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AN EVALUATION OF THE CONSISTENCY WITH WHICH EXTENSION WORKERS  
IN UTAH INTERPRET DATA ELEMENTS FOR REPORTING INTO THE STATE  
EXTENSION MANAGEMENT INFORMATION SYSTEM

by

Murray F. Wilde

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Agricultural Education

Approved:

UTAH STATE UNIVERSITY  
Logan, Utah

1975

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#### ACKNOWLEDGMENTS

For the development of the basic premises of this study, much credit must be given to Dr. C. Dennis Funk, Assistant Vice-President of Extension at Utah State University, who is also Chairman of the National Program Development and Management Subcommittee of E. C. O. P. I would like to express my sincere appreciation to him for his encouragement and help.

I would also like to thank Dr. Gilbert L. Long, Chairman of my graduate committee for his critical review of the thesis and Glen Baird and C. Dennis Funk, the other members of my graduate committee for their help in the search for related literature and clearing up many other difficult points.

Finally, to my wife, Vonda, and our four daughters for their patience and support in fulfilling this assignment, I extend sincere gratitude.

Murray F. Wilde

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## ABSTRACT

An Evaluation of the Consistency with which Extension Workers in  
Utah Interpret Data Elements for Reporting into the State  
Extension Management Information System

by

Murray F. Wilde, Master of Science

Utah State University, 1975

Major Professor: Dr. Gilbert L. Long  
Department: Agricultural Education

The purpose of this study was to determine the consistency with which Extension workers in Utah interpret data elements for reporting Extension activities into State Extension Management Information System (SEMIS). Subsequent insight into the areas of greatest inconsistencies and in-service training needs were gained. Extension workers in Utah were asked to report a predetermined list of hypothetical activities on the SEMIS weekly report form. These together with other report forms of previously submitted reports of common activities were studied in detail. It was found that the consistency for various activities reported ranged from 53 percent to 96 percent. It was also found that there were certain types of activities that were more often inconsistently reported than others. It was concluded that in-service training was needed to improve the consistency with which Utah Extension workers reported their weekly activities into SEMIS.

(56 pages)

## INTRODUCTION

### Origin and Nature of the Problem

The Extension Service USDA has gone to a great deal of effort and expense to develop a National Extension data bank. Each state has also developed a state data bank for Extension programming and management through the same system. The data gathered is to be used in making Extension management decisions and in reporting to the public the inputs and results of Extension educational programs.

The system thus developed to provide decision-making information is a computerized reporting system called "Extension Management Information System" (EMIS) on the national level and "State Extension Management Information System" (SEMIS) on the state level. This system has three major components, a plan of work, an activity report, and a narrative progress report, designed to provide an effective link between planning and reporting progress made toward the attainment of specific purposes. The plan of work indicates what Extension professionals plan to do. The activity report (a daily statistical report), and the progress report (a brief annual narrative report) indicates what has been done (6).

This system is based on a "management by objectives approach." (4, p. 1) The annual objectives identified in an Extension workers plan of work must be related to a specific state Extension purpose. State purposes are also

crosswalked via a parametric file back to national purposes. Purposes, often used synonymously with objectives, are the categories within which Extension programs are grouped. National purposes are broad general categories, state purposes are more specific. The annual objectives specify rather precisely the nature of the work and expected outcome for the Extension effort in a given year.

It would seem that if Extension workers are reporting activities into a coding system of this complex nature, there could be a difference of opinion as to what activities should be reported into each purpose code which could lead to inaccurate data. This would lead to erroneous information being used for budgets and appropriations.

The subject matter taught, the nature of the clientele served (audience type) and methods used in teaching are also identified in the Utah SEMIS program. Each of these data elements are coded for use in the computerized system.

Not only are the purposes very numerous and sometimes overlapping, but the tasks or annual objectives identified with each purpose are often very numerous. Subject codes are also complex, with 138 different subject codes to choose from. Under the heading "audience type" there are 54 specific codes to choose from. There are also 23 code choices in the selection of a teaching method or technique. It follows that work should be undertaken to see how consistent the coding is being done in the various data elements.



### Scope of the Study

The scope of this study was limited to an analysis of the consistency of Utah Extension workers in interpreting and reporting data elements on their activity reports. It was not concerned with interpretations of data elements related to the plans of work or narrative progress reports of Utah Extension personnel. Neither did the study have direct application to the SEMIS system of other states.

### Objectives

1. To determine the degree of consistency of Utah Extension personnel in interpreting and reporting Extension activities to the State Extension Management Information System.
2. To determine if there is need for additional in-service training in the interpretation of the data elements to improve the validity of the data provided in the State Extension Management Information System.
3. To determine areas of greatest inconsistency in reporting, thus providing direction to strengthen the State Extension Management Information System.

### Methods

1. Three selected groups of Extension workers were asked to complete a SEMIS activity report on a set of hypothetical Extension

activities. Twenty-six County Agents reported on a set of hypothetical activities typical of the work of a general County Agent. Thirty-six Home Economists reported on a set of typical activities of Extension Home Economists. Thirty-three State and Area Specialists reported on a set of hypothetical activities typical of the work done by Extension Specialists.

2. Actual daily activity reports of Utah Extension workers who participated in selected common activities were examined to determine the consistency with which they reported specific activities.

#### Definition of Terms

Activity. A part of an Extension worker's time that was expected to be reported on one line of the report form. In some instances, however, Extension workers combined two activities and reported on one line or divided one activity and reported it on two or more lines.

Item. One line of the report form.

Data element. Categories in which activities are coded on the SEMIS report forms, i. e., purpose, task, subject, etc.

EMIS. Extension Management Information System (national level).

Index of agreement. Over all percentage of agreement for activities, groups of activities, and data elements.

PPBS. Planning-programming-budgeting system developed by the United States Department of Defense to put economic rationale into their decision-making process.

SEMIS. State Extension Management Information System (state level).

