

EVALUATION OF SPECIALIZED INFORMATION CENTRES

REPORT II

EVALUATION OF THE CASSAVA INFORMATION CENTRE
(CIAT)

34.

Evaluation of Specialized Information Centres: Cassava
Information Centre

J.D.M. Hardie
Office of Planning & Evaluation
IDRC
January 1982

CONTENTS

	<u>Page</u>
I INTRODUCTION	2
II OPERATIONAL EVALUATION (Stage I)	5
Origins	5
Objectives and Results	6
Resources Used	11
Financing	15
IDRC's Role	17
III USER EVALUATION (Stage II)	18
User Characteristics	18
Geographical Distribution	18
Penetration	19
Coverage	21
Speed	22
User Effort	23
User Preferences	23
IV ECONOMIC EVALUATION (Stage III)	27
Time Saved	27
Avoiding Duplication	29
Contribution to Research Benefits	31
V CONCLUSIONS AND RECOMMENDATIONS	32
Conclusions	32
Recommendations	33
APPENDICES:	
1. Questionnaire for CIC survey (1979)	35
2. "Searcher" questionnaire	41
3. "Interview Letter"	43
4. Inventory of CIC products, 1975-1980	45
5. Mailing list for abstract cards, March 1981	46

I - INTRODUCTION

This report should be read in sequence to the paper "Evaluation of Specialized Information Centres, Report I, Program Overview." The program overview report lays out the background to the evaluation exercise, including a brief description of all IDRC supported specialized information centres (SIC's) up to the end of 1980, the proposed evaluation framework, and the key issues. This material will only be repeated in very summarized form throughout the text that follows.

Methodology

The evaluation was conducted by the Office of Planning and Evaluation of IDRC in collaboration with the staff of CIAT, principally those in the Cassava Information Centre (CIC), and with the Information Sciences (IS) Division of IDRC.

Various sources of information were used:

- (1) Project files of the IS Division and data available formally or informally at CIAT. Discussions and interviews with CIAT and IDRC staff.
- (2) CIC Survey. In 1979, the CIC organized a survey by mailed questionnaire to 600 individual subscribers. The survey aimed to assess the mode of use and utility of CIC products; to determine the areas of greatest interest to subscribers; to obtain data on subscriber characteristics; and to identify other sources of information on cassava. Twenty-nine percent (177) of subscribers replied from 61 countries. Some of the results are given in the final report to IDRC. A copy of the questionnaire is given in Appendix 1.

- (3) "Searcher" questionnaire. With the cooperation of the staff of the Documentation Services Unit at CIAT, a small survey of those requesting specific information from the CIC was conducted. The aim was to obtain information about such "searchers" and some indication of their rating of the specialized search service. Since very few of the searchers were subscribers, the survey was confined to non-subscribers, with an attempt to ascertain their reasons. The response was 30 percent, with 15 out of 50 replying. A copy of the questionnaire is given in Appendix 2.
- (4) Interview letter. Neither the CIC survey nor the searcher questionnaire provided information on the users' feelings about the value of CIC products and services, or about the contribution of information to the research and development process. Face-to-face interviews as a means of obtaining such views were considered and discarded since, in order to remain within reasonable time and budget limits, they would have had to be too few to be useful. The idea of an "interview letter" was conceived, which was to give the recipient an opportunity to reply freely to a loosely-structured written interview. A list of 335 cassava workers was used from which CIAT scientists selected a heterogeneous group of 100 from across the world, working in both large and small institutions and involved in both research and extension/teaching. Twenty-seven replies were received, plus 6 from scientists at CIAT. A copy of the letter is given in Appendix 3.

Note: The responses to the surveys described in (2), (3) and (4) are low in percentage terms, but better than might be expected for this means of collecting information.

- (5) Brekelbaum consultancy. Ms. Trudi Brekelbaum, who was CIC documentalist and acting head of the Documentation Services Unit until 1980 provided her services for a short consultancy and gave a retrospective view of the centre. She also commented on Report I, the program overview.

All these sources of information are used selectively through this evaluation report, which is divided into three stages:

Stage I - Operational Evaluation

Stage II - User Evaluation

Stage III - Economic Evaluation

There are areas of potential bias in the evaluation that should be recognized. First, the exercise was co-ordinated and the report written by a member of IDRC. This was deliberate since it was felt important that the Office of Planning and Evaluation (OPE) should gain some first-hand experience in conducting a study in what is a relatively new field. As a consequence, the OPE would be better placed to co-ordinate further SIC case studies. It is intended to use outside consultants, preferably from developing countries, for subsequent work. Second, only the opinions of users of the CIC have been solicited. Further, it is possible that only those favourably disposed to the CIC have replied, (although it could be argued with equal logic that those feeling strongly antagonistic should have replied too: there were none). This was done out of necessity since it is not possible to find a sizeable group outside the community of CIC users able to comment intelligently on the service. This in itself is a partial vindication of the efforts of the CIC staff.

II - OPERATIONAL EVALUATION (Stage I)

Origins

The significant increases in wheat and rice yields associated with research done at the International Centre for the Improvement of Maize and Wheat (CIMMYT), and the International Rice Research Institute (IRRI), led to the establishment of other international agricultural research centres (IARC's). Consequently, the International Centre for Tropical Agriculture (CIAT) was set up at Cali, Colombia in 1967 to work on relatively neglected tropical crops. In 1968, CIAT decided that cassava research would be one of its major program activities. This crop was emphasized not only because of its importance as a food crop in Latin America, but because the continent is the original home of the plant and possesses the widest range of germ plasm (planting material for reproducing the crop) in the world.

