APPLE HARVEST LABOR PRODUCTIVITY IN THE CHAMPLAIN VALLEY: 1970-1975

by

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I am pleased to have the opportunity to testify regarding the proposed revisions of regulations on the employment of foreign workers in temporary farm jobs. Ernest G. Green, Assistant Secretary of Labor, in announcing these hearings, referred to the U. S. Labor Department's dual responsibility "to safeguard job opportunities for United States workers and to assure that adequate labor supplies are available for agricultural employers to meet harvest and other needs".**

This is indeed a difficult assignment. Hopefully, the research findings which I will present today will provide some background information and direct application for the proposed changes in the regulations.

The study from which these findings were developed, was initiated in response to the changing apple harvest labor supply situation in the Champlain Valley of New York State. Difficulties growers reported in obtaining off-shore labor, along with reported changes in the characteristics of both the migrant and local labor sources, suggested the need to examine the Champlain Valley apple growers' dependence on alternative sources of harvest labor. As an initial approach I chose to examine the relative productivity of the three main sources of apple harvest labor and how that productivity had changed over a period of time.

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* These highlights are taken from the research report: Labor Productivity of Apple Harvest Workers in the Champlain Valley: 1970-1975 by Dennis U. Fisher, (Ithaca: Dept. of Agricultural Economics, College of Agriculture and Life Sciences, Cornell University, July 1977), A.E. Res. 77-7.

Presented at a public hearing conducted by the United States Department of Labor on the Regulations Governing the Temporary Employment of Aliens in Agriculture, Legislative Office Building, Albany, New York, June 14-15,1977.

** "News", (Washington, D.C.: Office of Information, Employment and Training Administration, U. S. Department of Labor, April 19, 1977) USDL--77-315.

The data were taken from the labor records of all apple growers in the Champlain Valley and covered six harvest years, 1970 through 1975. Due to the forms used, the records of one large and one small grower were not included in the analysis. No tests of statistical significance will be presented for the statistics used in this testimony because virtually all of the population data were obtained and used in calculating these statistics.

There are several ways of viewing data of this type. You may want to refer to the research report for a discussion of these viewpoints. In addition, most of the records used had already been inspected by the U. S. Department of Labor and thus checked for accuracy and completeness. One final point, the data are representative of the Champlain Valley in New York. While inferences may be drawn, all of the findings may not be representative of conditions in other geographic areas.

Having described the basic data, I now turn to the empirical findings. The levels of productivity and input observed during the most recent season (1975) will be presented first, followed by a discussion of the trends identified over the six-year period. Boxes per worker per season will be examined first followed by several input measures - hours per season, hours per day, and days per season. Finally, boxes per hour will be considered. These empirical results will be followed by highlights of the findings most relevant to the proposed regulations.

During the 1975 season, Jamaican workers harvested 1,246 boxes of apples per worker; migrants, 884 boxes; and local workers, 238 boxes (a box is 1-1/8 bushel). This was an unusually poor year for migrant workers who normally picked about 90 percent as much per worker as Jamaican workers (see Table 1).

