



United States
Department of
Agriculture

National
Agricultural
Statistics
Service

Research and
Application
Division

NASS Staff Report
Number SSB-90-03

May 1990

AN OPERATOR DOMINANT LIST FRAME

R. R. Bosecker
S.E. Keller

AN OPERATOR DOMINANT LIST FRAME by Raymond R. Bosecker and Scott E. Keller, National Agricultural Statistics Service, U. S. Department of Agriculture, Washington, D. C. 20250-2000, May 1990. Staff Report No. SSB-90-03.

ABSTRACT

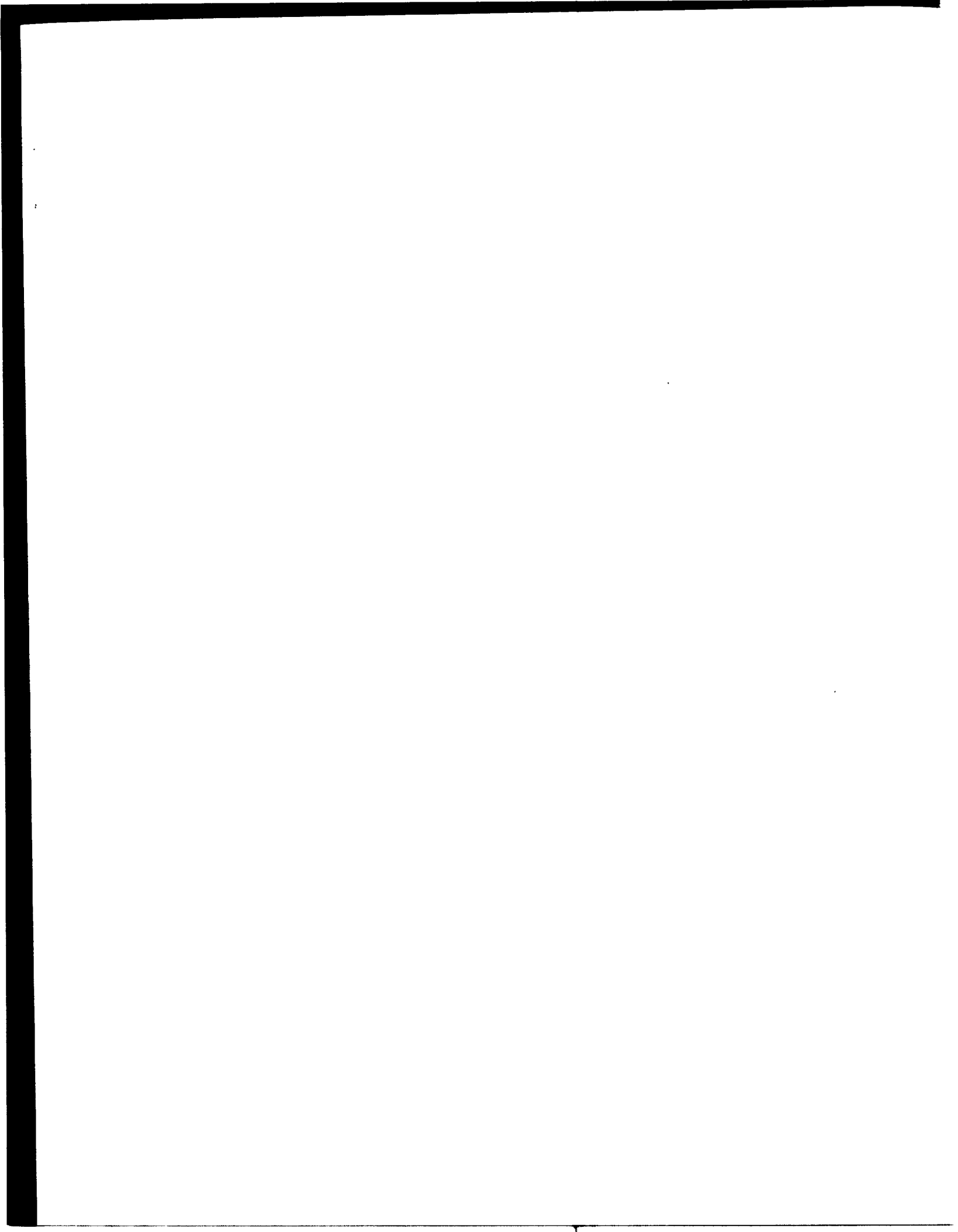
Survey statisticians in the National Agricultural Statistics Service (NASS) have long expressed concern about the complexity of rules governing multiple frame surveys. The rules are based on the structure of the NASS list sampling frame. Currently, the primary name field defines the selected sample unit and may contain the name of an individual, a combination of individual names, or an operation name. The resulting rules for associating names with land operated are many. An alternative procedure, called the "operator dominant" concept, proposes keying solely on the name of an individual operator as the sampling unit for all operating arrangements except those having a hired manager. Managed operations would retain the operation name as the sampling unit. This technique was studied in eight States with alternative survey indications generated in four States. Multiple frame rules were simplified but additional reports were required of some operators. There was an increase in data retained from list frame units with a corresponding decrease in the area frame nonoverlap domain. Survey indications changed less than one standard error from the operational expansions with about as many increases as decreases. An operational evaluation is planned for 1990-91 in nine States.

ACKNOWLEDGEMENTS

This study resulted from the combined efforts of members in several NASS units. Others whose work contributed to development of the alternative procedure include: Bob Bass, Survey Administration Section; Bill Iwig, Sample Design Section; and Jerry Thorson, Multiple Frame Surveys Section. Additional participants in the collection of data for this report were: Jack Nealon, Bob Hale and Ned Jones of the Multiple Frame Surveys Section. We are indebted to eight State Statistical Offices for their cooperation to make this study possible. Appreciation is also expressed to Bessie Johnson and Angie Rose for typing the report.

