New Management Tool
Aids Decision-Making
on the Farm

Electronic
FARM ENTERPRISE ACCOUNTING

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Electronic Data Processing (EDP) allows high-speed processing of large amounts of farm data permitting more detailed analysis and quicker answers to management problems. The machine analysis of coded data provides a system of management accounting supplying the physical and financial information farmers so critically need for such management decisions as credit requirement determinations, budget controls on credit transactions and for many other essential operating statistics that mean profit or loss. By processing records through machines, many of the routine bookkeeping tasks are also eliminated, particularly in calculating, posting and categorizing. This progress report summarizes first-year results of the Agricultural Extension Service Electronic Farm Enterprise Accounting project.

For many years the Agricultural Extension Service in California has encouraged farmers to use enterprise accounts as one of their management "tools." Arthur Shultis, a University of California Farm Management Specialist, developed a simple enterprise accounting system based on many years of practical family farm up to the corporation with farm office staff and machines, in determining the profit or loss possibility existing for each crop or kind of livestock on the farm.

Although many farmers now appreciate the value of enterprise records, most farmers do not have time to keep detailed books by hand. A system processed by electronic means appears to be necessary of this study were: (1) to develop a standardized report for farmers; (2) to develop a report that could be understood and used for making management decisions—not for income tax accounting.

Two pilot projects were conducted in 1963 using IBM equipment for processing enterprise records. The San Joaquin Valley project utilized data processing equipment furnished by the California Farm Bureau Marketing Association in Visalia. The other pilot program was in the Monterey Bay area where the IBM equipment was provided by the Byron Blout Data Processing Center, Salinas. At each of the processing locations several farmers and growers, including dairy, crop and poultry operators, sent in records each month. The reporting form was comparable with one used in similar experiments in many other states.

The coding system for the machines was designed specifically for identifying and presenting farm enterprise business data to the farm manager as a basis for management decisions. Two general number code systems were used: (1) the ITEM CODE, used to classify every income and expense transaction; and (2) the ENTERPRISE CODE, used to identify the crop or livestock enterprise to be charged or credited with expenditures or receipts. Each crop and type of livestock was con-
sidered as an enterprise and assigned a
code based on three digits, for example: 
barley, 012; cotton, 020, etc. Enterprises 
were grouped into broad categories, for 
example: field crops, 010; forages, 050, 
etc.

Within each category there is a detailed 
breakdown of enterprises, for example: in 
the field crop category there is provision 
for 39 crops ranging from barley and 
cotton to watermelons and wheat.

**Item code**

All farm expenses are assigned a four-
digit code that classifies each item of 
expense according to broad categories or 
on a detailed basis, for example: labor, 
6010; business, 6050; custom work, 
6070; feed, 6100; pesticides-materials, 
6190; milk check deduction, 6230; seeds, 
plants, 6260; etc. If more detail is de-
sired, there is provision within the code 
to provide this information, for example: 
6010 is the category classification for 
labor, but does not identify the type of 
labor performed. There is provision in 
the code to do this, for example: 6013 
identifies labor for diskig.

The coding system used to classify in-
come is based on the three-digit enter-
prise code with the number "4" preceding 
each enterprise code number. There is 
also provision for miscellaneous income, 
such as, rental income, gas tax refunds, 
government payments, etc.

Often, within a farming operation, 
there are inter-enterprise charges and 
credits, such as sales of hay from the 
alalfa enterprise to the dairy herd. In 
this case, the alfalfa should receive a 
credit and the dairy a charge for the 
transaction. To assign each enterprise 
proper charges or credits, the same four-
digit code used to classify income and 
expenses is used for these non-cash trans-
actions.

In this experimental project, the Ex-
tension Service set up the coding; how-
ever, there is no valid reason why this 
cannot be done by the grower or his book-
keeper. Four basic types of monthly re-
ports to the farmer are under consider-
ation:

1. **Budget Control:** Designed specifi-
cally for growers who want to know the 
inputs and costs for each enterprise on a 
current and accumulated basis. Consid-
ered as one of the most important man-
agement "tools" for growers operating 
with credit.

2. **General Ledger:** Provides almost the 
same information as "budget control," 
but only on a gross amount basis. In 
addition, it does not show comparisons 
with credit budget and actual costs and 
does not reflect income.

3. **Profit and Loss:** Gives a detailed 
breakdown of income, costs and profits by 
enterprise on a current basis and year to 
date. Designed primarily for diversified 
dairies.

4. **Unit Costs:** By far the most popular 
report, providing the farmer with a de-
tailed schedule of inputs and costs for 
each enterprise.

