



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

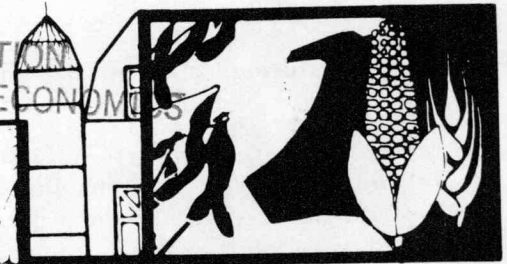
Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

FEDERAL RESERVE BANK OF CHICAGO

AGRICULTURAL



ISSN 0002 - 1512

December 23, 1983

Number 1619

LETTER

REVISED FARM INCOME ESTIMATES for 1983 and initial projections for 1984 were recently released by the U.S. Department of Agriculture. The three measures most commonly used to portray farm sector earnings depict sharply contrasting trends for 1983 and 1984. Two of the three measures depict a strongly improved earnings picture in 1983, to be followed by sharp declines in 1984. The third measure portrays little—if any—improvement in 1983 but projects a strong upturn in 1984 farm sector earnings. The major cause of these contrasting portrayals relates to the large swings in physical year-end inventories and the method used by one measure in accounting for the income implications of the inventory swings.

The three most common measures of farm sector earnings are net cash income, net realized income, and total net income. *Net cash income* is the residual after cash expenses are deducted from cash income. *Net realized income* builds on the cash income concept by including noncash items in both income and expenses. The noncash items include the rental value of farm dwellings and the value of home-grown food consumed by farm households as income and depreciation and benefits to hired labor as expenses. The *total net income* measure builds on the net realized concept by including an allowance for changes in year-end inventories. The inventory change can be positive or negative and it is reflected as an additional noncash item on the income side.

The USDA routinely publishes estimates for net cash income and total net income but no longer publishes estimates for net realized income. However, other analysts who prefer the net realized income concept have maintained the historical series for that measure by abstracting the inventory change from the published figure for total net income.

Each of the three measures provides meaningful information for understanding farm sector earnings. The net cash income figure is a useful tool in gauging the balance between cash income and cash expenses. The latest estimates indicate that net cash income jumped 18 percent to a new high of around \$43 billion in 1983. The increase reflected a substantial boost in government payments—in cash and PIK-related loan cancellations—on the income side and the rare decline in cash production expenses because of the PIK-related cutback in 1983

Various measures show contrasting trends for net farm income in 1983 and 1984

	1981	1982	1983*	1984*
	(- - - - - billion dollars - - - - -)			
Income				
Crops receipts	73.1	74.4	72	76
Livestock receipts	69.2	70.2	70	71
Government payments	1.9	3.5	9	8
Other cash income	2.0	2.1	2	2
Total cash income	146.2	150.1	153	157
Nonmoney income	13.2	13.9	14	14
Realized gross income	159.4	164.0	167	171
Value of inventory change	7.6	-1.9	-9	+8
Total gross income	167.1	162.2	158	179
Expenses				
Cash expenses	111.5	113.8	110	121
Other expenses	25.5	26.3	26	26
Total expenses	137.0	140.1	136	147
Net				
Net cash income ¹	34.7	36.3	43	37
% change	-9	+5	+18	-14
Net realized income ²	22.4	23.9	31	24
% change	-16	+7	+30	-22
Total net income ³	30.1	22.1	23	31
% change	+40	-27	4	+35

*Figures shown represent midpoints of USDAs forecasted ranges.
¹Total cash income less cash expenses.
²Realized gross income less total expenses.
³Total gross income less total expenses.

crop acreage. The estimates for next year, however, suggest that the rebound in crop acreage will generate a much larger rise in cash expenses than in cash income.

