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THE USE OF RECORDS IN THE MANAGEMENT
OF
ARIZONA FARMS AND RANCHES

Agricultural Experiment Station
UNIVERSITY OF ARIZONA
Tucson, Arizona

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SUMMARY

The law requires every farmer to keep some farm records. This survey reveals the principal use of these records is in filing tax and payroll reports. Other important uses are in obtaining credit and as an aid in farm management. Detailed input-output records are necessary if they are to aid in farm management. These input-output records may be kept either for separate commodities or separate fields. Water, labor, fertilizer, and machine expense are major items for which input records may be kept.

Most farmers are doing a good job of record keeping for tax purposes. Nearly two-thirds of all farmers and ranchers in Arizona did their own record-keeping work, but less than one-fourth made their tax reports by themselves in 1956. Accountants' record-keeping services are increasing in use, particularly among medium-scale farm operations. Cotton farmers make greater use of these record-keeping services than any other type of farmers. Cattle ranchers with less than 300 cows, irrigated-crop farmers with less than 300 cows, citrus, dairy and poultry farmers do most of their own record-keeping work. The large scale farm operations generally employ full-time bookkeepers. Vegetable farmers and cattle feeders also use substantial amounts of hired record-keeping help.

Management type input-output records are not kept much by medium and small-scale farmers, although most large-scale farmers use input-output records for management purposes. Vegetable farmers and cattle feeders probably make greater use of these records than any other farmers. Records for the whole farm constitute input-output records for specialized farms where only one commodity is produced. Farmers producing more than one commodity should have input-output records for each commodity as an aid in management. A breakdown of costs associated with performing various operations is beneficial for any type of farm.

The total amount spent for record-keeping and tax work by Arizona farmers may exceed two million dollars annually. The amount spent for these items depends upon the type and size of farm and the method of record-keeping used. The over-all average amount spent for record-keeping by all types and sizes of farms was \$285 per farm in 1956. The average amount spent for tax work was \$68 per farm. Very large-scale farm operations averaged nearly \$6,000 per farm for record-keeping and tax work combined. Of the more medium-scale operations, vegetable farmers and cattle feeders spent the most per farm for record-keeping and tax work combined. The amount was \$1,540 and \$650, respectively. Citrus, poultry, and dairy farmers spent the least; they averaged \$45, \$51, and \$61 per farm, respectively. Most of this was for tax work. Cattle ranchers averaged \$121 per ranch while general crop farmers and cotton farmers averaged \$255 and \$336 per farm, respectively, for record-keeping and tax work combined.

The principal limitations of present methods of keeping records cited by the respondents to the survey were: a lack of detailed information useable for management purposes, the time required for record keeping, and neglect of records and loss of information by those who do their own record work.

The "Ideal System" was the record book reportedly used by more farmers than any other. Check records and journal and ledger books are also widely used. Record books published by state experiment stations were reported as used by only a few Arizona farmers.

RECOMMENDATIONS

A simple system of records that can be used to secure detailed information suitable for management purposes is needed. This system should be designed so that the work can be done either by the farmer or by an accountant. Detailed instructions for the keeping and summarizing of the records should also be furnished. A separate set of records should be designed for each distinct type of farm operation.

Emphasis should be placed on giving assistance to the transfer of the burden of record-keeping work from the farmer to hired persons trained in bookkeeping. Many farmers feel they do not have the time to spare to take care of their record work and that their time could be more valuably spent elsewhere in the business. With a reorganization in methods of accumulating information, a bookkeeping service should be able to provide information useful in management as well as in the preparation of tax reports, at a cost comparable to that now paid for information used only in tax reports.

A summary of all of the records of farms of a similar type would be useful to farmers in comparing their own farm with the average of similar types of farms. Such a summary could either be provided by a private record keeping service or by the State Experiment stations or Extension Service if the records were made available.

THE USE OF RECORDS IN THE MANAGEMENT OF ARIZONA FARMS AND RANCHES

by

Eldon Wheeler 1/

INTRODUCTION

Since the beginning of the Second World War, when the impact of the income tax was first felt by most farmers, there has been a steady increase in the number of reports that farmers must make. These now include the farmer's own income tax report plus the quarterly reports he must make for each of his laborers for social security tax, industrial insurance, and state income tax withholding. In addition, there are financial statements, budgets, lease payments, and other reports that must be made whenever parties other than the farmer have an interest in the farm business.

