almost Everywhere

The United States produces more types of wheat in volume than any other nation in the world. But how wheat came to this country is in doubt.

Traces of wheat have been uncovered in the diggings of many early civilizations. It was grown in southwestern Asia, supposedly man's first home. But the origin of wheat still remains a mystery.

The common ancestor of all wheats is believed to be wild einkorn, still seen growing in the Balkan States.

Wheat probably arrived in America with the conquistadors. Later, it became an important crop in the early Virginia colonies along the Atlantic Coast.

Not only important in the United States, wheat is grown in nearly every country and covers more than 20 percent of the world's cropland.

There have been major improvements in the wheat plant, too. For years, progress was slow. The best grain from one year's harvest was selected as the next year's seed.

In the 20th century, however, plant scientists have been breeding new and improved wheat varieties.

Only three species of wheat are now important commercially—common wheat, club, and durum. They account for 90 percent of all wheat grown.

Besides species, wheat may be further classified by the texture of the ripened kernel, color of the kernel, and the wheat plant's growing habits. (23)
It was the time-worn struggle of people versus land. So planners prescribed comprehensive zoning to keep haphazard urban growth from spoiling Paradise's beauty.

It's the Paradise of the Pacific. But even Paradise has to contend with urban sprawl.

Four-fifths of Hawaii's populace lives, works, and plays on the island of Oahu—which contains less than 9 percent of the State's total land area. Oahu also has much of the State's prime agricultural land.

Until Hawaii cracked down on haphazard urban growth, population pressures were pushing Oahu's urban sector out into valuable farmland. While this land shifted from plow to pavement, land less well suited to agriculture was left undeveloped. Not only were these growth patterns costly: they threatened to spoil the island's beauty.

To keep their paradise as perfect as possible, Hawaiian planning officials prescribed a comprehensive zoning plan. But they went a step further than most States, which leave zoning up to individual counties. Hawaii pioneered in creating a centralized State agency empowered to zone all land within State boundaries.

How well has Statewide zoning worked? In Hawaii's case, quite well—although it has not solved all the problems of urban pressure.

Scattered urban development has been greatly reduced by confining such growth to urban districts. These are areas characterized by city-like land uses plus reserve areas where future urban growth is probable and desirable in terms of potential economic development, available public facilities, and job opportunities.

These urban reserve areas, which provide a "10-year supply" of land for future development, have dampened the enthusiasm...
land speculation within urban districts.

Much of Hawaii's prime agricultural land has been placed in agricultural districts to protect farmers from urban encroachment and excess taxation.

Land in agricultural districts can be used for other purposes only when a special permit for such uses has been issued by the State's Land Use Commission.

Special permits are issued when nonconforming uses are judged beneficial to the State's long term growth plan and when they don't alter the character of nearby land.

For example, the Commission has approved construction of a convalescent home and establishment of a communication satellite earth station in agricultural districts. It also has granted petitions for the formation or expansion of small business establishments to serve local needs in agricultural districts.

And in cases where land was not particularly well suited to agriculture or related activities, petitions have been approved for larger establishments. But petitions for even very small residential subdivisions often are denied.

There are two other types of zoning districts within Hawaii: rural and conservation.

Rural districts are composed of small farms intermingled with low density residential areas. Residences are limited to one house per half acre and the minimum size for a farm is also set at half an acre. Public buildings and facilities are allowed. All other land uses are forbidden unless a landowner is granted a special permit.

Conservation districts include the land used for forestry, water conservation, preservation of natural wildlife and vegetation, recreation, and parks.

Regulations are quite rigid when they concern the conservation of important watersheds and scenic areas. But some conservation lands have limited watershed and scenic value, in such cases housing is sometimes allowed.

Landowners in Hawaii not only can petition for nonconforming uses of land within districts, but also can petition for revisions in district boundaries.

Boundary changes approved during 1964-67 took away about 2,700 acres of land from agricultural districts and 1,000 acres from conservation districts. Land in urban and rural zones increased by 3,200 and 500 acres, respectively.

On Oahu, where population pressures are greatest, some 1,618 acres were shifted to urban uses during 1964-67. During the same period, petitions for boundary changes covering some 1,800 acres on Oahu were denied.

The major boundary change was made to enable an investment company to shift 1,870 acres of land from agriculture to urban use for a resort and residential community. The remainder consisted of small areas ranging from less than 1 to 65 acres. In almost every case, these parcels were contiguous with existing urban districts.

To keep zoning abreast of State needs, Hawaii's Land Use Law provides for a comprehensive review of all district boundaries at 5-year intervals. (6)

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To Keep Men Farming, Hawaii Lowers Tax on Dedicated Land

Rising taxes can drive farmers out of business almost as fast as high-rise buildings on neighboring property.

While Hawaii's zoning laws have protected farmers from urban encroachment (and the higher taxes that cities bring), they haven't halted the steady appreciation in farmland values. And as these values go up, so too do farmers' taxes.

Much of Hawaii's agricultural land is operated by tenants who have long term leases. Typically, these tenants are required to pay the real property tax on the land.

To keep these men in the business of farming, Hawaii's Land Use Laws permit the dedication of land to agricultural uses. Dedicated land is then assessed at a value based solely on that use. (Nonfarm landowners may also dedicate land in urban areas to certain uses such as open space and public recreation.)

Through 1967, approximately 14 percent of the farmers in the State dedicated all or part of their land to agriculture. Most of these were small operators. While the total acreage dedicated to agriculture is still small, it has increased steadily in recent years.

Tax reductions on dedicated land reached a total of $76,657 in 1967.

Thus far, most of the land dedicated has been in agricultural districts. Farmers must petition to dedicate their land—and such petitions frequently aren't approved for farms in urban districts since the dedication would conflict with the overall development plan of the State.

Interviews with persons who have dedicated their land show that tax breaks aren't their only reason for choosing this course.

Farms located on the fringes of urban zones or in rural areas face strong pressures from residents living in the area. The residents want neighboring farms developed for two reasons:

—the development of the farm into urban use will increase the value of their homes; and

—many homeowners prefer not to live next to farms because of inconveniences associated with it, such as smell and noise.

