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ASSESSMENT OF 1997 EGYPT INTEGRATED HOUSEHOLD SURVEY DATA FOR USE IN CONSTRUCTING A PRODUCER-LEVEL BASELINE

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Impact Assessment

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EXECUTIVE SUMMARY

This executive summary provides recommendations about the usefulness for MVE of the producer component of MALR/FSR's Egypt Integrated Household Survey data in constructing a pre-APRP baseline estimate of farmer behavior and characteristics. The recommendations pertain to the following three specific questions:

- To what extent can the EIHS results be used by MVE to create a baseline of general descriptive farm-level statistics covering the pre-APRP period?

- Is it possible to estimate econometrically the elasticities needed to construct the producer core component of a Multi-Market Model, which would in turn be used for comprehensive impact assessment purposes?

- Can the EIHS data be used to conduct total factor productivity analyses and to calculate input-output coefficients for use in the EASM?

Each of these questions is answered in turn below.

Descriptive Statistics. The EIHS results provide useful general descriptive statistics about farmers' characteristics and their behavior under pre-Reform conditions. These general statistics include purchased input use and expenditure patterns by household or crop (for purchased seeds or young plants, fertilizer and insecticides), and input marketing characteristics including where the inputs were bought; whether they were obtained on credit and, if so, from which source; and whether the desired ("needed") quantity of input was obtained and, if not, why not. Identifying sources of inputs and use of credit is important for pre- and post-Reform comparison purposes. Since most farmers reported that they had received the "desired" quantity of inputs, the EIHS results will be less useful for identifying pre-Reform constraints to expanded use of purchased inputs (the most common constraint listed for fertilizer and insecticide was "input was not available," followed by "no money" and "no credit"). Data are also available on mandays of family and non-family labor used by task, but not by crop.

On the output side, useful baseline data include crop mix grown (land allocation), quantities produced of different crops, yields per feddan, and crop sales. The latter variable can be calculated both in terms of the percent of producers selling the various crops, and the quantity sold (either in total or as a percent of output). Information is available on where and to whom each major crop was sold. This is valuable for monitoring changes in the relative importance of different market participants as the reform progresses. In addition, the total value of sales and total quantity sold of the different crops are available. From this a producer (farm-gate) price or unit value can be calculated for the crops. However, price data are not available for all Primary Sampling Units (PSUs) for all crops, because transactions did not occur in all PSUs.

Preliminary analyses reveal that producer price data can be used together with the community-level retail price data to construct rudimentary marketing margins for various commodities in different regions of Egypt. These include producer prices (average of 0.74 LE/kg) vs. consumer prices of

rice (average of 1.40 LE/kg); producer prices of wheat (0.70 LE/kg) vs. prices of 72% wheat flour (1.41 LE/kg); or the producer price of fava beans and the retail price of a processed dish such as *ful*.

In addition, the producer data from the EIHS provide useful descriptive information on miscellaneous agricultural expenditures and revenues of farmers, ownership of agricultural equipment and various farm financial statistics, including total revenues, costs and profits. Although it is important to recognize the limitations of any field survey, this information can provide qualitative indications about changes in the economic well-being and wealth positions of farmers over time. Furthermore, this information can be used to monitor qualitative changes in the distribution of assets (such as land), farm income and productivity among farm families.

Supply Elasticities. Attempts to estimate supply elasticities of major crops for use in a Multi-Market Model have so far met with little success. To a large extent this is due to the limited variation inherent in cross-sectional price data, and the fact that producer prices are simply not observed in a number of regions of Egypt (PSUs) because of a lack of transactions. In the case of maize and sorghum, the sparsity of price data appears to be in part due to specialization: regions which grow maize tend not to grow sorghum and vice versa, and zero sales (and production) of rice were reported in numerous PSUs (185-224). In this context, prices from the community-level questionnaire are not useful because they are more properly treated as retail prices incorporating trader, transportation and processing margins, and not as farm-gate prices.

The limitations of cross-sectional price data in regression analyses are well-recognized in the literature, and efforts have been made to more fully exploit the information (variability) contained in farm-level data sets. A method proposed by Angus Deaton for estimating demand elasticities exploits the fact that survey data are usually collected in clusters. Different households in a cluster have access to the same market where, in principle, a uniform price prevails at a given point in time. In the EIHS, PSUs represent such clusters, and Deaton's method could conceivably be applied to estimate improved supply elasticities from the EIHS producer data. It is also recognized in the literature (e.g., Sadoulet and de Janvry, p. 67) that an accurate accounting of household-level transaction costs will lead to greater variability in actual prices received than that captured in recorded market prices.

MVE should consider exploring the use of these alternative and relatively new methods to obtain improved supply elasticity estimates from the EIHS data set. Such an effort could take up to ten days, or more. Of course, there is no guarantee that the resulting estimates would be superior to earlier estimates, but a small chance nevertheless exists.

A few other unexplored possibilities remain for estimating producer supply elasticities from the EIHS. One option is to merge maize and sorghum and treat them as homogenous commodities. On the survey instrument, crop code 03 is listed as "Maize" while code 04 is listed as "Maize (Sorgho)," so it is not clear how the enumerators distinguished between the two crops. Merging these crops would reduce some of the multi-collinearity among prices in the estimation of a profit function. Another option is to restrict the estimation to those PSU's where a full complement of

producer prices is available (for each of the major crops). This would more accurately capture producer responsiveness to the competing opportunities offered by the complete set of major crops. For example, institutional or other barriers may exist to growing specific crops in certain regions (PSUs), so that it would be unrealistic to specify a Multi-Market Model containing all crop choices (i.e., non-zero elasticities) for those regions. A third consideration is that household fixed factors such as educational attainment of the head have not yet been incorporated into the regressions. Last, in view of the above comment about household-specific transaction costs, survey information revealing where and to whom the crop was sold needs to be taken into consideration in estimating a profit function.

To address the important question of farmer efficiency, MVE should also consider estimating a cost function using the producer data. For the pre-Reform era, a behavioral assumption of cost-minimization as opposed to profit maximization is not unrealistic. From this cost function it would, under certain assumptions, also be possible to recover parameters of the production function available to farmers. This option requires that reasonable input price data are available from the community questionnaire. It should be stressed once more that none of these options is guaranteed to produce results that can be used by MVE, but another 10-20 days of effort spent on the data along these lines (including Deaton's method and the introduction of transaction costs) at least has the potential to yield useful results or provide additional insights into farmer behavior that would not be obvious from descriptive summary statistics.

Total Factor Productivity Estimates. Total factor productivity estimates were obtained from the EIHS data. They were calculated both for the average farm and for farms stratified by the amount of land cultivated. These are average productivity measures, reflecting the contribution of each input used in production to the value of total farm output. Productivity estimates for the pre-Reform period provide a useful baseline against which corresponding estimates can be compared at a future date.

Data for labor and equipment use are not broken out by crop, and only expenditures on purchased inputs (and not quantities) are available. Consequently, results of the EIHS are not useful for constructing detailed input-output coefficients for different crops and inputs that could be used in the EASM.

1. INTRODUCTION

Data from the producer component of MALR/FSR's 1997 Egypt Integrated Household Survey[1] of 556 farmers were analyzed during the months of May-July, 1998 with the goals of:

- determining to what extent the survey results could be used by MVE to create a baseline of general descriptive farmer-level statistics covering the pre-APRP period (ca. 1996-97);

- estimating econometrically the elasticities needed for the producer core component of a Multi-Market Model which MVE may develop for comprehensive impact assessment purposes; and

- assessing the EIHS data for their potential usefulness in conducting total factor productivity analyses, as well as in providing input and output data that can be used in the Egypt Agricultural Sector Model (EASM).

To meet these three goals, all input and output variables had to be aggregated first from the sub-household level–i.e., crop, plot, family member, equipment or task level–to the household level. In addition, variables such as land and labor hiring had to be aggregated over four growing seasons of winter, summer, *Nili* and annual (for perennial crops). Use of the data sets also required converting the diverse units of measures used in Egypt for weights and area into kilograms and feddans. Subsequently, the different component files had to be merged at the household level.

The amount of crop detail reported here and in Annex 1 depends on the variable being analyzed; in some cases information is presented on all 39 crops grown (e.g., output in kilograms); in other cases, information is provided only for the major crops of rice, wheat, maize, sorghum, fava beans, sugarcane, winter and summer vegetables, cotton and clover (e.g., yields in kilograms per feddan). All SPSS syntax files used in this assessment are attached as Annex 2 of this document.

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[1]The 1997 Egypt Integrated Household Survey (EIHS) was undertaken by the International Food Policy Research Institute in collaboration with the United States Agency for International Development (USAID), the Ministry of Agriculture and Land Reclamation of the Government of Egypt and the Ministry of Trade and Supply of the Government of Egypt. The EIHS survey was funded under USAID Grant No. 263-G-00-96-00030-00.

2. ANALYSIS OF DATA

2.1 Frequency Counts for Crops Grown by Farmers Surveyed

The following table shows the distribution of crops grown by farmers surveyed in the 1997 round of the Egypt Integrated Household Surveys. This represents a snapshot of the average crop mix grown by the "typical" farmer that year.

Berseem is the most widely-grown crop (by three out of four farmers), followed by wheat (61%) and maize (48% of all farmers). Rice was grown by one out of four farmers in the survey year. In the remainder of this paper, crops grown by at least 10% of the farmers are referred to as "major crops," while crops grown by fewer than 3% of the farmers are defined as "minor" crops. The remaining crops (fava beans, sugarcane and summer/winter vegetables), together with "major crops," are referred to as "primary" crops.

Results in Table 2.1 are based on a frequency count of the variable *pn* (crop number) from data file s12b*.sav. In some cases, production of a given crop was recorded more than once for the same household. Specifically, in households 13519, 19016 and 19020 berseem production is recorded twice; in households 12713, 19515 and 21008 wheat production is recorded twice; in household 12713 maize production is recorded twice and in household 19515 it is recorded three times; in household 17113 rice production is recorded twice.

The frequency counts in Table 2.1 are corrected for multiple product entries for crops up to and including "Other Oil Crops." The number 556 represents the unique number of household ID codes encountered for those respondents reporting that they had "cultivated any land" (variable s12bq01).

2.2 Raw Household-Level Production and Sales Data, All Crops

Tables 2.2 and 2.3 contain the production and sales of each crop, in kilograms, averaged across all farm households surveyed; berseem production and sales are calculated separately, and reported below (Tables 2.2 and 2.3). The SPSS syntax file *Conv2kg2.sps* is used to generate Tables 2 and 3. Since the break variable in the aggregation step is the household ID code (*hid*), and the aggregation function used is a summation, the household level data files (e.g., *prodn1hh.sav*) contain the total of each crop produced within a household, even if the same crop appears more than once in a given household.

Rates of conversion of the different crops from non-metric units (ardeb, dariba, etc.) were obtained from the FSR Unit, and are based on information contained in Ministry of Agriculture and Land Reclamation, SEA Agricultural Statistics Abstract, Fifth Issue, November 1997, and CAPMAS, Statistical Yearbook, June 1997.

Table 2.1: Crops Produced by Farmers (Frequency Counts)

Crop	EIHS Crop Number	Number of Farmers	Percent of Responses	Percent of Farmers out of 556 total
Berseem	63	421	24.1%	75.7%
Wheat	2	342	19.6%	61.5%
Maize	3	266	15.2%	47.8%
Rice	1	144	8.2%	25.9%
Sorgho	4	134	7.7%	24.1%
Cotton	60	118	6.7%	21.2%
Fava Beans	8	52	3.0%	9.4%
Sugarcane	59	41	2.3%	7.4%
Summer Vegetables	40	40	2.3%	7.2%
Other Crops	64	36	2.1%	6.5%
Winter Vegetables	39	20	1.1%	3.6%
Other Oil Crops	19	14	0.8%	2.5%
Winter Potato	41	12	0.7%	2.2%
Oranges	29	12	0.7%	2.2%
Groundnuts	25	12	0.7%	2.2%
Sesame	27	10	0.6%	1.8%
Mango	18	10	0.6%	1.8%
Other Legumes	46	10	0.6%	1.8%
Jack Fruit	49	8	0.5%	1.4%
Other Fruit	56	7	0.4%	1.3%
Onions	31	6	0.3%	1.1%
Summer Potato	20	5	0.3%	0.9%
Olives	28	3	0.2%	0.5%
Coriander	36	2	0.1%	0.4%
Beet	22	2	0.1%	0.4%
Other Cereals	6	2	0.1%	0.4%
Sweet Potato	21	2	0.1%	0.4%
Peas	13	2	0.1%	0.4%
Fenugreek	37	2	0.1%	0.4%
Soybeans	7	2	0.1%	0.4%
Other Citrus Fruit	45	1	0.1%	0.2%
Banana	47	1	0.1%	0.2%
Guava	48	1	0.1%	0.2%
Garlic	32	1	0.1%	0.2%
Pineapple	50	1	0.1%	0.2%
Plums	53	1	0.1%	0.2%
Chickpeas	17	1	0.1%	0.2%
Dates	57	1	0.1%	0.2%
Cowpeas	16	1	0.1%	0.2%
Other Spices	38	1	0.1%	0.2%
Barley	5	1	0.1%	0.2%
Chilis	30	1	0.1%	0.2%
Total		1749		

The calculations for berseem are carried out separately, using the SPSS syntax file *berseem.sps*,

because they involve a formula incorporating both the size of the field and the number of cuttings made. The formula, provided by FSR, was used to obtain the results in Tables 2.2 and 2.3 below. Berseem sales are calculated separately as the percent of production sold, multiplied by the quantity produced (in kilograms).

Table 2.2: Berseem Production, Sales and Farm Prices, All Households

	N	Minimum	Maximum	Mean	Std. Deviation
Production (kgs)	565	0	206625	14964.02	21274.0
Percent sold (%)	256	.00	10.00	.51	.78
Price (LE/kilogram)	166	.00	.76	7.90E-02	.1005

Table 2.3: Berseem Production, Sales and Price Data, Selling Households Only

	N	Minimum	Maximum	Mean	Std. Deviation
Production (kgs)	165	1188	206625	24469.6	25733.8
Percent sold (%)	165	.03	10.00	.77	.85
Value of sales (LE)	165	60.00	6000.00	884.6	850.5
Price (LE/kilogram)	165	.01	.76	7.95E-02	.1006

The formula for calculating berseem production is as follows (obtained from Dr. Bahloul of FSR):
(((9.5mt/fd/24qt/fd)*1000kg/mt)*(x fd/cut*24qt/fd))*y cuts = output in kgs,
where mt=metric tons, fd=feddan, kg=kilograms, x=area cultivated in feddans, cut=number of cuttings of berseem (*hasha*), and y=the number of cuts. The number of cuts is calculated by dividing the value of variable s12bq04b (interpreted as the number of cuts multiplied by the area in quirat) for crop number 63 (berseem) and unit of quantity harvested code 15 (quirat/hasha) by the total area cultivated to berseem (in quirat), which is calculated from the landholding data file (s12a1mv2.sav). The figure 9.5 mt/fd per cutting is an Egypt-wide estimate for berseem production. In principle, berseem is cut between 1 and 5 times per year.

Tables 2.6 and 2.7 provide additional details about crop sales, for the subsets of households selling the crop indicated. Table 2.6 shows the average percent of production (measured in kilograms) of each crop sold. This percentage ranges from a low value of 53.1% for rice to high values of 97.2% each for cotton and sugar.

Table 2.7 shows the percent of the producers of the different crops who have sold all or part of their output of each crop. Clover is the crop that is the least likely to be sold by producers. Also shown is the average amount of each crop sold, measured in kilograms.

Table 2.4: Raw Household-Level Production Data (kg)

Crop	N	Minimum	Maximum	Mean	Std. Deviation
RICE	555	.00	70875	1063.7	4127.9
WHEAT	555	.00	22500	985.5	1687.4
MAIZE	555	.00	13860	711.3	1382.3
SORGO	555	.00	21000	346.7	1232.1
BARLEY	555	.00	360	.650	15.3
SOYBEANS	555	.00	750	2.1	36.1
FAVA BEANS	555	.00	9300	120.9	648.4
PEAS	555	.00	0	.0000	.0000
COWPEAS	555	.00	410	.740	17.4
CHICKPEAS	555	.00	225	.405	9.55
OTHER LEGUMES	555	.00	2000	12.3	136.6
Winter POTATO	555	.00	30000	160.4	1688.0
Summer POTATO	555	.00	18500	47.2	803.7
Sweet POTATO	555	.00	4000	8.3	171.6
BEETS	555	.00	60000	178.4	3035.1
GROUNDNUT	555	.00	10875	66.4	706.6
SESAME	555	.00	480	4.8	38.6
OLIVE	555	.00	1000	2.9	46.1
OTHER OILS	555	.00	3000	24.0	205.5
CHILIES	555	.00	2000	3.6	84.9
ONIONS	555	.00	11000	48.7	655.0
GARLIC	555	.00	3000	5.4	127.3
CORIANDER	555	.00	10000	34.2	570.6
FENUGREEK	555	.00	116	.349	5.93
OTHER SPICE	555	.00	500	.901	21.2
Winter VEGETABLE	555	.00	12000	131.6	1012.0
Summer VEGETABLE	555	.00	3500	60.9	353.9
ORANGE	555	.00	15000	55.9	717.3
MANGO	555	.00	2000	12.7	131.5
BANANA	555	.00	2500	4.5	106.1
GUAVA	555	.00	0	.0000	.0000
JACKFRUIT	555	.00	7000	50.5	535.0
PLUMS	555	.00	300	.541	12.7
OTHER FRUIT	555	.00	4600	20.1	245.7
DATES	555	.00	250	.45	10.6
SUGARCANE	555	.00	150000	2458.6	12655.2
COTTON	555	.00	6300	198.6	569.6
CLOVER	555	.00	48000	101.2	2054.5
OTHER CROP	555	.00	4000	19.8	243.6

Note: This and the following tables were generated with the SPSS job CONV2kg2.sps
Includes all households, regardless of whether they grow the crop listed.

Table 2.5: Raw Household-Level Sales Data

(kg)

Crop	N	Minimum	Maximum	Mean	Std. Deviation
RICE	555	.00	32000.00	438.70	1873.57
WHEAT	555	.00	22500.00	463.20	1368.20
MAIZE	555	.00	8820.00	280.50	793.03
SORGHO	555	.00	9800.00	154.25	669.03
BARLEY	555	.00	.00	0.00	0.00
SOYBEANS	555	.00	750.00	2.07	36.05
FAVA BEANS	555	.00	9300.00	106.82	608.34
PEAS	555	.00	.00	0.00	0.00
COWPEA	555	.00	400.00	0.72	16.98
CHICKPEAS	555	.00	225.00	0.41	9.55
OTHER LEGUME	555	.00	2000.00	12.25	136.23
Winter POTATO	555	.00	24000.00	127.03	1267.69
Summer POTATO	555	.00	18500.00	45.95	801.71
Sweet POTATO	555	.00	4000.00	8.11	171.07
BEETS	555	.00	60000.00	178.38	3035.10
GROUNDNUT	555	.00	10875.00	66.28	706.53
SESAME	555	.00	480.00	4.11	35.50
OLIVE	555	.00	250.00	1.15	16.11
OTHER OILS	555	.00	3000.00	22.16	190.58
CHILIES	555	.00	1900.00	3.42	80.65
ONIONS	555	.00	18000.00	60.36	881.24
GARLIC	555	.00	3000.00	5.41	127.34
CORIANDER	555	.00	10000.00	34.23	570.56
FENUGREEK	555	.00	116.25	0.35	5.93
OTHER SPICES	555	.00	250.00	0.45	10.61
Winter VEGETABLE	555	.00	12000.00	120.88	935.80
Summer VEGETABLE	555	.00	3500.00	56.14	341.48
ORANGE	555	.00	15000.00	54.59	714.64
MANGO	555	.00	1750.00	9.28	101.21
BANANA	555	.00	2500.00	4.50	106.12
GUAVA	555	.00	.00	0.00	0.00
JACKFRUIT	555	.00	7000.00	45.05	487.89
PLUMS	555	.00	300.00	0.54	12.73
OTHER FRUIT	555	.00	1150.00	5.23	62.15
DATES	555	.00	.00	0.00	0.00
SUGARCANE	555	.00	150000.00	2445.95	12560.10
COTTON	555	.00	6300.00	182.61	550.86
CLOVER	555	.00	131.25	0.34	6.08
OTHER CROP	555	.00	4000.00	21.12	245.85

Includes all households, regardless of whether they produced or sold the crop listed.

Table 2.6: Percent of Crop Production Sold by Selling Households*

Crop	N	Minimum	Maximum	Mean (%)	Std. Deviation
RICE	103	.05	1.00	**0.531**	0.225
WHEAT	195	.07	1.67	**0.593**	0.239
MAIZE	129	.07	1.00	**0.616**	0.266
SORGHO	76	.20	1.11	**0.684**	0.221
FAVA BEANS	45	.40	1.00	**0.881**	0.151
Winter VEGETABLES	15	.50	1.00	**0.920**	0.173
Summer VEGETABLES	27	.10	1.00	**0.896**	0.226
SUGAR	39	.50	2.00	**0.972**	0.228
COTTON	113	.33	1.00	**0.972**	0.118
CLOVER	167	.03	1.20	**0.686**	0.276

*Includes percentages in excess of 100% which may represent sales out of carry-over stocks, or re-sales of products purchased from other farmers.
The percentage for berseem (clover) was trimmed to below 200%.