CONTENTS

| | Page |
|--|------|
| SUMMARY..... | ii |
| INTRODUCTION..... | 1 |
| RESEARCH..... | 3 |
| ANALYSIS..... | 5 |
| Estimates..... | 5 |
| Name Forms..... | 6 |
| Overlap Determination..... | 8 |
| Respondent Burden..... | 9 |
| RECOMMENDATIONS..... | 11 |
| REFERENCES..... | 12 |
| APPENDICES | |
| A: Comparisons of Current Decision Diagrams with those under Operator Dominant Concept..... | 13 |
| B: Summary Comparisons Between Current and Operator Dominant Procedures..... | 18 |
| C: Resummarization of June 1989 Survey Indications Using Operator Dominant Concepts..... | 23 |
| TABLES | |
| 1: Counts and Percentages of Records Handled Differently Under Alternative Procedures..... | 5 |
| 2: Percent of Records Out-of-Scope..... | 6 |
| 3: Status of COIN Records Under Alternative Survey Procedures..... | 7 |
| 4: Status of Operation Name Records Under Alternative Survey Procedure..... | 8 |
| 5: Changes in Overlap Status from Current Procedure to Operator Dominant..... | 9 |
| 6: List Coverage of Selected Items Under Alternative Procedures..... | 9 |
| 7: Additional Reports Required of List Sample Operators..... | 10 |



SUMMARY

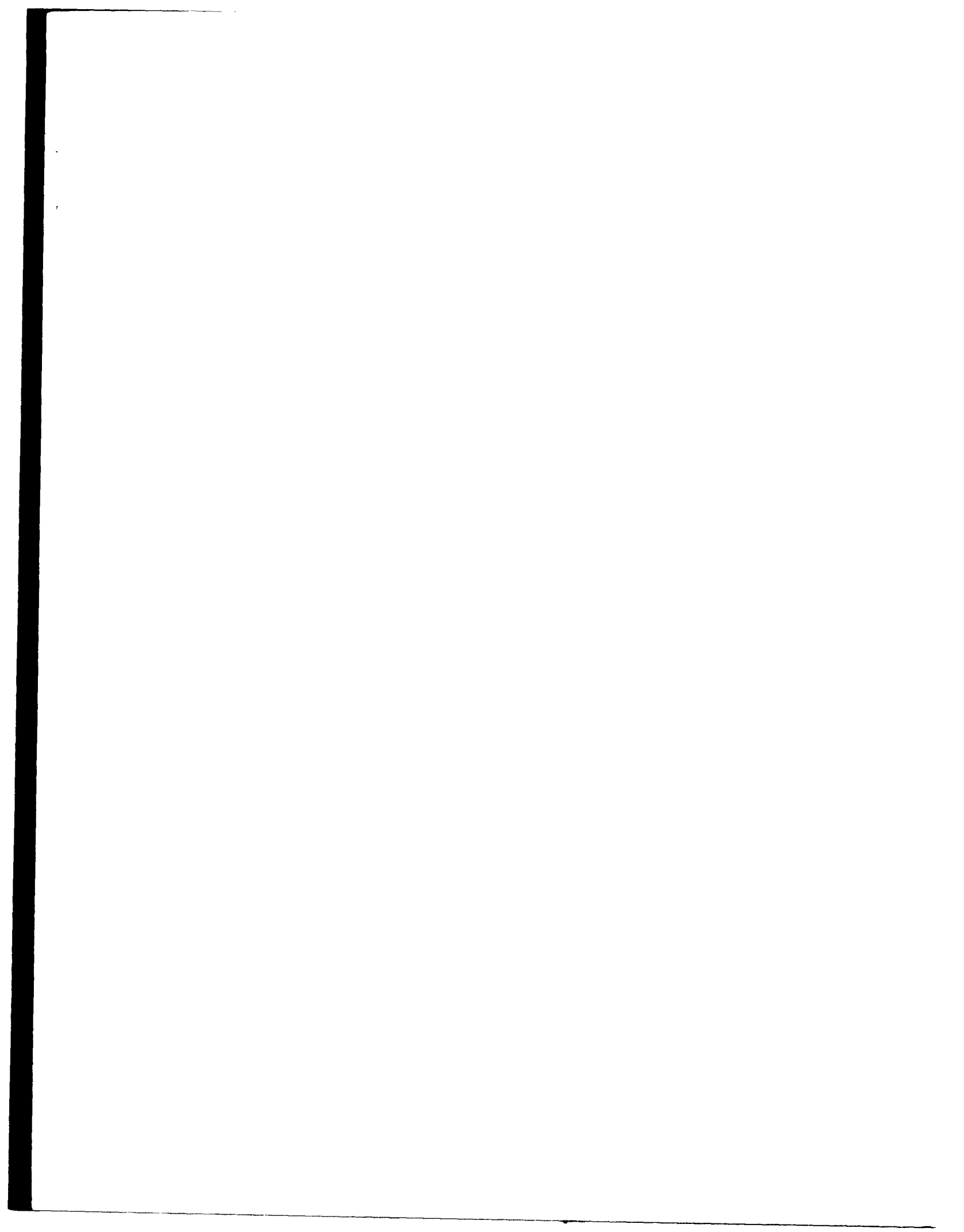
This report describes a proposed change in the way list sampling units (names) would be maintained by NASS. It also assesses the likely impact of the change on survey methodology, data collection, respondent burden and survey indications. The purpose of the "operator dominant" proposal was to simplify NASS multiple frame survey procedures.

Existing list maintenance procedures key on a primary name field and assign priorities among name forms. A premium is currently placed on farm or ranch names followed in priority by specifically designated combinations of individual names. Farm names can change often and the addition or deletion of partners occurs continuously. As a result overlap checking becomes difficult and decision diagrams for editing list questionnaires are complex.

The proposed procedure attaches no priority to name forms. The operator dominant concept is one of sampling from the names of those who operate farms and ranches. Farm or ranch names are only important for managed operations. Keeping up with all of the names and combinations of names associated with agricultural operations becomes a survey aid instead of a necessity for sampling.

The data presented in this study were collected in June and December of 1988 and June 1989. Early evaluations indicated the alternative approach to list maintenance and sampling could reduce the complexity of multiple frame survey procedures. Simplification is accomplished by reducing the number of decisions necessary during overlap checking and the editing of list questionnaires. The procedure resulted in fewer list records being coded "out of business" because of changes in operating arrangements. More area tracts were determined to be overlap with the list. The net effect was more data attributed to the list sample and less accounted for by the area nonoverlap domain. An increase in respondent burden was noted for those operators having more than one land operating arrangement.

For the 1989 June Agricultural Survey, data were adjusted to measure the effects of the "operator dominant" concept on survey expansions. The results of the 1989 study showed no significant shift in expansion levels. Therefore, the operator dominant concept will be implemented in selected States in 1990 to determine list frame and survey implications for a full year of State Statistical Office (SSO) activities. Experience in these SSO's will guide further implementation decisions.