Land dedication provides the farmer with a government approved means of shielding himself from such pressures. (7)
What does it take to keep a mill operating at near peak capacity? Diversification is choice of some operators; others find they must modernize, integrate, or cut price.

It may be disillusioning to note that Mom's traditional homemade cake is often purchased as a boxed pre-mix today.

But to the flour milling industry it means better business. Premixed flour products have provided the millers with another outlet for flour.

And the situation that brought this about helps explain the current state of the industry.

For the most part, flour millers—like many others in the wheat economy—suffer from excess capacity. That is, their plants are larger than either the grain supply available to them or the ultimate consumer demand for their products.

This is true in spite of the fact that the number of mills in the United States has narrowed down from 8,436 in 1907 to 352 in 1967. Since 1930, however, when there were 4,727 flour mills, milling capacity has dropped only 11 percent and wheat flour production, though fluctuating from year to year, increased overall about 8 percent.

On the average, therefore, the percent of flour mill capacity used has actually risen somewhat in recent years.

From 1957 to 1965, flour production went up at the rate of 3.8 percent a year and this trend is expected to continue through 1970. New and improved products have created new markets for flour.

Flour milling firms, to improve or maintain their competitive positions, have turned to manufacture of flour mixes, cereals, snack goods, and similar diversifications—often in consumer-packaged form or for institutional use. They have also turned to feed manufacture and to merchandising of wheat and flour.

Some firms have combined to form an integrated operation that interlinks many channels of the wheat market economy.

These firms operate their own grain elevators where they pick and choose the specific quantities and qualities of wheat they want. They control their own methods of transporting grain to their mills and some even own captive markets—such as bakeries, cereal and snack manufacturing plants—for their milled products.

Pneumatic handling has replaced the bucket elevators and screw conveyors in many mills. This reduces the flour dust fire hazard, improves sanitation, cuts space requirements, and facilitates continuous operation and analysis of the product.

Impact milling where used by millers has produced greater yields and finer flour than conventional roller milling equipment. Cleaning time and equipment shutdown costs have also been cut.

Use of air classification tech-
Prices in the future will enable the miller to produce flour of a high protein content even from low protein wheat. (Low protein flour is used in cakes, high protein flour for bread.)

Today a flour mill with a daily capacity of about 6,000 hundredweight appears technically to be the most profitable.

But in practice the costs of transporting grain and mill products offset the technical balance. Therefore, the best sized mill in terms of profitability may actually average only slightly over 2,400 hundredweight in daily capacity.

Mills with capacities of less than 1,000 hundredweight are declining in importance. Most do not have the economy-of-scale advantage enjoyed by larger competitors and they drop out.

Others drop out because the market for flour produced primarily for the family is diminishing.

It costs the remaining small millers as much to produce family flour as flour sold to commercial bakeries, but gross margins on a recognizable mill-brand family flour are generally larger than on bakery flour.

Thus, a high-cost, small-capacity family flour milling plant may still show profits when the same size plant producing only bakery flour would have to go out of business.

Some family flour mills are also able to show profits because their plants and equipment are old and are largely, if not completely, depreciated.

If the small mill is located in a rural area it can usually get its wheat at a lower price than larger mills who must compete with each other for grain supplies from the terminal wheat market.

Many smaller mills in rural areas also manufacture millfeed as a byproduct and get high prices by selling retail to nearby farmers. (8)

Refining Capacity Slides Upward For U.S. Edible Fats and Oils

All the Nation's refiners of edible fats and oils don't work around the clock, 7 days a week, 52 weeks a year.

If they did, they would be able to produce 12.7 billion pounds of edible fats and oils a year (according to September 1967 figures).

This estimate of maximum annual refining capacity is 43 percent above the 1956/57 level. And it is expected to go up another 1.2 billion pounds by early 1970.

During the year ending September 1967, the industry operated at about two-thirds its maximum capacity for refining, further processing, and production of finished products. The packing rate was at about half of the maximum capacity.

The limited capacity of certain pieces of processing equipment and of storage space, plant shutdowns for repair and maintenance—as well as scarcities of power, raw materials, and labor—all serve as deterrents to operation.

On an average the industry put in a 6-day week, 48 weeks of the year, with two or three 8-hour shifts when producing intermediate or finished products. Packers worked a slightly shorter schedule.

What happens during these working hours depends on the type of fat or oil being processed and on its ultimate destination—salad oil, cooking oil, margarine. A representative picture can be drawn by sketching the stages in the complete refining of vegetable oil.

Degumming removes nonsalt materials, mostly phosphatides, from the crude oil. A major byproduct of this process is lecithin.

Refining further purifies the oil. The byproduct of soapstock is an ingredient in soap and glycine.

Bleaching reduces the color of the oil after refining has been completed.

Hydrogenation converts liquid oils into a solid or semisolid state suitable for shortening or margarine. This process also stabilizes the oil and retards spoilage.

Winterizing conditions the oil so that it stays liquid at low temperatures.

Not all the refiners produce finished consumer-ready products. The total pack of those who did was 8.6 billion pounds—4.5 billion pounds liquid, the rest in solids. Of this, 79 percent of the liquids and 38 percent of the solids were shipped in bulk. The remainder was shipped in consumer-sized containers, large tins and drums.

There are now 83 U.S. refiners (not counting some being built). They span 23 States but are usually clustered in soybean and cottonseed producing areas or in large metropolitan centers.

Since vegetable oils make up the major portion of domestically produced edible fats and oils, the refining industry is largely dependent upon the output of the oilseed crushers.

The size of the refineries varies widely.

About 39 percent of those plants surveyed had maximum annual capacities of less than 100 million pounds.

Another 38 percent had annual capacities of over 200 million pounds and accounted for 68 percent of the industry's total capacity.

Plants with capacities between 100 million and 200 million pounds accounted for another 20 percent of the industry's capacity.