As with many innovative IDRC-supported projects, the Cassava Information Centre had its origin in the drive and commitment of an individual: Dr. Fernando Monge, the head of the library in what was then (1972) the Communications Unit at CIAT. Dr. Monge had already begun the necessary preliminary work to establish an information service geared specifically to the highly dispersed community of scientists working on cassava. In collaboration with IDRC staff a project notification memorandum (PNM) was drawn up in October, 1972, and the project summary was approved in December, 1972. The project was deliberately called a "preliminary phase," with the understanding that the initial tasks of collecting known cassava literature, developing a thesaurus, setting up a retrieval system, and so on, would be followed by a second phase to consolidate the launching of a specialized information centre proper, providing information to users in various ways.

The development of an information centre was of particular interest to IDRC, since it reflected and reinforced a research priority supported extensively by the Agriculture, Food and Nutrition Sciences Division (AFNS). The world-wide cassava research network began in 1971 with a \$2.5 million, 5-year grant from the Canadian International Development Agency (CIDA) to CIAT. At the same time, \$750,000 was granted to complementary research to be conducted in Canadian institutions. IDRC was given the responsibility of managing the whole package. The Centre has also provided significant support from its own budget to cassava research projects in Asia, Africa, the Caribbean and Latin America. AFNS support to 28 projects directly related to cassava totalled \$3.5 million by the end of 1980, and the division has funded many other projects with a bearing on the crop, e.g. root crops and cropping systems research. Total Canadian disbursements for the late seventies reached \$7 million*. Given the focus of this world network at CIAT, the Centre became the logical choice as the "centre of excellence" to house the global information service.

Objectives and results

The objectives of the preliminary phase were established after reference to the Cassava Advisory Committee that was set up to oversee the CIDA grant being administered by IDRC. They were to:

- (1) collect reproducible copies of all the known cassava literature;
- (2) develop a thesaurus of special terms for indexing the literature;
- (3) provide all documents with suitable abstracts;
- (4) set up a simple mechanical information retrieval system for responding to enquiries on highly specific topics;
- (5) produce an annotated bibliography, first in preliminary form, later in definitive form.

*Nestel, B., Cock, J. Cassava: The Development of an International Research Network. IDRC - 059e, p. 20.

This phase was supposed to last two years, but effectively covered the three calendar years 1973 to 1975. By 1975, progress towards the five objectives was as follows:

- I (1) 3,100 documents had been collected. It had been estimated in 1972 that the literature consisted of about 4,000 documents in at least 10 languages. It is difficult to say precisely to what extent the original estimate was accurate, or to what extent the CIC concentrated on collecting that which was consistent with user needs and practical constraints. Whatever the case, the CIC collection is now the most comprehensive in the world.
- I (2) The thesaurus was completed, but was not officially published until 1977.
- I (3) Abstracts in English were prepared for 2,000 documents and were
(5) published in the first volume of the annotated bibliography in 1975.
- I (4) The optical coincidence retrieval system was functioning during the first phase.

Phase II of the project was formulated in early 1976. The objectives were stated in general and specific terms.

In general terms:

"The proposed project would complete the basic bibliographic work begun in the first project, and at the same time would introduce complementary new activities to reinforce the centre and to make it a generator of information as well as a reprocessor. Emphasis would be shifted from the collection and distribution of documents to the optimum use of the collection, the consolidation of information, the production of special publications, the improvement of communication among cassava workers, and the strengthening of the bond between information and research."

Nine specific goals were itemized. The intentions and results of each one are dealt with separately below.

- II (1) Bibliography Volume II. The aim was to complete the bibliography up to the end of 1976, and distribute 2,500 copies. About 600 items remained unprocessed, and a further 200 items were expected during the year.

Results: Volume II was produced in 1977 in English and Spanish, containing 837 references. 1,754 copies were distributed.

- II (2) Supplements to Bibliography. Annual cumulations(volumes III, IV, etc.) would be added after 1976, in English and Spanish. Distribution to be 1,000 copies.

Results: Volume III (1977) 444 references
 Volume IV (1978) 442 references
 Volume V (1979) 476 references

 Volume VI (1980) 590 references } published without
 Volume VII (1981) 620 references } IDRC support

The cumulative volumes are provided to about 750 CIC subscribers, about half of whom pay.

- II (3) Abstract Service. Abstract cards would continue to be produced as part of the bibliography production process. They would be distributed as a current awareness service and would also be provided to support specific subject services. About 1,000 copies of each card would be printed.

Results: The same number of cards were produced as there were references in the cumulative volumes (see above). These were distributed to subscribers 40 to 50 cards at a time at regular intervals throughout the year (about every 5 weeks).

- II (4) Directory of Cassava Workers. Each individual on a list of more than 1,000 people interested in cassava had been sent a provisional list and asked to correct their respective entry. About 800 of the corrected list would be distributed.

Results: The Directory was published in 1978 and sent to all CIC subscribers. It contains the names and addresses of 725 people in 64 countries.

- II (5) Newsletter. Although cassava workers had expressed the need for a newsletter, it was decided to start this activity gradually, given the considerable work involved. One was planned for 1976, two for 1977 and three for 1978. A distribution of 3,000 was proposed.

Results: Six newsletters were produced: one in 1977; two in 1978; three in 1979. One was issued in 1980 and two in 1981 without IDRC support. The newsletters are sent to all CIC subscribers, and free copies are sent to a further 800 interested institutions and individuals (total circulation 1,700).

