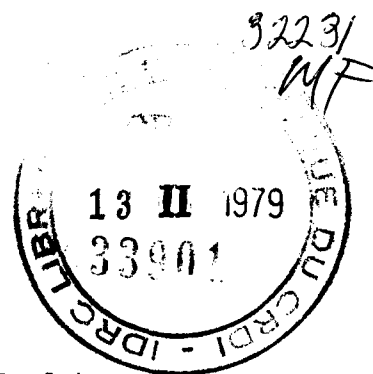


I.D.R.C.

CASSAVA/SWINE ADVISORY COMMITTEE



Report of First Meeting held at University of Guelph

Guelph, Ontario April 6&7, 1972.

Present: Members of the Committee - E. Alvarez-Luna, D.G. Coursey,
J.H. Hulse, F.W. Martin, B.L. Nestel, N. Raun,
H.A. Stepler, W.E. Tossell.

Advisers and Observers - P. Pinstруп-Andersen, J. Cock and
J.R. Maner (CIAT), R. Audet and E. Weber (IDRC)
H.R. Binns (University of Guelph).

1. OPENING REMARKS.

1.1 The Chair was taken by Dr. Nestel who, after welcoming the visitors to Guelph, invited Mr. Hulse to review the reasons for the establishment of the Committee and to advise the Committee on its role as conceived by IDRC. Mr. Hulse briefly reviewed the IDRC/CIAT/CIDA interrelationships and drew attention to the role of the Committee not only in advising IDRC on the program of work and budget of CIAT but also with regard to the way in which the funding for Canadian Institutional support for the CIAT program should be utilized. He drew particular attention to the fact that the Canadian support was essentially intended for contract research that would backstop the CIAT program. In this context, the Canadian Institutional proposals needed to be considered not only on their individual merits but also from the standpoint of their value as support projects for meeting CIAT's priorities.

2. GENERAL DISCUSSION OF CIAT BUDGET AND WORK PROGRAM

2.1 The first substantive item on the agenda was a consideration of CIAT's program of work and budget for 1973. This item was introduced by Dr. Alvarez who in his preliminary statement said that since the provisional

Aug. 29, 1972

IDRC-doc - 172

...2

ARCHIV
630
I 52

2...

budget of \$596,000.00 had been prepared (see 2 foolscap sheets in appendix to these Minutes) two slight modifications had been made that would be incorporated in the 1973 budget which would be presented to CIAT's Board in May 1972. The first of these changes would be to remove from the Cassava Budget the sum of \$5,600.00 for social research demonstrations and this would be reallocated to the Agricultural Systems budget. The second change was that the budget for Information Services, Conference and Symposia costs would be pro-rated in a different way which might result in either a small increase or a small decrease in the costs allocated to cassava.

2.2 A general discussion then moved backwards and forwards between three themes which recurred constantly during the course of the day. The first of these related to the methodology for pro-rating costs, the second dealt with the somewhat high cost of the program in terms of man-years and the third issue concerned the adequacy of the program of work document which CIAT had prepared for the meeting.

2.3 On the question of pro-rating costs, the Committee recognised the difficulty arising from the fact that the primary budgeting system was for Discipline Groups whereas the program budgeting, in which the Committee was particularly interested, related to Commodity Groups. Because of the dual administrative structure that this necessarily implied, it appeared that the pro-rating of costs was allocated by general agreement amongst the workers involved rather than by directorial decisions. Whilst this probably represented a rational approach to pro-rated needs and intentions, it was felt that it would be desirable were CIAT to review the pro-rated percentages from time to time in order to relate actual output to intended output from pro-rated discipline groups. It was recognised that this would have to depend on subjective judgements but the Committee thought that this would result in the final 1973 statement being more realistic than if it were to retain pro-ratings made 20 months in advance of the end of the 1973 year.

...3

3...

The subject of pro-rated costs came in for considerable discussion later in the meeting when the Committee discussed the relationship between the cost of Direct Research activities and the total cost of both the cassava and the swine programs. There was a strong consensus of opinion that costs for Indirect Research Support (training and related activities) and for General Services should be allocated to commodity programs across the board so that they bore the same relationship to total costs for Indirect Research and General Services as the Direct Research activities (i.e. if cassava comprised 25% of the cost of Direct Research activities it should stand 25% of the total costs for Indirect Support and General Services). From quick calculations made by Committee members it appeared that cassava was being allocated an unduly high percentage of the Indirect and General Services costs based on the above formula. The CIAT representatives took note of this point and promised to re-examine this issue.

2.4 The second point arising in the general discussion was the high cost per senior scientist. It was pointed out that there were 6.3 man-years in the Cassava program and that the average cost per man-year (after making some adjustment for the training component) was of the order of \$90,000.00. It was stated that the USDA normally worked on a figure of \$50,000 - \$75,000 per man year and that AID had recently rejected a request for support on the grounds that \$75,000 per man-year was too high. From an examination of the man-years in each discipline sector it appeared that the cost for Direct Research was usually of the order of \$50,000 - \$55,000 per man-year but that this rose to \$90,000 through the addition of the Indirect and General Services costs.¹

The Committee felt that the total cost per man-year in the cassava program was being pushed upwards through the pro-rating bias as noted above. Nevertheless, even allowing for this the Committee expressed a very real concern about the magnitude of the costs other than those for Direct Research. It was noted that the cost for General Services (including the library)

4...

represented between 40 and 50% of the costs for Direct Research (and training) in the cassava program whereas the Canadian University project budgets were based on a figure of 15% for these additional services.

2.5 The Committee felt that it lay outside of its terms of reference for it to examine or comment on the General Services costs of CIAT but at the same time felt that it could not fulfill its obligation to IDRC of reviewing the CIAT cassava budget without adding a caveat expressing its concern regarding the magnitude of the Non-Direct Research costs.

