PRIORITY SETTING IN THE CGIAR

C.T. de Wit, G. Gryseels and D. van Kraalingen

December 1992

TAC Secretariat/CGIAR

FAO

Via delle Terme di Caracalla

00100 Rome, Italy

Tel: (39-6) 57975442
Fax: (39-6) 57975731
E-mail: CGI501

PRIORITY SETTING IN THE CGIAR[1]

1. Introduction

The Consultative Group on International Agricultural Research (CGIAR) is an informal association of more than 40 countries, foundations and international agencies that provides donor support to a network of 18 international centres that conduct research on agriculture, forestry and fisheries for the benefit of developing countries. While the annual budget of the CGIAR amounts to approximately US$300 million, it remains a relatively small actor in the global research scene, accounting for only 4% of public sector expenditure for agricultural research in developing countries. The CGIAR has to be very selective in choosing which of the many demands for agricultural research it will help to meet. In addition, the nature and focus of this research must also be selected vigorously. In this selection process, the CGIAR is advised by a Technical Advisory Committee (TAC) that provides recommendations on CGIAR priorities and strategies, on resource allocation, on the quality and relevance of CGIAR activities. In general, TAC provides intellectual leadership to the System.

TAC prepares an updated report on CGIAR priorities and strategies approximately every five years. The most recent report (TAC/CGIAR, 1992) was endorsed at the Mid-Term Meeting of the CGIAR in May 1992. The report provides recommendations on CGIAR priorities by region, agroecological zone, activity, production sector and commodity.

TAC began its review of CGIAR priorities and strategies by investigating the challenges facing research and development in agriculture, forestry and fisheries between now and the year 2010. It analysed the need for CGIAR involvement in resource management, germplasm enhancement, production systems research, policy research and institution building, and provided the necessary background information to allow for the formulation of judgements on priorities by category of research activity, although these are not further considered in this paper.

A main methodological innovation was the development of a modified congruence approach and scoring model to assist in priority setting by region, agroecological zone and commodity. This paper explains this model approach. Since the methodology can be explained fully by considering the problem of priority setting in agriculture (crops and livestock), the work that has been done for forestry and fisheries is not treated further here.

The paper first presents the units of analysis and then discusses the congruence approach and the modification of the results to take into account the special nature of the

---

1 Paper prepared by C.T. de Wit, G. Gryseels and D. van Kraalingen of the Agricultural University of Wageningen. All correspondence related to this paper should be addressed to the authors % TAC Secretariat/CGIAR, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

CGIAR, the needs of its clients and the demands of its donors. It also provides a user's guide for the application of the spreadsheets that were developed for priority setting.

2. Units of Analysis

The units of analysis are regions, agroecological zones, regional agroecological zones and agricultural commodities. These are considered in this section, but only to the extent necessary to understand the methodology of priority setting.

2.1 Regions

TAC's geographic coverage of regions was limited to the developing countries of sub-Saharan Africa (AFRS), West Asia/North Africa (WANA), Asia and the Pacific (ASIA), and Latin America and the Caribbean (LAC). Some selected socioeconomic indicators for these four regions are given in Table 1. Countries of Eastern Europe and other former republics of the Soviet Union were not included in the analysis.

2.2 Agroecological zones

TAC adapted the agroecological characterization originally developed by FAO (FAO, 1978-81). In this classification, a distinction is made between tropical areas, and subtropical areas with summer or winter rainfall. These major ecological regions are further subdivided into rainfed moisture zones, using standard lengths of growing period, and into thermal zones, using the temperature regime prevailing during the growing period. In this way, nine basic agroecological zones were distinguished for the review of CGIAR priorities:

1. Warm arid and semi-arid tropics (AEZ1);
2. Warm subhumid tropics (AEZ2);
3. Warm humid tropics (AEZ3);
4. Cool tropics (AEZ4)
5. Warm arid and semi-arid subtropics with summer rainfall (AEZ5);
6. Warm subhumid subtropics with summer rainfall (AEZ6);
7. Warm/cool humid subtropics with summer rainfall (AEZ7);
8. Cool subtropics with summer rainfall (AEZ8);
9. Cool subtropics with winter rainfall (AEZ9).

2.3 Regional agroecological zones

Applying the classification of agroecological zones to that of the regions leads to a total of 23 regional agroecological zones (RAEZs): four in sub-Saharan Africa, three in West Asia/North Africa, seven in Asia and nine in Latin America and the Caribbean. Because two out of the three WANA zones are relatively unimportant, the results for all three zones in WANA have been aggregated. Throughout this paper, results are, therefore, given for 21 RAEZs, except in Table 2 that provides selected agroecological and socioeconomic indicators for the 23 RAEZs.

To link the socioeconomic database (which is organized by political units or national boundaries) with the natural resource database (organized by agroecological zones), it was necessary to reconcile agroecological and political boundaries. For smaller countries with relatively uniform terrain this presented few problems. Larger countries or countries with non-uniform terrain were mostly assigned to more than one agroecological zone. Zone boundaries were then reconciled with provincial or regional boundaries. Data on population and land area were available at national/ subnational level and these provided the basis for the disaggregation of other socioeconomic data.

2.4 Commodity

In order to enable assessment of the importance of commodities and in view of the need for a common unit of analysis, commodities were ranked by their value of production. This value was estimated by multiplying the average annual production volume of each commodity during 1987/89 as reported in the FAO production yearbooks, with its corresponding price. One global price was used for each commodity. It is acknowledged that there are major caveats associated with the concept of value of production:

- First, several commodities have no published data sources and estimates had to be found elsewhere.

- Second, for the purpose of this exercise, it was not possible to account for intermediate products such as draught power, manure, fodder crops, pasture hay, and certain tree products, because they are not usually traded and have no international price. Nevertheless, these intermediate products are indispensable inputs to the production of many of the priced commodities.

- Third, prices of commodities may vary considerably by region and over time.

- Fourth, the relative importance of commodities may depend on how they are aggregated. This is particularly important for fish, fruits and vegetables.

- Fifth, the reported international price for several commodities refers to only a minor share of the market which has been distorted by subsidies and other government policies.

- Sixth, there is no consistency in the way price data are reported. This ranges from farm gate prices to Cost Insurance Freight (CIF).

- Seventh, available international prices usually refer to the high quality portion of a commodity which is usually only a minor share of production.

Despite such caveats, gross value of production provides a useful indicator of the importance of commodities across production sectors. It would be possible to use other indicators such as nutritional values, but this would require the estimation of the opportunity costs in terms of nutritional values of all crops that are not grown for direct human consumption.

In agriculture, the 45 most important commodities were incorporated in the analysis. These are listed in Table 3, where they are ranked according to their economic importance in the developing countries. About half of these commodities are currently the subject of research by the CGIAR.

3. Congruence Approach

3.1 Introduction

At the Mid-Term Meeting of the CGIAR in 1987 in Montpellier, the CGIAR endorsed a recommendation from TAC that priority setting should be a continuing activity, and that greater use should be made of quantitative models for this purpose. Subsequently, TAC reviewed quantitative models for use in priority setting in agricultural research and recommended that a congruence approach combined with scoring techniques was the most appropriate technique to assist in priority setting for the CGIAR (TAC/CGIAR, 1987, TAC/CGIAR, 1988).

3.2 Concept of congruence

The congruence approach is a method by which resources are allocated on the basis of the contribution of a particular unit (e.g., commodity) to an overall given standard of measure (e.g., value of production, supply of energy or protein, area of land under use etc.). The congruence approach was originally developed for commodities and is based on two main assumptions: that the opportunities for research to generate new knowledge to increase productivity are equal across commodities; and that the value of new knowledge produced by research is proportional to the value of output, ignoring the costs of inputs or the value added by processing. If these two assumptions are more-or-less valid, then research is most efficiently distributed according to the value of production of the commodities (Scobie, 1984; Kirschke, 1987).

A congruence approach can also be applied for an initial ranking of CGIAR priorities by region, agroecological zone, regional agroecological zones (RAEZ), by assessing their respective contribution to a specific unit of measure, such as total value of production or total area of agricultural land.

Congruence analysis can only be applied to parameters that measure extensive rather than intensive magnitudes. To decide in which class a parameter belongs, it is often helpful to note the effect of the addition of two equal quantities of the parameter in question (Forsythe, 1956); if twice the quantity results, then the parameter has extensive magnitude. For example, if the GNP of country A is US$500 million, and that of country B is US$300 million then the combined total GNP of countries A and B is US$800 million. On the other hand, if GNP per caput in country A is US$250 and that of country B is US$120, the combined GNP/caput for countries A and B is not the sum of their respective levels (US$370). Such parameters measure quantities of intensive magnitude. Examples of measures of extensive magnitude, which are referred to as extensity parameters in the remainder of this paper, include; value of production, number of people, or hectares of land. Examples of measures of intensity, referred to as intensity parameters in the remainder of this paper, include: value of production per ha, share of malnourished in a population, and number of tractors per ha of land.

Extensity and intensity parameters express different concerns. Whereas the size of population of a particular country can be small compared to other countries, its population/land area may be high. A congruence approach can only be applied to extensity parameters because only these can be added and aggregated.

3.3 Application of the congruence approach

In its quantitative analysis of CGIAR priorities, TAC first proceeded with the spatial dimension and an assessment of geographical priorities, i.e. by region, AEZ and RAEZ. Rather than using a single criterion, TAC made an initial ranking of priorities on the basis of the weighted average of three extensity parameters, each of which reflect a major concern expressed by the CGIAR in its mission statement: the contribution of research to productivity, to the well-being of low-income people and to sustainability of production. These are the three most important concerns of the CGIAR and can be expressed for each RAEZ in terms of value of production, number of poor people, and usable land. This approach emphasizes efficiency considerations: if research has to enhance production, it is better done where the value of production is large; if it has to alleviate poverty, it is better done where there are a large amount of poor people; and if it has to support sustainability of production, it is better done where there are large areas of land. In this perspective, a congruence approach allows for optimalization of the objective function.

In the case of agriculture, TAC decided to weight all three of the parameters equally. Value of production was estimated by aggregating production sector the value of each commodity by RAEZ, the number of poor was estimated on the basis of World Bank data, and usable land was defined as agricultural, plus forestry and woodland. Data for usable land were found in FAO production yearbooks. The value of each parameter was standardized to sum to 1000 so as to allow for aggregation of the relative value of each parameter. Table 4 gives the three extensivity arrays and the resulting baseline. These baseline values provide an initial indication of the relative priority of each RAEZ, region and AEZ.

4. Modification of Baseline Values

4.1 Need for modification

The initial assignment of geographical priorities in the form of a baseline value which was determined by value of production, number of poor people and land area is an optimalization procedure determined by criteria of economic efficiency. It does not reflect other important concerns expressed in the CGIAR mission statement related to equity, resource degradation or strength of national research systems. The baseline values should, therefore, be modified to allow for incorporation of these other concerns. A standardized approach was therefore developed for modifying the initial baseline values by intensity parameters in a zero-sum game. Such parameters allow for expression of intensity of particular phenomena in each region and AEZ.

4.2 Modification procedure

Table 5A provides an example of how the initial baseline of priorities is modified with intensity parameters. For reasons of simplicity, the example uses the four regions as units of analyses. The yield gap is used as a modifier, and is defined as the potential yield level that is achieved with the best technical means minus the present yield level, divided by the potential yield level and expressed as a percentage. The yield gap ranges from 0-100%. A yield gap of 0% means that the potential yields are achieved and therefore yields can only be increased by further enhancement of the potential yield level by strategic research. When the yield gap is high, there is considerable scope to increase the actual yield level by applied research, extension and improvement of the socioeconomic environment. Since the mission of the CGIAR is strategic research, TAC opted for the situation where the research priority is higher for a region, the smaller the yield gap.

The modification process for this proceeds as follows: In row 1 of Table 5A, the initial baseline priorities are given ranging from 74 for WANA to 530 for ASIA, and with a total of 1000. The yield gap for each region is with a low of 60% in ASIA and a high of 79% in AFRS is given in row 2. This range of values is then normalized in row 3 by division by its maximum value. Because in this case, the highest priority is given to the region with the lowest yield gap, the complement is taken in row 4 by subtracting the relative yield gap from 1. It provides AFRS now with the lowest value of 0 and ASIA with the highest value of 0.24. In row 5, these values are multiplied by the weight of the modifier, which is here set at 0.75. The gross change of base-line values in row 6 is now obtained by multiplying row 5 with row 1. These values have to be added to the initial baseline priorities. However, to maintain the total priorities at 1000, the baseline has to be reduced at the same time by the values in row 7. These are the baseline values, but now standardized at the total of the gross changes in row 6 of 103.39. The difference in row 8 of the gross change and the baseline reduction gives the net change to each of the base-line values. The priority of ASIA with the lowest yield gap is increased with 38.75 and of AFRS with the highest yield gap decreased with -18.85. The addition of row 8 to row 1 gives at last the modified priority values of row 9. Since the total of row 8 is always zero, the addition does not increase the total relative priority of 1000. This reflects the zero-sum character of the process.

All values in row 3 would be equal to 1 if the yield gaps were the same for the four regions. In that case all values in the rows 4-8 would be equal to zero, so that priorities would not be changed. The total of row 6 would then also be equal to zero. In general, this total depends on the variability of the yield gap and is directly proportional to the weight attached to the modifier. It quantifies therefore the overall impact of the modifier, and is therefore further referred to as the gross redistribution. Apart from the weight, the value of this gross redistribution depends on the variability of the yield gap with respect to the base-line priority. In this example, this gross redistribution is 103.39.