- II (6) Monographs, Manuals. A monograph consolidates information on a particular aspect of cassava, on which the literature may be widely spread. It should contain the analytical input of the writer, as well as the results of the basic documents, although literature reviews can also be defined as monographs. A need for manuals that can be carried into the field was also identified. Four monographs and two manuals were proposed for the phase II period, with print runs of 1,500 to 2,500.

Results: Three monographs and four manuals were produced (see Appendix 4 for details). All CIC subscribers received copies (c. 900).

- II (7) Photocopy Service and Selective Reproduction of Important Articles. Photocopies of original documents would continue to be provided on request to support the current awareness service and the specific subject searching. Bona fide requestors from developing countries

who may have currency difficulties would continue to receive this service free. A few articles of particular importance to developing countries would also be distributed (8 for the period) provided copyright clearance could be obtained.

Results: Four selective reprints were issued, and requests for photocopies were filled. Although records of numbers of photocopies were kept for 1977 and 1978, it was not possible to locate them at the time of evaluation.

- II (8) Thesaurus. The draft had been in use for two years at CIAT. Some additions and deletions had been made. It was intended to publish the thesaurus and distribute to about 500 libraries and information centres that handle cassava literature without necessarily specializing in it. The final version was to be compatible with the AGRIS system.

Results: The thesaurus was published in 1977. 1,300 copies were distributed to donor agencies and agricultural libraries.

- II (9) Brochure. A simple descriptive brochure, outlining the services offered by the CIC, and how to make use of them, would be distributed.

Results: This was done in 1978, and 3,000 copies distributed.

Other objectives. These were not clearly specified, but covered by the statement:

"In addition, some training of information centre staff and the meetings of a small advisory committee are also provided for."

These appear as line items in the budget.

Results: It was found that the close relationship between the CIC staff and the CIAT researchers obviated the need for a formal advisory committee. In 1978, a two-month training course was held for 16 people planning to work in agricultural documentation in Latin America. In 1979, another course for 19 documentalists was held. The CIC documentalist trained people for posts in the field beans, economics and tropical pastures centres that were established at CIAT in 1974, 1975 and 1979 respectively.

Resources Used

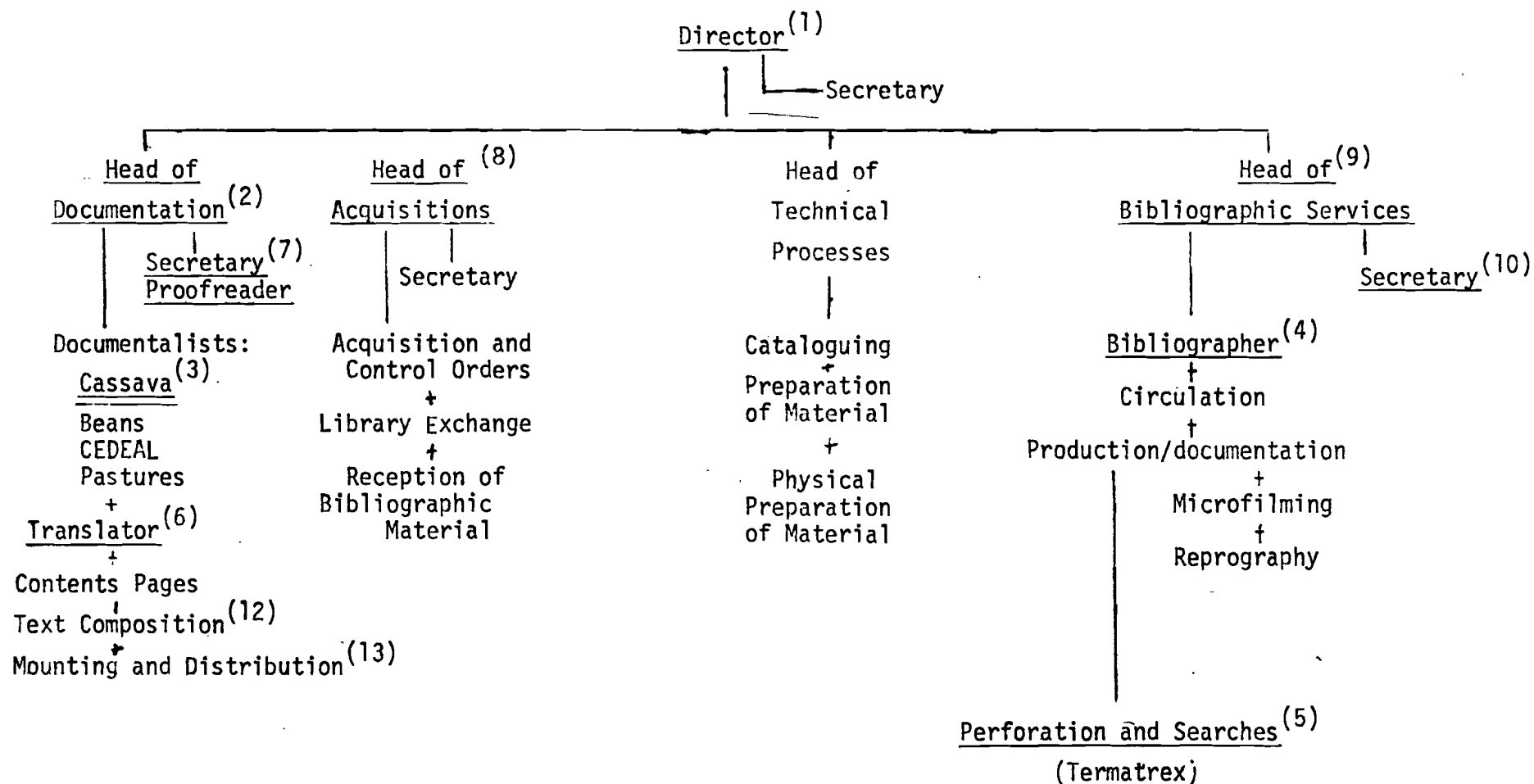
Table 1: IDRC support to Cassava Information Centre (1972-1980)

	Phase I	Phase II	Total
	Can \$		
Recipient-administered portion (RAP)	46,359	201,250	247,609
Centre-administered portion (CAP)	4,495	1,253	5,748
Total	50,854	202,503	253,357

The IDRC project expenditure is only of relevance in that it gives an indication of the "leverage" of Centre dollars. Table 1 shows a total of \$253,000 over seven years which can be matched with the extensive list of products and services of the CIC under "objectives" above.