The need for accurate, verifiable information to make these reports has made records in some form a must on nearly every farm today.

The steady increase in the size of farm which has taken place over the past two decades has also made record-keeping necessary for control and efficient planning and management of the farm.

Objectives of This Study

The objectives of this study are to determine how the need for records is being met by Arizona farmers and ranchers, to find the uses being made of these records, to evaluate the place of records in farm and ranch management, and to find any limitations of present record-keeping methods.

USES OF RECORDS AND THE PLACE OF RECORDS IN FARM AND RANCH MANAGEMENT

There should be some use for every record kept. If the record is not used, the time and money spent to keep it is wasted. The more uses made of a record, the greater the value received for time and money spent for records. Some of the uses of records are discussed in the following paragraphs.

Tax and Other Reports

The primary use, and often the only one made of records, is to furnish information for the various reports mentioned in the introduction. Records can also be used to plan the receipt of income each year so that taxable income from year to year will remain relatively stable thereby minimizing the total income tax paid over a period of years. Furthermore, good records are extremely valuable when the Internal Revenue Service audits a tax return and asks for proof of statements made therein.

1/ Research Associate, Arizona Agricultural Experiment Station. Assistance in planning and conducting this study was given by Dr. Andrew Vanvig, formerly Associate Professor of Agricultural Economics. Assistance with the collection of part of the data used was given by the Arizona Agricultural Extension Service and the county agents of all of the counties in Arizona. Appreciation is also expressed to the Arizona Bankers Association for the fellowship granted the author as a graduate student by that organization.

Farm Management

Records have a place in the management of farms and ranches just as they do in the management of a store or manufacturing plant in the city. Whenever there is more than one source of income to the farm business, and there are no details of the costs associated with each source, then nothing is known about how much each has contributed to the net income of the farm. For example, a farm growing cotton and grains may show an excellent over-all net farm profit, but the profit may come entirely from the cotton crop, while the grain crops are actually losing money. In this case, total net profit could be increased by discontinuing the grain crops.

Records may be used to help the farmer make such decisions as what crops to plant, whether to own certain machines or hire a custom operator, what fertilizer program to follow, which cows to cull from the herd, and many other decisions of similar nature.

Records can also be used to check gin statements, milk payments, water bills, and other such statements of payments received and bills and invoices of expense in the same manner that bank statements are reconciled to see that no errors have been made.

Detailed records of past acreages of crops and yields obtained make it easy to prove the acreage base and payments a farmer is entitled to under such government programs as agricultural stabilization acreage allotments, the Soil Bank Payments.

Although management cannot be based entirely on a set of figures in a record book, neither can the best possible management decisions be made without adequate records on the farms of the large scale that predominate in Arizona.

The farm manager often relies upon memory for the important information necessary in making a decision. This will serve satisfactorily as long as the farm remains small. However, when the farm business reaches some certain size, it becomes impossible to retain mentally all of the information that could be useful in making a decision. Whenever written cost records are absent, past experience usually becomes the basis for estimating costs. The question then becomes how well past experience can be remembered without the aid of written records. It will be easy to remember average yield of a given crop over a period of years and probably of all crops grown for a number of years. However, it becomes more difficult to recall the yield from each field for even two or three years, if there are many fields.

Further, if information would be useful about such things as past fertilizer programs associated with yields obtained, or past insecticide programs followed, it becomes more and more difficult to remember, until in the end only broad generalities can be recalled. For example, a farmer may know that he generally averages about four-acre feet of water to grow a cotton crop, but he might find by keeping a record of water application by field that one field requires a lot more water than another to grow the same crop.

Good management is closely associated with good judgement on the part of the person making management decisions. This can be aided and supplemented by good records. These records become the basis for judgement, although it is impossible for records alone to render a judgement.

Judgements based solely on memory must often forego the advantages of the use of detailed information that might alter the decisions made.

Credit

A financial statement is the first thing for which a lending agency will ask when application is made for a loan. A good set of records makes it easy to provide a financial statement and may aid in obtaining the loan. Also, records help in setting up budgets for the advancement and use of production loans and in planning a repayment schedule for all types of loans.

