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Background

Estimating

Current and Expected

Farm Employment

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UNITED STATES DEPARTMENT OF LABOR

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BUREAU OF EMPLOYMENT SECURITY

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Washington 25, D. C.

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Contents

Introduction

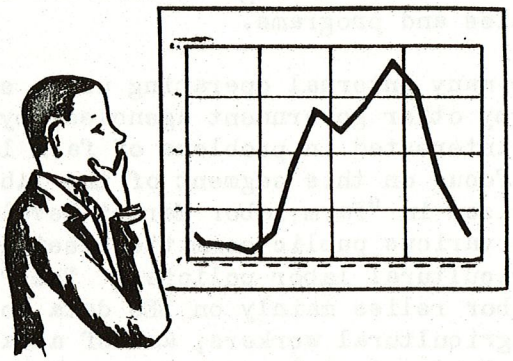
Farm labor reports prepared by State agencies affiliated with the Bureau of Employment Security have many important uses in the operation of farm labor recruitment and placement programs. They are used within States for planning the full utilization of labor resources, for providing labor market information to workers and employers, and for matching areas of shortages and surpluses of seasonal farm workers. The reports are also useful in planning interstate clearance of workers, in arranging for the importation of foreign workers where necessary, in determining the prevailing wages in areas where foreign workers are employed, and in developing national policies and programs.

In addition to the many internal operating uses, some BES seasonal farm labor data are used by other government agencies, by private organizations, and by persons interested in problems of farm labor. No other data are available which focus on this segment of the labor force. In-season reports are summarized in "Farm Labor Market Developments," which is sent to members of the various public committees set up to advise the Secretary of Labor on agricultural labor policies. The President's Committee on Migratory Labor relies mainly on BES data for estimates of the number of migratory agricultural workers, and of areas and crops of concentrated employment. Currently intensified consideration of the problems of distressed rural areas points to wider interest in BES farm employment figures.

With the increasing use and importance of BES farm labor reports comes a responsibility to work toward improving the technical quality of the data. The Bureau and State affiliated agencies have long been aware of the need for devising better methods for collecting, organizing, and interpreting farm employment figures. Much progress has been made in overcoming the difficulties arising from the relative newness of the reports and the complexities of the farm labor market. In order to assist in improving farm labor market data, a National Farm Reporting Work Conference, attended by Bureau and State agency personnel, was held in December 1954. This group approved a Bureau recommendation that State agencies should be asked for a one-time statement explaining methods used in arriving at estimates for farm labor reports. Accordingly, the Bureau asked State agencies in April 1955 to describe techniques used for

estimating current and expected seasonal farm employment on farm labor reports and any plans for improving them. The information submitted was to be used in three ways: (a) to get a better understanding of the basis of the employment figures, (b) to develop recommended standards and methods for gathering and organizing data, and (c) to facilitate an exchange of improved estimating techniques among States.

The present report is a review of the methods described by State agencies in their replies to that letter. The following summary contains some of the highlights.



Summary

1. Because of the diversified conditions of farm labor markets, a wide variety of methods of estimating both current and expected employment is used. Frequently a combination of methods is used in a single local office area.

2. Estimates of current employment (ES-223) are based on informal sampling and informed judgment in most local offices. Sources of data include local office records, and growers, crew leaders, workers, and nonfarm specialists who are considered to be representative, well informed, or easily available in the course of employment service operations. To arrive at area totals, sample employment data may be inflated in the proportion that the sample bears to the total in acreage, production, or some other characteristic, or the sample data may be used to adjust benchmark estimates derived from secondary sources, preseason contacts, or prior years' experience. For at least some crops or areas in 19 States, current employment data are collected from all employers and/or workers. This complete coverage is most often attained where seasonal hired farm employment is limited to a relatively small, homogeneous area or to relatively few employers; where processors or grower associations recruit farm labor; where farm workers are centrally housed in a few camps; or where local offices are responsible for recruiting and placing substantially all temporary hired workers. Virtually complete coverage of foreign worker employment is attained in all States, making this item the most accurate of all reported information.

   Nine States reported the use of the "man-day requirements method," in which labor productivity data are applied to the volume of crop production on each report date to derive employment figures. Only one State relies primarily on probability sampling.

3. The principal method for estimating the expected employment of domestic seasonal workers (ES-229) is the use of the preceding year's employment experience as a base. Adjustments are made informally, taking into account changes in nonfarm employment conditions and crop production. In some cases, growers and workers are consulted about the future availability of labor. Office records and preseason farm meetings are used in some areas as a basis for adjustments.

Growers are an important direct source of information about the expected availability of interstate migrant workers, particularly in areas where recruitment is done by a few large processors or grower associations. In most cases, however, office records and information from supply States are used in combination with estimates provided by growers. Other, less prevalent, methods of predicting seasonal farm labor are those based on the occupancy of available migratory worker housing and on contacts with crew leaders.

4. Most State agencies consider present reporting methods adequate in the light of their farm labor market situations. However, continued efforts to improve procedures are reported. Systematic methods of collecting data based on probability samples are beginning to emerge. Louisiana places its chief reliance for employment data on this method. Washington is experimenting with the use of random sample methods in some areas. Georgia and Tennessee are using interview surveys as a partial method of estimating expected employment, and Wisconsin and Minnesota are mailing postcard questionnaires to prospective farm workers. Efforts to improve on factors useful in estimating employment were reported, and some State agencies now send production and employment data to local offices for use in the preparation of local reports. Florida is experimenting with a method of estimating migratory worker employment based on an inventory of available housing. Texas is using data obtained in prevailing wage surveys to shore up expected employment estimates.

5. Technical development should perhaps be concentrated on (a) the extension of systematic sampling and data collection techniques, (b) the clarification of reporting concepts, (c) the development of handbooks particularly adapted to the needs of local office personnel, (d) the introduction of statistical controls, (e) the further use of operating reports as a basis for farm employment estimates, and (f) the simplification of reporting instructions.

Estimating Current Farm Employment

In connection with their responsibilities for recruiting and placing seasonal hired farm workers, the Bureau of Employment Security and its affiliated State agencies must have available up-to-date factual information on farm employment and farm labor market conditions. For this reason, State agencies submit to the Bureau semimonthly farm labor reports (ES-223) for areas of significant seasonal farm employment 1/.

A variety of methods has been developed by the State agencies to estimate seasonal hired farm employment and related items covered by the in-season farm labor report. The Bureau in its request of April 1955 asked State agencies to describe their procedures for deriving the following report items:

1. Current employment of seasonal hired workers by crop activity;
2. Current employment of foreign workers;
3. Employment by source of worker;
4. Labor shortages by crop activity;
5. Labor surpluses.

In addition, the Bureau asked the State agencies about their methods of compiling agricultural reporting area reports from local office reports. The State agencies were asked to evaluate their techniques, to describe recent methodological tests and experiments, to cite any plans for improvement, and to suggest ways in which the Bureau might assist with farm labor reporting problems.

1/ Reports are required for each agricultural reporting area in which 500 or more seasonal hired workers or any foreign farm workers are employed, or in which significant shortages of farm workers or surpluses available for other areas exist.

In all States, initial estimates are made at the local office level. Since estimating procedures often vary from local office to local office within a State, many State agencies reported more than one procedure for deriving the required farm labor information.

An overall view of the estimating methods in use indicates that:

1. The substantial differences in farm labor market conditions from area to area and the preparation of initial estimates at the local office level have resulted in a good deal of procedural variation within each State, as well as among the States. Local offices have tended to adopt the methods most suited to their own farm labor situations.

2. There is a close relation between the penetration of employment service operating functions and the accuracy of farm labor reports. At the extreme end of the accuracy scale, those local offices which recruit and place all seasonal hired farm workers in their areas are in the best position to report the number of such workers employed and their origin, labor shortages and surpluses, and other required items. Similarly, local offices which are in frequent contact with all farm employers are in the best position to develop data on employment levels and prospects, the status of farm activities, and conditions affecting the employment picture.

3. Employment estimates tend to be most exact in local offices serving areas in which seasonal hired farm employment is limited to a relatively small, homogeneous territory, or to relatively few growers and crops, or is handled by grower associations or food processing firms. In such areas, reported employment often approaches the accuracy of a complete count.