2.6 The third general issue discussed at the start of the meeting and referred to constantly during the course of the meeting was the program of work document submitted by CIAT. The Committee recognised that CIAT had not had a great deal of time to prepare this document and also that, since this was the first meeting of the Committee, CIAT had only a limited indication of the sort of document that the Committee would require. During the course of the first day's discussion, it became apparent that a rather fuller and more sharply focused paper would be desirable which would not only take a rather more positive attitude towards cassava but would also identify the CIAT research priorities more specifically. The CIAT representatives recognised the need for such a paper and indicated that before the next meeting of the Committee they would make such a document available and that this would take into account the comments arising from the Committee's discussions.

The program of work and budget were then discussed on an item by item basis. (See budget in appendix).

3. CASSAVA PROGRAM

3.1 Office of the Director - Plant Science (\$17,000 or 3% of the 1973 Cassava Budget)

The allocation of this cost to direct research rather than to General Administration was queried. There was no consensus of opinion on this

5...

point but a majority of the Committee seemed to feel that it was a valid charge to the Direct Research component of the program.

3.2 Cassava Improvement (\$99,000 or 17% of the 1973 Cassava Budget)

The CIAT representatives stated that this section of the budget was intended to cover work on germ plasm, physiology and breeding. The physiology work would concentrate on dry-matter production and distribution and not on drought resistance or protein level at the present time. The breeding and germ plasm work would initially attempt to evaluate the CIAT collection basing this evaluation on yield under good conditions and would not engage in cross-breeding work for the present.

The Committee felt that this was an excellent program which they strongly endorsed. They felt that the written presentation needed to be more carefully written with goals spelled out more clearly, if possible, with some time parameters so that the Committee could, on future occasions, endeavour to evaluate the progress that was being made. It was suggested that apart from examining yield under good conditions, some work should take place under poor conditions, particularly on lateritic soils. The CIAT representative confirmed that this was also being done although initially the concentration of effort was on better soils.

3.3 Entomology (\$9,000 or 1½% of the 1973 cassava budget)

In introducing this item the CIAT representative stated that the main activity would be a continuation of screening activities carried out in the previous years. To date, these had encountered limited insects of wide-spread economic importance. However, there would be a specific effort to evaluate tolerance to shoot fly which appeared to exist in certain cultivars.

The Committee endorsed this program and felt that the level of activity was appropriate and the work on shoot fly worthwhile. It was suggested that the problem of red spider might also be looked at if sufficient resources were available. The Committee felt that if the screening activities during the period 1971-1973 continued to reveal the

6...

limited importance of insect infestation there would be little justification for expanding the entomology program in future years and it might even be reduced.

3.4 Plant Pathology (\$39,000 or 7% of the 1973 Cassava budget)

The main thrust in the CIAT work in this field was threefold. The first activity involved the costs of sharing a quarantine facility with ICA. Additionally, CIAT was working with ICA at one of their stations in a program of field screening for bacterial blight resistance. To date, 1,300 cultivars had been screened and whereas some showed resistance, no immunity had been encountered so far. The third activity involved a liaison with Brazil in a program for the distribution of virus-free cuttings. No virus work was being carried out in Colombia as the results to date with heat treatment were disappointing.

In addition to the above activities, CIAT were looking at the effect of mildew on production and the possibility of finding resistance against it and also were surveying fungi affecting cassava. They hoped to publish a booklet on diseases of cassava.

The Committee generally endorsed the program but expressed the opinion that it would be useful to have some clarification of CIAT's long-term policy in relation to germ plasm exchanges with Africa in the light of the African mosaic problem. The Committee recognised the importance of the screening activities at this stage of CIAT's program but with the magnitude of the effort being devoted to the activities in 1972 and proposed for 1973, recommended that serious consideration should be given to reducing the pathology section of the budget after 1973. CIAT concurred with this general expression of opinion and stated that they anticipated a shift in the work of their pathology resources into the food legume sector in 1974.

7...

3.5 Weed Control (\$15,000 or 3% of the 1973 cassava budget)

The CIAT program in this sector is largely a screening activity which the Committee endorsed although it felt that after 1973 it might be difficult to justify maintenance of this program at its current level. In the discussion on this subject it was pointed out that the work on weed control included studies on the effect of weed population on yield and on the tolerance of specific cultivars to herbicides. It was suggested that weed control activities should be correlated with studies on canopy type and it was pointed out by CIAT that they were examining not only this but also the relationship between the rate of development of leaf area index and canopy closure.

3.6 Agronomy and Soils (\$80,000 or 13% of the 1973 cassava budget)

The discussion on these two items was taken simultaneously because the Committee found it difficult to separate the two activities in the program of work presentation. The Committee strongly recommended that the written presentation should be revised so that it would be possible to identify the specific activities of the soils and the agronomy program at CIAT in a way that would sharpen the focus of each program and the Committee could ensure that the work (a) was of an International nature and (b) was not duplicating work already carried out in these fields. It strongly recommended that the agronomic work should not be location specific but should be transferable and that more information should be provided about the package of inputs which CIAT was seeking to identify.

In the soils section the Committee felt that some reference should be made to work on low-fertility soils in view of the importance of these in Cassava producing areas. It also felt that there was an important need for establishing the micro-nutrient requirements of cassava in a wide variety of different locations.

In replying to the rather full discussion on this section of the budget, the CIAT representatives stated that most of the initial work would be done on the CIAT station which they regarded as an optimum site on which to

8...

develop their model and their plot techniques and hopefully, an agronomy package. They fully recognised the need for developing transferable techniques and for setting up a series of International trials once they had a preliminary package to transfer. Limited work was being carried out on sites other than the CIAT station and this would give some familiarity with other locations, particularly the lateritic soils. CIAT recognised the importance of macro-nutrient studies but were also concerned about the adequacy of the macro-nutrient literature and the need to relate macro-nutrient fertilizer programs to soil and tissue analysis and to the timing of fertilizer application.

The overlapping presentation between the agronomy and soils writeups was stressed by several Committee members, two of whom queried whether this did not reflect the need for more decision-making authority to be given to the co-ordinator of the cassava program.

The Committee then agreed that the magnitude of the soils and agronomy program proposals warranted support but that these programs required a much more detailed description for it to adequately pass judgement on their contents. It recommended to CIAT that such a description should be available for the next meeting of the Committee and that this description should pay particular attention to the program duration and might go as far as to outline the agronomic and soil programs over a three or four year period.