AN OPERATOR DOMINANT LIST FRAME

RAYMOND R. BOSECKER
SCOTT E. KELLER

INTRODUCTION

The name maintenance procedure historically used by NASS requires maintenance of three types of name forms: individual, combinations of individual names (COIN) and operation names. In addition, a priority is assigned among name forms. An operation name has the highest priority in overlap (OL) determination between sampling frames and in duplication checking within the list frame. Rules concerning COINs, second priority, are very rigid. If a partner is deleted from or added to the operation as it appeared on the list frame, the operation is nonoverlap (NOL) with the list. A large amount of State Statistical Office (SSO) energy is directed toward keeping abreast of the most recent operation name and detailing all combinations of names associated with farms. The significance of this activity stems from list sampling units becoming unusable if any major change has occurred in the listed name form. If a change occurs, the operation becomes a part of the area nonoverlap domain.

The purpose of this study was to investigate an alternative to the present method of name form maintenance. It was hoped the proposed "operator dominant" concept would simplify overlap determination and the association of reporting units with sampling units from the list frame. The concept is one of keying on the names of those who operate farms and ranches, rather than keeping abreast with all the possible names and combinations of names associated with farms.

As with most procedures, there are advantages and disadvantages. The potential advantages of the operator dominant procedure include:

1. Simplicity - Multiple frame rules of association between frames are simplified. Overlap determination and operation description editing become more straightforward. A primary name field designation is unnecessary and no priority scheme is attached to name forms. Generation and review of sample unit codes for matching against reporting unit codes are no longer needed. Decision diagrams for current and proposed methodology are presented for comparison in Illustrations 1-4 in Appendix A.

2. **List Building Goal Is Operator Specific** - The list frame development task is focused: find the people who operate agricultural land. The concept is one of adding and maintaining the names of the operators of farms and ranches, rather than sampling from among all names and combinations of names associated with farms. Other information retained about possible partners or farm names is supplementary for use as a survey aid and no longer critical for sampling purposes.
3. **Smaller NOL, Lower Multiple Frame CV** - More coverage from the list frame results. Fewer list questionnaires would be coded "out-of-business" due to changes in operating arrangements. Fewer area tracts are nonoverlap. A reduction in multiple frame (MF) coefficients of variation (CV) is expected.
4. **Incomplete Information Has Less Effect** - The current procedure gives priority to farm names. Therefore, much of the overlap determination hinges on knowing the operation name. In practice, this is very difficult to obtain for nonrespondents and is not always supplied by respondents. This "unknown" makes overlap checking difficult and often leads to recontacts. The proposed procedure would normally require only the identity of the operator. It does not assign priority among name forms.
5. **COINs No Longer A Problem** - Adjusting list record data to zero for sampled combinations of names due to the addition or deletion of partners would be eliminated. Area frame maintenance of records for combinations of names would be unnecessary. Questions about whether husbands and wives listed together are an individual or partnership operation are eliminated.

The potential disadvantages of the proposed procedure follow:

1. **Some Respondent Burden Increase** - Sampled operators from the list would respond for each operation in which they are involved. All individual and partnership operating arrangements would be represented through unduplicated names of target operators. Target operators are those whose names comprise the sample units of the list frame. A sub-sampling scheme among multiple operations should be devised for surveys with lengthy questionnaires so respondent burden would be manageable. A special record status code to permit exceptions for particularly burdensome or complex situations is also necessary.

2. More Name Checks Against The List - Each partner's name on both list and area questionnaires must be checked against the list. Workload increases in those cases where operation names and combinations of individual names would currently cover the overlap status of individual partners.
3. Status Dependent on Target Operator - If the sampled operator on the list dies, retires or is no longer involved with an operation, the farming operation becomes nonoverlap for individual and partnership arrangements. No loss occurs with the current operational procedure, assuming there is a farm name that doesn't change.
4. List Conversion Necessary - List resolution processing and SSO review are necessary to bring the current list frame into conformity with new list maintenance rules.

Differences between the current and proposed procedures affect only small percentages of reports. However, a minority of reports cause a disproportionate share of the complexity in surveys. The name forms on the list have been taken for granted for years without challenge. The list structure then dictates the multiple frame rules. The proposed procedure attempts to simplify the general rules and provide special handling for special cases.

A summary of list maintenance and survey procedure comparisons between the current and proposed procedures is given in Appendix B.

RESEARCH

Survey materials have been reviewed from the 1988 June Agricultural Survey (AS) in Indiana, the 1988 December AS in Idaho, South Carolina and Wisconsin and the 1989 June AS in Illinois, Montana, North Carolina and New York for the development and research of the operator dominant concept. Counts and percentages of list records affected by the alternative procedure were obtained in all eight States. Survey data expansions were calculated only for the four States in the June 1989 study. The effects of the proposed procedure on overlap status, list questionnaires, respondent burden, survey indications and coefficients of variation (CV's) were studied.

The first phase of the study was designed to refine the concept by applying the revised procedure on survey questionnaires. Questionnaires from June 1988 (Indiana) and December 1988 (Idaho, South Carolina and Wisconsin) were reviewed. Implications of the proposed procedure on the overlap status of area frame tracts, list adjustment factors (LAF) for list units, and respondent burden were noted. Rules were used to mentally determine the "converted" name form for comparison purposes. The list frame masters for these States were not actually altered.

The rules for "conversion" were as follows:

1. All sample units with "combinations of individual names" appearing in either the primary or secondary name field were converted to only the first partner's name. All other associated names were considered inactive.
2. Operation names were ignored unless the reporting unit was a managed operation or there was no individual name available as the sampling unit.
3. List records with names duplicated as a result of the above conversion were treated as duplicates (See Dean Bros example below).

Examples of name forms before and after conversion to the operator dominant concept follows:

| CURRENT | CONVERTED |
|---------------------------------------|--|
| * William Mays | * William Mays (No change) |
| * Ruth Ranches Jim Ruth | * Ruth Ranches (No change) Jim Ruth |
| * Bill Jones & Joe Ford | * Bill Jones |
| * Dean Bros Ralph Dean & Fred Dean | * Dean Bros Ralph Dean |
| * Ralph Dean | (Duplicate with Above - Remove) |
| * Berra Inc Pete Anderson, Mgr | * Berra Inc (No change) Pete Anderson, Mgr. (Mgr Optional) |

The second phase of the study assessed the effect of the proposed procedure on data from the June Agricultural Survey. List and area frame questionnaires from June 1989 survey's in Illinois, Montana, New York and North Carolina were reviewed, coded and summarized a second time to determine the effect the alternative procedure would have on survey indications.

Additional data were asked of some area tract operators to complete data required by a change in overlap status under the proposed procedure. In addition, designated target operators in the list sample from COIN and operation name forms were asked to provide information on any additional operating arrangements in which they were involved.

ANALYSIS

The primary purpose of the analysis conducted in the research States was to determine how operator dominant procedures would affect survey activities and results. If survey indications under alternative procedures are within sampling error and no one directional bias is indicated, then a decision between the alternatives would be based upon the operational advantages and disadvantages of each.