4. Estimates in a majority of the local offices are prepared by a procedure which may be termed "informal sampling and informed judgment." Under this procedure data are collected from a variety of sources selected by the judgment of local personnel. Area-wide totals are derived by using the data to adjust benchmark figures or "inflating" the data on the basis of local office knowledge and experience. Nine States reported that at least some of their local offices estimate employment by applying labor productivity data to production totals. Only one State places primary reliance on probability sampling procedures.

5. Regardless of the particular estimating methods used, a great deal of reliance is placed on the experience and judgment of local office personnel at crucial stages of the estimating

process. They are responsible for data collection, including selection of sources of data. They are also relied upon for adjustment of the collected data. For example, to arrive at labor shortages, unfilled employer orders must be adjusted to represent the minimum number of workers needed to prevent crop loss. Continuously collected employment data must be adjusted to the employment as of a single report day. Local officials are responsible for organizing and computing data collected from several diverse sources to derive area-wide totals. Finally, they are called upon to prepare forecasts of future conditions, such as expected shortages and surpluses.

Seasonal Hired Employment by Crop Activity

Seasonal hired farm workers are defined in the Employment Security Manual as those hired by an individual employer for less than 150 consecutive calendar days. The measurement of farm employment is complicated by the nature of the farm labor market. One problem encountered is the dispersal of farm workers in many small employment units over a wide geographic area. Major year-to-year changes in crop acreage, production, and mechanization and the sharp day-to-day fluctuations in employment caused by changing crop, weather, and market conditions make employment estimating particularly hazardous. The short durations of seasons for most crop activities result in drawing on a labor supply that is hard to estimate. It includes migrant workers, housewives, students, and unemployed nonagricultural workers temporarily attached to the farm work force. Difficulties are attributed to the overlapping seasons of crop activities for a single crop and the difficulty of distinguishing employment by crop activity for multicrop employers. States also have a problem of trying to distinguish and separate work done by seasonal farm workers from that done by regular hired workers, unpaid family workers, and the farm operators, particularly in areas where farm operators may hire themselves out as seasonal workers on other farms. Finally, the lack of reliable, up-to-date benchmark establishment and employment data is a problem in most areas.

The methods developed by the States to estimate seasonal hired employment are designed in the light of the preceding problems.

A. Complete coverage of all employers and/or workers

The most accurate way of determining total employment by crop activity is, of course, a complete count by contacting every farm employer and/or worker in the agricultural reporting area during each semimonthly report period. Nineteen States have found this

approach feasible for certain crops and areas, by means of the following techniques:

1. Where a crop is grown within a relatively small area, or relatively few growers account for the bulk of employment in the crop, some local offices contact all farms. Seven States employ this method in some areas or for some crops. In most instances, employers are visited or are telephoned at their farms, or are contacted at the local office or at farm association meetings. One State (Oklahoma) indicated that strawberry, spinach, and other vegetable growers who employ seasonal hired labor are contacted at marketing points or receiving stations. These crops are marketed daily at only a few places, and are grown in a relatively small area by a small number of growers.

   It may seem possible by use of mail questionnaires to extend this direct contact method to larger, more diversified areas. However, only one State, North Dakota, places chief reliance in mail surveys, and only on a one-time pre-season basis. (Questionnaires are sent to all growers reported by township officials as employing seasonal workers. Only 60 to 75 percent of the growers have been returning their questionnaires. The returns are adjusted to account for non-respondents.) Several State agencies reported that the low rate of response to mail questionnaires has led to discontinuance of their use.

2. Some local offices are able to count farm workers indirectly. A count of the number housed in camps or other facilities is an example of this procedure. The number of machines at work may also serve as a basis for indirect employee counts. For example, if a local office knows how many small grain combines or pea-vining stations are in operation and knows the number of workers usually associated with each machine, it can estimate employment figures for the pea and small grain harvests.

3. In several areas, all or almost all the growers of specified crops are members of associations which are in a position to report current employment data. For example, one State (Connecticut) gathers its tobacco employment in this manner.

4. Many food processing companies handle labor recruitment for the growers with whom they have contracts. The field men of these processors are, therefore, a good source of current employment data for the crops involved. Six north central States reported primary reliance on this method of data collection for sugar beets and various vegetables for canning.

5. For some crops and areas, local offices recruit all the seasonal hired workers required. In such instances, they have practically an exact count of employment. Four States use this technique for specified crops and areas where individual and crew placements or day-haul programs covered the employment universe.

B. Estimating by sampling employers, workers and other sources

The great majority of the States have not been able to achieve 100-percent employer-worker coverage. Most States have relied on contacts with only a portion of all farm employers and workers, supplemented by information from a variety of other sources. To derive employment estimates covering entire local office or agricultural reporting areas, the collected sample data are used to adjust benchmark information, are arithmetically "inflated," or are informally adjusted in the light of the experience of local office personnel. The two types of sampling procedures reported may be termed probability sampling and informal sampling and informed judgment.

1. Probability sampling. Next to a complete survey of all employers or workers, probability sampling is considered the most reliable method of obtaining employment data. It consists of the following steps:

a. Drawing a sample of farms or other units from a larger group of units being surveyed (called the universe) in such a way that each unit in the universe has a known probability of being included in the sample;

b. Obtaining the desired data for the units in the sample; e.g., contacting all sample farms for employment information; and

c. Estimating the characteristics of the entire universe on the basis of the information obtained for the sample units. This estimate is achieved by "inflating" the sample data in the proportion that the sample bears to the universe in some appropriate characteristic, such as acreage, production, or number of farms. In the simplest case, for example, where a sample of five farms has been drawn from a universe of 10 very similar farms under study, universe employment may be estimated as twice the employment on the sample farms. Under some circumstances, such as where the units in the universe to be sampled differ widely, they may be divided into sub-universes within each of which the units are similar with respect to some relevant characteristic. This process is termed "stratification" and is followed by the drawing of separate samples from each "stratum."

The farms or other units selected by probability sampling are likely to be more representative of the universe than are units selected for survey by other means. In addition, statistical means are available for determining the probable degree of error in estimates made on a probability sampling basis. Another advantage of this method is that it can be used not only to obtain data on current employment, but also simultaneously on the origin of workers, wages, earnings, crop, market and weather conditions, grower plans, stage and progress of crop activities, and other pertinent items.

Notwithstanding these advantages, only one State, Louisiana, relies chiefly on probability sampling. Factors deterring other States from using this method include unavailability of universe lists from which to draw samples, heterogeneity of farm activities necessitating very large samples, and the cost of setting up samples and contacting the sample units.

Louisiana obtains complete lists from the U. S. Agricultural Stabilization and Conservation Committees of farms with crops under acreage controls and lists from grower associations of farms with other crops. After the small farms not requiring seasonal hired workers are eliminated, the remaining farms are arrayed by size and are divided into three strata of approximately equal employment. In the past, the same proportion of sample farms (varying by area and crop from five to twenty percent) has been drawn from each size-of-farm stratum, but the State agency is considering the varying of these sample proportions. Farms are selected at random from the strata, but care is taken to cover all geographic locations in the reporting area. A new sample of farms is drawn and contacted semimonthly. To derive universe totals, the collected employment data are weighted in the proportion that the number of the sample farms bears to the total number of farms in the stratum. Costs are held down by coordinating the contacts with the regular employer visiting program, and by using the sampling contacts as a means for obtaining, in addition to employment information, the other data required for farm labor reports and operations. Detailed manual instructions guide the local offices in their sampling procedure 1/.

1/ For a description of Louisiana's procedures, see "Estimating Seasonal Farm Employment," by Harry J. Dressel III, Employment Security Review, March 1955, page 12.

2. Informal sampling and informed judgment. Thirty-seven States included at least some local office areas using what may be called an informal sampling and informed judgment method to determine employment in some or all crop activities. Under this method, the sources of information are not chosen by probability sampling, and they do not cover the entire employer-worker universe. Instead, the sources may be chosen because they are believed by local office personnel to be representative of some kinds of farmers, workers, or crew leaders, or because they are known to account for or have broad knowledge of employment in some crop or area, or because they are easily available to local office personnel in the course of normal operations. The sources of information may be numerous or may be limited to a single type of informant. Some sources may provide very specific information, but for only a segment of the seasonal work force, e.g., interstate migrants, or foreign workers. Others may merely provide informed opinions on the general employment situation.

