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**SECRETARIA DE RECURSOS NATURALES  
UNIDAD DE PLANEACION, EVALUACION Y GESTION (UPEG)  
INSTITUTO HONDUREÑO DEL CAFE**

**"FORECASTING COFFEE PRODUCTION 1996-97"  
REPORT OF TECHNICAL ASSISTANCE TO IHCAFE**

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## **Background**

In May 1996 this consultant, working with counterparts in IHCAFE, designed a new coffee forecasting system to estimate Honduran coffee production utilizing a greatly expanded List Frame developed from the "Registro de Productores". The new List Frame contained the names of approximately 92,000 coffee producers who had made registered sales of coffee.

The List Frame was stratified and random samples were selected within each stratum, within each Departamento. At the same time, the Area Frame sample was updated for use again to provide for estimates of production by those Honduran coffee farmers not registered on the "Registro de Productores" list. The Area Frame insures 100% coverage of the Honduran coffee sector, thereby complimenting the list frame in this multiple frame sampling scheme.

The data collection was carried out by the IHCAFE extension agents in all regions of the Country. Survey training was accomplished by IHCAFE statistical personnel in July and at the same time survey materials were given to the agents. Data collection was done during the last two weeks of August while at the same time the completed questionnaires were sent to the central office where they were coded, edited and transcribed to machine media. On September 3rd the last questionnaires were entered into the summary system.

## **Actions**

The Consultant reviewed the accomplishments to date and then assisted with procedures to resolve the following problem areas:

### **Situation 1- Farm was sold**

In this situation my recommendation was to leave the original owner on the list frame sample and assign a zero value for the farm's entries on the questionnaire. The reason is that if the farm had been sold to another producer on the List Frame, this farm's production would be reported by the new owner who had a probability of being selected in the List Frame Sample. The same reasoning applies to a farm sold to a Non-List Frame producer. This producer had a probability of being selected in the Area Frame sample, thus the production is included in the Area Frame estimate.

### **Situation 2- Owner died**

In all of these cases the farm continued to be operated by surviving family members and thus would be included in the survey under the deceased name.

### **Situation 3 - The interviewer could not locate or the producer refused to be interviewed**

In this situation the farm is eliminated from the survey, and the expansion factor ( $N/n$ ) is adjusted to reflect the reduced number of sample units ( $n$ ), thus, in effect, we are imputing the stratum average for these "missing values "

A new computer output listing of the list frame sample was prepared that presented the sample by stratum within departments, instead of the IHCAFE regions. Expansion factors were then calculated for each stratum. Expansion factors for the Area Frame were also reviewed.

My review of the Area Frame segment listing sheets (hoja de Control) revealed that for the most part the enumerators understood the reason for and knew how to use the segment listing sheet. However, more training will be needed because some interviewers did not use it correctly and others did not use it at all. I noted that some segments had a very large number of producers (80 to 155) that were listed and supposedly live within the segment boundaries. All segments with large numbers of interviews should be verified in quality control visits and then considered for subdivision into half size or even smaller segments. These subdivided units should contain equal numbers of respondents as well as equal land area and then their expansion factors adjusted accordingly.

I prepared a test set of data to explain and illustrate the summarization and weighting process. The two examples shown will cover the two situations found in the current questionnaire and should assist the systems analyst and programmer in writing the FOX PRO summary program. The statistical unit is also using this to do a test or proof using actual data from the survey. This will verify the FOX-PRO summary.

The output tables were reviewed and some summary errors were detected. These errors were corrected and a new summary was run.

It is necessary to point out that the direct expansion from the list frame sample and from the area frame are not necessarily the forecast of production. The statistician must evaluate the direct expansion in the context of its historical relationship with the actual production obtained, with the "registro de compras" and with climatologic conditions at the time of the survey. This survey was done earlier than surveys in the past and thus could introduce more uncertainty into the thinking of the producer as he responded to the question concerning the production he expects to harvest in 1996/97.

If IHCAFE desires more precise estimates as we approach the beginning of the harvest season I recommend that a small subsample, distributed as shown in the table below, be utilized for a mini-survey in September or October that could be utilized to update the forecast based on data collected in August. The change detected in the mini survey would be applied to the earlier calculated direct expansion of production data.

**TABLE 1 Sample Size and Distribution to Strata-Mini-Survey**

<i>STRATUM</i>	<i>No PRODUCERS</i>	<i>n</i>
1	41,685	161
2	30,379	46
3	17,365	104
4	1,701	46
5	195	114

### **Recommendations**

The following recommendations are suggested

- 1 That procedures be developed to detect response errors, coding errors and data entry errors This was a problem we encountered during my visit and if not detected would have influenced or biased the results of the survey
- 2 Before the next survey the statical group should first prepare the output tables before designing the questionnaire or doing the survey These will facilitate communication within IHCAFE and help programmers write the summary programs
- 3 That enumerator training be continued and that quality control work after the survey be done in order to identify problems that must be discussed with the enumerators before the next survey
- 4 For 1997 only the List Frame sample be used and that 5% of the direct expansion of production be added to represent the Area Frame segments or the non-list coffee production
- 5 That the Area Frame be maintained and be ready for future surveys It is important that this frame be used periodically to measure the non-list frame part of the coffee universe If no changes are made in current listing or registry procedures, I would again do a complete multiple frame survey using both List and Area Frames, in three or four years
- 6 That the FOX-PRO summary system be continued More of the users should have training in the use of this excellent data base system More training would also facilitate communications between those involved in this program