Types of Records Useful in Management

Records in the form used for tax purposes are often of little value for use in management. If there is more than one source of income, there is usually no breakdown of expense by source of income, and frequently the figure used as net income for tax purposes is not the same as actual net farm income. Also, income computed on the cash basis is reported only when sales are made so that taxable income for a given year may include the production of only part of a year or possibly of two or more years. Expenses also are reported in the year paid. Pre-paid expenses would be reported as expense, while expenses incurred but not yet paid, would not be reported against the current year's income. Furthermore, some items which can be treated as expenses for tax purposes are actually capital investments benefiting more than one year's production from the standpoint of the farm business. Depreciation allowable for tax purposes also may not be the same as actual depreciation. For these reasons, special handling of records is necessary to secure information in a more usable form for management purposes.

Records Kept by Commodities and/or by Fields

Input-output records can be kept either for each individual commodity or if greater detail is desired, they can be kept separate for each field as well as for each commodity.

By Commodity. These are records of input-output, either in terms of physical units, dollar values, or both, kept for each commodity produced. After a season's operation, these records will show the contribution each commodity has made to the total net income of the farm. They are useful in planning the farm operation so that net income can be maximized.

Input-output records by commodities can be as simple or as complex as desired. The word "cost accounting" automatically brings to mind a very complex, time-consuming, and difficult-to-understand system of records. This need not be true, however, for partial cost records on major expense items can be devised that are relatively easy to keep and simple to understand.

By Field. Benefit may be derived from a breakdown of input-output data by individual fields. Field records break down input-output by individual fields on the same basis used for individual commodities. Commodity records are then obtained by adding together the field records for all of the fields growing a particular crop. Field records may point out which crops are best suited to each field, if the farm is not uniform with respect to soil type and structure, slope of land and drainage, weed infestation, and other conditions which affect the growing of crops.

Records of Physical Quantities of Resource Inputs Used

Fertilizer. Records of amount and type of fertilizer applied to each field are useful. A single fertilizer program used over the whole farm may not be the best. The most economic fertilizer program for each crop or field - with respect to kind, amount, and method of application - will be shown by a record of the results obtained with various kinds of fertilizer applied at varied rates by different methods. The response of any crop to fertilizer varies with soil type, one field may require more or less fertilizer than another to secure optimum yield.

Insecticides. A record of kind and amounts of insecticides used, together with method of application, dates of application, and extent of insect infestation when application was made, can be used in evaluating the insecticide program.

Water Records. Since water is rapidly becoming the limiting factor in Arizona's agricultural production, a record of water use should have an important place in management. Some crops require much more water than others. It is important to use a limited water supply to produce the crop that will give maximum dollar return per acre-foot of water used.

Similarly there is a difference between the amount of water required to produce a given crop on different types of soil. Crops should be grown where the most efficient use of a scarce water supply can be made. A record of acre-feet of water used on each field is the best method of getting this information. Such a record can be secured with a minimum of effort. All that is necessary is a record of the number of hours water is run on each field and the date. If project irrigation water is used, the acre-feet of water can be secured from the size of the head of water delivered to the field. If pump irrigation water is used, the capacity of the pump delivering the water to the field can be secured by having the pump measured periodically. The number of acre-feet of water can easily be computed from the capacity of the pump and the number of hours pumped. Problems may arise where more than one field is being irrigated from the same pump at the same time, but some logical basis of apportioning the water to each field can give a fairly accurate figure.

Labor Records. If the farm is large enough to require a record of labor hours for each worker for social security and industrial insurance reports, a great deal of management information can be secured from this labor record with a minimum of extra effort. Where possible, notes can be made of what the laborer is doing, the field or crop on which he is working, and perhaps the equipment he is using, along with the number of hours worked. This can serve as a basis for a great deal of summary information on inputs by crop or by field.

This record may not be practical on smaller farms where records of labor hours are not necessary for other purposes.

Machine Expense. Machinery expense is difficult to apportion by commodity. For convenience, farm managers often charge a flat rate for machine operation. For example, they may charge a crop or a field with \$1.50 per acre every time they cultivate, \$5 per acre every time they plow, \$2 per acre every time they disc or plant, or \$5 per acre for harvesting grain. The rate used will be the farmer's actual cost per acre or per hour when this cost is known. In the absence of knowledge of his own costs, the farmer may use the same rate custom operators charge for a similar job. This solves the problem of apportioning the cost of each item of equipment expense to a particular field or crop, and seems to be a fair method of distributing these costs.