The sources tapped by States using informal sampling and informed judgment include some combination of the following:

a. Growers (local offices variously select the largest employers, or those using local office facilities, or those believed to be representative, or those easily contacted at central points, such as gins and association meetings, or those included in a regular employer visiting program.)

b. Food processors

c. Employer associations

d. Camps for housing workers

e. Employees

f. Crew leaders

g. Informed nonfarm contacts (for example, local farm machinery and fertilizer dealers, bankers, ministers in labor supply areas, school officials, county agents, and local office personnel themselves)

h. Employment service operations and records (including observation of day-haul points, individual placements, employer orders, clearance and other migratory labor employment

records, data from volunteer farm placement representatives, data gathered incidentally in the domestic in-season wage finding program required where Mexican nationals are employed, and information stations maintained along migratory routes) 1/.

One or both of two basic types of information are collected by informal sampling: general opinions on employment and related items covering an entire area, crop, or category of worker, and data referring to specific farms or workers. Data consisting of opinions by informed persons, covering entire areas, crops, or categories of workers, are usually averaged informally and are adjusted in accordance with the judgment of local office personnel to arrive at total area and crop activity employment. Data referring to specific farms or workers are usually "inflated" arithmetically to arrive at employment estimates. Local offices of the 14 States using this procedure first determine the acreage of each crop from county agents, Agricultural Stabilization and Conservation Committees, State agricultural college surveys, State departments of agriculture, the Census of Agriculture, and other sources. At semimonthly intervals during the season the local staff contacts a group of growers believed to constitute a cross-section of area employers. The crop activity employment figures obtained from this informal sample are then "inflated" in the proportion that the acreage of the sample farms bears to total acreage.

1/ Three of the methods tested in the experimental survey of the Baldwin County, Alabama, potato harvest (Estimating the Need and Supply of Hired Seasonal Farm Workers, Baldwin County, Alabama, Bureau of Employment Security, April 1955) were of the informal sampling and judgment type. The methods were:

a. Informed-person method, in which a group of nonfarm informants, including State agricultural officials, implement dealers, seed dealers, and bankers, provided opinions and data pertaining to the entire potato area.

b. Informed-farmer method, in which leading potato farmers--reputed to be reliable sources of information on the county as a whole--were questioned for data on the entire potato area.

c. Cross-section farmer method, in which a group of potato farms--deemed by local office personnel to be of representative size and geographic location--were contacted for data pertaining to their own operations.

Several other ways of handling information gathered by informal sampling were reported:

a. Local offices in several States obtain benchmark data by pre-season contacts with all or almost all farm employers in their jurisdiction. Information on growers' plans and forecasts of crop acreage, crop activity time tables, expected employment, and related items collected in these contacts are adjusted as the season progresses by current data obtained via informal sampling in order to determine employment in any specific reporting period.

b. In eight States, informal sample data are used to adjust employment totals of previous years. If the data for past periods are accurate, current information from the sample on changes in crop, market and weather conditions, yield, acreage, labor supply, and other factors can be applied to such benchmark figures to derive current employment levels.

c. One State, Washington, reported the use of special in-season systematic sampling surveys of growers to obtain benchmark data on employment, source of workers, and related items. The collected information furnishes base figures which can be adjusted currently by figures obtained through informal sampling.

d. For a few crops and areas, local office placements are estimated to equal half of total seasonal hired farm employment. These placements are simply doubled to derive the full employment figure. This method of course is very questionable unless there is some good reason to believe that local office placements are invariably equal to one-half of the total employment.

e. Finally, local offices in about one-fourth of the States indicated that they adjust the informal sample data to derive area totals by reliance on the judgment and experience of their managers or farm placement personnel. These individuals may use some of the preceding methods as a basis for their informed judgments.

C. Man-day requirements method 1/

At least some local offices in nine States employ the man-day requirements method for estimating total seasonal hired employment. (Less refined approximations of this method are also used in several

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1/ This method was termed the "secondary-source method" in the report on the Baldwin County survey cited above.

States.) In this procedure, the volume of production or acreage handled on the report day and the average daily output of workers are ascertained for each crop activity. Dividing production by daily output per worker provides an estimate of employment.

Five basic types of data are required for this method:

1. Crop acreage is usually obtained from Agricultural Stabilization and Conservation Committees, county agents, State departments of agriculture, employer associations, processors, the Census of Agriculture, and similar sources.

2. Crop yields per acre are variously obtained from the above sources, from State agricultural college studies, from informal sampling of employers and workers in the local office area, from the experience of previous years, and, incidentally, as a by-product of surveys for the Domestic Agricultural In-Season Wage Reporting Program (ES-232).

3. Productivity data are obtained from the sources mentioned in 2 above, and are expressed in terms of acres or units of production per man-hour or man-day of specified length.

4. Daily production is obtained directly or indirectly. Direct sources mentioned include processors, records of daily shipments, and employer associations. One State (Arizona), for example, obtains cotton production figures from ginning records, and another (Texas) obtains figures on the vegetable and citrus fruit shipments of certain districts from the U.S. Agricultural Marketing Service. Indirect calculation of production data is based on acreage and yield figures combined with an estimate of the amount or proportion of total acreage handled on the report day. The number of acres handled, multiplied by the yield per acre, provides an estimate of the report day's production.

5. The average number of hours put in by each worker on the report day is usually obtained by informal sampling of employers and workers, and from the experience of local office personnel.

To arrive at total employment on the report day, local offices employing the man-day requirements method divide the day's production (or acreage handled, where applicable, as in crop cultivation and the small grain harvest), by the number of man-hours or man-days of specified length required. If man-hour figures are used, the total number of man-hours required is divided again by the average number of hours worked on the report day to derive employment as of that date.

Allowances are made for different outputs per man-hour in machine and hand work. If a crop activity is performed partly by hand and partly by machine at different stages, the productivity data must be adjusted accordingly.

Where data necessary for this method are available, they can yield reasonably accurate results. To some extent, basic data, such as acreage, productivity, yield, and crop activity employment schedules, are similar to those required for preparation of the ES-229 report (Validation of Foreign Worker Needs in Seasonal Agricultural Activities), and are therefore available for in-season reports in areas covered by ES-229's.

However, some States using the man-day requirements procedure reported difficulty in obtaining exact basic data. In some cases, for example, the available yield, productivity, and acreage figures were out of date, or they required adjustment for current crop or market conditions, or they made no allowance for area differences. Productivity data based on adult employees were found inapplicable to areas in which a high proportion of the work force consisted of youths. Labor productivity and utilization of farm machinery may vary at different stages of a single crop activity, requiring careful evaluation of such data. Reliance on informal sampling to ascertain productivity, yield, proportion of acreage handled in one day, length of the workday, etc., raises the possibility that data collected in this way may not always be representative of the area-wide situation. These difficulties are aggravated by the fact that even a small error in basic information, such as average hours worked on the report day or productivity, will seriously affect the employment estimate.

D. Pre-season preparatory work

Regardless of estimating method used, many State agencies reported the pre-season preparation of crop activity and employment timetables, data on employment in previous seasons, and estimates of acreage, production, labor supply, and productivity. These data are not only used for benchmark or checking purposes in preparing in-season reports, but also serve as guides for recruiting programs and for arranging jobs in other areas for expected surpluses of farm workers.

Separation of Regular Farm Workers From Seasonal Hired Workers

In order to estimate seasonal hired farm employment, it is necessary to exclude regular hired workers from the gross hired employment figures obtained by the methods outlined above. Seasonal hired workers are defined by the reporting instructions as "those hired or assigned to work on any one

farm or establishment for fewer than 150 consecutive calendar days." (Foreign workers are always reported as seasonal even if they are hired for a longer period.) This 150-day distinction between seasonal and regular workers is similar to the Census of Agriculture definition.

Various methods of determining the number of regular workers and of excluding them from reported seasonal hired employment by crop activity were cited by the States. Some States used more than one procedure, while 10 did not specify the procedures in use with sufficient clarity for inclusion in the analysis.

1. Seventeen States reported that a distinction between regular and seasonal workers was made, at least by some local offices, on the basis of crop activity involved. Certain crop activities were known to include only workers of one or the other type, and employment was recorded accordingly.