Table 2.7: Percent of Producing Households Selling Each Crop, and Mean Quantity Sold (kg)

Crop	Producers selling (% of total)	N	Minimum	Maximum	Mean kgs sold per household	Standard Deviation
RICE	**72.2%**	104	200	32000	**2341**	3793
WHEAT	**57.3%**	196	150	22500	**1312**	2049
MAIZE	**48.5%**	129	140	8820	**1207**	1263
SORGHO	**56.7%**	76	140	9800	**1126**	1482
FAVA BEANS	**86.5%**	45	194	9300	**1318**	1740
Winter VEGETABLES	**75.0%**	15	200	12000	**4473**	3715
Summer VEGETABLES	**67.5%**	27	40	3500	**1154**	1081
SUGAR	**97.6%**	40	5000	150000	**33938**	33835
COTTON	**95.8%**	113	79	6300	**897**	924
CLOVER	**39.2%**	165	792	118750	**15547**	17547

2.3 Raw PSU-Level Price Data, All Crops

2.3.1 Producer-Level Prices (averaged at the PSU-Level)

Table 2.8 contains prices for crops in LE/kilogram at the level of Primary Sampling Units (*berseem* prices are calculated separately, see above). These prices are calculated from the production data file (s12b*), which also contains information on quantities sold as well as the value of the sale. Sales may have occurred at the farm-gate, at a market, or elsewhere.
Table 2.9 reports producer prices of major crops for each PSU in which they are available. This

illustrates the relative sparsity of farm-level price data in many regions of Egypt. Although other prices are available for the markets serving each PSU from the community-level questionnaires, these prices are more properly viewed as retail prices, and they cannot be used in estimating econometric models for producer responsiveness.

2.3.2 Retail Prices and Marketing Margins

Preliminary analyses suggest that prices obtained from the community-level questionnaire can be used, together with the producer price data, to construct marketing margins for different commodities. For example, the average producer price for rice is LE 0.735/kg, which compares with a community-level average price of LE 1.396/kg. The average producer price of wheat is LE 0.695/kg, compared with a price of 72% flour of LE 1.405/kg. These statistics provide a starting point for calculating changes in marketing margin over time under the APRP.

Table 2.8: PSU-Level Price Data, all Crops
(LE/kilogram)

Crop	N	Minimum	Maximum	Mean price in LE/kg	Standard Deviation
RICE	24	.40	.85	0.735	0.095
WHEAT	56	.57	1.00	0.696	0.102
MAIZE	41	.39	.98	0.695	0.130
SORGHO	27	.57	1.29	0.796	0.167
BARLEY	0				
SOYBEANS	2	.87	.88	0.871	0.006
FAVA BEANS	19	.52	1.50	1.128	0.297
PEAS	0				
COWPEAS	1	2.50	2.50	2.500	.
CHICKPEAS	1	1.56	1.56	1.556	.
OTHER LEGUME	4	.55	350.00	88.338	174.443
Winter POTATO	5	.29	.67	0.481	0.132
Summer POTATO	2	.28	.60	0.438	0.230
Sweet POTATO	2	.35	.80	0.575	0.318
BEETS	1	.08	.08	0.083	.
GROUNDNUT	6	1.00	1.67	1.323	0.230
SESAME	8	1.58	3.33	2.629	0.511
OLIVES	1	1.40	1.40	1.400	.
OTHER OILS	5	.60	1.05	0.930	0.186
CHILIES	1	1.00	1.00	1.000	.
ONIONS	3	.20	.25	0.218	0.032
GARLIC	1	.10	.10	0.100	.
CORIANDER	2	.12	.18	0.150	0.042
FENUGREEK	2	1.03	1.03	1.032	0.000
OTHER SPICES	1	2.00	2.00	2.000	.
Winter VEGETABLE	10	.12	1.00	0.502	0.305
Summer VEGETABLE	13	.33	10.00	2.355	2.913
ORANGE	3	.30	.73	0.512	0.214
MANGO	2	2.25	2.50	2.375	0.177
BANANA	1	.90	.90	0.900	.
GUAVA	0				
JACK FRUIT	1	.75	.75	0.745	.
PLUMS	1	.75	.75	0.750	.
OTHER FRUITS	1	1.40	1.40	1.400	.
DATES	0				
SUGARCANE	9	.05	.10	0.086	0.019
COTTON	37	2.33	3.84	3.041	0.319
CLOVER	1	2.24	2.24	2.241	.
OTHER CROPS	4	.90	6.25	2.444	2.546

Table 2.9: Illustration of Sparseness of Producer Price Data Across PSUs

(LE/Kilogram)

PSU	RICE	WHEAT	MAIZE	SORGO	COTTON	BERSEEM
121	0.79					0.58
123	0.80	0.63				
125	0.72	0.65			3.17	0.03
127	0.65	0.58	0.57		3.17	
129	0.69	0.57	0.61		3.09	
130	0.72	0.62		1.29	3.17	0.07
131	0.78	0.69		0.64		
132	0.80	0.65		0.62		
133	0.74					0.04
134	0.80	0.67	0.71			0.00
135		0.67	0.71		3.37	0.08
136	0.77	0.64			3.17	0.02
137	0.69	0.67				
138	0.82	0.64	0.71		3.33	0.03
139	0.78	0.75	0.98		3.37	0.04
141						
146		0.60	0.67			0.05
147		0.75	0.67			0.19
150	0.79	0.63	0.74		3.17	0.05
151		0.63	0.73			0.05
152	0.67					
153					3.17	0.05
154	0.79	0.61			3.11	0.05
155	0.61	0.73				0.05
158	0.40	0.62		0.66	2.54	0.05
159					3.17	
160		0.60		0.57	3.05	0.04
161		0.67	0.39		3.17	0.06
162						0.17
163		0.64	0.70		3.16	
164		0.62	0.47			0.63
165					3.17	
167	0.78					
168	0.77	0.63	0.57	0.67		0.05
169						0.03
170	0.79	0.67	0.50		3.65	0.04

PSU	RICE	WHEAT	MAIZE	SORGO	COTTON	BERSEEM
171	0.85	0.67	0.57	0.64	3.84	0.04
172		0.67		1.14		
177						
182				1.00		0.06
184						
185						0.06
186				0.83		0.06
187			0.64			0.06
188		0.66	0.71		3.00	0.04
189		0.60	0.86			0.05
190		0.60	0.78		2.69	0.02
191		0.71	0.71		3.06	0.07
192		0.76	0.75		3.37	0.06
193	0.64	0.68	0.72		3.38	0.05
194		0.70	0.67	0.89	3.27	0.06
195			0.67			0.06
197		0.67	0.57			
198		0.67	0.62			0.06
199		0.62	0.55		2.79	0.05
200		0.59	0.58		2.33	0.05
201		0.75	0.60			
202		0.68	0.66	0.59		0.06
203		0.67	0.61			0.06
204		1.00		0.71	2.95	0.08
205		0.70		0.73	2.86	
206		0.90	0.73	0.75	2.79	
207		1.00		0.86	2.86	
208						0.05
209		0.69		0.71	2.79	0.05
210				0.79	2.67	0.04
211		0.82	0.80	0.85	2.54	0.07
212		0.73		0.77	2.62	0.07
213		0.70		0.71	2.73	0.11
214		0.71	0.81	0.89		0.10
215			0.86		2.73	0.08
216		0.81	0.93	0.92		0.08
220		1.00	0.95	0.86		0.06
221						

PSU	RICE	WHEAT	MAIZE	SORGO	COTTON	BERSEEM
222		0.69	0.71	0.71		0.13
223		0.92	0.96	0.96		0.07
224		0.78	0.71	0.71		0.11
226						

2.4 Average Land Area Allocated to Primary Crops, All Farms

Table 2.10 shows the average allocation of land to different crops by the typical farmer in the survey year. The SPSS syntax filed used to generate this table is *cropland.sps*.

Table 2.10: Average Land Area Allocated to Primary Crops, All Farms, (Feddans)

Crop	N	Minimum	Maximum	Mean feddans/hh	Std. Deviation
RICE	564	.00	23.50	**0.43**	1.56
WHEAT	564	.00	20.00	**0.88**	1.90
MAIZE	564	.00	20.00	**0.55**	1.35
SORGHO	564	.00	18.04	**0.37**	1.31
FAVA BEANS	564	.00	21.50	**0.22**	1.54
SUGAR	564	.00	6.00	**0.09**	0.43
Winter VEGETABLE	564	.00	72.25	**0.23**	3.21
Summer VEGETABLE	564	.00	18.04	**0.12**	0.87
COTTON	564	.00	20.00	**0.40**	1.56
CLOVER	564	.00	24.08	**1.12**	2.55

2.5 Productivity Data for Primary Crops: Crop Yields

Land productivity measures are reported in Table 2.11 in the form of kilograms per feddan. Outliers were removed before the mean yield was calculated, using the following cut-off rules. At the lower end of the frequency table (i.e., for small numbers), a value was dropped if it was 60% or less of the following (next higher) value. For example, in the case of wheat, the four lowest values were 66.5, 74.7, 87.5 and 150 kgs per feddan. 87.5 is 58% of 150, so values below 150 were dropped before the mean was calculated. At the upper end of the distribution, a value was dropped if it exceeded the preceding value by at least 50%. For example, in the case of wheat production, the three largest values were 4,680, 10,800 and 11,700 kgs/feddan. In this case, the two largest values were trimmed from the distribution to arrive at the mean reported in Table 2.11. The maximum number of values dropped for any crop from either end of the distribution is three.

Results in Table 2.11 are based on merged production and area files, which were generated in other SPSS jobs. The SPSS syntax file used to generate this table (except for the median and standard error) is *yield.sps*. This file contains the statements used for cleaning the yield data and also contains code for generating means for each crop that have not been trimmed. Missing values in the production data file were filled in using the yield data (for example, in cases where a positive amount

was reported for production of a crop but no corresponding land value was reported).

Table 2.11: Land Productivity Data, Primary Crops (kgs/feddan)

Crop	N	Minimum	Maximum	Median yield in kilogram/ feddan	Mean yield in kilogram/ feddan	Std. Deviation	Standard Error
RICE	135	630.0	7,200.0	2,580	**2,537.7**	1,184.6	102.0
WHEAT	331	150.0	4,680.0	1,440	**1,525.2**	781.4	43.0
MAIZE	235	280.0	5,040.0	1,400	**1,603.3**	831.3	54.2
SORGHO	129	373.3	6,720.0	1,344	**1,476.6**	848.9	74.7
FAVA BEANS	47	155.0	2,380.8	839	**899.3**	475.5	69.4
SUGARCANE	37	11,000.0	50,000.0	35,143	**34,533.6**	10,304.5	1,694.0
Winter VEGETABLE	11	714.3	6,000.0	1,630	**2,379.4**	1,788.4	539.2
Summer VEGETABLE	26	133.3	5,333.3	600	**1,302.9**	1,427.6	280.0
COTTON	116	236.3	2,362.5	787	**804.0**	345.8	32.1
CLOVER	398	659.7	91,200.0	19,000	**22,036.1**	14,658.0	732.9

Note: these are trimmed means (see text).

2.6 Input Expenditures

Table 2.12 through 2.16 show average total expenditures per household on various purchased inputs. Only households actually reporting purchases of the input are included in the calculation. Tables 2.17 through 2.19 show expenditures on the various inputs by crop, while Tables 2.20 and 2.21 report data on hired labor use by task.

2.6.1 Expenditures per Household

Table 2.12: Seed Expenditures per Household

LE

	N	Minimum	Maximum	Mean	Std. Deviation
SEEDPLXP	517	5.00	4930.00	218.2572	403.3356
Valid N	517				

Table 2.13: Fertilizer Expenditures per Household

LE

	N	Minimum	Maximum	Mean	Std. Deviation
FERTILXP	535	7.50	7280.00	351.4400	501.7353
Valid N	535				

Table 2.14: Insecticide Expenditures per Household

LE

	N	Minimum	Maximum	Mean	Std. Deviation
INSECTXP	324	1.00	4345.00	171.5868	340.2984
Valid N	324				

Table 2.15: Expenditures on Casual Labor per Household, by Season

LE

	N	Minimum	Maximum	Mean	Std. Deviation
WINTERLX	373	.00	1169.00	107.6930	146.5413
SUMMERLX	373	.00	3480.00	155.3043	299.8458
PERENLX	373	.00	840.00	30.2869	102.1190
NiliLX	373	.00	480.00	7.7265	45.2707
Total	373	.00	3740.00	301.0107	403.4988
Valid N	373				

Table 2.16: Expenditures on Permanent Workers per Household,

LE

	N	Minimum	Maximum	Mean	Std. Deviation
Expenditure	9	.00	23860.00	3820.8889	7619.7012
Number	13	1.00	20.00	2.7692	5.2465
LE/worker	9	.00	2400.00	1076.1111	834.4801
Valid N	9				

2.6.2 Expenditures per Crop

Table 2.17: Household Seed Expenditures, by Crop

LE

Crop	Mean (LE)	Number of observations	Std. Deviation
Rice	108.59	104	191.83
Wheat	62.66	271	91.44
Maize	42.85	217	44.31
Sorgho	30.78	105	44.98
Barley	13.00	1	.
Other cereals	6.00	1	.
Soybeans	17.50	2	3.54
Fava Beans	91.39	36	64.27
Lentil	165.00	2	190.92
Gram	67.50	2	17.68
Pea	147.50	2	45.96
Cow Pea	60.00	2	0.00
Chickpeas	50.00	1	.
Other Legumes	66.60	10	59.35
Winter potato	719.23	13	647.28
Summer potato	1365.00	4	1655.41
Sweet potato	120.00	2	113.14
Beet	142.50	2	137.89
Ground nut	39.89	9	30.93
Sesame	25.50	8	17.74
Other oilseed	59.17	6	62.40
Chilies	400.00	1	.
Onions	97.00	5	128.63
Garlic	200.00	1	.
Coriander seed	15.00	1	.
Fenugreek	17.50	2	3.54
Winter vegetable	107.31	16	121.31
Summer vegetable.	70.28	25	83.76
Orange	0.00	1	.
Other fruit	600.00	1	.
Sugarcane	53.75	4	62.37
Cotton	67.85	92	92.62
Berseem	50.97	325	55.60
Other crops	47.33	36	62.20
No recall/don't know	307.74	58	290.87
Total	80.25	1368	179.23

Table 2.18: Household Fertilizer Expenditures, by Crop

LE

Crop	Mean (LE)	Number of observations	Std. Deviation
Rice	109.45	90	88.54
Wheat	91.65	207	106.76
Maize	116.62	169	100.25
Sorgho	114.37	79	115.08
Barley	21.00	1	.
Other cereals	30.00	2	21.21
Soybeans	50.50	2	6.36
Fava Beans	79.02	30	89.62
Lentil	26.00	1	.
Gram	80.00	1	.
Pea	200.00	1	.
Cow Pea	69.00	2	55.15
Chickpeas	27.00	1	.
Other Legumes	106.75	8	81.47
Winter potato	154.29	7	90.57
Summer potato	142.50	2	152.03
Sweet potato	60.00	2	42.43
Beet	637.50	2	654.07
Ground nut	68.17	6	43.94
Sesame	106.90	5	59.65
Other oilseed	72.75	4	97.14
Chilies	60.00	1	.
Onions	183.00	2	250.32
Garlic	240.00	1	.
Fenugreek	15.00	1	.
Winter vegetable	141.42	12	108.98
Summer vegetable	149.79	14	178.90
Orange.	555.33	3	353.59
Mango	107.00	5	69.79
Banana	400.00	1	.
Guava	30.00	1	.
Jack fruit	248.00	5	186.60
Other fruit	76.67	3	98.66
Sugarcane	319.71	35	252.20
Cotton	125.22	65	183.63
Berseem	54.11	235	69.26
Other crops	224.43	14	514.32
No recall/don’t know	446.31	86	507.24
Total	133.44	1106	216.09

Table 2.19: Household Insecticide Expenditures, by Crop

LE

Crop	Mean (LE)	Number of observations	Std. Deviation
Rice	79.77	73	163.50
Wheat	36.17	89	48.03
Maize	28.63	31	20.13
Sorgho	29.77	30	16.44
Other cereals	350.00	1	.
Fava Beans	62.91	29	79.39
Gram	300.00	1	.
Pea	15.00	1	.
Cow Pea	20.00	1	.
Chickpeas	20.00	1	.
Other Legumes	80.78	9	61.10
Winter potato	42.50	6	28.94
Summer potato	236.67	3	317.86
Sweet potato	37.50	2	31.82
Beet	220.00	2	254.56
Ground nut	33.40	5	22.86
Sesame	30.00	2	0.00
Chilies	100.00	1	.
Onions	95.00	2	35.36
Garlic	100.00	1	.
Winter vegetable	138.29	7	99.10
Summer vegetable	74.71	17	76.66
Orange.	142.00	8	115.58
Other citrus	60.00	1	.
Mango	110.00	4	77.89
Guava	85.00	1	.
Jack fruit	623.75	8	519.61
Other fruit	30.00	1	.
Cotton	158.80	82	223.31
Linen	70.00	1	.
Berseem	62.38	21	118.45
Other crops	276.25	4	321.85
No recall/don’t know	222.65	57	351.66
Total	106.28	502	204.06

2.6.3 Hired Labor Expenditures and Family Labor Use

Table 2.20: Household Expenditures on Hired Labor, By Task and Season

LE

Task	Variable	Winter	Summer	Perennial	*Nili*
Plowing	Mean (LE)	33.94	56.84	12.41	3.81
	No. observations	310	310	310	310
	Std. Deviation	48.85	110.32	41.59	20.99
Seeding	Mean (LE)	14.26	23.98	0.55	1.38
	No. observations	211	211	211	211
	Std. Deviation	20.82	29.36	3.83	8.61
Weeding	Mean (LE)	19.72	38.20	5.27	1.59
	No. observations	179	179	179	179
	Std. Deviation	32.29	87.36	20.12	8.48
Harvest	Mean (LE)	59.42	75.41	15.54	2.54
	No. observations	349	349	349	349
	Std. Deviation	102.56	153.89	69.27	16.31
Other	Mean (LE)	22.21	19.56	9.07	2.21
	No. observations	107	107	107	107
	Std. Deviation	30.11	30.60	29.84	10.41
Total	Mean (LE)	34.75	50.11	9.77	2.49
	No. observations	1156	1156	1156	1156
	Std. Deviation	66.64	110.68	45.67	15.28

Table 2.21: Household Labor Allocated to Different Tasks, in Mandays, by Season

Task	Variable	Winter	Summer	Perennial	*Nili*
Plowing	Mean	2.25	3.33	0.64	0.40
	No. observations	806	806	806	806
	Std. Deviation	6.03	8.03	3.08	2.96
Seeding	Mean	2.19	3.03	0.13	0.30
	No. observations	457	457	457	457
	Std. Deviation	2.29	4.71	1.47	1.07
Weeding	Mean	2.65	5.45	0.72	0.68
	No. observations	389	389	389	389
	Std. Deviation	5.42	11.36	3.06	3.01
Harvest	Mean	6.68	6.79	1.31	0.48
	No. observations	507	507	507	507
	Std. Deviation	11.29	11.57	5.83	2.21
Other	Mean	4.22	4.84	1.04	1.05
	No. observations	245	245	245	245
	Std. Deviation	6.37	6.71	5.40	3.68
Total	Mean	3.44	4.50	0.74	0.51
	No. observations	2404	2404	2404	2404
	Std. Deviation	7.21	9.03	3.92	2.66

2.7 Miscellaneous Agricultural Expenditures and Revenues

The EIHS also included questions relating to miscellaneous agricultural expenditures incurred and revenues received by farmers. These additional financial flows, not directly related to own-crop production, are reported in Table 2.22. The averages reported include all households, regardless of whether they actually received the revenue listed or incurred the expense shown.

Table 2.22: Miscellaneous Agricultural Expenditures and Revenues

LE

Item	N	Minimum	Maximum	Mean	Std. Dev.
Irrigation /Maintenance Char	564	0	4000	203.28	332.98
Transp cost of crops to market	564	.00	1800	27.02	113.25
Transp cost of inputs	564	0	200	7.14	17.52
Sacks & other cont cost	564	.00	1000	15.03	78.29
Storage Facility	564	0	50	0.18	2.59
Improvement on Land or Farm	564	.00	4000	16.55	183.63
Repair &Maintenance of Equip	564	0	4000	35.12	209.78
Draft Animal Rent	564	0	200	3.21	15.87
Tractor Rent	564	.00	1500	100.90	145.57
Thresher Rent	564	.00	1000	56.06	91.63
Rent of other Machinery	564	0	2000	8.30	88.59
Other Miscellaneous Expenditure	564	0	500	10.05	47.85
Sales of Crop By-Products	564	0	1520	85.98	195.85
Revenue from Draft Animal	564	0	750	1.77	32.73
Revenue from Tractor	564	0	10000	40.51	515.30
Revenue from Thresher	564	0	4500	11.01	194.59
Revenue from Other Machinery	564	0	3000	9.08	132.16
Revenue from Misc. Activities	564	0	3000	8.72	129.72

2.8 Ownership of Agricultural Implements

Table 2.23 shows both the average value of the implement listed by those owning the implement, and the average number of pieces owned by households. Only households able to report a value for the implement listed are included in the calculations.

2.9 Household Financial Statistics

Table 2.25 shows productivity measures calculated using different definitions of costs incurred by farmers.

2.10 Input Marketing Characteristics (for Major Crops)

Results of a qualitative analysis of input and output marketing data are reported in this section. Data

presented are frequency counts using cross-tabulations involving major crops and various characteristics related to the inputs used in producing these crops.
These questions are of the following nature: First, did the farmer buy the input in question. Second, if so, where was it purchased? Third, was it obtained on credit, and fourth,

Table 2.23: Value and Number of Pieces of Equipment Owned by Farmers

LE

Item	N	Minimum	Maximum	Mean	Std. Deviation
Value of Implement in LE					
Tractor	14	3700.00	70000.00	26550.00	18947.41
Plow	27	50.00	1200.00	221.56	277.97
Cart	99	50.00	2800.00	378.28	336.84
Thresher	4	99.00	7500.00	5399.75	3541.69
Trolley	11	150.00	4500.00	2559.09	1532.45
Waterpump	153	99.00	12000.00	1306.84	1276.53
Generator	3	250.00	2000.00	841.67	1003.22
Storage Bin	14	.00	10000.00	2180.57	2961.83
Insecticide pump	29	6.00	3000.00	259.00	640.62
Number of pieces					
Tractor	16	.20	1.00	0.92	0.23
Plow	28	.20	2.00	1.01	0.25
Cart	99	.50	2.00	1.00	0.12
Thresher	4	1.00	1.00	1.00	0.00
Trolley	11	.20	1.00	0.93	0.24
Waterpump	153	.10	9.00	0.99	0.72
Generator	3	.10	1.00	0.43	0.49
Storage Bin	16	1.00	2.00	1.13	0.34
Insecticide pump	31	.50	2.00	1.00	0.22
Valid N (listwise)	0				

Table 2.24: Miscellaneous Household-Level Financial Statistics

LE

	N	Minimum	Maximum	Mean	Std. Dev.
Feddans per hh	551	.08	28.00	1.77	3.00
Value of land/feddan	502	.00	219096.77	46333.27	28474.81
Value of land/hh	551	990.00	704000.00	65238.75	79837.20
Gross revenue (profit)	551	150.00	114409.27	5145.03	8610.75
Misc. ag. revenues	551	.00	23700.00	300.11	1551.63
Misc. ag. expenditures	551	.00	5400.00	417.38	572.62
All expenses	543	35.00	45565.00	1333.85	2436.04
Revenue per feddan	551	96.77	120960.00	3884.56	8530.84
Total revenue/hh	551	155.00	115059.27	5445.14	9331.78
Profits-1. definition*	543	-1060.71	114065.27	4127.87	8108.39
Family labor expenses	551	.00	3295.50	253.61	346.68

Cost of land	551	191.67	64400.00	4075.70	6908.18
Cost of capital	551	.00	14155.00	254.25	1204.75
Profits-2. definition*	543	-1060.71	113987.27	3873.68	8054.01
Valid N (listwise)	495				

*See the definitions of profits and productivity used in the following table.