When a flat rate for machine operation is used, all items of machinery expense, including gas, oil and grease, repairs and maintenance, depreciation, and machine operator's labor are charged to a machinery expense account. Sub-accounts can also be kept for each type of equipment. As each crop or field is charged with the operation of this equipment, an equal amount is credited to the machinery expense account. If this machinery expense account should show a surplus at the end of the year, the surplus can be apportioned back to each crop or field on the same basis as the original charge was made. The rates for the next year should be adjusted to approximate, as closely as possible, actual cost.

If the records are not needed until the end of the crop year, the charge for machine operation can be delayed until the end of the year. At this time, the total usage of the equipment on each field or crop is known as well as the total machinery expense. A rate can then be established that will apportion the machinery expense to each field or commodity on the basis of use.

Yield Records

Yield records by field are necessary if any of the above mentioned input records are to be meaningful on a field basis. In addition to yield, some notation of grade and/or quality may also be valuable. If the above input records are kept only by crop, then yield records by crop may be satisfactory. Input-output records are then available by crop. Yield records are of value in making some management decisions even though no input records are kept. In the absence of input records, the manager would place his crops on the fields where they give the highest yield without regard to input.

Dollar Values

Dollar values can be placed on inputs and outputs by applying a value per unit such as cost per ton of fertilizer or per acre-foot of water or the price received per hundredweight of grain or per pound of cotton.

The dollar cost per acre-foot of pumped water can be computed by the use of a water account. All of the expenses connected with delivery of the water to the field; such as the fuel or power bill, well, pump, and ditch maintenance, repair and depreciation; are charged to this account. A rate per acre-foot of water can be established to charge each field or crop for the water used and to credit the same amount to the water account.

Farm Maps

A simple and easy device for keeping input-output records is the farm map. This is a map of the farm showing the location of each field as well as buildings, roads, wells, and irrigation canals.

The crop grown on each field can be written on the map. Other items such as the fertilizer application (kind, amount, method and date of application), the insecticide program, the amount of irrigation water applied, and other items of interest may also be written on the map along with the yield obtained from the crop.

One of these maps can be made each crop season and as they are completed, they can be kept in a file. This will give a history of the farm which can be easily referred to by pulling out the map for last year or any previous year that may be of interest.

Field Notes

A set of field notes is another kind of record that is used to fill the need for information to aid in management during the producing season.

These field notes are usually not made into any permanent record. They are kept only for a short time to provide the answers to questions which are vital in making a current management decision.

Field notes may provide information useful in the completion of input-output records. The farmer may wish to know his cost of operating a particular machine. To find this cost, he keeps a detailed record of all of the expenses associated with doing the particular job with a given set of machinery. This detailed record is continued until the farmer is satisfied he has found the cost of operation under the existing conditions. If the cost is far out of line with what was expected, steps can be taken to correct the situation. If they are in line, a note can be made of the cost and that rate can be charged whenever a particular job is done with the machinery checked and the detailed record is discontinued. However, when different machines are acquired, the field record will have to be used again to find the new set of costs.

Comparison of these costs can be helpful in deciding what is the best size and type of new machinery to purchase.

A SURVEY OF THE CURRENT RECORD KEEPING SITUATION IN ARIZONA

The information in this section was secured by the use of a mail questionnaire that was distributed to most of the farmers and ranchers throughout the state by the county agricultural extension agents. The questionnaire was mailed to more than 7,000 farmers and ranchers throughout the state. A total of 1,368 usable replies was received, which represented nearly 20 per cent of the total number of questionnaires mailed.

Table 1 shows the usable response by county.

Further detailed information was secured by personal interviews with 30 selected farmers and 15 accountants who specialized in accounting and tax work for farmers and ranchers.

Table 1. Total usable response to the farm and ranch record questionnaire, by counties, Arizona, 1957.

County	Number of Respondents
Apache	21
Cochise	121
Coconino	24
Gila	36
Graham	57
Greenlee	53
Maricopa	572
Navajo	25
Pima and Santa Cruz	74
Pinal	147
Yavapai	100
Yuma	138
TOTAL	1,368

The Current Record Keeping Situation

Arizona farmers are becoming more and more tax conscious. In this survey, 80 to 90 per cent of the respondents had some kind of a set of books to use in making tax reports, whether they kept books themselves or hired someone else to do it. This is in contrast to the situation as recently as five years ago when many farmers simply took their receipts and checks to an accountant at the end of the year in a shoebox.