2. Eight States reported that local offices determine the number of regular workers by using Census of Agriculture data adjusted for recent changes in acreage, mechanization, and farming and employment practices by means of informal sampling or local office experience. The regular worker figure is then subtracted from total employment to derive the seasonal hired component. Probably other States also refer to the Census as a check on estimates made by different means.

3. Ten States reported the use of informal sampling to find the number of regular workers in specified crop activities. From data furnished by the sampled sources, the proportion of the work force constituted by regular workers is determined. This proportion is then subtracted from crop activity employment totals to arrive at the number of seasonal hired workers.

4. Seven States reported that some local offices obtain the full number of regular workers directly by contact with employers. The local offices involved are able to contact practically all employers at least once before or during the season, and they ascertain the number of regular workers and their activities in this direct way.

5. Six States specifically mentioned local office employer records, employer orders, and placements as the chief sources, in at least some areas, of information on the number of regular farm workers and employment practices with respect to such workers. This procedure is most successful where the local office accounts

for the bulk of farm labor recruitment, or has good records on practically all employers in the area.

6. Several other bases for distinguishing and counting regular workers were described by a few States. Some local offices in one State (Texas) determine the utilization of farm machines and thereby derive regular worker employment on the assumption that machine operators are primarily regular employees. Another State (West Virginia) also finds that regular workers are distinguished by occupation, filling supervisory, truck driver, and packing-shed jobs. Two States (Iowa and Nebraska) reported a method-of-payment criterion, since regular workers are most often paid by the month or week while seasonal hired hands are usually paid on hourly or piece rates. Knowledge of the origin of farm workers helps in their classification as regulars or seasonals. Foreign workers are always reported as seasonals, while interstate and intrastate migrants are usually in that category.

A few States reported that they encountered serious problems in separating seasonal from regular employment. One State which estimates cotton employment by the man-day requirements method described above cited difficulty in separating regular hired workers, share croppers, and family workers from the total employment estimate. In another State, seasonal activities are believed to extend past the 150-day criterion period. This State thinks that the criterion should be changed so as to simply distinguish between year-round workers and all others. A third State does not separate regular farm workers from seasonal hired workers in reporting employment by crop activity, although area-wide totals which are limited to seasonal hired employment, with no activity breakdown, are provided.

Relating Figures to the "Last Normal Workday" of the Reporting Period

In order for employment estimates to be meaningful, they should relate to a specific date. Such a date cannot be set in advance uniformly for all areas in the farm reporting program because variations in market or weather conditions may render the pre-selected base date completely atypical. Consequently, the reporting instructions tie each reporting area's farm employment estimates to the "last normal workday" of each semimonthly reporting period in that area.

The necessity of relating employment estimates to the "last normal workday" creates two basic problems: (1) how to select the workday considered as the last normal one, and (2) how to adjust data collected over a period of several days, or derived from secondary sources, to arrive at a figure applicable to the single report day.

More than one-third of the States did not provide enough information to be included in the summary of replies on this point. Local offices in most States replying to this item select the "last normal workday" on the basis of their general knowledge of the farm labor situation, aided by elementary rules, such as avoidance of weekends, holidays, or the days following them, and days affected by bad weather conditions. Some offices in a few States have access to complete employment data on a daily basis, facilitating the choice of a normal report date. One State (New Jersey) reported the use of the last day of the report period on which normal market outlets are operating, since growers of some crops stop harvesting on days when these markets are closed.

Three basic ways of adjusting collected employment data to a report day basis were indicated: (1) Local offices in some States collect data on the very day covered by the report. Many of these offices make use of a small number of sources which cover the entire employer-worker universe and which can be contacted within a single day. Other offices take several days to collect data in each period, but request informants to furnish data relating to only the selected report day, as in Louisiana. (2) Some States reported that data referring to the date of contact are collected during several days toward the close of the reporting period. The figures are adjusted to derive the total for a single day's report by informal averaging or judgment. (3) Finally, a number of States reported that data collection is a continuous process, often associated with regular operations. A total for the single report date is typically derived by reliance on the judgment and experience of local office personnel.

Several States reported difficulties in applying the "last normal workday" criterion. One State, for example, pointed out that different localities in large agricultural reporting areas may not share the same "last normal workday," that accurate determination requires availability of data for each day near the close of the report period in order to find the normal one, and that a final determination cannot be made until the day reports are scheduled to leave the reporting office, thus creating timing complications. Another noted that a single day may be normal for one crop but not for another in the same area. This State chooses a day considered normal for the area's major crop.

Four States reported deviations from the last normal workday criterion. For all activities in one State and for the wheat and hay harvest in another, reported employment is the peak or average for the whole semimonthly report period, respectively. Two States report data relating to the peak day of the last week of the report period, rather than to the "last normal workday."

Current Employment of Foreign Workers

Of all the in-season farm labor report items, current employment of foreign workers has proved the least difficult to compute. The reasons for the relative simplicity of this computation include (1) the operating role of local and State offices in the contracting of foreign workers, (2) the frequency with which employment of foreign workers is arranged by grower associations, food processors, or only a few growers in each local office area, and often, (3) the centralized housing of foreign workers.

Most States reported complete or partial reliance on State or local office records in determining the number of foreign workers employed. These records develop in the course of normal operations as employers' desiring foreign workers file orders with their local office, local offices place such orders into statewide clearance, State offices approve requests for foreign workers, local offices authorize contracting of foreigners, reception centers notify local offices as to contracting dates, and local offices are involved in the termination of foreign worker contracts. Some States indicated that their records are kept up to date by supplementary employer contacts covering "skips" and terminations.

Local offices in a number of States determine current employment of foreign workers by contact with grower associations (4 States), processors (6 States), or farmers (15 States). In the typical case, associations and processors arrange for foreign worker employment, or such workers are used by only few growers in the area. California receives a semimonthly report from employers of Mexican nationals. This form, entitled "Employment Report of Mexican National Employment and Location," indicates the number of Mexicans currently employed and the expected intercounty movements of the Mexicans within 2 weeks from the report date.

In at least some local offices of four States, foreign workers are housed in specific camps, thus permitting a complete count as of the report date. (A form developed by one of the State agencies--Virginia--to determine employment by crop activity from camp data may be of interest to other States deriving foreign employment information in this manner.)

A breakdown of foreign worker employment by crop activity is usually derived directly from the sources of employment noted above. For a few States, the process is simplified by the fact that foreign workers are used for only a single crop. Several States reported that the crop activities engaging foreign workers are determined to some extent by informal sampling of employers or by the general knowledge of farm placement personnel.

Employment by Source of Worker

The in-season farm labor report requires a breakdown of total employment of domestic seasonal hired workers by source of worker; i.e., by local, intrastate, interstate, and off-shore origin. In addition to the number in each of these categories, the home States of a majority of the workers of each type are listed, with an indication as to major States of employment intervening between the time workers left their home States and the time they arrived in the reporting State.

The most accurate practical way of ascertaining worker origin is a complete canvass of all employers. However, only eight States reported that some of their local offices had found it feasible to utilize this procedure. Most States depend on other methods of finding the number of workers by source. In the following sections, the nonlocal components of the seasonal hired work force are discussed first.

A number of States indicated that some local offices which could not contact all employers were nonetheless able to ascertain the size of at least one of the nonlocal components of the domestic seasonal hired work force, as follows:

1. Where one type of worker, interstate migrants for example, is employed for only a single crop, or by only a few growers, or is recruited by only a few food processing firms, or is associated with only a few crew leaders or labor contractors, many local offices obtain an accurate count of this segment of the work force by direct contact.

2. In some areas, one or more of the nonlocal components of the work force for given crop activities are entirely recruited and placed through the facilities of public employment offices, thus permitting an exact count of such workers.

3. Seven States reported that the housing of nonlocal workers in specific camps or other locations facilitates a count and determination of the origin of such employees.

The majority of the States, however, noted that most of their local offices could not cover even a single segment of the work force in a manner as complete as the foregoing. In the areas served by these local offices, not all nonlocal workers are recruited through employment service facilities, and the employers and housing facilities of such workers may be numerous and scattered. The local offices involved usually estimate the number of nonlocal workers of each source by informal sampling. A wide variety of sources

of information is tapped, providing specific data or general opinion which cannot be directly summarized to derive total figures.