Estimates

Counts of the numbers of records treated differently under the alternative procedures were found to be relatively small. (See table 1). Between one and three percent of list sample records had a change of some kind that would affect data summarization. Changes in the overlap status of area tracts ranged from about one and one half to six and one half percent of all area frame agricultural tracts. The percentages were higher, reaching 18 percent, when compared to the current number of nonoverlap tracts. These counts include changes in overlap status in both directions.

Table 1: Counts and Percentages of Records Handled Differently Under Alternative Procedures

| State | Ag Survey | List Sample Records | | | Area Sample Records | | | | |
|-------|-----------|---------------------|-----------------|-----|---------------------|------------|----------------|----------|----------|
| | | Usable Records | Changed Records | | Ag Tracts | NOL Tracts | Changed Tracts | % of Ttl | % of NOL |
| | | # | # | % | # | # | # | % | % |
| IN | 6/88 | 2258 | 44 | 1.9 | 1178 | 344 | 36 | 3.1 | 10.5 |
| ID | 12/88 | 1458 | 39 | 2.7 | (not evaluated) | | | | |
| SC | 12/88 | 945 | 23 | 2.4 | (not evaluated) | | | | |
| WI | 12/88 | 2216 | 59 | 2.7 | (not evaluated) | | | | |
| IL | 6/89 | 2341 | 36 | 1.5 | 1534 | 370 | 36 | 2.3 | 9.7 |
| MT | 6/89 | 1325 | 31 | 2.3 | 753 | 219 | 28 | 3.7 | 12.8 |
| NY | 6/89 | 1264 | 15 | 1.2 | 921 | 326 | 59 | 6.4 | 18.1 |
| NC | 6/89 | 1777 | 27 | 1.5 | 1023 | 447 | 14 | 1.4 | 3.1 |

It was hypothesized, based on the small numbers of changed records, that the impact on survey indications would also be small. However, to evaluate this expectation, list and area questionnaires in four States (Illinois, Montana, New York, and North Carolina) were edited and coded under the operator dominant concept and resummairized for comparison with the current procedure. The results are presented in Appendix C.

In general, the tables in Appendix C show changes to survey indications were small. The exceptions were traced to single area

tract records that changed overlap status between the current and proposed concepts. Outliers still exist under either procedure. Since changes in indications occurred in both directions, signifying variability rather than bias between procedures, differences should properly be evaluated relative to the sampling errors. All changes were below one standard error and most were less than one-half of one standard error.

Multiple frame coefficients of variation changed little between the two procedures. In several cases the CV increased slightly for the operator dominant estimate. Increases may have been partially due to applying the new concept to the existing list frame. Some gains should accrue by converting the list so control data used in stratification conform better to the sampling units to be selected under the operator dominant concept.

Given the minimal impact on survey indications, other effects related to survey activities needed to be investigated. These include list questionnaire coding differences, changes in the nonoverlap domain and the increase in multiple reports from selected operators.

Name Forms

There are three name forms currently maintained on the list frame. Individual names comprise about 70 percent of the list nationally, combinations of individual names (COINs) contribute 5 percent, and farms or ranch names are associated with 25 percent of all names on the list. Only the latter two types of names are affected by keying on names of operators under the operator dominant concept.

Combinations of individual names would be removed from the frame. One of the partners, the one normally contacted in a survey, would be retained as the sampling unit (target operator) and any other partners would be carried as inactive records cross-referenced to the sample operator.

A review of recent surveys in table 2 shows that COINs are coded as "out-of-scope" at about twice the rate of individual and operation names. Out-of-scope means that either the farming operation is out of business or the particular combination of partners no longer operate together.

Table 2: Percent of Records Out-of-Scope, 48 States

| Survey | Individual | COIN | Operation Name |
|-----------------|------------|-------|----------------|
| 1988 Dec. Ag. | 17.8% | 33.4% | 12.9% |
| 1989 June Ag. | 12.7% | 26.4% | 8.8% |
| 1989 July Labor | 13.0% | 23.0% | 13.0% |

Table 3 indicates that for the States studied, about half of the partnership sampling units represented on the list as COINs could have been "saved" as valid reporting units if the first operator in the combination had been the selected sampling unit. Although COINs comprise only a small percentage of the list, the current loss of one-fourth to one-third of these reports means they are inefficient as sampling units.

Table 3: Status of COIN Records Under Alternative Survey Procedures

| Description | State/Survey | | | | | | | |
|--|--------------|-------------|-------------|-------------|------------|------------|------------|------------|
| | IN 6/88 | ID 12/88 | SC 12/88 | WI 12/88 | IL 6/89 | MT 6/89 | NY 6/89 | NC 6/89 |
| Usable only under Operator Dominant 1/ | 16 | 9 | 9 | 19 | 20 | 6 | 1 | 8 |
| Out-of-Scope Both Procedures 2/ | 21 | 7 | 5 | 20 | 16 | 3 | 0 | 2 |

- 1/ Although partnership had changed from specified combination, the first (target) name was still operating land so the potential existed for obtaining a usable questionnaire.
- 2/ Land was no longer operated by either the combination of names or the target individual listed first among the partners.

Operation name forms may also be treated differently depending on the procedure used. One quarter of the list sampling units are now represented by farm or ranch names. Most of these have an individual name associated with the operation name on the mailing label. The operator dominant concept means the focus would shift to the name of the operator for multiple frame considerations rather than the name of the operation. Most of the time both names remained unchanged and data were unaffected.

Differences in the way list questionnaires are handled between the two procedures arise when one of the names changes. Currently the report is unaffected by a change of operators as long as the farm or ranch name is retained. This is particularly useful when a place is handed down through generations under a specific farm name. Operator dominant procedures focus on the operator's name so there is no effect when a farm is renamed. Table 4 shows the number of times each of the names changed in the States studied. There are "saves" and "losses" under either procedure.

Table 4: Status of Operation Name Records Under Alternative Survey Procedures

| Description | State/Ag Survey | | | | | | | |
|-------------------------------------|-----------------|-------------|-------------|-------------|------------|------------|------------|------------|
| | IN 6/88 | ID 12/88 | SC 12/88 | WI 12/88 | IL 6/89 | MT 6/89 | NY 6/89 | NC 6/89 |
| Usable Operator Dominant Only 1/ | 17 | 26 | 8 | 31 | 7 | 11 | 9 | 6 |
| Out-of-Scope Both Procedures 2/ | N/A | 9 | 1 | 0 | 11 | 1 | 9 | 2 |
| Usable Current Procedure Only 3/ | 11 | 4 | 6 | 9 | 9 | 16 | 12 | 9 |

- 1/ Operation name changed but operator did not change.
- 2/ Both the operation name and operator changed.
- 3/ Operation named unchanged but operator changed.