Most of the primary information for farmer's books come from cancelled checks and deposit slips from banks, and from gin statements for cotton producers. Receipts and invoices provide supporting information. One of the objectives of this study was to determine how farmers perform their record-keeping work. Farmers were placed in one of six groups according to how they take care of their record keeping and tax work.

The first group (24 per cent) consists of farmers who do all their own record-keeping work themselves or with family help, and make all their own tax reports. They hire no outside help and spend no money for record-keeping or tax work. These are mostly small-scale farmers and ranchers.

The second group (40 per cent) is made up of farmers and ranchers who take care of all their own record-keeping themselves or with family help, but go to an accountant for help in making their tax reports. This group spends no money for record-keeping but does spend money for tax work. The amount spent depends on the size and type of operation but mostly on the condition of the records the accountant has to use in making the tax reports. These are mostly cattle ranchers, general crop farmers with less than 300 irrigated acres, cotton farmers with less than 100 acres of cotton, and citrus, poultry and dairy farmers.

A third group (12 per cent) is made up of farmers who take advantage of a "bookkeeping service" provided by an accountant or accounting firm usually located in town. The farmer furnishes the accountant with all of the cancelled checks, receipts, deposit slips, and other information needed to make the record. This may be done weekly, monthly, or quarterly. The accountant keeps a regular double-entry set of books for the farmer. Journal and ledger books may be kept, although for smaller farms only the ledger book is kept. This set of books usually remains in the accountant's office and the farmer must travel to town if he wants to look at or use the books.

The cost of this service varies with the size and type of farm operation. The cost is determined by the amount of work that must be done. The average amount spent per farm for this service by cotton farmers with 100 to 300 acres of cotton was about \$320 for record-keeping and tax work combined. Farmers with 300 to 1,500 acres of irrigated land use this service most.

Group four (6 per cent) is made up of farmers who employ part-time bookkeepers. These bookkeepers usually do the record-keeping work at the farm and the books remain on the farm. The bookkeeper may spend only a few hours each month working on the farmer's books or he may spend as much as three-fourths of his working time, depending on the size of farm and the amount of bookkeeping work done. The cost will vary accordingly. A part-time bookkeeper may keep the books on several farms or he may do farm bookkeeping work in addition to another regular job.

The fifth group (5 per cent) is composed of those farmers who employ one or more bookkeepers full-time. These are the larger-scale farm operations. Most of them operated a minimum of 2,000 acres of irrigated crop land or its equivalent in size of other enterprises. The cost of employing a full-time bookkeeper ranges from \$2,500 to \$5,000 per year, but \$3,600 was the figure most commonly reported. Most of these farms also retain the services of a certified public accounting firm to do audit and tax work.

The last group (9 per cent) is made up of farmers who reported they keep no books during the year, but take their receipts, cancelled checks and deposit slips, and other evidences of transactions to an accountant at the end of the year and have him make their tax reports from these. Here, again, the cost is dependent upon the amount of work that has to be done to make a satisfactory tax report from the information available.

The analysis was made by type and size of farm. Respondents were grouped into the following classes:

- General Crop Farms
- Cotton Farms
- Citrus Farms
- Vegetable Farms
- Cattle Ranches
- Cattle Feeding Operations
- Dairy Farms
- Poultry Farms
- Medium Scale Diversified Farms
- Very Large Scale Diversified Farms

Appendix tables 1, 2, and 3 show the number of respondents in each class, the amount of money spent for record-keeping and tax work by each class, and the method used to keep records by type and size of farm.

Record Books Used By Arizona Farmers

There are many record books and record forms available for farm record keeping. Some record books are prepared and sold commercially. Others are prepared by State Experiment Stations and the State Extension Service distributes them free of charge. Still others are distributed free of charge as advertisements by various companies that do business with farmers. Blank journal, ledger and day books are also frequently used for record keeping after desired headings have been written in.

The record book used most by the farmers who reported doing their own record keeping is the "Ideal System".^{1/} This book apparently fills the needs for farm records that are used only for tax reports.

Check records serve as record books on many farms. The cash book or cash journal is a convenient place to record all expenses paid by check. If a cash receipts book is kept in conjunction with this, a satisfactory record for tax purposes is secured.

^{1/} A record book published by the Ideal System Co., Los Angeles and New York under copyrights by W. E. Nevis.