The Committee considered that, after 1973, there should be a good possibility of reducing the magnitude of the programs discussed at this meeting but it recognized that newer problems, particularly the possibility of mechanisation, might arise and lead to new requirements for agronomic and soils studies.

The Committee felt that it was important that the International aspects of the program should be borne in mind at all times and that although considerable preliminary work would have to be done on the CIAT station,

9...

the cassava team should endeavour to ensure that their work was transferable and not location specific. Strong support was given for work on plant nutritional studies.

3.7 Microbiology (\$2,000 or 0.5% of the total cassava budget)

It was noted without comment that this sum represented token support for the tissue culture program to which the Committee later gave a high priority rating.

3.8 Training program (Approximately \$52,000 or 8% of the total cassava budget)

The CIAT representative explained that the training program had two components, one was in-service training of cassava research workers and the other involved more general training courses for field workers. He explained that the budget as presented did not represent the total training budget in that for in-service training the costs were divided between training and research activities in order to meet certain budgetary requirements of the Kellogg Foundation. Bearing this in mind and after excluding the costs of Conferences and Symposia which were really support costs, the total training component was probably somewhat less than the 10% of the budget that CIAT was aiming at.

The Committee accepted the total figure and the percentage for training costs and felt that at the present stage of the cassava program it was justifiable to have training costs somewhat under the CIAT policy goal particularly for the training component other than in-service training. The Committee did, however, find considerable fault with the program of work document on training and strongly recommended that this should be rewritten in a way that would both quantify and qualify the training input so that, at a future date, it would be possible to evaluate it.

3.9 Library (\$31,000 or 5% of the total cassava budget)

A need for a comprehensive cassava bibliography was endorsed by the Committee. It was noted that the total world literature was of the order

10...

of 3,000 plus papers many of which consisted of little more than titles and many more of which were not worth abstracting. It was suggested that the literature needed evaluation but that the total literature which would have to be looked at in any detail was quite limited. It was suggested that the sum of about \$5,000 would provide photocopies of a major portion of the important world cassava literature.

Given the above statements, the Committee expressed strong reservations regarding the magnitude of the library budget allocated to the cassava program. It was noted that this budget was steadily rising from \$25,000 in 1971 to \$31,000 in 1973 and 30% of the CIAT library costs were charged to the cassava program. Bearing in mind the size of the cassava literature and the likely demands on it by the research team, it was felt that the pro-rating system adopted for library costs was somewhat artificial.

IDRC felt that in view of the importance of a comprehensive bibliography with abstracts and a key-word index and in view of the magnitude of the funds being allocated to the library from the cassava budget, it was essential that CIAT should give top priority to this issue. They circulated a short paper making specific proposals on this subject. In reply to this, CIAT stated that a substantial part of the library costs were routine expenditure and they were building up a book and literature collection at the present time. CIAT anticipated that the library costs allocated to the cassava program would decline in future years.

3.10 Agricultural Economics (\$54,000 or 9% of the total 1973 cassava budget)

This program entailed the fulltime use of three junior scientists and 3/4 of the costs for a senior man. CIAT described the work in progress and stressed the importance of identifying the future role of cassava so that resources could be most appropriately allocated in the total research program. At the micro-level, efforts were being made to develop a model which would determine the limiting factors in production. At the macro-level, studies on marketing and demand were taking place although these were expected to be limited in view of the proposed Canadian University input. Drying,

11...

transport and storage losses were being investigated and it was also hoped to look at the social and economic implications of expanding cassava production.

The Committee noted that this was an expensive program which made up a substantial portion of the Direct Research costs. Nevertheless, at the present stage of CIAT's activities it felt that this program warranted priority since it had a key role in orienting the total research. The verbal presentation satisfied the Committee much more than the written document which it had before it. Once again the Committee stressed the need for a tighter writeup with duration objectives. It felt that the relative importance of this program could decline in future once much of the basic information and studies had been completed. This view was accepted by the CIAT speaker.

In discussing the technical details of the program the Committee felt that it would be useful for CIAT to examine the economic implications of storage in the ground with a view to determining whether this practice had important research implications. Several members felt that the use of cassava as animal feed in the developed countries was based upon a tariff structure that was extremely fragile and that particular attention should be given to the use of cassava as an energy source for livestock feeds in the developing countries. It was, however, pointed out that the export market in certain Far Eastern Countries had, through its specification for pelleted feed, led to considerable secondary industrial development and that CIAT might usefully examine this subject from the standpoint of using pelletized cassava to trigger off the development of local feed industries.

3.11 Agricultural Engineering (\$22,000 or 4% of the 1973 cassava budget)

The emphasis in CIAT's work in this field had shifted from mechanization to storage although they were keeping a watching brief on mechanization developments elsewhere. However, at the present time in many cassava areas the surplus of labour and shortage of capital made it illogical to stress mechanization.

...12

12...

The Committee felt that this shift in emphasis on the part of CIAT was justified at the present time although in the future if success were to be achieved in increasing yields, there was a possibility that cassava could assume a more important role as an industrial crop planted on a large scale and mechanization research might be needed. The Committee endorsed the budget and the program of work as verbally presented but again indicated its dissatisfaction with the written document.

3.12 Biometrics (\$13,000 or 2% of the total 1973 budget)

The only discussion on this subject was a short, inconclusive one as to whether or not this item should be regarded as a direct research activity as shown by CIAT or should be included with the Indirect Support costs.

3.13 General Services (\$155,000 or 26% of the total 1973 cassava budget)

The Committee's discussions on this subject recurred at various times during the program review and have been summarized earlier in these minutes.