## REVIEW OF RELATED LITERATURE

Early articles such as the one by Solem and Werner (7), talked about the great expectations of a new concept called planning-programming-budgeting system (PPBS--the basic idea for the development of EMIS/SEMIS). This new and exciting tool was to be used in development, management, and evaluation of Extension programs. The special attraction of PPBS for Extension personnel should be in the development and evaluation of new alternatives or new courses of action for achieving specific Extension goals. Those that adopt the program could count on having better quality programs and also increased amounts of scarce resources allocated to them. Basic to PPBS was the development of very specific objectives for the organization and the structure of programs to meet these objectives. This was to be accompanied by the development of analytical studies to identify alternative means of reaching objectives, their cost versus their benefits, and the development of a management information system that would assist program administrators in determining how well they were doing what they set out to do (7).

Stauber (8) said that PPBS would mean a lot of hard work and hard choices for Extension. It may be relatively easy for the department of defense to implement, but particularly difficult for Extension to define its goals and programs, and measure its out-put with any precision.

Stauber (8) also claimed that advocates of PPBS argued that even if the consensus became hard to achieve, policy implications of funding decisions should not be avoided. The cost and benefits of alternative decisions should be spelled out as clearly as possible. Hirsch (2) also argued that it was past time for interjecting some economic rationality into our public decision-making process which, he says has been guided primarily by political rationality.

The fears expressed by Stauber (8) were well-founded when he suspected there would not be any choice in the matter of adopting the new program because President Johnson had, in 1965, expanded the idea of program budgeting used by the Department of Defense under Secretary Robert McNamara to include all agencies of the federal government. Thus, the USDA and its agencies were brought into the system even though an adaptation of the new system for the Extension Service was yet to be developed (5).

Technical manuals for EMIS/SEMIS were designed by Systems Development Corporation and the Extension Service-USDA and was available for use in 1970. These manuals were to be used to strengthen the planning, reporting, and evaluating functions of management within the total Extension organization (3). Lutz and Swoboda (3) described the adaptation of EMIS/SEMIS as having a plan of work against which the time of staff is accumulated by a computer-based statistical package and followed up with a final narrative evaluation. These were to be revolved into one continuous set of steps. They also felt the system would only be of value if two major items were improved. First, intensive effort should be expended in the writing of line-item goals so they would be in

measurable terms. In the past the major defect in line-item evaluation was that it is largely an account of the methods and techniques applied and not an indication of acceptance of new goals or practices. The second important effort would be for administrators to continually refine the content of the data bank in order to get the measurement data needs of the future. Lutz and Swoboda (3) could see that the data could give important measurements besides the planned time compared to time reported measurement. Such things as (a) average time required for achieving a goal, (b) input-output data for planning new efforts, (c) projecting manpower requirements, and (d) designing budgets for new programs would not be possible.

#### Summary

Now, with the help of EMIS/SEMIS Extension workers should have fewer problems in clarifying their own goals and determining whether their own activities really are directed toward the accomplishment of those goals. However, when many Extension workers activity reports are combined to give data at the state or national level, do we really know if those contributing to the data have the same interpretation for coding activities. If EMIS/SEMIS data information will be used as Lutz and Swoboda (3) suggest in producing measurement of input-output data and other measurements it then becomes important that accurate information be produced. The measurements and information will not be any more inaccurate than the data used in developing them.

Dr. C. Dennis Funk, Assistant Vice-president of Extension, who is in charge of SEMIS at Utah State University and who is Chairman of the National Program Development and Management Subcommittee of ECOP, expressed the need for a study to determine the accuracy and consistency of Extension reporting in SEMIS.

## PROCEDURE

### Preparation of Instrument

In cooperation with Dr. Funk, three forms, entitled Data Collection Instruments, were prepared, with one of the forms for County Agents, one for Extension Home Economists, and one for Extension Specialists. Each form consisted of a list of hypothetical activities which were supposedly typical of the work of each particular group and which would cover 1 week's working time of 5 days, approximately 8 hours per day. This resulted in nineteen activities for the County Agents and for the Extension Home Economists and fifteen activities for the Extension Specialists. The State Extension Management Information System (SEMIS) provides code numbers for reporting all their activities on a special report form known as the SEMIS Daily Activity Report which is filed with their supervisor weekly. A copy of the Data Collection Instrument, the SEMIS Daily Report Form, and two accompanying letters, one from Dr. Funk and one from the investigator, were mailed to all of those in the State of Utah employed in the three groups of Extension workers mentioned above. The letters explained the Data Collection Instrument, the purpose of the study, and requested the cooperation of the persons receiving the forms in the study. The task assigned these persons was to assume that they were carrying out the hypothetical activities mentioned and they were then to select the SEMIS code numbers for each activity which they thought to be the



most appropriate and place these numbers on the report form. After this was done for all of the activities and the report form was completed, it was returned to Dr. Funk. Copies of all the materials sent to the Extension workers are included in the **Appendix**.

The materials mentioned above were mailed to 26 County Agents and 23 usable forms were returned. Thirty-six forms were mailed to Extension Home Economists with 32 usable forms returned, and 33 were mailed to Extension Specialists, of which 24 were returned in usable condition.

#### Sources of Data

Data for this study came from two major sources: (a) the SEMIS Daily Activity Report mentioned above which was mailed in by the Extension workers, and (b) information obtained from completed staff reports on file in the State Extension Office, Utah State University. The information obtained related to four common Extension activities of the past which were selected with the help of Dr. Funk and members of his staff. The activities selected and the number of reports used are as follows:

Utah Extension Workers Annual Conference of October 31, 1972--

104 reports,

Utah 4-H Extension Workers Conference of February 6-7, 1973--

109 reports,

Utah 4-H Workshop held March 16 and 30, 1973--54 reports, and

Utah State Nutrition Aides Conference of May 15-17, 1973--9 reports.

### Methods of Tabulation

After the SEMIS report forms had been received from the Extension workers it was necessary to organize the information they submitted into usable form appropriate to the purposes of the study. The first step was a simple one, which consisted simply of sorting the reports into three groups, one for County Agents, one for Extension Home Economists, and one for Extension Specialists. The second step was to record the code numbers for each of the 19 activities, or 15 for the Extension Specialists, into one of the seven categories where each belonged. The seven categories in which these code numbers were recorded are as follows: Purpose, Task, Subject, Audience Type, Number in Audience, Total Time Expended, and Method.