Approximately 30 per cent of the respondents mentioned the record book they used to keep records. The record books reportedly used were:

The "Ideal System" Farm and Ranch Account Book	118
Ledgers, Journals, and Day Books	96
Check Records	87
Double-entry Books	55
FHA Farm Family Record Book	42
John Deere Farm Account Book	7
State University Experiment Station Record Books (Calif., Colo., Ariz., and N. Mex.)	8
Other	4
No answer to the question	<u>951</u>
Total	1,368

Records by Commodity

Twenty-four per cent of the respondents said they kept income and expense records separate for a single commodity. However, in many cases only a single commodity was produced, so that records for the farm also represented records for a single commodity. Thirteen per cent said they kept income or expense records separate for two or three different commodities and 8 per cent said they kept income and expense records separate for all commodities produced. A weakness in the working of the questionnaire made it impossible to determine whether those replying kept both income and expense records by commodity or only income records. Thirty-two per cent of the respondents said they did not keep income and expense records separate for any commodity, and the remaining 23 per cent did not answer the question.

Inadequacies of Present Methods of Keeping Records

One of the questions asked farmers was "What limitations or disadvantages have you found in your present method of keeping records?" In reply, nearly 400 farmers, or close to one-third, mentioned a limitation or disadvantage. Another one-third of the farmers expressed satisfaction with the present method of keeping records, and the remainder did not answer. (Table 2.)

Nearly one-fourth of those expressing a dissatisfaction said their present records did not give the detailed breakdown by crop or livestock enterprise they would like to have. Many expressed the feeling they did not know where their farm business stood. Others voiced a desire to have more accurate information on the cost of performing particular operations.

At present the great bulk of farm records are patterned after the income tax form. The books are tailored to give the figures which must be placed on the tax report. Unfortunately the same figures do not give the farmer the picture of his business that he needs to help in management. Most of the books kept by accountants for farmers do not give the detailed breakdown which nearly 100 farmers said they wanted to help them get a better grasp of the condition of their farm business.

The second most frequently mentioned dissatisfaction with present record keeping methods had to do with time. Many farmers said they simply do not have the time to do the record-keeping work they would like, or that record keeping was taking too much of their time.

Table 2. Limitations of Present Methods of Record Keeping, Arizona, 1956

Limitation	Number reporting
Would like a more detailed breakdown in the records by crop and livestock enterprise and for cost of particular operations	93
Takes too much time or don't have enough time	75
Neglect record-keeping, often lose data	43
Need a better set of books or better record forms	30
Records are not readily available when wanted	28
Record-keeping costs too much	20
Record-keeping is a darned nuisance	9
It is difficult to segregate expenses for each commodity	4
Records are not on a current enough basis	7
Government reports are too complicated	4
Lack of statistics from similar operations for comparative purposes	3
Other	7
None	410

Another disadvantage mentioned by those doing their own record-keeping work was that they neglected their record-keeping and often lost information before it was recorded.

Dissatisfaction with the cost of record-keeping was voiced by several farmers. They felt that the cost was too high for what they were getting.

The lack of satisfactory record forms was cited by some farmers. A simpler form or one more closely tailored to their particular type of operation was desired.

Farmers who keep income and expense records for separate commodities expressed the difficulty of segregating expenses applicable to various commodities and outlined the need for cost figures from operations similar to their own for comparative purposes.

RECOMMENDATIONS

The greatest service in farm record-keeping for Arizona farmers could be rendered by the development of a method or a simple set of record forms that could be kept with a minimum of additional time and effort and would segregate income and expense by separate sources. Simple partial cost records would also be useful in deriving detailed information about costs of particular operations.

A set of records should be developed with at least two parts. The first part would be a set of forms used to record daily the information necessary for detailed record-keeping. These forms should be simple, convenient to carry around, and require little time to fill in. This primary information would form the basis for later summarization and analysis that could give the cost of producing various crops and other desirable detailed information. This first part of the record would have to be kept by the farmer himself or his foreman or farm manager.

The second part of the record would consist of summary forms that could be made weekly, monthly, or quarterly together with a final year-end summary that would show the information a farmer desired. These records would also contain all of the information necessary for preparing tax reports so that only a realignment of the figures would be necessary. The second part of the record could be kept by the farmer himself providing he had the time and the inclination. However, primary records could in many cases be turned over to an accountant or bookkeeper, such as the ones who now supply record-keeping services for tax reports.

