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Using Farm-Sector Income As a Policy Benchmark

Farm income support is often the prescription for treating fluctuations in production and prices as well as losses in world markets due to market access constraints. U.S. agricultural policy over the past 60 years contains many examples of initiatives intended to raise farm prices and income. More recently, the array of farm-related policies has broadened to address food safety, food assistance, rural economic health, economic well-being of farm families, and conservation and environmental concerns.

Clearly, measures of farm-sector income are inadequate tools for determining the need for government intervention in most of these new areas. Some analysts are also, however, beginning to question whether income measures are even appropriate for determining the need for income support payments to farmers. Over the years, policymakers have attempted to address farm economic well-being using farm-sector income measures as a policy benchmark, and the results have been, at best, modest and uneven.

As the debate over the next farm bill gets underway—against a backdrop of low commodity prices and 3 years of emergency income support payments—many interested groups have called for estab-

lishing new countercyclical income support programs that use measures of farm-sector income or receipts to determine payments (*AO* April, May 2001).

The objective of this article is to examine how well current data on farm-sector income reflect the actual financial needs of farmers and their families, and to assess the success of these measures as benchmarks for policy intervention.

Benefits of Measuring Farm-Sector Income

When using an aggregate indicator of performance such as net income in design or evaluation of policy, analysts must determine the kind of relevant information that can be provided—or, more crucially, cannot be provided—by a sectorwide measure. Net cash income, for example, is a measure that indicates how much cash is available within the production agriculture sector to reduce debt, purchase capital assets, pay taxes, and contribute to family living expenses. Net farm income, which is net cash income adjusted for changes in inventory values and capital replacement, represents the income earned by farmers, their partners, and others who supply labor, management, and capital for use in production.

Both net cash income and net farm income are single-dimension measures that can be used to monitor annual changes in sector earnings or to track changes across a broader time span. In this sense, they are similar to the barometers of change that track other sectors of the national economy, such as after-tax profits of manufacturers or retailers.

Even when taking a longrun historical view of agricultural sector performance, it is necessary to reformulate net income measures. For example, examining current net cash income relative to the average of the previous 5 years (i.e., 5-year moving average) makes it easier to identify “recessions” in the agricultural economy. Used this way, aggregate income measures not only specify when recessions occurred, but indicate their depth and duration.

With emergency assistance between 1998 and 2000 to offset low commodity prices, agricultural net cash income has kept pace with 5-year moving averages. Without additional assistance in 2001, net cash income is forecast by USDA to be 7 percent below the previous 5-year average.

When aggregate income measures are used in this way and expected sector income is below its recent average, an overly simplified policy prescription would be to provide additional money to farmers to make up the difference. Given current commodity price forecasts and expectations for input costs, analysts can even estimate the amount needed to equate 2001 net cash income with the previous 5-year average (\$4 billion). If this approach were followed, the impact of low commodity prices on the sector and all of its participants would be remedied in much the same way it was for the previous 3 years.

If the farm sector were not a diverse set of farms and if policy objectives were really this simple, such a broad approach might work. However, using a single aggregate measure of performance to suggest government intervention is an approach that suffers from a number of deficiencies.

Aggregate Farm Income Masks Wide Variations

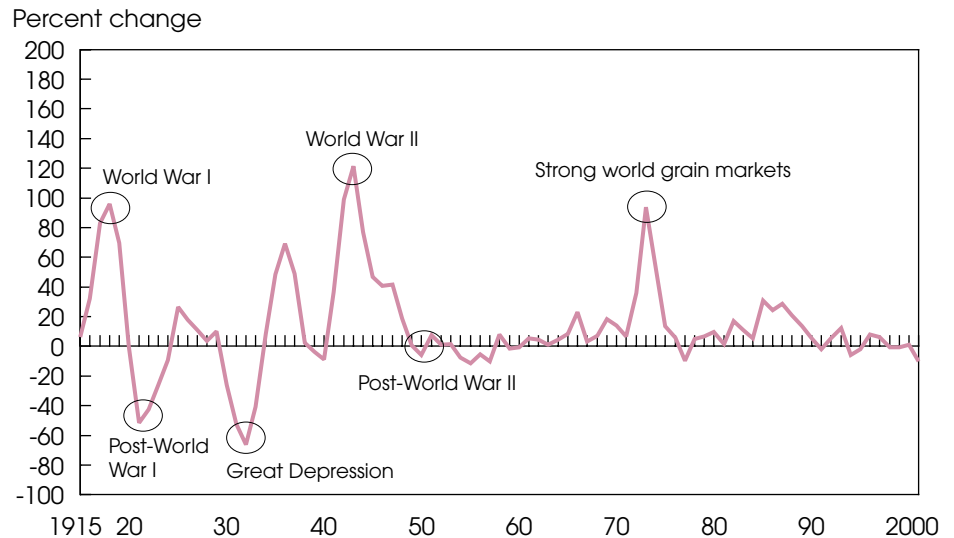
Production agriculture involves a wide range of farms and ranches that enjoy varying degrees of financial success. A single aggregate measure such as net farm income cannot reflect this heterogeneity. For instance, if net farm income has risen from one year to the next, it is not possible to tell whether every farm's income rose by the same percent over that period, or whether a small group of farms earned a higher share of the sector's profits. In other words, the sector cannot be viewed as one large representative farm.