The recording was done by taking one of the SEMIS report forms and writing down all of the code numbers given by that particular respondent in each of the categories listed above. Then another form was taken and if the same code number was used a check mark was made to indicate that the same code number was used. If a different code number was used this number was recorded. This process was continued until all of the report forms had been examined and all codes recorded.

The third step was to combine like codes and put each in verbal form with a statement of what each code meant. Copies of this material are found in the Appendix. These are included because they explain in concise form, and in their proper categories, the various codes that were selected and recorded by

the County Agents, the Extension Home Economists, and the Extension Specialists.

The fourth step was to take the numerical information used in step 3 and organize it into a table for each activity and in the seven categories already mentioned in order to determine the degree of consistency of reporting. Also, by having this information in table form it made it much easier to examine the information in order to learn whether or not the other purposes of the study had been met. This process resulted in 53 tables. A detailed explanation of one of these tables will be given in the section on results.

The fifth step was to take, for five of the seven categories and for each activity, the percentage agreeing to the majority code from each of the 53 tables and put these into cumulative tables, one for County Agents, one for Extension Home Economists, and one for Extension Specialists. These tables were used extensively in determining the areas of greatest inconsistency in reporting. These tables will be explained in detail in the section on results.

The same procedure as just described was used in organizing the information obtained from the files in the State Extension Office relating to the four events used as the second source of data for the study. This resulted in four additional tables, one for each of the events. These will be discussed in detail in the section on results.

In completing the three tables made up from the reports submitted by the Extension workers and the four tables made up from the information taken from the files relating to the four events, averages were calculated for each

activity and each category and an overall average was obtained which will be referred to as an average index of agreement. This was done for each table. All of these will be explained further in the discussion relating to the tables.

## RESULTS AND DISCUSSION

### Introductory Statement

The major portion of the results of this study will now be presented in table form. The preceding section has given some information concerning the preparation of the various kinds of tables to be used. In order to make the tables as meaningful as possible, it appears to be desirable to include related discussions along with the presentation of the tables. This will avoid the re-identification of various activities on which there was low agreement which would be necessary if the discussion were placed in a later section. As each composite table is presented, detailed discussion of various activities related to the table, but not necessarily shown in the table, may be included. In such cases, reference will be made to detailed information included in the Appendix. This is considered to be essential in order to gain insight into possible in-service training programs.

### Activity Analysis Tables

The information contained in Table 1 is the kind of information that comes about as the result of step 4 in the organization process described in the section on Procedure. The major purposes of preparing tables of this type was to determine the degree of consistency of reporting. The left-hand column is a listing of the seven categories in which Extension workers report

their activities on the SEMIS report form. The second column is the code most frequently used in reporting. The third and fourth columns consist of the number of Home Economists who reported the same code as that used in column 2 and the percentage this number is of the total number reporting. The fifth and sixth columns show the number of persons who reported codes differently, or disagreeing with, the code most frequently reported and the number of different alternatives chosen.

This table is typical of the other 52 tables used to determine the degree of consistency of reporting and it would be highly repetitious to include a presentation and discussion of all of them in the body of the thesis. Therefore, this is the only one to be included here.

This particular table deals with the work of Extension Home Economists in preparing for a 4-H leader's training session on food and nutrition.

An examination of the table shows considerable differences in the percentages of agreement with the most frequently used codes. For example, the percentages varied from 100 percent for the number in audience and total time to 37 percent for type of audience. This type of thing indicates that there is a considerable element of inconsistency among the different categories in the manner in which the Extension Home Economists make their reports. The reader's attention is also drawn to the fact that the table shows that as many as seven different alternatives were selected in reporting one of the categories, that of audience type.

Table 1. Activity 1j: 3 hours preparing for 4-H leaders' training session on food and nutrition to be held Thursday<sup>a</sup>

SEMIS Categories	Majority Code	Agreeing		Disagreeing		Second Most Popular	
		No.	%	No.	Alternatives	Code	No.
Purpose	570	24	75	8	3	540	4
Task	572	20	63	12	6	541	4
Subject	122	13	41	19	3	115	12
Audience	50	12	37	20	7	52	7
Number (Aud)	0	32	100	0			
Total Time	3	32	100				
Method	13	30	94	2	2		

<sup>a</sup>Activity given in the data collection instrument in the Appendix.

Mention was made earlier that there are 53 tables of the type just discussed. These are all included in Table 1. The information contained in column 4, with the exception of that pertaining to number in the audience and total time, of the first 19 of these tables is used to make up Table 2, thus making it a composite or summary table of the activities of the Extension Home Economists. Hence, the information from column 4 of Table 1 is the same as the information in the row for activity 1j in Table 2 except the categories of number in audience and total time have been left out. Information reported for number in audience and total time is excluded because it makes no contribution to the purposes of the summary table or the total study. The next 19 tables are used in like manner to make up a composite or summary table for

Table 2. Utah Home Economists' index of agreement for common program activities reported January, 1974

Activity <sup>a</sup>	Percentage Agreement					Index of Agreement
	Purpose	Task	Subject	Audience Type	Method	
1a	99	66	78	99	53	79
1b	100	94	100	100	94	98
1c	100	100	04	70	100	93
1d	56	53	75	78	99	72
1e	53	50	66	59	83	62
1f	100	88	50	84	99	84
1g	53	50	72	50	94	64
1h	90	90	94	75	81	86
1i	99	99	46	66	88	80
1j	75	63	41	37	94	62
1k	72	53	44	88	100	71
1l	84	72	66	72	30	65
1m	78	56	38	63	78	62
1n	84	78	44	94	94	79
1o	75	63	66	50	88	68
1p	75	63	78	63	72	70
1q	75	59	78	63	72	69
1r	100	88	99	66	72	85
1s	94	81	94	99	99	93
Average	82	67	69	73	81	74

<sup>a</sup>Description of activities are found in the Appendix.

the activities of the County Agents. This is Table 3. Table 4 is the same kind of table for the activities of Extension Specialists and is taken from the last 15 of the 53 tables under discussion. Explanation and discussion for each of the three composite or summary tables will be given after each table.