However, a comprehensive evaluation should try to look at all the resources used and compare their value with the benefits accruing to the project. Over the same period, the recipient (CIAT) contribution was budgeted to total \$142,000 (Can.), making a total investment of nearly \$400,000 over the two phases. It is extremely difficult to judge if this is an accurate estimate of the cost of all the resources used in the project, mainly because almost all the organizational units and people involved were, and are, responsible for other activities to varying degrees.

Figure 1: Organization of Documentation Services Unit at CIAT (1981)



Notes

1. Positions underlined have direct input to Cassava Information Centre.
2. Numbers in brackets refer to numbers on Table 2
3. Printshop activities (printing and distribution) are not included. This unit was transferred out of the Documentation Services Unit in 1977.

Table 2: Human Resources employed in the Cassava Information Centre (CIAT) 1972 to 1981

Position or function	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1. Director	pt	pt	pt	pt	pt	pt	pt	pt	*-----	
2. Head of Documentation	pt	pt	pt	pt	pt	* pt	pt	* pt	pt	* pt
3. <u>Documentalist</u>	1	1	1 *	1	1	1	1----*--1		1	1
4. Bibliographer						pt	pt	pt	pt	pt ⁽²⁾
5. Entry, Retrieval of Information				pt *	pt	pt	pt *	pt	pt	pt
6. Editor, Translation					pt	pt	pt	pt	pt	pt
7. Secretary, Proofreader		pt	pt	pt *	pt	* pt	pt	pt	pt	pt
8. Acquisitions	pt	pt	pt	pt	pt	pt	pt	pt	pt	pt
9. Head of Bibliographic Services								pt	pt	pt
10. Secretary to 9								pt	pt	pt
11. Photocopying	pt	pt	pt	pt	pt	pt	pt	pt	pt	pt
12. Text Composition						pt	pt	pt	pt	pt
13. Mounting and Distribution						pt	pt	pt	pt	pt

Notes pt - part time on Cassava Information Centre
 1 - full time on Cassava Information Centre
 * - change of staff
 --- - gap when position not filled

Originally, the CIC was operated within a Training and Communications Unit that comprised Training Co-ordination, the Library and Documentation Services, and Information Services, including the Print Shop and Public Information. In 1974, this Unit was split into a Training Unit and a Communications Unit. The latter was further divided in 1977 into the Library and Documentation Services, and Information Services, including the Print Shop and Public Information. The current organization of the Documentation Services Unit (DSU) is given in Figure 1. Those positions having a direct input to the CIC are underlined in this figure. The only person working full time on the CIC is the cassava documentalist: all the others are part-time (see also Table 2). As well as running the CIAT library with all its related functions of acquisitions, cataloguing, publications, etc., three other specialized information centres have been established in the DSU since the CIC began in 1972. These are directly related to major CIAT research programs: field beans, economics (CEDEAL) and tropical pastures. Although each of these specialized services is supplied with a documentalist, the resource requirement is greater than that and considerable strain has been placed on the overall capacity of the unit. This has been aggravated by staff changes and periods when key positions have been unfilled (e.g. Director and Cassava Documentalist: see asterisks in Table 2). Thus, although the CIC has been "absorbed into CIAT's budget," there are indications that the rate of production of the information centre declined when IDRC support ended. For example, after reaching a rate of three newsletters in 1979, only one was produced in 1980, and 2 in 1981. However, the position of Director was filled at the end of 1981 and three newsletters are planned for 1982.

CIAT's own estimate of the aggregate human resource requirement for running the basic CIC (i.e. the abstract cards, the cumulative volumes, the newsletter and the question and answer service, but not the special monographs and manuals produced with IDRC support) is approximately seven person-years. The cost for 1980 was estimated at Can. \$77,000. The number of users of the CIC products and services can be estimated conservatively at 2,000. Therefore one person-year services 286 users, at an annual cost of about Can. \$40 per user. (In terms of international comparisons, the ratio of person-years to users is probably more valid than cost per user, given international salary and cost

variations,) Against this investment should be set the value of the information services to the users and to the research and development process with which they are involved. Subsequent sections of this report deal with attempting to assess this value.

Financing

Two basic questions are relevant to information centres. First, the economic one implied above: "are the economic benefits of the CIC greater than the cost? Is it worth doing?" If the answer is positive, the practical financial question arises: "how to pay for it?"

IDRC's involvement with specialized information centres is based on the belief that they represent the most efficient and effective way of supplying the information needs of the development research community in certain chosen fields, i.e. the answer to the economic question is positive. The extended support offered by IDRC over two or three phases is based on the fact that most of the LDC users are unable to pay the full financial cost. As IDRC support comes to an end, the issue of who is to pay for the continuation of the information services must be faced.