When all sizes are added up, about three-fifths of the total number of plants accounted for around 90 percent of actual production and 84 percent of the maximum capacity.
AUSTRALIAN AGRICULTURE: a look ahead

Beef cattle fattening on pasture and enjoying shade of a eucalyptus tree are a typical scene in rural Australia—vast supply house of many farm products likely to enter world markets in increasing volume.

The “bush” is falling under the plow. Cotton is flourishing on newly irrigated areas of the “outback.”

Australia’s agricultural frontiers are indeed widening. And Australian agricultural products are entering the world marketplace in increasing volume.

From the wharves at Sydney and Perth, wheat goes to all parts of the world—to compete with wheat grown by U.S. farmers. At Melbourne and Adelaide, dairy products and fruit are among cargos bound for Europe. Much of the beef and some of the wool that leaves Brisbane docks is destined for U.S. consumers.

And by 1980, we can expect bigger output and exports of most “Down-Under” commodities that compete with our own.

This is one of the agricultural projections made by a team of Australian economists in a study recently published by USDA. The study stemmed from a contract sponsored jointly by USDA’s Economic Research Service and Foreign Agricultural Service.

From the standpoint of direct competition in foreign markets, the most important findings of the study related to grains, fruits, dairy products, tallow, and hides and skins.

As the United States is Australia’s leading market for beef, the future of the Australian meat situation is predicted in the study. And unless unforeseen changes occur in the makeup of diets—or in the U.S. meat structure—we are likely to continue indefinitely as Australia’s major customer.

Projections for cotton and tobacco production are also significant. Our exports of these commodities to Australia can be expected to shrink as Australia’s output expands.

For example, Australian cotton planters har-
vested an average of only 4½ million pounds annually between 1958/59 and 1961/62. Imports averaged 54 million pounds a year.

Since then, irrigation has steadily boosted cotton output. By 1980, it is projected at 150 million pounds (300,000 bales of 500 pounds)—with imports dropping to 22 million pounds (44,000 bales).

For tobacco, the projected decline of imports is more gradual.

Domestic production may increase about one-fourth to 33 million pounds by 1970. But the rate of increase is then expected to level off to 3 percent per year.

Thus, imports are expected to average around the present 27-million-pound mark into the 1970's and gradually decline to 23.6 million pounds by 1980. (It is assumed that future production will increase with the setting of higher minimum levels of domestic leaf as a percentage of total supplies of tobacco leaf.)

What Australia does with grain—especially wheat—will have much more impact on export earnings of many U.S. farmers.

Wheat. In the past 20 years Australian wheat growers have shown their ability to increase both acreage and yields at the same time—and to enlarge their share of the world market as well.

As in most high income countries, per capita home use of flour and other wheat products has been declining. Meanwhile use of wheat as feed has dropped substantially.

With more wheat available for export, Australia has vigorously sought new foreign markets. In the process it has become a major supplier (along with Canada) to Communist China. Sizable sales have also been made to the USSR. And the United Kingdom is, of course, a traditionally big and steady market.

The 1980 wheat harvest is forecast at about 16.1 million metric tons (591 million bushels), according to the “most likely” projection of the Australian economists. (Their study also includes “low” and “high” projections.) Exports in 1980 are forecast at 13 million tons (478 million bushels). Harvests and exports of this size would be 42 and 67 percent of average (1964-68) U.S. production and exports respectively.

The 1966/67 Australian wheat crop has already yielded 467 million bushels. This is not far below projected 1975 output. And the 1968/69 crop is preliminarily forecast at 530 million bushels. This would be well above the 1975 production level of 501 million bushels as projected in the study.

Meanwhile, Australia’s per capita consumption of wheat by 1980 is expected to be 15 percent below that in 1965.

Feed grains. Up to now, Australia’s share of world coarse grain exports has been only about 10 percent. It has been supplying about a quarter of the world’s oat exports and about 8 percent of barley exports. No corn.

But there is now much interest in growing corn and grain sorghums for export to Japan. Most plantings of these are planned for new development areas of Queensland, Western Australia, and
AUSTRALIAN PRODUCTION AND EXPORTS OF SELECTED FARM COMMODITIES PROJECTED TO 1980

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1 Projections are “most likely” medians. 2 All meats carcass weight. 3 Whole milk equivalent of processed products. 4 Milled equivalent.

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Space Surplus

There may be room at the top for some people, but there’s room Down Under for more.

Australia has an area of nearly 3 million square miles and a population of only 12 million: Four people per square mile.

Immigrants—more than 100,000 a year since 1965—have been doing their bit to build up Aussie numbers, but the effect hasn’t been explosive.

At the present rates of net immigration and births, Australia would have nearly 17,288,000 people by 1980—according to estimators in the Commonwealth Bureau of Census and Statistics.

But some demographers figure that the flow of immigrants will slow down to about 50,000 a year. They also view the recent slight downturn in the birthrate as the start of a long term decline.

If they are right, Australia’s 1980 population might be only 14,790,000—not yet five people per square mile. (11)

Small quantities of grain sorghum have already been sold to Japan, and growers are optimistic about this market. (Japan is the No. 1 cash market for U.S. sorghum and a main outlet for U.S. corn).

Rice. Australian rice is mostly short-grain. It is not in strong demand either at home or by neighboring Pacific Island customers. They prefer medium or long-grain varieties.

Some long-grain rice is now being grown with the benefit of irrigation in new production areas of Queensland and northern Australia. If these plantings prove successful, they might eventually put Australia in a better position vis-à-vis U.S. rice. But no sharp changes in rice production, consumption, or exports are indicated. (10)

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Roundup

At 186 million, Australia’s cattle and sheep outnumber its people more than 15 to 1.

The livestock headcount on March 1, 1968, showed sheep numbers at nearly 167 million. Our flock is under 20 million.)

Australian cattle and calves totaled over 19 million. About 13½ million were beef animals. (U.S. total cattle, 109 million; beef cattle, 86½ million.)

Shorthorns and Herefords dominate the Aussie beef herd, but Angus, Santa Gertrudis, and Brahman are in there, too. Some Australian beef we import today may be from descendants of Texas breeding cattle Australia once imported from us.