Table 2.25: Productivity of Farm Households: Four different definitions

Definition	N	Minimum	Maximum	Mean	Std. Deviation
PRODUCTX	546	.54	115.75	5.2021	7.7525
PRODUCTY	546	.50	107.33	3.9063	6.3163
PRODUCTZ	546	.04	34.12	1.1381	2.2024
PRODCTXX	546	.04	34.12	1.1159	2.2040
Valid N (listwise)	546				

Definitions used:
x=total revenue/(variable costs except for family labor)
y=total revenue/(variable costs plus family labor)
z=total revenue/(variable costs plus family labor plus land cost)
xx=total revenue/(variable costs plus family labor plus land cost plus equipment)

what was the source of the credit? Fifth, was the desired amount of the input obtained and sixth, if not, why not? For example, Table 2-28 presents answers to the question, "for each of the crops you produced (and for which you purchased the input listed), where was the inputs purchased"?

In Table 2-28, the column for "Coop" shows the number of times this sources was listed for purchased seed or young plants for the different crops (e.g., 76 farmers responded receiving rice seed or young plants from a co-op, compared with 183 farmers in the case of wheat, and 91 in the case of maize). Reading across each row shows the relative importance of the different sources listed for seeds or young plants for the crop in question. For example, 61.8% of the farmers buying seeds or young plants received them from a co-op, 4.9% received them from another farmer, 12.2% received them from a dealer, etc.

2.10.1 Improved Seed Varieties

Table 2-26: Crop by Use of Improved Seed Variety, by Crop

			Use Improved Variety of Seeds?			Total
			na	No	Yes	
Crop	Rice	Count		26	119	145
		% within		17.9%	82.1%	100.0%
	Wheat	Count		99	246	345
		% within		28.7%	71.3%	100.0%
	Maize	Count	2	136	131	269
		% within	.7%	50.6%	48.7%	100.0%
	Sorgho	Count	1	73	60	134

		% within	.7%	54.5%	44.8%	100.0%
	Cotton	Count		18	100	118
		% within		15.3%	84.7%	100.0%
	Berseem	Count	2	350	72	424
		% within	.5%	82.5%	17.0%	100.0%
Total		Count	5	702	728	1435
		% within	.3%	48.9%	50.7%	100.0%

n.a.=no answer/not applicable.

2.10.2 Purchased Seeds and Young Plants

Table 2.27: Purchased Seeds/Young Plants Last Agric. Year, by Crop

		Prchs Seeds/Yng Plants Last Agricultural Year?		
		No*	Yes	Total
Rice	Count	15	129	129
	% within Crop Number		100.0%	100.0%
Wheat	Count	27	315	315
	% within Crop Number		100.0%	100.0%
Maize	Count	33	233	233
	% within Crop Number		100.0%	100.0%
Sorgho	Count	3	131	131
	% within Crop Number		100.0%	100.0%
Cotton	Count	3	115	115
	% within Crop Number		100.0%	100.0%
Berseem	Count	50	371	371
	% within Crop Number		100.0%	100.0%
Total	Count		1294	1294
	% within Crop Number		100.0%	100.0%

*calculated by subtracting the number answering "yes" from the total number of producers of each crop.

Table 2.28: Where Were Purchased Seed/Young Plants Obtained, by Crop

		Where Were They Obtained?						Total
Crop		Coop	Farmers	Dealer	VlgBank	Landlord	Other	
Rice	Count	76	6	15	14	6	6	123
	% within	61.8%	4.9%	12.2%	11.4%	4.9%	4.9%	100.0%
Wheat	Count	183	31	27	27	18	15	301
	% within	60.8%	10.3%	9.0%	9.0%	6.0%	5.0%	100.0%
Maize	Count	91	35	59	6	21	19	231
	% within	39.4%	15.2%	25.5%	2.6%	9.1%	8.2%	100.0%
Sorgho	Count	44	19	28	2	16	14	123
	% within	35.8%	15.4%	22.8%	1.6%	13.0%	11.4%	100.0%
Cotton	Count	85	1	2	17	1		106

	% within	80.2%	.9%	1.9%	16.0%	.9%		100.0%
Berseem	Count	35	87	204	1	25	6	358
	% within	9.8%	24.3%	57.0%	.3%	7.0%	1.7%	100.0%
Total	Count	514	179	335	67	87	60	1242
	% within	41.4%	14.4%	27.0%	5.4%	7.0%	4.8%	100.0%

Table 2.29: Obtain Seeds/Young Plants on Credit, by Crop

		Obtain Seeds/Young Plants on Credit?		Total
Crop		Yes	No	
Rice	Count	18	107	125
	% within	14.4%	85.6%	100.0%
Wheat	Count	51	259	310
	% within	16.5%	83.5%	100.0%
Maize	Count	37	193	230
	% within	16.1%	83.9%	100.0%
Sorgho	Count	10	121	131
	% within	7.6%	92.4%	100.0%
Cotton	Count	27	87	114
	% within	23.7%	76.3%	100.0%
Berseem	Count	50	315	365
	% within	13.7%	86.3%	100.0%
Total	Count	193	1082	1275
	% within	15.1%	84.9%	100.0%

Table 2.30: Source of Credit for Seeds/Young Plants, by Crop

		Source of Credit?					Total
Crop		Vlg bank	Family	Coop	Dealers	Landlord	
Rice	Count	6		10	3		19
	% within	31.6%		52.6%	15.8%		100.0%
Wheat	Count	15		29	6	1	51
	% within	29.4%		56.9%	11.8%	2.0%	100.0%
Maize	Count	7	1	25	2	3	38
	% within	18.4%	2.6%	65.8%	5.3%	7.9%	100.0%
Sorgho	Count	5		1	4		10
	% within	50.0%		10.0%	40.0%		100.0%
Cotton	Count	9		18	1		28
	% within	32.1%		64.3%	3.6%		100.0%
Berseem	Count	13	1	28	10	2	54
	% within	24.1%	1.9%	51.9%	18.5%	3.7%	100.0%
Total	Count	55	2	111	26	6	200
	% within	27.5%	1.0%	55.5%	13.0%	3.0%	100.0%

Table 2.31: Obtained Seeds/Young Plants Needed, by Crop

Crop		Obtained Seeds/Young Plants Needed?		Total
		Yes	No	
Rice	Count	119	3	122
	% within	97.5%	2.5%	100.0%
Wheat	Count	298	5	303
	% within	98.3%	1.7%	100.0%
Maize	Count	223	2	225
	% within	99.1%	.9%	100.0%
Sorgho	Count	125	3	128
	% within	97.7%	2.3%	100.0%
Cotton	Count	110	2	112
	% within	98.2%	1.8%	100.0%
Berseem	Count	352	7	359
	% within	98.1%	1.9%	100.0%
Total	Count	1227	22	1249
	% within	98.2%	1.8%	100.0%

Table 2.32: Why Not Obtain Needed Seeds/Young Plants, by Crop

Crop		Why Not Obtain Needed Seeds?	Total
		"Other reason"	
Rice	Count	1	1
	% within	100.0%	100.0%
Wheat	Count	1	1
	% within	100.0%	100.0%
Cotton	Count	2	2
	% within	100.0%	100.0%
Berseem	Count	2	2
	% within	100.0%	100.0%
Total	Count	6	6
	% within	100.0%	100.0%

2.10.3 Fertilizer

Table 2.33: Purchased Fertilizers Last Agricultural Year, by Crop

Crop		Purchased Fertilizers Last Agricultural Year ?		Total
		Yes	No*	
Rice	Count	127	1	128
	% within	99.2%	.8%	100.0%
Wheat	Count	295	5	300
	% within	98.3%	1.7%	100.0%
Maize	Count	229	1	230
	% within	99.6%	.4%	100.0%
Sorgho	Count	123	3	126
	% within	97.6%	2.4%	100.0%
Cotton	Count	108		108
	% within	100.0%		100.0%
Berseem	Count	337	3	340
	% within	99.1%	.9%	100.0%
Total	Count	1219	13	1232
	% within	98.9%	1.1%	100.0%

*This is incomplete; need to subtract "yes" response from the number growing each crop.

Table 2.34: Source of Fertilizer, by Crop

Crop		Where Was Fertilizer Obtained?						Total
		Coop	Farmers	Dealer	Vlg Bank	Landlord	Other	
Rice	Count	59		37	23	2		121
	% within	48.8%		30.6%	19.0%	1.7%		100.0%
Wheat	Count	138		87	50	2		277
	% within	49.8%		31.4%	18.1%	.7%		100.0%
Maize	Count	92	3	87	24	3		209
	% within	44.0%	1.4%	41.6%	11.5%	1.4%		100.0%
Sorgho	Count	54	1	43	14			112
	% within	48.2%	.9%	38.4%	12.5%			100.0%
Cotton	Count	54	1	18	24	1		98
	% within	55.1%	1.0%	18.4%	24.5%	1.0%		100.0%
Berseem	Count	118	4	140	30	4	1	297
	% within	39.7%	1.3%	47.1%	10.1%	1.3%	.3%	100.0%
Total	Count	515	9	412	165	12	1	1114
	% within	46.2%	.8%	37.0%	14.8%	1.1%	.1%	100.0%

Table 2.35: Purchase Fertilizer on Credit, by Crop

Crop		Obtain Fertilizers on Credit?		Total
		Yes	No	
Rice	Count	50	72	122
	% within	41.0%	59.0%	100.0%
Wheat	Count	104	191	295
	% within	35.3%	64.7%	100.0%
Maize	Count	68	158	226
	% within	30.1%	69.9%	100.0%
Sorgho	Count	37	88	125
	% within	29.6%	70.4%	100.0%
Cotton	Count	56	51	107
	% within	52.3%	47.7%	100.0%
Berseem	Count	111	224	335
	% within	33.1%	66.9%	100.0%
Total	Count	426	784	1210
	% within	35.2%	64.8%	100.0%

Table 2.36: Source of Credit, by crop

Crop		Source of Fertilizer Credit				Total
		Vilg bank	Family	Coop	Dealers	
Rice	Count	21		23	7	51
	% within	41.2%		45.1%	13.7%	100.0%
Wheat	Count	36	1	53	10	100
	% within	36.0%	1.0%	53.0%	10.0%	100.0%
Maize	Count	20	1	40	5	66
	% within	30.3%	1.5%	60.6%	7.6%	100.0%
Sorgho	Count	6	1	21	6	34
	% within	17.6%	2.9%	61.8%	17.6%	100.0%
Cotton	Count	23		26	5	54
	% within	42.6%		48.1%	9.3%	100.0%
Berseem	Count	38		64	11	113
	% within	33.6%		56.6%	9.7%	100.0%
Total	Count	144	3	227	44	418
	% within	34.4%	.7%	54.3%	10.5%	100.0%

Table 2.37: Obtained Fertilizers Needed, by Crop

Crop		Obtained Fertilizers Needed?		Total
		Yes	No	
Rice	Count	117	3	120
	% within	97.5%	2.5%	100.0%
Wheat	Count	282	11	293
	% within	96.2%	3.8%	100.0%
Maize	Count	219	5	224
	% within	97.8%	2.2%	100.0%
Sorgho	Count	117	8	125
	% within	93.6%	6.4%	100.0%
Cotton	Count	103	3	106
	% within	97.2%	2.8%	100.0%
Berseem	Count	320	11	331
	% within	96.7%	3.3%	100.0%
Total	Count	1158	41	1199
	% within	96.6%	3.4%	100.0%

Table 2.38: Why Not Obtain Needed Fertilizer, by Crop

		Why Not Obtain Needed Fertilizer?				Total
Crop		Not Avlbl	No Money	No Credit	Other	
Rice	Count	4	1	1	1	7
	% within	57.1%	14.3%	14.3%	14.3%	100.0%
Wheat	Count	8	3	2	2	15
	% within	53.3%	20.0%	13.3%	13.3%	100.0%
Maize	Count	4	1	2	1	8
	% within	50.0%	12.5%	25.0%	12.5%	100.0%
Sorgho	Count	5	1		1	7
	% within	71.4%	14.3%		14.3%	100.0%
Cotton	Count	5	1	1		7
	% within	71.4%	14.3%	14.3%		100.0%
Berseem	Count	7	2	1	2	12
	% within	58.3%	16.7%	8.3%	16.7%	100.0%
Total	Count	33	9	7	7	56
	% within	58.9%	16.1%	12.5%	12.5%	100.0%

2.10.4 Insecticides

Table 2.39: Purchased Insecticides Last Agricultural Year, by Crop

Crop		Purchased Insecticides Last Agricultural Year?		Total
		Yes	No*	
Rice	Count	91	1	92
	% within	98.9%	1.1%	100.0%
Wheat	Count	112	2	114
	% within	98.2%	1.8%	100.0%
Maize	Count	42	2	44
	% within	95.5%	4.5%	100.0%
Sorgho	Count	45		45
	% within	100.0%		100.0%
Cotton	Count	101		101
	% within	100.0%		100.0%
Berseem	Count	41	2	43
	% within	95.3%	4.7%	100.0%
Total	Count	432	7	439
	% within	98.4%	1.6%	100.0%

*Incomplete.

Table 2.40: Where Were Insecticides Obtained, by Crop

Crop		Where Were Insecticides Obtained?					Total
		Coop	Farmers	Dealer	Vilg. Bank	Landlord	
Rice	Count	23		66	1	2	92
	% within	25.0%		71.7%	1.1%	2.2%	100.0%
Wheat	Count	39	1	65	7	1	113
	% within	34.5%	.9%	57.5%	6.2%	.9%	100.0%
Maize	Count	6	1	35			42
	% within	14.3%	2.4%	83.3%			100.0%
Sorgho	Count	13		30	2		45
	% within	28.9%		66.7%	4.4%		100.0%
Cotton	Count	50		42	8	1	101
	% within	49.5%		41.6%	7.9%	1.0%	100.0%
Berseem	Count	5		28			33
	% within	15.2%		84.8%			100.0%
Total	Count	136	2	266	18	4	426
	% within	31.9%	.5%	62.4%	4.2%	.9%	100.0%

Table 2.41: Insecticides Obtained on Credit, by Crop

Crop		Obtain Insecticides on Credit?		Total
		Yes	No	
Rice	Count	44	43	87
	% within	50.6%	49.4%	100.0%
Wheat	Count	48	63	111
	% within	43.2%	56.8%	100.0%
Maize	Count	11	32	43
	% within	25.6%	74.4%	100.0%
Sorgho	Count	17	27	44
	% within	38.6%	61.4%	100.0%
Cotton	Count	59	40	99
	% within	59.6%	40.4%	100.0%
Berseem	Count	19	24	43
	% within	44.2%	55.8%	100.0%
Total	Count	198	229	427
	% within	46.4%	53.6%	100.0%

Table 2.42: Source of Credit, by Crop

Crop		Source of Credit?			Total
		Vlg bank	Coop	Dealers	
Rice	Count	6	15	25	46
	% within	13.0%	32.6%	54.3%	100.0%
Wheat	Count	5	17	26	48
	% within	10.4%	35.4%	54.2%	100.0%
Maize	Count		7	4	11
	% within		63.6%	36.4%	100.0%
Sorgho	Count	1	2	14	17
	% within	5.9%	11.8%	82.4%	100.0%
Cotton	Count	14	34	12	60
	% within	23.3%	56.7%	20.0%	100.0%
Berseem	Count	1	3	16	20
	% within	5.0%	15.0%	80.0%	100.0%
Total	Count	27	78	97	202
	% within	13.4%	38.6%	48.0%	100.0%

Table 2.43: Obtained Insecticides Needed, by Crop

Crop		Obtained Insecticides Needed?		Total
		Yes	No	
Rice	Count	85	3	88
	% within	96.6%	3.4%	100.0%
Wheat	Count	108	4	112
	% within	96.4%	3.6%	100.0%
Maize	Count	41	1	42
	% within	97.6%	2.4%	100.0%
Sorgho	Count	43	2	45
	% within	95.6%	4.4%	100.0%
Cotton	Count	95	4	99
	% within	96.0%	4.0%	100.0%
Berseem	Count	41	1	42
	% within	97.6%	2.4%	100.0%
Tota	Count	413	15	428
	% within	96.5%	3.5%	100.0%

Table 2.44: Why Not Obtain Needed Insecticide, by Crop

Crop		Why Not Obtain Needed Insecticide?			Total
		Not Avlbl	No Money	No Credit	
Rice	Count	2			2
	% within	100.0%			100.0%
Wheat	Count	1	1		2
	% within	50.0%	50.0%		100.0%
Cotton	Count	3	2	1	6
	% within	50.0%	33.3%	16.7%	100.0%
Total	Count	6	3	1	10
	% within	60.0%	30.0%	10.0%	100.0%

2.11 Output Marketing Characteristics: Major Crops

Table 2.45: Person It Was Sold to, by Crop

		Who was it Sold to?					Total
Crop		Not sold	Farmers	Gvrnment	Other	PrvtTrdr	
Rice	Count	42	13	9	1	80	145
	% within	29.0%	9.0%	6.2%	.7%	55.2%	100.0%
Wheat	Count	151	19	24	2	149	345
	% within	43.8%	5.5%	7.0%	.6%	43.2%	100.0%
Maize	Count	136	38	3	3	89	269
	% within	50.6%	14.1%	1.1%	1.1%	33.1%	100.0%
Sorgho	Count	58	3		1	72	134
	% within	43.3%	2.2%		.7%	53.7%	100.0%
Cotton	Count	5	1	105	1	6	118
	% within	4.2%	.8%	89.0%	.8%	5.1%	100.0%
Berseem	Count	257	145		7	15	424
	% within	60.6%	34.2%		1.7%	3.5%	100.0%
Total	Count	649	219	141	15	411	1435
	% within	45.2%	15.3%	9.8%	1.0%	28.6%	100.0%

Table 2.46: Where It Was Sold, by Crop

		Where was it Sold					Total
Crop		na	Farm	Gvrnment	Market	Other	
Rice	Count	42	50	8	34	11	145
	% within	29.0%	34.5%	5.5%	23.4%	7.6%	100.0%
Wheat	Count	151	70	21	84	19	345
	% within	43.8%	20.3%	6.1%	24.3%	5.5%	100.0%
Maize	Count	138	50	3	66	12	269
	% within	51.3%	18.6%	1.1%	24.5%	4.5%	100.0%
Sorgho	Count	58	25		46	5	134
	% within	43.3%	18.7%		34.3%	3.7%	100.0%
Cotton	Count	6	6	100	3	3	118
	% within	5.1%	5.1%	84.7%	2.5%	2.5%	100.0%
Berseem	Count	259	155		5	5	424
	% within	61.1%	36.6%		1.2%	1.2%	100.0%
Total	Count	654	356	132	238	55	1435
	% within	45.6%	24.8%	9.2%	16.6%	3.8%	100.0%

3. FINDINGS AND CONCLUSIONS

3.1 Creating a Baseline of General Producer-Level Statistics

3.1.1 Input Use and Expenditures

The EIHS contains information useful for establishing baselines for a number of variables related to the use and marketing of inputs. This includes, by crop, whether or not an improved variety of seed was used, and household expenditures on seeds and young plants, fertilizer and insecticides. For the three latter variables, information is included on the source of the input (co-operative, farmer, trader, village bank, landlord or other), whether the inputs were purchased on credit, the source of the credit, whether the quantity of input desired was obtained, and, if applicable, the reason why an insufficient quantity was obtained. This information can be compared with data collected in the post-Reform period to determine how basic input market characteristics have changed over tine. Expenditures on these three purchased inputs are presented by crop (Table 1) and aggregated to the household level (Table 2). Data are available on hiring of casual labor, by task, as well as hiring of permanent workers. For casual labor this includes the payment per day per worker (in LE) as well as the number of man-days hired in each of the main seasons (winter, summer, *Nili* and for perennial crops).

Table 3.1: Household Expenditures on Selected Inputs, by Major Crop

(LE)

Crop	Seed (LE)	Fertilizer (LE)	Insecticide (LE)
Rice	108.59	109.45	79.77
Wheat	62.66	91.65	36.17
Maize	42.85	116.62	28.63
Sorgho	30.78	114.37	29.77
Fava Beans	91.39	79.02	62.91
Winter vegetable	107.31	141.42	138.29
Summer vegetable.	70.28	149.72	74.71
Cotton	67.85	125.22	158.80
Berseem	50.97	54.11	62.38

Source: Author's calculations using EIHS data.
Note: Hired labor allocations are available by task but not by crop.

Reasonably reliable estimates are also available for the value and number of agricultural implements owned by farmers (i.e., capital), and information on land use (including land rented out and in) is provided. After adding in data on family labor in man-days and other expenditures such as irrigation maintenance charges, marketing costs and custom work, and after making assumptions about the annual opportunity cost of land, the rental rate of capital and an opportunity cost for labor, total farm production expenses or costs are calculated for each

Table 3.2: Expenditures on Various Inputs

LE/Household

Input	Valid N	Min.	Max.	Mean	Std. Dev.
Seed/Young plants	517	5	4930	218.26	403.34
Fertilizer	535	8	7280	351.44	501.74
Insecticide	324	1	4345	171.59	340.30
Casual Labor (total)	373	0	3740	301.01	403.50
Winter	373	0	1169	107.69	146.54
Summer	373	0	3480	155.30	299.85
Perennial	373	0	840	30.29	102.12
Nili	373	0	480	7.73	45.27
Permanent Workers	9	0	23860	3820.89	7619.70

Source: Author's calculations using EIHS data.

household (see Annex 1). Although the standard deviations associated with the various point estimates (sample means) are large, they are within the range of what would be expected from this type of survey.