Most offices check their placement and clearance records. Five States specifically referred to ES-369 annual worker plan data as useful, and one State (Michigan) mentioned use of the ES-568, Progress Statement of Clearance Activity. Selected employers, crew leaders, workers and nonfarm informed sources are interviewed. Data from housing camps and roadside farm labor information stations are checked. Two States (Kansas and Nebraska) obtain data on the small grain harvest migratory stream from farm placement representatives at ports of entry. Four States mentioned that local office personnel note the origin of license plates on farm worker vehicles.

After these data are collected, some adjustment must be applied to them in order to derive area totals for each nonlocal component of the work force. This adjustment is usually made by local office staff members on the basis of their judgment and experience. They are guided by estimates of what proportion of total employment was covered by the sources of information contacted and by knowledge of the crop activities in which workers of each type are used. Frequently, workers of each source specialize in or reject particular activities. In some areas, of course, workers of one or another source are not present at all.

In most States, the reported number of local workers is a residual figure obtained by subtracting the estimated number of nonlocal and foreign workers from an independent estimate of total employment. Local offices in a smaller number of States, however, estimate directly the number of workers from each source, including local workers, and derive total employment by adding the components. This latter procedure is the case, for example, where the Employment Service recruits all or practically all seasonal hired workers in an area.

There were indications that a few areas encountered difficulty in providing a breakdown of employment by source. For areas in several States, it was not clear whether reported intrastate and interstate employment, based on clearance records, actually covered all employees from these sources, since nonlocal "free wheelers" may have found work without local office help.

Labor Shortages and Surpluses

The reporting instructions define a labor shortage as "an excess of labor demand over labor supply which, unless alleviated, may lead to crop or production loss or undue difficulty in conducting the activity. It is not the difference between the number that the employer would like to have and the supply available. The emphasis is upon the minimum number necessary for the operation."

A labor surplus is defined as "any excess over demand of workers, available for and seeking agricultural or food processing work."

The in-season farm labor report includes items on:

1. current shortage by crop activity (as of the last normal working day of the report period);

2. expected shortage by crop activity (maximum shortage expected within 2 weeks of the report day);

3. current surplus;

4. current surplus available for work in other areas (excluding those who have work commitments within 2 weeks); and

5. additional surplus expected to become available for outside work within 2 weeks.

Exact estimates of farm labor shortages and surpluses are difficult to achieve. To cite a few problems: (1) A shortage may exist for some crop activities while some available workers refuse to engage in it because of unsuitable housing or transportation, because of the arduous nature of the work, or because of the lack of special skills required. (2) Farm labor demand is often flexible, with no maximum limit on the number of hands which can be put to work in some activities. Thus, employers may seek to recruit more workers than absolutely necessary, to ensure themselves an adequate work force and to speed up the progress of the activity. (The crop-loss criterion of the labor shortage report item attempts to overcome such overstatements of labor demand.) (3) As noted by several States, labor surplus cannot be determined directly during periods of declining employment by subtracting current from peak employment. Many of the discharged workers may leave the seasonal farm work force voluntarily to resume their regular roles as students, housewives, farm operators, or nonagricultural employees. Others may voluntarily withdraw from the work force because of inclement weather or crop activity preferences.

About one-fourth of the States did not describe methods of estimating shortages and surpluses explicitly. In the remaining States, the following techniques have been worked out:

A. Current shortage and surplus

A number of States reported that these figures are obtained by adding unfilled employer orders or unplaced local office job applicants, respectively. This method is adequate, however, only where local office operations cover all seasonal hired workers in the area. There were indications that some offices employing the method were ignoring shortages or surpluses that were not referred to them in the form of orders or applications. There were also indications that unfilled employer orders were reported as labor shortages in a few areas without adjustment to conform to the crop-loss criterion. One State noted specifically that its shortage figures may be overstatements because they are based on the number of employees desired rather than employees necessary to prevent crop or production loss.

Most States reported that they did not rely solely on order-applicant data to determine current surpluses and shortages. Other data are obtained from informal sampling of employers, crew leaders, workers, associations, processors, and nonfarm sources (such as welfare and church officials), and from counts of leftovers or shortages at day-haul points. Area and crop activity totals are usually derived from the collected information on the basis of the knowledge and experience of local office personnel.

For purposes of the reporting instructions, jobs held by foreign workers are not included in labor shortage figures, although they must be covered by outstanding employer orders. One State (Colorado) suggested that openings filled by foreign workers be included in shortage figures, since foreigners are subject to replacement by domestic workers, if available, and a count of unfilled employer orders to determine labor shortages currently is complicated by the need to sift out orders filled by foreign nationals.

B. Current surplus available for work in other areas

Most States providing information on this item place reliance on local office applications by workers and crew leaders which express willingness to accept outside jobs. To a lesser extent, some areas take into consideration the data indication in C below.

C. Maximum shortage expected (by crop activity) and additional surplus expected to become available for outside work within 2 weeks

In practically all States these figures are based on the judgment of local office personnel, which in turn rests on experience of previous years, the stage and the rate of progress of crop activities, employer orders, job applications, clearance documents, knowledge of farm labor migration patterns, and informal sampling of employers, crew leaders and others.

Five States mentioned use of the Annual Worker Plan and its related ES-369 form for information on prospective surpluses available for other areas. One State (Michigan) submitted a post card form with which employers report the prospective release of workers, usually 2 weeks in advance. The complexity of shortage forecasts is illustrated by a list of factors considered by California:

1. Attractiveness of crop activity to workers;
2. Crop condition and stage;
3. Competitive crop activities;
4. Housing facilities;
5. Location of area with respect to migratory paths;
6. Labor supply in local area and statewide;
7. Indicated labor movement into area;
8. Percent of activity completed and direction of labor demand (up or down);
9. Weather conditions, e.g., delay may cause out-migration before activity reaches peak;
10. Tendency of workers to leave specified activities prematurely.

Compiling Agricultural Area Reports from Local Office Reports

In-season farm labor reports are on an agricultural reporting area basis. Since most agricultural reporting areas comprise more than one local office area, the States are faced with the necessity of drawing together data provided by local offices to arrive at reporting area totals.

Most States require their local offices to submit the necessary data to the State office semimonthly on the ES-223 form or a similar State form. (In a smaller number of States, the local offices report weekly and even daily, for selected crop activities.) Before compilation on an agricultural reporting area basis, the data are reviewed and are edited by the State office in the light of previous reports, reports from other areas, and published sources, and labor surplus and shortage figures are adjusted for interoffice transfers. One State indicated that it reviews reports from the local offices in the light of ES-229 (validation report) tabulations. However, conceptual differences between the ES-223 and ES-229 must be considered in this procedure.

In three States, reports from the local offices are combined on an agricultural reporting area basis at the district or area level rather than at the State level. Four additional States noted that most or all of their agricultural reporting areas coincide with single local office areas, and that the in-season reports, therefore, are prepared directly by the local offices concerned. Finally, one State (North Carolina) indicated that one local office in each agricultural reporting area was assigned the responsibility of preparing in-season reports for the entire area on the basis of data submitted to it by the other local offices in the area.

Most of the States did not indicate whether the final responsibility for drawing up in-season reports rested with their farm placement personnel or their research and statistics personnel, but instances of both types as well as collaboration were cited.

State Evaluations, Tests, Experiments, and Plans for Improvement

Most States replying to this item believed that their methods were adequate in the light of their local farm labor market situations. Although a few States noted specific reporting items on which their estimates are subject to relatively wide margins of error, the majority believe that reasonable accuracy is attained in reporting farm labor data.

Several States reported plans to improve the accuracy of reports. Two States (Arkansas and California) reported efforts to derive productivity figures and to apply them in their estimating procedures. One State (Washington) reported plans for surveys to be made on a systematic sampling basis for the purpose of obtaining benchmark employment data and other farm labor information. Another State (South Carolina) is planning to expand the use of systematic sampling procedures for estimating purposes. Also reported (by Louisiana) is consideration of a change from acreage to number of strawberry plants as a size-of-farm criterion for sampling strawberry farms. Revision of forms and estimating method handbooks is contemplated by Alabama.