For research organizations that are much more concerned with applied research than the CGIAR, it could be argued that the priority of research in regions with a high yield gap should be increased at the expense of research in regions with a low yield gap. The consequences of this reversal of priorities is calculated in Table 5B where the complement of row 3 is not taken in row 4. The values of the net increase of the baseline in row 8 appear then the same as in Table 5A, but for the important difference that the signs are reversed. Other calculation procedures can be visualized, but this mirrored, symmetrical response to reversal in priorities is a main reason why the present procedure is preferred.

It is noted that the total of the gross change in row 6 of Table 5B is 646.61, rather then 103.39 in Table 5A. Likewise in the situation that all yield gaps are the same, this sum is 750 rather than 0. Apparently, the sum of these numbers in both tables equals 750, which appears to be the product of the weight of 0.75 and the priority total of 1000. Hence, to maintain comparable gross redistributions, it should be defined in Table 5B as the difference between the weight*1000 (in this case 750) and the total of the gross change.

However, it appears less confusing to do all calculations as in Table 5A, and to simply change the sign in row 8 if the reverse situation is considered. The sign convention is then conveniently chosen such that with a positive sign (+1) the priority of a region increases with increasing value of the modifier and with a negative sign (-1) the reverse occurs.

There is usually more than one modifier used. Where this is the case, the values of row 8 for the next modifier are added to row 9 of the previous modifier. Accordingly row 9 accumulates the effect of all modifiers. Since the baseline priorities are always used as a point of reference for the calculations, the outcome of the calculation process remains independent of the order in which the modifiers are applied. As the modification process is additive, negative priorities may occur. Formally, this would mean taxing one region to the benefit of the others. Since the CGIAR is not empowered to levy taxes, these negative values have to be eliminated. This is done by setting all negative values in the end result at zero, with the consequence that the total of the relative priorities across regions becomes larger than 1000. This is corrected by a proportional decrease of all priorities. Hence, if the priority for WANA were to become -100, it should be set at 0, while at the same time the other priorities should be multiplied by 1000/1100 to remain at a total of 1000.

The effect of a modifier depends on the weight it has been assigned and on the spread or variability of its value across regions, and is reflected in the value of the gross redistribution. There are two opposing strategies for weighting modifiers: the first is to give each the same weight. In that case, the differences in impact of the modifiers that are brought about by their difference in variability are conserved. The magnitude of this weight then reflects the impact that the user wants to attach to the entire modifying process. The second method is to eliminate the differences in impact of modifiers by making the weight inversely proportional to the gross redistribution values that are calculated with a same weight for each modifier. The gross redistribution is then forced to be the same for each modifier. Recognizing that there is a large freedom of choice, TAC has opted for the first strategy, since it is more relevant and transparent.

The above modifying approach does not present an optimizing procedure. It only aims at clarifying choices. It makes the decision process fully transparent because it is clear how certain factors are taken into account and what their impact is on the outcome. The zero-sum nature of the process also forces the user to recognize that increasing the priority in one region, agroecological zone, RAEZ or commodity means decreasing priorities for others. Furthermore, it allows priority setting to become an interactive process in which stakeholders have an opportunity for reasoned input.

5. Results

TAC had to consider a wide range of modifiers that would take into account the special nature of the CGIAR, the needs of its clients and the demands of its donors. It is also to be recognized that the choice of modifiers was limited to those for which sufficient information was available, although this did not distinguish the present process from any other process of priority setting. In the end, TAC retained nine modifiers for agriculture. These were; yield gap or scope for growth, share of malnourished people, gross domestic product/caput, need for production growth, deforestation, soil-degradation risk, capacity of national research systems, size of countries, and food import gap. The data associated with these modifiers are given in Table 6. Some of these, such as deforestation and capacity of NARS, which are measured as number of scientists are clearly extensity parameters. Before use, these have to be converted to intensity parameters by division with the base-line values. Some modifiers distinguish only between regions because sufficiently detailed data for a distinction on RAEZ were not available or could not be found in time.

Table 7 illustrates the effect of each modifier on the baseline values by RAEZ, region and AEZ. It shows whether the effect was positive or negative and by how much. In this example, all modifiers were given the weight of 0.5. The table allows the reader also to compute the effect of the removal of one or more of the modifiers, of a directional change of the modifiers, and of changes in weights. Table 8 provides the results of the quantitative analysis by geographical area. It illustrates the effects of the use of the nine modifiers, all applied with a weight of 0.5, on the baseline values. The final priorities can be referred to as the priority index by RAEZ, agroecological zone and region. The RAEZ of highest priority is AFRS1 or the arid and semi-arid tropics of sub-Saharan Africa with an index of 136. LAC6, the warm subhumid subtropics with summer rainfall of Latin America has the lowest priority with an index of only 2.5. The agroecological zone and the region of highest priority are respectively the humid tropics (AEZ3), and ASIA.

6. Implications of Geographical Priorities for Commodity Priorities

The development of a geographical priority index has considerable consequences for priorities among commodities. The first step in ranking commodities consists in the estimation of their value of production. This value is subsequently modified to take into account the results of the geographic priority analysis. This is done by adjusting the value of production of each commodity in each RAEZ by the ratio of the priority index (provided in Table 8) and the initial value of crop and livestock production by RAEZ (presented as VOP in Table 4). The ratio ranges from 5.06 for AEZ1 of AFRS, to 0.20 for AEZ7 of ASIA. The next step is then to multiply the value of production of each commodity in each RAEZ with the ratio obtained for that RAEZ. The value of all commodities grown in AEZ1 of AFRS will thus be multiplied by 5.06, and those in AEZ7 of ASIA by 0.2. The resulting outcome is the modified value of production of commodities (assuming a weight of 0.5).

The approach implies that a commodity with a high production value but mainly grown in an area of low priority, may end up with lower priority than a commodity with a low production value grown mainly in an area that has been assigned high priority.

The modified VOP by RAEZ, can then be aggregated for each commodity by region and AEZ. The results by region are illustrated in Tables 9 and 10. Whereas rice, for example, accounts for 17.8% of the value of production of the agricultural commodities included in this analysis, it accounts for only 13.2% of the global aggregated modified value of production. As illustrated in Table 9 and 10, the application a geographical priorities to value of production also substantially affects the regional distribution of this value.

7. The Spreadsheet Programmes

7.1 Introduction

The three main spreadsheet programs that perform the priority allocation operations are discussed in this section. To use the spreadsheet programmes, either an IBM compatible PC with Excell 2.1C or an Apple Macintosh with Excell 2.2 or higher is needed. The spreadsheets are available on request on a 3.5" HD, MS-DOS floppy. This floppy can also be used on Macs that have a 1.44 Mb superdrive.

The program "PRIOR.XLS" allocates priorities over the 21 regional agroecological zones, but it can easily be adapted to programmes that distinguish between the four regions, the nine agroecological zones or the 45 commodities. A program printout is given in Table 11. Relevant equations are shown in Table 12, which may be useful for those who want to check details or to rewrite the program in another spreadsheet language.

The program COM.XLS calculates the consequences of the priority setting for the 21 RAEZs for priorities among agricultural commodities. It can be adapted for any number of commodities and regions or zones. It is printed out in Table 13.

Upon opening of the program TAC.XLM, a pull-down menu with the name "TAC-index" is created, that contains two entries: "Modifier Macros" and "Chart Macros". The Modifier Macros are used in the PRIOR.XLS spreadsheet and the "Chart Macros" facilitate graphical presentation in both the PRIOR.XLS and COM.XLS programs.

7.2 The priority program (PRIOR.XLS)

PRIOR.XLS, shown in Table 11, contains four main blocks. The first calculates the baseline priority, the second modifies this priority, the third eliminates negative priorities and the fourth summarizes the results. These blocks are discussed below.

The baseline priority

The first block (columns A-G and rows 21-50) calculates the baseline priority. Column A contains the RAEZs and columns B-F the data for a maximum of five extensity parameters. This seems sufficient for any purpose. Only three extensity arrays are used here; value of production, number of poor, and area of usable land. Rows 25-48 contain the extensity arrays, standardized at 1000, as is shown by their sums in row 50. Row 23 contains the weight attached to each extensity array. The baseline priority is calculated by multiplying each extensity array by its weight and adding the values per row to a total in column G. There are "error" messages when the weights do not add up to 1 and the totals do not add up to 1000.

The modifying process

The second block (columns A-N and rows 63-95) contains the modification process by means of intensity parameters. In columns A and B the names of the RAEZ and the array with baseline priorities automatically correspond to these in columns A and G of the previous block. There are two modifiers considered in this example: yield gap in columns C-H and malnutrition in columns I-N. The equations for additional modifiers can be created by loading the program TAC.XLM and choosing the entry "Modifier Macro" from the pull-down menu "TAC index". The pull-down menu "TAC macros" that is then created contains an entry "Add relative block". If this entry is called upon, a third modifier block is created in the columns O-T. This has then to be loaded with appropriate input data for another modifier. This procedure of creating new modifier blocks can be repeated as many times as is needed. The pull-down menu "Modifier Macro" also contains references to start calculations, to check for "error" messages, to delete modifier blocks and to go to the summary tables. These are self-explanatory when used.

In columns C-H all the modifier steps are given. Column C contains the yield gap for all 21 RAEZs as in row 2 of Table 5A. Rows 3, 4 and 5 of Table 5A are calculated in column D. The weight being used is given in cell D63. The gross change and gross redistribution (row 6, Table 5A) are calculated in column E and the baseline reduction (row 7, Table 5A) in column F. Column G with the net increase of the baseline priority (row 8, Table 5A) contains the values in column E minus those in column F, multiplied by the sign (S) in cell D64. The signs are chosen such that S=-1 refers to the situation where the priority decreases with an increase in the value of the modifier. The modified baseline priority (row 9) in column H is at last calculated by adding the values in columns B and G. The program contains "error" checks on the totals that have to add up to 1000 and on the value -1 or +1 of the sign S.

The second modifier block (columns I-N) repeats the same calculations with malnutrition as the intensity parameter. Additionally, it should be noted that the level of malnutrition (in % of population that is malnourished) is only known by region, so that within regions the same percentages are used for the different agroecological zones. This is better than not using the information at all. The priority of research should increase with the percentage of malnutrition, so that the value of S is set at +1. To calculate the modified base-line priority in column N, the net increase of the baseline is added to the value in column H. Accordingly, the modified relative priorities are cumulative.

Automatic correction of negative priorities

The third block in columns A-E and rows 106 to 135 takes care of the automatic correction of negative priorities. For this purpose, the modified baseline of the last modifying block is automatically selected and transferred to column B under the heading "semi-final priorities". Negative values do not occur in the example given in Table 11, but they do in the example shown in Table 14 which was generated with a very high weight of 10 for malnutrition. The operation is as follows: Under the title "changes to eliminate negative values", the values which, upon addition to those in the previous column will eliminate any negative values, are created in column C. The "unadjusted total" of columns B and C is given in column D. It contains zeros instead of negative values, but the grand total is accordingly increased to the value of 1462.98 in D135. By multiplying all values in column D with the ratio 1000/1462.98, the priorities are again standardized at a total of 1000 in column E.

Summary tables

Relevant input information is automatically transferred to the "Summary tables". These consist of the names of the extensity parameters and their weights (W) and the names of the intensity parameters and their weights and sign (S) in columns A-G and rows 139-153. Subsequently, the baseline and final priorities for all 21 RAEZs, for the four regions and the nine agroecological zones are reported in columns A-G and rows 157-186. To facilitate graphical output, there is a self-explanatory entry "Chart macros" under "TAC index" which allows the user to construct uniform and readable graphs.

7.3 The commodity program (COM.XLS)

The commodity spreadsheet adjusts relative priorities of commodities for relative priorities of the 21 regional agroecological zones. An example is given in Table 13.

The core of this program is formed by Table 13.2 of gross values of production (VOP) in columns A-Y and rows 11-67, specified according to the 21 RAEZ and 45 commodities. Standardized at 1000, these values give the relative priority that would be allotted to each commodity in each RAEZ, according to the classical congruence approach. The total VOP per RAEZ, standardized at 1000, is given in row 67 in columns B-V. This array is also written in row 7 of Table 13.1 with the heading "Value of Prod. (VOP)" and is used as an extensity array in the program PRIOR.XLS in Table 11. It would be the outcome of the priority-setting process across RAEZ, if no other extensity arrays and no modifiers were used.

The outcome of the priority-setting process, which is under the heading "final priority" in rows 162-185 of column C in the PRIOR.XLS program shown in Table 11 is transposed (see menu "Paste Special") to row 4 of COM.XLS shown in Table 13.1. Subsequently, all blanks between the values are removed. The resulting row is then copied into row 8. The quotient (weighted/VOP) of rows 6 and 7 in row 8, now gives the value by which the VOP of the commodities in the same column have to be multiplied by in order to account for the influence of the RAEZ priorities on the priority of the commodities.