3.1.2 Yield Data

Relatively reasonable estimates of yield–a simple but common measure of productivity–were calculated for each of the major crops surveyed in the EIHS. These yields can be used to establish a pre-reform baseline. Again, the standard deviations for the point estimates are fairly large, but in an order of magnitude to be expected in this type of survey. In all cases except for summer vegetables the standard deviation is well below the sample mean; in a number of cases it is less than one-half of the mean.

Table 3.3: Descriptive Statistics for Yields of Major Crops

kg./Feddan

Crop	N	Minimum	Maximum	Mean	Std. Error	Std. Dev.
Rice	135	630	7,200	**2,538**	102	1,185
Wheat	331	150	4,680	**1,525**	43	781
Maize	235	280	5,040	**1,603**	54	831
Sorghum	129	373	6,720	**1,477**	75	849
Fava Beans	47	155	2,381	**899**	69	475
Sugarcane	37	11,000	50,000	**34,534**	1,694	10,304
Winter vegetable	11	714	6,000	**2,379**	539	1,788
Summer vegetable	26	133	5,333	**1,303**	280	1,428
Cotton	116	236	2,363	**804**	32	346
Clover	400	660	91200	**22036**	733	14658

Source: Author's calculations using EIHS; means are trimmed, as described in detail elsewhere.

3.1.3 Output, Revenues and Marketing

The EIHS data can be used to calculate the total value of crops produced by each farm household, and the variability of the data is comparable to that of the input expenditure data. For each household, the value of production was estimated using either actual prices received by farmers for their products, or a PSU-level price estimate, or a national price estimate for each crop. The revenue earned from the production of each crop (whether it was sold or not) was supplemented with miscellaneous agriculturally-related expenditures such as renting out of equipment or land to arrive at a gross revenue figure for each household. The pre-Reform baseline data available from the EIHS include the number of farmers growing the different crops--i.e., the crop mix of the "average" farmer. This variable can be monitored over time to determine how cropping patterns are changing in terms of land allocation decisions.

Data are available on the share of producing households participating in output markets for each crop produced, and the percent of the quantity harvested that is sold. Information is available by major crop on the buyer of the product (farmers, government, private trader, other) and where the transaction took place. The farm-level transactions can be used to obtain a farm-gate price series which can be compared with market-level prices for the purpose of constructing marketing margins. It is also possible to calculate the average price received from each of the different buyers.

3.2 Estimating Elasticities from Profit Functions for Use in a Multi-Market Model

Numerous attempts were made to estimate a profit function by regressing farm profits exclusive of fixed costs on prices of the six major crops and the fixed quantities of land and capital. Prices were either those actually received by the household, or calculated PSU-level prices, or average national prices, depending on the availability of the price. Functional forms used included (1) a generalized Leontief, (2) a normalized quadratic and (3) a translog profit function with appropriate restrictions; the latter could be fit only to data for the 95% of households with a positive value for profit. No attempt has been made yet to estimate the supply functions directly. The reason for this is that the estimation would be cumbersome since virtually none of the households produce the entire complement of crops; thus all of the supply functions would have a censored dependent variable.

Although some of the functions–especially the generalized Leontief–yielded reasonable parameter estimates when corrected for heteroscedasticity, none of the functions estimated to date has yielded supply elasticities which would be considered in the range of what is “normal”. A statistically significant test result for farm-level “profit inefficiency” was obtained only in the case of the translog profit function, which despite the use of parameter restrictions provided by economic theory suffered from having a large number of statistically insignificant coefficients. For the other two functional forms, a preliminary test for profit inefficiency yielded residuals skewed in the wrong direction.

The adjusted *R*-square value for the translog profit function is a respectable 55.9%. To a large extent the low significance levels of the estimated parameters for this function are explained by the lack of independent variation in the price data (i.e., multi-collinearity). This lack of variation is a

direct consequence of the fact that national-level prices had to be used frequently in the estimation since PSU-level prices for any given crop are available only in certain areas (from the producer data set), and household-level prices are available only in households selling output. Input prices were not included in this estimation activity because they have not yet been released by IFPRI.

Another consideration is that more realistic prices could be estimated for crops using village clusters, unit prices and household characteristics which affect transaction costs. Including other fixed factors in addition to land and capital, such as educational attainment of the household head, may also improve the estimation of the profit function. Also, since input price data are available from the PSU-level questionnaire, the possibility of estimating a cost function for farmers as an alternative to the profit function can be explored.

3.3 Generating Total Factor Productivity and Input-Output Estimates

3.3.1 Total Factor Productivity

Using the total revenue and cost data, an average total factor productivity was estimated for each farm (Table 2). For the sample, and under the assumptions stated below, average TFP is estimated to be 1.116, so that each LE worth of inputs generates LE 1.116 worth of output--for an average annual rate of return of 11.6%. The smaller farms tend to have a higher total factor productivity than larger farmers. In fact, according to these estimates the medium-large and large farmers are on average not covering all of their opportunity costs. As new data become available at a later date, this productivity measure can be re-calculated using a Divisia index so that TFP levels can be compared through time.

Table 3.4: Total Factor Productivity of Farms, by Farm Size, 1995-96

Farm Size	Farms (% of total)	Size (feddan)	**TFP**	
			Mean	St. error
All farms	100.0	1.82	**1.116**	0.094
Small	42.8	0.47	**1.234**	0.165
Medium	30.8	1.27	**1.100**	0.200
Medium-large	20.9	2.66	**0.973**	0.037
Large	5.6	11.88	**0.823**	0.100

Source: Calculated from EIHS data. Note: assumes family labor opportunity cost of LE 6.5 per man-day; a rental rate of capital of 19% per annum; and a charge for land of LE 2,300 per feddan per year. TFP is calculated as the sum of all farm revenues divided by the sum of all farm expenditures.

3.3.2 Input-Output Coefficients for the EASM

Using the EIHS producer data it is possible to calculate a crude productivity measure for individual inputs such as seeds/young plants, fertilizer and insecticides in the form of kilograms of output of different crops per LE of expenditure on the input. This is only an “average” productivity because

the contribution of other factors of production (land, irrigation water, capital, labor) is not accounted for. If one is, furthermore, willing to assume that the PSU-level price of an input represents a realistic cost of the input to the farmer, then estimates of quantities of inputs used could, in principle, be obtained.

Ideally, one would estimate individual production functions for each crop to measure the independent and incremental contribution of each input to the production of any given crop. However, these production functions cannot be estimated directly for individual crops since data for labor and equipment use are not broken out by crop (in addition to the problem that quantities applied would have to be deduced from PSU-level price data). One solution to this conundrum is to allocate labor to different crops using fixed labor ratios per feddan and by crop using data from experiment stations or other reports, but it is not clear that this will necessarily lead to coefficients that are superior to those currently being used in the EASM. To summarize, farm profits or gross revenues can be expressed on a per feddan or per man-day of labor basis as a simple, single-factor productivity measure which does not take into account the contribution of all the other inputs used in the production process (including water).

REFERENCES

Deaton, Angus. "Quality, Quantity, and Spatial Variation in Price," *American Economic Review*, vol. 78, No. 3, 1988, pp. 418-430.

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ANNEX

ANNOTATED SPSS SYNTAX FILES

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OVERVIEW

The following SPSS syntax files work with the raw data files **s12a1mv2.sav**, **s12b*.sav**, and **s12c*.sav**, and from a sub-directory with the name "c:\ifpri6\". The text can be saved as an ASCII file and be run directly within SPSS. In order to ensure that all data files can be merged properly, it is necessary to convert the *hid* variable (household identifier) from a string to a numeric variable in those files where it is originally saved as a string. This needs to be done before running these syntax files (since they do not contain code for the required conversion). The conversion can be done by retrieving the file, using the **/F**ile **/O**pen command, changing the variable using **/D**ata **/D**efine Variable **/C**hange Settings **/T**ype to a numeric format, and then saving the file again under **/F**ile **S**ave using the same filename. The SPSS jobs should be run in the following order to ensure that data files are available as they are needed by the syntax files: [3,1,2,4,5,6,7,8].

2. *Conv2kg2.sps* Converts raw production/sales data to kilograms.

Source file: c:\ifpri6**s12bnew2.sav** (and **brsmdata.sps**).

The file converts crop production and sales data (except for berseem) from original units of weight to kilograms, using official (CAPMAS) conversion factors. After recoding missing values to zeros (indicating no production or sale of a particular crop) the crop production and sales data are then aggregated to the household level and saved as files **prodn1hh.sav** and **salen1hh.sav**. The file also calculates prices per kilogram for each crop by dividing the value of sales by the quantity sold (**prices.sav**). This file is aggregated to the PSU level and saved as **pricepsu.sav**. Detailed statistics are calculated for sales of the primary crops. Berseem production, sales and prices are calculated separately, as discussed below.

3. *Cropland.sps* Calculates feddans allocated to major crops.

Source file: c:\ifpri6**s12a1mv2.sav**.

The file calculates the amount of land (using raw area data measured in quirat or feddans) allocated to each major crop (rice, wheat, maize, sorgo, favabeans, winter vegetables, summer vegetables, sugarcane, cotton and berseem) in the different growing seasons, and aggregates these numbers to the household-level for the entire agricultural year in units of feddans. The resulting file is **crplndhh.sav**. The file also calculates descriptive summary statistics for land allocated to each major crop in feddan.

4. *Berseem.sps* Calculates berseem production data.

Source files: c:\ifpri6**s12bnew2.sav** and **s12a1mv2.sav**.

This syntax file is designed to calculate total production of berseem at the household-level in kilograms. Two source files are needed, with one providing information on the land area cultivated and the other containing information on the total amount of berseem harvested during the year, using multiple cuttings (hasha/quirat). The file also calculates kilograms of berseem sold: this is accomplished by dividing units of berseem sold by units of berseem produced and then multiplying the resulting percentage by total production. Berseem prices are then calculated by dividing the value of sales by the quantity sold. The resulting berseem data files are **brsmdata.sav** and **brsmonly.sav** which is used to calculate berseem yields. The syntax file generates a number of warnings in the output window that are associated with divisions by zero; these can be ignored since missing production values are later recoded to zeros.

5. *Yield.sps* Calculates yield in kgs/feddan for major crops.

Source files: c:\ifpri6**prodn1hh.sav, crplndhh.sav** and **brsmonly.sav**.
Note: these two data files are created in previous SPSS jobs, which have to be run first.

This syntax file merges the production and land allocation data files for the major crops to calculate yields in kgs/feddan. Trimmed means are also calculated for the yield data using rules described in more detail in the preceding text. The data set produced is **yielddat.sav**.

6. *Profits2.sav* Prepares production data for the purpose of calculating gross profits.

Source files: c:\ifpri6**prodn1hh.sav**, **prices.sav** and **brprtmp3.sav** (calculated here).

In the first steps of this syntax file, estimated production data are filled in for cases where no unit weight conversion codes were available (in **s12bnew2.sav** and *Conv2kg2.sps*). Price data are calculated for each household to attach a value or opportunity cost to the crops produced, regardless of whether the crop was sold. This is done in three steps: 1. The household's own sales price is used if one is available. 2. If no household-level price is used, the PSU-level price is used. 3. If a PSU-level price is not available, the national average price for the crop in question is used. Average prices within a commodity group (such as small grains) are used in cases where no price is available for a crop (such as barley).

In subsequent steps, the output of each crop produced by the household is multiplied by the price. The value of berseem production is merged in, and berseem prices are calculated in the same manner as that described previously. These files are all merged together, and a gross profit (revenue) from crop production activities is calculated. Corrections to gross profits are made where supplemental information is available from the crop sales file (**s12bnew2.sav**.); for example, in a number of cases, data are not available on the quantity sold (or the unit of the quantity), but a number is reported for the value of sales. This is used (with appropriate pro-rating according to the amount sold relative to the amount produced) to obtain a value of the crop produced. The output from this syntax file is the data

set **profits3.sav**.

7. *Inputs.sps* Calculates input expenditures at the household-level.

Source files: c:\ifpri6**s12c*.sav** (*=1,2,3,4,5,6), **s12dm.sav; s12em.sav**.

This syntax file reads in the raw input expenditure files for purchases of seeds/young plants, fertilizer, insecticides, casual labor and permanent workers, and aggregates the expenditures to the household level. The five files are subsequently merged and missing expenditures are recoded to zero. The resulting file is **inpexp1.sav**. In the following step, total mandays of family labor in each of the four cropping periods (summer, winter, Nili and perennial) and for all agricultural tasks are calculated and then aggregated to the household-level (**vlfamlab.sav**). Miscellaneous agricultural revenues (**varrev1.sav**) and expenditures (**varexp2.sav**) are then calculated, and merged in along with the land use data set (**landused.sav**) covering all crops produced by the household.

8. *Inputs2.sps* Calculates input expenditures at the household-level by crop..

This syntax files works in a manner analogous to the previous syntax file. For family labor, the number of mandays by task is calculated.

9. *Prfuprep.sps* Prepares data for profit function and factor productivity analysis

Source file: c:\ifpri6**profit1.sav, brprtmp2.sav** and **prointrm.sav**.

This file sets up the variables needed for the regressions used to estimate the generalized Leontief and normalized quadratic profit functions. The output file generated is **profctn1.sav.**