The coding system worked well with 
the limited number of records processed. 
The main problem was that, within the 
enterprise and expense code categories, 
not enough space was provided to add 
additional enterprises and expense cate-
gories. A change is also contemplated in 
the present code that is assigned to inter-
enterprise charges and credits. Under the 
present code there is no method of sepa-
rating cash from non-cash transactions. 
For example, if calves are transferred to 
the replacement enterprise, or sold for 
cash, this is reported as income to the 
dairy enterprise, but does not differenti-
ate between a cash or non-cash transac-
tion. Although the actual coding can be 
done by the grower or his bookkeeper, it 
may be possible to eliminate some of the 
coding. Under experimentaion is a report 
in which the items of income and expense 
are established once, then the report 
goes back to the processing center and is 
automatically coded by the electronic 
equipment. Each month the farmer re-
ceives a pre-coded form, so all he has to 
enter is quantities and dollars. Provision 
is also made for new items of income and 
expense to be entered, which are then 
automatically coded each month.

**Farmer reporting**

To partially overcome farmer objec-
tions to detailed reporting forms, a new 
reporting idea has been worked out and 
favorably used by a limited number of 
farmers. After the farmer has sent in the 
first report on the regular reporting form, 
he receives his monthly report back with 
provision on the form to report the next 
month's figures.

Because farmers are vitally interested 
in knowing all costs, one of the features 
incorporated into the report is the idea of 
using "constants" each month. Items 
within this expense category will vary 
depending upon the enterprise, but in 
most cases will consist of taxes, insurance, 
interest, rent, depreciation and other 
overhead or general expense. Once the 
"constants" are established the farmer 
does not have to enter these figures again 
on his monthly report. The electronic 
machine automatically does the record-
ing. A report is now being used that com-
bines unit costs, profit and loss and 
budget control. Therefore, depending on 
the information a farmer desires, there is 
flexibility within the format to provide 
data on either a broad or detailed basis.

Because farm enterprise accounting 
with IBM machines is relatively new in 
the farm business field, meetings were 
held at each project location to acquaint 
farmers and other agricultural leaders 
with this new management "tool." In ad-
dition, IBM staff members cooperated in 
several enterprise accounting schools in 
pointing out how electronic equipment 
can help farmers obtain better records for 
management purposes. A mobile IBM 
trailer for electronic farm accounting 
demonstrations has also been used to 
allow greater coverage of farming terri-
tory, since electronic equipment is still 
located primarily in city areas.

**Quick answers**

The possibilities of using electronic 
equipment to give farmers extremely 
valuable management information for de-
cision-making are practically unlimited. 
With hand enterprise accounting methods 
a farmer can get the answers to many of 
his management problems; however, in 
many instances time is the limiting factor 
and the data is not available when needed. 
Enterprise machine accounting will pro-
vide this information quickly. Many of 
the growers in California need to know 
the exact cost of production for each unit 
grown. This is extremely vital informa-
tion for crops such as sweetcorn, potatoes, 
and other cash crops with very high pro-
duction costs. Without this information at 
his fingertips, the grower cannot know 
how much his product must bring to 
show a profit. The grower cannot easily 
influence the market price of his crop, but 
knowing exactly how much it costs to 
produce the crop puts him in a much 
stronger bargaining position, and may 
help him decide whether to grow certain 
unprofitable crops.

Electronic data processing is econom-
ically feasible for farmers, according to 
cost estimates of the accounting firm 
cooperating in the project and predictions 
by others in the data processing business. 
At the cost which some service centers 
have estimated for various types of 
monthly management reports, this service 
should be attractive to a wide range of 
farmers.

Linear programming (commonly 
known as farm budgeting) will likely be 
one of the most important farm manage-
ment “tools” on the farm in the future. However, it does call for some years of records—accurate records—of farm costs. These will be the natural outgrowth of the farm enterprise accounting records many farmers are collecting now. With accurate records of past years, the computer can tell tomorrow’s farmer which combination of enterprises will be economically safe, and which offer the best chance to use all the farm’s resources for the highest total return. Since water is a relatively scarce resource in many parts of the West, the possibilities of using linear programming to assist growers in making profitable water management decisions are practically unlimited. Linear programming also can materially aid growers in selecting the most economical machinery component. Feeding cattle in California is big business. Some feed lot operators in the San Joaquin Valley have already taken the step to the computer to work out quickly such complex problems as least-cost combinations of feeds.

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FARM ENTERPRISE ACCOUNTING BUDGET CONTROL SAMPLE

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<th>Code</th>
<th>Description</th>
<th>Current Total</th>
<th>Year to date Total</th>
<th>Budget Total</th>
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</tbody>
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Incorporated into the California electronic record research project is a BUDGET CONTROL and UNIT COST phase that was designed specifically for growers who want to know the inputs and costs for each enterprise combined with the credit budget. The cash flow in this instance is not only on an enterprise breakdown basis, but is also on a detailed item basis, as shown above.

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