Suggestions for Assistance by Bureau's National Office

Nine States suggested in general terms that the national office of the Bureau provide techniques and procedures to help them with their estimating requirements. Several cited the Baldwin County study as an example of the type of help they could use. In addition to these requests for general assistance, aid on specific estimating problems was mentioned by eight States. The specific points on which assistance was required included: (1) sampling procedures in multicrop areas (Idaho); (2) employment estimates on truck farms with overlapping crop activities (Wisconsin); (3) exchange of information among the States (Iowa); (4) tobacco harvest employment (Kentucky); (5) estimating employment of general farm hands (Nebraska); (6) cotton harvest employment (Okalahoma); (7) sample techniques and labor productivity data (Washington); and (8) greater promptness in the issuance of Census and Department of Agriculture data on farm labor (West Virginia). One State, Arizona, requested the reopening of a farm labor information station on its border. The station had been closed in July 1954.

Six States cautioned the national office to avoid issuing reporting procedures that would be too cumbersome for use by operating personnel. One of these States expressed the specific opinion that a systematic sampling plan for estimating employment was not worth the cost or time involved in the farm labor market situation existing within its jurisdiction.

Several suggestions were made for specific changes in forms and reporting instructions. As noted above, one State (Colorado) thinks that farm jobs held by foreign nationals should be included in labor shortage figures reported in the ES-223. Another State (Michigan) suggested that the ES-369, Migratory Labor Employment Record, should be modified to show the activities in which covered workers are willing to accept employment. A State in which regular hired workers constitute the bulk of the hired farm work force expressed the opinion that such employees were not given sufficient recognition in the ES-223 form.

Estimating Expected Farm Employment

State agencies send the Bureau a pre-season farm labor market analysis in areas where shortages of workers for seasonal activities are expected 1/. This report consists of estimating (1) labor requirements for crop activities employing seasonal workers, (2) the number of workers expected to be available from all sources to fill these jobs, and (3) the expected shortage of domestic workers, which is the difference between demand and supply. This analysis, with accompanying narrative and worksheets, is used by the Bureau in certifying that there is a shortage of domestic workers available in the area for temporary farm work and for setting a ceiling on the number of foreign workers who may be used. Preseason analyses also have State uses in planning farm labor recruitment and placement programs.

Techniques for estimating "expected employment" have received less attention than "requirements" from State agencies and the Bureau. Part III of the Employment Security Manual chapter 6000, requires a fairly complete explanation of how farm labor needs are arrived at but only a brief narrative comment on how supply is determined. Therefore, the Bureau asked State agencies to report on the sources of information used in estimating future seasonal farm labor supply, methods used in collecting and organizing data, and methods of handling certain difficult aspects of the ES-229 report.

This summary of replies from 32 of the States using foreign agricultural workers should be useful in developing techniques which State agencies may adapt to their own farm labor reporting systems. Generally the replies show that the major source of information is the preceding year's employment experience. Growers are consulted mainly about the supply of nonlocal workers. Applicant files and clearance records are used to some extent as an auxiliary source of information. Few State agencies use worker contacts or housing and camp surveys as a means of estimating labor supply. Only two States use interviewing techniques based on a systematic sample of respondents, and two States use postcard questionnaires to obtain labor supply information

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1/ Validation of Foreign Worker Needs in Seasonal Agricultural Activities (ES-229), Employment Security Manual, part III, chapter 6000.

Definition of "Expected Employment"

The ES-229 uses the concept of "expected employment" rather than "labor supply." Persons available for agricultural work but not expected to be employed in a specific activity would be considered part of the labor supply but not part of the "expected employment." This simplifies the job of estimating, since it is not necessary to account for all possible farm workers in an area. For example, there may be 1,000 women and youth available in an area for strawberry picking, but only 300 men who can be recruited for the arduous work in the pickle harvest. If the ES-229 deals with the season of the year when pickles are harvested and no strawberries are to be picked, the expected employment would be 300, not 1,300 which is the total labor supply.

General Methods of Estimating Expected Employment

Since each of the 32 States with foreign agricultural workers comprises more than one labor market area, there frequently are several methods used in a single State. In fact, individual agricultural areas may use a combination of methods in building up estimates of expected employment for various components of labor supply. The basic methods in use may be listed as follows:

1. Use of preceding year's employment figures with adjustments;
2. Contacts with growers;
3. Use of local office records;
4. Survey of camps and other available housing;
5. Worker contacts.

Preceding Year's Employment Figures

The majority of States use the past year's employment figures as a springboard for estimating local employment in the current season, and in some cases for intrastate and interstate employment as well. The preceding year's employment figures (ES-223's) are usually obtained either by direct contact with farmers during the active season or by a combination of methods with heavy reliance on the informed judgment of local office personnel.

How is the adjustment made from the preceding year's employment record to the current season's estimate? Methods are informal in most States with primary emphasis on the employment outlook in competing non-agricultural activities within the same labor market. Some States (Iowa, California, New Mexico) mentioned that consideration is also given to the employment situation in migrant worker source areas.

The second most frequent basis for adjustment is the production outlook. For some crop activities, the supply of workers is assumed to be relatively elastic, and an increase in production brings forth an increase in the supply of workers available. This method has a serious weakness since, if it is assumed that the domestic labor supply expands and contracts in accordance with production, it is difficult to explain why there should ever be any shortage of workers for that crop.

In several States (Arkansas, Georgia, California, New Mexico, Michigan) growers and processors are consulted concerning changes in labor supply from the preceding year to the present year, but there are fewer instances (Colorado, Arkansas, New Mexico, Idaho) where workers, crew leaders, or labor unions are contacted for information about the expected employment of farm workers. Only two States (Idaho and Wyoming) mentioned pre-season farm placement meetings as a source of information on changes in the expected availability of interstate migratory crews.

Employment office records are used in some instances to provide a basis for the judgment of the local office personnel as to changes in the supply of workers expected. In Virginia, the agency uses the active application file as an indicator of changes in expected supply. In Idaho, the State reports that the ES-369's 1/ received from supply States early in the season are helpful in making estimates for areas which use migrant workers late in the season.

None of the States using the preceding year's employment figures described precisely the steps involved in adjusting data. Evidently, the primary method is judgment based on indicated changes reflected in employment and production trends rather than any precise mathematical formula. None of the States, for example, reported the extrapolation of Census figures as is sometimes done in nonfarm labor market analysis. This is due to the fact that Census employment figures are not available by specific crops and seasons of the year for which ES-229's apply.

1/ Form ES-369, Migratory Labor Employment Record, Employment Security Manual, part II, section 1795.

In one of the largest States, from the standpoint of seasonal labor employment (California), estimates of expected employment are based on the figures reported in the preceding year's weekly farm labor report, corrected, if necessary, by the data from post-season reports. The preceding year's employment figures, in turn, are based on the conversion of the production to employment by using factors of worker output per unit of time. The following items are considered in adjusting benchmark figures to arrive at current estimates:

1. Changes in working patterns of local farm workers;

2. Changes in nonfarm job opportunities for local farm workers;

3. Trends in migration patterns;

4. Economic conditions in the State which may affect the supply of intrastate migrants;

5. Crop conditions both locally and in other parts of the State;

6. Crop and general economic conditions in States from which migrants come;

7. Information from growers regarding the return of migrant workers.

In another large State (Colorado), all data of a statistical nature on current ES-223 reports are edited, coded, and key punched on I.B.M. cards. At the end of the season, these data are summarized and are tabulated in several different ways--by local office by crop by week; by source by week, etc. The ES-229 estimate of local labor is based primarily on experience recorded in the tabulations, adjusted by a pre-season canvass of local labor. In this State, local employment figures reported on the ES-223's are obtained by contacts with processors and by a representative sample of growers of crops which are not controlled by processors. The pre-season canvass of local labor is concerned with changes in the economic situation in the local area or in near-by metropolitan areas that may affect the availability of labor and also with the attitudes of workers concerning employment in certain crops. The adjustment from the previous season to the prospective season is based in the final analysis on the judgment of the local office.