USDA survey data from the annual Agricultural Resource Management Study (ARMS) can be used to examine the distribution of various performance measures, including net farm income. The wide variation in financial outcomes for farm businesses, for instance, can be demonstrated by summarizing net farm income at various points of the distribution (percentiles). This approach provides detailed information about characteristics of the distribution that are not obvious when evaluating a single summary statistic such as the mean. USDA's Farm Typology measures, focused here on two distinct points in time, illustrate the importance of examining the distribution of net farm income among farm operators.

In 1997, aggregate net farm income reached a record \$48.6 billion. Given this measure of success, it would seem that most farm businesses enjoyed a prosperous year. However, the distribution of income among farms suggests otherwise. At least half of all farms in the following small-farm typology groups had net incomes below \$6,000: limited-resource, retirement, residential/lifestyle, and farming occupation-low sales. These four groups represent 85 percent of all farms. Farms in these groups are typically small, do not require a full-time commitment from the operator, and do not provide the majority of the farm household's income.

The groups for larger farms (gross sales of \$100,000 or more), that derive a larger share of their household's total household earnings from farming, show a different net farm income distribution. There is considerably more variation in the distri-

Farm-Sector Income Reflects Global Events



Percent change = ((net cash income in current year divided by average net cash income of previous 5 years) - 1) x 100. Inflation-adjusted. 2000 and 2001 preliminary.

Economic Research Service, USDA

bution of net farm income among farms within each group, and the amount of variation increases with farm size. For very large farms, the difference between the highest and lowest percentiles was almost \$400,000 in 1997, compared with just over \$8,000 for limited-resource farms. The distribution of net farm income was also more positively skewed towards higher income levels for larger farms. (The difference between the value of net farm income at the 80th percentile and median net farm income in 1999—\$220,000—was more than two times the difference between median net farm income and the 20th percentile net farm income value—\$97,000. If the distribution of net farm income were uniform, these differences would be similar.)

By 1999, aggregate net farm income had fallen to \$43.4 billion from \$48.6 billion in 1997. All farms were not equally affected by this \$5.2-billion decline from 1997's record levels. Changes in the net farm income distribution suggest that farms' financial circumstances deteriorated over a wide range of income levels for limited-resource and retirement farms. There were modest income gains at the high end of the income distribution for residential/lifestyle farms, matched by similar declines at the low end of the dis-

tribution. The opposite situation occurred for farming occupation-low sales farms, where there were income gains at the low end of the distribution and modest declines in net farm income at the high end of the distribution. For farm businesses in the farming occupation-high sales group, and for very large farms, net farm income improved at the low end of the distribution between 1997 and 1999. This result might not have been anticipated, given the 11-percent decline in net farm income during the period.

Aggregate Farm Income Excludes Off-Farm Income . . .

When crop prices are low and aggregate farm income falls, farm household income and consumption decline, leading to a lower standard of living for farm families. In the majority of farm households (62 percent), the farm operator's primary occupation is something other than farming. Many of these part-time farms typically lose money or produce low earnings that contribute only a relatively small amount to total household income. For farm households with married couples, both the operator and spouse in 40 percent of farm households work off the farm; neither operator nor spouse work off the farm on 21 percent of all farms.