It is seen that in the agroecological region AFRS1, the priority based on value of production would be 26.9 per 1000, whereas after the priority setting process, the result is 81.9 per 1000. Hence, the adjusted priorities of the commodities in that RAEZ are 3.04 larger than if based on VOP only. Similar reasoning holds for other RAEZs. The outcome of this weighting process is given in columns A-Y and rows 74-126 in Table 13.3. It should be noted that this matrix contains absolute values, but these are no longer in millions of dollars. Comparison of the relative unweighted crop totals in block Y17-Y63 and the weighted crop totals in block Y77-Y123 shows the overall effect of the process.

The data are further summarized per region. Table 13.4 contains in columns AA-AK and rows 14-65 the unweighted absolute and relative values for each of the four regions, summed across the nine agroecological zones. Table 13.5 contains in columns AA-AK and rows 74-126 the weighted values. Similar tables are calculated for each of the nine agroecological zones, summed across the four regions, but these are not reproduced here.

Summary tables are given in columns A-K and rows 139-201 (Table 13.6). This concerns all straightforward accounting, which can be done according to need.

8. Concluding Comments

The spreadsheet approach described in this paper has been successful in providing a transparent analytical framework for the assessment of agricultural research priorities in the CGIAR, particularly with respect to priorities by region, agroecological zone and commodity. The advantages of the approach are many. It is fully transparent; the zero-sum game involved clearly illustrates trade-offs between alternative choices; it allows both sequential and simultaneous use of modifiers; it demonstrates the sensitivity of results to changes in weights used for the baseline and the modifiers; it allows multiple decision-making variables to be taken into account; and the selection of baseline and modifier variables is separate from the process of establishing weights. Furthermore, the approach allows for linking the process of priority setting with that of resource allocation (TAC/CGIAR, 1992).

The approach is demand driven and places primary emphasis on the agroecological zone, regionally confined as the unit of analysis. This highlights the two major areas for further improvement of the approach. The process of priority setting also requires a supply dimension, as there is a need to have information on the rate of substitution with different research portfolios in the achievement of alternative goals. This would require estimates on research outputs as a function of inputs. To obtain reliable information in this regard, substantial inputs will be required by the scientific community based on sound judgement and experiences gained. This supply consideration will receive careful attention in the future.

Furthermore, many data, particularly those of a socioeconomic nature, are only available on the basis of political boundaries and cannot be easily reconciled with agroecological boundaries. The data set used in the approach requires regular updating and careful scrutiny and will be improved over time.

Finally, it is to be stressed that quantitative analysis is an aid to but should not be a substitute for informed qualitative analysis and decision making.

REFERENCES

FAO, 1978-81. Reports of the Agroecological Zones Project. World Soil Resources Report No. 48. FAO, Rome.

Forsythe, W.E., 1956. Smithsonian Physical Tables. Smithsonian Institution, 1956.

Kirschke, D., 1988. Prioritäten in der Agrarforschung. Das Beispiel der internationalen Agrarforschungsinstitute. Agrarwirtschaft.

Scobie, G.M., 1984. Investment in Agricultural Research: Some Economic Principles. Working Paper, CIMMYT, Mexico.

TAC/CGIAR, 1987. The Use of Quantitative Models for Setting Priorities in Resource Allocation to Agricultural Research. TAC Secretariat, FAO, Rome.

TAC/CGIAR, 1988. TAC's Approach to CGIAR Priority Assessment. TAC Secretariat, FAO, Rome.

TAC/CGIAR, 1992. A Review of CGIAR Priorities and Strategies. Parts I and II. TAC Secretariat, FAO, Rome.

Table 1: Selected socioeconomic indicators by region

Indicator	AFRS	Asia	LAC	WANA	Absolute Number Million
Population (% of LDC total)	12.5	68.4	11.2	7.9	4 005
Number of poor (% of LDC total)	16.2	72.1	6.3	5.4	1 110
Share of urban population	28	25	69	65	1 340
Calorie intake/caput (1986/88)	2030	2600	2730	2960	
Income/caput (US$)	294	448	1 847	1 544	
Arable land (%)	18.6	53.2	18.6	9.6	868.7 m.ha
Irrigated land (%)	3.0	78.2	8.1	10.7	173.7 m.ha
Demand in 1990 for food crops (million tGE)	115	736	133	104	1 088
Demand in 2010 for food crops (million tGE)	224	1 074	209	185	1 692
Production of cash crops (million tGE)	72	237	118	22	450
Production of food crops (million tGE)	104	733	142	65	1 044
Production of food and cash crops (million tGE)	176	970	260	87	1 494
Use of fertilizer (kg/ha)	7.2	82.8	35.1	49.1	
Food self-sufficiency ratio	90	100	107	63	
Agr. GDP/agr. labourer (US$)	413	341	2 116	1 196	
Agr. GPD/total GDP (%)	34	24	10	16	
Agr. Land-labour ratio (ha/worker)	4.7	1.0	18.8	7.0	
Deforestation (1980-90, % p.a.)	1.7	0.9	1.4	1.0	16.8 m.ha
Total wooded area (1987/89, m.ha) (closed + open + forest fallow)	668	489	961	59	2 177

GE = Grain equivalent
Source: FAO and World Bank data files.

Table 2: Land area, population, food demand, arable land and production by regional agro-ecological zone

RAEZ	Land Area (10^6 ha)	Population 1990 (10^6)	Population 2010 (10^6)	Population Growth (%)	Food Demand 1990 (10^6tGE)	Food Demand 2010 (10^6tGE)	Production Food 1990 (10^6tGE)(B1)	Production Cash 1990 (10^6tGE)	Rainfed Arable (10^6 ha)	Irrigated Arable (10^6 ha)	Total Arable (10^6 ha)
SSA	2 191.2	501.1	922.3	3.10	115.2	223.9	104.2	72.3	156.5	5.22	161.8
1	1 245.7	166.6	301.3	3.01	37.9	72.6	33.3	8.7	60.3	3.69	64.0
2	348.4	106.3	197.0	3.13	24.6	48.5	22.7	13.2	43.3	0.43	43.8
3	502.1	152.3	282.4	3.14	36.1	71.9	33.4	35.7	36.8	0.44	37.3
4	95.0	75.9	141.6	3.17	16.6	30.9	14.8	14.7	16.1	0.66	16.7
WANA	1 253.1	316.0	510.1	2.42	103.8	185.0	65.2	22.4	64.3	18.66	83.0
1	49.1	5.5	9.8	2.93	1.5	3.3	0.3	0.1	0.1	0.10	0.2
4	33.3	8.0	15.5	3.36	2.0	4.3	0.9	0.2	1.1	0.25	1.4
9	1 170.7	302.5	484.8	2.39	100.3	177.4	64.0	22.0	63.1	18.31	81.4
Asia	2 035.0	2 739.7	3 678.2	1.48	735.8	1 073.6	732.6	236.7	326.8	135.75	462.5
1	149.2	466.2	666.2	1.80	115.4	167.7	113.0	14.5	63.8	22.15	85.9
2	184.0	228.9	319.0	1.67	59.7	89.2	69.4	25.9	32.8	7.70	40.5
3	385.3	474.5	677.2	1.79	123.5	204.2	124.6	58.3	30.5	14.50	45.0
5	178.4	456.6	645.2	1.74	120.7	190.9	117.9	65.1	63.0	43.02	106.0
6	53.7	212.9	269.8	1.19	61.5	86.3	54.2	36.9	22.4	10.14	32.5
7	148.8	485.9	587.3	0.95	138.1	179.7	138.1	31.4	55.6	22.77	78.4
8	935.6	414.7	513.5	1.07	116.9	155.6	115.6	4.8	58.7	15.47	74.2
LAC	2 038.3	447.7	630.1	1.72	133.4	209.4	141.8	118.7	147.5	14.07	161.4
1	190.8	37.7	51.3	1.55	10.9	16.4	11.8	4.2	9.2	1.76	10.9
2	312.4	70.3	100.0	1.78	20.8	33.3	21.1	32.3	24.0	2.16	26.1
3	743.9	87.3	123.9	1.77	25.1	39.7	23.4	27.2	20.0	1.80	21.8
4	259.5	130.2	191.1	1.94	38.0	62.1	33.1	28.3	13.4	2.02	15.4
5	103.2	13.5	18.9	1.70	4.6	7.2	4.4	1.7	5.5	2.59	8.1
6	16.6	3.8	4.7	1.07	1.3	1.7	3.0	1.0	6.6	0.47	7.1
7	108.7	62.5	87.0	1.67	18.8	30.0	20.5	21.5	32.6	1.14	33.7
8	149.6	27.8	34.3	1.06	9.5	12.6	20.6	2.1	32.1	0.10	32.2
9	153.6	14.6	18.9	1.30	4.4	6.4	4.0	0.3	4.1	2.03	6.1
Overall	7 517.6	3 996.5	5 740.7	1.82	1 088.2	1 691.9	1 043.8	450.1	695.1	173.70	868.7
1	1 634.8	676.0	1 028.6	2.12	165.7	260.0	158.4	27.5	133.4	27.70	161.0
2	844.8	405.5	616.0	2.11	105.1	171.0	113.2	71.3	100.1	10.29	110.4
3	1 631.3	714.1	959.6	2.15	159.6	276.1	157.9	121.2	67.3	14.94	82.3
4	387.8	206.1	332.7	2.42	54.6	93.0	48.0	43.2	29.5	2.68	32.1
5	281.6	470.1	664.1	1.74	125.3	198.1	122.3	66.8	68.5	45.61	114.1
6	70.3	216.7	274.5	1.19	62.8	88.0	57.2	37.9	29.0	10.61	39.6
7	257.5	548.4	674.3	1.04	156.9	209.7	158.5	53.0	88.2	23.91	112.1
8	1 085.2	442.5	547.8	1.07	126.4	168.2	136.1	6.9	90.8	15.57	106.4
9	1 324.3	317.1	503.7	2.34	104.7	183.8	68.0	22.3	67.2	20.34	87.5

GE = Grain Equivalent
Source: FAO data files

Table 3: Gross value of production of major commodities in developing countries (US$'million, 1987/89)

OVERALL			
COMMODITY	TOTAL	COMMODITY	TOTAL
Rice	85998.6	Tomato	5832.7
Milk	45156.9	Beans	5491.0
Wheat	31147.3	Coconut	5428.0
Beef & Buffalo Meat	24140.7	Apple	5106.3
Pigmeat	23208.7	Rubber	5103.2
Maize	19720.7	Tea	4112.1
Orange	17176.8	Sorghum	4038.0
Sweet Potato	14037.2	Cocoa	3846.0
Potato	13790.0	Onion	3666.6
Cotton	13578.5	Palm Oil	3528.2
Eggs	13447.4	Lemon & Lime	3339.9
Coffee	13224.6	Millet	3317.2
Sugar	12968.5	Barley	3117.9
Tobacco	12434.4	Yam	2959.1
Groundnut	12419.2	Pineapple	2573.3
Grape	12326.2	Chickpea	2242.4
Soybean	12197.9	Broad Bean	2031.1
Banana & Plantain	10334.6	Cabbage	2027.1
Cassava	9847.7	Cowpea	1102.6
Poultry Meat	9378.2	Lentil	1066.4
Sheep & Goat Meat	8102.3	Pigeonpea	1054.7
		Jute	864.0
		Sisal	164.5
		Hemp	39.5

Table 4.

PRIOR.XLS

	Value of production	Number of poor	Tot. useable land	Base-line
Weight--->	0.334	0.333	0.333	1.000
RAEZ				
AFRS 1	26.91	52.81	131.45	70.35
AFRS 2	24.60	35.77	52.62	37.65
AFRS 3	26.69	42.72	88.74	52.69
AFRS 4	13.24	30.70	20.91	21.61
				0.00
WANA 9	93.41	54.00	75.06	74.18
				0.00
ASIA 1	63.35	147.89	23.31	78.17
ASIA 2	44.68	58.27	21.52	41.49
ASIA 3	103.17	110.81	64.04	92.68
ASIA 5	125.44	142.70	32.52	100.24
ASIA 6	66.42	35.08	14.89	38.82
ASIA 7	132.59	112.05	40.31	95.02
ASIA 8	54.04	114.21	82.72	83.63
				0.00
LAC 1	16.57	5.19	27.68	16.48
LAC 2	44.75	9.13	77.77	43.88
LAC 3	41.03	12.39	107.11	53.50
LAC 4	28.92	20.28	42.11	30.44
LAC 5	11.07	1.84	12.16	8.36
LAC 6	6.38	0.48	6.43	4.43
LAC 7	44.22	8.15	36.03	29.48
LAC 8	25.96	3.37	32.78	20.71
LAC 9	6.56	2.17	9.83	6.19
	1000	1000	1000	1000

Table 5.