A record-keeping service by an accountant in town seems to hold the most promise for expanding the use of management records. Most farmers do not have the time, nor in many cases the technical training necessary for detailed record-keeping. However, they could understand and make excellent use of a summary of these detailed records if it were furnished them by a bookkeeping service.

It is just as logical for farmers to hire bookkeeping services as it is for them to hire the services of an attorney, a veterinarian, or a mechanic. The farmer may be able to use the time normally devoted to bookkeeping for other matters within the farm business that would result in the earning of income in excess of the cost of the bookkeeping service. A sizeable percentage of medium-scale farmers are already using a bookkeeping service (50 per cent of the cotton farmers of this size) but are getting only tax information for their money.

A system should be worked out whereby a bookkeeping service could provide records in a form usable for management purposes without substantially increasing the cost of the service. Such a system, if properly designed, need not represent a sizeable addition to record-keeping work or cost. Most of the information would be secured for tax purposes anyway, and the reorganization of the records would merely present the information in a more usable form for management purposes.

Assistance is needed from persons trained both in farm management and in accounting to bridge the gap between the hired accountant who may know little about farming and the farmer who knows little about accounting. Such persons could assist in developing the records that would present the management information farmers want and need and also give attention to the presentation of this information in the most usable and understandable form.

The farmer should be furnished with a report from his records either monthly or quarterly as well as a summary of the records at the end of the year. Some consideration could be given to compiling records of similar types of farms into averages for inputs and outputs that could be used by farmers as a basis for comparing their own farm with the average of similar farms. This might be done either by the firm providing the record-keeping service, or as a service provided by the State Agricultural Experiment Station or Extension Service if farmers would turn their records over to such an institution so that a summary could be made.

A set of records should be designed to meet the special needs of each particular type of farm. It seems impossible to design one simple convenient set of records that would meet the needs of both a cattle ranch and a cotton farm effectively. Separate sets of records are probably needed in each case.

A poultry record book has already been published by the Arizona Extension Service, which if widely used, would probably meet the needs of poultry farms.

Perhaps such record forms could be loose leaf, then diversified farms having several distinct types of operations could get the forms tailored to each type of operation and keep them in a binder.

The time element involved in record-keeping might be alleviated somewhat by the development of simple, convenient forms or procedures for those who do their own work. However, record-keeping will always take time and for many farmers will always be an irksome task. The use of bookkeeping service from an accountant in town has increased in recent years and will probably continue to increase even more rapidly in the future. If this service could be made to yield useful management information to farmers, in addition to tax information, for virtually the same amount of money now being spent for tax information, many more farmers would probably use it.

The loss of receipts for small items paid by cash can be reduced by maintaining charge accounts at those places of business where many of these small items are purchased and then paying the bill by check. However, it is always necessary to make some purchases for cash. Receipts from these can be saved by providing envelopes or small boxes in convenient places such as the pick-up or the car where these receipts can be deposited as soon as they are obtained and before they have a chance to get lost.

Only diligent discipline in the task of getting receipts and promptly disposing of them or recording the information immediately, can completely do away with this limitation. Record-keeping can be made a habit just as many farmers have acquired the habit of writing information on checks.

APPENDIX TABLES

Table 1. Distribution of the response to the farm and ranch record-keeping questionnaire by type and size of farm, Arizona, 1956.

Type and size of farm	Number responding		Per cent of total response	
	Size with- in type	Type	Size with- in type	Type
	(number)	(number)	(percent)	(percent)
General crop farms		439	100	32
Less than 100 irrigated acres	144		33	
100-299 irrigated acres	176		41	
300-499 irrigated acres	46		10	
500-999 irrigated acres	49		11	
Over 1,000 irrigated acres	24		5	
All cattle ranches		275	100	20
Less than 100 range cows	100		36	
100-299 range cows	100		36	
300-499 range cows	46		17	
500-999 range cows	21		8	
More than 1,000 range cows	8		3	
All cotton farms		203	100	15
Less than 100 acres cotton	71		35	
100-299 acres cotton	87		43	
More than 300 acres cotton	45		22	
All dairy farms		112	100	8
Less than 30 milk cows	11		10	
30-99 milk cows	74		66	
More than 100 milk cows	27		24	
All citrus farms		57		5
All vegetable farms		15		1
All poultry farms		36		3
All feed lots		29		2
All diversified farms		155		11
All very large scale farms		47		3
Total all farms and ranches		1,368		100

Table 2. Methods of record keeping used by various types and sizes of farms, Arizona, 1956.