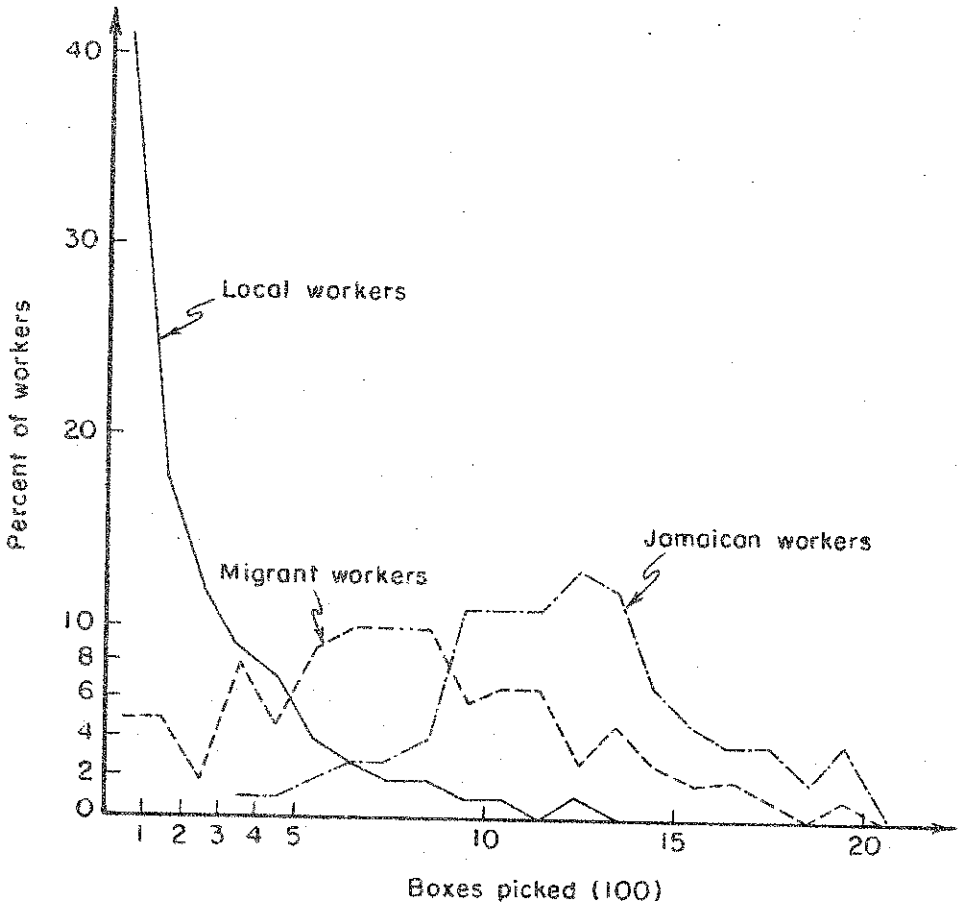
Table 1. BOXES PER WORKER PER SEASON FOR THE 1975 CHAMPLAIN VALLEY APPLE HARVEST

Labor Source	Boxes Per Season	Boxes as % of Boxes Harvested by Jamaicans
Jamaicans	1,246	100
Migrants	884 (1974 - 1,224)	71 (1974 - 94%)
Locals	238	19

On the average, about 5 local workers picked as much as one Jamaican.

A closer examination of the distribution of workers by boxes picked reveals some interesting patterns (see Chart 1). Of the local workers, 41.4 percent picked less than 100 boxes during the 1975 season; 45.3 percent of the migrant workers picked between 500 and 1,000 boxes; and 46.1 percent of the Jamaican workers picked between 1,000 and 1,400 boxes. In addition, a greater number of Jamaican workers showed a similar seasonal productivity than did migrant workers for the years studied.

CHART 1. DISTRIBUTION OF WORKERS BY BOXES PICKED AND LABOR SOURCE DURING THE 1975 CHAMPLAIN VALLEY APPLE HARVEST*



*Boxes are 1 1/8 bushel

The lower seasonal productivity for local workers was due mainly to less time spent harvesting (see Table 2). In 1975, Jamaican workers averaged 22.1 days harvesting apples in the Champlain Valley; migrants, 14.4 days; and local workers, 7.5 days. For the entire six-year period migrants worked between 64 and 85 percent as many days as Jamaican workers; and local workers between 29 and 43 percent as many days as Jamaican workers. In terms of hours per day Jamaicans averaged 7.4 hours while migrants and locals averaged 7.0 and 4.6 hours, respectively.

Table 2. INPUT PER WORKER FOR THE 1975 CHAMPLAIN VALLEY APPLE HARVEST

Labor Source	Days Per Season	Days as a % of Days Worked by Jamaicans	Hours Per Day
Jamaicans	22.1	100	7.4
Migrants	14.4	64 - 85	7.0
Locals	7.5	29 - 43	4.6