Policy

Net Farm Income Varies Substantially Within and Across Farm Typology Groups

	Farm typology group						
	Small family farms				Other family farms		
	Limited-resource	Retirement	Residential/lifestyle	Farming occupation, low sales	Farming occupation, high sales	Large	Very large
1999	No.						
All farms	126,920	297,566	931,561	480,441	175,370	77,314	58,403
Average net farm income by percentile	\$1,000						
80th	5	9	9	19	71	133	332
60th	2	5	4	9	45	83	170
Median	1	4	2	5	36	61	110
40th	-1	2	0	2	26	43	70
20th	-5	-2	-5	-6	1	-1	13
1997	No.						
All farms	195,571	304,293	811,752	396,698	178,210	79,240	45,804
Average net farm income by percentile	\$1,000						
80th	6	14	8	25	72	147	403
60th	2	7	4	10	44	88	192
Median	1	6	2	6	33	68	135
40th	1	3	0	3	22	48	87
20th	-3	0	-5	-7	-5	9	5

A net farm income percentile is 1-percent share of total farms ranked by net farm income. Among very large farms in 1999, for example, net income was equal to or below \$170,000 at the 60th percentile and below (i.e., the lowest 60 percent of farms in this group).

Source: Agricultural Resource Management Study, USDA.

Economic Research Service, USDA

This vocational diversification insulates the farm household from the financial variability that farming may entail. Household expenditures for food, clothing, medical needs, and other living expenses tend to remain relatively constant from one year to the next, and change is based on the family's perception of long-term income prospects. Most households can accommodate income shortfalls by relying on savings or liquidating assets.

No direct relationship is apparent between the state of the general farm economy and the proportion of farm households in which family living expenditures exceed household income. In 1996, generally regarded as a good year for agriculture based on the sector's net income, 29 percent of farm households did not have sufficient income to meet their consumption expenditures. In 1999, when net income fell, this figure dropped to 19 percent as increases in off-farm income (\$16,000 on average) more than offset the average decline in household income from farming (\$2,000).

The condition of the farm economy clearly has a relatively larger impact on households headed by operators whose primary occupation is farming. For these households, greater dependence on farm income does, on average, result in lower expenditures compared with households where the operator's main occupation is something other than farming.

This phenomenon is illustrated by the substantial difference in average household income. In 1999, farm households headed by operators whose primary occupation was farming had average household income of \$55,000, compared with \$70,000 for households headed by operators whose primary occupation was something other than farming. A higher proportion of households that depended heavily on farming revenues had consumption expenditures exceeding household income (27 percent versus 14 percent in 1999). In addition, these households experienced less improvement between 1996 and 1999 in the share of farm households with consumption expenditures exceeding household income. In 1996, 32 percent of these

“farm-dependent” households had to accommodate income shortfalls, compared with 27 percent in 1999.

Income earned off the farm remains important to the farm-dependent household's ability to accommodate income shortfalls. In 1999, farm-dependent households with negative farm earnings had average off-farm incomes of \$42,500 and consumption expenditures of \$21,000, compared with \$28,000 and \$23,000 respectively for farm-dependent households that had positive earnings from the farm business.

... & Does Not Reflect Wealth

A common perception is that low returns from farming make it difficult for farm households to acquire and hold wealth—particularly for households that depend primarily on agricultural sources of income and equity investments and fail to diversify outside the farm. Aggregate measures of income overlook the well-being of farm families in terms of their ability to accumulate wealth.

Farm households had an average net worth of nearly \$563,600 in 1999. Information from the Federal Reserve Board's Survey of Consumer Finance (SCF) for 1998 (the latest data available) puts the average family net worth of nonfarm households at \$283,000, roughly half that of farm households.

Since most farmers are self-employed business owners, a more appropriate comparison is between farm and nonfarm proprietorship households. In these cases, portions of the household's income and net worth are associated with a business venture. Analysis of household net worth data suggests that in general, farm proprietorship households are wealthier than their nonfarm counterparts. The median net worth of farm proprietorships was \$351,000, compared with \$167,000 for nonfarm proprietorship households. However, the share of farm proprietorship households at low (negative net worth) and high (net worth greater than \$1,500,000) levels are similar to shares at the extremes for nonfarm proprietorship households.