4. SWINE PROGRAM

The objective of this program was stated to be the increased production of pork in the lowland tropics at an economic cost utilizing, as far as possible, locally available feedstuffs. Work to date had shown that considerable improvement could be made with the utilization of commonly available tropical energy sources but that protein was likely to be the limiting factor for intensive animal production in the tropics. Current and future work would give particular emphasis to utilizing sources of protein available in the tropics. These included freshwater fish, grain legumes and single cell protein. At present grain legumes were the only readily available protein source. Preliminary work had indicated that cowpeas could provide an excellent protein source for swine although they were deficient in the sulphur-containing amino acids. Close collaboration is maintained with the grain legume program of CIAT in order to improve and utilize legumes

13...

with improved nutritional quality and to explore the possibilities of utilizing legumes such as pigeon peas, chickpeas and soybeans as a protein source for swine feeding. With regard to single cell protein, great interest was expressed as to the possibilities of developing a simple, single cell production system based on tropical energy sources that could be employed at the small to medium farm level and that would allow the entire mass to be utilized without separation of the protein.

Since it has been demonstrated that improved breeds of swine from North America and Europe can produce efficiently within the tropics if properly fed and managed, CIAT is not carrying out swine breeding programs to produce new breeds for the tropics. Some major management problems have been encountered in the tropics. These problems are basically related to temperature and humidity. Specifically baby pig management and growth become difficult in the humid tropics; this appears to be associated with the difficulty encountered in maintaining a dry environment for the baby pigs in areas of very high relative humidity.

The Animal Health program of CIAT has been established to develop control and prevention programs for beef and swine production systems in the lowland tropics. Very little information is available on the swine diseases and parasites that are important and economically limiting in swine production. General observations have been made which definitely establish that internal parasites are important and limit economic production especially under extensive systems of management employed on small farms. Problems of abortion have also been reported in several tropical countries of Latin America. Because of lack of available control and prevention measures, foot and mouth disease is a major problem in some areas.

Since many of the Committee's comments on the cassava program, particularly those relating to Training and General Services were mundane to the swine program and since certain other program allocation such as library and

14...

biometrics were of a very small magnitude in the case of the swine program, the review discussion centred on four themes: Animal Husbandry, Animal Health, Agricultural Engineering and Agricultural Economics. It was pointed out that the \$11,000 allocation to the swine program from the social research demonstration would be reviewed.

4.1 Animal Husbandry (\$156,000 or 38% of the total 1973 swine budget)

The Committee expressed its satisfaction with the progress that had been made by the swine program but queried the justification for doubling the swine budget from \$75,000 in 1971 to \$156,000 in 1973. CIAT explained that in the initial stages of the program there had been only one senior scientist and with expanding responsibilities it had not been able to devote sufficient attention to training and to outreach services although the program was sufficiently advanced to offer such services and programs to other Latin American countries. CIAT further explained that the increase for 1973 was only a 17.3% increase over that approved by the Board for the 1972 budget which included three senior scientists. It was anticipated that the time equivalent of one senior man would be involved in the outreach, one in production research and one in developing and running the swine production trainee program. The Committee questioned if the training program itself did not have a charge to the swine program sufficiently large to cover the cost of a professional for training activities.

In the technical discussion on the program presentation, it was questioned whether grain legumes and freshwater fish, both of which were acceptable as protein sources for human food, could be economically used in swine rations. It was suggested that CIAT might examine the use of cassava tops as a protein source in swine rations and that they might look at the possibilities of solar heating to dry high moisture feeds. However, the economics of the latter technology was questioned.

15...

At this stage of the discussion the Committee did not pass judgement on the swine husbandry budget since the discussion on this related to the next item on the agenda. It did, however, note with some satisfaction that in the budget presented to it Direct Research costs formed a somewhat higher component of the total costs than they did in the cassava program.

4.2 Animal Health (\$62,000 or 16% of the 1973 swine budget)

It was noted that the Animal Health component of the budget had risen from \$1,000 in 1971 through \$44,000 in 1972 to \$62,000 in 1973. In view of the excellent results achieved without a major Animal Health input in the swine program up to the end of 1971, and since CIAT had demonstrated that, under appropriate systems of management, growth rates and feed conversions equal to those obtainable in North America were attainable in the lowland tropics, the justification for an Animal Health program of this magnitude was questionable. It was suggested that, as in the case of Animal Breeding, Animal Health work might more appropriately be carried out by National programs. The Committee accepted the CIAT statement that swine production and development was a composite of Health, Nutrition and Management but wondered whether with an input equivalent to one senior scientist, an effective Animal Health program of the broad nature described in the program of work document could be implemented. The Committee also questioned whether the Animal Health work had international rather than national implications and if so, whether CIAT was the appropriate organization to carry out a regional screening of animal health problems. Attention was drawn to the comparative cost of the plant pathology program which was carrying out screening activities on 3,000 cultivars obtained from a wide range of ecological conditions but cost less than the Animal Health proposal.

The suggestion was made that one man on the three-man Swine Husbandry team should be a veterinarian with a management background and that pure veterinary research should not form part of the swine program. This suggestion received support from the Committee with the CIAT representative dissenting on the ground (a) that an Animal Health input of the suggested

16...

magnitude was required in the swine program and (b) that the total CIAT Animal Health program is considered minimal in developing Beef and Swine production systems programs in research and training. CIAT pointed out that the third post in the Animal Husbandry team was a three-year post which they wished to fill with a production specialist rather than with a man with an Animal Health/Management background.

Three Committee members did not participate in the discussion on the Animal Health issue. Of the five who did, four expressed reservations regarding the Animal Health research component and supported the suggestion that the third man in the Husbandry/Management team should have a veterinary rather than a Nutritional background.

4.3 Agricultural Engineering (\$7,000 or 2% of the 1973 swine budget)

CIAT noted that the future work of this program would be related to direct support of the swine program and in the near future would help to design swine facilities that would be used by swine producers on subsistence farms and that could be built with locally available materials. It was noted that the engineering program was concentrating in the processing sector in collaboration with the Cassava Program and might well increase in magnitude in the future. Results from this program would aid both the swine and cassava programs. The program was endorsed by the Committee.

4.4 Agricultural Economics (\$15,000 or 4% of the 1973 swine budget)

This program is concentrating on economic studies of small swine farmers although some macro-economic studies are also underway. The Committee supported the program thrust and magnitude.