A: with complement taken

R	DESCRIPTION	OPERATION	AFR SS	WANA	ASIA	LAC	TOTAL
1	base-line rel. priority	input	182.30	74.18	530.06	213.47	1000.00
2	yield gap	input	78.85	72.00	60.29	76.39	-
3	standarizes max. at 1	row2/max.value row2	1.00	0.91	0.76	0.97	-
4	takes complement,	1- row3	0.00	0.09	0.24	0.03	-
5	applies weight of 0.75	0.75* row4	0.00	0.07	0.18	0.02	-
6	gross change	row1* row5	0.00	4.83	93.56	5.00	103.39
7	base-line reduction	row1* total row5/1000	18.85	7.67	54.80	22.07	103.39
8	net increase base-line	row6-row7	-18.85	-2.84	38.75	-17.07	0.00
9	modified rel. priority	row1+row8	163.45	71.34	568.81	196.40	1000.00

B: without complement taken

R	DESCRIPTION	OPERATION	AFR SS	WANA	ASIA	LAC	TOTAL
1	base-line rel. priority	input	182.30	74.18	530.06	213.47	1000.00
2	yield gap	input	78.85	72.00	60.29	76.39	-
3	standarizes max. at 1	row2/max.value row2	1.00	0.91	0.76	0.97	-
4	takes not complement	row3	1.00	0.91	0.76	0.97	-
5	applies weight of 0.75	0.75* row4	0.75	0.68	0.57	0.73	-
6	gross change	row1* row5	136.72	50.80	303.99	155.10	646.61
7	base-line reduction	row1* total row5/1000	117.88	47.96	342.74	138.03	646.61
8	net increase base-line	row6-row7	18.85	2.84	-38.75	17.07	0.00
9	modified rel. priority	row1+row8	201.14	77.01	491.30	230.54	1000.00

Table 6: Value of Modifiers by Region and Agro-Ecological Zone

	SSA	1	2	3	4	WANA
1. Yield gap or scope for growth	0.82	0.72	0.88	0.84	0.77	0.72
2. Malnutrition (% population malnourished)	35					9
3. GDP/caput (US Dollars)	294	291	255	379	185	1544
4. Production growth needed to meet demand (% p.a.)	2.21	2.98	2.37	1.83	1.77	3.47
5. Deforestation ('000 ha)	6400					300.0
6. Soil degradation hazard (% rainfed cropland)	16.5	10.8	15.2	28.8	10.6	20.1
7. Capacity of NARS (no. of scientists)	4917	1974	1150	1101	612	7836
8. Size of countries (no. of countries)		26	16	15	8	21
9. Food import gap by 2000 (MMT)	25.95					19.07
10. Wooded area/caput (ha)	1.33	1.32	1.14	1.98	0.31	0.19

	ASIA	1	2	3	5	6	7	8
1. Yield gap or scope for growth	0.60	0.45	0.46	0.60	0.64	0.62	0.66	0.64
2. Malnutrition (% population malnourished)	22							
3. GDP/caput (US Dollars)	448	298	424	490	304	1043	504	368
4. Production growth needed to meet demand (% p.a.)	1.45	1.71	1.27	1.72	1.53	1.15	1.08	1.40
5. Deforestation ('000 ha)	2500							
6. Soil degradation hazard (% rainfed cropland)	35.6	29.2	31.1	63.0	17.9	17.9	46.0	46.2
7. Capacity of NARS (no. of scientists)	54558	4436	2630	6095	9884	4772	14416	12325
8. Size of countries (no. of countries)		2	4	17	3	4	2	7
9. Food import gap by 2000 (MMT)	2.55							
10. Wooded area/caput (ha)	0.18	0.07	0.26	0.47	0.05	0.07	0.04	0.30

Table 6 cont.d

	LAC	1	2	3	4	5	6	7	8	9
1. Yield gap or scope for growth	0.79	0.61	0.84	0.77	0.53	0.84	0.90	0.82	0.86	0.82
2. Malnutrition (% population malnourished)	14									
3. GDP/caput (US Dollars)	1847	1887	2061	1758	1504	2029	2458	2109	2422	1750
4. Production growth needed to meet demand (% p.a.)	1.17	1.41	0.99	1.15	1.54	1.71	0.44	1.06	0.60	1.93
5. Deforestation ('000 ha)	7600									
6. Soil degradation hazard (% rainfed cropland)	11.4	12.0	17.1	26.0	10.4	9.1	12.1	4.9	5.0	7.3
7. Capacity of NARS (no. of scientists)	8861	636	1664	1702	1367	392	169	1831	2813	289
8. Size of countries (no. of countries)		9	14	21	9	2	1	3	2	2
9. Food import gap by 2000 (MMT)	6.3									
10. Wooded area/caput (ha)	2.15	2.62	2.48	5.10	0.77	1.68	0.93	0.99	1.04	1.76

Table 7.

	WEIGHT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	DIRECTION	-1	1	-1	1	1	-1	1	-1	1
GROSS REDISTRIB UTION		125	190	334	255	262	248	279	359	417
BASE-LINE RELATIVE PRIORITY	NAME MODIFIER	YIELD GAP	MAL-NUTRITION	GDP/ CAPUT	URGENCY	DE FOREST-ATION	CAPACITY OF NARS	SOIL DEGRA-DATION	AV. SIZE COUNTRY IN RAEZ	FOOD IMPORT GAP
70.3	AFRS1	-1.8	13.37	7.5	13.0	18.5	11.1	-9.5	7.9	6.0
37.7	AFRS2	-4.3	7.15	4.3	3.6	9.9	5.7	-3.8	4.6	3.2
52.7	AFRS3	-4.8	10.01	4.7	1.0	13.8	9.3	0.4	6.7	4.5
21.6	AFRS4	-1.1	4.11	2.8	0.2	5.7	3.1	-2.9	2.3	1.8
74.2	WANA9	-1.9	-13.46	-11.0	18.9	-13.5	-7.1	-4.5	8.0	30.9
78.2	ASIA1	9.8	0.34	8.3	0.1	-13.1	5.0	0.9	-16.1	-5.6
41.5	ASIA2	5.0	0.18	3.3	-2.6	-6.9	1.8	1.1	2.4	-3.0
92.7	ASIA3	3.8	0.40	6.2	0.2	-15.5	3.3	25.9	9.8	-6.6
100.2	ASIA5	1.9	0.43	10.5	-2.5	-16.8	-7.3	-7.9	-18.8	-7.2
38.8	ASIA6	1.2	0.17	-1.8	-3.1	-6.5	-5.9	-3.0	4.2	-2.8
95.0	ASIA7	0.8	0.41	6.0	-8.5	-15.9	-23.5	13.7	-34.1	-6.8
83.6	ASIA8	1.6	0.36	7.6	-3.6	-14.0	-19.5	12.2	1.0	-6.0
16.5	LAC1	0.6	-1.81	-3.6	-0.7	4.2	2.1	-2.1	2.2	-0.7
43.9	LAC2	-4.0	-4.83	-11.1	-4.5	11.2	6.3	-3.7	5.7	-1.7
53.5	LAC3	-2.8	-5.88	-10.2	-4.3	13.6	7.9	-0.8	7.2	-2.1
30.4	LAC4	2.4	-3.35	-4.3	-0.7	7.7	1.8	-4.2	3.4	-1.2
8.4	LAC5	-0.8	-0.92	-2.1	0.0	2.1	0.8	-1.2	0.9	-0.3
4.4	LAC6	-0.6	-0.49	-1.5	-0.8	1.1	0.6	-0.6	0.4	-0.2
29.5	LAC7	-2.4	-3.24	-7.7	-2.7	7.5	1.4	-5.4	1.4	-1.2
20.7	LAC8	-2.1	-2.28	-6.8	-3.3	5.3	2.6	-3.7	0.2	-0.8
6.2	LAC9	-0.5	-0.68	-1.2	0.2	1.6	0.6	-1.0	0.8	-0.2
1000.0	SUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
182.3	AFRICA SS	-12.0	34.6	19.3	17.8	47.8	29.3	-15.8	21.4	15.5
74.2	WANA	-1.9	-13.5	-11.0	18.9	-13.5	-7.1	-4.5	8.0	30.9
530.1	ASIA	24.1	2.3	40.1	-19.9	-88.7	-46.2	42.9	-51.6	-38.0
213.5	LAC	-10.2	-23.5	-48.4	-16.8	54.3	24.0	-22.6	22.2	-8.5
165.0	AEZ1	8.6	11.9	12.2	12.4	9.6	18.1	-10.7	-6.0	-0.3
123.0	AEZ2	-3.4	2.5	-3.5	-3.4	14.1	13.8	-6.4	12.7	-1.5
198.9	AEZ3	-3.8	4.5	0.6	-3.0	11.9	20.6	25.6	23.7	-4.3
52.0	AEZ4	1.3	0.8	-1.5	-0.5	13.4	4.9	-7.1	5.7	0.6
108.6	AEZ5	1.2	-0.5	8.4	-2.5	-14.6	-6.4	-9.1	-17.9	-7.5
43.3	AEZ6	0.6	-0.3	-3.3	-3.9	-5.4	-5.4	-3.6	4.6	-3.0
124.5	AEZ7	-1.6	-2.8	-1.7	-11.2	-8.4	-22.2	8.4	-32.7	-8.0
104.3	AEZ8	-0.5	-1.9	0.9	-6.9	-8.7	-17.0	8.5	1.1	-6.8
80.4	AEZ9	-2.4	-14.1	-12.1	19.1	-11.9	-6.5	-5.5	8.8	30.7

Table 8.

PRIOR.XLS

	A	B	C	D	E	F	G
138	SUMMARY TABLES						
139	INPUT VARIABLES AND WEIGHTING PARAMETERS						
140	Name	Value of	Number of	Tot. useable			
141		production	poor	land			
142	W	0.334	0.333	0.333	0	0	
143							
144	Name	yield gap	malnutrition	GDP	urgency	defore-	soil degr.
145						station	hazard
146		%	%tot. pop.	$/caput	%	'000 ha/pbl	%
147	W	0.5	0.5	0.5	0.5	0.5	0.5
148	S	-1	1	-1	1	1	1
149	Name	capacity	size country	food import			
150		nars	in raez	gap			
151		sc./blp	no./pbl	'000 tons/pbl			
152	W	0.5	0.5	0.5			
153	S	-1	-1	1			
154							
155	OUTPUT						
156							
157		Regional					
158		Agro-ecological				Agro-ecological	
159		Zones				Zones	
160		Base-line	Final			Base-line	Final
161		priority	priority			priority	priority
162	AFRS 1	70.35	136.41		AEZ 1	165.00	220.78
163	AFRS 2	37.65	68.01		AEZ 2	123.03	148.00
164	AFRS 3	52.69	98.31		AEZ 3	198.87	274.64
165	AFRS 4	21.61	37.51		AEZ 4	52.05	69.63
166					AEZ 5	108.60	59.62
167	WANA 9	74.18	80.66		AEZ 6	43.26	23.67
168					AEZ 7	124.50	44.31
169	ASIA 1	78.17	67.66		AEZ 8	104.34	72.94
170	ASIA 2	41.49	42.82		AEZ 9	80.36	86.41
171	ASIA 3	92.68	120.15		Totals	1000.00	1000.00
172	ASIA 5	100.24	52.75				
173	ASIA 6	38.82	21.20				
174	ASIA 7	95.02	27.17			Regions	
175	ASIA 8	83.63	63.26			Base-line	Final
176						priority	priority
177	LAC 1	16.48	16.71		AFRS	182.30	340.24
178	LAC 2	43.88	37.17		WANA	74.18	80.66
179	LAC 3	53.50	56.18		ASIA	530.06	395.00
180	LAC 4	30.44	32.12		LAC	213.47	184.10
181	LAC 5	8.36	6.86		Totals	1000.00	1000.00
182	LAC 6	4.43	2.47				
183	LAC 7	29.48	17.15				
184	LAC 8	20.71	9.68				
185	LAC 9	6.19	5.75				
186	Totals	1000.00	1000.00				

Table 9.

COM.XLS

VALUE OF PROD.(VOP)