Looking at the details of Table 2 we find that the activities of conducting a clothing workshop (1b); making home visits (1c); and completing



activity reports (1s); were reported virtually 100 percent consistent by all Home Economists. The next three most consistently reported activities were still in the 80 percent consistent range. These activities were: 1 hour answering eight letters requesting information on food preparation and home storage (1f); 2 hours recruiting two 4-H leaders (1i); and attending a civil rights in-service training meeting (1r). There were five activities that were coded in the 70 percent consistent range. Some examples of these were: 1 hour discussing plans for a handicraft project (1d); 1 hour working on radio tapes on money management (1h); and 1 hour of miscellaneous office and telephone calls from four people (1k). Eight activities dropped to the 60 percent consistent level, including contacting six volunteer leaders to help with a senior citizen project (1e); preparing for the 4-H leaders training session on food and nutrition (1j); and discussing training programs for 4-H leaders and discussing what poisoning effects eating apricots pits might have on a 5-year old child (1m).

Generally the purpose and methods used were reported more consistently than the task, subject, and audience type. The lowest purpose agreement was 53 percent while the lowest agreement of task, audience type, subject, and method was, respectively, 50 percent, 37 percent, 41 percent, and 30 percent.

The final index of agreement for the whole group averaged 74 percent.

If a closer look is now taken at the above three activities with the lowest reporting consistency we find that these activities do have some common characteristics.

Two of these three were related to 4-H work.

Some of the inconsistency in these two activities was a result of the reporter having to decide if the activity was related to subject matter (food and nutrition) or the longer term objective of leadership development.

Another problem was the decision of which subject is reported when the activity combines two subjects such as "a training session on food and nutrition" being reported as "nutrition (General)" or "Food preparation and service."

A third difficulty encountered in activity 1m was that of each reporter being able to combine small items so that they result in a uniform report. It was very evident that the small items in activity 1e and 1m were combined in many different ways for reporting. Not only were small items combined in different groupings but major subjects selected as the reporting category also varied thus adding to the inconsistency.

In Table 13, 90 percent agreement was established for the coding of seven of the 19 activities while five activities codings reached the 80 to 90 percent level. Four activities were coded only at the 80 to 90 percent level. Four activities were coded only at the 70 to 80 percent agreement level and two activity codes were in the 60 to 70 percent level.

Activity 2j was reported with agreement of only 53 percent.

Activity 2l--1 hour with a low income farmer in Ephriam regarding internal parasite control for sheep--was coded practically 100 percent consistent for purpose, subject, audience type and method, but only 52 percent

Table 3. Utah County Agents' perceptions of common program activities reported January, 1974

Activity <sup>a</sup>	Percentage Agreement					Index of Agreement
	Purpose	Task	Subject	Audience Type	Method	
2a	100	95	100	78	74	90
2b	96	91	100	65	87	87
2c	100	91	91	91	100	95
2d	95	95	95	95	95	95
2e	61	61	85	95	91	79
2f	100	91	83	100	100	94
2g	87	87	70	87	100	87
2h	95	87	78	74	95	85
2i	78	52	52	74	100	72
2j	48	30	43	48	100	53
2k	100	100	95	39	91	85
2l	100	52	95	100	100	90
2m	74	74	43	95	91	75
2n	78	43	61	57	83	65
2o	61	57	78	39	87	64
2p	100	100	95	52	95	89
2q	87	83	57	48	83	72
2r	95	100	100	95	95	97
2s	95	95	100	100	91	96
Average	87	78	80	75	93	84

<sup>a</sup>Description of activities are found in the Appendix.

agreement was obtained for the task code. It is interesting to observe that 43 percent of those not agreeing with the majority used one other code (146)

"Assist livestock and poultry producers to understand and apply insect and pest prevention and control practices," a task very similar to the major code (145)

"Assist livestock and poultry producers to understand and apply some animal

health practices." This very small difference in code descriptions makes it very easy for discrepancies in reporting.

Activity 2j--1 hour handling office and telephone calls on irrigation practices; irrigation company business and 4-H supplies for a weed club--is the type of activity that can be reported in many alternate ways and in fact was the most inconsistent activity reported by County Agents as sighted above.

The two activities with 60 to 70 percent agreement were; "attending a monthly staff meeting and in-service training on public relations" and "attending a farm bureau board meeting at Centerfield." The staff meeting subject was given but still only 61 percent agreement was reached for the subject code for this activity. There were three different purposes reported; six different tasks reported; six different subjects reported; four different audience types reported; and five different methods reported. The Farm Bureau meeting was also reported with a high number of different codes for each category. It would appear that some in-service training on reporting of staff meetings may be needed by the County Agents. In-service training may also be of help to County Agents in reporting of farm meetings; however, the problem may also be that for meetings that are not of a routine nature a general consensus has not been established among County Agents for reporting them.

On the average eight out of 10 Utah specialists agree on the code allocations for the various activities coded. However, the agreement on each activity varied from a low of 64 percent to a high of 97 percent.

Table 4. Utah Agricultural Extension Specialists' perceptions of coding, common program activities reported January, 1974

Activity <sup>a</sup>	Percentage Agreement					Index of Agreement
	Purpose	Task	Subject	Audience Type	Method	
3a	92	79	25	75	83	63
3b	79	38	100	54	54	57
3c	100	92	96	88	54	86
3d	58	50	58	50	100	69
3e	100	67	42	100	96	81
3f	100	92	96	83	96	93
3g	100	88	83	96	92	92
3h	96	96	92	100	96	96
3i	88	79	100	96	96	93
3j	92	75	75	92	71	82
3k	46	29	58	71	71	56
3l	100	54	79	100	100	87
3m	88	88	71	62	88	79
3n	75	29	92	42	92	67
3o	92	92	71	88	83	86
Average	85	67	76	80	85	79

<sup>a</sup>Description of activities are found in the Appendix.