5. SUMMARY DISCUSSIONS ON CASSAVA AND SWINE PROGRAMS

5.1 The Committee felt that both programs had promising orientations particularly the swine one which has a longer history. The rapid budgetary growth in the last two years required very careful watching and the Committee

17...

felt that it would be desirable if a strong effort were made to bring about reductions in some discipline activities after 1973. However, the absence of a clearly defined objective and priorities - particularly in the cassava program - meant that it was not possible to fully assess staffing and budget proposals. From the technical standpoint, the most serious cause for concern expressed by the Committee was in the Animal Health aspect of the swine program. It was understood that it was difficult to discuss this subject out of the context of the total Animal Health program and although this subject in itself caused concern to some members of the Committee they recognised that it was an issue more for the CIAT Board than for this Advisory Committee.

5.2 Bearing in mind the above caveat regarding the Animal Health aspect of the swine program and taking into account the other suggestions noted earlier in these minutes, the Committee recommended support for the Direct Research activities associated with the CIAT 1973 proposals for both the Cassava and the Swine programs. It noted that these direct costs exceeded \$500,000, which was the contribution being sought from CIDA through IDRC. Taking into account this factor plus the fact that the Committee felt that it did not lie within its jurisdiction to analyse in depth the General Services costs of CIAT it recommended to IDRC that they would be justified in supporting the CIAT budget for cassava and swine to the extent requested from them in 1973.

5.3 The Committee drew the attention of IDRC to its concern regarding the magnitude of the Indirect and General Services costs in the CIAT budget proposals and also recommended that CIAT should be asked to re-examine their system of pro-rating costs under these two headings.

5.4 The Committee strongly recommended that the program of work document which accompanied the 1973 budget should be completely rewritten along the lines indicated earlier in these minutes and that the revised document should be presented to the Committee prior to its next meeting.

18...

6. CANADIAN INSTITUTIONAL PROJECTS

In introducing this part of the agenda, the IDRC representatives stated that they were asking the Committee to look at the various proposals in terms of their importance as support activities to CIAT's program. They suggested that the Committee lay particular stress in examining objectives and broad order of magnitude of costs whilst IDRC itself would deal with detailed budgetary considerations. The Committee's attention was drawn to the fact that the total five-year budget for the Canadian Institutional support was \$750,000.00 and that the 14 projects presented at this meeting had a total cost of \$934,000.00. In the following minutes projects are noted in the order in which they were listed. This differs somewhat from the order in which they were presented at the meeting.

6.1 Project #1, Enrichment of Cassava with Microbial Protein for use as Animal Feed (A two year project for \$79,877 from the University of Guelph)

This request contained two components, one dealing with biomass production and the other with cassava silage. The Committee felt that apart from its quality as a project, this submission was an excellent one which might, in the future, serve as a model for project presentations to the Committee.

This project received general support especially for the silage component, it was recognised that the biomass production was a difficult field in which the risks of failure were higher but bearing in mind the economy of running the two projects as one and the value to CIAT of success in either or both of the sub-projects, the Committee supported the project "in toto" and recommended that IDRC should grant the sum requested. It suggested that the author of the project should ensure that he is familiar with the work in this field carried out in the past by TPI and by the Rank Laboratories.

6.2 Project #2, A Study of the Markets for Cassava (A one year project for \$38,525 from the University of Guelph)

The Committee felt that this was a basic and necessary project which

19...

should be completed as early as possible in order to provide the appropriate orientation to the field team. They suggested that the author might endeavour to look at the cassava enrichment market and that particular effort should be made to liaise with the trade in the studies of starch projects where the questions of quality and substitution required very specialized knowledge. It was indicated that it would be difficult to devote much attention to the food aspects of the study because of the unreliability of the subsistence food data but that it was important that the study should be a global one rather than covering just the Latin American angle and that it should endeavour to link up with CIAT and other work on the economics of subsistence production.

The Committee recommended this project be given support at the level requested.

6.3 Project #3, A Study of Cassava Propagation. (A three year study costing \$28,502 from the University of Guelph).

The Committee felt that the work indicated in this project proposal would best be carried out at CIAT and except, perhaps, for some work on bud cuttings or in growth chambers, this sort of work should not be done away from an ecological zone in which cassava grows readily.

Although the authors of this proposal had clearly done a great deal of background work and prepared an excellent literature review, the Committee did not feel that this outweighed the considerations mentioned above and it recommended rejection of this project.

6.4 Project #4, A Study of Post Harvest Discoloration of Cassava Roots (A 2½ year project costing \$34,818 from the University of Guelph)

The Committee noted that this proposal considered the problem purely from the biochemical standpoint whereas it was suggested that it might be looked at more as a problem of phyto-pathology with biochemical overtones. In any event, the Committee felt that this project should be regarded as

20...

a component of, or more logically as a sequel to, project #5 and it therefore recommended that this project should be rejected at the present time but that part of it could be reconsidered as a component of project #5 were that project to be re-presented in September. However, the discussion indicated that there would not be strong support for research on discoloration at the level indicated in project #4.

6.5 Project #5, Research on Storage of Cassava (A two year project totalling \$52,694 from the University of Guelph)

This project had two components. The first was an "in situ" study of the environmental and physiological factors and preservation techniques influencing the storage of roots and the second a study of the various treatments which could replace the need for refrigeration during on-farm storage or in transit. The Committee felt that the objectives of these two proposals were important and warranted priority. They felt that the work entailed in the first proposal needed to be carried out at CIAT and questioned whether this could not be done more economically by CIAT itself. The question of the optimum location for the second proposal was not agreed on.

A decision on both proposals was deferred after the Committee had been advised by Dr. Coursey that there was a strong likelihood that TPI would proceed with an almost identical proposal. A person was available to work on these subjects and TPI were only awaiting an official request from a Developing Country Government before putting such a project into operation.

The Committee felt that in these circumstances, they should hold their hand but that in view of the priority attached to this subject, a further decision should be taken at their September meeting.

It was agreed that CIAT and Dr. Coursey would liaise on this matter and if by July 1st, CIAT had not received a positive indication from TPI

21...

that they were to proceed with this work, then CIAT would provide the project proposers with a revised project outline which would then be worked up jointly by CIAT and Guelph and be reconsidered at the September meeting.