COMMODITIES	VOP	ADJUS-TED	AFRICA	WANA	ASIA	LAT.AM.	SUM
RICE	17.8	17.8	1.8	1.1	93.0	4.2	100.0
WHEAT	6.4	6.4	0.8	19.0	70.0	10.2	100.0
MAIZE	4.1	4.1	10.3	4.0	57.5	28.2	100.0
BARLEY	0.6	0.6	4.7	65.9	23.0	6.4	100.0
SORGHUM	0.8	0.8	32.4	2.7	40.3	24.6	100.0
MILLET	0.7	0.7	41.3	0.8	57.6	0.3	100.0
CASSAVA	2.0	2.0	45.0	0.0	34.6	20.4	100.0
POTATO	2.8	2.8	3.1	15.2	65.1	16.5	100.0
SWEET POTATO	2.9	2.9	5.0	0.1	93.1	1.9	100.0
YAM	0.6	0.6	96.6	0.0	0.8	2.6	100.0
BANANA & PLANTAIN	2.1	2.1	34.5	0.8	29.2	35.6	100.0
CHICK PEA	0.5	0.5	2.7	14.5	80.3	2.5	100.0
COW PEA	0.2	0.2	95.5	0.4	1.9	2.2	100.0
PIGEON PEA	0.2	0.2	6.1	0.0	92.4	1.5	100.0
BROAD BEAN	0.4	0.4	8.9	22.5	64.0	4.5	100.0
LENTIL	0.2	0.2	1.2	47.9	47.8	3.1	100.0
BEANS	1.1	1.1	23.9	7.8	20.2	48.1	100.0
SOYBEAN	2.5	2.5	0.5	0.9	33.3	65.3	100.0
GROUNDNUT	2.6	2.6	21.8	0.9	73.5	3.9	100.0
COCONUT	1.1	1.1	4.9	0.0	87.9	7.1	100.0
TOMATO	1.2	1.2	4.7	49.5	23.0	22.8	100.0
ONION	0.8	0.8	2.8	23.4	58.9	14.9	100.0
CABBAGE	0.4	0.4	0.7	9.0	85.1	5.2	100.0
ORANGE	3.5	3.5	1.6	15.3	20.7	62.3	100.0
LEMON & LIME	0.7	0.7	2.8	29.3	20.6	47.2	100.0
PINEAPPLE	0.5	0.5	11.1	0.0	63.7	25.2	100.0
GRAPE	2.5	2.5	0.2	53.7	9.1	37.1	100.0
APPLE	1.1	1.1	0.1	29.5	50.7	19.7	100.0
SUGAR	2.7	2.7	6.9	6.5	40.1	46.5	100.0
COFFEE	2.7	2.7	20.4	0.1	17.0	62.5	100.0
TEA	0.8	0.8	12.3	8.7	76.6	2.4	100.0
COCOA	0.8	0.8	57.7	0.0	14.6	27.6	100.0
TOBACCO	2.6	2.6	5.8	6.1	73.4	14.8	100.0
RUBBER	1.1	1.1	6.1	0.0	92.8	1.1	100.0
COTTON	2.8	2.8	8.9	11.4	65.1	14.7	100.0
JUTE	0.2	0.2	0.1	0.2	99.0	0.7	100.0
HEMP	0.0	0.0	0.0	3.9	93.1	2.9	100.0
SISAL	0.0	0.0	24.5	0.4	4.2	70.9	100.0
PALM OIL	0.7	0.7	16.7	0.0	77.7	5.6	100.0
BEEF & BUFFALO MEAT	5.0	5.0	13.0	8.6	21.3	57.2	100.0
SHEEP & GOAT MEAT	1.7	1.7	17.9	29.8	44.0	8.3	100.0
PIGMEAT	4.8	4.8	1.2	0.1	87.7	10.9	100.0
POULTRY MEAT	1.9	1.9	6.5	14.0	43.7	35.8	100.0
MILK	8.9	8.9	8.5	11.1	52.2	28.3	100.0
EGGS	2.8	2.8	4.3	11.6	61.5	22.5	100.0
SUM	100.0	100.0	9.1	9.3	59.0	22.5	100.0
GRAIN CROPS	30.4	30.4					
STARCHY CROPS	10.5	10.5					
LEGUMENOUS CROPS	7.8	7.8					
VEGETABLES AND FRUITS	10.7	10.7					
OTHER CROPS(MAINLY COMMERCIAL)	15.5	15.5					
;LIVESTOCK	25.0	25.0					

Table 10

COM.XLS

WEIGHTED 0.5
AND BASE-LINE PRIORITY

COMMODITIES	VOP	ADJUSTED	AFRICA	WANA	ASIA	LAT.AM.	SUM
RICE	17.8	13.2	9.0	1.2	84.8	5.0	100.0
WHEAT	6.4	4.0	4.6	26.4	60.1	8.9	100.0
MAIZE	4.1	4.2	36.6	3.3	38.7	21.4	100.0
BARLEY	0.6	0.6	14.9	62.6	17.5	5.0	100.0
SORGHUM	0.8	1.5	72.8	1.3	15.3	10.6	100.0
MILLET	0.7	1.5	80.8	0.3	18.8	0.1	100.0
CASSAVA	2.0	4.5	74.8	0.0	16.2	9.0	100.0
POTATO	2.8	2.1	13.0	17.7	51.4	17.8	100.0
SWEET POTATO	2.9	1.4	35.0	0.1	62.0	2.9	100.0
YAM	0.6	1.9	98.7	0.0	0.3	1.0	100.0
BANANA & PLANTAIN	2.1	3.6	62.6	0.4	15.9	21.1	100.0
CHICK PEA	0.5	0.4	9.8	14.3	73.2	2.8	100.0
COW PEA	0.2	0.9	98.8	0.1	0.5	0.6	100.0
PIGEON PEA	0.2	0.2	20.7	0.0	77.8	1.5	100.0
BROAD BEAN	0.4	0.4	32.8	21.4	41.5	4.4	100.0
LENTIL	0.2	0.2	4.2	46.4	46.7	2.7	100.0
BEANS	1.1	1.6	55.4	4.7	11.7	28.1	100.0
SOYBEAN	2.5	1.5	3.5	1.2	23.9	71.3	100.0
GROUNDNUT	2.6	3.7	62.6	0.5	35.1	1.8	100.0
COCONUT	1.1	1.4	15.1	0.0	79.4	5.4	100.0
TOMATO	1.2	1.1	19.3	44.9	15.7	20.2	100.0
ONION	0.8	0.7	13.4	23.2	49.1	14.3	100.0
CABBAGE	0.4	0.3	3.4	11.1	77.4	8.1	100.0
ORANGE	3.5	2.9	7.2	15.9	15.7	61.2	100.0
LEMON & LIME	0.7	0.6	13.0	27.2	19.4	40.4	100.0
PINEAPPLE	0.5	0.7	31.4	0.0	49.3	19.3	100.0
GRAPE	2.5	1.9	1.0	62.7	6.9	29.3	100.0
APPLE	1.1	0.7	0.4	41.2	37.2	21.2	100.0
SUGAR	2.7	2.9	27.3	5.2	27.9	39.6	100.0
COFFEE	2.7	3.9	45.3	0.1	12.7	41.9	100.0
TEA	0.8	0.9	33.1	7.1	58.6	1.2	100.0
COCOA	0.8	2.0	81.4	0.0	6.6	11.9	100.0
TOBACCO	2.6	1.8	30.3	7.3	45.8	16.6	100.0
RUBBER	1.1	1.3	18.3	0.0	80.8	0.9	100.0
COTTON	2.8	2.6	40.6	10.7	34.8	13.9	100.0
JUTE	0.2	0.2	0.7	0.2	98.5	0.7	100.0
HEMP	0.0	0.0	0.0	7.4	87.0	5.6	100.0
SISAL	0.0	0.1	63.0	0.2	0.9	35.9	100.0
PALM OIL	0.7	1.1	36.8	0.0	58.4	4.8	100.0
BEEF & BUFFALO MEAT	5.0	5.9	43.0	6.2	14.5	36.3	100.0
SHEEP & GOAT MEAT	1.7	2.3	54.0	18.8	22.8	4.5	100.0
PIGMEAT	4.8	3.2	6.7	0.1	78.6	14.6	100.0
POULTRY MEAT	1.9	2.0	24.0	11.9	32.4	31.7	100.0
MILK	8.9	9.7	33.9	8.8	36.0	21.3	100.0
EGGS	2.8	2.4	18.7	11.5	46.0	23.8	100.0
SUM	100.0	100.0	34.0	8.1	39.5	18.4	100.0
GRAIN CROPS	30.4	25.0					
STARCHY CROPS	10.5	13.6					
LEGUMENOUS CROPS	7.8	8.9					
VEGETABLES AND FRUITS	10.7	8.9					
OTHER CROPS(MAINLY COMMERCIAL)	15.5	18.1					
;LIVESTOCK	25.0	25.5					

Table 11.1

PRIOR.XLS

	A	B	C	D	E	F	G	H
5	AGRICULTURE		ALLOCATION OF PRIORITIES ACROSS REGIONAL AGRO-ECOLOGICAL ZON					
6			FIRST ROW OF BLOCKS : EXTENSITY MAGNITUDES					
7			SECOND ROW OF BLOCKS: INTENSITY MAGNITUDES					
8			BLOCK IN THIRD ROW: ADJUSTMENT NEGATIVE VALUES					
9								
10	VOP:		POOR:			TOTAL USABLE LAND IS		
11	VALUE OF		DISTRIBUTION OF			ARABLE LAND PLUS LAND		
12	AGRICULTURAL		THE WORLD POOR			WITH PERENNIAL CROPS		
13	PRODUCTION		BEWEEN REGIONS:			PLUS GRAZING LAND PLUS		
14			WORLDBANK DATA			FOREST AND WOODLAND		
15			WITHIN REGIONS:					
16			PRO RATA POPULATION,					
17			MODIFIED WITH GDP/CAPUT					
18								
19								
20								
21		Value of	Number of	Tot. useable			Base-	
22		production	poor	land			line	
23	Weight--->	0.334	0.333	0.333	0.000	0.000	1.000	
24	RAEZ							
25	AFRS 1	26.91	52.81	131.45	0.00	0.00	70.35	
26	AFRS 2	24.60	35.77	52.62	0.00	0.00	37.65	
27	AFRS 3	26.69	42.72	88.74	0.00	0.00	52.69	
28	AFRS 4	13.24	30.70	20.91	0.00	0.00	21.61	
29							0.00	
30	WANA 9	93.41	54.00	75.06	0.00	0.00	74.18	
31							0.00	
32	ASIA 1	63.35	147.89	23.31	0.00	0.00	78.17	
33	ASIA 2	44.68	58.27	21.52	0.00	0.00	41.49	
34	ASIA 3	103.17	110.81	64.04	0.00	0.00	92.68	
35	ASIA 5	125.44	142.70	32.52	0.00	0.00	100.24	
36	ASIA 6	66.42	35.08	14.89	0.00	0.00	38.82	
37	ASIA 7	132.59	112.05	40.31	0.00	0.00	95.02	
38	ASIA 8	54.04	114.21	82.72	0.00	0.00	83.63	
39							0.00	
40	LAC 1	16.57	5.19	27.68	0.00	0.00	16.48	
41	LAC 2	44.75	9.13	77.77	0.00	0.00	43.88	
42	LAC 3	41.03	12.39	107.11	0.00	0.00	53.50	
43	LAC 4	28.92	20.28	42.11	0.00	0.00	30.44	
44	LAC 5	11.07	1.84	12.16	0.00	0.00	8.36	
45	LAC 6	6.38	0.48	6.43	0.00	0.00	4.43	
46	LAC 7	44.22	8.15	36.03	0.00	0.00	29.48	
47	LAC 8	25.96	3.37	32.78	0.00	0.00	20.71	
48	LAC 9	6.56	2.17	9.83	0.00	0.00	6.19	
49								
50		1000	1000	1000	0	0	1000	
51								

Table 11.2

PRIOR.XLS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
53					YIELD GAP				MALNUTRITION					
54	MODifier max 100				OR				% POPULATION MALNOURISHED					
55	W= weight (any value)				SCOPE FOR GROWTH									
56	S=choice of equation (-1 or 1)				ON PRESENT CULTIVATED LAND									
57	S=1: gross redis.=(mod.rel.)*W				%									
58	positively modified													
59	S=-1: gross redis.= (1-mod.rel.)*W													
60	negatively or complementary													
61	modified.													
62	mod.rel.=value/max.value													
63			W = 0.5						W = 0.5					
64			S = -1						S = 1					
65														
66		base-line	yield gap	modifier	gross redis-	base-line	net increase	modified	malnutrition	modifier	gross redis-	base-line	net increase	modified
67		priority		stand. at	tribution=	reduction	of base-line	base-line		stand. at	tribution=	reduction	of base-line	base-line
68		BLP	%	(1-mod.rel.)	125.15	<-------	priority	priority	%tot. pop.	(1-mod.rel.)	190.03	<-------	priority	priority
69	AFRS 1	70.35	72.00	0.20	7.03	8.80	-1.77	68.58	35.00	0.00	0.00	13.37	13.37	81.94
70	AFRS 2	37.65	88.00	0.02	0.42	4.71	-4.29	33.36	35.00	0.00	0.00	7.15	7.15	40.51
71	AFRS 3	52.69	84.00	0.07	1.76	6.59	-4.84	47.85	35.00	0.00	0.00	10.01	10.01	57.87
72	AFRS 4	21.61	77.00	0.14	1.56	2.70	-1.14	20.47	35.00	0.00	0.00	4.11	4.11	24.57
73														
74	WANA 9	74.18	72.00	0.20	7.42	9.28	-1.87	72.31	9.00	0.74	27.55	14.10	-13.46	58.86
75														
76	ASIA 1	78.17	45.00	0.50	19.54	9.78	9.76	87.93	22.00	0.37	14.52	14.85	0.34	88.26
77	ASIA 2	41.49	46.00	0.49	10.14	5.19	4.95	46.44	22.00	0.37	7.71	7.89	0.18	46.62
78	ASIA 3	92.68	60.00	0.33	15.45	11.60	3.85	96.53	22.00	0.37	17.21	17.61	0.40	96.93
79	ASIA 5	100.24	64.00	0.29	14.48	12.55	1.93	102.18	22.00	0.37	18.62	19.05	0.43	102.61
80	ASIA 6	38.82	62.00	0.31	6.04	4.86	1.18	40.00	22.00	0.37	7.21	7.38	0.17	40.17
81	ASIA 7	95.02	66.00	0.27	12.67	11.89	0.78	95.80	22.00	0.37	17.65	18.06	0.41	96.21
82	ASIA 8	83.63	64.00	0.29	12.08	10.47	1.61	85.24	22.00	0.37	15.53	15.89	0.36	85.60
83														
84	LAC 1	16.48	61.00	0.32	2.66	2.06	0.59	17.08	14.00	0.60	4.95	3.13	-1.81	15.26
85	LAC 2	43.88	84.00	0.07	1.46	5.49	-4.03	39.85	14.00	0.60	13.17	8.34	-4.83	35.03
86	LAC 3	53.50	77.00	0.14	3.86	6.70	-2.83	50.67	14.00	0.60	16.05	10.17	-5.88	44.78
87	LAC 4	30.44	53.00	0.41	6.26	3.81	2.45	32.88	14.00	0.60	9.13	5.78	-3.35	29.54
88	LAC 5	8.36	84.00	0.07	0.28	1.05	-0.77	7.59	14.00	0.60	2.51	1.59	-0.92	6.67
89	LAC 6	4.43	90.00	0.00	0.00	0.55	-0.55	3.88	14.00	0.60	1.33	0.84	-0.49	3.39
90	LAC 7	29.48	82.00	0.09	1.31	3.69	-2.38	27.10	14.00	0.60	8.84	5.60	-3.24	23.86
91	LAC 8	20.71	86.00	0.04	0.46	2.59	-2.13	18.58	14.00	0.60	6.21	3.94	-2.28	16.30
92	LAC 9	6.19	82.00	0.09	0.27	0.77	-0.50	5.69	14.00	0.60	1.86	1.18	-0.68	5.01
93														
94			max=						max=					
95	Totals:	1000.00	90.00			125.15	0.00	1000.00	35.00			190.03	0.00	1000.00