CIAT has been conscious of the dangers of suddenly instituting a charge for services and has attempted to phase in a system. After the first lists of cassava workers were compiled in the preliminary phase, a nominal charge of US \$3.00 for the monthly abstract cards was instituted in 1975 to preselect from the original 2,000 or so "users." This has been raised by stages to \$5.00, \$8.00 (1979) and \$16.00 in 1981. The system has been implemented very leniently and non-payers have remained on the list of "subscribers" for long periods. "Subscribers" are those who receive the regular abstract cards and, usually, the annual cumulative volumes of abstracts, these being the most costly products. Mailing costs for the cards are about US \$350 per month, or US \$4,000 per year. The newsletter is sent free to a much wider audience. In 1980, when the charge was US \$8.00, 186 out of a possible 700 paid. Up to mid 1981, with the charge at \$16.00, 108 out of 653 on the "subscriber" list had paid. Thus subscription revenue is insufficient to cover even mailing costs.

Apart from simple lack of funds, and in some cases probably lack of willingness to pay, the problem of obtaining and transmitting foreign exchange is often quoted as a reason for non-payment. An indication of the extent of this problem can be obtained from replies to question 11 of the CIC survey:

"In some countries it is difficult to obtain foreign currency (i.e. US dollars). To what extent is it a problem for you to pay in US dollars or Colombian pesos when requesting photocopies from the Centre?"

Very difficult	32
Not too difficult	23
No problem	116
(no reply)	<u>6</u>
Total replies	177

Although the question refers to photocopies, for which the CIC charges \$0.20 per page, the problem can be assumed to be applicable to subscriptions also. The proportion of respondents facing very difficult circumstances in this area is only 18 percent, whereas the proportion of non-paying "subscribers" is far higher, at between 50 to 75 percent. Therefore, although the foreign exchange problem undoubtedly exists, it is perhaps not as prevalent as commonly assumed. CIAT encourages people to purchase various coupons in enough quantity to cover orders for a period of time. Wider use of such a mechanism should significantly obviate the problem.

The CIC has found from experience that a completely free service is not practical since demand then ceases to be based on genuine need and becomes unreasonably high. However a balance still has to be found between discouraging those who do not really need to be direct recipients of the products, and ensuring that those who do need them, but are unable to pay, can still have access. A significant level of subsidy would seem to be necessary to obtain this balance, given the integration that CIAT believes is necessary between the research effort and the information systems that serve them.

IDRC's Role

There were no significant administrative or financial problems with the project. Extensions were provided to both phases for various technical and personnel-related reasons, hence the overall duration from December 1972 to July 1980.

The project leader is now a staff member of the Information Sciences Division but it is not anticipated that this constitutes a precedent for divisional recruitment policy. However, project leaders are the most important individuals in all projects and there is little doubt that the departure of Dr. Monge and the 15 month gap before a replacement could be found contributed to the decrease in CIC activities in the last two years.

In the course of her consultancy, Ms. Brekelbaum proposed that IDRC should draw up specific guidelines for the functioning of SIC's, with particular respect to which products and services should be undertaken, staffing requirements, phasing, and scope of activities. The Centre should also promote the preparation of material for documentalists on new developments in information sciences that could be applied to improve SIC's. Given the considerable investment both in terms of project funds and staff time, that the IS Division has made and is committed to in SIC's, these proposals should be carefully considered.

III - USER EVALUATION (Stage II)

The focus at this stage of the evaluation is on the user of the products and services of the CIC: who they are, where they are, and how well the centre meets their needs as they perceive them.

User Characteristics

According to the CIC survey, more than 90 percent of those who responded have an academic degree (64 PhD's and 48 MSc's out of 177 replies), and are engaged in research, teaching and administrative activities. 58 percent are employed at institutions that have a specific cassava program; 27 percent spend more than three-quarters, and about a half dedicate one-quarter or more of their time to cassava.

Geographical Distribution

Details of the geographical distribution of the monthly abstract cards service (as of 16 March, 1981) are given in Appendix 5. Some of the principal indicators are summarized below:

<u>Region</u>	<u>Number of Countries</u>	<u>Institutional Subscribers</u>	<u>Individual Subscribers</u>
Latin America	17	72	337
Caribbean	9	19	20
Africa	11	10	42
Asia and Pacific	14	22	95
Industrialized	12	20	77
<u>Total</u>	63	143	571

- Notes
- (1) CIAT "subscribers" excluded (66).
 - (2) Cards in Spanish for Latin America, in English for all other regions.

The distribution shows a genuinely international spread across 63 countries, with a concentration of subscribers in the Latin American region, probably due to the location of the CIC at CIAT. Excluding CIAT "subscribers," there are 138 in Colombia, as opposed to 78 in Brazil, although Brazil produces about one-third of the world's cassava compared to Colombia's 2 percent. Of course, distribution of production is not a good criterion on which to assess distribution of research information; the location of research effort would be better. As indicated earlier, the CIC has prepared a Directory of Cassava Workers and CIAT scientists make continuous efforts to find out where cassava research is being conducted. There is a close relationship between the scientists and the CIC, which allows a good exchange of such information.

Penetration

The obvious evaluation question relates to penetration, which compares the number of actual users of the CIC information to the number of potential users. This has proved difficult to assess independently, since only the CIC and CIAT can provide their best estimate of potential users. Also, actual users do not coincide with the names on the CIC distribution lists, since many cassava workers are indirect users, having access to CIC products through an institution or a colleague. The same applies to "searchers," very few of whom are on the mailing lists. In the replies to the searcher questionnaire, an average of 6 other people shared the information provided by the CIC. The calculation is further complicated by the fact that the CIC does not have one common distribution list. There are several: for example, the newsletter is given a much wider distribution (free) than the abstract cards. Thus, through the newsletter, a much wider audience is made aware of the work of others, and of the existence of more specialized CIC products.