Looking at the categorical codes more closely it can be seen that task and subject code agreement is about 10 to 15 percent lower than those of "purpose," "audience type" and "method."

One task agreement for activity 3r "conducting a workshop for irrigation company officials on water conservation projects," was probably the lowest with only 29 percent. The highest was 96 percent.

It is also interesting to note that four of the 15 purpose codes were agreed upon unanimously while none of the tasks were unanimously agreed

upon. Two of each of the subject, audience type and method codes were 100 percent in agreement.

It is interesting to note that if we remove activities 3b, 3d, 3k, and 3n, the average purpose agreement jumps from 85 percent to over 93 percent.

It is assumed that 85 percent (the average) is probably as good a purpose agreement as can be expected considering communications and interpretation problems of the instrument, those below that level should indicate problems that could be dealt with in-service training. There were four activities that had less than 85 percent purpose code agreement. The first low purpose agreement activity (3b) "revising a 4-H beef production manual," was reported with four different purpose codes, namely: "Improve production efficiency through utilization of animal management practices;" "develop the overall 4-H youth program;" "have youth acquire and practice skills in science;" and "increase farm decision-making and business operations skills for more effective enterprise management." Here we have three levels of purposes and the decision has to be made as to the specific and immediate purpose or the more general or ultimate purpose, i. e., immediate level--animal management practices; intermediate level--4-H youth program; ultimate level--help the farmers of the future to be more effective. It would follow then that unless the purpose has been decided prior to the activity and this purpose is communicated to all those who will be performing this type of activity, consistent reporting is virtually impossible.

The second low purpose agreement activity was 3d "assisted the Home Economist with a meat cutting demonstration." The following code descriptions were given: "improve nutritional level (of the human diet);" "improve consumer understanding of agricultural products on the market and factors determining agricultural price;" "improve production efficiency through utilization of animal management practices;" "operation and maintenance of the Extension organization;" and "improve family resource utilization through management." This type of activity did not appear to be a routine activity and reporters would need some in-service training or the activity should be tied to a state purpose, and be emphasized. Otherwise inconsistent reporting will result.

The third low purpose agreement activity (3k) "Attending a state electronic staff meeting on public relations and dealing effectively with people"-- was coded with six different purpose codes. Some of the code descriptions used were: "In-service training of a general nature;" "Operation and maintenance of the Extension organization;" "Extension program development and liaison work;" and "other training and professional improvement." Even though the subject of the staff meeting was given for this activity, the purposes reported were not consistent. These are very common meetings and so either the coding alternatives should be reduced or a specific purpose of instruction should be given to those attending a staff meeting. Otherwise, reliable data is again impossible to obtain.

Three purpose codes were used by the 24 specialists in reporting the fourth low purpose agreement activity (3n) "Seven hours in Emery County

conducting a workshop for irrigation company officials on water conservation." The purpose code descriptions for them were: "provide information on the establishment and operation of watershed improvement, soil, and water conservation projects," "Improve production efficiency through utilization of field crop management practices;" and "Improve community action and community organization." This activity could be considered as not a routine type activity so some training would be needed in order that this type item could be combined to give accurate data. Since the agreement did reach the 75 percent level a little education may bring the agreement to a more desirable level.

It would appear that it is much more difficult to obtain agreement between reporters on the task than other categories for various activities. If we assume again that the average agreement level of 67 percent is all that we can expect, considering the diversity of task codes to choose from, the problem of communication, and human error, we find that six activities were reported with less than average agreement. Looking more closely it is found that three of these activities had task coding agreements of less than 40 percent. One of them was activity 3b "Revising a 4-H beef production manual." It has a task code agreement of only 38 percent and had seven different task codes given. Some of the task descriptions were: "Agricultural project related work (4-H);" "Increase public understanding and support of 4-H programs and strengthen relationship with donors, sponsors, legitimizers and with other youth serving agencies and groups;" "Assist livestock and poultry producers to increase their understanding of proper feeding and nutrition;" "Assist livestock producers to



improve their management skills through increased understanding and use of performance testing and/or carcass evaluation;" "Assist livestock and poultry producers to increase their understanding of breeding and selection;" "Help marginal farm operators understand farm management principles and their application towards increasing farm income." The problems of gaining agreement on the task for this activity were the same as those discussed for the purpose for activity 3b in the previous section and other previous discussions regarding level of tasks and overlapping code descriptions.

A second low task agreement activity (3k) was "Attending a state electronic staff meeting on public relations." Seven task codes were given. Again one is faced with the same problems as stated previously of numerous similar codes to choose from and individual interpretation of the intent of the meeting.

It will be noted that actually only a very few activities from each table have been discussed in detail but a consideration of more activities would be repetitious and would add very little to in-service training needs.

An interesting trend can be shown when the percentage agreement figures from Tables 2, 3, and 4 are shown in relation to the number of components that are available in each of the five categories shown in Table 5.

The highest average agreement level shown in the table was in the method category where the least number of components were available. The second highest agreement was in the purpose category where the second lowest number of components were available. The third highest average agreement

Table 5. The relationship of category agreement to the number of category components available

	Purpose	Task	Subject	Audience Type	Method
Number of Components	45	197	138	54	33
Home Economists Percentage Agreement	82	67	69	73	81
County Agents Percentage Agreement	87	78	80	75	93
Specialists Percentage Agreement	85	67	76	80	85
Average	85	71	75	76	86

was found in the audience type category where the third lowest number of components existed. The fourth lowest average agreement was in the subject category where the fourth lowest level components were found. The lowest average agreement was found for tasks where the largest number of components existed. This trend would suggest that anything that can be done to reduce the number of components in any category will aid in the consistency of reporting.

Data in Table 6 indicates that the annual conference, no doubt, had several purposes and tasks that Extension workers could select as the major ones for reporting the conference. The same situation would apply to the subject and method codes as well. It is, therefore, not surprising to find such low agreement among the various categories. It is also only natural that the overall agreement index was found to be only 59 percent.