Table 11.3

PRIOR.XLS

	A	B	C	D	E
99		AUTOMATIC CORRECTION NEGATIVE			
100		VALUES			
101					
102					
103					
104					
105					
106		Semi	Changes	Unadjusted	Final
107		final	to eliminate	total	priorities
108		priorities	neg. values		
109	AFRS 1	81.94	0.00	81.94	81.94
110	AFRS 2	40.51	0.00	40.51	40.51
111	AFRS 3	57.87	0.00	57.87	57.87
112	AFRS 4	24.57	0.00	24.57	24.57
113					
114	WANA 9	58.86	0.00	58.86	58.86
115					
116	ASIA 1	88.26	0.00	88.26	88.26
117	ASIA 2	46.62	0.00	46.62	46.62
118	ASIA 3	96.93	0.00	96.93	96.93
119	ASIA 5	102.61	0.00	102.61	102.61
120	ASIA 6	40.17	0.00	40.17	40.17
121	ASIA 7	96.21	0.00	96.21	96.21
122	ASIA 8	85.60	0.00	85.60	85.60
123					
124	LAC 1	15.26	0.00	15.26	15.26
125	LAC 2	35.03	0.00	35.03	35.03
126	LAC 3	44.78	0.00	44.78	44.78
127	LAC 4	29.54	0.00	29.54	29.54
128	LAC 5	6.67	0.00	6.67	6.67
129	LAC 6	3.39	0.00	3.39	3.39
130	LAC 7	23.86	0.00	23.86	23.86
131	LAC 8	16.30	0.00	16.30	16.30
132	LAC 9	5.01	0.00	5.01	5.01
133					
134					
135	Totals	1000.00	0.00	1000.00	1000.00

Table 11.4

PRIOR.XLS

	A	B	C	D	E	F	G
138	SUMMARY TABLES						
139	INPUT VARIABLES AND WEIGHTING PARAMETERS						
140	Name	Value of	Number of	Tot. useable			
141		production	poor	land			
142	W	0.334	0.333	0.333	0	0	
143							
144	Name	yield gap	malnutrition				
145							
146		%	%tot. pop.				
147	W	0.5	0.5				
148	S	-1	1				
149	Name						
150							
151							
152	W						
153	S						
154							
155	OUTPUT						
156							
157		Regional					
158		Agro-ecological				Agro-ecological	
159		Zones				Zones	
160		Base-line	Final			Base-line	Final
161		priority	priority			priority	priority
162	AFRS 1	70.35	81.94		AEZ 1	165.00	185.47
163	AFRS 2	37.65	40.51		AEZ 2	123.03	122.16
164	AFRS 3	52.69	57.87		AEZ 3	198.87	199.58
165	AFRS 4	21.61	24.57		AEZ 4	52.05	54.11
166					AEZ 5	108.60	109.28
167	WANA 9	74.18	58.86		AEZ 6	43.26	43.56
168					AEZ 7	124.50	120.06
169	ASIA 1	78.17	88.26		AEZ 8	104.34	101.90
170	ASIA 2	41.49	46.62		AEZ 9	80.36	63.86
171	ASIA 3	92.68	96.93		Totals	1000.00	1000.00
172	ASIA 5	100.24	102.31				
173	ASIA 6	38.82	40.17				
174	ASIA 7	95.02	96.21			Regions	
175	ASIA 8	83.63	85.60			Base-line	Final
176						priority	priority
177	LAC 1	16.48	15.26		AFRS	182.30	204.90
178	LAC 2	43.88	35.03		WANA	74.18	58.86
179	LAC 3	53.50	44.78		ASIA	530.06	556.41
180	LAC 4	30.44	29.54		LAC	213.47	179.84
181	LAC 5	8.36	6.67		Totals	1000.00	1000.00
182	LAC 6	4.43	3.39				
183	LAC 7	29.48	23.86				
184	LAC 8	20.71	16.30				
185	LAC 9	6.19	5.01				
186	Totals	1000.00	1000.00				

Table 12.1

	A	B	C	D	E	F	G
20							
21		Value of	Number of	Tot. useable			Base-
22		production	poor	land			line
23	Weight--->	0.334	0.333	0.333	0	0	=SUM(B23:F23)
24	RAEZ						
25	AFRS 1	26.912912461501	52.806531100478	131.44815773974	0	0	=B$23*B25+C$23*C25+D$
26	AFRS 2	24.595789232499	35.771532874705	52.623612305888	0	0	=B$23*B26+C$23*C26+D$
47	LAC 8	25.961507469975	3.3688301816073	32.780057655993	0	0	=B$23*B47+C$23*C47+D$
48	LAC 9	6.5621011741758	2.1657684481601	9.8324125509670	0	0	=B$23*B48+C$23*C48+D$
49							
50		=SUM(B25:B48)	=SUM(C25:C48)	=SUM(D25:D48)	=SUM(E25:E48)	=SUM(F25:F48)	=SUM(G25:G48)

Table 12.2

	A	B	C	D	E	F	G	H
63			W =	0.5				
64			S =	-1	=IF(D64=1,"",IF(D64=-1,"",			
65								
66		base-line	yield gap	modifier	gross redis-	base-line	net increase	modified
67		priority		stand. at	tribution=	reduction	of base-line	base-line
68		BLP	%	(1-mod.rel.)	=SUM(E69:E92)	<-------	priority	priority
69	=A25	=G25	72	=1-C69/C$95	=$B69*D69*D$63	=$B69*E$68/1000	=(F69-E69)*D$64	=B69+G69
70	=A26	=G26	88	=1-C70/C$95	=$B70*D70*D$63	=$B70*E$68/1000	=(F70-E70)*D$64	=B70+G70
91	=A47	=G47	86	=1-C91/C$95	=$B91*D91*D$63	=$B91*E$68/1000	=(F91-E91)*D$64	=B91+G91
92	=A48	=G48	82	=1-C92/C$95	=$B92*D92*D$63	=$B92*E$68/1000	=(F92-E92)*D$64	=B92+G92
93								=IF(MIN(H69:H92)<0,"NE(
94		=IF(OR(B95<999.99,B95>'	max=					=IF(OR(H95<999.99,H95>
95	Totals:	=SUM(B69:B92)	=MAX(C69:C92)			=SUM(F69:F92)	=SUM(G69:G92)	=SUM(H69:H92)

Table 12.3

	A	B	C	D	E
106		Semi	Changes	Unadjusted	Final
107		final	to eliminate	total	priorities
108		priorities	neg. values		
109	=A25	=Final_states	=IF(B109<0,-B109,0)	=B109+C109	=D109*1000/D$135
110	=A26	=Final_states	=IF(B110<0,-B110,0)	=B110+C110	=D110*1000/D$135
131	=A47	=Final_states	=IF(B131<0,-B131,0)	=B131+C131	=D131*1000/D$135
132	=A48	=Final_states	=IF(B132<0,-B132,0)	=B132+C132	=D132*1000/D$135
133					
134		=IF(OR(B135<999.99,B13!			=IF(OR(E135<999.99,E13!
135	Totals	=SUM(B109:B132)	=SUM(C109:C132)	=SUM(D109:D132)	=SUM(E109:E132)

Table 13.1

COM.XLS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	FORMATTING OF FINAL RELATIVE PRIORITY: COPY FROM PRIOR.XLS WITH "PASTE SPECIAL" USING "VALUES" AND "TRANSPOSE".																						
2	REMOVE THEN BLANCS BETWEEN RAEZ'S FOR REGION. THEN COPY TO ROW 8.																						
3																							
4	WEIGHTED, TABLE 11	81.94	40.51	57.87	24.57	58.86	88.26	46.62	96.93	102.61	40.17	96.21	85.60	15.26	35.03	44.78	29.54	6.67	3.39	23.86	16.30	5.01	
5		AFRS1	AFRS2	AFRS3	AFRS4	WANA9	ASIA1	ASIA2	ASIA3	ASIA5	ASIA6	ASIA7	ASIA8	LAC1	LAC2	LAC3	LAC4	LAC5	LAC6	LAC7	LAC8	LAC9	
6																							SUM
7	VALUE OF PROD.(VOP)	26.9	24.6	26.7	13.2	93.4	63.3	44.7	103.2	125.4	66.4	132.6	54.0	16.6	44.7	41.0	28.9	11.1	6.4	44.2	26.0	6.8	1000.0
8	WEIGHTED, TABLE 11	81.94	40.51	57.87	24.57	58.86	88.26	46.62	96.93	102.61	40.17	96.21	85.60	15.26	35.03	44.78	29.54	6.67	3.39	23.86	16.30	5.01	1000.0
9	WEIGHTED/VOP	3.04	1.65	2.17	1.86	0.63	1.39	1.04	0.94	0.82	0.60	0.73	1.58	0.92	0.78	1.09	1.02	0.60	0.53	0.54	0.63	0.76	
10																							

