USDA SURVEYS FOR EMERGENCY PREPAREDNESS

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I'm pleased to have this opportunity to tell you about some of our USDA studies in the area of civil defense.

One of the most important concerns of civil defense--after precautions to save as many people as possible from the immediate effects of nuclear attack--is to provide for the continued existence and economic recovery of our people in the ensuing days.

Foremost among these concerns is food. By Executive Order, the President has delegated to the USDA broad responsibility for planning for food and agriculture during an emergency. In order to carry out these broad responsibilities it is particularly important to make periodic assessment of food resources available from all sources in a National emergency. Realistic assessments of this type are vital to emergency planning for the management of food supplies and for estimating the need for food stockpiling both from the standpoint of the Nation as a whole and the various localities within it.

We all know that the U.S. has an abundance of food. But is our food supply so distributed as to be readily available to our people in an emergency? What would happen to people in Chicago, Detroit, New York, Washington, Los Angeles, or Miami? What would happen in Dubuque County, Iowa, or on the farms of downstate Illinois?

In our attempts to answer these questions we have published a number of civil defense studies done at the request of the Office of Civil Defense. A list is available for those of you who would like to obtain them. These studies include estimates of food supplies in households, in retail stores, and in wholesale warehouses, with special estimates of total food supplies by counties, and a report of fallout facilities and fuels on farms. We are presently working on estimates of food supplies in institutions and away-from-home eating establishments.

I know we are all interested in the findings of these studies, because they affect our possible survival both as a Nation and as individuals. But as you are also interested in techniques I'll discuss both.

First, I'd like to talk about our study of "Fallout Facilities and Fuels on Farms in 24 Central and Southern States." Information was collected in 1962 as a supplemental part of the Department of Agriculture's annual December survey of farmers. Personal interviews were obtained from a probability sample of about 3,000 farm operators in the 24 States of the North Central, South Atlantic and South Central regions. These States have over three-fourths of all U.S. farm-operator households and slightly more than 60 percent of the U.S. milk cow herd.

In these 24 States, 86 percent of the farm-operator families used gasoline on their farms. Forty-eight percent used LP gas for either household or production use; and 40 percent used diesel fuel, fuel oil or kerosene.

On the farms that use and store the various fuels storage capacity averaged just over one-sixth of annual use for gasoline and about one-third of annual use for LP gas and for diesel fuel, fuel oil and kerosene. Storage capacity as a percent of annual fuel use was quite uniform by regions for each fuel.

Nearly 60 percent of the farm-operator families in these 24 States had facilities of a type that provided some fallout protection, the most common being a basement or cellar under the house, with storm cellars ranking second.

Facilities providing protection of any type for farm families varied sharply by regions. About 85 percent of farm-operator families in the North Central States reported protection of some type, while fewer than one-third of those living in the South Atlantic and South Central States had any underground or specially designed fallout facilities.

Enclosed structures offering some protection were available for three-fourths of the milk cows, but again differed sharply by regions. Shelter was available for only about one-third of the milk cows in the four South Atlantic States, and about half in the South Central States, compared with nine-tenths of the milk cows in the North Central States. This interest in shelter for animals is both from our concern for food supply and for breeding stocks.

Our other civil defense studies are concerned with food in various distribution channels. We obtained data for the study among homemakers through a questionnaire administered by the Bureau of the Census in conjunction with the Current Population Survey of June 1962. Using a sample composed of 3 out of 8 rotation groups included in the CPS for that month, we secured over 11,000 schedules, mostly by personal interview.

Homemakers were asked to estimate the number of days the food currently on hand would last if all household members were at home all the time and were eating the kind of meals they usually eat. Then they were asked how many more days, if any, this food could be made to last if household members ate only enough to get by on. Estimates used in the report were obtained by combining the answers to these two questions. When making their "usual meal" estimates, homemakers tended to give stereotyped responses, such as 7 and 14 days. The combined estimates of the total number of days food could be stretched appeared to be less stereotyped, although there were peaks.

We decided to obtain the data in this manner because the results of an unpublished pilot study indicated it was a useful method. In the pilot study, time estimates were also computed for the same households by dividing the total calorie value of the food on hand, as inventoried by the interviewer, by the family's daily nutritional needs. While total days' supply as computed from inventory data was likely to be higher than that estimated by the homemaker, the figures derived from the two methods correlated fairly well. The inventory method, besides being costly and cumbersome, has other disadvantages. For example, the homemaker's ingenuity or lack of it in making the best use of food supplies on hand is not taken into account.

In our report, variations in food depletion patterns are presented by degree of urbanization, family income, civil defense region, such family characteristics as size, age of homemaker, and presence or absence of children, and by the day of the week the interview took place. Because of the preponderance of once-a-week shoppers and because the latter part of the week is the busiest time in most food stores, we thought the day of the week might have a pronounced effect on homemakers' estimates of how long their food on hand could last. However, it made little difference. Possibly, the stereotyped answer of number of days may have contributed to this. Or perhaps many households have enough food on hand at all times to minimize the influence of the day of the week on such estimates. They might run out of certain foods earlier or later in the week--but they do have a supply.