Table 6. Utah Extension workers' perceptions of appropriate codes for reporting the annual conference, November 2, 1972

	Percentage Agreement				Index of Agreement
	Purpose	Task	Subject	Audience Type	
Number	104	104	104	104	104
Item 1	102	102	102	102	102
Percent Agreement	76	70	26	67	54

In-service training may be of help in reporting this type of item but it is more likely that management should determine and announce at an annual conference what the major purpose of a conference is as well as the major subjects discussed and major methods used.

In-service training should give guidance as to how the audience type should be determined in this type of meeting.

A review of the data in Table 7 indicates much agreement for this activity. As specific as this item is, it was surprising that the subject, audience type and methods were reported so inconsistently. It would appear possible to develop Extension workers' skills to the point where this type item is reported with 90 to 95 percent consistency providing the code descriptions to choose from are developed to the point that they are not too overlapping in scope.

Table 7. Utah Extension workers' perceptions of appropriate codes for reporting the Nutrition Aids Conference, May 15, 16, 17, 1973

	Percentage Agreement					Index of Agreement
	Purpose	Task	Subject	Audience Type	Method	
Number	9	9	9	9	9	
Item 1	9	9	9	9	9	
May 15	100	90	77	67	44	76
May 16	100	90	70	55	44	72
May 17	100	90	90	55	55	78
Percent Agreement	100	90	79	59	48	75

A review of the data in Table 8 suggests that there is a diversity of activities at a 4-H workshops. This activity appears to be similar to an annual conference in which many different subjects and purposes would conceivably be dealt with. The main difference, of course, being that all activity would be 4-H related.

In-service training on how to decide what the major activity is among many related activities seems to be essential in reporting this type of activity.

Table 8. Utah Extension workers' perceptions of appropriate codes for reporting the 4-H workshop held March 16 and 30, 1973

	Percentage Agreement					Index of Agreement
	Purpose	Task	Subject	Audience Type	Method	
<u>March 16</u>						
Number	14	14	14	14	14	
Item 1	10	10	10	10	10	
Percent Agreement	36	29	36	29	57	37
<u>March 30</u>						
Number	40	40	40	40	40	
Item 1	37	37	37	37	37	
Percent Agreement	45	45	30	55	45	44
Average	41	37	33	42	51	

## SUMMARY AND CONCLUSIONS

### Summary

The objectives of the study were to determine the degree of consistency of Utah Extension personnel in interpreting and reporting Extension activities into the State Extension Management Information System; the need for additional in-service training in the interpretation of data elements; and determine areas of greatest inconsistency in reporting into the above system.

Hypothetical activities were reported by all Extension workers and analyzed for their consistency. Common events of the past reported by the same Extension workers were drawn from the files and also analyzed for their consistency.

It was found that Home Economists reported each of the 19 hypothetical activities with a varying degree of consistency. The lowest activity index of agreement was 62 percent and the highest was 98 percent. The average index of agreement was 74 percent for all 19 activities. The average purpose agreement was 82 percent with a range of agreement varying from 53 to 100 percent. The task agreement ranged from 50 to 100 percent and averaged 67 percent. Subject agreement ranged from 41 to 100 percent and averaged 69 percent. Audience type agreement ranged between 37 and 100 percent and averaged 73 percent. The method agreement ranged from 30 to 100 percent with an average of 81 percent.

The County Agents' index of agreement for their 19 activities ranged from 53 to 97 percent but averaged 84 percent. The average agreement for the five reporting categories were a little higher than those of Home Economists. The same relationship existed of purpose and method average agreements being about the same while task, subject and audience type average agreements were considerably lower.

The specialists' average index of agreement for their 15 activities was 79 percent. Their purpose and method average agreements were also about the same while the other three category agreements were considerably lower as well. It may then be generalized from this study that Utah Extension workers are more consistent in reporting purposes and methods than they are in reporting tasks, subjects, and audience types.

Inconsistency of reporting was generally in proportion to the number of subjects that were being combined into one activity to be reported. Some examples of these were staff meetings, conferences, and combination of office and telephone calls that were lumped together for reporting. The most consistent reported activities were those that were simple, very routine, and often reported activities; for example--making farm visits for accomplishment of a single objective.

#### Conclusions

Based upon the findings of this study and in harmony with the stated objectives, the following conclusions seem to be justified:

1. Because of the fact that there were considerable inconsistencies in the Extension workers' reports, these inconsistencies will likely continue as long as the same report forms and data elements are used and the system is used in its present form.
2. There appears to be need for additional in-service training in the interpretation of data elements. Such training would improve the validity of the data provided in the State Extension Management Information System.
3. Because there is a direct relationship between the number of choices available in coding and greater inconsistencies in reporting, the total number of data element descriptors could likely be reduced advantageously. Data element descriptors that are closely related or which are overlapping should be given close scrutiny and made more discreet.
4. Since it was found that tasks, subjects, and audience type were reported with the least consistency, concentrated efforts in improving the reporting of these categories would strengthen the State Extension Management Information System.



## IMPLICATIONS AND RECOMMENDATIONS

One way to improve inconsistency of reporting tasks, subjects, and audience types would be to develop a system so that Extension workers could determine the level (present or future) of the objectives of an activity as discussed previously on pages 19 and 20.

The consistency of reporting of conferences, workshops, and staff meetings would be immediately improved if administrators would advise those reporting of the major purposes and subjects of the meeting.

The State Management Information System Manual should be revised to eliminate as many codes as possible and those that remain should be refined to eliminate as much overlapping as possible.

During this study the writer was impressed with the fact that, due to the varied background of each Extension worker, his interpretation of his activities are often very unique. This makes it very difficult to combine a number of Extension workers' activities into precise categories without a great deal of training. This very fact was likely the reason for some of the low consistency in specialists' reports since all specialists would not have had experience in doing all the activities they were asked to report on the form. It would appear that to get the greatest consistency Extension workers need to develop a consensus on reporting common items to a point similar to policemen who think in terms of code numbers instead of the activity which the code describes.