9. *Prmkt.sps* Provides various input/output marketing characteristics

Source files: c:\ifpri6**s12bnew2.sav**, and **s12c*.sav**

This file prepares various cross tabs on input and output marketing characteristics for farm households, using qualitative response data.

```
COMMENT filename is Conv2kg2.sps .

COMMENT This file converts weights to kilograms for production .
COMMENT Data for berseem (code=63) are calculated separately .
COMMENT Created June 10, 1998 .  Verified July 9, 1998 .

GET FILE='c:\ifpri6\s12bnew2.sav'.
EXECUTE .
IF (pn = 1 & s12bq04a = 1) rice = s12bq04b * 1000 .
IF (pn = 1 & s12bq04a = 3) rice = s12bq04b * 1 .
IF (pn = 1 & s12bq04a = 11) rice = s12bq04b * 300 .
IF (pn = 1 & s12bq04a = 13) rice = s12bq04b * 945 .
IF (pn = 2 & s12bq04a = 11) wheat = s12bq04b * 150.
IF (pn = 3 & s12bq04a = 11) maize = s12bq04b * 140 .
IF (pn = 4 & s12bq04a = 1) sorgo = s12bq04b * 1000 .
IF (pn = 4 & s12bq04a = 11) sorgo = s12bq04b * 140 .
IF (pn = 5 & s12bq04a = 11) barley = s12bq04b * 120 .
IF (pn = 7 & s12bq04a = 1) soybns = s12bq04b * 1000 .
IF (pn = 8 & s12bq04a = 11) favbrd = s12bq04b * 155 .
IF (pn = 13 & s12bq04a = 3) peas = s12bq04b * 1 .
IF (pn = 16 & s12bq04a = 3) cowpea = s12bq04b * 1 .
IF (pn = 17 & s12bq04a = 11) chkpea = s12bq04b * 150 .
IF (pn = 18 & s12bq04a = 1) othleg = s12bq04b * 1000 .
IF (pn = 18 & s12bq04a = 3) othleg = s12bq04b * 1 .
IF (pn = 19 & s12bq04a = 1) wpotat = s12bq04b * 1000 .
IF (pn = 20 & s12bq04a = 1) spotat = s12bq04b * 1000 .
IF (pn = 21 & s12bq04a = 1) swtpot = s12bq04b * 1000 .
IF (pn = 21 & s12bq04a = 3) swtpot = s12bq04b * 1 .
IF (pn = 22 & s12bq04a = 1) beet = s12bq04b * 1000 .
IF (pn = 25 & s12bq04a = 1) grndnt = s12bq04b * 1000 .
IF (pn = 25 & s12bq04a = 11) grndnt = s12bq04b * 75 .
IF (pn = 27 & s12bq04a = 11) sesame = s12bq04b * 120 .
IF (pn = 28 & s12bq04a = 3) olive = s12bq04b * 1 .
IF (pn = 29 & s12bq04a = 1) othoil = s12bq04b * 1000 .
IF (pn = 30 & s12bq04a = 1) chilis = s12bq04b * 1000 .
IF (pn = 31 & s12bq04a = 1) onions = s12bq04b * 1000 .
IF (pn = 31 & s12bq04a = 11) onions = s12bq04b * 45 .
IF (pn = 32 & s12bq04a = 1) garlic = s12bq04b * 1000 .
IF (pn = 36 & s12bq04a = 1) corian = s12bq04b * 1000 .
IF (pn = 37 & s12bq04a = 11) fenugk = s12bq04b * 155 .
IF (pn = 38 & s12bq04a = 3) otspic = s12bq04b * 1 .
IF (pn = 39 & s12bq04a = 1) wvgtbl = s12bq04b * 1000 .
IF (pn = 39 & s12bq04a = 3) wvgtbl = s12bq04b .
IF (pn = 40 & s12bq04a = 1) svgtbl = s12bq04b * 1000 .
IF (pn = 40 & s12bq04a = 3) svgtbl = s12bq04b .
IF (pn = 41 & s12bq04a = 1) orange = s12bq04b * 1000.
IF (pn = 41 & s12bq04a = 3) orange = s12bq04b * 1.
IF (pn = 46 & s12bq04a = 3) mango = s12bq04b * 1.
IF (pn = 47 & s12bq04a = 1) banana = s12bq04b * 1000.
IF (pn = 48 & s12bq04a = 3) guava = s12bq04b * 1.
IF (pn = 49 & s12bq04a = 1) jackft = s12bq04b * 1000.
IF (pn = 53 & s12bq04a = 3) plum = s12bq04b * 1.
IF (pn = 56 & s12bq04a = 3) otfrut = s12bq04b * 1.
IF (pn = 57 & s12bq04a = 3) dates = s12bq04b * 1.
IF (pn = 59 & s12bq04a = 1) sugrcn = s12bq04b * 1000 .
```

```
IF (pn = 60 & s12bq04a = 12) cotton = s12bq04b * 157.5 .
IF (pn = 63 & s12bq04a = 1) clover = s12bq04b * 1000 .
IF (pn = 63 & s12bq04a = 11) clover = s12bq04b * 175 .
IF (pn = 64 & s12bq04a = 1) otcrop = s12bq04b * 1000 .
IF (pn = 64 & s12bq04a = 3) otcrop = s12bq04b * 1 .
EXECUTE .
SAVE
 OUTFILE='c:\ifpri6\Prodnew2.sav'.
EXECUTE .

COMMENT This file converts weights to kilograms for sales data .
COMMENT Data for berseem (code=63) are calculated separately .
GET
 FILE='c:\ifpri6\s12bnew2.sav'.
EXECUTE .
IF (pn = 1 & s12bq05a = 1) rice_s = s12bq05b * 1000 .
IF (pn = 1 & s12bq05a = 3) rice_s = s12bq05b * 1 .
IF (pn = 1 & s12bq05a = 11) rice_s = s12bq05b * 300 .
IF (pn = 1 & s12bq05a = 13) rice_s = s12bq05b * 945 .
IF (pn = 2 & s12bq05a = 11) wheats = s12bq05b * 150.
IF (pn = 3 & s12bq05a = 11) maizes = s12bq05b * 140 .
IF (pn = 4 & s12bq05a = 1) sorgos = s12bq05b * 1000 .
IF (pn = 4 & s12bq05a = 11) sorgos = s12bq05b * 140 .
IF (pn = 5 & s12bq05a = 11) barlys = s12bq05b * 120 .
IF (pn = 7 & s12bq05a = 1) soybss = s12bq05b * 1000 .
IF (pn = 8 & s12bq05a = 11) favbds = s12bq05b * 155 .
IF (pn = 13 & s12bq05a = 3) peas_s = s12bq05b * 1 .
IF (pn = 16 & s12bq05a = 3) cowpes = s12bq05b * 1 .
IF (pn = 17 & s12bq05a = 11) chkpes = s12bq05b * 150 .
IF (pn = 18 & s12bq05a = 1) othlgs = s12bq05b * 1000 .
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IF (pn = 19 & s12bq05a = 1) wpotas = s12bq05b * 1000 .
IF (pn = 20 & s12bq05a = 1) spotas = s12bq05b * 1000 .
IF (pn = 21 & s12bq05a = 1) swtpos = s12bq05b * 1000 .
IF (pn = 21 & s12bq05a = 3) swtpos = s12bq05b * 1 .
IF (pn = 22 & s12bq05a = 1) beet_s = s12bq05b * 1000 .
IF (pn = 25 & s12bq05a = 1) grndns = s12bq05b * 1000 .
IF (pn = 25 & s12bq05a = 11) grndns = s12bq05b * 75 .
IF (pn = 27 & s12bq05a = 11) sesams = s12bq05b * 120 .
IF (pn = 28 & s12bq05a = 3) olives = s12bq05b * 1 .
IF (pn = 29 & s12bq05a = 1) othois = s12bq05b * 1000 .
IF (pn = 30 & s12bq05a = 1) chilss = s12bq05b * 1000 .
IF (pn = 31 & s12bq05a = 1) onioss = s12bq05b * 1000 .
IF (pn = 31 & s12bq05a = 11) onioss = s12bq05b * 45 .
IF (pn = 32 & s12bq05a = 1) garlcs = s12bq05b * 1000 .
IF (pn = 36 & s12bq05a = 1) corins = s12bq05b * 1000 .
IF (pn = 37 & s12bq05a = 11) fenugs = s12bq05b * 155 .
IF (pn = 38 & s12bq05a = 3) otspcs = s12bq05b * 1 .
IF (pn = 39 & s12bq05a = 1) wvgtbs = s12bq05b * 1000 .
IF (pn = 39 & s12bq05a = 3) wvgtbs = s12bq05b .
IF (pn = 40 & s12bq05a = 1) svgtbs = s12bq05b * 1000 .
IF (pn = 40 & s12bq05a = 3) svgtbs = s12bq05b .
IF (pn = 41 & s12bq05a = 1) orangs = s12bq05b * 1000.
IF (pn = 41 & s12bq05a = 3) orangs = s12bq05b * 1.
IF (pn = 46 & s12bq05a = 3) mangos = s12bq05b * 1.
```

```
IF (pn = 47 & s12bq05a = 1) banans = s12bq05b * 1000.
IF (pn = 48 & s12bq05a = 3) guavas = s12bq05b * 1.
IF (pn = 49 & s12bq05a = 1) jackfs = s12bq05b * 1000.
IF (pn = 53 & s12bq05a = 3) plum_s = s12bq05b * 1.
IF (pn = 56 & s12bq05a = 3) otfrts = s12bq05b * 1.
IF (pn = 57 & s12bq05a = 3) datess = s12bq05b * 1.
IF (pn = 59 & s12bq05a = 1) sugrcs = s12bq05b * 1000 .
IF (pn = 60 & s12bq05a = 12) cottns = s12bq05b * 157.5 .
IF (pn = 63 & s12bq05a = 1) clovrs = s12bq05b * 1000 .
IF (pn = 63 & s12bq05a = 11) clovrs = s12bq05b * 175 .
IF (pn = 64 & s12bq05a = 1) otcrps = s12bq05b * 1000 .
IF (pn = 64 & s12bq05a = 3) otcrps = s12bq05b * 1 .
EXECUTE .
SAVE
 OUTFILE='c:\ifpri6\salenew2.sav'.
EXECUTE .

COMMENT Calculation of unit crop prices from sales (LE per kg) .
GET
 FILE='c:\ifpri6\salenew2.sav'.
EXECUTE .
if (pn = 1 & s12bq05c > 0) ricepx = s12bq05c/rice_s .
if (pn = 2 & s12bq05c > 0) wheatpx = s12bq05c/wheats .
if (pn = 3 & s12bq05c > 0) maizepx = s12bq05c/maizes .
if (pn = 4 & s12bq05c > 0) sorgopx = s12bq05c/sorgos .
if (pn = 5 & s12bq05c > 0) barlypx = s12bq05c/barlys .
if (pn = 7 & s12bq05c > 0) soybspx = s12bq05c/soybss .
if (pn = 8 & s12bq05c > 0) favabpx = s12bq05c/favbds .
if (pn = 13 & s12bq05c > 0) peas_px = s12bq05c/peas_s .
if (pn = 16 & s12bq05c > 0) cowpepx = s12bq05c/cowpes .
if (pn = 17 & s12bq05c > 0) chkpepx = s12bq05c/chkpes .
if (pn = 18 & s12bq05c > 0) othlgpx = s12bq05c/othlgs .
if (pn = 19 & s12bq05c > 0) wpotapx = s12bq05c/wpotas .
if (pn = 20 & s12bq05c > 0) spotapx = s12bq05c/spotas .
if (pn = 21 & s12bq05c > 0) swtpopx = s12bq05c/swtpos .
if (pn = 22 & s12bq05c > 0) beet_px = s12bq05c/beet_s .
if (pn = 25 & s12bq05c > 0) grnutpx = s12bq05c/grndns .
if (pn = 27 & s12bq05c > 0) sesampx = s12bq05c/sesams .
if (pn = 28 & s12bq05c > 0) olivepx = s12bq05c/olives .
if (pn = 29 & s12bq05c > 0) otoilpx = s12bq05c/othois .
if (pn = 30 & s12bq05c > 0) chilspx = s12bq05c/chilss .
if (pn = 31 & s12bq05c > 0) oniospx = s12bq05c/onioss .
if (pn = 32 & s12bq05c > 0) garlcpx = s12bq05c/garlcs .
if (pn = 36 & s12bq05c > 0) corinpx = s12bq05c/corins .
if (pn = 37 & s12bq05c > 0) fenugpx = s12bq05c/fenugs .
if (pn = 38 & s12bq05c > 0) otspcpx = s12bq05c/otspcs .
if (pn = 39 & s12bq05c > 0) wvegepx = s12bq05c/wvgtbs .
if (pn = 40 & s12bq05c > 0) svegepx = s12bq05c/svgtbs .
if (pn = 41 & s12bq05c > 0) orangpx = s12bq05c/orangs .
if (pn = 46 & s12bq05c > 0) mangopx = s12bq05c/mangos .
if (pn = 47 & s12bq05c > 0) bananpx = s12bq05c/banans .
if (pn = 48 & s12bq05c > 0) guavapx = s12bq05c/guavas .
if (pn = 49 & s12bq05c > 0) jackfpx = s12bq05c/jackfs .
if (pn = 53 & s12bq05c > 0) plum_px = s12bq05c/plum_s .
if (pn = 56 & s12bq05c > 0) otfrtpx = s12bq05c/otfrts .
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if (pn = 57 & s12bq05c > 0) datespx = s12bq05c/datess .
if (pn = 59 & s12bq05c > 0) sugarpx = s12bq05c/sugrcs .
if (pn = 60 & s12bq05c > 0) cotonpx = s12bq05c/cottns .
if (pn = 63 & s12bq05c > 0) clovrpx = s12bq05c/clovrs .
if (pn = 64 & s12bq05c > 0) otcrppx = s12bq05c/otcrps .
SAVE
 OUTFILE='c:\ifpri6\Prices.sav'.
EXECUTE .

COMMENT Aggregate crop production amounts to the household level .
GET FILE='c:\ifpri6\Prodnew2.sav'.
AGGREGATE /OUTFILE='c:\ifpri6\prodn0hh.SAV' /BREAK=hid
 /ricep_1 = SUM(rice) /wheatp_1 = SUM(wheat) /maizep_1 = SUM(maize)
 /sorgop_1 = SUM(sorgo) /barlyp_1 = SUM(barley) /soybsp_1 = SUM(soybns)
 /favabp_1 = SUM(favbrd) /peas_p_1 = SUM(peas) /cowpep_1 = SUM(cowpea)
 /chkpep_1 = SUM(chkpea) /othlgp_1 = SUM(othleg) /wpotap_1 = SUM(wpotat)
 /spotap_1 = SUM(spotat) /swtpop_1 = SUM(swtpot) /beet_p_1 = SUM(beet)
 /grnutp_1 = SUM(grndnt) /sesamp_1 = SUM(sesame) /olivep_1 = SUM(olive)
 /otoilp_1 = SUM(othoil) /chilsp_1 = SUM(chilis) /oniosp_1 = SUM(onions)
 /garlcp_1 = SUM(garlic) /corinp_1 = SUM(corian) /fenugp_1 = SUM(fenugk)
 /otspcp_1 = SUM(otspic) /wvegep_1 = SUM(wvgtbl) /svegep_1 = SUM(svgtbl)
 /orangp_1 = SUM(orange) /mangop_1 = SUM(mango) /bananp_1 = SUM(banana)
 /guavap_1 = SUM(guava) /jackfp_1 = SUM(jackft) /plum_p_1 = SUM(plum)
 /otfrtp_1 = SUM(otfrut) /datesp_1 = SUM(dates) /sugarp_1 = SUM(sugrcn)
 /cotonp_1 = SUM(cotton) /clovrp_1 = SUM(clover) /otcrpp_1 = SUM(otcrop)
 /N_BREAK=N.
GET FILE='c:\ifpri6\prodn0hh.SAV' .
RECODE
 ricep_1 wheatp_1 maizep_1 sorgop_1 barlyp_1 soybsp_1 favabp_1 peas_p_1
 cowpep_1 chkpep_1 othlgp_1 wpotap_1 spotap_1 swtpop_1 beet_p_1 grnutp_1
 sesamp_1 olivep_1 otoilp_1 chilsp_1 oniosp_1 garlcp_1 corinp_1 fenugp_1
 otspcp_1 wvegep_1 svegep_1 orangp_1 mangop_1 bananp_1 guavap_1 jackfp_1
 plum_p_1 otfrtp_1 datesp_1 sugarp_1 cotonp_1 clovrp_1 otcrpp_1 (sysmis=0) .
SAVE OUTFILE='c:\ifpri6\prodn1hh.SAV' /COMPRESSED .
GET FILE='c:\ifpri6\prodn1hh.SAV' .
des var=
ricep_1 wheatp_1 maizep_1 sorgop_1 barlyp_1 soybsp_1 favabp_1 peas_p_1
 cowpep_1 chkpep_1 othlgp_1 wpotap_1 spotap_1 swtpop_1 beet_p_1 grnutp_1
 sesamp_1 olivep_1 otoilp_1 chilsp_1 oniosp_1 garlcp_1 corinp_1 fenugp_1
 otspcp_1 wvegep_1 svegep_1 orangp_1 mangop_1 bananp_1 guavap_1 jackfp_1
 plum_p_1 otfrtp_1 datesp_1 sugarp_1 cotonp_1 clovrp_1 otcrpp_1 .
EXECUTE .

COMMENT Aggregate sales to household level .
GET FILE='c:\ifpri6\salenew2.sav'.
AGGREGATE /OUTFILE='c:\ifpri6\salen0hh.SAV' /BREAK=hid
 /rices_1 = SUM(rice_s) /wheats_1 = SUM(wheats) /maizes_1 = SUM(maizes)
 /sorgos_1 = SUM(sorgos) /barlys_1 = SUM(barlys) /soybss_1 = SUM(soybss)
 /favabs_1 = SUM(favbds) /peas_s_1 = SUM(peas_s) /cowpes_1 = SUM(cowpes)
 /chkpes_1 = SUM(chkpes) /othlgs_1 = SUM(othlgs) /wpotas_1 = SUM(wpotas)
 /spotas_1 = SUM(spotas) /swtpos_1 = SUM(swtpos) /beet_s_1 = SUM(beet_s)
 /grnuts_1 = SUM(grndns) /sesams_1 = SUM(sesams) /olives_1 = SUM(olives)
 /otoils_1 = SUM(othois) /chilss_1 = SUM(chilss) /onioss_1 = SUM(onioss)
 /garlcs_1 = SUM(garlcs) /corins_1 = SUM(corins) /fenugs_1 = SUM(fenugs)
 /otspcs_1 = SUM(otspcs) /wveges_1 = SUM(wvgtbs) /sveges_1 = SUM(svgtbs)
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 /orangs_1 = SUM(orangs) /mangos_1 = SUM(mangos) /banans_1 = SUM(banans)
 /guavas_1 = SUM(guavas) /jackfs_1 = SUM(jackfs) /plum_s_1 = SUM(plum_s)
 /otfrts_1 = SUM(otfrts) /datess_1 = SUM(datess) /sugars_1 = SUM(sugrcs)
 /cotons_1 = SUM(cottns) /clovrs_1 = SUM(clovrs) /otcrps_1 = SUM(otcrps)
 /N_BREAK=N.
GET FILE='c:\ifpri6\salen0hh.SAV' .
RECODE
 rices_1 wheats_1 maizes_1 sorgos_1 barlys_1 soybss_1 favabs_1 peas_s_1
 cowpes_1 chkpes_1 othlgs_1 wpotas_1 spotas_1 swtpos_1 beet_s_1 grnuts_1
 sesams_1 olives_1 otoils_1 chilss_1 onioss_1 garlcs_1 corins_1 fenugs_1
 otspcs_1 wveges_1 sveges_1 orangs_1 mangos_1 banans_1 guavas_1 jackfs_1
 plum_s_1 otfrts_1 datess_1 sugars_1 cotons_1 clovrs_1 otcrps_1 (sysmis=0) .
SAVE OUTFILE='c:\ifpri6\salen1hh.SAV' /COMPRESSED .
GET FILE='c:\ifpri6\salen1hh.SAV'.
DESCRIPTIVES VARIABLES =
 rices_1 wheats_1 maizes_1 sorgos_1 barlys_1 soybss_1 favabs_1 peas_s_1
 cowpes_1 chkpes_1 othlgs_1 wpotas_1 spotas_1 swtpos_1 beet_s_1 grnuts_1
 sesams_1 olives_1 otoils_1 chilss_1 onioss_1 garlcs_1 corins_1 fenugs_1
 otspcs_1 wveges_1 sveges_1 orangs_1 mangos_1 banans_1 guavas_1 jackfs_1
 plum_s_1 otfrts_1 datess_1 sugars_1 cotons_1 clovrs_1 otcrps_1
 /STATISTICS=MEAN STDDEV MIN MAX .
EXECUTE .

COMMENT Aggregate prices to level of PSU .
GET FILE='c:\ifpri6\prices.sav'.
AGGREGATE /OUTFILE='c:\ifpri6\pricepsu.SAV' /BREAK=psu
 /p_rice = mean(ricepx) /p_whea = mean(wheatpx) /p_maiz = mean(maizepx)
 /p_sorg = mean(sorgopx) /p_barl = mean(barlypx) /p_soyb = mean(soybspx)
 /p_fava = mean(favabpx) /p_peas = mean(peas_px) /p_cowp = mean(cowpepx)
 /p_chkp = mean(chkpepx) /p_othl = mean(othlgpx) /p_wpot = mean(wpotapx)
 /p_spot = mean(spotapx) /p_swtp = mean(swtpopx) /p_beet = mean(beet_px)
 /p_grnu = mean(grnutpx) /p_sesa = mean(sesampx) /p_oliv = mean(olivepx)
 /p_otoi = mean(otoilpx) /p_chil = mean(chilspx) /p_onio = mean(oniospx)
 /p_garl = mean(garlcpx) /p_cori = mean(corinpx) /p_fenu = mean(fenugpx)
 /p_otsp = mean(otspcpx) /p_wveg = mean(wvegepx) /p_sveg = mean(svegepx)
 /p_oran = mean(orangpx) /p_mang = mean(mangopx) /p_bana = mean(bananpx)
 /p_guav = mean(guavapx) /p_jack = mean(jackfpx) /p_plum = mean(plum_px)
 /p_otfr = mean(otfrtpx) /p_date = mean(datespx) /p_suga = mean(sugarpx)
 /p_coto = mean(cotonpx) /p_clov = mean(clovrpx) /p_otcr = mean(otcrppx)
 /N_BREAK=N.
GET FILE='c:\ifpri6\pricepsu.sav'.
DESCRIPTIVES VARIABLES =
 p_rice p_whea p_maiz p_sorg p_barl p_soyb p_fava p_peas p_cowp
 p_chkp p_othl p_wpot p_spot p_swtp p_beet p_grnu p_sesa p_oliv
 p_otoi p_chil p_onio p_garl p_cori p_fenu p_otsp p_wveg p_sveg
 p_oran p_mang p_bana p_guav p_jack p_plum p_otfr p_date p_suga
 p_coto p_clov p_otcr
 /STATISTICS=MEAN STDDEV MIN MAX .
EXECUTE .

COMMENT Calculate sales statistics for primary crops .
GET FILE='c:\ifpri6\prodn1hh.SAV'
 /keep hid  ricep_1 wheatp_1 maizep_1 sorgop_1 favabp_1
  wvegep_1 svegep_1 sugarp_1 cotonp_1 clovrp_1 .
SAVE OUTFILE = 'c:\ifpri6\prodprim.sav' /compressed .
```

```
GET FILE='c:\ifpri6\salen1hh.SAV'
 /keep hid rices_1 wheats_1 maizes_1 sorgos_1  favabs_1
 wveges_1 sveges_1 sugars_1 cotons_1 clovrs_1 .
SAVE OUTFILE = 'c:\ifpri6\saleprim.sav' /compressed .
GET 'c:\ifpri6\saleprim.sav'.
MATCH FILES /FILE=* /FILE='c:\ifpri6\prodprim.sav'
 /FILE='C:\ifpri6\brsmdata.sav' /by hid .
COMPUTE sarice=rices_1/ricep_1 .
COMPUTE sawheat=wheats_1/wheatp_1 .
COMPUTE samaize=maizes_1/maizep_1 .
COMPUTE sasorgo=sorgos_1/sorgop_1 .
COMPUTE safavab=favabs_1/favabp_1 .
COMPUTE sawveg=wveges_1/wvegep_1 .
COMPUTE sasveg=sveges_1/svegep_1 .
COMPUTE sasugar=sugars_1/sugarp_1 .
COMPUTE sacoton=cotons_1/cotonp_1 .
COMMENT COMPUTE saclover=clovrs_1/clovrp_1 .
if sarice>0 srice=sarice.
if sawheat>0 swheat=sawheat.
if samaize>0 smaize=samaize.
if sasorgo>0 ssorgo=sasorgo.
if safavab>0 sfavab=safavab.
if sawveg>0 swveg=sawveg.
if sasveg>0 ssveg=sasveg.
if sasugar>0 ssugar=sasugar.
if sacoton>0 scoton=sacoton.
if (bsalperc>0 and bsalperc<2) sclover=bsalperc.
DESCRIPTIVES var = srice swheat smaize ssorgo sfavab
 swveg ssveg ssugar scoton sclover.

COMMENT calculate average sales per selling household .
COMPUTE brsms_1=bsalperc*brsmkgs.
if rices_1>0 ricesld=rices_1.
if wheats_1>0 wheatsld=wheats_1.
if maizes_1>0 maizesld=maizes_1.
if sorgos_1>0 sorgosld=sorgos_1.
if favabs_1>0 favabsld=favabs_1.
if wveges_1>0 wvegsld=wveges_1.
if sveges_1>0 svegsld=sveges_1.
if sugars_1>0 sugarsld=sugars_1.
if cotons_1>0 cotonsld=cotons_1.
if (brsms_1>0 and bsalperc<2) clovrsld=brsms_1.

DESCRIPTIVES var = ricesld wheatsld maizesld sorgosld favabsld
 wvegsld svegsld sugarsld cotonsld clovrsld .
```

```
COMMENT filename is cropland.sps .

COMMENT calculates crop areas in feddan for major crops.
COMMENT created June 15 1998, version 1.0 . Verified July 9, 1998.
COMMENT revised June 24 1998 to add winter and summer vegetables .

GET FILE='C:\ifpri6\s12a1mv2.sav'.
COMPUTE fed2fed = s12aq02a .
COMPUTE quir2ha = s12aq02b / 24 .
RECODE fed2fed  (SYSMIS=0)  .
RECODE quir2ha  (SYSMIS=0)  .
COMPUTE feddan = quir2ha + fed2fed .
EXECUTE .
IF (s12aq09a = 1) rice1 = feddan .
IF (s12aq10a = 1) rice2 = feddan .
IF (s12aq10b = 1) rice3 = feddan .
IF (s12aq11a = 1) rice4 = feddan .
RECODE rice1 rice2 rice3 rice4 (sysmis=0) .
COMPUTE rice_fed = rice1 + rice2 + rice3 + rice4 .
EXECUTE .
IF (s12aq09a = 2) wheat1 = feddan .
IF (s12aq09b = 2) wheat2 = feddan .
IF (s12aq09c = 2) wheat3 = feddan .
IF (s12aq09d = 2) wheat4 = feddan .
IF (s12aq10a = 2) wheat5 = feddan .
IF (s12aq10b = 2) wheat6 = feddan .
RECODE wheat1 wheat2 wheat3 wheat4 wheat5 wheat6 (sysmis=0) .
COMPUTE
 wheatfed = wheat1 + wheat2 + wheat3 + wheat4 + wheat5 + wheat6 .
EXECUTE .
IF (s12aq10a = 3) maize1 = feddan .
IF (s12aq10b = 3) maize2 = feddan .
IF (s12aq10c = 3) maize3 = feddan .
IF (s12aq11a = 3) maize4 = feddan .
IF (s12aq12a = 3) maize5 = feddan .
RECODE maize1 maize2 maize3 maize4 maize5 (sysmis=0) .
COMPUTE maizefed = maize1 + maize2 + maize3 + maize4 + maize5 .
EXECUTE.
IF (s12aq10a = 4) sorgo1 = feddan .
IF (s12aq10b = 4) sorgo2 = feddan .
IF (s12aq10c = 4) sorgo3 = feddan .
IF (s12aq11a = 4) sorgo4 = feddan .
RECODE sorgo1 sorgo2 sorgo3 sorgo4 (sysmis=0) .
COMPUTE sorgofed = sorgo1 + sorgo2 + sorgo3 + sorgo4 .
EXECUTE.
IF (s12aq09a = 8) favab1 = feddan .
IF (s12aq09a = 12) favab1 = feddan .
IF (s12aq09b = 8) favab2 = feddan .
IF (s12aq09c = 8) favab3 = feddan .
IF (s12aq10a = 8) favab4 = feddan .
IF (s12aq11a = 8) favab5 = feddan .
RECODE favab1 favab2 favab3 favab4 favab5 (sysmis=0) .
COMPUTE favabfed = favab1 + favab2 + favab3 + favab4 + favab5 .
EXECUTE.
IF (s12aq09a=39) wveg1 = feddan.
```

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IF (s12aq09b=39) wveg2 = feddan.
IF (s12aq09c=39) wveg3 = feddan.
IF (s12aq10b=39) wveg4 = feddan.
IF (s12aq11a=39) wveg5 = feddan.
RECODE wveg1 wveg2 wveg3 wveg4 wveg5 (sysmis=0) .
COMPUTE wvegtfed=wveg1+wveg2+wveg3+wveg4+wveg5 .
EXECUTE.
IF (s12aq09a=40) sveg1 = feddan.
IF (s12aq10a=40) sveg2 = feddan.
IF (s12aq10b=40) sveg3 = feddan.
IF (s12aq10c=40) sveg4 = feddan.
IF (s12aq11a=40) sveg5 = feddan.
RECODE sveg1 sveg2 sveg3 sveg4 sveg5 (sysmis=0) .
COMPUTE svegtfed=sveg1+sveg2+sveg3+sveg4+sveg5 .
EXECUTE.
IF (s12aq11a = 59) sugar1 = feddan .
IF (s12aq12a = 59) sugar2 = feddan .
RECODE sugar1 sugar2 (sysmis=0) .
COMPUTE sugarfed = sugar1 + sugar2 .
EXECUTE.
IF (s12aq10a = 60) coton1 = feddan .
IF (s12aq10b = 60) coton2 = feddan .
RECODE coton1 coton2 (sysmis=0) .
COMPUTE cotonfed = coton1 + coton2 .
EXECUTE.
IF (s12aq09a = 63) berse1 = feddan .
IF (s12aq09b = 63) berse2 = feddan .
IF (s12aq09c = 63) berse3 = feddan .
IF (s12aq09d = 63) berse4 = feddan .
IF (s12aq10a = 63) berse5 = feddan .
IF (s12aq11a = 63) berse6 = feddan .
IF (s12aq12a = 63) berse7 = feddan .
RECODE berse1 berse2 berse3 berse4 berse5 berse6 berse7 (sysmis = 0) .
COMPUTE
 bersefed = berse1 + berse2 + berse3 + berse4 + berse5 + berse6 + berse7.
EXECUTE .
SAVE OUTFILE='C:\ifpri6\cropintr.sav' /COMPRESSED .
AGGREGATE /OUTFILE='C:\ifpri6\crplndhh.sav' /BREAK=hid
 /rice_ld=SUM(rice_fed) /wheatld=SUM(wheatfed)
 /maizeld=SUM(maizefed) /sorgold=SUM(sorgofed)
 /favabld=SUM(favabfed) /sugarld=SUM(sugarfed)
 /cotonld=SUM(cotonfed) /berseld=SUM(bersefed)
 /wvegteld=SUM(wvegtfed) /svegteld=SUM(svegtfed) .
GET FILE='C:\ifpri6\crplndhh.sav'.
RECODE
 rice_ld wheatld maizeld sorgold favabld sugarld cotonld berseld wvegteld
svegteld
 (sysmis=0) .
EXECUTE .
DESCRIPTIVES VARIABLES=rice_ld wheatld maizeld sorgold
 favabld sugarld wvegteld svegteld cotonld berseld
 /statistics=mean stdev min max .
```

```
COMMENT filename is berseem.sps .