6.6 Project #6, Research on Linamarase and Cyanogenesis in Cassava
(A \$48,538 two and a half year request from the University of Guelph)

The Committee felt that the subject matter of this project proposal warranted high priority but that the proposal in its present form was inadequate. They recommended that the literature review needed to be more comprehensive and particularly to take into account the literature that was not in the English Language. A number of comments on the project objectives were made. It was suggested that cyanogenesis rather than HCN accumulation was the key priority and it was also suggested that the assessment of linamarin might best be done in project #9 rather than in this project. The view was also expressed that this entire area of research would become obsolete as soon as a zero HCN cultivar was produced and that this should receive high priority.

The Committee recommended that the authors of the project proposal should consult with CIAT with regard to revising the project objectives and specifications, and indicated that were they presented in September with a satisfactory proposal modelled along the lines of presentation of project proposal #1, they would be prepared to support such a proposal at about the level indicated in proposal #6.

6.7 Project #7, A Diagnosis of Nutrient Deficiencies in Cassava
(A three year \$104,764 proposal from the University of Guelph)

The Committee was unable to delineate the CIAT program in soils and agronomy as presented in the CIAT program from that work proposed in projects #7 and #13. Hence it was not possible to assess the relevance of the University proposals to the CIAT program.

22...

The Committee felt that this project, which to some degree duplicated project request #13, represented little more than a statement of interest. With the exception of the greenhouse component of project #7, it agreed that these two proposals should be rejected but that their authors should be advised that CIAT would be receptive to endorsing this type of work, particularly in the micro-nutrient field. The Committee recommended that CIAT should prepare an outline of the type of project support they would require in this field with detailed objectives and specifications and should be told that there are two Universities interested in becoming involved in this project and that a project in this field has been given high priority by the Advisory Committee who would be receptive to supporting a suitably presented project at their September meeting.

The Committee recommended to IDRC that they should support the greenhouse component of project #7, costing \$9,755, immediately this was re-presented in a fuller and more appropriate fashion.

6.8 Project #8, Crop Science Feasibility Study (A request for \$12,051 over a 1 year period from the University of Guelph)

This project was essentially an enabling grant for feasibility studies, with one component for a graduate student at Guelph and the other to enable the Head of the Crop Science Department to spend six months of his leave period at CIAT. The project presentation called for some critical comments from the Committee. Nevertheless, the CIAT representatives felt that in order to establish an effective liaison with the excellent facilities of the Crop Science Department at Guelph, this project would be useful and it offered them the opportunity of obtaining an expert input for characterizing their nursery. In anticipation of this, they had planted 1,000 cultivars in a 5 hectare area which, it was anticipated, the scientist involved in this project could devote himself to.

23...

The IDRC representative stated that his organization would require some reductions in the proposed budget and the Committee agreed to support the proposal in this context.

6.9 Project #9, Cyanogenic Glucosides in Cassava (A two year proposal from the University of Guelph totalling \$15,180)

It was agreed that a project of this nature warranted support but considerable reservation was expressed regarding the adequacy of the budget in the proposal placed before the Committee. It was noted that costs for biochemical and tissue analysis were omitted and also those for animal pathology although the author of the project had stated that he had discussed this with OVC. A serious omission appeared to be the cost of raw material and there was also a suggestion that there might be difficulty in obtaining adequate supplies and that it might be inadvisable to freeze these as indicated in the draft.

In discussing the substance of the request note was made of the fact that one treatment had been left out on page 2 and the suggestion was made that the toxicity of linamarin might be more effectively carried out in this project than in project #6. In reply to questioning, the CIAT representatives stated that I^{131} up-take studies in the thyroid had not been done on animals on high cassava diets and that there was an important need to carry out further studies on the metabolic pathways of sulphur associated with the detoxification of cyanides.

The Committee recommended that IDRC support this project after re-presentation with a revised budget but suggested that if this re-presentation caused substantial changes in the budget, it might be preferable to reconsider the project at the September meeting.

24...

6.10 Project #10, Tissue Culture Techniques with Cassava (a \$34,200 budget for a two year project at the Prairie Regional Research Laboratory of the NRC)

The Committee strongly endorsed this project although one member queried the risk of aneuploidy. However, it was pointed out that aneuploids originated mainly from single cells and this was not the concept in this project, furthermore, one member thought that aneuploidy could be beneficial. A number of comments were made regarding the adequacy of the budget in terms of travel, overhead, and technical support and it was also suggested that the Laboratory equipment budget could be pruned by removing a microscope and possibly other items. However, it was felt that even if budgetary revision added to the cost of this project, it was of sufficient importance that it should be given high priority and it was recommended that IDRC should, after carrying out appropriate budgetary modifications, provide support for this project.

6.11 Project #11, Cassava Virus Research (A 4½ year project for \$143,710 from McGill University).

The proposal contained three components: 1, to identify and characterize the viruses infecting cassava in West Africa; 2, to determine the relative susceptibility of the CIAT collection to mosaic under field conditions in West Africa; and 3, to determine if control measures are practical under existing field conditions. The Committee felt that proposal 1 duplicated work in progress (although conflicting viewpoints were expressed on this issue) and that proposal 2 could be carried out at very much less cost than proposed in the project outline. There was some criticism of the choice of Njala as the site for the work in Africa. The view was also expressed that IITA might take a leading role in this type of work and CIAT merely maintain liaison. It was felt that an appropriate project request should also take full cognisance of the literature particularly the work of Chant.

The Committee recommended that this project be rejected and requested the Chairman to contact Dr. Chant and Beck and the Abijan workers during

25...

his travel this summer and to report back to the Committee with his assessment and possibly a report from Dr. Chant regarding the need for further work in the African Cassava Mosaic field. The Committee was prepared to recommend a feasibility study at its September meeting if such a study appeared to be necessary.