The difference between farm and nonfarm proprietorship household wealth is explained by the composition of household assets. Even though about 45 percent of all cropland is rented, a substantial portion of a farm business net worth is tied up in land. Farm business net worth accounts for about 70 percent of farm household net worth. In contrast, most nonfarm businesses tend to lease their facilities and have much lower capital requirements. Because nonfarm proprietorship households typically do not have large capital investments in the business, household financial assets not related to the business contribute more to net worth.

Differences in the composition of household assets have also allowed farm households to accumulate more wealth over the 1990s than nonfarm households. Although data limitations do not allow for exact correspondence in the time periods for evaluating changes in net worth, the overall trend is clear: While average household net worth measured in the SCF increased by 32 percent (between 1992 and 1998), farm household net worth increased by 54 percent (between 1993 and 1999). The average annual increase in

farm household net worth was about 9 percent, compared with just over 5 percent for nonfarm households.

Aggregate Farm Income Does Not Reveal Debt Problems . . .

Debt is not a source of capital for all farms. Only 42 percent of farms reported debt outstanding at the end of 1999. For

those who do borrow, a portion of income must be set aside for interest and principal repayment. Unanticipated income shortfalls can impede a farm's ability to service debt, resulting in delinquent loans. Loan defaults occur when income deficits are sizable, widespread, or prolonged.

Historical trends in agricultural loan delinquency rates (payment past due 30

Most Farm Household Income Is from Off-Farm Sources

	Primary occupation				All farm households	
	Farming		Other		1996	1999
	1996	1999	1996	1999		
	\$1,000					
Average household income	48	55	52	70	50	64
Farming	19	21	-2	-3	8	6
Other sources	30	34	55	73	42	58
Average household expenditures	23	23	24	25	24	24
	Percent of farm households					
Operator's primary occupation	49	38	51	62	100	100
Share of households with expenditures greater than total income	32	27	25	14	29	19

Some totals do not add due to rounding.
Source: Agricultural Resource Management Study, USDA.
Economic Research Service, USDA

ERS Farm Typology Groups

Small Family Farms (sales less than \$250,000)

Limited-resource. Any small farm with gross sales less than \$100,000, total farm assets less than \$150,000, and total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.

Retirement. Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).

Residential/lifestyle. Small farms whose operators report a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).

Farming occupation, low sales. Small farms with sales less than \$100,000 whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).

Farming occupation, high sales. Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

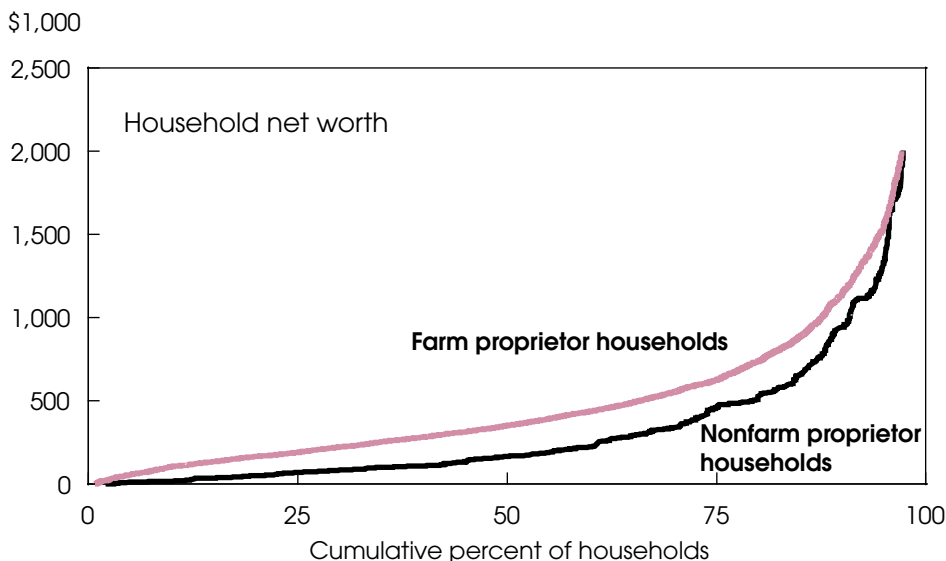
Other Farms

Large family farms. Farms with sales between \$250,000 and \$499,999.

Very large family farms. Farms with sales of \$500,000 or more.

Nonfamily farms. Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Policy

Farm Proprietorship Households Are Wealthier Than Nonfarm Counterparts

Seventy-five percent of farm proprietor households for example, have net worth of \$625,000 or less. Seventy-five percent of nonfarm proprietor households have net worth of \$460,000 or less. Based on data from 1999 USDA Agricultural Resource Management Study and Federal Reserve Board's Survey of Consumer Finance for 1998.