While net cash income is a useful measure, net realized income and total net income provide a more appropriate basis for judging overall returns to labor, management, and capital in the farm sector. Analysts are divided, however, as to which is the best measure of overall returns. The difference of opinion typically peaks in years—like 1983 and 1984—when the two measures are most divergent. For 1983, net realized farm income is expected to closely approximate the previous (1973) high of \$31 billion, sharply above the \$23.9 billion of 1982. In contrast, total net income in 1983 is expected to hold in a range of \$22 to \$24 billion, little changed from the previous year's low level of \$22.1 billion. For 1984, the two measures are expected to reverse with net realized income falling back to about the 1982 level and total

net jumping to earlier historical highs of \$29 to \$32 billion.

The divergence of these trends largely reflects the huge swings in physical crop inventories; drawn down by drought and acreage-limiting programs in 1983 and expected to rebound with large plantings and better weather conditions in 1984. Accounting for the income implications of these huge inventory swings generates divergent opinions. According to some analysts, the net income approach to incorporating inventory swings overstates the income implications. Other analysts, however, dismiss the net realized income measure because it fails to account explicitly for inventory changes.

Since the USDA utilizes a cash-basis system in its farm income accounting, it is appropriate to consider inventory changes in measuring overall farm sector earnings. Doing so in a year of rising inventories, for example, generates an income credit—the increase in inventories—that serves as an offset to the extra expenses associated with a build-up in inventories. However, there is an alternative method for calculating the change in inventories. And the alternative method offers a possible compromise between proponents of the net realized measure and those favoring the total net income measure. The compromise would base the income implication of inventory swings on the “change in the value of inventory” rather than the “value of the change in physical inventory.”

The latter measure is presently used in figuring total net income. In its use, the direction of the value change in inventory (positive or negative) depends on whether year-end inventory in physical units is larger than, or smaller than, the beginning inventory. The change in physical units is then multiplied by the average calendar year price to calculate the value of the change in inventory. But in the agricultural sector, prices tend to be strongly, and *inversely*, responsive to changes in supplies (inventories). In years such as 1983 when drought or government programs result in sharp declines in crop production (and, hence, in year-end inventories) the increase in prices can offset most, if not all, of the decline. In such cases, the year-end inventory—although smaller in physical units—may have a value that is roughly comparable to the year before.

Rather than reflecting this offset in value terms from higher prices, the total net income method of valuing inventory changes magnifies the decline in physical units. In other words, the higher prices are multiplied by the negative change in physical inventory, compounding the decline in value terms. The failure of the total net method to account for the value offset from changing prices gives credence to the proponents of the net realized measure. They rationalize—with merit—that the offsetting nature of the price response to swings in physical inventory minimizes the shortcoming of the net realized measure in not explicitly incorporating the income implications of inventory swings.

Basing inventory swings on the concept of the “change in the value of inventories” is a reasonable compromise between these two views. As a simple illustration, assume that the agricultural sector produces only one commodity—corn—the ending inventory of which declined from 8.5 billion bushels one year to 5.8 billion bushels the next year. To keep the illustration comparable to current farm inventory accounting practices, assume also that the price of corn averaged \$2.40 per bushel in the first year and \$3 per bushel in the second year. Under the inventory accounting system presently used in the total net farm income measure, gross farm income in the second year would be reduced by an \$8.1 billion loss (decline) in inventory—the difference between 5.8 billion bushels and 8.5 billion bushels, multiplied by \$3 per bushel. Under the compromise inventory accounting system, gross farm income in the second year would be reduced by a \$3 billion loss (decline) in inventory—the difference between 5.8 billion bushels valued at \$3 per bushel and 8.5 billion bushels valued at \$2.40 per bushel.

Although no accounting system is perfect in all respects, the difference between the two illustrated measures is substantial. If the compromise were to be adopted in the USDA's farm income accounting system, portrayals of inventory swings would seemingly be more realistic. Moreover, a more realistic portrayal of the income implications of inventory swings might help to eliminate the unnecessary misunderstandings about farm sector income trends that emerge in years of large inventory swings.