About 10 percent of operation names on the list are managed (2.5% of total list). No rule changes are contemplated for these operations because the corporate or organization name for the farm is deemed more likely to remain unchanged over a longer period than individual managers. However, the manager will also report for any individual or partnership operation associated with the manager's name.

Overlap Determination

The next topic of interest was the implications of procedural changes on the nonoverlap domain from the area frame. Names associated with area tracts are compared with the list to determine when land operating arrangements are represented by list sample units (overlap) and when they are not (nonoverlap). Currently, name forms are matched against a primary name field on the list. A farm name must be provided for an area tract report in order for it to be overlap if the list unit has a farm name. The operator dominant concept asks whether or not the operator's name is present among active records on the list frame.

Table 5 shows the numbers of area tracts whose overlap status changed with the application of operator dominant procedures. The earlier discussion of list questionnaire coding suggested fewer list sample units would be out-of-scope. Therefore, more area frame reports were expected to be overlap with the list under the operator dominant concept.

Table 5: Changes In Overlap Status From Current Procedure to Operator Dominant

| STATE | Current NOL Records | | Changed NOL to OL | | Changed OL to NOL | |
|----------------|---------------------|---|-------------------|------|-------------------|-----|
| | # | % | # | % | # | % |
| Indiana | 344 | | 27 | 7.8 | 9 | 2.6 |
| Illinois | 370 | | 30 | 8.1 | 6 | 1.6 |
| Montana | 219 | | 18 | 8.2 | 10 | 4.6 |
| New York | 326 | | 39 | 12.0 | 20 | 6.1 |
| North Carolina | 447 | | 14 | 3.1 | 0 | 0.0 |

Comparisons in table 6 show overlap percentages for specific estimates. Small increases in coverage by the list frame, ie. slightly larger overlap domain, generally resulted when using operator dominant procedures.

Table 6: List Coverage For Selected Items Under Alternative Procedures

| State | Farms % OVERLAP | | Cropland Ac. % OVERLAP | | Corn % OVERLAP | | Hogs % OVERLAP | |
|------------|-----------------|---------|------------------------|---------|----------------|---------|----------------|---------|
| | Curr. | Op.Dom. | Curr. | Op.Dom. | Curr. | Op.Dom. | Curr. | Op.Dom. |
| | % | % | % | % | % | % | % | % |
| Illinois | 60 | 62 | 85 | 86 | 87 | 87 | 87 | 86 |
| Montana | 48 | 49 | 82 | 82 | 89 | 93 | 87 | 87 |
| New York | 50 | 51 | 78 | 78 | 84 | 84 | 62 | 63 |
| N.Carolina | 40 | 41 | 76 | 77 | 78 | 79 | 93 | 93 |

Respondent Burden

The final consideration concerned the number of additional questionnaires required of respondents when using the proposed procedure. Those operators who have more than one operating arrangement must report each operation separately when their individual name is selected. Currently, for each operation name separately maintained on the list frame, only the unit selected needs to be reported. Individual names currently maintained on the list frame are requested to report for each operating unit in the same manner as required under the operator dominant concept. However, the incidence of multiple reports will increase under operator dominant procedures because nearly all of the list sample units will be selected as individual names.

Table 7 shows the increased number of multiple reports needed for the operator dominant concept. More list frame reports are usable from the selected list sample but some respondents had the added burden of completing more than one questionnaire.

Table 7: Additional Reports Required of List Sample Operators

| State | Survey | Usable List Records | Additional Multiple Reports | |
|-------------|--------|---------------------------|-----------------------------------|-----|
| | | # | # | % |
| Idaho | 12/88 | 1458 | 33 | 2.3 |
| S. Carolina | 12/88 | 945 | 5 | .5 |
| Wisconsin | 12/88 | 2216 | 8 | .4 |
| Illinois | 6/89 | 2341 | 11 | .5 |
| Montana | 6/89 | 1325 | 42 | 3.2 |
| New York | 6/89 | 1264 | 2 | .2 |
| N. Carolina | 6/89 | 1777 | 17 | 1.0 |

Respondent burden is an important consideration in the evaluation of alternative procedures. Length of questionnaire and number of additional questionnaires to be completed must be considered when determining what to request of a respondent. Agricultural surveys asking for inventory data are relatively brief and may not be too burdensome for a respondent to complete another questionnaire. However, in the few cases where more than two are needed, some special handling procedures should be implemented. The annual Farm Costs and Returns Survey questionnaire approaches thirty or more pages. Multiple questionnaires should not be required of any respondent in this case, even under the current survey procedures. Here, an alternative might be to subsample among two or more operations, selecting only one of the farms for the survey.

Because of concern over respondent burden, provisions have already been incorporated into the operator dominant procedures to allow operation names to override an individual operator name for selected multiple reporting unit situations. A record status (RS) code of 99 would permit an operation to be treated like a managed farm, with decisions based on farm name, instead of requiring the individual with several operations to report on all of them. This adds a degree of complexity to the basic operator dominant concept (see decision diagrams, Illustrations 2 and 4, where RS=99). However, the additional flexibility permits list managers to lessen respondent burden in necessary circumstances. Special rules will apply to designated exceptional cases while the general rules are simplified for the majority.

RECOMMENDATIONS

The operator dominant concept of list maintenance and sampling shows promise as a means to simplify multiple frame survey concepts used in NASS. In addition, slightly more data is derived from the more efficiently sampled list frame while the area frame nonoverlap domain contribution is diminished. Survey indications do not differ appreciably between the current and alternative procedures. It was therefore recommended that list and survey procedures be implemented using the operator dominant concept in nine States for a one year cycle of surveys. An operational evaluation is thereby accomplished on a limited basis before committing to further implementation.

A continuing concern is added response burden for individuals with multiple operating arrangements. While the number of target individuals that fall into this category is small, response burden should be minimized where possible. A special record status code has been created to override an individual operator's name with an operation name in those specific instances where it will decrease excessive burden on a given operator. A sub-sampling approach will be developed for FCRS and other surveys which require an extended amount of respondent time to complete a questionnaire.

List alteration costs are expected to total less than \$3,000 per SSO for resolution processing, training and review. SSO staff hours devoted to list conversion will vary depending on volume of resolution output. List conversion should be tested and initiated at least three months in advance of the spring classify cycle, allowing SSO staff necessary time to review system generated output and make desired changes. Once conversion is begun, SSO's should add all new source names as if operating under the operator dominant concept.