Economic Research Service, USDA

days or more) as reported by the Federal Reserve for commercial banks suggest that loan repayment problems peaked in 1987 at 11 percent of total loan volume. Delinquency rates declined throughout most of the 1990s and have remained around 3 percent of total loan volume for the past several years. Only in 1996 and 1999 did commercial bank agricultural loan delinquency rates increase.

Annual changes in net farm income would not have signaled these modest increases in loan delinquencies. Net farm income increased by 49 percent between 1995 and 1996 and fell by less than 3 percent between 1998 and 1999. The largest annual decline in net farm income since 1987 was between 1994 and 1995 (-24 percent), when farm loan delinquencies went from 2.8 to 2.7 percent of commercial bank agricultural loans. Data on commercial banks' loans to nonfarm businesses for commercial and industrial purposes suggest that with the exception of the early 1990s, delinquency rates for farm loans have been higher than for other business loans.

... Is Not Indicative of Farm Business Failures ...

Like other competitive businesses, farms go out of business each year for a variety of reasons. They often shut their doors voluntarily. The American Bankers Association (ABA), which conducts a survey of agricultural banks to track the number of farms going out of business each year, reports that for the period between 1985 and 1999, closure rates peaked in 1986 at 6.2 percent. These rates were between 2 and 3 percent for most of the 1990s. The majority of closures are normal attrition and voluntary liquidations (80 percent) but the others are business failures.

Another indication of business failures is the percentage of farms filing for bankruptcy. While the rate of bankruptcy filings is lower than farm closures, the statistics tend to track over time, with bankruptcy filings peaking at 4.2 percent in 1986 and remaining between 1 and 2 percent for most of the 1990s.

While farm business dissolution rates were relatively steady during the 1990s, there were large year-to-year swings in aggregate net farm income. The largest

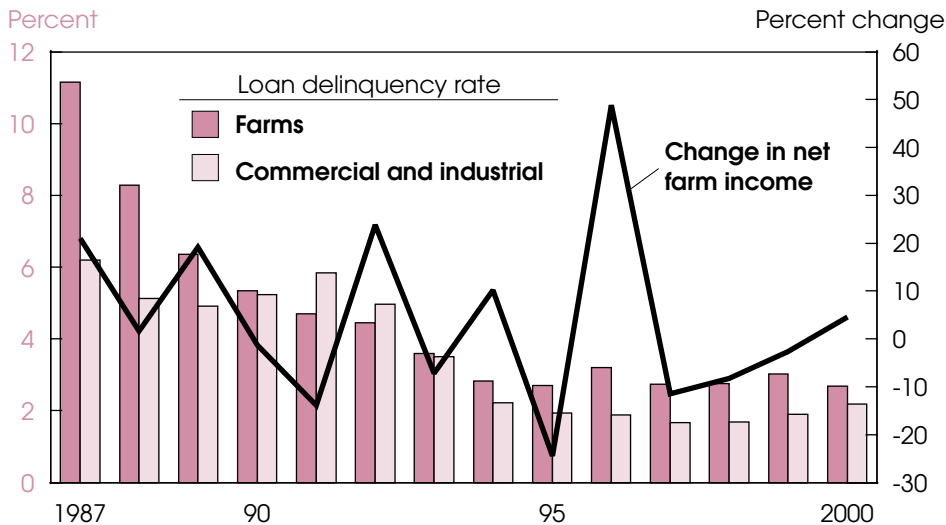
annual increases in net farm income occurred between 1995 and 1996 (49 percent) and between 1991 and 1992 (24 percent). With such significant increases in aggregate income, the number of farm failures would be expected to decline. Surprisingly, failures actually increased between 1995 and 1996 and remained unchanged between 1991 and 1992. The largest annual declines in net farm income occurred between 1994 and 1995 (-24 percent) and between 1990 and 1991 (-13 percent). The proportion of farms going out of business did increase in each of these periods, but by a relatively small amount (0.2 percentage points). Business failures represent a cumulative effect of consecutive years of poor performance and when they occur may be several years removed from the initial occurrence of low income.