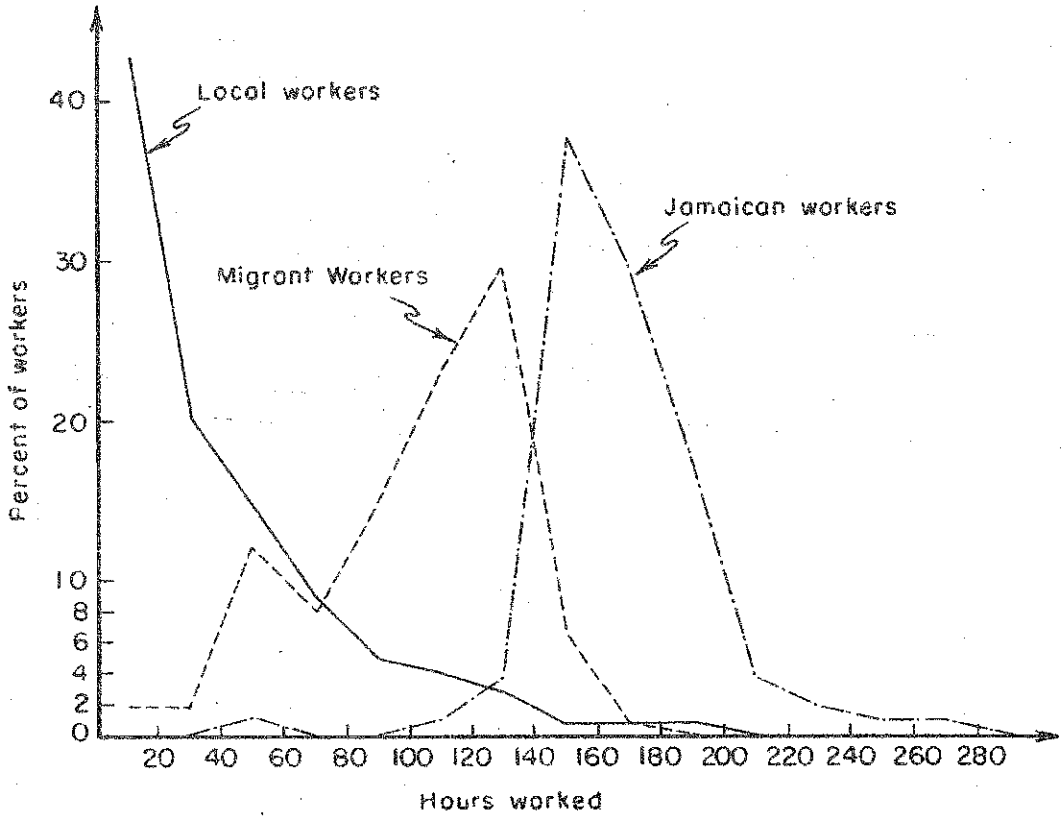
An examination of the hours per season input by the three labor sources reveals some striking contrasts (see Chart 2). In 1975, 34.4 percent of the local workers harvested apples for 10 hours or less; 64.9 percent harvested for 40 hours or less. Less than 1 percent of the migrant workers and Jamaican workers harvested for 10 hours or less. Of the migrants, 56.6 percent worked between 101 and 140 hours and 72.0 percent of the Jamaicans worked between 141 and 180 hours. Thus local workers exhibited less attachment to the apple harvest than either migrants or Jamaicans.

On the average, locals worked substantially fewer hours than either Jamaicans or migrants. Local workers, however, are much closer to Jamaican and migrant workers in terms of hourly productivity (see Table 3). For the 1975 season, local workers averaged 6.2 boxes per hour; migrants, 8.5 boxes; and Jamaicans, 7.5 boxes. During the six years studied, migrant workers always picked faster than Jamaican workers, their hourly productivity ranging from 111 percent to 142 percent of the Jamaicans' hourly productivity.

The statistics presented to this point indicate the relative position of the three labor sources in terms of productivity and input during the 1975 season. Now we will examine trends identified over the six years studied (see Table 4). These trends were estimated using multiple regression techniques. The models developed and estimation procedures used are described in the research report and will not be discussed here.

In terms of seasonal productivity, all three labor sources experienced year-to-year declines in the number of boxes harvested per worker per season. Local workers experienced the smallest annual average decline (-1.5 boxes each year). This decline was due to a small decline in hours per season spent in

CHART 2. DISTRIBUTION OF WORKERS BY HOURS WORKED AND BY LABOR SOURCE DURING THE 1975 CHAMPLAIN VALLEY APPLE HARVEST



the orchard (-1.4 hours each year) resulting from a decline in hours worked per day (-.2 hours each year). Local workers exhibited slight increases in terms of days per season and boxes per hour - less than .05 boxes and 0.2 days.