Wary of blue tongue disease, however, Australia stopped cattle imports about a decade ago primarily to protect its numerous and valuable sheep. Blue tongue (“false foot-and-mouth”) is an infectious virus still plaguing U.S. livestock. (12)
New Trade Figures:

JAPAN: Agricultural imports in 1967, valued at $3,296 million were up 74 percent from 1962.

During the 6-year period, imports of animals and animal products rose 68 percent to $684 million. Feed grain imports more than tripled to $485 million. Fruits and vegetables increased over threefold to $194 million.

The United States—Japan's major supplier—filled about 31 percent of the Japanese farm import basket in 1967. This was about the annual average for the entire 1962-67 period.

Australia—second largest supplier—had a 1967 share close to 14 percent, but slightly under its 6-year average share.

CHINA (TAIWAN). Imports of farm products totaled $184 million in 1967—up 51 percent from $122 million in 1966.

Five commodities made up over four-fifths of the 1967 value: oilseeds ($46 million), cotton ($45 million), grains ($34 million), animals and animal products ($17 million), and tobacco ($11 million).

Over two-thirds of the grain imports were for use as food, and the United States supplied 86 percent of them. Overall, the U.S. share of Taiwan's farm imports was 65 percent in 1967.

REPUBLIC OF KOREA. Food grains accounted for 40 percent ($71 million) of the country's $177 million agricultural imports in 1967. Cotton imports ($49 million) took up much of the balance.

The United States provided over 70 percent of these imports.

AUSTRALIA: Agricultural exports in 1967 climbed to $2,249 million—nearly a fourth more than they were 6 years ago. About 12 percent of the total went to U.S. buyers.

Animals and animal product outshipments (with wool predominating) added up to $1,536 million. U.S. purchases of these, at $244 million, represented an 18 percent share. But the combined takings of Western European countries came to $706 million.

Food and feed grains, at $565 million, were second among Australian exports. Wheat exports to Japan totaled $32 million and to the United Kingdom, $19 million. Fruits and vegetables earned about $120 million, as did sugar. The U.S. took about 21 percent of the sugar export total.

NEW ZEALAND. At $886 million, farm exports in 1967 dropped 10 percent below the value a year earlier. Animals and animal products made up 93 percent of the country's farm export total, with the U.S. getting 15 percent. Outside of this category, U.S. purchases were not significant. (13)

Acres of U.S. Exports Find A Way to Foreign Markets in '68

About 71 million acres of U.S. land were used to produce the farm products that were exported in the year that ended June 30, 1968.

Out of last year's wheat production, 1967/68 exports took 63 percent. Export shares for other crop outputs were 64 percent for rice; over 70 percent for dry edible peas; about 50 percent for hides and skins and cotton; and 40 percent for soybeans and soybean products. About one-third of our tobacco, dried prunes, and hops went abroad.

Feed grains are exported in large volume but are a relatively small percentage of total production because so much of these crops are not sold, but used on farms where they are grown. Even so, corn exports accounted for 23 percent of sales from farms, and barley 11 percent. (24)

Remote Sensors Are Developing New Pictures for U.S. Agriculture

Remote sensors—cameras, scanners, radar, and the like—are a 20th century technological advancement from which agriculture is benefiting.

At the present point of development, remote sensing from satellites and high flying aircraft can locate cultivated acreage, show its dimensions, and give a good idea of world land use.

Two other determinations—specific crop identification and yield indication for a photographed area—are under study.

The development of remote sensing is especially timely since it coincides with the growing pressure in many countries to produce more food for larger populations.

Two areas usually covered in national agricultural plans are development of new lands and improvement of traditional lands under cultivation.

But before planners can come up with reasonable plans, they need accurate blueprints of existing agricultural conditions. And this takes more accurate data than many countries have.

Using traditional statistical methods, the improvement of data collection in developing countries is a very slow and, in some instances, extremely difficult process. There is a real need for rapid gathering of correct data on cultivated land and crops.

A remote sensor system could, ideally, scan and map an entire country in a matter of days and repeat the process several times throughout the growing season.

In this way it would provide "instant information" about planting, growing, and harvesting conditions—and also be capable of sounding a quick warning of disease, drought, or other marks of crop failure which might then be averted or controlled. (14)
Modern meals are the masterpieces of science and industry. Every year something new comes along to enhance the combination of easy preparation and better quality.

Mary Smith, age 23, newly married, is fixing the holiday dinner for her in-laws this year. She's a little nervous. But she's allowing herself plenty of time to turn out a perfect meal.

She's making her mincemeat pies the night before, along with fixing fresh greens for salad. Her self-basting turkey, already stuffed, will go into the oven on the day of the dinner. The rolls (brown-and-serve type) and the vegetables (frozen broccoli with cheese sauce made from a mix, and candied sweetpotatoes) are the only things Mary has to fix at the last moment.

Mary is too young and too busy to ponder the fact that her holiday dinner is the product of many modern-day miracles in the food industry.

But Mary's grandmother recalls the day when the mincemeat for pies had to be made in au-
then, when the apples ripened. The turkey, grown at home, was a year long enterprise, culminating in the messy business of slaughtering, plucking, and cleaning the bird.

The vegetables—if she'd waited for the last minute wouldn't have been there. They all had to be canned, in midsummer's heat, by the housewife herself. As for broccoli and fresh greens for salad, Mary's grandmother couldn't even consider them for midwinter menus.

Today, Mary doesn't even bother to plan ahead for such things as butter and jelly and pickles on her holiday menu—but these items would have cost her grandmother hours of preparation time.

Less time spent in cooking, more foods available year-round are only part of Mary's endowment.

The foods she buys keep longer than they used to—thanks to highly sophisticated processing techniques, chemical additives, and better equipment with which to preserve food.

A number of foods are also fortified with vitamins and minerals to make them nutritionally better.

But if Mary has it good, her daughter and her granddaughter will have it still better.