Type and size of farm	Method of record keeping used*						All methods
	1	2	3	4	5	6	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All general crop farms	26	44	11	6	2	11	100
Less than 100 irrig. acres	38	46	0	1	0	15	100
100-299 irrig. acres	31	54	2	1	0	12	100
300-499 irrig. acres	7	26	50	15	0	2	100
500-999 irrig. acres	8	29	31	22	4	6	100
More than 1000 irrig. acres	4	21	25	21	25	4	100
All cattle ranches	26	48	5	6	2	13	100
Less than 100 range cows	35	51	0	0	0	14	100
100-299 range cows	27	47	3	5	0	18	100
300-499 range cows	16	51	13	7	4	9	100
500-999 range cows	10	37	19	24	10	0	100
More than 1000 range cows	0	25	12	38	25	0	100
All cotton farms	13	35	32	8	1	10	100
Less than 100 acres cotton	25	51	7	2	2	14	100
100-299 acres cotton	7	31	44	9	1	8	100
More than 300 acres cotton	4	20	49	18	2	7	100
All dairy farms	39	43	7	3	1	7	100
Less than 30 milk cows	54	36	0	0	0	10	100
30-99 milk cows	36	47	5	2	0	10	100
Over 100 milk cows	41	33	15	7	4	0	100
All citrus farms	39	50	2	7	0	2	100
All vegetable farms	13	40	7	7	33	0	100
All poultry farms	36	53	8	0	0	3	100
All feed lots	17	31	17	3	24	7	100
All diversified farms	19	38	20	10	6	7	100
All very large scale farms	0	4	13	15	64	4	100
All farms and ranches	25	40	13	6	6	10	100

- *1. Farmer keeps all records and makes all tax reports by himself or with family help.
- 2. Farmer keeps all the records but hires help to make his tax reports.
- 3. Farmer takes cancelled checks and other evidence of business transactions to an accountant weekly, monthly, or quarterly and the accountant keeps a set of books for the farm.
- 4. Farmer employs a part-time bookkeeper.
- 5. Farmer employs one or more full-time bookkeepers.
- 6. Farmer has no records during the year but takes cancelled checks and other evidence of business transactions to an accountant at the end of the year and has him make a tax report from these.

Table 3. Amount of money spent for tax work and for record keeping and tax work combined by type of farm, Arizona, 1956.

Type and size of farm	Amount of money spent			
	for tax work alone		records and tax work	
	Total	Avg. per farm	Total	Avg. per farm
All General Crop Farms	\$17,069	\$ 51	\$ 94,661	\$ 255
Less than 100 irrig. acres	2,307	20	3,083	26
100-299 irrigated acres	3,805	27	11,878	80
300-499 irrigated acres	1,875	59	13,497	321
500-999 irrigated acres	5,277	170	16,587	405
More than 1000 irrig. acres	3,805	238	49,616	2,255
All Cattle Ranches	9,199	46	26,885	121
Less than 100 range cows	1,260	18	1,923	26
100-299 range cows	2,933	29	7,592	85
300-499 range cows	2,726	80	8,041	206
500-999 range cows	1,405	108	5,250	309
More than 1000 range cows	875	219	4,079	680
All Cotton Farms	10,358	70	62,545	336
Less than 100 acres cotton	1,613	28	2,978	48
100-299 acres cotton	4,991	80	23,396	282
300-500 acres cotton	1,154	52	15,208	691
More than 500 acres cotton	2,600	186	20,963	1,103
All Dairy Farms	2,191	24	5,836	61
Less than 30 milk cows	105	8	285	22
30-99 milk cows	1,301	23	3,494	58
More than 100 milk cows	785	38	2,057	90
All Citrus Farms	1,089	22	2,376	45
All Vegetable Farms	2,021	184	16,927	1,540
All Poultry Farms	838	26	1,869	51
All Feed Lots	2,042	108	14,262	648
All Diversified Farms	9,004	75	36,741	257
All Very Large Scale Farms	17,810	660	166,656	5,952
All Farms and Ranches	\$71,621	\$ 68	\$428,758	\$ 364