6.12 Project #12, Chromatography and Electrophoresis to determine genetic Relationships (A 2½ year proposal costing \$132,365 from McGill University)

The Committee queried the value of the proposed techniques and their relevance to the needs of CIAT although they agreed that a classification of the cultivar collection would be desirable. It recognised that morphological classification of cassava was difficult although the Rogers system had been found useful on yams. It was stated that the possibility of a significant finding using phenolics was limited and generally these compounds were not closely linked to protein or to morphology. Electrophoretic bands for proteins were not always easy to differentiate and were sometimes difficult to co-relate as they vary according to the part of the plant the sample is taken from. In some respects isozymes would be easier to work with but so many of these existed that it would be difficult to identify the one of choice so the total work load might exceed that using the Rogers system.

Bearing in mind the above points, the Committee felt that although the concept of this proposal was good, the techniques were not sufficiently reliable and the cost of around \$30.00 per cultivar was too high, indeed it was suggested that the project could ultimately be much more expensive than the first run since repeats would be needed on progeny and it would also be necessary to test some crosses of the same variety.

One member of the Committee felt that there would be some merit in carrying out a feasibility study before going any further into this field, this was supported by the McGill Representative who stated that the original concept was a practical service oriented operation and it did have the attraction that it would make it possible to carry out genetic

comparisons between material in the CIAT collection and material in other collections. However, other committee members felt that the disadvantages noted above outweighed the merits of this proposal and it was also pointed out that the fact that all of the known characteristics of major importance were quantitative, so that even a feasibility study would be difficult.

After considerable further discussion and recognising that this was a high-risk project, the Committee recommended that IDRC should support a feasibility study in the \$5,000 - \$10,000 range providing McGill are prepared to carry out such a study within a framework of guidelines and objectives to be defined by CIAT in such a way that the results of the study can be appropriately evaluated by the Committee.

6.13 Project #13, Fertilization Studies on Cassava (A 3½ year project totalling \$120,934 from McGill University)

This project has been commented on above in the section on project #7.

6.14 Project #14, Co-ordination of Field Activities (A 3½ year project totalling \$88,389 from McGill University)

This project was strongly opposed by the representative of IDRC who felt that it was not representative of unique Canadian expertise and that the function called for should, if necessary, be provided from IDRC or CIAT funds. Other Committee members pointed out that it appeared to be a waste of the resources of a Ph.D. and that the work called for might be provided at a much cheaper cost by a bi-lingual Colombian. The CIAT representative stated that the project proposal raised an important concept that might need to be considered when the Canadian program had reached a further stage of development. CIAT would have no objection to having a Canadian Co-ordinator on site but they would need to consult their Board before a decision could be forthcoming as to whether such a man might be funded from within their budget. The Committee recommended that IDRC reject this project proposal.

27...

7. OTHER BUSINESS

7.1 A preliminary discussion took place regarding the agenda for the next meeting of the Committee which will probably be held during the week of 18th - 22nd of September.

The Committee regretted that the pressure of work at this present meeting had prevented it from having had the opportunity to discuss working paper #7 by Frank Martin and asked the Chairman to ensure that this paper be placed on the agenda in such a way that it could be fully discussed at the September Meeting.

7.2 One member of the Committee expressed the view that the Committee had been over-cautious in its allocation of funding bearing in mind the project's time horizons. However, this did not appear to be the general view.

7.3 One important point which emerged throughout the project discussions was that the Committee needed to give more thought to the nature of contract research, since essentially what was being called for from the Canadian Institutions was contract research. It was noted that the three projects which received the best support from the Committee (#1, 2, and 10) were projects in which CIAT had played a key role in the identification of the objectives and, in partnership with the Canadian Institution, had assisted in the preparation of the projects. Although the recent travel interchanges between Canadian personnel and CIAT had helped to establish a dialogue in other project sectors, it appeared from the discussions that it would be necessary in the future for CIAT to play a more prominent role in the definition of project objectives and outlines so that the Committee could be confronted with sounder project proposals. In this context, the Committee noted with pleasure that CIAT had agreed to prepare such material in connection with revising the proposals on storage, micro-nutrient requirements, cyanogenesis and chemotaxonomic feasibility. It was anticipated that

28...

suitably prepared proposals in the first three of these fields would receive priority attention at the next meeting of the Committee.

7.4 It was agreed that the draft minutes of the meeting should be prepared by the Chairman and checked by Dr. Steppler after which, in their draft form they should be made available to Dr. U.J. Grant in sufficient time for him to distribute them to his Board at their May 10 - 12 meeting, if he so wished.

CIAT SWINE PROGRAM

Revised **C**

et Code	Professional Group	000 \$			% of Professional Group			% of Swine Budget		
		1971	1972	1973	1971	1972	1973	1971	1972	1973
81	Animal Science Direction	8	11	11	25	25	25	4	3	3
	Animal Husbandry (Swine)	75	133	156	NA	NA	95	32	41	38
	Animal Health	1	44	62	0	20	23	0	13	16
SUBTOTAL ANIMAL SCIENCE		(84)	(188)	(229)	-	-	-	(41)	(57)	(57)
83	Training Direction	15	29	6	10	10	10	7	9	1
	Coordinator Animal Science			10			19			2
	Social Research			8			14			2
	Information Services			10			10			2
	Conferences & Symposia			3			15			1
	Research Fellow Support	0	15	15	10	10	10	0	5	4
SUBTOTAL TRAINING		(15)	(44)	(52)	-	-	-	(7)	(14)	(12)
84	Library	4	4	5	5	5	5	2	1	1
83)	Biometrics	0	2	2	5	5	5	0	1	1
85	Agric. Economics	3	13	15	5	7	7	1	4	4
86	Agric. Engineering	5	7	7	5	7	5	2	2	2
SUBTOTAL SUPPORT		(12)	(26)	(29)	-	-	-	(5)	(8)	(8)
87	Station Operations	6	8	5	5	7	5	3	3	1
87	Physical Plant	-	-	17	-	-	10	-	-	4
88	Administration	34	32	37	15	12	14	17	10	9
	General Expenses	57	28	42	20	11	15	28	9	10
SUBTOTAL OVERHEAD		(97)	(68)	(101)	-	-	-	(48)	(19)	(24)
Total		209	326	411	-	-	-	100	100	100