In all probability, Mary Jr., will serve her family oblong tomatoes, whose shape is nice for slicing and has cut down on shipping damage. She'll buy her catsup, her gravies, and her pickles in compact freeze-dried sheets—not in jars. They'll keep indefinitely without refrigeration. And she can reconstitute them at her convenience. Spray cans of salad dressings, cake mix batter, or whipped potatoes will line her pantry shelves.

She—and her mother, too, in her later years—will have not one but several refrigerators. Insulated wall cabinets will permit them to store meat right next to the oven. A special ice cube maker might hang above the sink; another wall unit might be next to the serving area. Microwave and infra-red ovens will cook foods in minutes, or even seconds, instead of hours.

And a generation later, when Mary III is entertaining her in-laws, she may never see the inside of a supermarket. With a video phone she may be able to check prices and qualities of groceries at the store and to place her order without leaving the house.

She may never even cook at all, according to many of today's technicians who are designing the kitchens of tomorrow. She may simply program her menus for the week into a computer, put her groceries into the right storage spaces, and then sit back while mechanical arms select, cook, and serve the food she ordered. (15)

### The Nation's Holiday Nut Bowl: Slightly Smaller, Still Plentiful

At any other time of the year they're liable to be slivered and blanched, roasted and salted. But for the holiday season, nuts in the shell are the traditional favorite.

This year's production of the “Big Four” is estimated at about 264,000 tons.

Pecans and walnuts each fill about a third of this 264,000-ton nut bowl, almonds account for another 28 percent, with filberts bringing up the rear at 4 percent.

Look for fewer almonds from California this year, though the crop is still above average. Happily for nut fanciers, production of walnuts and filberts is up—over 15 percent above 1967—with Oregon, as usual, accounting for over 90 of the filberts.

Pecans, which prefer the southern climes, did not produce as heavily this year as last in most States. (16)
CONSUMERS ACROSS THE COUNTRY paid $85 billion during 1967 for food that originated on U.S. farms. This is about $2 billion above the 1966 level, a smaller than usual annual increase, and a little over $25 billion more than 10 years earlier.

Total returns to U.S. farmers for the foods amounted to $27.4 billion in 1967. This is $0.7 billion less than in 1966 and the first decline since 1959. However, 1967 returns were the second largest on record and $7 billion more than 10 years ago.

The food marketing bill—the cost of getting goods from the farmer to the consumer—was $57.6 billion in 1967, compared to $37.9 billion in 1957. Increases in the volume of food marketed are responsible for about half of the $20-billion gain. Rising unit costs accounted for the remainder. Higher prices for labor, packaging materials and other inputs, and the growing consumer demand for processed foods and restaurant meals have boosted the cost per unit of product marketed. (19)

The Nation's total outlay for agricultural imports for the year ending June 30, 1968, was about $4.7 million, compared with around $4.5 million the previous 2 years. Higher price tags on foreign products—not greater volume—accounted for most of the value rise.

Gourmet's delights—such things as marzipan and saffron, pignolia nuts and Pecorino cheese—make up the smallest portion of our imported fare.

It's the things average Americans regard as staples that are the biggest part of the tab.

Coffee alone cost us $1 billion in fiscal 1968—or almost a fourth of our total agricultural import bill. Add tea, cocoa, bananas, and meats. The combination then accounts for over half the national check.

And, of course, things agricultural aren't all edible. So in your budget for imports, don't forget to allot a few cents for silk, certain cottons and wools and tobaccos, and a bit of rubber, waxes, bristles, and such. (18)

Eggs Sunny Side Up: Last Year Everyone Ate One More a Month

Time was when each U.S. civilian was eating an outsized annual dish of eggs—408 to be exact. The year was 1945.

Since then the Nation's appetite for eggs began to flag. The reason is tied in with a growing tendency to eliminate breakfast as a full-course meal. Egg eating dropped to a 25-year low of 313 eggs per person in 1966.

However, 1967 egg output hit an alltime high of 5.8 billion and average price per dozen dipped 8 cents under 1966 levels.

In response, people added about one egg a month to their diets and increased consumption to 324 per person in 1967. (20)
Addresses of state experiment stations:

In response to requests from readers wishing to obtain recent publications and source material published through state experiment stations, we are publishing a list of the experiment stations and their addresses. This list will be printed again in July.

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Numbers in parentheses at end of stories refer to sources listed below:


Speech (S); published report (P); unpublished manuscript (M); special material (SM); *State publications may be obtained only by writing to the experiment station or university cited.
INDEX to the Farm Index

January through December 1968

References in this index are by month and page.

A

Africa: East African Community, 1/19; fertilizer use, 1/24; lack of statistics, 2/18; sugar production, 2/17; trade and development associations, 11/16; water power for Nile Basin, 2/16. See also Agricultural development, Morocco, South Africa, Sudan, United Arab Republic, and Zambias. Agricultural development: data gathering by remote control, 12/15; food expenditures in developing nations, 10/15; India, 4/18; lack of statistics in Africa, 2/18; marketing problems in developing countries, 10/15; Mexico, 5/14; outlook, 7/3; source of production gains in less developed countries, 7/16; Taiwan, 4/17; unfavorable “terms of trade” in developing nations, 3/19.

Agricultural history: W. O. Atwater, 7/5; Horace Capron, 11/7; grain harvesters, 10/6; hay cutting equipment, 8/4; Isaac Newton, 2/7; Gifford Pinchot, 6/9; Edmund Ruffin, 12/5; H. C. Taylor, 9/4. Alfalfa: use in poultry feeds, 1/16.


Australia: agricultural supply and demand projections, 12/12; cattle and sheep numbers, 12/14; exports ’65, 12/15; grain sorghums, 8/18; immigration and population, 12/4.

Away-from-home eating: annual expenditures, 6/15/12; equipment in eating places, 5/13; numbers employed in eating places, 5/13.

B

Bailey, Liberty Hyde: biography, 10/5.


Bananas: U.S. imports and consumption, 8/14.

Beef: cattle feeding systems, 7/4; consumer buying attitudes, 6/19; Mississippi River Delta, 1/6; projected consumption, 7/3.


Buildings: condition of U.S. housing, 7/1; farm service, 1/4.