COMMENT purpose is to calculate berseem production in kilograms, area and
yield .
COMMENT created June 14 1998, version 1.0 ; verified: July 9, 1998.

COMMENT 1-calculate berseem production from s12bq04b for unit code 15 .
COMMENT Also calculate berseem sales quantity and value.
GET FILE='C:\ifpri6\S12bnew2.sav' .
if (pn=63 and s12bq04a=15) bersm1=s12bq04b .
if (pn=63 and s12bq04a=15) bersm2=s12bq04a .
if (pn=63 and s12bq05a=15) bersale1=s12bq05b.
if (pn=63) salval=s12bq05c .
AGGREGATE /OUTFILE='C:\ifpri6\brsmprod.SAV'
 /BREAK=hid /bersm1_1 = SUM(bersm1) /unitcode=sum(bersm2)
 /bersa1=SUM(bersale1) /bersaval=SUM(salval) .

COMMENT 2-calculate berseem production for unit codes 1 and 11 .
GET FILE='C:\ifpri6\S12bnew2.sav' .
if (pn=63 and s12bq04a=1) bersm2=s12bq04b * 1000.
if (pn=63 and s12bq04a=11) bersm2=s12bq04b * 175.
if (pn=63 and s12bq05a=1) bersale2=s12bq05b * 1000.
if (pn=63 and s12bq05a=11) bersale2=s12bq05b * 175.
AGGREGATE /OUTFILE='C:\ifpri6\brsmprd2.SAV'
 /BREAK=hid /bersm2_1 = SUM(bersm2) /bersa2=SUM(bersale2).

COMMENT 3-calculate berseem area in feddan for unit code 15 .
GET FILE='c:\ifpri6\s12a1mv2.sav'.
COMMENT convert "hid" from a string to numeric variable if necessary.
COMMENT FORMATS hid (F8) .
COMPUTE fed2fed = s12aq02a .
COMPUTE quir2ha = s12aq02b / 24 .
RECODE fed2fed  (SYSMIS=0)  .
RECODE quir2ha  (SYSMIS=0)  .
COMPUTE feddan = quir2ha + fed2fed .
IF (s12aq09a = 63) berse1 = feddan .
IF (s12aq09b = 63) berse2 = feddan .
IF (s12aq09c = 63) berse3 = feddan .
IF (s12aq09d = 63) berse4 = feddan .
IF (s12aq10a = 63) berse5 = feddan .
IF (s12aq11a = 63) berse6 = feddan .
IF (s12aq12a = 63) berse7 = feddan .
RECODE berse1 berse2 berse3 berse4 berse5 berse6 berse7 (sysmis = 0) .
COMPUTE bersefed = berse1+berse2+berse3+berse4+berse5+berse6+berse7.
SAVE OUTFILE='c:\ifpri6\brsmlnd.sav' /COMPRESSED .
AGGREGATE /OUTFILE='c:\ifpri6\brsmldhh.sav'
 /BREAK=hid /brsmarea=SUM(bersefed) .
GET FILE='c:\ifpri6\brsmldhh.sav'.
RECODE brsmarea  (sysmis=0) .
SAVE OUTFILE='C:\ifpri6\brsmldh2.sav' /COMPRESSED.

COMMENT 4-merge berseem area and production files .
GET FILE='c:\ifpri6\brsmldh2.sav' .
MATCH FILES /FILE=*
 /FILE='C:\ifpri6\brsmprod.sav' /IN=s02 /BY hid.
```

```
VARIABLE LABELS s02 'Case source is C:\ifpri6\brsmprod.sav'.
COMPUTE brsmqrat = brsmarea * 24 .
RECODE bersm1_1  (SYSMIS=0)  .
COMPUTE nbrcuts = bersm1_1 / brsmqrat .
COMPUTE bmkgtemp = (((9.5/24)*1000)*(brsmarea*24)) * nbrcuts .
SAVE OUTFILE='C:\ifpri6\berseem.sav' /COMPRESSED.

COMMENT 5-add back berseem production from unit codes 1 and 11.
GET FILE='C:\IFPRI6\berseem.sav' .
MATCH FILES /FILE=*
 /FILE='c:\ifpri6\brsmprd2.sav' /IN=s03 /BY hid.
RECODE bmkgtemp bersm2_1 (sysmis=0).
COMPUTE brsmkgs=bmkgtemp+bersm2_1 .
COMPUTE brsmyld=brsmkgs/brsmarea .
COMPUTE brsmyprc=brsmyld/nbrcuts .
FORMATS brsmkgs brsmarea brsmyld brsmyprc (F8.0) brsmarea nbrcuts (F8.3) .
SAVE OUTFILE='C:\ifpri6\berseemt.sav' /COMPRESSED.
DESCRIPTIVES VARIABLES=brsmkgs brsmarea brsmyld brsmyprc nbrcuts
 /STATISTICS=MEAN STDDEV MIN MAX .

COMMENT 6-create separate berseem production file for subsequent merging .
COMMENT  in the yield.sps syntax file .
SAVE OUTFILE='C:\ifpri6\brsmonly.sav' /COMPRESSED
 /KEEP hid brsmkgs .

COMMENT 7-calculate sales as a percent of production to obtain berseem price
.
GET FILE='C:\ifpri6\S12bnew2.sav' .
if (pn=63) percsold=s12bq05b / s12bq04b.
if (pn=63) bsalval=s12bq05c .
AGGREGATE OUTFILE = 'c:\ifpri6\bersales.sav'
 /BREAK = hid /bsalperc = SUM(percsold) /bsalvalu = SUM(bsalval) .
GET FILE='C:\ifpri6\brsmonly.sav' .
MATCH FILES /FILE = * /FILE='C:\ifpri6\bersales.sav' /BY hid .
COMPUTE berprice = (bsalvalu)/(bsalperc*brsmkgs) .
DESCRIPTIVES VARIABLES=brsmkgs bsalperc berprice
 /STATISTICS=MEAN STDDEV MIN MAX .
SAVE OUTFILE='C:\ifpri6\brsmdata.sav' /COMPRESSED .
```

```
COMMENT filename is yield.sps .

COMMENT calculates yield data for major crops; includes a data cleaning
routine .
COMMENT created June 20, 1998, version 1.0 ; verified July 9, 1998.

get file='c:\ifpri6\prodn1hh.sav'
 /keep hid ricep_1 wheatp_1 maizep_1 sorgop_1 favabp_1 sugarp_1 wvegep_1
svegep_1 cotonp_1 .
save outfile='c:\ifpri6\prodmajr.sav'.
get file='c:\ifpri6\prodmajr.sav'.
match    files    /file=*    /file='c:\ifpri6\crplndhh.sav'
/file='c:\ifpri6\brsmonly.sav '
 /in=src1 /by hid .
save outfile='c:\ifpri6\yield.sav' .
get file='c:\ifpri6\yield.sav'.
compute riceyld=ricep_1/rice_ld .
compute wheatyld=wheatp_1/wheatld .
compute maizeyld=maizep_1/maizeld .
compute sorgoyld=sorgop_1/sorgold .
compute favabyld=favabp_1/favabld .
compute sugaryld=sugarp_1/sugarld .
compute wvegeyld=wvegep_1/wvegteld .
compute svegeyld=svegep_1/svegteld .
compute cotonyld=cotonp_1/cotonld .
compute clovryld=brsmkgs/berseld .

save outfile='c:\ifpri6\yieldhh.sav' .

COMMENT this is the cleaning routine for yields of major crops .
COMMENT the rationale for the selection of ranges is explained in the appendix
.

get file='c:\ifpri6\yieldhh.sav' .
if (riceyld>300 and riceyld<7500) rice=riceyld.
if ((wheatyld>149) and (wheatyld<5000) and (hid ~= 19016) and (hid ~= 19020))
wheat=wheatyld .
if (maizeyld>250 and maizeyld<6000) maize=maizeyld.
if (sorgoyld>300 and sorgoyld<7000) sorgo=sorgoyld.
if (favabyld>100 and favabyld<2500) favab=favabyld.
if (sugaryld>0 and sugaryld<100000) sugarc=sugaryld.
if (wvegeyld>100 and wvegeyld<7000) winveget=wvegeyld.
if (svegeyld>100 and svegeyld<7000) sumveget=svegeyld.
if (cotonyld>100 and cotonyld<2500) cotton=cotonyld.
if (clovryld>500 and clovryld<100000) clover=clovryld.
COMMENT descriptive variables = riceyld rice wheatyld wheat  maizeyld maize
 sorgoyld sorgo favabyld favab sugaryld sugarc wvegeyld winveget svegeyld
 sumveget cotonyld cotton clovryld clover
 /statistics=mean stdev min max .
descriptive variables = rice wheat maize sorgo favab sugarc winveget
 sumveget cotton clover
 /statistics=mean stdev min max .
```

```
COMMENT filename is profits2.sps .

COMMENT This file prepares production data for calculation of profits .
COMMENT Created July 3, 1998 ; verified July 9, 1998.

get FILE='c:\ifpri6\prodn1hh.SAV' .
COMMENT pn=3 and s12bq04a=15 .
if hid=14711 maizep_1 = 1603 *1.42.
if hid=18502 maizep_1 = 1603 *0.5533.
if hid=18901 maizep_1 = 1603 *0.08.
if hid=19104 maizep_1 = 1603 *2.
if hid=19118 maizep_1 = 1603 *2.
if hid=19410 maizep_1 = 1603 *1.
if hid=19413 maizep_1 = 1603 *0.67.
if hid=19502 maizep_1 = 1603 *0.67.
if hid=19515 maizep_1 = 1603 *3.17.
if hid=22117 maizep_1 = 1603 *0.83.
if hid=22306 maizep_1 = 1603 *0.29.
COMMENT pn=40 and s12bq04a=15 .
if hid=18601 svegep_1=1303*7.
if hid=18603 svegep_1=1303*0.67.
if hid=18604 svegep_1=1303*0.5.
if hid=18612 svegep_1=1303*2.08.
if hid=18619 svegep_1=1303*1.
if hid=22003 svegep_1=1303*0.5.
COMMENT pn=40 and s12bq04a=16 .
if hid=14712 svegep_1=1303*1.08.
if hid=14718 svegep_1=1303*0.167.
if hid=15118 svegep_1=1303*0.5.
COMMENT pn=39 and s12bq04a=16 .
if hid=14717 wvegep_1=2379*0.3333.
if hid=15105 wvegep_1=2379*0.5.
if hid=15106 wvegep_1=2379*1.
if hid=15117 wvegep_1=2379*0.458.
save outfile='c:\ifpri6\prodn2hh.sav'.

COMMENT Aggregate prices to level of household.
GET FILE='c:\ifpri6\prices.sav'.
if othlgpx > 5 othlgpx = 0.89 .
compute nation=1.
AGGREGATE /OUTFILE='c:\ifpri6\pricehh.SAV' /BREAK=hid /psu=mean(psu)
 /national=mean(nation)
 /pprice = mean(ricepx) /ppwhea = mean(wheatpx) /ppmaiz = mean(maizepx)
 /ppsorg = mean(sorgopx) /ppbarl = mean(barlypx) /ppsoyb = mean(soybspx)
 /ppfava = mean(favabpx) /pppeas = mean(peas_px) /ppcowp = mean(cowpepx)
 /ppchkp = mean(chkpepx) /ppothl = mean(othlgpx) /ppwpot = mean(wpotapx)
 /ppspot = mean(spotapx) /ppswtp = mean(swtpopx) /ppbeet = mean(beet_px)
 /ppgrnu = mean(grnutpx) /ppsesa = mean(sesampx) /ppoliv = mean(olivepx)
 /ppotoi = mean(otoilpx) /ppchil = mean(chilspx) /pponio = mean(oniospx)
 /ppgarl = mean(garlcpx) /ppcori = mean(corinpx) /ppfenu = mean(fenugpx)
 /ppotsp = mean(otspcpx) /ppwveg = mean(wvegepx) /ppsveg = mean(svegepx)
 /pporan = mean(orangpx) /ppmang = mean(mangopx) /ppbana = mean(bananpx)
 /ppguav = mean(guavapx) /ppjack = mean(jackfpx) /ppplum = mean(plum_px)
 /ppotfr = mean(otfrtpx) /ppdate = mean(datespx) /ppsuga = mean(sugarpx)
 /ppcoto = mean(cotonpx) /ppclov = mean(clovrpx) /ppotcr = mean(otcrppx)
```

```
 /N_BREAK=N.

COMMENT Aggregate prices to the national level.
GET FILE='c:\ifpri6\prices.sav'.
compute nation=1.
AGGREGATE /OUTFILE='c:\ifpri6\pricenat.SAV' /break=pn /national=mean(nation)
 /pnrice = mean(ricepx) /pnwhea = mean(wheatpx) /pnmaiz = mean(maizepx)
 /pnsorg = mean(sorgopx) /pnbarl = mean(barlypx) /pnsoyb = mean(soybspx)
 /pnfava = mean(favabpx) /pnpeas = mean(peas_px) /pncowp = mean(cowpepx)
 /pnchkp = mean(chkpepx) /pnothl = mean(othlgpx) /pnwpot = mean(wpotapx)
 /pnspot = mean(spotapx) /pnswtp = mean(swtpopx) /pnbeet = mean(beet_px)
 /pngrnu = mean(grnutpx) /pnsesa = mean(sesampx) /pnoliv = mean(olivepx)
 /pnotoi = mean(otoilpx) /pnchil = mean(chilspx) /pnonio = mean(oniospx)
 /pngarl = mean(garlcpx) /pncori = mean(corinpx) /pnfenu = mean(fenugpx)
 /pnotsp = mean(otspcpx) /pnwveg = mean(wvegepx) /pnsveg = mean(svegepx)
 /pnoran = mean(orangpx) /pnmang = mean(mangopx) /pnbana = mean(bananpx)
 /pnguav = mean(guavapx) /pnjack = mean(jackfpx) /pnplum = mean(plum_px)
 /pnotfr = mean(otfrtpx) /pndate = mean(datespx) /pnsuga = mean(sugarpx)
 /pncoto = mean(cotonpx) /pnclov = mean(clovrpx) /pnotcr = mean(otcrppx)
 /N_BREAK=N.
get file='c:\ifpri6\pricenat.sav'.
aggregate outfile='c:\ifpri6\pricnat1.sav' /break=national
 /pn1rice = mean(pnrice) /pn1whea = mean(pnwhea) /pn1maiz = mean(pnmaiz)
 /pn1sorg = mean(pnsorg) /pn1barl = mean(pnbarl) /pn1soyb = mean(pnsoyb)
 /pn1fava = mean(pnfava) /pn1peas = mean(pnpeas) /pn1cowp = mean(pncowp)
 /pn1chkp = mean(pnchkp) /pn1othl = mean(pnothl) /pn1wpot = mean(pnwpot)
 /pn1spot = mean(pnspot) /pn1swtp = mean(pnswtp) /pn1beet = mean(pnbeet)
 /pn1grnu = mean(pngrnu) /pn1sesa = mean(pnsesa) /pn1oliv = mean(pnoliv)
 /pn1otoi = mean(pnotoi) /pn1chil = mean(pnchil) /pn1onio = mean(pnonio)
 /pn1garl = mean(pngarl) /pn1cori = mean(pncori) /pn1fenu = mean(pnfenu)
 /pn1otsp = mean(pnotsp) /pn1wveg = mean(pnwveg) /pn1sveg = mean(pnsveg)
 /pn1oran = mean(pnoran) /pn1mang = mean(pnmang) /pn1bana = mean(pnbana)
 /pn1guav = mean(pnguav) /pn1jack = mean(pnjack) /pn1plum = mean(pnplum)
 /pn1otfr = mean(pnotfr) /pn1date = mean(pndate) /pn1suga = mean(pnsuga)
 /pn1coto = mean(pncoto) /pn1clov = mean(pnclov) /pn1otcr = mean(pnotcr).
match files /file='c:\ifpri6\pricehh.sav'
 /table='c:\ifpri6\pricnat1.sav' /by national.

COMMENT fill in temporary data for commodities with missing prices .
compute pn1guav=mean(pn1oran, pn1mang, pn1bana, pn1jack, pn1plum, pn1otfr).
compute pn1date=mean(pn1oran, pn1mang, pn1bana, pn1jack, pn1plum, pn1otfr).
compute pn1peas=mean(pn1soyb, pn1fava, pn1cowp, pn1chkp).
compute pn1barl=mean(pn1rice, pn1whea, pn1maiz, pn1sorg).
compute pn1othl=0.89 .
save outfile='c:\ifpri6\pricprep.sav'.

COMMENT merge in prices at hh and at psu-level (as well the national average).
match files /file='c:\ifpri6\pricprep.sav'
 /table='c:\ifpri6\pricepsu.sav' /by psu.
save outfile='c:\ifpri6\pricemer.sav' /compressed.
get file='c:\ifpri6\prodn2hh.sav'.
match files /file=* /file='c:\ifpri6\pricemer.sav' /by hid.
compute riceval=pprice*ricep_1 .
compute wheatval=ppwhea*wheatp_1 .
compute maizeval=ppmaiz*maizep_1 .
```

```
compute sorgoval=ppsorg*sorgop_1 .
compute barlyval=ppbarl*barlyp_1 .
compute soybsval=ppsoyb*soybsp_1 .
compute favabval=ppfava*favabp_1 .
compute peasval=pppeas*peas_p_1 .
compute cowpval=ppcowp*cowpep_1 .
compute chkpeval=ppchkp* chkpep_1 .
compute othlgval=ppothl*othlgp_1 .
compute wpotaval=ppwpot*wpotap_1 .
compute spotaval=ppspot*spotap_1 .
compute swtpoval=ppswtp*swtpop_1 .
compute beetval=ppbeet*beet_p_1 .
compute grnutval=ppgrnu*grnutp_1 .
compute sesamval=ppsesa*sesamp_1 .
compute oliveval=ppoliv*olivep_1 .
compute otoilval=ppotoi*otoilp_1 .
compute chilival=ppchil*chilsp_1 .
compute onionval=pponio*oniosp_1 .
compute garlival=ppgarl*garlcp_1 .
compute coriaval=ppcori*corinp_1 .
compute fenugval=ppfenu*fenugp_1 .
compute othspval=ppotsp*otspcp_1 .
compute wvegeval=ppwveg*wvegep_1 .
compute svegeval=ppsveg*svegep_1 .
compute orangval=pporan*orangp_1 .
compute mangoval=ppmang*mangop_1 .
compute bananval=ppbana*bananp_1 .
compute guavaval=ppguav*guavap_1 .
compute jackfval=ppjack*jackfp_1 .
compute plumval=ppplum*plum_p_1 .
compute otfrtval=ppotfr*otfrtp_1 .
compute datesval=ppdate*datesp_1 .
compute sugarval=ppsuga*sugarp_1 .
compute cotonval=ppcoto*cotonp_1 .
compute clovrval=ppclov*clovrp_1 .
compute otcrpval=ppotcr*otcrpp_1 .
execute.
if p_othl > 5 p_othl = 0.89 .
if sysmis(pprice) riceval=p_rice*ricep_1 .
if sysmis(ppwhea) wheatval=p_whea*wheatp_1 .
if sysmis(ppmaiz) maizeval=p_maiz*maizep_1 .
if sysmis(ppsorg) sorgoval=p_sorg*sorgop_1 .
if sysmis(ppbarl) barlyval=p_barl*barlyp_1 .
if sysmis(ppsoyb) soybsval=p_soyb*soybsp_1 .
if sysmis(ppfava) favabval=p_fava*favabp_1 .
if sysmis(pppeas) peasval=p_peas*peas_p_1 .
if sysmis(ppcowp) cowpval=p_cowp*cowpep_1 .
if sysmis(ppchkp) chkpeval=p_chkp* chkpep_1 .
if sysmis(ppothl) othlgval=p_othl*othlgp_1 .
if sysmis(ppwpot) wpotaval=p_wpot*wpotap_1 .
if sysmis(ppspot) spotaval=p_spot*spotap_1 .
if sysmis(ppswtp) swtpoval=p_swtp*swtpop_1 .
if sysmis(ppbeet) beetval=p_beet*beet_p_1 .
if sysmis(ppgrnu) grnutval=p_grnu*grnutp_1 .
if sysmis(ppsesa) sesamval=p_sesa*sesamp_1 .
```