If this were done through periodic in-service training, reporting could be very consistent.

It was also felt that the present major value of SEMIS is for the individual to use it in assessing his own programs rather than to use it to combine Extension workers' activities to produce data for budgeting. Further study is needed to determine how accurate reporting must be in order to produce useful data for budgeting.

Another area of concern is the problem of reporting unplanned activities consistently. The writer is of the opinion that unplanned activities cannot at present be combined with any degree of accuracy and should be left out of the report. Perhaps in-service educational efforts will improve the accuracy enough to make reporting of unplanned activities more appropriate.

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## APPENDIX

December 20, 1973

Dear Extension Worker:

As a thesis project for a master's program, I am studying the consistency with which Extension workers in Utah report into the SEMIS system. I am, therefore, asking your cooperation in coding the attached hypothetical activities on the enclosed report form and returning it in the enclosed self-addressed stamped envelope as soon as possible.

The purpose of this study is to examine the consistency with which staff members are interpreting the data elements of SEMIS and to determine further in-service training needs. It is not a test of individuals. Names on the Activity Report form will be used only to determine who has responded. Data from this survey will be reported on a group basis and no individuals will be identified. You are asked to code items in the same way you have been doing in the past.

Thank you in advance for your help in this project.

Yours truly,



Murray Wilde



December 21, 1973

Dear Staff Member:

Murray Wilde is an Extension worker from Canada pursuing a master's degree from USU. Glenn Baird and I are serving on his graduate committee. We have encouraged him to do a study related to SEMIS to help us ascertain the consistency with which our staff is interpreting the data elements in SEMIS and to determine if additional in-service training is needed. We believe his study will be of value to the Utah Extension Service.

Since many of our staff have been involved in graduate study, you will undoubtedly appreciate the importance of the data collection process. We solicit your support by completing a SEMIS Activity Report form on the hypothetical week of Extension work prepared by Mr. Wilde and returning it as soon as possible. This is only one phase of his study.

Sincerely,

C. Dennis Funk  
Associate Director

GDF:kms

Data Collection Instrument for Home Economists

Assume you are the Extension Home Economist in Cache County. You conducted or participated in the following hypothetical activities during the week of May 7-11, 1974. Please code these activities and complete the attached Activity Report form as though you were actually reporting this week's work into SEMIS. Assume the following:

1. All events are included in your Plan or Work.
2. All contacts are Caucasian unless otherwise specified.
3. Contacts are not low income unless otherwise specified.

May 7, 1974

- |  |    |
|--|----|
| 1--One hour in county staff meeting  | 1a |
| 2--Two hours conducting a clothing construction workshop with 20 low-income homemakers in Hyde Park .  | 1b |
| 3--Two hours visiting two FHA borrowers in the Lewiston area on interior decoration and home furnishings. Travel time was 1 hour. One family was Caucasian, the other Spanish-American.  | 1c |
| 4--One hour in office discussing plans for handicraft project with three senior citizen leaders from the County Council on Aging. It was decided that you would make some inquiries and contacts regarding availability of materials and instructors and meet again on Friday evening. | 1d |

- 5--One hour was spent contacting six volunteer leaders to help  
as instructors for senior citizen project. 1e
- 6--One hour answering eight letters requesting information on  
food preparation and home storage. 1f

May 8

- 1--One hour making five telephone calls to supply houses  
regarding senior citizen handicraft project. 1g
- 2--One hour working on radio tapes on money management. 1h
- 3--Two hours recruiting two 4-H leaders in Mendon. 1i
- 4--Three hours preparing for 4-H leader training session on  
food and nutrition to be held Thursday. 1j
- 5--One hour office and telephone calls: 1k
- Mrs. Jones--stain removal from carpet.
- Mrs. Jensen--recipe for making cakes with honey.
- Mrs. Louis--luncheon ideas.
- Mrs. Hansen--discussion cholesterol.

May 9

- 1--Participated in career day program at Logan High School. 1l
- The topic for the three classes: career opportunities in  
home economics. Four hours including preparation time  
were spent on this assignment. There were 23 Caucasians  
in each of two classes. There were 20 Caucasians, 2  
Spanish-Americans, and 1 Black in the other class.



- 2--Two hours handling the following office and telephone calls: 1m  
 Discussing training program for 4-H leaders (2 office  
 calls) (45 minutes).  
 Call asking what poisoning effect eating apricot pits  
 might have on a 5-year-old child (15 minutes).
- 3--How to prepare foods for freezing (3 calls) (45 minutes). 1n  
 Laundering permapress fabrics (15 minutes).
- 4--Two hours prepared for 4-H leader training on foods project 1o  
 skills to be held Thursday.

May 10

- 1--4-H leadership training workshop on foods preparation  
 skills. 1p  
 9 a. m. to 12 noon in Hyrum; 23 leaders attended.
- 2--2 p. m. to 5 p. m. in Lewiston; 19 leaders attended. 1q  
 Add 1 hour travel time for each session.

May 11

- 1--Seven hours, including 2 hour travel time, attending 1r  
 civil rights in-service training meeting in Ogden for  
 Bear River and Weber River area staffs.
- 2--One hour completing SEMIS Activity Reports for the week. 1s

Data Collection Instrument for County Agents

Assume you are the County Agent in Sanpete County. You conducted or participated in the following hypothetical activities during the week of June 11-15, 1974. Please code these activities and complete the attached Activity Report form as though you were actually reporting this week's work into SEMIS. Assume the following:

1. All events are included in your Plan of Work.
2. All contacts are Caucasian unless otherwise specified.
3. Contacts are not low income unless otherwise specified.