C

Canada: cash farm receipts, 5/18; food aid by, 8/17; value of foreign trade by area ’64, 7/18.

Canning industry: competition, 6/11.

Capron, Horace: biography, 11/7.


Cattle: feeding industry, 4/3; feeding systems, 7/4; convenience feedstuffs, 2/6; exports to Chile, 8/18; feeding more but smaller cattle, 1/6; feeding to heavy weights, 5/3; grain or grass feeding in North Dakota, 4/1; marketing alternatives, 10/12; numbers and State rankings ’68, 5/4; production and prices, 9/6.

Central America: See Latin America.

Cereals: growth in world trade, 10/12. See also by commodity.

Ceylon: increased food output, 8/17.

Chicken: See Poultry.

Chile: imports of U.S. cattle, 8/18.

China (Mainland): agricultural output and trade ’67, 6/17.

Christmas Islands: location and products, 12/24.


Clothing: cost and income factors in buying, 8/26; per capita expenditures by sex and age, 4/21; women’s buying habits, 8/19. See also Cotton and Wool.


Coffee: U.S. consumption, 2/24; U.S. imports, 12/16.

Communist countries: See China (Mainland), Europe, East, and USSR.

Computers: to inert milk marketings, 9/13; in livestock industry, 1/13; use in water supply, 8/20.

Convenience foods: in menu planning, 12/16; trends, 12/16.

Cooperatives: Co-op month, 9/12.

Corn: in South Africa, 11/8; popcorn industry, 10/20; production efficiency, 2/5; superlative yields, 6/3.

Corporate farms: percentage of commercial farms, 9/6.

Cotton: blends, 4/13; consumption compared with other fibers, 4/14; breakdown of retail dollar, 4/15; food potential, 4/16; planting costs, 4/14 and 7/14; New Venezuelian variety, 2/19; production ’67, 10/5; production efficiency, 2/5; salvaging gin mottles, 1/16; Southeast problems, 1/16; staple length longer, 6/12; use of fertilizer in Arkansas, 4/6; uses, 4/13; USSR cost-tosell, 6/15. See also Clothing.

Cottonseed: in USSR, 6/15; food products, 4/16.


Credit: expanding the farm, 6/4; financing rural industry, 2/9; for acquiring resources, 12/3; in real estate transfers, 6/6; one-stop credit, 5/5.

Crop loans: how to measure, 1/7.

D

Dairy farms: adjusting milk production, 4/4; cow numbers, 11/6; cow rental, 12/3; fewer farms with higher sales, 10/3; profits versus efficiency, 1/5; size and income of average enterprise, 8/6.

Dairy industry: milk in dairy products, 1/15; expanding farm business, 6/4; for acquiring resources, 12/3; land equity versus farm expansion, 12/6; summary 1957-67, 3/9.

Dehydrated foods: scrambled egg mix, 7/2.

Developing countries: food as share of income, 10/15; use of remote sensors in agriculture, 12/15. See also Agricultural development.

Eggs: dehydrated scrambled mix, 7/2; or capita use, 12/10; pig, 10/4; production and prices ’67, 4/6; southern marketing, 5/4.

Employment: See Labor.

European Economic Community (EEC): bibliography for agriculture, 5/17; model for Latin American Community, 9/1; U.S. exports to, 5/16; variable levies, 5/6.

Europe, East: farm policies, 6/15; foreign trade by area ’64, 7/18; U.S. trade with, 7/15.

Europe, West: See European Economic Community, Greece, Netherlands, Switzerland, and West Germany.

Exports, U.S.: balance-of-payments deficit, 5/15; bulge, 6/18; commodity share, 12/15; effect of EEC variable levies, 5/16; farmer’s share, 12/15; fiscal ’68, 7/2 and 5/5; government-managed shipments, 6/18; in terms of harvested acreage, 12/15; in 1967, 2/4; projected to 1980, 7/8; States’ share, 11/9; to East Europe, 7/19; to EEC 5/16; to Japan, 12/15; to Korea, 12/15; to Taiwan, 12/15; transshipments through Netherlands, 5/15; value and destination ’64, 7/19.

Fabrics: See Clothing, Cotton, and Wool.

Ferret and Oceania: agricultural output and trade, 12/15. See also specific countries.

Farm corporations: Middle and Far West, 5/6.

Farm production, U.S.: acreage used for, 11/11; future trends, 7/3; adjusting for prices in Ohio, 2/8; advantages of farm expansion, 12/6; compared with USSR, 6/16; crop output per acre, 11/11; definition of farm, 6/6; farmers’ expenses ’67, 1/3; farm numbers drop, 2/7; sales by farmers, 11/13; increasing yields, 2/5; inputs 1960 and 1967, 2/5; number of small farms, 5/5; output boosted, 2/7; realized net income in ’67, 6/5; specialization, 7/15; summer for ’67, 7/2. See also Land and Labor.

Farm production, world: Australia, 12/12; dependence on export crops, 8/16; factors affecting developments, 7/16; food grains in India, 2/10; output ’67, 3/15.

Fats and oils: margarita content, 8/15; new expressed variety, 8/17; per capita consumption, 5/20; refining capacity and processing methods, 12/11; in soap, 8/24; vegetable oils in salad dressings, 7/21. See also Oleoesters.

Federal assistance: extended FHA coverage, 7/11; school lunch programs, 5/21; water and sewerage, 11/11.

Feed grains: alternative to grassland in North Dakota, 4/7; growth in world trade, 10/12; hog corn price ratios, 11/7; industry trends, 2/13; marketed consumption, 7/3; supplies 5/6.

Feed processing: efficiencies in mixed feed industry, 5/11; dehydrated alfalfa meal, 7/3; industrial byproducts used as feed, 7/5.


Fibers: See Kenaf, Cotton, and Wool.

Flour: milling industry, 12/10.

Flowers: cut flower sales and wholesale

The Farm Index
Fruit: apple orchards, 5/6; bananas, 8/14; frozen foods: competition in industry, 6/11.