Gary L. Benjamin

CHANGES IN THE DAIRY SUPPORT PROGRAM

recently signed into law are designed to curtail the expansion of milk production and cut burdensome stocks of dairy products held by the government. The main provisions of the law are a reduction in the support price of milk and the establishment of a paid diversion program for dairy farmers.

The diversion program will pay dairy producers \$10 for every one hundred pounds of reduction in their milk

marketings over the 15-month life of the program. Because much of the lowered production is expected to result from reductions in the dairy herd, the legislation stipulates that USDA must minimize the effect on meat and poultry producers of any increased culling of dairy cows. Early assessments by the USDA of the program's effect indicate a 3-percent increase in beef production from previous 1984 projections.

The surplus of milk production has climbed dramat-

ically during the 1980s. To remove this surplus and maintain the milk support price, the Commodity Credit Corporation (CCC) purchases manufactured dairy products. Since 1980, the milk-equivalent of the CCC purchases—as a percent of total milk marketings by dairy farmers—has almost doubled, reaching 12.3 percent in fiscal 1983. The increased government removals have resulted in an estimated 2.6 billion pounds of uncommitted inventories of dairy products held by the CCC at the end of the past fiscal year. Prior to passage of the new dairy legislation, USDA projections pointed to CCC dairy product inventories of 3.1 billion pounds by the end of fiscal 1984.

To address the growing surplus problem the new dairy legislation has instituted a number of changes in the pricing of milk and dairy products. The major changes impose a 50-cent-per-hundredweight reduction in the support price for milk and a 50-cent deduction per hundredweight of milk marketed to help defray the cost of the paid diversion program. These changes replace the two 50-cent deductions, effectively leaving milk prices received by dairy producers unchanged.

Additional price provisions of the dairy legislation allow for another deduction to finance a promotional program as well as further reductions in the support price if surpluses remain high. A proposed national promotion and research program is to be funded by a 15-cent-per-hundredweight deduction. However, this deduction, which is not expected to become effective until this spring, may be partially offset if dairy farmers already participate in state-sponsored promotional programs.

The current legislation also calls for further cuts in the support price if milk production continues to exceed market demand. If in April 1985 the USDA expects CCC purchases of dairy products to exceed 6 billion pounds (milk equivalent) during that year, the support price can be lowered another 50 cents. Moreover, another 50-cent reduction can occur in July of that year if purchases of surplus dairy products are expected to total 5 billion pounds or more during the following 12-month period. These potential reductions could pull the support price for milk down to \$11.60 per hundredweight in July 1985.

The paid diversion program for dairy producers is to begin January 1, 1984. By that date the specifics of the program are to be announced, with farmers allowed to enter contracts until February 1. The legislation calls for payment of \$10 per hundredweight for reduced marketings of at least 5 percent and up to 30 percent of farmers' base production. The base production for the 15-month program is determined as either calendar year 1982 production—with the first quarter added twice—or the average of calendar years 1981 and 1982—counting the first quarter of each year twice. Participants in the program must also submit a detailed plan of how the reduced output is to be achieved. This plan must include

an estimate of the number of dairy cattle to be culled during each of the 15 months of the program.

Before acceptance, the contract may be modified by USDA as to the extent of the output reduction and the proposed patterns for culling herds. For instance, if participation rates are high, applicable payments for marketing reductions may be limited. Moreover, if planned culling of the dairy herd is expected to affect severely meat producers' returns, participation may become contingent upon spreading herd reductions more evenly over the 15-month life of the program.

The institution of the paid diversion program foreshadows a significant increase in dairy cow slaughter in 1984. However, estimates of additional culling of the dairy herd vary considerably. While some analysts project additional cow slaughter of only a few hundred thousand head, others estimate more than a million additional culls as a result of the program. The USDA currently estimates that 400,000 cows could be added to slaughter in the first quarter of 1984, 500,000 in the second, and an additional 100,000 in the third quarter.