Although the Directory of Cassava Workers covers 63 countries, there are 11 countries in which cassava is actually or potentially important which do not appear on the 1981 mailing list (although a further 11 have been added subsequent to the publication of the directory). Therefore, in terms of geographical distribution, penetration could be said to be about 85% ($63/74 \times 100$).

The interview letters provided some information on penetration in that more than half the respondents declared themselves to be in category 'C', i.e. indirect users. From their replies and from discussions with cassava scientists, it can be conservatively, and confidently, stated that on average the abstract cards and cumulative volumes sent to individuals are seen by at least two other people. The "multiplier effect" on the same product sent to institutions is considerably higher: say at least 4. Applying these figures to current circulation levels gives an estimate of actual users in the 63 countries currently covered of at least 2,000.

The lists of individual workers in those countries available in the Directory of Cassava Workers and from other sources in CIAT, do not sum to more than 2,000 potential users, even assuming there is no overlap in the lists. While these estimates are not good enough to support a claim of 100% penetration, it appears that this performance indicator is very high in those countries covered by current mailing lists.

Both Ms. Brekelbaum's report and several respondents to the interview letters recommend that the Cassava Workers Directory should be updated. Cassava research is receiving increasing attention globally and the number of interested workers is growing. If the data were put on computer, updating and modification would be greatly facilitated. Original plans were to add a section on institutions and universities. There is also scope for including information in the private sector, e.g. firms manufacturing equipment for pellets, starch processing, and so on. Only by having the

- best possible information on potential users can the CIC maintain what appears to be a high level of penetration.

Coverage refers to the extent to which the CIC covers the specialist field of cassava. One question in the interview letter sought user views on this:

"How well do you think the CIC does in fact cover the field? Are you aware of work going on that has not been mentioned in the abstract cards or newsletter . . . ?"

16 out of the 27 non-CIAT respondents addressed this question specifically and unanimously gave a high rating. (As mentioned above, the greatest concern was with the need to update the Cassava Workers Directory.) CIAT scientists, particularly those who travel extensively, are probably better placed to be aware of current work globally. They are also perhaps inclined to be more critical of another part of CIAT than outside users of the CIC. However, the half dozen who replied were generally impressed by the coverage. The recent translation of work done in Thailand, which brought out a wealth of information, was specifically commended. Some CIAT workers have identified gaps, or "late arrivals" to the CIC system, but these appear to be the exception. The maintenance of a close working relationship between the CIAT scientists and the cassava documentalist, and the regular publication of the newsletter are probably the two most important ways of achieving a good and timely coverage.

While reviewing a file of 40 requests for information that came in during 1980, it was found that only one of them came from a person already on the CIC mailing lists. The remainder were new names, and there were 6 requests from countries that are not on the current CIC lists. Somewhat tentatively this could be interpreted as meaning that the CIC coverage to subscribers is sufficiently wide that they require no further information. From the CIC survey, although about half the respondents would prefer to receive only those abstract cards relating to their fields of interest, almost

all prefer to receive the annual volumes for all fields because of the comprehensive coverage they provide.

Speed

One element of speed, related to coverage, is the rate at which abstracts of published work are made available to users. The CIC attempts to keep ahead of the other secondary sources by sending out about ten sets of abstract cards per year. It uses several mechanisms to obtain timely information on published work:

- the CIAT library obtains most of the relevant primary journals;
- it obtains advance copies of articles whenever possible, e.g. from an early awareness periodical service in the U.S.A.;
- it obtains printouts from various overseas commercial or semi-commercial data bases, e.g. the Royal Tropical Institute in Amsterdam.

As far as work in progress is concerned, the contacts fostered by travelling CIAT scientists, visitors to CIAT, and the newsletter, provide the main mechanisms.

Speed of response to requests for information is not as relevant to the CIC, since it only receives about 70 enquiries per year. Analysis of 40 such requests for 1980 shows an average of 30 days between the date of mailing by the "searcher" and the date of mailing the response by the CIC. The range is from three days (within Colombia) to 130 days (Brazil). In the latter case, the request was in the mail for 125 days, and the CIC took 5 days to reply.

On the speed of reply, the average level of satisfaction expressed by respondents to the searcher questionnaire (1 = low, 5 = high) was 4.3

from 15 replies, with a range from 3 to 5. The average level of satisfaction with the content was also 4.3, with a similar range.

In general, the simple mechanical system used by the CIC enables very rapid searches of the accumulated 4,500 or so references to be made such that information on quite narrow or general topics can be made quickly available. It is also evident that this facility is used by the CIC staff to its best advantage, and most delays in response are due to the postal system.

User Effort

User effort, or user friendliness, is a criterion usually more relevant to conventional information retrieval systems (e.g. libraries)*. However, it is apparent from the replies to the interview letters and the CIC survey that what most users appreciate is being relieved of the frustration of searching inappropriately catalogued indexes and inadequately stocked shelves for material relevant to their work. Somebody else does this on behalf of all cassava workers. This quote from a Brazilian researcher is representative:

"If the CIC ceased to exist, it would be the same as if, allow me the comparison, a rich man became poor: we would work more to get less." (translated from Portuguese)

User Preferences

Given the load on the staff of the Documentation Services Unit and the stage of maturity of the CIC, it is appropriate to examine the relative value of the various products and services. Both the CIC survey and the interview letters attempted to gather information of the users' views.