Grades and standards: cotton, 4/16; pork, 6/20; potatoes, 7/7.

Food expenditures: away from home, 5/12; 1965 survey of changes by commodity groups, 1/20; consumer bill by commodity groups, 1967-68, 12/18; family food bill, 5/21; farmer's share of food dollar, 12/16; new market news service, 10/16; reduction and auditing trends, 6/22; service shops, 2/15.

Food for kids: See Foreign aid.

Price consumption: alternative calorie targets for diet, 1/16; eggs per capita, 12/19; meat and poultry, 6/20; how measured, 5/10.

Imports, U.S.: balance-of-payments deficit, 5/18; bananas, 8/14; coffee, 12/18; fiscal '68, 9/2; from Australia and New Zealand, 12/15; from East Europe, 7/19; from Mexico, 6/15; in '67, 3/17; major food items, value and per capita cost, 12/15; mustard seed, 10/4; projections for Australian products, 12/12; value and origin '64, 7/18.

Income, farm: from farm and off-farm sources, 7/17; in commercial dairy, 11/16; cotton: hired labor versus nonfarm job, 7/6; in Minnesota, 5/8; Mississippi Delta, 9/9; net earnings by type of enterprise, 11/15; net returns, 6/5; Oklahoma off-farm jobs related to income from capital and acreage, 4/5; per capita, 4/4; personal and farm income '67, 7/7; summary of data and income '57 to '67, 8/9; related to farm expansion in Montana, 12/7.

India: agricultural imports '67, 8/18; food grains, 4/18; food grain output '67, 2/19; tractors, 5/17.

Insurance: costs for farm families, 1/4; crop-hail, 7/7; health coverage by Iowans, 7/11.

Irrigation: acreage covered in U.S., 11/12; efficiency in application, 4/7; in USSR, 6/14.

Japan: economy and trade patterns, 6/7; marketings, 5/2; use of computers in marketing.


Labor: agricultural employment by State, 2/6; decline in farmworkers, 1/8; family versus hired farm labor force, 8/7; farmworker efficiency, 2/8 and 8/12; housing for hired workers, 2/8; lack of rural off­ farm jobs, 2/10 and 5/10; man-hours and wage rates '67, 1/7; migrants' work year and wages, 1/11; migratory farmworkers, 2/12; needs of farmers with off-farm jobs, 7/6; numbers in food service industries, 5/13 and 6/12; requirements in South, 11/6; skilled labor needs in depressed areas, 1/15; statistics on hired farmworkers, 1/10; wage rates in food marketing industry, 1/16.

Lamb: consumer buying attitudes, 6/19; feeding to heavy weights, 5/14 and 5/8; marketing patterns, 1/14.

Land: rental rates, 8/5; resource use in U.S., 11/12; shifted out of agriculture 1910-1960, 8/5; values and transfers, 8/3.


Livestock, and products: cattle feed costs, 4/3; cattle feeding systems compared, 7/4; cattle numbers '68, 5/4; cattle production and prices, 9/6; consumption of harvested feeds, 2/6; dairy cow numbers, 11/6; feeding to heavy weights, 5/3; U.S. feed grain supplies, 5/6; hog-growth price ratios, 11/7; industries by products used as feed, 7/6; new pork grades, 7/6; off-farm jobs related to beef producers' income from capital and acreage, 4/5; use of computers in marketing.

Loans: credit to acquire resources, 12/3; FHA extended coverage, 7/11; increasing use of credit, 5/5; lenders considerations, 6/4.

Machinery: equipment in public eating places, 6/13; farm expenditures for, 1/3; grain harvesters, 10/6; hayng equipment past and present, 8/4; in Arkansas rice farming, 7/14; to acquire resources, 1/14; and contract work, 12/3; tractors, 1/14; tractors in India, 5/17; volume and value of farm equipment, 10/4.


Margarine: fats and oils content, 8/15.

Marketing: away-from-home eating, 5/12; bread cost spread, 12/12; canned and freezing industries, 6/11; consumer opinion of meat specials, 6/19; effect of marketing orders on potatoes, 7/13; farmer's share of food dollar, 4/24; food marketing costs rise, 2/15; lamb patterns, 1/14; local milk through food chains, 10/13; milk, 9/13; milk products, 1/5; mixed feeds, 11/11; Philadelphia produce market, 1/16; potatoes, 10/3; problems in developing countries, 1/10; problems of small business in rural areas, 8/15; rise in value of services, 1/14; seasonal food price patterns, 5/20; specialty lines, 2/15; southern eggs, 14/8; soybean patterns, 10/10; wage rates in food marketing industry, 1/16; wheat flour milling, 12/10.

Meet and meat products: consumer buying attitudes, 6/19. See also Livestock and products, and Poultry.

Mexico: agricultural progress, 12/7; economic growth rates, 8/8; land distribution, 6/5.

Milk: charting free market course by computer, 9/12; in dairy products, 1/15; local dairies retail through chains, 10/13; production, 4/4; skim milk sales and prices, 10/14.

Mogah: world output, 11/18.

Morocco: agricultural production and trade, 2/18.

Mustard seed: U.S. output and imports, 10/24.

Natural resources: special districts and authorities to control pollution, 9/10. See also Water, Land, and Soil conservation.
## ECONOMIC TRENDS