June 11, 1974

- |  |    |
|--|----|
| 1--Two hours preparing and making arrangements for a beef feeder tour to be held June 15. The president of the Cattle-men's Association came to the office to help prepare the agenda. Five telephone calls were made to confirm stops for the tour. | 2a |
| 2--One hour preparing a news article on beef feeding tour.   | 2b |
| 3--Four hours in Moroni visiting nine 4-H members with turkey projects. One was an American Indian; 1 hour travel time.  | 2c |
| 4--One hour in the office responding to six office and telephone calls from farmers primarily related to weed control in barley.   | 2d |

June 12

- 1--One hour meeting with county commissioners to discuss Extension programs and budgets. All commissioners and the county clerk were present. 2e
- 2--Five hours, including 1 hour travel time, making farm visits in the Gunnison area checking alfalfa fields for insect damage. Five farmers were visited; one was Oriental. 2f
- 3--Two hours at Snow College in Ephraim attending a county community development council meeting to devise a county-wide solid waste program. As a member of the council, I presented a report of the solid waste subcommittee. Twelve members were in attendance. 2g

June 13

- 1--One hour preparing and cutting a radio tape on fly control around dairy facilities. 2h
- 2--Two hours in the office handling the following office and telephone calls: 2i
- Mrs. Smith--control of insects on roses (15 minutes).
- John Johnson--fertilizer recommendations for pastures (30 minutes).
- 3--Pete Henderson--park and lawn care (15 minutes). 2j
- James Black--4-II supplies for weed club (15 minutes).

Jim Scott--irrigation practices (15 minutes).

Henry Lewis--irrigation company business (30 minutes).

- 4--Two hours meeting with county D. H. I. board in Mount Pleasant. Seven members were present. Plans for a D. H. I. A. tour were outlined. One hour travel time. 2k
- 5--One hour with low-income farmer in Ephraim regarding internal parasite control for sheep. No travel time; included in trip to D. H. I. meeting in Mount Pleasant. 2l
- 6--Two hours in Fairview with a dairyman working on plans to prevent pollution of live stream by animal wastes. No travel time; included in trip to D. H. I. meeting. 2m

June 14

- 1--Left Manti at 8 a. m. to attend monthly district staff meeting and in-service training on public relations in Richfield. The meeting began at 9 a. m. and adjourned at 3:30 p. m. with 1 hour and 15 minutes off for lunch. 2n
- 2--Attended a farm bureau board meeting at Centerfield. Preliminary plans for a workshop on farm estate planning were made. Twelve board members were present including two Orientals. The meeting lasted for 3 hours including 1 hour travel time. 2o

June 15

- 1--One hour preparing a 3-minute tape for the local radio station on farm safety practices. 2p
- 2--Two hours with the 4-H Advisory Council preparing handicraft activities for 4-H camp. Eight council members were present including one Oriental. The meeting was held in Manti. 2q
- 3--Four hours assisting with a beef tour to Sevier County including 2 hours travel time. Three feeding operations were visited; 24 ranchers including three Orientals were in attendance. 2r
- 4--One hour completing SEMIS Activity Reports for the week. 2s

Data Collection instrument for Extension Specialists

Assume you are an Extension Specialist with headquarters in Provo (Mountain Lands area) but serving all of southern Utah. You are responsible for the following hypothetical activities for the week of January 8-12, 1974. Please code these activities and complete the attached Activity Report form as though you were actually reporting this week's work into SEMIS. Assume the following:

1. All events are included in your Plan of Work.
2. All contacts are Caucasian unless otherwise specified.
3. Contacts are not low income unless otherwise specified.

For the first 2 days of the week, assume you are a Livestock Specialist. The remainder of the week assume you are an Agronomy Specialist.

January 8, 1974

- 1--Two hours preparing and presenting a lecture on crossbreeding to a group of 20 students in a credit course in beef cattle production at BYU. 3a
- 2--Four hours revising a 4-II beef production manual. 3b
- 3--Two hours in the office working on performance testing records for two purebred sheep breeders from Utah County. 3c

January 9

- 1--Assisted Home Agent in Wasatch County by conducting a meat (beef) cutting demonstration for 20 young homemakers and their husbands including two couples of Spanish-American descent. Three hours were spent including 1 hour travel time. 3d
- 2--Two hours in the office answering the following phone and office calls: 3e
- John Doe--balancing feed rations for beef cattle (30 minutes).
- Tom Doke--feed supplement for sheep on range (30 minutes).
- Tim Jones--lice control on cattle (10 minutes).
- Dave Waters--market outlook for hogs (10 minutes).
- Bill Black--use of feed additives for beef feeding (10 minutes).
- Ken Potts--use of hormones for synchronizing estrous (15 minutes).
- Ted Carr--feeding recommendations for wintering beef cows (15 minutes).
- 3--Three hours preparing for sheep production workshop, with emphasis on disease problems, to be held in Summit County next week. 3f

January 10

- 1--Five hours as resource person for field crop production meeting in Delta. The following topics were discussed: 3g

recommended varieties of small grains, alfalfa, and field corn; also current recommended cultural practices for the above crops. Travel time was 3 hours in addition to the meeting time; 48 farmers from Millard County were in attendance including two Spanish-Americans and two Orientals.

January 11

- |  |    |
|--|----|
| 1--One hour in the office answering correspondence related to a variety of crop production problems, most of them dealing with fertilizer availability and application rates for corn. Twelve individual letters were written.     | 3h |
| 2--One hour answering four telephone calls related primarily to controlling insects in farm-stored wheat.  | 3i |
| 3--Two hours with Mountain Lands area staff to plan a series of weed control workshops for county weed committees and supervisors. Eight staff members were in attendance.   | 3j |
| 4--Two hours attending state electronic staff meeting. Subject for the meeting was public relations and dealing effectively with people.   | 3k |
| 5--Three hours cooperating with County Agent conducting a meeting for low-income farmers in Juab County on soil testing and interpretation of fertilizer recommendations for various crops received from the soil testing lab. Ten |    |



farmers participated in the meeting. Approximately 1 hour spent in traveling.

January 12

- 1--Two hours finishing an article on controlling pollution from crop wastes to be submitted to the Utah Farmer Stockman magazine for publication in March. 3m
- 2--Seven hours including 4 hours travel time in Emery County conducting a workshop for irrigation company officials on water conservation projects; 26 farmers were in attendance, most of whom were considered to be low-income farmers. 3n
- 3--One hour completing SEMIS Activity Reports for the week. 3o