Table 13.2

COM.XLS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
11	TABLE OF GROSS VALUES OF PRODUCTION																								GLOBAL	
12																										
13		AFRS1	AFRS2	AFRS3	AFRS4	WANA9	ASIA1	ASIA2	ASIA3	ASIA5	ASIA6	ASIA7	ASIA8	LAC1	LAC2	LAC3	LAC4	LAC5	LAC6	LAC7	LAC8	LAC9		SUM	UNWEIGHTED	
14																										
15		mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$	mill.$		mill.$	%	
16																										
17	RICE	368	454	704	7	921	9968	7540	19777	13104	8710	20317	603	352	811	1080	196	47	12	933	131	32		86068	17.8	
18	WHEAT	79	2	1	172	5907	0	23	152	9030	2694	5002	4906	108	0	0	289	359	210	959	974	281		31147	6.4	
19	MAIZE	679	601	324	430	787	442	367	1340	1540	1033	3279	3330	414	1049	871	719	397	125	1349	555	91		19721	4.1	
20	BARLEY	4	0	0	142	2055	0	0	1	272	164	0	281	0	0	1	71	34	6	26	51	10		3119	0.6	
21	SORGHUM	733	397	65	114	107	574	184	1	590	268	10	0	126	166	12	263	202	37	12	172	4		4039	0.8	
22	MILLET	835	493	42	2	28	662	210	9	684	320	0	25	0	0	0	0	1	2	0	7	0		3321	0.7	
23	CASSAVA	949	1281	2130	74	0	331	881	1976	50	33	136	0	236	828	687	0	3	5	247	0	1		9848	2.0	
24	POTATO	45	100	46	234	2102	0	36	382	2812	1241	2143	2367	98	27	9	1050	107	71	430	331	160		13790	2.8	
25	SWEET POTATO	156	248	111	186	9	79	37	694	2825	1974	7469	0	68	46	23	15	16	27	57	7	4		14049	2.9	
26	YAM	37	1468	1351	1	0	0	0	24	0	0	0	0	13	19	44	0	0	0	0	0	0		2959	0.6	
27	BANANA & PLANTAIN	56	1691	1054	762	78	0	832	1574	31	333	242	1	531	790	1101	690	99	19	446	0	2		10334	2.1	
28	CHICK PEA	11	15	0	34	326	777	268	25	549	110	26	46	6	7	9	16	14	0	0	1	3		2242	0.5	
29	COW PEA	497	357	199	0	4	0	13	9	0	0	0	0	24	0	1	0	0	0	0	0	0		1103	0.2	
30	PIGEON PEA	17	47	0	0	0	498	160	1	241	67	0	5	2	10	4	0	0	0	0	0	0		1053	0.2	
31	BROAD BEAN	43	16	0	122	458	0	0	0	193	129	517	461	6	19	11	28	7	1	15	4	0		2031	0.4	
32	LENTIL	1	1	0	10	511	173	50	76	108	28	19	55	1	1	3	6	3	2	1	7	9		1066	0.2	
33	BEANS	209	427	192	484	429	318	173	142	204	72	101	99	227	582	469	344	163	18	703	79	57		5491	1.1	
34	SOYBEAN	28	26	9	2	105	200	136	414	790	663	1860	0	420	1560	1154	7	235	325	2794	1436	36		12201	2.5	
35	GROUNDNUT	1396	666	583	59	106	2416	1082	668	3235	1683	51	0	78	123	8	3	84	144	25	1	15		12423	2.6	
36	COCONUT	77	69	121	0	0	653	461	3650	2	1	6	0	53	104	128	0	62	0	41	0	0		5428	1.1	
37	TOMATO	100	79	83	13	2886	81	34	101	186	123	454	364	123	253	205	207	115	22	215	107	83		5832	1.2	
38	ONION	53	20	19	13	860	373	182	210	459	231	349	354	24	70	84	117	7	15	97	69	62		3667	0.8	
39	CABBAGE	1	4	4	6	183	38	27	160	163	392	464	481	9	9	25	51	6	0	0	0	5		2027	0.4	
40	ORANGE	54	43	144	35	2630	499	268	340	574	319	1155	406	382	3533	2548	300	259	58	3292	298	38		17177	3.5	
41	LEMON & LIME	48	9	32	7	979	281	153	65	49	43	72	24	107	306	293	135	156	64	155	317	46		3340	0.7	
42	PINEAPPLE	39	31	157	59	0	136	371	915	3	42	172	0	24	169	218	97	25	1	115	0	0		2573	0.5	
43	GRAPE	6	10	3	9	6615	161	89	7	36	205	453	167	65	303	273	90	127	455	365	2081	809		12326	2.5	
44	APPLE	0	2	0	2	1508	0	0	0	83	922	1045	542	0	0	0	235	0	64	178	295	236		5112	1.1	
45	SUGAR	469	138	283	1	845	1063	680	1155	1155	312	828	7	1324	1716	1498	0	393	121	866	18	97		12969	2.7	
46	COFFEE	0	489	1079	1128	12	0	322	1745	0	134	48	0	0	1816	1921	2737	0	0	1795	0	0		13225	2.7	
47	TEA	0	112	24	368	357	0	1044	635	0	493	506	471	0	7	6	9	0	12	13	53	0		4112	0.8	
48	COCOA	0	182	2033	0	0	0	13	549	0	0	0	0	0	519	541	0	0	0	0	0	0		3838	0.8	
49	TOBACCO	298	360	42	17	756	592	405	859	1916	1393	3949	12	178	478	411	0	110	97	528	4	35		12440	2.6	
50	RUBBER	0	0	310	0	0	0	791	3616	0	129	202	0	1	12	28	0	0	0	15	0	0		5104	1.1	
51	COTTON	650	302	252	4	1542	983	347	32	5314	2162	0	0	233	777	419	2	196	149	203	0	16		13582	2.8	
52	JUTE	1	0	0	0	2	0	281	339	0	144	84	6	0	1	2	0	0	0	2	0	0		864	0.2	
53	HEMP	0	0	0	0	2	0	9	0	1	11	16	0	0	0	0	0	0	0	0	0	1		40	0.0	
54	SISAL	27	13	0	0	1	0	0	0	4	3	0	0	27	78	0	0	12	0	0	0	0		165	0.0	
55	PALM OIL	0	233	357	0	0	0	34	2629	0	15	60	0	1	25	170	0	0	0	0	0	0		3524	0.7	
56	BEEF & BUFFALO MEAT	1376	603	491	661	2067	410	462	1343	1184	356	542	835	961	1888	1872	1927	1037	614	2018	3131	360		24138	5.0	
57	SHEEP & GOAT MEAT	777	213	173	287	2412	460	147	298	1168	202	545	746	48	64	70	123	42	25	61	203	34		8096	1.7	
58	PIGMEAT	68	76	109	35	27	193	342	1583	2627	2148	7826	5644	205	382	455	691	105	20	431	146	95		23208	4.8	
59	POULTRY MEAT	192	140	180	92	1312	131	450	1088	433	321	1032	646	284	658	699	702	79	33	579	234	92		9378	1.9	
60	MILK	2466	355	80	762	4793	7718	2468	555	8006	1591	800	1369	1053	2037	1984	1964	736	314	2046	1670	389		43157	8.9	
61	EGGS	198	151	149	83	1566	497	286	872	1190	984	2497	1943	223	450	552	939	130	29	421	206	80		13447	2.8	
62		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.0	
63		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.0	
64																										
65	SUM	13047	11923	12939.2	6417.4	45284	30709	21660	50013	60811	32197	64275	26197	8034.4	21693	19888	14022	5365.9	3094.8	21435	12585	3181.1		484770	100.0	
66																										
67	out of 1000	26.9	24.6	26.7	13.2	93.4	63.3	44.7	103.2	125.4	66.4	132.6	54.0	16.6	44.7	41.0	28.9	11.1	6.4	44.2	26.0	6.6		1000.0		

Table 13.3

COM.XLS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
72	TABLE OF WEIGHTED VALUES OF PRODUCTION (absolute units, but no mill. $ anymore)																								GLOBA
73																									
74		AFRS1	AFRS2	AFRS3	AFRS4	WANA9	ASIA1	ASIA2	ASIA3	ASIA5	ASIA6	ASIA7	ASIA8	LAC1	LAC2	LAC3	LAC4	LAC5	LAC6	LAC7	LAC8	LAC9		SUM	WEIGH
75																								ABS.	%
76																									
77	RICE	1119	748	1527	14	581	13888	7868	18582	10719	5268	14742	956	324	635	1179	200	29	7	503	82	24		78994	16.3
78	WHEAT	242	3	2	319	3722	0	24	143	7387	1630	3630	7772	99	0	0	295	217	111	517	611	214		26936	5.6
79	MAIZE	2067	990	703	797	496	616	383	1259	1260	625	2379	5275	382	821	950	734	239	66	728	348	69		21188	4.4
80	BARLEY	11	0	0	264	1295	0	0	1	223	99	0	445	0	0	1	72	21	3	14	32	8		2489	0.5
81	SORGHUM	2233	654	141	211	68	800	192	1	483	162	7	0	116	130	13	269	122	20	7	108	3		5738	1.2
82	MILLET	2542	812	91	3	17	923	219	9	559	194	0	40	0	0	0	0	0	1	0	4	0		5416	1.1
83	CASSAVA	2888	2111	4617	138	0	462	920	1857	41	20	98	0	218	648	749	0	2	3	133	0	0		14905	3.1
84	POTATO	136	164	99	435	1325	0	37	359	2300	750	1555	3750	90	21	10	1072	64	37	232	208	122		12768	2.6
85	SWEET POTATO	474	408	241	346	5	110	39	652	2311	1194	5420	0	62	36	25	15	9	14	31	4	3		11399	2.4
86	YAM	114	2418	2930	3	0	0	0	23	0	0	0	0	12	15	48	0	0	0	0	0	0		5562	1.1
87	BANANA & PLANTAIN	170	2786	2286	1415	49	0	868	1479	25	202	176	1	489	618	1202	705	60	10	241	0	2		12783	2.6
88	CHICK PEA	32	25	0	64	205	1083	279	24	449	66	19	73	5	6	10	16	8	0	0	1	2		2367	0.5
89	COW PEA	1514	588	431	0	3	0	13	8	0	0	0	0	22	0	1	0	0	0	0	0	0		2580	0.5
90	PIGEON PEA	52	77	0	0	0	694	167	1	197	40	0	7	2	8	4	0	0	0	0	0	0		1251	0.3
91	BROAD BEAN	130	26	1	227	288	0	0	0	158	78	375	731	6	15	12	29	4	0	8	3	0		2091	0.4
92	LENTIL	4	2	0	19	322	241	52	71	88	17	14	88	1	1	3	6	2	1	0	5	7		945	0.2
93	BEANS	637	704	417	899	270	443	180	133	167	43	73	156	209	456	512	351	98	9	379	50	43		6231	1.3
94	SOYBEAN	86	43	21	4	66	279	142	389	645	401	1350	1	386	1221	1259	7	141	172	1508	901	27		9053	1.9
95	GROUNDNUT	4251	1096	1263	110	67	3366	1129	628	2646	1018	37	0	71	96	9	3	51	76	13	0	12		15942	3.3
96	COCONUT	236	114	262	0	0	909	481	3429	2	1	4	0	48	81	140	0	37	0	22	0	0		5767	1.2
97	TOMATO	305	130	180	24	1818	112	36	95	152	74	330	577	113	198	223	211	70	11	116	67	63		4906	1.0
98	ONION	161	32	40	24	542	520	190	197	376	140	253	560	22	55	92	120	4	8	52	43	48		3478	0.7
99	CABBAGE	4	6	9	10	115	52	29	150	134	237	337	762	8	7	28	52	3	0	0	0	4		1947	0.4
100	ORANGE	166	71	313	65	1657	696	280	320	469	193	838	642	351	2766	2781	307	156	31	1776	187	29		14095	2.9
101	LEMON & LIME	146	14	69	13	617	391	160	61	40	26	52	39	99	239	319	137	94	34	84	199	35		2869	0.6
102	PINEAPPLE	119	51	341	109	0	189	387	860	2	25	124	0	22	132	238	99	15	0	62	0	0		2778	0.6
103	GRAPE	18	16	7	16	4168	225	93	6	29	124	328	264	60	237	298	92	76	242	197	1307	617		8419	1.7
104	APPLE	0	4	0	4	950	0	0	0	68	557	758	858	0	0	0	240	0	34	96	185	180		3935	0.8
105	SUGAR	1428	228	613	2	532	1481	710	1085	945	189	600	11	1220	1343	1635	0	237	64	467	11	74		12875	2.7
106	COFFEE	0	805	2340	2094	8	0	336	1639	0	81	35	0	0	1422	2097	2795	0	0	968	0	0		14618	3.0
107	TEA	1	185	52	683	225	0	1090	597	0	298	367	747	0	5	7	9	0	6	7	33	0		4312	0.9
108	COCOA	0	300	4408	0	0	0	13	516	0	0	0	0	0	406	591	0	0	0	0	0	0		6235	1.3
109	TOBACCO	907	593	91	32	476	825	422	807	1568	842	2865	20	164	374	449	0	66	52	285	2	27		10868	2.2
110	RUBBER	0	0	672	0	0	0	825	3397	0	78	147	0	1	9	31	0	0	0	8	0	0		5168	1.1
111	COTTON	1980	497	547	7	971	1370	362	30	4347	1307	0	0	214	608	458	2	118	79	110	0	12		13020	2.7
112	JUTE	3	0	0	0	1	0	293	319	0	87	61	10	0	1	2	0	0	0	1	0	0		780	0.2
113	HEMP	0	0	0	0	1	0	9	0	1	7	11	0	0	0	0	0	0	0	0	0	1		30	0.0
114	SISAL	84	21	0	0	0	0	0	0	3	2	0	0	25	61	0	0	7	0	0	0	0		204	0.0
115	PALM OIL	0	384	774	0	0	0	36	2470	0	9	43	0	1	20	186	0	0	0	0	0	0		3922	0.8
116	BEEF & BUFFALO MEAT	4189	993	1063	1227	1302	572	482	1262	969	215	393	1323	885	1478	2043	1968	625	326	1089	1966	275		24646	5.1
117	SHEEP & GOAT MEAT	2366	351	375	532	1519	641	154	280	955	122	395	1182	44	50	76	125	25	13	33	128	26		9392	1.9
118	PIGMEAT	207	125	236	64	17	269	357	1487	2148	1299	5679	8941	189	299	497	705	63	11	233	92	73		22991	4.7
119	POULTRY MEAT	585	231	391	171	827	182	470	1022	354	194	749	1023	261	515	763	717	47	18	313	147	70		9051	1.9
120	MILK	7509	585	173	1415	3020	10753	2576	521	6549	962	580	2168	970	1594	2166	2006	443	167	1104	1049	297		46609	9.6
121	EGGS	604	249	324	155	986	693	298	819	973	595	1812	3077	206	352	603	959	79	15	227	129	61		13217	2.7
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.0
124																									
125																									
126	SUM	39724	19639	28052	11912	28531	42787	22602	46990	49743	19474	46638	41497	7400	16981	21710	14319	3235	1644	11565	7902	2427		484770	100
127																									
128	OUT OF 1000	81.94	40.51	57.87	24.57	58.86	88.26	46.62	96.93	102.61	40.17	96.21	85.60	15.26	35.03	44.78	29.54	6.67	3.39	23.86	16.30	5.01		1000.0	