Separate training and survey instruction materials are needed for States utilizing operator dominant procedures. Provisions are also needed for evaluation of the alternative procedures. A partial list of potential criteria for evaluating the operator dominant results in the test States follows:

1. overlap percentages (farm numbers and commodity indications),
2. deadwood percentages and out of scope list sample percentages,
3. multiple operation percentages,
4. correlations between survey data and control data,
5. multiple frame estimates relative to area frame estimates,
6. pre- and post survey quality checks on list duplication and nonoverlap determination,

7. coefficients of variations on multiple frame estimates,
8. comparison of pages required in edit and interview manuals,
9. comparison of time required to teach each concept,
10. SSO evaluation of list maintenance activities,
11. SSO evaluation of survey activities,
12. SSO evaluation of editing and coding activities.

Following a thorough evaluation of the pros and cons associated with the current and proposed procedures, the Program Planning Committee will determine a course of action.

REFERENCES

- [1] National Agricultural Statistics Service. Agricultural Surveys Interviewer's Manual. U.S. Department of Agriculture, NASS, 1989.
- [2] National Agricultural Statistics Service. Enumerative and Agricultural Surveys Supervising and Editing Manual. U.S. Department of Agriculture, NASS, 1989.

APPENDIX A

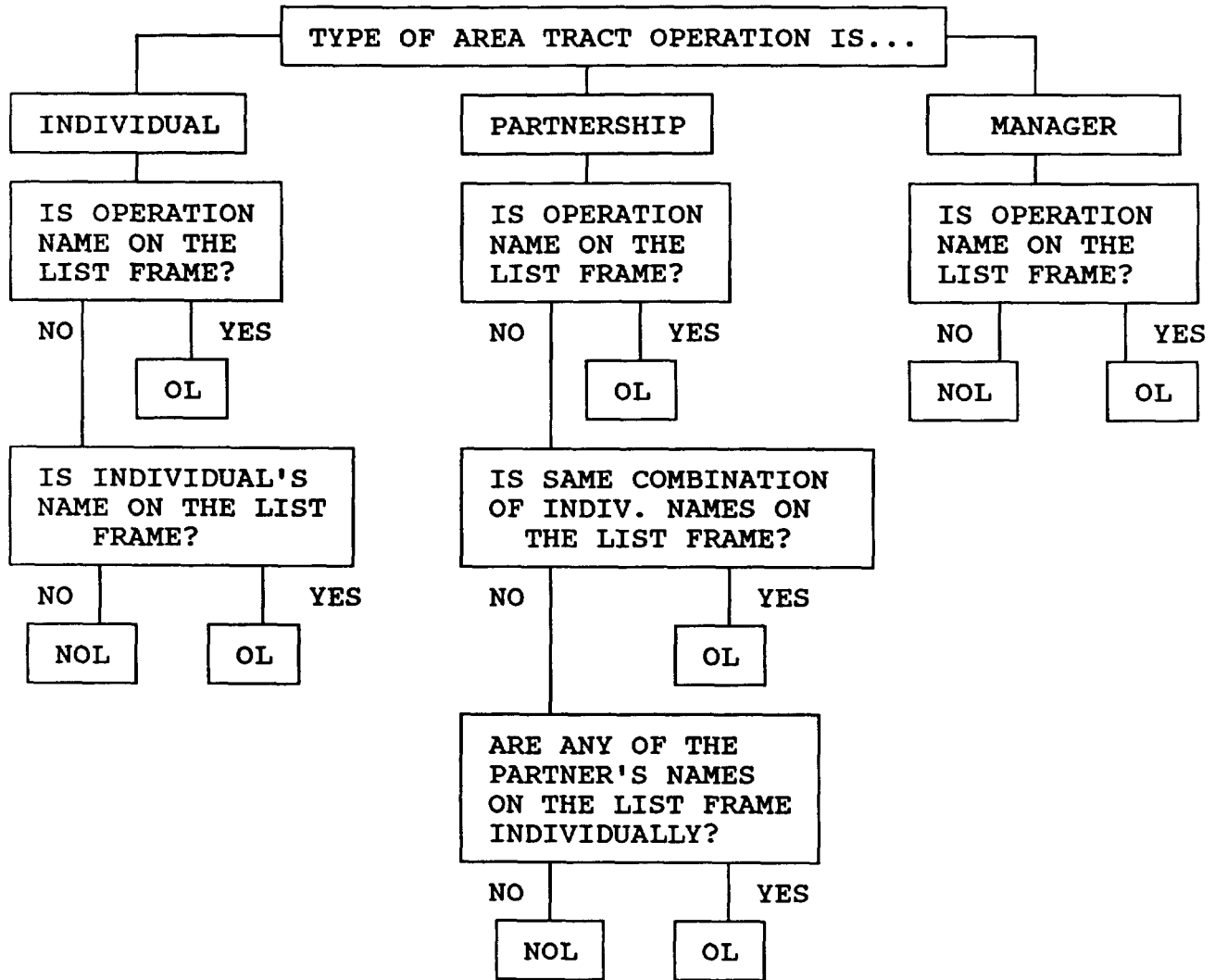
MULTIPLE FRAME SURVEY

DECISION DIAGRAMS

COMPARISONS OF CURRENT PROCEDURES
WITH THOSE UNDER
OPERATOR DOMINANT CONCEPT

ILLUSTRATION 3

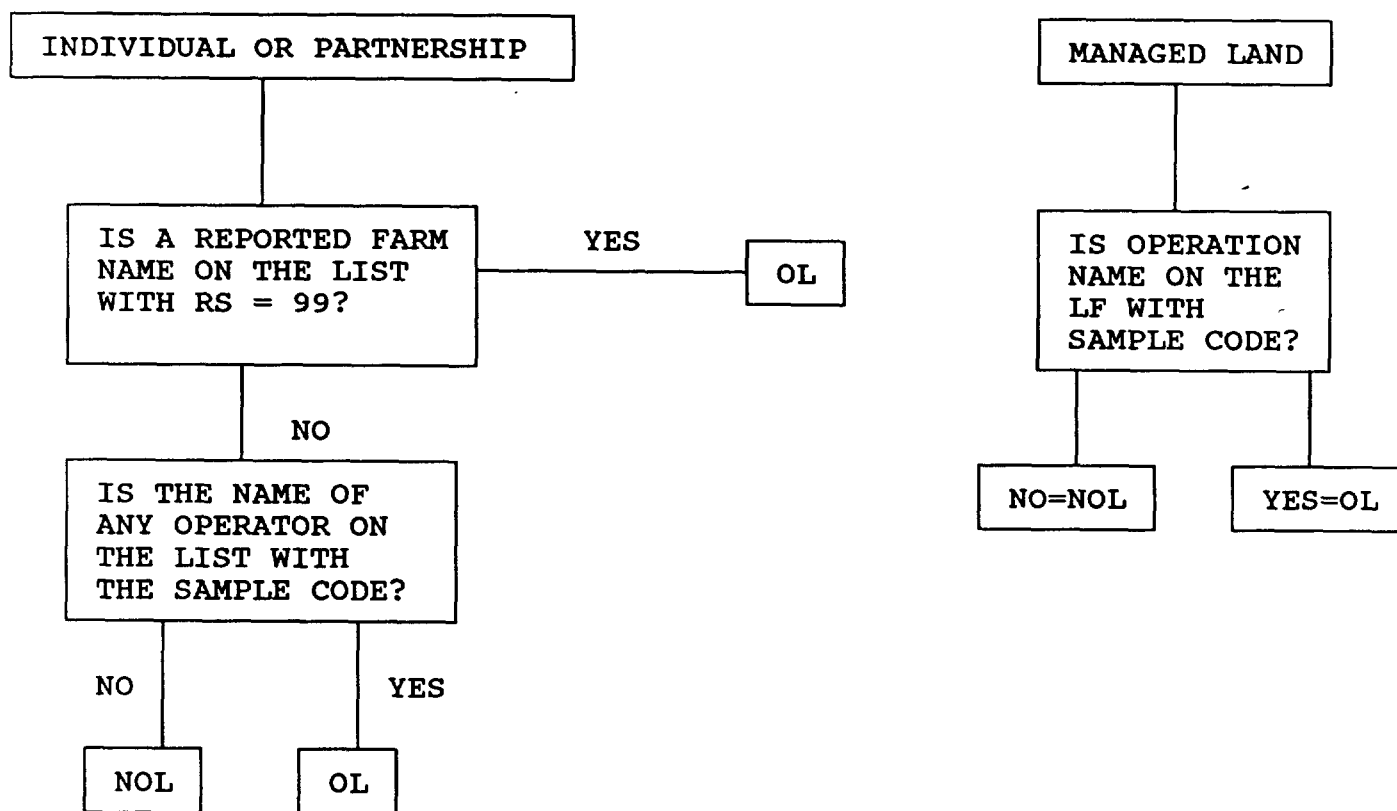
CURRENT AREA TRACT OL/NOL DECISION DIAGRAM*



* Abbreviated version for comparability with operator dominant version in Illustration 4. Complete current diagram may be found in Section 6 of the Agricultural Surveys Supervising and Editing Manual.

ILLUSTRATION 4
OPERATOR DOMINANT
AREA TRACT OL/NOL
DECISION DIAGRAM

TYPE OF OPERATION CHECKED IS?



APPENDIX B
SUMMARY COMPARISONS BETWEEN CURRENT
AND
OPERATOR DOMINANT PROCEDURES

Summary of Similarities and Differences
Between List Maintenance Procedures

| Current Procedure | | Operator Dominant Comparison |
|---|---|--|
| 1. Designation of a primary name field for the sampling unit. | o | Different (Sampling unit known regardless of location.) |
| 2. Generation and review of codes for sampling units to be checked against reporting units. | o | Different (Sampling unit codes no longer needed.) |
| 3. Separate records maintained for different operating arrangements. | o | Different (One record per operator except RS=99.) |