Initial assessments by the USDA of the effect of the new legislation on milk production suggest significant reductions this fiscal year. Although still tentative, USDA projections foreshadow a 5-percent drop in fiscal 1984 milk marketings to 128.6 billion pounds. In addition, the forecast for commercial use shows a 2-percent increase over last year's level. The combination of reduced marketings and increased commercial use is expected to slash CCC net removals to less than half their fiscal 1983 level.

The December USDA estimates of 1984 beef production—the first to include an assessment of the effect of the dairy program—have been significantly altered. While earlier projections of 1984 commercial beef production indicated a 2-percent year-to-year decline, the December forecast points to a 1-percent increase from the high level of 1983 production. In turn, the projected rise in beef production has resulted in revised forecasts for livestock prices. Choice steer prices are expected to average \$2 per hundredweight lower during the year than earlier estimates as a result of the dairy bill.

The initial forecasts suggest that the new law will make significant progress in reducing the current surplus production in the dairy industry. The paid diversion program will likely reduce production considerably, at least in the short run, and lowering the milk support price will lower prices on dairy products and strengthen consumption. However, the benefits of the initial 50-cent cut in the support price as well as the paid diversion program may be short-lived. The longer term prospects for holding the dairy surplus in check hinge more on the potential price support cuts that may take effect in 1985 if the projected dairy product surplus remains excessive.

Peter J. Heffernan

Selected agricultural economic developments

Subject	Unit	Latest period	Value	Percent change from	
				Prior period	Year ago
Index of prices received by farmers	1977=100	November	135	+ 0.7	+ 5
Crops	1977=100	November	136	+ 1.5	+16
Livestock	1977=100	November	135	0	- 3
Index of prices paid by farmers	1977=100	November	162	+ 0.6	+ 4
Production items	1977=100	November	154	+ 0.7	+ 4
Producer price index* (finished goods)	1967=100	November	287	- 0.4	+ 1
Foods	1967=100	November	262	- 0.9	+ 2
Processed foods and feeds	1967=100	November	258	- 0.3	+ 3
Agricultural chemicals	1967=100	November	281	+ 1.6	- 2
Agricultural machinery and equipment	1967=100	November	330	+ 0.5	+ 4
Consumer price index** (all items)	1967=100	November	303	+ 0.2	+ 3
Food at home	1967=100	November	281	- 0.3	+ 1
Cash prices received by farmers					
Corn	dol. per bu.	November	3.30	+ 4.8	+55
Soybeans	dol. per bu.	November	7.97	+ 0.1	+49
Wheat	dol. per bu.	November	3.52	- 2.5	+ 1
Sorghum	dol. per cwt.	November	5.09	+ 1.4	+35
Oats	dol. per bu.	November	1.71	+ 5.6	+22
Steers and heifers	dol. per cwt.	November	56.80	+ 0.4	- 2
Hogs	dol. per cwt.	November	36.90	- 8.7	-30
Milk, all sold to plants	dol. per cwt.	November	13.90	+ 0.7	0
Broilers	cents per lb.	November	33.0	+12.6	+33
Eggs	cents per doz.	November	75.8	+10.7	+32
Income (seasonally adjusted annual rate)					
Cash receipts from farm marketings	bil. dol.	3rd Quarter	146	+ 3.1	+ 2
Net farm income	bil. dol.	3rd Quarter	21	- 5.1	+31
Nonagricultural personal income	bil. dol.	November	2,773	+ 0.4	+ 8

*Formerly called wholesale price index.

**For all urban consumers.

AGRICULTURAL LETTER
FEDERAL RESERVE BANK
OF CHICAGO
 Public Information Center
 P.O. Box 834
 Chicago, Illinois 60690

Tel no. (312) 322-5111



FIRST-CLASS MAIL
 U.S. POSTAGE
 PAID
 Chicago, Ill.
 Permit No. 1942