It should be noted that the preceding year's employment figures are not necessarily those which appear on the ES-223's. Other records may be used as well. In most Iowa agricultural reporting areas, for example, estimates are determined separately for each crop activity, using various different sources. Estimates for corn detasseling may be based on the preceding year's records of the number of school youth who registered for this type of employment. Estimates of processing workers in vegetable canning plants may be based on the number of housewives who were employed in those plants in the previous year. Since adult males are required for the field work in the pea and the sweet corn harvest, a different source is used for this component of the work force. The total number of workers available is arrived at by addition of the estimates for each separate activity.

Contact With Growers

Fifteen of the 32 States which prepare ES-229's rely on contacts with growers and processors for some of their pre-season estimates of expected employment, particularly for interstate workers. Employer sources are used mainly in places where a few large growers, farm associations, or processors dominate the employment situation for a particular crop. In the Connecticut Valley area of Massachusetts and Connecticut, the Shade Tobacco Growers' Association has information on the number of local and nonlocal workers it expects to be able to recruit. In some areas of Nebraska, Wyoming, and Idaho, sugar beet companies are an important source of information on the availability of interstate migrants. In sections of Illinois, Indiana, Iowa, and Wisconsin, a few large vegetable processors who have their own recruitment agents are a good source of advance information. In Michigan, the Employment Service mails a postcard to employers asking for the number of workers needed and the number which the employer expects to release.

Since the employment of migratory workers is always uncertain and variable, it is natural that growers and employer associations should protect their interests by assuming a low estimate of interstate workers in pre-season estimates. It is therefore advisable to use other sources of information. Most of the States reported that employer contacts were used in combination with other methods to arrive at estimates. Clearance orders, ES-369's (Migratory Labor Employment Records), contacts with supply States, information on the supply of workers obtained from farm placement pre-season planning meetings, and the knowledge of local office staff concerning the migratory workers in previous years are used to supplement and to check on information obtained from employers and employer associations. There are 3 States, however, which indicated that employer sources were used exclusively.

Of the 15 States in which growers are consulted for part of the information needed for estimating the future supply of seasonal farm workers, 8 reported that all or virtually all employers are covered, and 5 did not specify the extent or the representativeness of coverage. The remaining two States, Georgia and Tennessee, are experimenting with an interview survey of a sample of farmers selected on the basis of geographic distribution, size of farm, and type of workers. In the course of interviewing farmers about their requirements, they are also queried about the number of farm and off-farm workers employed in the corresponding season of the past year.

Most States did not indicate the kinds of questions on supply of labor which are asked of growers. Those States which did discuss this point indicated that growers are asked about their requirements and their own recruitment plans. This information is important, but from the standpoint of estimating the future availability of workers, questions should be framed to distinguish between changes in employment that the farmer or processor expects because of an increase or decrease in the size of his operation and changes in expected employment resulting from factors affecting the availability of workers. A farmer may or may not be informed on the labor market conditions locally or in another State that affect decisions of workers to accept or reject seasonal farm employment in his area.

Employment Service Records

The BES farm reporting program is an outgrowth and a byproduct of farm placement operations. If the reporting program were tied in directly with operations, State agencies should be able to use employer records, applicant files, orders, clearance records, and migratory worker employment records as important source materials for preparing farm labor market reports, particularly for interstate and intrastate employment.

There were no cases reported of employment office records being used as the exclusive source of information on expected employment. About one-third of the States reporting (Connecticut, Massachusetts, West Virginia, Florida, Illinois, Indiana, New Mexico, Utah, and Oregon) use the present or preceding year's clearance records as an indication of the volume of the nonlocal employment. In 4 States (New York, New Jersey, Wisconsin, and Idaho) the Migratory Worker Employment Record (ES-369) and the Request for Migratory Labor (ES-370) contribute to the

forecast of migratory worker employment. Applicant files and the preceding year's completed orders are used as a partial basis of estimating both local and nonlocal workers in Massachusetts, Wisconsin, Oregon, and New Mexico.

In one State (Utah) the management control records are the basic source for estimating expected employment. Prior to the beginning of the agricultural season, each employer's record is reviewed and is brought up to date with respect to crops, acreages, and number of workers needed. A recapitulation is made of the previous year's closed and cancelled employer orders. Economic assumptions are reviewed and changes in nonagricultural industries are considered in determining the amount of local domestic labor expected to be available. Surveys of school youth are made. Clearance orders for the previous year for both intrastate and interstate workers, reports of migrant labor crews, and information from other States and areas regarding the availability of labor are analysed in estimating expected labor from these sources. This information for each local office is compiled into area reports by the reports and analysis section in the State office in cooperation with the State farm placement supervisor.

Survey of Camps and Other Available Housing

There were 5 States which reported that housing in camps and growers' quarters is used as a source for predicting the interstate migrant labor supply. In New Jersey, information on the expected employment of Puerto Rican workers is obtained from visits to migrant labor camps. In Virginia, employment of workers in the apple harvest in the northern Shenandoah Valley is estimated on the basis of pre-season commitments of Florida crews and the available supply of family quarters to house migrants. In Oregon, a complete survey of available housing facilities was made recently and is kept up to date, affording an estimate of the maximum number of migratory workers who can be utilized. In one area of Washington, a complete list of established housing in the area for sugar beet, asparagus, and green pea workers is maintained. The leading proponent of this method is Florida where farm placement personnel make estimates of out-of-area supply based on housing in labor camps and farmers' quarters. At the present time, this method applies more specifically to in-season rather than pre-season estimates of labor supply, but Florida has a written plan for extending this method to pre-season estimates as well.

Worker Contacts

In two States, Minnesota and Wisconsin, postcard surveys are used to register adults available for field and food processing work. In Minnesota, the postcards are mailed to persons with prior experience in farm work, with a letter describing the nature of the work, dates of employment, wage rates, and other job information. The postcard survey of adults is supplemented by registration of school youth for certain activities. Wisconsin uses a double postcard in conjunction with other methods for determining the local and intrastate supply. Neither State reported the response ratio or the methods used to correct for non-respondents.

Crew leaders are not used directly as a source of information on labor supply. Only three States, Virginia, Arkansas, and Arizona, referred to pre-season contacts with crew leaders as a partial source of information on the interstate worker supply. There were two States, Minnesota and Idaho, which consult labor unions, among others, for supply information.

In almost all States most information about the supply of workers is obtained through the employing establishment rather than from the worker or his representative. This method has the advantage of economy since it is easier to contact a small number of employers than it is to survey a large number of individual workers and family groups. The disadvantage is that information about the availability of workers is obtained only indirectly from informants who may not be in touch with labor market developments affecting supply. 1/

Reconciliation of Concepts

In estimating the "expected employment" of seasonal hired workers for the ES-229, it is important to keep in mind the concepts used in estimating "requirements." If there is a conceptual difference between the two sets of figures, the "shortage" of workers may be spurious.

1/ This fact was demonstrated in the Baldwin County study, op.cit., where pre-season estimates of supply based on contacts with crew leaders and other worker-representatives proved to be more reliable than estimates based on interviews with farmers and on secondary-source data. It should be noted that the Baldwin County potato workers were largely organized in crews.

There are several ways that inconsistency in the two sides of the equation could occur, but the main problem arises when requirements represent the number of different individuals needed for a crop activity, and the expected employment figures are a projection of the preceding year's employment which represents the workers employed on a given day. Since turnover is high among seasonal farm workers, the number at work on a normal day will be lower than the number of different individuals.

The problem applies particularly to one-half of the States which use methods of estimating requirements based on factors for converting the total amount of work to be done by the worker output in an average day. 1/ Of these, several States avoid the problem by varying the concepts described in the Manual. In Florida, both sides of the equation are in terms of the average number of workers in a semimonthly period. Colorado uses a man-week concept for both figures, while Arizona uses the peak figure during a semimonthly period for both. California uses man-week figures for requirements and weekly employment figures to build up expected employment estimates. The Texas figures for expected employment are derived by the same computations as the requirement figures so that the conceptual problem does not apply.

There are 3 States that make adjustments for turnover to bring their requirement and supply figures in line. In Nevada, expected employment is expressed in terms of "jobs," and requirements are estimated in terms of "total number of workers needed to keep the jobs filled." Turnover rates are applied to expected employment figures to reconcile them with requirements. The Iowa estimates of requirements are converted to peak requirement figures which correspond with estimates of supply based on the total number of individuals expected to work in each activity during the season. In New Jersey, both the supply and demand figures are expressed in terms of the number of different individuals.