Do farms fail more often or at a higher rate than other businesses? The Small Business Administration summarizes data compiled by the Administrative Office of the U.S. Courts on the number of business bankruptcies and voluntary and involuntary business closures from the U.S. Department of Labor. The rate of nonfarm business closures ranged between 13 and 16 percent, 4 times higher than for farm businesses. Part of the difference in the closure rates is explained by higher start-up costs for farming and the greater amount of equity at risk. The costs of termination are substantially lower for many small nonfarm businesses. The decision to voluntarily terminate a business (which makes up the majority of both farm and nonfarm closures) is much easier if the amount of equity invested is small or easily transferred to another enterprise. If the business assets are not easily transferred, such as in agriculture, the costs of termination can be substantial.

... & Does Not Capture Intrinsic Benefits of Farming

Rural areas abound with various sources of amenities such as nature, wildlife, scenic landscapes, tradition, and culture. As entrepreneurs, farmers also enjoy the independence and responsibilities that come with running their own businesses. The satisfaction derived from these aspects of living and working on a farm is not easily measured in monetary terms.

Farm Loan Delinquency Rates Remain Low Despite Swings in Net Farm Income



Delinquency rates (percent of total loan volume) from *Federal Reserve Statistical Release*.

Economic Research Service, USDA

When asked to identify criteria for judging the success of their farms, a relatively high proportion of farm operators indicated that the farming lifestyle was as important or in some cases more important than any financial consideration. Lifestyle was the predominant measure of success for farmers operating small farms identified as limited-resource, retirement, residential/lifestyle, and farming occupation-low sales. In each of these groups, farmers chose lifestyle as a very important element of success more often than any other element.

Lifestyle remained an important criterion of success even among larger-size farm businesses. For large and very large farms—as well as small family farms classified as occupation farms—higher sales—a high proportion in each category (80 percent or more) identified adequate income as a very important measure of success. In addition, as many as 70 percent of farms in each of these typology groups associated success with the lifestyle benefits from farming.

Policy Requires More Comprehensive Approach

Measures of sector income are valuable indicators of how the farming sector is performing on a national scale. Nonetheless, these measures may not be the best tools with which to track the financial situations and needs of farmers and farm families—especially if they are to be used as a basis for creating new farm policies. Although much of the current farm policy debate has focused on net farm income and the adequacy of the safety net, this article has attempted to show that the benefits of using aggregate farm income measures in this fashion are overshadowed by the limitations.

Intended policy outcomes and actual results often diverge because aggregate measures do not reveal the wide variations in income and circumstances among various farm groups, do not reflect off-farm income and wealth, do not reveal farmers' problems with servicing their debt, and do not give any indication of how often farms fail. The reality of a technologically and financially diverse farm sector suggests the need to examine

alternative policy benchmarks and intervention mechanisms. **AO**

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June Releases—USDA's Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

June

- 1 Dairy Products Prices (8:30 a.m.)
- Dairy Products
- Poultry Slaughter
- 4 Egg Products
- Crop Progress (4 p.m.)
- 5 Weather - Crop Summary (12 noon)
- 6 Broiler Hatchery
- 8 Dairy Products Prices (8:30 a.m.)
- Milkfat Prices (8:30 a.m.)
- 11 Crop Progress (4 p.m.)
- 12 Crop Production (8:30 a.m.)
- Weather - Crop Summary (12 noon)
- 13 Broiler Hatchery
- Fruit and Vegetable Ag. Practices
- Turkey Hatchery
- 14 Potato Stocks
- 15 Dairy Products Prices (8:30 a.m.)
- Milk Production
- 18 Crop Progress (4 p.m.)
- 19 Weather - Crop Summary (12 noon)
- 20 Broiler Hatchery
- Cold Storage
- 21 Cherry Production (Tent., 8:30 a.m.)
- Catfish Processing
- 22 Dairy Products Prices (8:30 a.m.)
- Milkfat Prices (8:30 a.m.)
- Cattle on Feed
- Chickens and Eggs
- Livestock Slaughter
- Monthly Agnews
- 25 Crop Progress (4 p.m.)
- 26 Weather - Crop Summary (12 noon)
- 27 Broiler Hatchery
- Peanut Stocks and Processing
- 28 Agricultural Prices
- 29 Acreage (8:30 a.m.)
- Dairy Products Prices (8:30 a.m.)
- Grain Stocks (8:30 a.m.)
- Quarterly Hogs and Pigs