| 4. Partnerships maintained as active list records in combination name form. | o | Different. (Partners are inactive records cross referenced with target operator. Require separate record status code but may be changed at will without drop and add.) |
| 5. Addition of farm names to active records. | o | Same (Except the appearance on an exception report is no longer important unless managed.) |
| 6. Maintenance of farm names for managed operations. | o | Same |
| 7. Exception report review | o | Different (As long as the target operator is unchanged there is no action taken.) |

- 8. Drop/Add versus Change transactions
 - o Same concept, different application. (If operator changes - drop/add; all changes permissible to associated inactive, supplementary records.)

- 9. Specific changes to sample unit.
 - o Different (Separate units with different respondents under a common farm name may be separate active records under operator dominant.)

Summary of Similarities and Differences
Between Survey Concepts

| Current Concept | | Operator Dominant Comparison |
|---|------------------|---|
| 1. Individual names reporting for individual and partnership operating arrangements. (70% of current list) | o | Same |
| 2. Combinations of individual names reporting for that particular operating arrangement (5% of current list). | o | Different (no longer applicable.) |
| 3. Farm or ranch name data only for specified farm or ranch (25% of current list). | o o o o | Same if managed Same if RS=99. Same if it is the only operating arrangement. Different if farm name changes or operator has additional operating arrangements. |
| 4. Managed operations report <u>only</u> for farm name. | o | Different (Report is still provided for farm name but any individual or partnership land operated by the manager is also reported -- unless RS=99.) |
| 5. Determine whether respondent should report for other operations when selected unit was an individual. | o | Different (Will know to obtain reports for additional operations. In many cases will know in advance about additional operations. Special RS codes used.) |

- 6. Editing and coding decisions based on priority among name forms.
 - o Different (Either/or situation replaces priority decisions: if individual or partnership, then operator name is sampling unit; if managed or RS=99, then farm name.)
- 7. Overlap determination when no farm name is present on the list and not managed.
 - o Essentially the same, except COIN name forms no longer need to be checked.
- 8. Overlap determination when a farm name is present on the list but not managed.
 - o Different (Farm name has no priority status.)
- 9. Overlap determination for managed operations.
 - o Same