Of the remaining States there are several which use a method of estimating requirements based on factor estimates (worksheet A or worksheet B) but which did not report that any adjustments are made to reconcile requirements and supply.

In the States which use the preceding year's employment figures as a springboard for estimating requirements 2/ there may also be certain conceptual inconsistencies. For example, if requirements are based

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1/ Worksheet A or worksheet B methods.
2/ Worksheet C.

on the preceding year's employment and the supply figure is based on a processor's estimate of how many individual workers he will need, an inconsistency may arise.

The responses of most States indicate a lack of awareness of the problems that may result from the unprecise use of employment concepts.

Adjustment of Total Supply to Expected Employment for Individual Crops

How do States distribute the total domestic seasonal labor supply among concurrent crop activities? Most States do not report any difficulty in this respect. Of those who responded, Indiana, New Mexico, Idaho, and Oregon stated that requirements govern. This implies that workers are considered interchangeable among several crops, and the differences in employment estimates merely reflect differences in requirements.

Other States (Virginia, West Virginia, Georgia, Arkansas, and Nevada) reported that there was only one crop using seasonal agricultural labor and the workers counted were those available for that crop. In two States (Connecticut and Massachusetts) the characteristics of workers is an indication of the crops for which they are available.

In the majority of cases, States rely on the judgment of farm placement officers concerning employment patterns in prior years. Advance recruitment information obtained from workers is used in some areas as a basis for determining how the interstate and intrastate supply is to be distributed.

Variation From One Half-Month to Another

ES-229 reports frequently show variations in the expected employment of domestic workers from one half-month to another or from one crop season to another without any change in the total requirements.

Most States where this is true indicated that the pattern of crop activity determines variations in the availability of workers. In Florida, for example, the seasonal pattern of harvests is determined from market news reports showing shipments of individual crops during past seasons. These data are used in conjunction with in-season reports to arrive at the expected pattern of employment for the coming year.

Using crop patterns to determine fluctuations in seasonal worker availability is appropriate in areas where the domestic labor supply exceeds demand. Where there is a shortage of workers, however, a question may arise as to whether variations in crop production from one half-month to another require adjustments in the domestic worker availability or whether the adjustment should more logically be made in the need for foreign workers for that crop.

There are several States (New York, Arkansas, New Mexico, Arizona, California, Idaho, and Oregon) which make their seasonal adjustments on the basis of information about the employment patterns of workers as well as crop production. Such factors as the dates when migrants usually arrive and leave, the opening and closing dates of school, and patterns of competing nonagricultural opportunities, plus the knowledge and judgment of farm placement officials, are the basis for estimating seasonal worker employment.

Statistical Controls

In BES reporting programs, State agencies usually set up a system of controls of individual local office reports to verify the data. The Bureau, in its survey, did not ask directly what controls are used to validate the ES-229, but questions were asked about how individual reports are consolidated and what benchmarks are used. Replies to these questions indicate that State agencies have varying systems for verifying ES-229 reports. In 21 of the 32 States which responded, validation reports are either prepared directly by the State office or are consolidated by the State from local office reports. Five States (Florida, New York, New Jersey, Michigan, and Nebraska) use a system of consolidation of local office reports by area labor market analysts or district farm placement supervisors. In 3 States (Georgia, New Mexico, and West Virginia), local offices prepare validation reports since the local offices cover the entire reporting area. There are several States in which reports are checked and evaluated by the State farm placement or reports and analysis staff. In California, for example, a formal method of checking pre-season against in-season employment figures is used as a control. In Texas, data collected as a by-product of prevailing wage surveys are used systematically to check employment estimates.

Most States tie their estimated employment figures in with the preceding year's employment experience but use no outside figures as benchmarks. One State (Washington) reported that Census figures were not useful as benchmarks in that State because the Census of Agriculture

and Census of Population figures (for 1950) relate to the month of April, and are not applicable to the active seasons of agricultural activity in that State. In Nevada, current employment estimates are re-evaluated as agricultural censuses appear. In Texas, an attempt is made to check estimates of expected employment of hired farm workers with Census of Agriculture reports, but there still remains a problem since the Census figures do not distinguish between year-round and seasonal workers in each county. None of the States uses figures collected monthly by the U. S. Department of Agriculture's State statistician to check employment figures.

State Evaluation of ES-229

Most States appear to be satisfied with present methods of estimating expected employment. The Indiana covering letter sums up the views of many others in this sentence: "I hope you will keep in mind that the situation in many of the States does not call for time-consuming and complex methods." The New York response stresses the view that primary emphasis should be given to the judgment of local farm placement officers rather than formal statistical data-collecting procedures.

There are several States, on the other hand, which are engaged in experiments to improve their farm employment estimates technically. The Florida method of estimating supply through a housing inventory was referred to previously. The Washington agency is conducting surveys in selected areas to define the universe so that sampling can be done more effectively. Arkansas is compiling reference material from the Census and other sources for guidance of local analysts. The use of wage surveys to validate employment in Texas is another noteworthy experiment.

The States of Arkansas, Idaho, Iowa, Nevada, and Oregon suggested that the Bureau should provide improved techniques, should exchange information among States on methods used elsewhere, and should prepare technical handbooks. Washington asked for technical assistance in sampling. Michigan suggested that the ES-369 (Migratory Labor Employment Record) be expanded to show the type of work in which the migrant workers specialize in order to make this report more useful. Wisconsin pointed out the need for better methods of estimating employment on truck farms. Colorado is of the opinion that all farm labor reports should be integrated.

Three States (California, Utah, and Virginia) recommended simplification of the ES-229. The California agency suggests that much time could be saved by eliminating repetitive information required in the narrative. For example, recruitment plans are described in many other reports,

and the repetition on the ES-229 seems unnecessary. The time and effort needed to compile the number of applicants in each local office are excessive considering that the situation changes rapidly.

Conclusion

This summary of replies to the Bureau's inquiry concerning methods of estimating expected employment suggests certain general areas where work on development of techniques, on revision of instructions, and on preparation of technical materials needs to be concentrated.

1. Collection of Data. Some State agencies are moving in the direction of developing systematic sampling methods of collecting both in-season and pre-season employment data, but many rely heavily on the preceding year's employment data which often are based on informal and unsystematic judgment methods of estimating. Therefore, there may be a compounding of error as figures are transferred from one report to another. More emphasis should be placed on estimates based on contacts with all or a sample of representative growers, workers, and other informed sources.

2. Employment Concepts. There is a clear lack of uniformity in the definition and use of employment concepts. There are also a number of cases where the statistical errors that may arise from lack of conceptual precision are not fully appreciated. This indicates a need for clarification of employment concepts in the Manual and in technical materials.

3. Integration With Operations. To some extent estimates of expected employment are based on office records and other operations, but the weight of evidence shows that these sources are not being fully exploited. Employer records, applicants files and clearance orders are used variously as auxiliary sources of information, but the Annual Worker Plan and migratory worker employment records (ES-369's) are not widely used in forecasting. The organization and management records are used in only one State as a significant tool for developing estimates. Information from pre-season farm placement meetings may also be translated into estimates of expected employment.

4. Statistical Controls. In the past, it has been difficult to tie farm labor estimates into Census figures because the Census of Agriculture of 1950 was based on employment data gathered in

April, which is not an active season in most States. There have not been unemployment insurance data or old-age and survivors' insurance statistics on seasonal farm labor. The Census of Agriculture of 1954, however, has employment figures relating to the week of September 24--October 2 in most States, and October 24--October 30 in the remainder. These dates are generally in the active season and, therefore, the figures may be useful as benchmarks. The State offices of the Agricultural Marketing Service can provide some month-by-month employment figures to trace and to check on trends. Production data from past market news reports can be converted into employment figures to check on the reasonableness of prospective farm employment estimates. At present, only a few State agencies are using verification methods of this type.

5. Integration of Farm and Nonfarm Labor Market Information. In adjusting expected employment figures of the preceding year to the current year, State agencies rely largely on information concerning the nonfarm labor market. There is need for examining methods to integrate farm and nonfarm labor market data which are presently compartmentalized within the employment service. Special studies dealing with the employment patterns of seasonal farm workers and the extent of shifting back and forth between farm and nonfarm occupations may be useful in this connection.