Our findings indicate that if an emergency should cut off outside food supplies, large numbers of American households would be in trouble after a few days. Homemakers grouped themselves roughly into thirds--those who would run out of food in about a week or less, those who could go more than a week but not more than two, and those who estimated their supply would last over 2 weeks.

Seven out of 10 downtown big city households would run through their food supplies in 2 weeks. This would be true for 6 out of 10 homes in suburbs, but only 4 out of 10 on farms.

Homes in the Northeast and Southeast would run out of food fastest. Those in the western North Central States and the Pacific Northwest could hold out the longest.

The lower the income, the faster food would run out. Where income was under $4,000, 38 percent of the homemakers said food on hand would last a week or less. In the $4,000-$6,000 range this figure drops to 29 percent. In the $10,000-and-up category, it falls to 22 percent.

Middle sized families--those with three, four and five members could make their foodstocks last longer than the very small or very large households.

Now let's turn to the retail food store survey. The basic data were obtained by mail questionnaires. The study was conducted during the spring of 1957 among a National sample of about 7,000 stores engaged primarily in selling food for off-premises consumption. Our sample was based on the Census Bureau's retail trade sample. It was composed of 2 of the 12 area sample panels plus a sample of large independent food stores and stores of large food chain organizations. Each establishment was asked to supply inventories of commodities, selected from a master list of 239 items. The number of retailers chosen to report for any one commodity was in direct proportion to the estimated importance of that commodity in total retail food sales. Data were obtained for both food and nonconcentrated beverages.

Three publications have resulted from this survey. One presents estimates of total and per capita man-days' supply of foods and beverages in retail food stores by the four census regions, States, and counties for 1957. To produce estimates of the number of man-days' supply on hand, the physical volume of food and beverages was first converted to caloric values. Next, we found the total calories available per person. Then we divided this by the usual daily per capita calorie requirement. A similar analysis in terms of fluid ounces was made for all nonconcentrated beverages. Individual county estimates of population from the publication, Sales Management, for May 10, 1957, were used since the Bureau of the Census publishes no county population figures except for census years. As a measure of verification, we compared aggregates of county estimates shown in Sales Management with midpoints between 1956 and 1957 census estimates of population by regions. The percentage differences were minor.

A second publication presents revisions of inventories by civil defense regions, States, and counties as of 1962, using population estimates in accordance with the 1960 Census of Population. This indicates that there is a 15.5 days' supply of food at the level of two thousand calories per day in inventories of retail food stores for each person in the continental United States and that slightly more than four-fifths of the total supply can be stored for relatively long periods without special handling. There is a 3.4 days' supply of nonconcentrated beverages.

A third publication presents the retail stores data in pounds for the continental United States. This was prepared because various groups dealing with specific commodities want to know the physical quantities of supplies available rather than caloric values.

So much for the retail phase.

We obtained data for the survey of wholesale establishments in 1962 through questionnaires mailed out by the Bureau of the Census through its regional offices. The National sample of

approximately 5,000 wholesale establishments was selected from a universe of about 45,000 classified in the 1958 Census of Business in 6 categories. Establishments from each kind of business were selected on a probability basis proportionate to size, with 1958 inventories as the measure of size. A sample of firms entering business since 1958 was drawn from the records of firms obtaining new Federal Social Security employee identification numbers from the Bureau of Old Age and Survivors Insurance.

We minimized the burden of response by using the random-part sampling technique to establish inventory estimates. This technique was discussed in a paper given by Ralph Woodruff at your convention in September 1957. Each establishment was asked to furnish physical inventory information for sample commodities taken from a master list of 187 products and groups of products rather than to furnish data for all 187 products and groups of products. The probability of selection of each commodity varied by kind of business. The number of commodities selected varied from 6 to 150 for each establishment, depending largely on its size. As in the retail store survey, inventories were converted to caloric values to permit summarization on a uniform basis.

Data are shown for kind of business and for civil defense regions by storability type and by major food group. In addition, total and per capita supply (on a calorie basis) and man-days' supply of food and liquids are shown for standard metropolitan statistical areas. For each person in the United States there is a 16.1 days' supply of food and a 4 days' supply of beverages in warehouses at the wholesale level of distribution, where most food can be kept for a long period of time without refrigeration. A supplementary report presents the data in pounds for the benefit of members of the food trade. Inventory data are listed for major food groups by wholesaler's kind of business and type of operation and for individual food products.

The last publication I'd like to call to your attention is the most comprehensive of all. It utilizes data from the household, retail store and wholesale studies already mentioned. It also draws on information from other sources, such as independent surveys of public cold storage warehouses and estimates by commodity experts within the Department of Agriculture of stocks at food processing plants based on surveys and mandatory reports. The report was prepared in response to a request from the Office of Civil Defense to assess total available supplies of food and their geographic distribution, with particular emphasis on household, retail, and local wholesale stocks. Food was defined as that ready for household or restaurant use. For example, meat was defined as food whereas live meat animals were not.