* Similarly, other conventional criteria such as "recall" and "precision" are not considered relevant to the CIC operation.

The CIC survey asked users to mark the relative usefulness of four main products, with the following results:

	<u>Very much</u>	<u>Somewhat</u>	<u>Little</u>	<u>None</u>
	- - - - -	Percent	- - - - -	- - - - -
Abstract cards	72	25	2	1
Cumulative volumes	74	23	2	0
Manuals	72	25	2	1
Newsletter	49	41	10	-

Note At the time of the survey, subscribers had received 3 cumulative volumes, one manual (on the production of planting material), and two newsletters.

From this, there appears to be a preference for the cards and cumulative volumes over the newsletter. However, this may be related to the greater academic orientation of those who replied, 63 percent of whom had post-graduate degrees. This is probably a higher proportion than pertains in the total user population that receives the more widely circulated newsletter.

Some supplementary information on this aspect is contained in replies to question 2 of the interview letter:

"What are the particular aspects of the CIC you value which are not provided by other information services?"

18 of the 27 non-CIAT replies addressed this question. Their replies are summarized as follows:

5 appreciated the world-wide coverage that gives them the feeling of being part of an international community working on common problems.

- 12 mentioned specifically the abstracting service; either the speed and regularity of the cards and their ease of sorting, and/or the comprehensive nature of the annual volumes.
- 3 mentioned the newsletter, especially the person-to-person communication that it fosters.

Other aspects covered were the photocopy service; the monographs; the translation of work reported in other languages; and the coverage of work mentioned in the more "obscure" journals and in reports of research centres and government departments.

The most significant choice, if one has to be made, lies between the abstract cards and the cumulative volumes of abstracts. Both of these are expensive items in terms of mailing, printing and staff resources used in production. They both contain the same material. However, the cards are used as a current awareness service, to be scanned quickly as they come in about once a month; the cumulative volume is much more a historical reference item for the shelf. Understandably, most users would like to receive both.

The option of only sending out those abstract cards that relate to each user's area(s) of interest is not practical. It is felt that it would cost more in extra sorting than would be saved in printing and mailing.

If the cards were kept, and the volume dropped, a valuable complete record would be lost although with computer mechanization and improved telecommunications, it becomes less necessary for each worker to have the "memory" in paper form on the desk. Perhaps some printing and mailing costs could be saved and/or covered by confining the volume to institutional, rather than individual bookshelves, and charging cost to any individual who wishes his or her own copy. Partial support for this option is provided by the CIC survey, in which 84 percent of respondents said that they kept the cards even after receiving

the cumulative volume that contained them. This proportion could probably be raised if it was known that the volumes were no longer to be available on an individual basis.

If the cards were dropped, and the volume kept, the benefit of regular and timely awareness would be lost, for a marginal saving of possibly US \$15,000 to \$20,000.

IV - ECONOMIC EVALUATION (Stage III)

This stage looks at the costs and benefits of the research process that the information system is serving.

Time Saved

Before looking at specific evidence, it is legitimate to consider the a priori case in terms of saving the scarcest resource in developing country research - time. Using time as opposed to dollars as the unit of account, and given the following:

- a widely scattered research and development community throughout the tropical world and elsewhere;
- a considerable scope for general applicability or relevance of the research work being done;
- a specific, previously neglected field that donors and governments are turning a lot of attention to;
- a field that is not endowed with its own particular journal(s) but on which the literature is dispersed in hundreds of different sources;
- a crop that directly affects the food needs of about 300 million people and has considerable economic development potential;

it would seem important to minimize the time that the research and development personnel have to spend looking for information, and maximize the time they spend using it. This can be done by having a few people do all the searching, summarizing, translating and classifying on behalf of the whole community. If this can be done by six people to serve, say, 1,000 users, this is equivalent to investing an average of 12 hours per year per user: less than 15 minutes per week. Such an investment is likely to be worthwhile even if the information that is provided is no better than the user could have obtained by other means. To the extent that it is more comprehensive, more easily sorted and assimilable, extra benefits accrue.

Actual users of the CIC are estimated at 2,000, served by the equivalent of 7 person-years, or about 7 hours per user per year (c. 8 minutes per week). As the evidence presented below indicates, the time saved per user is probably considerably greater than that.

Question 3 of the interview letter asked:

"If the CIC did not exist, how much time and effort would you have to spend to obtain the same state of knowledge that it now provides you? Can you estimate the cost of that extra time and effort?"

Twenty-one out of 33 respondents addressed the question, but the majority found it difficult to be specific, merely stating in general terms that the savings were considerable but impossible to quantify.

Some respondents gave estimates in units of time:

- 60% more effort would be required
- 2 to 3 times as much time would be spent (three replies)
- 10 days per year, plus postal and photocopy costs
- 2 weeks per year saved.

Two replies attempted to give money values: they estimated the equivalent of Can. \$115 per week (Latin America) and \$16 per week (Africa). The lower of the two figures is \$800 per year, compared to the CIC cost per user of about \$40 per year.

Finally, the following quotations serve to illustrate the overall tone of the responses.

"It is difficult to estimate the cost of the extra time and effort it would have taken to get the same information if CIC did not exist. Experience has shown me that it can be very frustrating in trying to get information on any subject in the not so good libraries and library services existing in most developing countries. Even in good libraries

it still takes considerable amount of time in going through the various abstracting journals to get information. All this time, effort and frustration has been eliminated by the CIC."

(African researcher)

"It is very difficult to evaluate the additional time and effort saved by the services received; about three times or more of the time spent in using the (CIC) services."