### Item | Unit or Base Period | '57-'59 Average | 1967 | October | August | September | October | 1968
--- | --- | --- | --- | --- | --- | --- | --- | ---
**Prices:**
Prices received by farmers | 1910-14 = 100 | . | 242 | 253 | 252 | 261 | 267 | 262
Crops | 1910-14 = 100 | . | 223 | 224 | 225 | 226 | 230 | 228
Livestock and products | 1910-14 = 100 | . | 258 | 277 | 276 | 291 | 299 | 291
Prices paid: interest, taxes and wage rates | 1910-14 = 100 | . | 286 | 342 | 344 | 354 | 355 | 356
Family living items | 1910-14 = 100 | . | 262 | 287 | 287 | 291 | 292 | 292
Production items | . | . | 83 | 74 | 73 | 74 | 75 | 73
Parity ratio | . | . | . | . | . | . | . | .
Wholesale prices, all commodities | 1957-59 = 100 | . | — | 106.1 | 106.1 | 108.7 | 109.1 | 109.8
Industrial commodities | 1957-59 = 100 | . | — | 106.3 | 106.8 | 108.9 | 109.2 | 109.6
Farm products | 1957-59 = 100 | . | — | 99.7 | 97.1 | 101.4 | 102.8 | 101.3
Processed foods and feeds | 1957-59 = 100 | . | — | 111.7 | 111.7 | 114.9 | 115.3 | 114.7
Consumer price index, all items | 1957-59 = 100 | . | — | 118.3 | 117.5 | 121.9 | 122.2 | —
Food | 1957-59 = 100 | . | — | 115.2 | 115.7 | 120.5 | 120.4 | —

### Farm Food Market Basket:
- **Retail cost**
  - Dollars | 983 | 1,081 | 1,083 | 1,132 | 1,128 | 1133
- **Farm value**
  - Dollars | 388 | 413 | 410 | 438 | 443 | 143
- **Farm-rental spread**
  - Dollars | 595 | 668 | 673 | 694 | 685 | 700
- **Farmers’ share of retail cost**
  - Percent | 39 | 38 | 38 | 39 | 39 | 38

### Farm Income:
- **Volume of farm marketings**
  - Million dollars | 32,247 | 42,788 | 4,697 | 3,763 | 3,973 | 5,200
- **Cash receipts from farm marketings**
  - Million dollars | 13,766 | 18,383 | 2,951 | 1,579 | 1,744 | 2,600
- **Livestock and products**
  - Million dollars | 18,481 | 24,405 | 2,306 | 2,184 | 2,229 | 2,600
- **Realized gross income a**
  - Million dollars | — | 49.1 | — | — | — | 51.6
- **Farm production expenses b**
  - Million dollars | — | 38.8 | — | — | — | 36.2
- **Realized net income c**
  - Million dollars | — | 14.2 | — | — | — | 15.4

### Agricultural Trade:
- **Agricultural exports**
  - Million dollars | 4,105 | 6,383 | 532 | 489 | 470 | —
- **Agricultural imports**
  - Million dollars | 3,977 | 4,545 | 376 | 442 | 433 | —

### Land Values:
- **Average value per acre**
  - Million dollars | 1,166 | 1,160 | 170 | — | — | —
- **Total value of farm real estate**
  - Million dollars | 1,189.5 | 1,182.5 | 193.7 | — | — | —

### Gross National Product:
- **Consumption a**
  - Million dollars | 457.4 | 789.7 | — | — | 871.0 | —
- **Investment a**
  - Million dollars | 254.2 | 492.2 | 295 | 541.7 | 541.1 | —
- **Government expenditures a**
  - Million dollars | 68.0 | 114.3 | — | — | 127.1 | —
- **Net exports a**
  - Million dollars | 92.4 | 178.4 | — | — | 196.9 | —

### Income and Spending:
- **Person income, annual rate**
  - Million dollars | 365.3 | 628.8 | 638.0 | 694.1 | 699.7 | 702.2
- **Total retail sales, monthly rate**
  - Million dollars | 17,098 | 36,100 | 29,115 | 28,541 | 28,789 | —

### Employment and Wages:
- **Total civilian employment**
  - Million | 63.9 | 74.4 | 74.7 | 75.3 | 76.0 | 76.0
- **Agricultural employment**
  - Million | 5.7 | 6.8 | 7.7 | 8.7 | 9.6 | 9.6
- **Rate of unemployment**
  - Percent | 5.8 | 3.8 | 3.7 | 3.7 | 3.6 | 3.6
- **Workweek in manufacturing**
  - Hours | 39.8 | 40.6 | 40.7 | 40.7 | 41.1 | 41.0
- **Hourly earnings in manufacturing, unadjusted**
  - Dollars | 2,12 | 2,83 | 2,85 | 2,99 | 3.04 | 3.05

### Industrial Production:
- **1957-59 = 100**
  - Million dollars | 28,745 | 45,712 | 45,748 | 49,708 | 51,196 | —

### Manufacturers’ Shipments and Inventories:
- **Total shipments, monthly rate**
  - Million dollars | 51,549 | 82,819 | 81,968 | 86,713 | 86,880 | —
- **Total inventories, book value end of month**
  - Million dollars | 28,365 | 45,926 | 46,835 | 50,084 | 51,610 | —

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).

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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 1959-61—estimated monthly.
2. Annual rates seasonally adjusted third quarter. 3. Preliminary. 4. As of November 1. 5. As of March 1. 6. Seasonally adjusted. 7. Annual and quarterly data are on 50-State basis; monthly data are on 48-State basis.
Christmas Island Where?

Do Christmas trees grow on Christmas Island? Yes and no, but mostly no. It all depends where the Christmas Island is. The world has lots of them in various languages and in every ocean and clime.

If you are an armchair traveler toying with the idea of landing at a Christmas Island on December 25, eschew the travel agent and seek out a cartographer or economic geographer. He'll assure you that every Christmas Island is "away from it all."

If you pick the biggest (one of the two best known) you'll find yourself 1,500 miles north of the equator in mid-Pacific on a 222-square-mile coral rock—just where Captain Cook found himself on Christmas Eve in 1777.

This sand-covered atoll is said to be a nice spot if you like taro and coconuts and have interests related to guano, phosphate, or mother-of-pearl. There are roads for bicycling, an airfield, and nuclear testing sites, too. Atmosphere is British-American.

Someone with more diversified tastes might prefer the Australian-owned Christmas Island in the Indian Ocean—well off Java Head and only 815 miles from Singapore. Packed on its 55 square miles are 3,381 people, a golf course, tropical forests, fish, fowl, and fruits that thrive with annual 52-inch rainfall and temperatures of 70 to 90.

And for the traditionalist, there's Christmas Island (pop. 175), on Cape Breton, Nova Scotia—with Christmas trees and homegrown cranberries. (21)