The report presents figures for man-days of food stocks available by source, the number of days home-retail-wholesale food stocks will last, the number of days all food stocks will last, man-days of food that can be made available by 30 days' production and by stocks plus production and finally, the number of days stocks plus production will last.

This report estimates maximum and minimum food supplies as of 1963 by county, State and civil defense region. Alaska, Hawaii, and offshore possessions were excluded from the analysis. Differences between maximum and minimum supplies are accounted for by the fact that inventories in food processing and cold storage plants are relatively high in January and low in July as well as by January-July differences in food production. Food inventories in homes, retail food stores, and wholesale warehouses were estimated to remain about the same from month to month in terms of total food value.

To make the report more meaningful we adopted certain assumptions. We assumed that enemy attack might seriously disrupt transportation of food and other agricultural commodities between counties, States, and regions for up to 90 days. We assumed further that our people could survive without serious health hazard at the level of 2,000 food calories per person per day--slightly under two-thirds the usual average diet. We made no provision for assuring a balanced diet.

In communities not severely damaged but cut off from outside supplies, such as fuel or feed for livestock, we could count on some local food production. We assumed that for the first 90 days local food production might be continued in substantially undamaged communities at about one-third the usual rate, without inshipments of additional fuel, feed, or raw materials. This explains our use of the 30 days production category which I mentioned a moment ago.

We made these assumptions for the purpose of the report only. They should not be considered as our appraisal of what would likely occur in a National emergency.

The number of man-days' supply of food other than in homes was calculated by dividing the food availability data--converted to calories as a common unit for all foods--by the specified 2,000 calorie level. For home food supplies, we used the median estimates of homemakers as to how long available food supplies could be stretched in an emergency.

The procedures for converting data into county units varied somewhat by source of food stocks. For example, food stocks in homes and in retail food stores were computed for individual counties by apportioning United States and regional inventories on the basis of population estimates. Food stocks at the wholesale level were computed for individual counties by distributing United States inventories in proportion to the number and estimated size of wholesale warehouses physically located in the counties. This method was used because food stocks at wholesale are not necessarily related to size of population.

In addition, our USDA commodity experts pooled their knowledge and provided estimates of the

stocks of various kinds of food on hand in food processing plants and other sources before the wholesale level throughout the country. We then allocated these estimates to individual counties, except where county data were already available, on the basis of the number of employees by type of establishment.

Let me stress that the data in the report are not precise. They are intended to give a general idea of where available food supplies might be large, and where they might be small, in a National emergency.

Now for the findings. On the basis of January food inventories and food production levels (when food supplies are at a maximum in most counties) 7 States, the District of Columbia, and over 40 percent of the counties in the U.S. would have less than 90 days' food supplies at the 2,000 calorie level.

The major deficits would occur in parts of New England; the Washington, D.C. trading area; the Pittsburgh, Cleveland, Dayton and Detroit trading areas in the Midwest; the central Appalachian region; the Miami and Mobile trading areas in the South; and the Los Angeles and San Diego areas in the Far West. Some of the less densely populated parts of the country also would face deficits--because less than 90 days' supply of food would be available from local stocks and local food production in an emergency.

As you would expect, the food stocks in processing plants and cold storage warehouses reveal some imbalances. In certain trading areas in the Southeast and Southwest, for example, peanuts in shelling and manufacturing plants constitute a large element in the total stocks structure. In parts of Maine, potatoes bulk heavily in the food supply. Dry edible beans are a considerable part of total stocks in certain areas of Michigan and in other dry bean producing States. Dairy products account for much of the total supply in some areas, and fats and oils tend to dominate in others. However, food stocks in most large urban centers appeared to be in fairly good balance, except that seaport cities tended to have large supplies of sugar.

But what's the overall picture for the U.S.--still in January, when food stocks are at a maximum? Our report shows that, under the conditions assumed, all food stocks could be made to last for roughly four months, if distributed equally. The amount of food available in homes would last a little less than two weeks, on the average. Retail food stores could provide about a two-weeks' supply, and wholesale establishments, it is estimated, contain about another two weeks' supply. The remainder of the food supply surveyed (about two-thirds of the total, or 82.6 man-days) is located in distribution channels before the wholesale level, and would, therefore, be more difficult to distribute equitably.

If we consider the 90-day period to be realistic --that this much time might be needed for the food industry to recover from an attack and to resume the supply of food in quantities approaching normal--then we have a problem. Obviously, the amount of emergency food supplies readily available to the average household--that is, available in the home and in local retail and wholesale warehouses--is inadequate.

Since retail and wholesale inventories are generally fixed and subject to more or less rigid controls, it appears that the more logical place to increase the emergency food larder would be in the home. While civil defense authorities thus far have not had much success generally in getting consumers to stockpile additional food in the home, such an increase could conceivably be attained through additional educational and promotional activities directed to the housewife. Such an undertaking if successful would yield two important benefits. The American household would be better able to meet the immediate emergency situation through more bountiful rations and have a more balanced diet if the inventory were purposeful--rather than just what happened to be on hand.

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