Table 3. BOXES PER WORKER PER HOUR FOR THE 1975 CHAMPLAIN VALLEY APPLE HARVEST

Labor Source	Boxes Per Hour	Ave. Boxes as % of Boxes Harvested by Jamaicans
Jamaicans	7.5	100
Migrants	8.5	111 - 142
Locals	6.2	71 - 84

Table 4. YEAR TO YEAR CHANGES IN SELECTED MEASURES OF PRODUCTIVITY FOR THE CHAMPLAIN VALLEY APPLE HARVEST AND INPUT BY LABOR SOURCE

	Labor Source		
	Locals	Migrants	Jamaicans
Boxes Per Season	-1.5	-76.9	-39.9
Hours Per Season	-1.4	-0.9	-4.6
Days Per Season	+0.2	-0.2	-0.9
Hours Per Day	-0.2	+0.1	+0.1
Boxes Per Hour	--	-0.5	-0.1

Migrant workers experienced the largest decline in boxes per season (-76.9 boxes each year). This was due mainly to a decrease in hourly productivity of .5 boxes each year. This decline of .5 boxes each year in hourly productivity becomes significant if projected over a number of years. The shift in seasonal productivity was also due to a lesser extent to a decline in hourly input per season (-.9 hours each year).

Jamaican workers experienced less decline in seasonal productivity over the six years than did migrant workers but substantially more than local workers (-39.9 boxes each year). This decline was due to both a decline in hours per season and boxes per hour. The decline in hours per season was due to a decline in days per season which was partially offset by a small increase

in hours per day.

Of the trends just presented, the change in the migrant labor source is the largest and most striking. Has this been caused by a change in the composition or motivation of this labor source? Both of these possibilities have been suggested by persons associated with the apple production in the Champlain Valley. A more important question would be, "Is this a long-term trend which will or is affecting migrant labor in the Champlain Valley and other areas dependent upon this labor source?"

At this point we turn from an examination of trends to consideration of grower dependence on the alternative sources of harvest labor (see Table 5). During the 1975 season local workers comprised 81 percent of the apple harvest labor force in the Champlain Valley, migrants 6 percent, and Jamaicans 13 percent. In terms of numbers, local workers are still the most important labor source although they have declined from a high of 86 percent in 1971.

Table 5. DISTRIBUTION OF THE LABOR FORCE AND CROP HARVESTED BY LABOR SOURCE FOR THE 1975 CHAMPLAIN VALLEY APPLE HARVEST

Labor Source	Percent of the Labor Force	Percent of the Crop Harvested
Jamaicans	13	40
Migrants	6	12
Locals	81	47
	100	99

Numbers of workers, however, do not provide a total picture of the importance of the alternative sources of harvest labor. Local workers comprised 81 percent of the labor force and harvested 47 percent of the crop; Jamaican workers comprised 13 percent of the labor force and harvested 40 percent of the crop; migrant workers comprised 6 percent of the labor force and harvested 12 percent of the crop. Thus, from the grower's perspective, harvesting capacity may be a more important measure.

The research findings reported here have provided some background on the recent use of foreign workers in the Champlain Valley apple harvest, and the productivity of the three labor sources. Several of the findings have implications for the proposed regulations and operation of this certification process which directly affects labor supply.

First, seasonal productivity varies widely from one labor source to another and between individual workers. Thus, several workers of lower productivity must be substituted for one highly productive worker. Local workers, on the average, can not be effectively substituted for Jamaican or migrant workers on a one for one basis. Harvesting capacity is more important than numbers of

workers from the growers' perspectives. This seems to suggest a need for training and establishment of minimum standards for apple pickers and possibly a limitation on the number of inexperienced workers which a grower can safely employ. An excessive proportion of low productivity workers could result in a portion of the crop not being harvested.

Second, local workers in 1975 made up the largest part of the harvest labor force in the Champlain Valley apple harvest, comprising 81 percent of the labor force and picking 47 percent of the crop in 1975 (see Table 5). However, the fact that over one third worked for 10 hours or less during that season (see Chart 2) indicates that growers were hiring a large number of workers who have very casual attachment to apple harvesting. This also suggests that growers were making extensive use of local workers.

Third, Jamaican workers comprised only 13 percent of the 1975 Champlain Valley apple harvest labor force but picked 40 percent of the crop. This high proportion of the harvesting capacity represented by foreign workers underscores the importance of having a timely, dependable, and uncomplicated certification procedure. Any uncertainty in the system, such as the potential for de-certification part way through the season, affects a large proportion of the harvesting capacity and adds considerable uncertainty to the harvest.

Finally, the observed decline in the productivity of the migrant labor source causes some concern. If this pattern continues for some time or is occurring in other areas, there may be increased need for foreign workers. Whether or not this is the case, the trend identified among migrant workers in the Champlain Valley indicates the need for a certification procedure which is flexible enough to meet changing labor supply situations.

I trust this information will be found helpful as these proposed regulations are considered.