```
if sysmis(ppoliv) oliveval=p_oliv*olivep_1 .
if sysmis(ppotoi) otoilval=p_otoi*otoilp_1 .
if sysmis(ppchil) chilival=p_chil*chilsp_1 .
if sysmis(pponio) onionval=p_onio*oniosp_1 .
if sysmis(ppgarl) garlival=p_garl*garlcp_1 .
if sysmis(ppcori) coriaval=p_cori*corinp_1 .
if sysmis(ppfenu) fenugval=p_fenu*fenugp_1 .
if sysmis(ppotsp) othspval=p_otsp*otspcp_1 .
if sysmis(ppwveg) wvegeval=p_wveg*wvegep_1 .
if sysmis(ppsveg) svegeval=p_sveg*svegep_1 .
if sysmis(pporan) orangval=p_oran*orangp_1 .
if sysmis(ppmang) mangoval=p_mang*mangop_1 .
if sysmis(ppbana) bananval=p_bana*bananp_1 .
if sysmis(ppguav) guavaval=p_guav*guavap_1 .
if sysmis(ppjack) jackfval=p_jack*jackfp_1 .
if sysmis(ppplum) plumval=p_plum*plum_p_1 .
if sysmis(ppotfr) otfrtval=p_otfr*otfrtp_1 .
if sysmis(ppdate) datesval=p_date*datesp_1 .
if sysmis(ppsuga) sugarval=p_suga*sugarp_1 .
if sysmis(ppcoto) cotonval=p_coto*cotonp_1 .
if sysmis(ppclov) clovrval=p_clov*clovrp_1 .
if sysmis(ppotcr) otcrpval=p_otcr*otcrpp_1 .
execute.
if p_othl > 5 p_othl = 0.89 .
if (sysmis(pprice) and sysmis(p_rice)) riceval=pn1rice*ricep_1 .
if (sysmis(ppwhea) and sysmis(p_whea)) wheatval=pn1whea*wheatp_1 .
if (sysmis(ppmaiz) and sysmis(p_maiz)) maizeval=pn1maiz*maizep_1 .
if (sysmis(ppsorg) and sysmis(p_sorg)) sorgoval=pn1sorg*sorgop_1 .
if (sysmis(ppbarl) and sysmis(p_barl)) barlyval=pn1barl*barlyp_1 .
if (sysmis(ppsoyb) and sysmis(p_soyb)) soybsval=pn1soyb*soybsp_1 .
if (sysmis(ppfava) and sysmis(p_fava)) favabval=pn1fava*favabp_1 .
if (sysmis(pppeas) and sysmis(p_peas)) peasval=pn1peas*peas_p_1 .
if (sysmis(ppcowp) and sysmis(p_cowp)) cowpval=pn1cowp*cowpep_1 .
if (sysmis(ppchkp) and sysmis(p_chkp)) chkpeval=pn1chkp* chkpep_1 .
if (sysmis(ppothl) and sysmis(p_othl)) othlgval=pn1othl*othlgp_1 .
if (sysmis(ppwpot) and sysmis(p_wpot)) wpotaval=pn1wpot*wpotap_1 .
if (sysmis(ppspot) and sysmis(p_spot)) spotaval=pn1spot*spotap_1 .
if (sysmis(ppswtp) and sysmis(p_swtp)) swtpoval=pn1swtp*swtpop_1 .
if (sysmis(ppbeet) and sysmis(p_beet)) beetval=pn1beet*beet_p_1 .
if (sysmis(ppgrnu) and sysmis(p_grnu)) grnutval=pn1grnu*grnutp_1 .
if (sysmis(ppsesa) and sysmis(p_sesa)) sesamval=pn1sesa*sesamp_1 .
if (sysmis(ppoliv) and sysmis(p_oliv)) oliveval=pn1oliv*olivep_1 .
if (sysmis(ppotoi) and sysmis(p_otoi)) otoilval=pn1otoi*otoilp_1 .
if (sysmis(ppchil) and sysmis(p_chil)) chilival=pn1chil*chilsp_1 .
if (sysmis(pponio) and sysmis(p_onio)) onionval=pn1onio*oniosp_1 .
if (sysmis(ppgarl) and sysmis(p_garl)) garlival=pn1garl*garlcp_1 .
if (sysmis(ppcori) and sysmis(p_cori)) coriaval=pn1cori*corinp_1 .
if (sysmis(ppfenu) and sysmis(p_fenu)) fenugval=pn1fenu*fenugp_1 .
if (sysmis(ppotsp) and sysmis(p_otsp)) othspval=pn1otsp*otspcp_1 .
if (sysmis(ppwveg) and sysmis(p_wveg)) wvegeval=pn1wveg*wvegep_1 .
if (sysmis(ppsveg) and sysmis(p_sveg)) svegeval=pn1sveg*svegep_1 .
if (sysmis(pporan) and sysmis(p_oran)) orangval=pn1oran*orangp_1 .
if (sysmis(ppmang) and sysmis(p_mang)) mangoval=pn1mang*mangop_1 .
if (sysmis(ppbana) and sysmis(p_bana)) bananval=pn1bana*bananp_1 .
if (sysmis(ppguav) and sysmis(p_guav)) guavaval=pn1guav*guavap_1 .
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if (sysmis(ppjack) and sysmis(p_jack)) jackfval=pn1jack*jackfp_1 .
if (sysmis(ppplum) and sysmis(p_plum)) plumval=pn1plum*plum_p_1 .
if (sysmis(ppotfr) and sysmis(p_otfr)) otfrtval=pn1otfr*otfrtp_1 .
if (sysmis(ppdate) and sysmis(p_date)) datesval=pn1date*datesp_1 .
if (sysmis(ppsuga) and sysmis(p_suga)) sugarval=pn1suga*sugarp_1 .
if (sysmis(ppcoto) and sysmis(p_coto)) cotonval=pn1coto*cotonp_1 .
if (sysmis(ppclov) and sysmis(p_clov)) clovrval=pn1clov*clovrp_1 .
if (sysmis(ppotcr) and sysmis(p_otcr)) otcrpval=pn1otcr*otcrpp_1 .
execute.
recode riceval wheatval maizeval sorgoval barlyval soybsval favabval
peasval cowpval chkpeval othlgval wpotaval spotaval swtpoval
beetval grnutval sesamval oliveval otoilval chilival onionval
garlival coriaval fenugval othspval wvegeval svegeval orangval
mangoval bananval guavaval jackfval plumval otfrtval datesval
sugarval cotonval clovrval otcrpval (sysmis=0).
execute.
save outfile='c:\ifpri6\profits1.sav' /compressed .

COMMENT add back berseem production.
GET FILE='C:\ifpri6\S12bnew2.sav' .
if (pn=63) percsold=s12bq05b / s12bq04b.
if (pn=63) bsalval=s12bq05c .
AGGREGATE OUTFILE = 'c:\ifpri6\bersale2.sav'
 /BREAK = hid /bsalperc = SUM(percsold) /bsalvalu = SUM(bsalval)
 /psu=mean(psu) .
GET FILE='C:\ifpri6\brsmonly.sav' .
MATCH FILES /FILE = * /FILE='C:\ifpri6\bersale2.sav' /BY hid .
COMPUTE berprice = (bsalvalu)/(bsalperc*brsmkgs) .
SAVE OUTFILE='C:\ifpri6\brsmdat2.sav' /COMPRESSED

get file='c:\ifpri6\brsmdat2.sav' /drop psu.
if berprice=0 berprice=sysmis(berprice) .
compute nation=1 .
compute psu=trunc(hid/100).
aggregate outfile = 'c:\ifpri6\brpripsu.sav'
 /break=psu /national=mean(nation) /brprcpsu=mean(berprice) .

get file='c:\ifpri6\brsmdata.sav' .
if berprice=0 berprice=sysmis(berprice) .
compute national=1 .
aggregate outfile = 'c:\ifpri6\brprinat.sav'
 /break=national /brprcnat=mean(berprice) .

match files /file='c:\ifpri6\brpripsu.sav'
 /table='c:\ifpri6\brprinat.sav' /by national .
save outfile='c:\ifpri6\brprtmp.sav'.
get file='c:\ifpri6\brsmdat2.sav'.
compute psu=trunc(hid/100).
save outfile='c:\ifpri6\brsmdat3.sav' /compressed.

match files /file='c:\ifpri6\brsmdat3.sav'
 /table='c:\ifpri6\brprtmp.sav' /by psu .
save outfile='c:\ifpri6\brprtmp2.sav' .

get file='c:\ifpri6\brprtmp2.sav' .
```

```
if berprice=0 berprice=brprcnat.
if brprcpsu=0 brprcpsu=brprcnat.
compute brsmvalu=berprice*brsmkgs.
execute.
if sysmis(berprice) brsmvalu=brprcpsu*brsmkgs.
execute.
if (sysmis(berprice) and sysmis(brprcpsu)) brsmvalu=brprcnat*brsmkgs.
save outfile='c:\ifpri6\brprtmp3.sav' /keep hid brsmvalu.

get file='c:\ifpri6\profits1.sav' .
match files /file=* /file='c:\ifpri6\brprtmp3.sav' /by hid.
c           o           m           p           u           t           e
grprofit=riceval+wheatval+maizeval+sorgoval+barlyval+soybsval+favabval+
 peasval+cowpval+chkpeval+othlgval+wpotaval+spotaval+swtpoval+
 beetval+grnutval+sesamval+oliveval+otoilval+chilival+onionval+
 garlival+coriaval+fenugval+othspval+wvegeval+svegeval+orangval+
 mangoval+bananval+guavaval+jackfval+plumval+otfrtval+datesval+
 sugarval+cotonval+brsmvalu+otcrpval.
COMMENT clovrval is removed in the previous step to avoid double-counting.
des var=
 riceval wheatval maizeval sorgoval barlyval soybsval favabval
 peasval cowpval chkpeval othlgval wpotaval spotaval swtpoval
 beetval grnutval sesamval oliveval otoilval chilival onionval
 garlival coriaval fenugval othspval wvegeval svegeval orangval
 mangoval bananval guavaval jackfval plumval otfrtval datesval
 sugarval cotonval clovrval brsmvalu otcrpval grprofit.
save outfile='c:\ifpri6\profits2.sav' /compressed .
save outfile='c:\ifpri6\grprofit.sav' /compressed /keep hid grprofit.

COMMENT corrections to profits (where other information was available .
COMMENT from the value of sales data-variable s12bq05c in s12bnew2.sav).

COMMENT get file='c:\ifpri6\s12bnew2.sav'.
COMMENT compute addrev=(s12bq04b/s12bq05b)*s12bq05c.
COMMENT compute filt64=(pn=64).
COMMENT filter by filt64.
COMMENT save outfile='c:\ifpri6\addrevx.sav' /keep pn addrev hid.

get file='c:\ifpri6\grprofit.sav'.
compute grprofi2=grprofit.
if hid=13612 grprofi2=2000+grprofit.
if hid=13806 grprofi2=150+grprofit.
if hid=13807 grprofi2=5050+grprofit.
if hid=13811 grprofi2=650+grprofit.
if hid=13818 grprofi2=1611+grprofit.
if hid=13820 grprofi2=6240+grprofit.

if hid=13210 grprofi2=16000+grprofit.
if hid=20602 grprofi2=600+grprofit.
if hid=19016 grprofi2=1358+grprofit.
if hid=19020 grprofi2=815+grprofit.

if hid=18503 grprofi2=3520+grprofit.
if hid=18602 grprofi2=420+grprofit.
if hid=18603 grprofi2=320+grprofit.
```

```
if hid=18606 grprofi2=120+grprofit.
if hid=18612 grprofi2=1000+grprofit.
if hid=18619 grprofi2=480+grprofit.
if hid=19015 grprofi2=150+grprofit.

if hid=13315 grprofi2=4000+grprofit.
if hid=13317 grprofi2=1500+grprofit.
if hid=14706 grprofi2=700+grprofit.
if hid=14719 grprofi2=300+grprofit.
if hid=15019 grprofi2=900+grprofit.
if hid=22108 grprofi2=2700+grprofit.
if hid=19413 grprofi2=560+grprofit.
if hid=20714 grprofi2=326+grprofit.
save outfile='c:\ifpri6\profits3.sav' /compressed.

EXAMINE VARIABLES=grprofi2
 /PLOT BOXPLOT STEMLEAF HISTOGRAM NPPLOT
 /COMPARE VARIABLES
 /MESTIMATORS  HUBER(1.339) ANDREW(1.34) HAMPEL(1.7,3.4,8.5) TUKEY(4.685)
 /PERCENTILES(5,10,25,50,75,90,95) HAVERAGE
 /STATISTICS DESCRIPTIVES EXTREME
 /CINTERVAL 95
 /MISSING LISTWISE
 /NOTOTAL.
```

```
COMMENT file is inputs.sps .

COMMENT compiles input use and expenditures into one file, at the household
level .
COMMENT also merges in revenue data and calculates net profits & productivity.
COMMENT created July 4, 1998; verified July 9, 1998.

COMMENT ******************************************************** .
COMMENT the following steps were carried out manually.
COMMENT GET FILE='C:\ifpri6\S12c1m.sav'.
COMMENT FORMATS hid (F8).
COMMENT SAVE OUTFILE='C:\ifpri6\s12c1m.sav' /COMPRESSED.
COMMENT GET FILE='C:\ifpri6\S12c2mv2.sav'.
COMMENT FORMATS hid (F8).
COMMENT SAVE OUTFILE='C:\ifpri6\s12c2mv2.sav' /COMPRESSED.
COMMENT GET FILE='C:\ifpri6\S12c3mv2.sav'.
COMMENT FORMATS hid (F8).
COMMENT SAVE OUTFILE='C:\ifpri6\s12c3mv2.sav' /COMPRESSED.
COMMENT GET FILE='C:\ifpri6\S12c4m.sav'.
COMMENT FORMATS hid (F8).
COMMENT SAVE OUTFILE='C:\ifpri6\s12c4m.sav' /COMPRESSED.
COMMENT GET FILE='C:\ifpri6\S12c5mv2.sav'.
COMMENT FORMATS hid (F8).
COMMENT SAVE OUTFILE='C:\ifpri6\s12c5mv2.sav' /COMPRESSED.
COMMENT ******************************************************** .

COMMENT purchased seeds/young plants expenditures .
get file = 'c:\ifpri6\s12c1m.sav'.
compute filter1=(s12c1q1=1).
filter by filter1.
aggregate /outfile = 'c:\ifpri6\seedplhh.sav'
 /break=hid /seedplxp=sum(s12c1q4).
get file = 'c:\ifpri6\seedplhh.sav'.
COMMENT replace missing and zero values with mean for 14 out of 517 cases.
recode seedplxp (sysmis=218.23) (0=218.23).
des var = seedplxp.
save outfile= 'c:\ifpri6\seedphh2.sav' /compressed .

COMMENT fertilizer expenditures .
get file = 'c:\ifpri6\s12c2mv2.sav'.
compute filter2=(s12c2q1=1).
filter by filter2.
aggregate /outfile = 'c:\ifpri6\fertilhh.sav'
 /break=hid /fertilxp=sum(s12c2q4).
get file = 'c:\ifpri6\fertilhh.sav'.
COMMENT replace missing values with mean for 31 out of 535 cases.
recode fertilxp (sysmis=351.44).
des var = fertilxp.
save outfile ='c:\ifpri6\fertihh2.sav' /compressed .

COMMENT insecticide expenditures .
get file = 'c:\ifpri6\s12c3mv2.sav'.
compute filter3=(s12c3q1=1).
filter by filter3.
aggregate /outfile = 'c:\ifpri6\insecthh.sav'
```

```
 /break=hid /insectxp=sum(s12c3q4).
get file = 'c:\ifpri6\insecthh.sav'.
COMMENT replace missing values with mean for 7 out of 324 cases.
recode insectxp (sysmis=171.587).
des var = insectxp.
save outfile='c:\ifpri6\insechh2.sav' /compressed .

COMMENT casual hired labor expenditures .
get file = 'c:\ifpri6\s12c4m.sav'.
compute filter4= (s12c4q1=1).
filter by filter4.
COMMENT get file='c:\ifpri6\laborhir.sav'.
recode s12c4q4 s12c4q5 s12c4q6 s12c4q7 (sysmis=0).
compute wintrlab=s12c4q4*s12c4q3.
compute summrlab=s12c4q5*s12c4q3.
compute perenlab=s12c4q6*s12c4q3.
compute Nililab=s12c4q7*s12c4q3.
aggregate /outfile = 'c:\ifpri6\hlaborxp.sav' /break=hid
 /winterlx=sum(wintrlab) /summerlx=sum(summrlab)
 /perenlx=sum(perenlab) /Nililx=sum(Nililab).
get file = 'c:\ifpri6\hlaborxp.sav'.
compute laborexp=winterlx+summerlx+perenlx+Nililx.
des var = winterlx summerlx perenlx Nililx laborexp .
COMMENT replace 1 value of zero with mean value for all households .
recode laborexp (0=301.82) .
save outfile = 'c:\ifpri6\hhlaboh2.sav' /compressed .

COMMENT expenditures on permanent workers.
get file = 'c:\ifpri6\s12c5mv2.sav'.
compute filter5=(s12c5q1=1).
filter by filter5.
aggregate /outfile = 'c:\ifpri6\pmwrkrhh.sav'
 /break=hid /prmwrkxp=sum(s12c5q3) /nmbrpwrk=sum(s12c5q2).
get file = 'c:\ifpri6\pmwrkrhh.sav'.
compute avgpwrkr=prmwrkxp/nmbrpwrk.
des var = prmwrkxp nmbrpwrk avgpwrkr .
COMMENT replace 4 missing and 1 zero value out of 13 with sample mean .
recode prmwrkxp (sysmis=1210.625) (0=1210.625).
save outfile='c:\ifpri6\prwrkhh2.sav' /compressed .

COMMENT merge expenditure files for different purchased inputs.
match files /file='c:\ifpri6\seedphh2.sav' /in=s01
 /file = 'c:\ifpri6\fertihh2.sav' /in=s02
 /file = 'c:\ifpri6\insechh2.sav' /in=s03
 /file = 'c:\ifpri6\hhlaboh2.sav' /in=s04
 /file = 'c:\ifpri6\prwrkhh2.sav' /in=s05
 /by hid.
save outfile='c:\ifpri6\inputexp.sav' /compressed .
get file='c:\ifpri6\inputexp.sav' /keep=hid
 seedplxp fertilxp insectxp laborexp prmwrkxp.
recode seedplxp fertilxp insectxp laborexp prmwrkxp
 (sysmis=0).
save outfile='c:\ifpri6\inpexp1.sav' /compressed.

COMMENT add in family labor.
```

```
get file='c:\ifpri6\s12c6m.sav'.
COMMENT format hid (f8.0) [recode manually].
recode s12c6q3 s12c6q4 s12c6q5 s12c6q6 (sysmis=0).
aggregate outfile='c:\ifpri6\famlabhh.sav' /break=hid
 /winlabhh=sum(s12c6q3) /sumlabhh=sum(s12c6q4)
 /perlabhh=sum(s12c6q5) /neelabhh=sum(s12c6q6).
get file='c:\ifpri6\famlabhh.sav'.
COMMENT fre var=tothhlab winlabhh sumlabhh perlabhh neelabhh.
COMMENT retrieve valid farm households (s12aq01=1).
get file='c:\ifpri6\s12a1mv2.sav'.
aggregate outfile='c:\ifpri6\valprodu.sav' /break=hid
 /psu=mean(psu) /respno=sum(s12aq01).
get file='c:\ifpri6\valprodu.sav'.
COMMENT freq var=psu respno.
compute filthh=(respno>0).
match files /file=* /file='c:\ifpri6\hhlabhh.sav'
 /by hid.
select if (filthh=1).
compute tothhlab=winlabhh+sumlabhh+perlabhh+neelabhh.
recode tothhlab (sysmis=0).
save outfile='c:\ifpri6\vlfamlab.sav'/keep=hid tothhlab.

COMMENT prepare misc. ag. revenues and expenditures file.
COMMENT delete invalid households (non-farmers) from data set.

GET FILE='C:\ifpri6\S12dm.sav'.
COMMENT FORMATS hid (F8)  [done manually].
SORT CASES BY hid (A) .
match files /file=* /file='c:\ifpri6\valprodu.sav' /by hid.
compute filthh=(respno>0).
select if (filthh=1).
recode s12dq01 s12dq02 s12dq03 s12dq04 s12dq05 s12dq06 s12dq07
 s12dq08 s12dq09 s12dq10 s12dq11 s12dq12 s12dq13 s12dq14
 s12dq15 s12dq16 s12dq17 s12dq18 (sysmis=0).
save outfile='c:\ifpri6\othexp9d.sav'.
get file='c:\ifpri6\othexp9d.sav'.

COMMENT note that expenditures are entered first (according to label).
COMMENT fre var s12dq01 s12dq02 s12dq03 s12dq04 s12dq05 s12dq06
 s12dq07 s12dq08 s12dq09 s12dq10 s12dq11 s12dq12 s12dq13 s12dq14
 s12dq15 s12dq16 s12dq17 s12dq18 .

rename variables
 (s12dq01=irrig) (s12dq02=tcrop) (s12dq03=tinpt) (s12dq04=sacks)
 (s12dq05=storg) (s12dq06=imprv) (s12dq07=eqrep) (s12dq08=rdrft)
 (s12dq09=rtrac) (s12dq10=rthrs) (s12dq11=rmach) (s12dq12=otexp).
save outfile='c:\ifpri6\varexp1.sav' /keep=hid psu irrig tcrop
 tinpt sacks storg imprv eqrep rdrft rtrac rthrs rmach otexp.

COMMENT get file='c:\ifpri6\varexp1.sav'.
get file='c:\ifpri6\othexp9d.sav'.
rename variables
 (s12dq13=byprd) (s12dq14=ydrft) (s12dq15=ytrac) (s12dq16=ythrs)
 (s12dq17=ymach) (s12dq18=otrev).
save outfile='c:\ifpri6\varrev1.sav' /keep=hid psu byprd ydrft
```

```
 ytrac ythrs ymach otrev.
COMMENT get file='c:\ifpri6\varrev1.sav'.

COMMENT merge in revenues earned by renting out land .
COMMENT assumes in-kind payments have been converted to cash equivalent.
get file='c:\ifpri6\s12a2mv2.sav'.
COMMENT Format hid (f8).
select if s12aq01=1.
save outfile='c:\ifpri6\landrout.sav'.
get file='c:\ifpri6\landrout.sav'.
recode s12aq03a s12aq03b s12aq03c s12aq03d
 s12aq03e s12aq03f s12aq03g s12aq03h (sysmis=0).
compute landincm=s12aq03a+s12aq03b+s12aq03c+s12aq03d+
 s12aq03e+s12aq03f+s12aq03g+s12aq03h.
aggregate outfile='c:\ifpri6\landrou2.sav'
 /break=hid /ldrntinc=sum(landincm).
get file='c:\ifpri6\landrou2.sav'.

match files /file=* /file='c:\ifpri6\varrev1.sav' /by hid.
recode ldrntinc (sysmis=0).
save outfile='c:\ifpri6\varrev1a.sav'.