Table 13.4

COM.XLS

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
11						UNWEIGHTED PRIORITIES ACROSS REGIONS					
12			SUMS								
13											
14	AFRICA	WANA	ASIA	LAT.AM.	SUM		AFRICA	WANA	ASIA	LAT.AM.	SUM
15											
16											
17	1534	921	80018	3594	86068	RICE	2	1	93	4	100
18	254	5907	21807	3178	31147	WHEAT	1	19	70	10	100
19	2034	787	11330	5569	19721	MAIZE	10	4	57	28	100
20	146	2055	718	199	3119	BARLEY	5	66	23	6	100
21	1309	107	1628	995	4039	SORGHUM	32	3	40	25	100
22	1372	28	1912	10	3321	MILLET	41	1	58	0	100
23	4434	0	3408	2006	9848	CASSAVA	45	0	35	20	100
24	424	2102	8981	2282	13790	POTATO	3	15	65	17	100
25	701	9	13079	260	14049	SWEET POTATO	5	0	93	2	100
26	2858	0	24	77	2959	YAM	97	0	1	3	100
27	3564	78	3013	3679	10334	BANANA & PLANTAIN	34	1	29	36	100
28	60	326	1801	56	2242	CHICK PEA	3	15	80	3	100
29	1053	4	21	24	1103	COW PEA	95	0	2	2	100
30	64	0	972	16	1053	PIGEON PEA	6	0	92	2	100
31	181	458	1300	92	2031	BROAD BEAN	9	23	64	5	100
32	13	511	510	33	1066	LENTIL	1	48	48	3	100
33	1313	429	1108	2641	5491	BEANS	24	8	20	48	100
34	66	105	4064	7966	12201	SOYBEAN	1	1	33	65	100
35	2703	106	9134	480	12423	GROUNDNUT	22	1	74	4	100
36	267	0	4773	387	5428	COCONUT	5	0	88	7	100
37	275	2886	1343	1328	5832	TOMATO	5	49	23	23	100
38	104	860	2158	545	3667	ONION	3	23	59	15	100
39	15	183	1725	104	2027	CABBAGE	1	9	85	5	100
40	277	2630	3561	10708	17177	ORANGE	2	15	21	62	100
41	95	979	688	1578	3340	LEMON & LIME	3	29	21	47	100
42	286	0	1639	849	2573	PINEAPPLE	11	0	64	25	100
43	27	6615	1116	4568	12326	GRAPE	0	54	9	37	100
44	5	1508	2591	1008	5112	APPLE	0	29	51	20	100
45	891	845	5200	6033	12969	SUGAR	7	7	40	47	100
46	2696	12	2249	8268	13225	COFFEE	20	0	17	63	100
47	504	357	3150	100	4112	TEA	12	9	77	2	100
48	2215	0	581	1061	3838	COCOA	58	0	15	28	100
49	717	756	9127	1840	12440	TOBACCO	6	6	73	15	100
50	310	0	4738	56	5104	RUBBER	6	0	93	1	100
51	1208	1542	8837	1994	13582	COTTON	9	11	65	15	100
52	1	2	858	6	864	JUTE	0	0	99	1	100
53	0	2	37	1	40	HEMP	0	4	93	3	100
54	40	1	7	117	165	SISAL	24	0	4	71	100
55	590	0	2738	196	3524	PALM OIL	17	0	78	6	100
56	3131	2067	5132	13809	24138	BEEF & BUFFALO MEAT	13	9	21	57	100
57	1449	2412	3565	669	8096	SHEEP & GOAT MEAT	18	30	44	8	100
58	288	27	20364	2530	23208	PIGMEAT	1	0	88	11	100
59	605	1312	4101	3360	9378	POULTRY MEAT	6	14	44	36	100
60	3664	4793	22507	12194	43157	MILK	8	11	52	28	100
61	582	1566	8269	3031	13447	EGGS	4	12	61	23	100
62	0	0	0	0	0		0	0	0	0	0
63	0	0	0	0	0		0	0	0	0	0
64											
65	44326	45284	285861	109299	484770		9	9	59	23	100
66											

Table 13.5

COM.XLS

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
72			WEIGHTED PRIORITIES ACROSS REGIONS								
73											
74	AFRICA	WANA	ASIA	LAT.AM.	SUM		AFRICA	WANA	ASIA	LAT.AM.	
75											
76											
77	3408	581	72022	2983	78994	RICE	4	1	91	4	100
78	566	3722	20584	2065	26936	WHEAT	2	14	76	8	100
79	4559	496	11796	4338	21188	MAIZE	22	2	56	20	100
80	276	1295	768	151	2489	BARLEY	11	52	31	6	100
81	3238	68	1645	787	5738	SORGHUM	56	1	29	14	100
82	3448	17	1945	6	5416	MILLET	64	0	36	0	100
83	9754	0	3398	1753	14905	CASSAVA	65	0	23	12	100
84	834	1325	8752	1857	12768	POTATO	7	10	69	15	100
85	1469	5	9726	199	11399	SWEET POTATO	13	0	85	2	100
86	5464	0	23	75	5562	YAM	98	0	0	1	100
87	6657	49	2751	3326	12783	BANANA & PLANTAIN	52	0	22	26	100
88	120	205	1993	49	2367	CHICK PEA	5	9	84	2	100
89	2533	3	21	22	2580	COW PEA	98	0	1	1	100
90	129	0	1108	14	1251	PIGEON PEA	10	0	89	1	100
91	383	288	1342	77	2091	BROAD BEAN	18	14	64	4	100
92	26	322	572	26	945	LENTIL	3	34	61	3	100
93	2657	270	1197	2107	6231	BEANS	43	4	19	34	100
94	154	66	3208	5625	9053	SOYBEAN	2	1	35	62	100
95	6720	67	8823	332	15942	GROUNDNUT	42	0	55	2	100
96	611	0	4827	329	5767	COCONUT	11	0	84	6	100
97	640	1818	1375	1073	4906	TOMATO	13	37	28	22	100
98	257	542	2236	443	3478	ONION	7	16	64	13	100
99	30	115	1700	102	1947	CABBAGE	2	6	87	5	100
100	615	1657	3438	8384	14095	ORANGE	4	12	24	59	100
101	242	617	770	1241	2869	LEMON & LIME	8	21	27	43	100
102	620	0	1589	569	2778	PINEAPPLE	22	0	57	20	100
103	57	4168	1069	3126	8419	GRAPE	1	50	13	37	100
104	8	950	2242	735	3935	APPLE	0	24	57	19	100
105	2271	532	5021	5052	12875	SUGAR	18	4	39	39	100
106	5239	8	2091	7281	14618	COFFEE	36	0	14	50	100
107	921	225	3099	68	4312	TEA	21	5	72	2	100
108	4708	0	529	998	6235	COCOA	76	0	8	16	100
109	1624	476	7350	1418	10868	TOBACCO	15	4	68	13	100
110	672	0	4447	49	5168	RUBBER	13	0	86	1	100
111	3031	971	7416	1601	13020	COTTON	23	7	57	12	100
112	3	1	771	5	780	JUTE	0	0	99	1	100
113	0	1	28	1	30	HEMP	0	3	94	3	100
114	105	0	5	93	204	SISAL	51	0	3	46	100
115	1158	0	2558	206	3922	PALM OIL	30	0	65	5	100
116	7473	1302	5215	10655	24646	BEEF & BUFFALO MEAT	30	5	21	43	100
117	3623	1519	3729	521	9392	SHEEP & GOAT MEAT	39	16	40	6	100
118	633	17	20181	2160	22991	PIGMEAT	3	0	88	9	100
119	1378	827	3995	2851	9051	POULTRY MEAT	15	9	44	32	100
120	9682	3020	24110	9796	46609	MILK	21	6	52	21	100
121	1331	986	8268	2631	13217	EGGS	10	7	63	20	100
122	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0
124											
125											
126	99327	28531	269731	87181	484770		20	6	56	18	100
127											

Table 13.6

COM.XLS

	A	B	C	D	E	F	G	H	I	J	K
137	SUMMARY TABLE										
138											
139	RELATIVE PRIORITIES FOR COMMODITIES						DISTRIBUTION OF RELATIVE PRIORITIE				
140	ACCORDING TO VALUE OF PRODUCTION (VOP) AND						FOR COMMODITIES				
141	ADJUSTED WITH						ACROSS REGIONS				
142	WEIGHTED, TABLE 11										
143	AND BASE-LINE PRIORITY										
144	COMMODITIES			VOP	ADJUS-		AFRICA	WANA	ASIA	LAT.AM.	SUM
145					TED						
146	RICE			17.8	16.3		4.3	0.7	91.2	3.8	100.0
147	WHEAT			6.4	5.6		2.1	13.8	76.4	7.7	100.0
148	MAIZE			4.1	4.4		21.5	2.3	55.7	20.5	100.0
149	BARLEY			0.6	0.5		11.1	52.0	30.8	6.1	100.0
150	SORGHUM			0.8	1.2		56.4	1.2	28.7	13.7	100.0
151	MILLET			0.7	1.1		63.7	0.3	35.9	0.1	100.0
152	CASSAVA			2.0	3.1		65.4	0.0	22.8	11.8	100.0
153	POTATO			2.8	2.6		6.5	10.4	68.6	14.5	100.0
154	SWEET POTATO			2.9	2.4		12.9	0.0	85.3	1.7	100.0
155	YAM			0.6	1.1		98.2	0.0	0.4	1.4	100.0
156	BANANA & PLANTAIN			2.1	2.6		52.1	0.4	21.5	26.0	100.0
157	CHICK PEA			0.5	0.5		5.1	8.7	84.2	2.1	100.0
158	COW PEA			0.2	0.5		98.2	0.1	0.8	0.9	100.0
159	PIGEON PEA			0.2	0.3		10.3	0.0	88.5	1.1	100.0
160	BROAD BEAN			0.4	0.4		18.3	13.8	64.2	3.7	100.0
161	LENTIL			0.2	0.2		2.7	34.1	60.5	2.7	100.0
162	BEANS			1.1	1.3		42.6	4.3	19.2	33.8	100.0
163	SOYBEAN			2.5	1.9		1.7	0.7	35.4	62.1	100.0
164	GROUNDNUT			2.6	3.3		42.2	0.4	55.3	2.1	100.0
165	COCONUT			1.1	1.2		10.6	0.0	83.7	5.7	100.0
166	TOMATO			1.2	1.0		13.0	37.1	28.0	21.9	100.0
167	ONION			0.8	0.7		7.4	15.6	64.3	12.7	100.0
168	CABBAGE			0.4	0.4		1.5	5.9	87.3	5.2	100.0
169	ORANGE			3.5	2.9		4.4	11.8	24.4	59.5	100.0
170	LEMON & LIME			0.7	0.6		8.4	21.5	26.8	43.2	100.0
171	PINEAPPLE			0.5	0.6		22.3	0.0	57.2	20.5	100.0
172	GRAPE			2.5	1.7		0.7	49.5	12.7	37.1	100.0
173	APPLE			1.1	0.8		0.2	24.1	57.0	18.7	100.0
174	SUGAR			2.7	2.7		17.6	4.1	39.0	39.2	100.0
175	COFFEE			2.7	3.0		35.8	0.1	14.3	49.8	100.0
176	TEA			0.8	0.9		21.4	5.2	71.9	1.6	100.0
177	COCOA			0.8	1.3		75.5	0.0	8.5	16.0	100.0
178	TOBACCO			2.6	2.2		14.9	4.4	67.6	13.1	100.0
179	RUBBER			1.1	1.1		13.0	0.0	86.0	0.9	100.0
180	COTTON			2.8	2.7		23.3	7.5	57.0	12.3	100.0
181	JUTE			0.2	0.2		0.4	0.1	98.9	0.6	100.0
182	HEMP			0.0	0.0		0.0	3.2	93.8	2.9	100.0
183	SISAL			0.0	0.0		51.5	0.2	2.5	45.8	100.0
184	PALM OIL			0.7	0.8		29.5	0.0	65.2	5.3	100.0
185	BEEF & BUFFALO MEAT			5.0	5.1		30.3	5.3	21.2	43.2	100.0
186	SHEEP & GOAT MEAT			1.7	1.9		38.6	16.2	39.7	5.5	100.0
187	PIGMEAT			4.8	4.7		2.8	0.1	87.8	9.4	100.0
188	POULTRY MEAT			1.9	1.9		15.2	9.1	44.1	31.5	100.0
189	MILK			8.9	9.6		20.8	6.5	51.7	21.0	100.0
190	EGGS			2.8	2.7		10.1	7.5	62.6	19.9	100.0
191											
192											
193											
194	SUM			100.0	100.0		20.5	5.9	55.6	18.0	100.0
195											
196	GRAIN CROPS			30.4	29.0						
197	STARCHY CROPS			10.5	11.8						
198	LEGUMENOUS CROPS			7.8	8.3						
199	VEGETABLES AND FRUITS			10.7	8.8						
200	OTHER CROPS(MAINLY COMMERCIAL)			15.5	16.0						
201	;LIVESTOCK			25.0	26.0						

Table 14.

PRIOR.XLS

	A	B	C	D	E
99		AUTOMATIC CORRECTION NEGATIVE			
100		VALUES			
101					
102					
103					
104					
105					
106		Semi	Changes	Unadjusted	Final
107		final	to eliminate	total	priorities
108		priorities	neg. values		
109	AFRS 1	335.93	0.00	335.93	229.62
110	AFRS 2	176.45	0.00	176.45	120.61
111	AFRS 3	248.11	0.00	248.11	169.59
112	AFRS 4	102.60	0.00	102.60	70.13
113					
114	WANA 9	-196.80	196.80	0.00	0.00
115					
116	ASIA 1	94.67	0.00	94.67	64.71
117	ASIA 2	50.03	0.00	50.03	34.20
118	ASIA 3	104.53	0.00	104.53	71.45
119	ASIA 5	110.83	0.00	110.83	75.76
120	ASIA 6	43.35	0.00	43.35	29.63
121	ASIA 7	104.00	0.00	104.00	71.09
122	ASIA 8	92.46	0.00	92.46	63.20
123					
124	LAC 1	-19.18	19.18	0.00	0.00
125	LAC 2	-56.66	56.66	0.00	0.00
126	LAC 3	-67.00	67.00	0.00	0.00
127	LAC 4	-34.06	34.06	0.00	0.00
128	LAC 5	-10.79	10.79	0.00	0.00
129	LAC 6	-5.87	5.87	0.00	0.00
130	LAC 7	-37.73	37.73	0.00	0.00
131	LAC 8	-26.97	26.97	0.00	0.00
132	LAC 9	-7.92	7.92	0.00	0.00
133					
134					
135	Totals	1000.00	462.98	1462.98	1000.00