APPENDIX C

RESUMMARIZATION OF
JUNE 1989 SURVEY INDICATIONS
USING OPERATOR DOMINANT CONCEPTS

CHANGES FROM CURRENT TO OPERATOR DOMINANT ESTIMATES

| <u>State</u> | <u>Change in Est. (Percent)</u> | <u>Est./SE (Ratio)</u> | <u>C.V.'s</u> | |
|------------------------------|---|----------------------------|--------------------------|---------------------------|
| | | | <u>NOW (Percent)</u> | <u>O.D. (Percent)</u> |
| ITEM - Number of Farms | | | | |
| Illinois | -0.9 | .25 | 3.8 | 3.8 |
| Montana | -1.2 | .14 | 8.8 | 8.6 |
| New York | -2.5 | .56 | 4.5 | 4.4 |
| North Carolina | -0.6 | .12 | 5.1 | 5.1 |
| ITEM - Land in Farms | | | | |
| Illinois | -0.8 | .40 | 2.0 | 2.1 |
| Montana | +0.6 | .07 | 5.9 | 5.9 |
| New York | -0.8 | .22 | 3.8 | 3.8 |
| North Carolina | -0.9 | .27 | 3.5 | 3.6 |
| ITEM - Cropland Acres | | | | |
| Illinois | -0.3 | .16 | 1.7 | 1.8 |
| Montana | +0.7 | .27 | 2.7 | 2.8 |
| New York | +0.1 | .05 | 2.8 | 2.7 |
| North Carolina | -0.1 | .03 | 3.0 | 3.2 |
| ITEM - Corn Planted Acres | | | | |
| Illinois | +0.1 | .05 | 2.0 | 2.0 |
| Montana | -3.8 | .28 | 13.8 | 12.6 |
| New York | -0.2 | .04 | 3.6 | 3.5 |
| North Carolina | +0.6 | .06 | 5.6 | 5.8 |
| ITEM - Soybean Planted Acres | | | | |
| Illinois | -0.4 | .20 | 2.1 | 2.1 |
| North Carolina | +0.6 | .15 | 4.4 | 4.9 |
| ITEM - All Wheat Planted | | | | |
| Illinois | -0.8 | .20 | 3.8 | 3.9 |
| Montana | +2.6 | .73 | 3.6 | 3.6 |
| New York | +0.1 | .01 | 8.5 | 8.2 |
| North Carolina | +2.7 | .44 | 6.1 | 7.0 |
| ITEM - Oats Planted Acres | | | | |
| Illinois | +2.3 | .43 | 5.3 | 5.3 |
| Montana | -0.1 | .01 | 8.0 | 8.1 |
| New York | -1.9 | .30 | 6.4 | 6.9 |
| North Carolina | -0.7 | .07 | 10.5 | 10.5 |

| <u>State</u> | <u>Change in Est. (Percent)</u> | <u>Est./SE (Ratio)</u> | <u>C.V.'s</u> | |
|--------------------------------|---|----------------------------|--------------------------|---------------------------|
| | | | <u>NOW (Percent)</u> | <u>O.D. (Percent)</u> |
| ITEM - Barley Planted Acres | | | | |
| Montana | -4.2 | .84 | 5.0 | 4.6 |
| North Carolina | -5.6 | .29 | 19.4 | 20.2 |
| ITEM - Rye Planted Acres | | | | |
| Illinois | +3.1 | .14 | 22.4 | 21.9 |
| New York | -2.9 | .08 | 36.3 | 37.1 |
| North Carolina | -1.2 | .10 | 12.3 | 12.3 |
| ITEM - Dry Edible Beans | | | | |
| Montana | +0.1 | .00 | 37.6 | 37.5 |
| New York | +5.5 | .27 | 20.3 | 20.1 |
| ITEM - Alfalfa Hay | | | | |
| Illinois | -1.5 | .29 | 5.2 | 5.1 |
| Montana | -0.8 | .09 | 8.6 | 8.7 |
| New York | -0.4 | .09 | 4.4 | 4.3 |
| North Carolina | -32.8 | .91 | 36.0 | 16.4 |
| ITEM - Total Hogs and Pigs | | | | |
| Illinois | +2.0 | .32 | 6.2 | 6.4 |
| Montana | +0.3 | .04 | 9.1 | 9.1 |
| New York | -0.7 | .03 | 23.1 | 23.3 |
| North Carolina | +0.1 | .02 | 4.3 | 4.3 |
| ITEM - Pigs Born March-May | | | | |
| Illinois | +1.1 | .16 | 6.8 | 6.9 |
| Montana | 0.0 | -- | 12.8 | 12.8 |
| New York | 0.0 | -- | 25.2 | 25.2 |
| North Carolina | +0.2 | .03 | 4.8 | 4.7 |
| ITEM - Total Cattle and Calves | | | | |
| Illinois | -0.4 | .06 | 6.6 | 6.6 |
| Montana | +3.4 | .64 | 5.3 | 5.4 |
| New York | -2.7 | .73 | 3.7 | 3.9 |
| North Carolina | +0.1 | .01 | 10.4 | 10.4 |

| <u>State</u> | <u>Change in Est.</u> (Percent) | <u>Est./SE</u> (Ratio) | <u>C.V.'s</u> | |
|------------------|--|---------------------------|-------------------------|--------------------------|
| | | | <u>NOW</u> (Percent) | <u>O.D.</u> (Percent) |
| ITEM - Milk Cows | | | | |
| Illinois | -3.3 | .21 | 16.1 | 16.3 |
| Montana | +35.6 | .89 | 40.0 | 39.3 |
| New York | -2.0 | .48 | 4.2 | 4.5 |
| North Carolina | -0.9 | .03 | 30.7 | 31.0 |

| <u>State</u> | <u>Change in Est. (Percent)</u> | <u>Est./SE (Ratio)</u> | <u>C.V.'s</u> | |
|-----------------------------|---|----------------------------|--------------------------|---------------------------|
| | | | <u>NOW (Percent)</u> | <u>O.D. (Percent)</u> |
| ITEM - Farm Stocks Capacity | | | | |
| Illinois | -1.0 | .42 | 2.4 | 2.5 |
| Montana | -0.4 | .15 | 2.5 | 2.5 |
| New York | -1.2 | .14 | 8.4 | 8.4 |
| North Carolina | +0.6 | .10 | 6.1 | 7.1 |
| ITEM - Corn Farm Stocks | | | | |
| Illinois | +0.9 | .16 | 5.8 | 6.2 |
| Montana | -0.6 | .02 | 25.0 | 25.2 |
| New York | -4.4 | .45 | 9.8 | 9.8 |
| North Carolina | +0.2 | .02 | 10.1 | 10.0 |
| ITEM - Soybean Farm Stocks | | | | |
| Illinois | -0.2 | .03 | 6.9 | 6.9 |
| North Carolina | +2.7 | .20 | 13.4 | 13.0 |
| ITEM - All Wheat Stocks | | | | |
| Illinois | +0.7 | .02 | 34.9 | 34.7 |
| Montana | -2.7 | .42 | 5.7 | 5.5 |
| New York | -4.0 | .23 | 17.7 | 17.1 |
| North Carolina | 0.0 | .00 | 34.8 | 34.9 |
| ITEM - Oats Stocks | | | | |
| Illinois | +0.4 | .01 | 42.9 | 42.7 |
| Montana | +2.1 | .13 | 15.7 | 16.5 |
| New York | -10.9 | .61 | 17.8 | 19.3 |
| North Carolina | +10.6 | .51 | 20.5 | 20.2 |