[364 revised]

CIAT CASSAVA PROGRAM

Revised D

t Code	Professional Group	000 \$			% of Professional Group			% of Cassava Budget		
		1971	1972	1973	1971	1972	1973	1971	1972	1973
2	Plant Science Direction	14	17	17	40	40	40	5	3	3
	Cassava Improvement	23	82	99	23	33	100	8	16	17
	Crop Protection - entomology	25	53	9	41	35	15	10	10	1
	- pathology			39			35			6
	- weed control			15			25			3
	Agronomy - cassava			55			100			9
	Soils	34	53	25	20	24	20	12	10	4
	Microbiology			2			5			1
SUBTOTAL CROP SCIENCE		(96)	(205)	(261)	-	-	-	(33)	(39)	(44)
3	Training Direction	24	34	9	12	12	15	8	7	1
	Coordinator Plant Science			4			10			1
	Social Research			6			9			1
	Information Services			15			15			2
	Conferences & Symposia			3			15			1
	Research Fellow Support	0	22	22	12	15	15	0	4	4
SUBTOTAL TRAINING		(24)	(56)	(59)	-	-	-	(8)	(11)	(9)
4	Library	25	26	31	30	30	31	8	5	5
3)	Biometrics	1	12	13	33	30	31	0	2	2
5	Agric. Economics	20	50	54	31	25	25	7	10	9
6	Agric. Engineering	11	36	34	10	33	25	4	7	6
SUBTOTAL SUPPORT		(57)	(124)	(132)	-	-	-	(19)	(24)	(22)
7	Station Operations	10	35	10	10	33	10	3	7	2
7	Physical Plant	-	-	34	-	-	20	-	-	6
8	Administration	46	53	57	20	20	20	16	10	9
	General Expenses	57	48	56	20	18	20	20	9	9
SUBTOTAL OVERHEAD		(113)	(136)	(157)	-	-	-	(39)	(26)	(26)
Total		290	521	608	-	-	-	100	100	100

[73 revised]

SUMMARY OF PROPOSED 1973 OPERATIONAL BUDGET

FUNCTIONAL GROUPS	BEEF		SWINE		CASSAVA		MAIZE		RICE		FOOD LEGUMES		AGRICULTURAL SYSTEMS		TOTAL 1973
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$
L SCIENCES															
Office of the Director	30.1	70	10.7	25									2.1	5	42.9
Pasture & Forages	128.8	95											6.8	5	135.6
Animal Husbandry	122.9	95											6.5	5	129.4
Beef													8.2	5	164.4
Swine			156.2	95										5	
Animal Health	198.6	72	63.5	23									13.8	5	275.9
M SCIENCES															
Office of the Director					16.9	40	8.5	20	8.5	20	4.2	10	4.2	10	42.3
Crop Improvement					99.0	100									99.0
Cassava															
Maize							68.4	100							68.4
Rice									68.9	100					68.9
Food Legumes											50.3	100			50.3
Crop Protection															
Entomology	2.9	5			8.7	15	31.8	55	8.7	15	2.9	5	2.9	5	57.9
Pathology					39.1	35	5.6	5	39.1	35	22.3	20	5.6	5	111.7
Weed Control	15.1	25			15.1	25	6.0	10	12.1	20	6.0	10	6.0	10	60.3
Agronomy															
Cassava					55.0	100									55.0
Rice									45.8	100					45.8
Soils General	12.5	10			25.1	20	25.1	20	25.1	20	12.5	10	25.1	20	125.4
Bacteriology	25.9	40			3.2	5			6.5	10	22.7	35	6.5	10	64.8
TRAINING & COMMUNICATIONS															
Office of the Leader	20.2	35	5.8	10	8.7	15	5.8	10	5.8	10	2.9	5	8.6	15	57.9
Training Coordinator-Animal Sc.	24.8	60	8.2	20									8.2	20	41.2
Plant Sciences					5.1	10	15.4	30	12.8	25	7.7	15	10.3	20	51.3
Social Research Demonstration	5.6	10	11.2	20	5.6	10	5.6	10	5.6	10	2.8	5	19.4	35	55.8
Information Services	34.5	35	9.8	10	14.8	15	9.8	10	9.9	10	4.9	5	14.8	15	98.5
Conference & Symposia	5.2	25	3.1	15	3.1	15	2.1	10	2.1	10	3.1	15	2.1	10	20.8
Support of Interns, Res. Scholars															
Fellows	51.4	35	14.7	10	22.1	15	14.7	10	14.7	10	7.4	5	22.0	15	147.0

<u>PROFESSIONAL GROUPS</u>	BEEF		SWINE		CASSAVA		MAIZE		RICE		FOOD LEGUMES		AGRICULTURAL SYSTEMS		TOTAL 1973
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$
LIBRARY & DOCUMENTATION SERVICES	30.7	30	5.1	5	30.8	30	10.2	10	10.2	10	10.2	10	5.1	5	102.3
BIOMETRICS	12.3	30	2.1	5	12.3	30	4.1	10	4.1	10	4.1	10	2.1	5	41.1
AGRICULTURAL ECONOMICS	53.7	25	15.0	7	53.7	25	21.5	10	43.0	20	6.5	3	21.5	10	214.9
AGRICULTURAL ENGINEERING	14.9	10	7.4	5	22.3	15	7.4	5	37.1	25	7.4	5	52.0	35	148.5
STATION MAINTENANCE & PROD. OPER.	15.1	20	3.8	5	7.6	10	7.6	10	15.1	20	3.8	5	22.7	30	75.7
PHYSICAL PLANT & MOTOR POOL	66.4	40	16.6	10	33.2	20	16.6	10	16.6	10	8.3	5	8.3	5	166.0
ADMINISTRATION	73.2	25	38.1	13	58.6	20	20.5	7	44.0	15	29.3	10	29.3	10	293.0
GENERAL EXPENSES	70.0	25	42.0	15	56.0	20	28.0	10	42.0	15	14.0	5	28.0	10	280.0
PROPOSED 1973	TOTAL		1,014.8		413.3		596.0		314.7		477.7		233.3		3,391.90