COMMENT keep only valid expenditures from the 'varexp1.sav' file.
get file='c:\ifpri6\varexp1.sav'.
compute vlvarexp=irrig+tinpt+eqrep+rdrft+rtrac+rthrs+rmach.
save outfile='c:\ifpri6\varexp2.sav' /keep=hid vlvarexp.

COMMENT create expenditure totals master file.
match files /file='c:\ifpri6\inpexp1.sav'
 /file='c:\ifpri6\vlfamlab.sav'
 /file='c:\ifpri6\varexp2.sav' /by hid.
compute allexp=seedplxp+fertilxp+insectxp+laborexp+prmwrkxp+vlvarexp.
save outfile='c:\ifpri6\allxpns.sav'.
execute.

COMMENT calculate value of equipment.
GET FILE='c:\ifpri6\s12em.sav'.
COMMENT format hid to numeric first.
IF pn = 1 tractor=s12eq05.
IF pn = 2 plow=s12eq05.
IF pn = 3 cart=s12eq05.
IF pn = 4 thresher=s12eq05.
IF pn = 5 trolley=s12eq05.
IF pn = 6 wtrpump=s12eq05.
IF pn = 7 generato=s12eq05.
IF pn = 8 strgbin=s12eq05.
IF pn = 9 inscspry=s12eq05.
IF pn = 11 other=s12eq05.
COMMENT calculate number of pieces.
IF pn = 1 ntractor=s12eq02.
IF pn = 2 nplow=s12eq02.
IF pn = 3 ncart=s12eq02.
IF pn = 4 nthreshe=s12eq02.
IF pn = 5 ntrolley=s12eq02.
IF pn = 6 nwtrpump=s12eq02.
```

```
IF pn = 7 ngenerat=s12eq02.
IF pn = 8 nstrgbin=s12eq02.
IF pn = 9 ninscspr=s12eq02.
IF pn = 11 nother=s12eq02.
aggregate outfile='c:\ifpri6\equiphh.sav' /break=hid
 /tractval=sum(tractor) /plowval=sum(plow)
 /cartval=sum(cart) /thresval=sum(thresher)
 /trollval=sum(trolley) /wtrpmval=sum(wtrpump)
 /geratval=sum(generato) /strgbval=sum(strgbin)
 /insecval=sum(inscspry)
 /tractnum=sum(ntractor) /plownum=sum(nplow)
 /cartnum=sum(ncart) /thresnum=sum(nthreshe)
 /trollnum=sum(ntrolley) /wtrpmnum=sum(nwtrpump)
 /geratnum=sum(ngenerat) /strgbnum=sum(nstrgbin)
 /insecnum=sum(ninscspr).
get file='c:\ifpri6\equiphh.sav'.
compute tracx=tractval*tractnum.
compute plowx=plowval*plownum.
compute cartx=cartval*cartnum.
compute tresx=thresval*thresnum.
compute trolx=trollval*trollnum.
compute wtrpx=wtrpmval*wtrpmnum.
compute gerax=geratval*geratnum.
compute strgx=strgbval*strgbnum.
compute inscx=insecval*insecnum.
recode tracx plowx cartx tresx trolx wtrpx gerax strgx
 inscx (sysmis=0).
compute capital1=tracx+plowx+cartx+tresx+trolx+wtrpx+gerax+strgx+inscx.
compute capital=capital1.
COMMENT replace with sample average values in cases where missing.
if hid=19311 capital=capital+7000.
if hid=22305 capital=capital+15000.
if hid=19311 capital=capital+400.
if hid=13116 capital=capital+2348.3.
if hid=17017 capital=capital+2348.3.
if hid=14719 capital=capital+259.
if hid=17110 capital=capital+(45*0.50).
save outfile='c:\ifpri6\capitalx.sav' /keep=hid capital.

COMMENT merge in revenue and land use files .
get file='c:\ifpri6\varrev1a.sav'.
compute miscrev=byprd+ydrft+ytrac+ythrs+ymach+otrev+ldrntinc.
save outfile='c:\ifpri6\varrev2.sav' /keep=hid miscrev.

COMMENT sub-file filename is landused.sps (up to the #### sign below).
COMMENT calculates land areas cultivated in feddan.
COMMENT created July 5th 1998, version 1.0 .
COMMENT no distinction is presently made between owned and rented land.
COMMENT (the majority of land renters rent the land for both main seasons).
GET FILE='C:\ifpri6\s12a1mv2.sav'.
COMPUTE fed2fed = s12aq02a .
COMPUTE quir2ha = s12aq02b / 24 .
RECODE fed2fed (SYSMIS=0)  .
RECODE quir2ha (SYSMIS=0)  .
COMPUTE feddan=quir2ha + fed2fed .
```

```
compute rentalrt=s12aq04/feddan.
compute LEperFed=s12aq06/feddan.
aggregate outfile='c:\ifpri6\fedval.sav' /break=hid
 /feddanhh=sum(feddan) /fedvalhh=sum(s12aq06) /psu=mean(psu).
get file='c:\ifpri6\fedval.sav'.
compute valprfed=fedvalhh/feddanhh.
COMMENT des var=feddanhh fedvalhh valprfed.
COMMENT freq var=feddanhh fedvalhh valprfed.
compute fedvalh2=fedvalhh.
if sysmis(fedvalhh) fedvalh2=feddanhh*44147.
if fedvalhh=0 fedvalh2=feddanhh*44147.
compute fedcateg=feddanhh.
recode fedcateg (lo thru 0.49999999=1001) (0.5 thru 0.8=1002)
 (0.801 thru 1.3=1003) (1.301 thru 2.2=1004) (2.201 thru high=1005).
COMMENT freq var=fedcateg.
COMMENT EXAMINE VARIABLES=feddanhh BY fedcateg
 /PLOT BOXPLOT STEMLEAF /COMPARE GROUP
 /STATISTICS DESCRIPTIVES /CINTERVAL 95
 /MISSING LISTWISE /NOTOTAL.
compute fedcate2=feddanhh.
recode fedcate2 (lo thru 0.99=2001) (0.991 thru 1.99=2002)
 (1.991 thru 4.99999999=2003) (5.0 thru high=2004).
freq var=fedcate2.
COMMENT EXAMINE VARIABLES=feddanhh BY fedcate2
 /PLOT BOXPLOT STEMLEAF /COMPARE GROUP
 /STATISTICS DESCRIPTIVES /CINTERVAL 95
 /MISSING LISTWISE /NOTOTAL.
COMMENT #### end of 'landused.sav' sub-file .

match files /file=* /file='c:\ifpri6\profits3.sav'
 /file='c:\ifpri6\varrev2.sav' file='c:\ifpri6\allxpns.sav'
 /file='c:\ifpri6\capitalx.sav' /by hid.
compute revprfed=grprofi2/feddanhh.
COMMENT examine var=revprfed BY fedcateg .
examine var=revprfed by fedcate2.
COMMENT examine var=revprfed by psu.
compute totalrev=grprofi2+miscrev.

COMMENT the following profits are before taking out family labor
COMMENT charges, equipment costs and land costs.
compute profitsx=totalrev-allexp.
compute productx=totalrev/allexp.
compute famlabxp=tothhlab*6.5 .
compute profitsy=totalrev-allexp-famlabxp.
compute producty=totalrev/(allexp+famlabxp).
compute landcost=feddanhh*2300.
compute profitsz=totalrev-allexp-famlabxp-landcost.
compute productz=totalrev/(allexp+famlabxp+landcost).
recode capital (sysmis=0).
compute capituse=capital*0.19 .
compute profitxx=profitsz-capituse.
compute prodctxx=totalrev/(allexp+famlabxp+landcost+capituse).
des var=productx producty productz prodctxx.
examine var=prodctxx by fedcateg.
examine var=prodctxx by fedcate2.
```

```
execute.
select if feddanhh>0.
select if grprofit>0.
save outfile='c:\ifpri6\prodvty.sav'.
select if profitsy ~= sysmis(profitsy).
save outfile='c:\ifpri6\profctn.sav' /keep=hid profitsy capital feddanhh.

COMMENT the following statements check for consistency between .
COMMENT values and numbers of equipment reported by farmers .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(tractnum > 0 & MISSING(tractval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(tractval > 0 & MISSING(tractnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(plownum > 0 & MISSING(plowval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(plowval > 0 & MISSING(plownum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .

COMMENT USE ALL.
COMMENT COMPUTE filter_$=(cartnum > 0 & MISSING(cartval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(cartval > 0 & MISSING(cartnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(thresnum > 0 & MISSING(thresval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(thresval > 0 & MISSING(thresnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .

COMMENT USE ALL.
COMMENT COMPUTE filter_$=(trollnum > 0 & MISSING(trollval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(trollval > 0 & MISSING(trollnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(wtrpmnum > 0 & MISSING(wtrpmval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
```

```
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(wtrpmval > 0 & MISSING(wtrpmnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .

COMMENT USE ALL.
COMMENT COMPUTE filter_$=(geratnum > 0 & MISSING(geratval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(geratval > 0 & MISSING(geratnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(strgbnum > 0 & MISSING(strgbval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(strgbval > 0 & MISSING(strgbnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .

COMMENT USE ALL.
COMMENT COMPUTE filter_$=(insecnum > 0 & MISSING(insecval)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
COMMENT USE ALL.
COMMENT COMPUTE filter_$=(insecval > 0 & MISSING(insecnum)).
COMMENT FILTER BY filter_$.
COMMENT FREQUENCIES VARIABLES=hid /ORDER  ANALYSIS .
```

```
COMMENT filename is inputs2.sps

COMMENT calculates expenditures by crop (and labor use by task) .
COMMENT created 26-SEP-1998 .

COMMENT seed expenditures .
get file = 'c:\ifpri6\s12c1m.sav'.
compute filter1=(s12c1q1=1).
filter by filter1.
aggregate /outfile = 'c:\ifpri6\seedplhh.sav'
 /break=hid pn /seedplxp=sum(s12c1q4).
get file = 'c:\ifpri6\seedplhh.sav'.
MEANS
 TABLES=seedplxp  BY pn
 /CELLS MEAN COUNT STDDEV  .

COMMENT fertilizer expenditures by crop .
get file = 'c:\ifpri6\s12c2mv2.sav'.
compute filter2=(s12c2q1=1).
filter by filter2.
aggregate /outfile = 'c:\ifpri6\fertilhh.sav'
 /break=hid pn/fertilxp=sum(s12c2q4).
get file = 'c:\ifpri6\fertilhh.sav'.
MEANS
 TABLES=fertilxp  BY pn
 /CELLS MEAN COUNT STDDEV  .

COMMENT insecticide expenditures by crop .
get file = 'c:\ifpri6\s12c3mv2.sav'.
compute filter3=(s12c3q1=1).
filter by filter3.
aggregate /outfile = 'c:\ifpri6\insecthh.sav'
 /break=hid pn/insectxp=sum(s12c3q4).
get file = 'c:\ifpri6\insecthh.sav'.
MEANS
 TABLES=insectxp  BY pn
 /CELLS MEAN COUNT STDDEV  .

COMMENT hired labor use by task .
get file = 'c:\ifpri6\s12c4m.sav'.
compute filter4= (s12c4q1=1).
filter by filter4.
COMMENT get file='c:\ifpri6\laborhir.sav'.
recode s12c4q4 s12c4q5 s12c4q6 s12c4q7 (sysmis=0).
compute wintrlab=s12c4q4*s12c4q3.
compute summrlab=s12c4q5*s12c4q3.
compute perenlab=s12c4q6*s12c4q3.
compute Nililab=s12c4q7*s12c4q3.
aggregate /outfile = 'c:\ifpri6\hlaborxp.sav' /break=hid pn
 /winterlx=sum(wintrlab) /summerlx=sum(summrlab)
 /perenlx=sum(perenlab) /Nililx=sum(Nililab).
get file = 'c:\ifpri6\hlaborxp.sav'.
MEANS
 TABLES=winterlx summerlx perenlx Nililx  BY pn
 /CELLS MEAN COUNT STDDEV  .
```

```
COMMENT family labor use by task .
get file='c:\ifpri6\s12c6m.sav'.
COMMENT format hid (f8.0) [recode manually].
recode s12c6q3 s12c6q4 s12c6q5 s12c6q6 (sysmis=0).
aggregate outfile='c:\ifpri6\famlabhh.sav' /break=hid pn
 /winlabhh=sum(s12c6q3) /sumlabhh=sum(s12c6q4)
 /perlabhh=sum(s12c6q5) /neelabhh=sum(s12c6q6).
get file='c:\ifpri6\famlabhh.sav'.
MEANS
 TABLES=winlabhh sumlabhh perlabhh neelabhh  BY pn
 /CELLS MEAN COUNT STDDEV  .
```

```
COMMENT filename is prfuprep.sps .
COMMENT purpose is to set up the profit function estimation .

get file='c:\ifpri6\profits1.sav' /keep=hid pprice ppwhea ppmaiz
 ppsorg ppcoto pn1rice pn1whea pn1maiz pn1sorg pn1coto p_rice p_whea
 p_maiz p_sorg p_coto.
match files /file=* /file='c:\ifpri6\brprtmp2.sav' /by hid.
execute.
compute bersp=berprice.
if sysmis(berprice) bersp=brprcpsu.
if (sysmis(berprice) and sysmis(brprcpsu)) bersp=brprcnat.
compute cotop=ppcoto.
if sysmis(ppcoto) cotop=p_coto.
if (sysmis(ppcoto) and sysmis(p_coto)) cotop=pn1coto.
compute sorgp=ppsorg.
if sysmis(ppsorg) sorgp=p_sorg.
if (sysmis(ppsorg) and sysmis(p_sorg)) sorgp=pn1sorg.
compute maizp=ppmaiz.
if sysmis(ppmaiz) maizp=p_maiz.
if (sysmis(ppmaiz) and sysmis(p_maiz)) maizp=pn1maiz.
compute wheap=ppwhea.
if sysmis(ppwhea) wheap=p_whea.
if (sysmis(ppwhea) and sysmis(p_whea)) wheap=pn1whea.
compute ricep=pprice.
if sysmis(pprice) ricep=p_rice.
if (sysmis(pprice) and sysmis(p_rice)) ricep=pn1rice.
save outfile='c:\ifpri6\prointrm.sav' /keep=hid
 bersp cotop sorgp maizp wheap ricep.
get file='c:\ifpri6\prointrm.sav'.
match files /file=* /file='c:\ifpri6\profctn.sav' /by hid.
select if profitsy ~= sysmis(profitsy).
save outfile='c:\ifpri6\profctn1.sav'.
if (bersp=0) bersp=0.08.

COMMENT estimate parameters of a generalized Leontief profit function.
compute p1=ricep.
compute p2=wheap.
compute p3=maizp.
compute p4=sorgp.
compute p5=cotop.
compute p6=bersp.
compute p1p2=sqrt(p1*p2).
compute p1p3=sqrt(p1*p3).
compute p1p4=sqrt(p1*p4).
compute p1p5=sqrt(p1*p5).
compute p1p6=sqrt(p1*p6).
compute p2p3=sqrt(p2*p3).
compute p2p4=sqrt(p2*p4).
compute p2p5=sqrt(p2*p5).
compute p2p6=sqrt(p2*p6).
compute p3p4=sqrt(p3*p4).
compute p3p5=sqrt(p3*p5).
compute p3p6=sqrt(p3*p6).
compute p4p5=sqrt(p4*p5).
compute p4p6=sqrt(p4*p6).
```

```
compute p5p6=sqrt(p5*p6).
compute p1c1=p1*capital.
compute p1c2=p1*feddanhh.
compute p2c1=p2*capital.
compute p2c2=p2*feddanhh.
compute p3c1=p3*capital.
compute p3c2=p3*feddanhh.
compute p4c1=p4*capital.
compute p4c2=p4*feddanhh.
compute p5c1=p5*capital.
compute p5c2=p5*feddanhh.
compute p6c1=p6*capital.
compute p6c2=p6*feddanhh.
execute.

COMMENT estimate a generalized Leontief profit function,
REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT profitsy
 /METHOD=ENTER p1 p2 p3 p4 p5 p6 p1p2 p1p3 p1p4 p1p5 p1p6 p2p3 p2p4 p2p5
 p2p6 p3p4 p3p5 p3p6 p4p5 p4p6 p5p6 p1c1 p1c2 p2c1 p2c2 p3c1 p3c2 p4c1 p4c2
 p5c1 p5c2 p6c1 p6c2  .
REGRESSION
 /MISSING LISTWISE
 /REGWGT=feddanhh
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT profitsy
 /METHOD=ENTER p1 p2 p3 p4 p5 p6 p1p2 p1p3 p1p4 p1p5 p1p6 p2p3 p2p4 p2p5
 p2p6 p3p4 p3p5 p3p6 p4p5 p4p6 p5p6 p1c1 p1c2 p2c1 p2c2 p3c1 p3c2 p4c1 p4c2
 p5c1 p5c2 p6c1 p6c2  .

COMMENT estimate a normalized quadratic profit function.
compute normalpi=profitsy/wheap.
compute n1=ricep/wheap.
compute n2=maizp/wheap.
compute n3=sorgp/wheap.
compute n4=cotop/wheap.
compute n5=bersp/wheap.
compute n1n2=n1*n2.
compute n1n3=n1*n3.
compute n1n4=n1*n4.
compute n1n5=n1*n5.
compute n2n3=n2*n3.
compute n2n4=n2*n4.
compute n2n5=n2*n5.
compute n3n4=n3*n4.
compute n3n5=n3*n5.
compute n4n5=n4*n5.
compute c=capital.
compute l=feddanhh.
```

```
compute n1c=n1*c.
compute n1l=n1*l.
compute n2c=n2*c.
compute n2l=n2*l.
compute n3c=n3*c.
compute n3l=n3*l.
compute n4c=n4*c.
compute n4l=n4*l.
compute n5l=n5*l.
compute n5c=n5*c.
execute.

REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT normalpi
 /METHOD=ENTER n1 n2 n3 n4 n1n2 n1n3 n1n4 n2n3 n2n4 n3n4 n2c n3c n4c n5
 n1n5 n2n5 n3n5 n4n5 n1c n1l n2l n3l n4l n5l  .
REGRESSION
 /MISSING LISTWISE
 /REGWGT=feddanhh
 /STATISTICS COEFF OUTS R ANOVA
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT normalpi
 /METHOD=ENTER n1 n2 n3 n4 n1n2 n1n3 n1n4 n2n3 n2n4 n3n4 n2c n3c n4c n5
 n1n5 n2n5 n3n5 n4n5 n1c n1l n2l n3l n4l n5l  .
```

```
comment syntax file name is prmkt.sps .
comment produces crosstabs for input and output marketing characteristics.

comment use of improved seed varieties.
GET FILE='C:\ifpri6\s12bnew2.sav'
 /keep=hid psu pn s12bq03 s12bq05d s12bq05e.
select if ((pn=1) or (pn=2) or (pn=3) or (pn=4)
 or (pn=60) or (pn=63)).
save outfile='c:\ifpri6\prmkt.sav'.
get file='c:\ifpri6\prmkt.sav'.
value labels pn 1 'Rice' 2 'Wheat' 3 'Maize'
 4 'Sorgho' 60 'Cotton' 63 'Berseem'.
CROSSTABS /TABLES=pn BY s12bq03
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.

comment use of purchased seeds and young plants.
GET FILE='C:\ifpri6\s12c1m.sav'.
select if ((pn=1) or (pn=2) or (pn=3) or (pn=4)
 or (pn=60) or (pn=63)).
save outfile='c:\ifpri6\seedmkt.sav'.
get file='c:\ifpri6\seedmkt.sav'.
value labels pn 1 'Rice' 2 'Wheat' 3 'Maize'
 4 'Sorgho' 60 'Cotton' 63 'Berseem'.
CROSSTABS /TABLES=pn BY s12c1q1
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c1q3
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c1q5
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c1q6
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c1q7
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c1q8
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.

comment use of fertilizer.
GET FILE='C:\ifpri6\s12c2mv2.sav'.
select if ((pn=1) or (pn=2) or (pn=3) or (pn=4)
 or (pn=60) or (pn=63)).
save outfile='c:\ifpri6\fertmkt.sav'.
get file='c:\ifpri6\fertmkt.sav'.
value labels pn 1 'Rice' 2 'Wheat' 3 'Maize'
 4 'Sorgho' 60 'Cotton' 63 'Berseem'.
CROSSTABS /TABLES=pn BY s12c2q1
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c2q3
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c2q5
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c2q6
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c2q7
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c2q8
```

```
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.

comment use of insecticides.
GET FILE='C:\ifpri6\s12c3mv2.sav'.
select if ((pn=1) or (pn=2) or (pn=3) or (pn=4)
 or (pn=60) or (pn=63)).
save outfile='c:\ifpri6\insecmkt.sav'.
get file='c:\ifpri6\insecmkt.sav'.
value labels pn 1 'Rice' 2 'Wheat' 3 'Maize'
 4 'Sorgho' 60 'Cotton' 63 'Berseem'.
CROSSTABS /TABLES=pn BY s12c3q1
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c3q3
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c3q5
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c3q6
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c3q7
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12c3q8
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.

comment output marketing characteristics.
GET FILE='C:\ifpri6\s12bnew2.sav'
 /keep=hid psu pn s12bq03 s12bq05d s12bq05e.
select if ((pn=1) or (pn=2) or (pn=3) or (pn=4)
 or (pn=60) or (pn=63)).
save outfile='c:\ifpri6\prmkt.sav'.
get file='c:\ifpri6\prmkt.sav'.
value labels pn 1 'Rice' 2 'Wheat' 3 'Maize'
 4 'Sorgho' 60 'Cotton' 63 'Berseem'.
CROSSTABS /TABLES=pn BY s12bq05d
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
CROSSTABS /TABLES=pn BY s12bq05e
 /FORMAT= AVALUE TABLES /CELLS= COUNT ROW.
```