(Latin American researcher)

"I think it is difficult to evaluate cost and time, because if the CIC did not exist, we would be 'wearing diapers.' . . . I would not have the knowledge that I have in cassava, and as for its cost, I dare not think of it."

(CIAT scientist)

Avoiding Duplication

One of the potential benefits of comprehensive and timely information is the avoidance of duplication, and the more precise or productive focussing of work: in general increasing research benefits by learning from others' experience. A central aim of the interview letter was to locate "gold nuggets". i.e. specific examples of costs saved by avoiding doing a piece of work that would otherwise have been done unnecessarily, (question 5, Appendix 3). Unfortunately the majority of the replies only recorded general agreement that duplication was avoided, without detailing specific cases. The following responses are typical.

"In relation to ... avoiding unnecessary research, I admit that we do not keep count. Of course it often happens that the reading of these publications produces a certain chain reaction, and that it sometimes gives a new direction or induces the collection of more data on experiments already done, with real benefits for the research program as a whole."

(Latin America)

"In future we intend to keep germ plasm in the laboratory. Just now this costs about \$4,000."

(Latin America)

"It is perhaps fortunate that the programme for the accelerated production of cassava in (my country) was launched at a time which more or less coincides with the publication of many of CIC's works, abstracts and newsletters. Such a coincidence has indeed saved a developing country such as our considerable resources, both human and financial."

(Caribbean)

"One of our main research interests is in cassava drying and processing for animal feed. CIC's information on this subject is being fully researched before proceeding with purchases of machinery and equipment. It is difficult to put a precise figure on CIC's services in this regard, but it is undoubtedly substantial."

(Pacific region)

"Yes, in regards to starch development work, I can better plan my work and avoid duplication of effort and fill in gaps where appropriate."

(USA)

Discussions with cassava scientists revealed the following "nuggets," albeit unquantified:

"Through the newsletter I heard of some interesting work on cassava growth in the extreme tropics of Queensland, Australia. As a result . . . I shelved plans for some very expensive trials. . ."

"Although CIAT has done few trials on stake position, a search of the literature allowed us to recommend vertical or inclined planting without a large number of new trials."

A Cuban researcher found reference to work in the newsletter that indicated less bacteria in the lower part of cassava stems. As a result it is now recommended practice in Cuba that planting material is selected from this part of the plant.

Although the results of the interview letter were disappointing, a strong impression was given that the consumers of the CIC services are nearly unanimously agreed that they, and the research process to which they are contributing, derive substantial benefits from the CIC through time savings, avoidance of duplication and more focussed research.

Contribution to Research Benefits

The final part of the interview letter asked respondents to think about the expected benefits of their work, and the importance of the CIC to the achievement of those benefits.

This is the most difficult and ambitious area of the evaluation framework and is regrettably the area where the replies were weakest and where this report has least to offer. In the absence of any analysis of the economic and social impact of cassava research over the last decade, it is impossible to point to any links with the CIC effort. It was concluded that the costs of obtaining meaningful information in this area would probably exceed the value in terms of being able to make a better judgement about the economics of the CIC.

V - CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. The operational evaluation indicated that, apart from some delays, both phases of the original project achieved the stated goals. Perhaps more important, the Cassava Information Centre is continuing as an integral part of CIAT's activities, funded out of its core budget. As the cassava research and development effort evolves, the CIC should be able to adapt its products and services to ensure that information needs continue to be met in the most efficient and effective way. Some of the products and services will need to be modified, some phased out and others initiated. Such decisions require much better information on the relative costs and benefits of each of the CIC products than either the evaluation or the current system of management records and accounts is able to provide.
2. The user evaluation does indicate generally high standards of geographical distribution, penetration, coverage, speed of service and user comfort. Also, although not extensive, the evidence available for the economic evaluation allows the following conclusion to be reached with some confidence: that in terms of time saved per cassava worker and cost per user, the benefits from the CIC services exceed the costs. The investment of CIC time is in the order of seven hours per user per year, and the time saved per user appears to be considerably higher. The dollar investment is approximately Can. \$40 per user per year, which must be compared with the value of time saved, the better informed state that the CIC provides over other means, the avoidance of duplication, and the more productive focus of research and development work. In short, the economic question can be answered positively: the value of the benefits from the CIC exceed its costs. There remain: (a) the management question of ensuring that the nature, scope and distribution of services optimize the benefits;

and (b) the financial question of achieving that balance of financial contributions from the international donor group and the users which ensures that the benefits are fully realized.

Recommendations

- A. It is recommended that the current system of management records and accounts of the CIC (and perhaps also of the others SIC's in the Unit) is examined with a view to providing more immediate monitoring data to support management decisions. Such decisions could include changing the scope and nature of a product or service, or assessing whether to introduce an innovation, e.g. using microfiche to supply documents to national research centres.

For a minimal extra cost, it is suggested that data could be collected routinely which would allow certain simple efficiency criteria to be estimated and monitored. Following the proposition that time is the scarcest resource, such criteria could include:

total person-years used in the CIC	÷	total number of users
hours of labour per newsletter	÷	number distributed
hours of labour per set of abstract cards	÷	number distributed
hours of labour per cumulative volume	÷	number distributed

These indicators could be supplemented by information on the major direct costs of each product, such as printing, materials, postage, etc. Thus the total cost per item distributed could be monitored, although for purposes of comparisons over time and with other SIC's, time used per item is probably more valid.

- B. It is recommended that the Cassava Workers Directory, being the best estimate of the total potential population of CIC users, is updated as soon as possible and compared with current distribution lists to ensure that penetration is optimized.

- C. It is recommended that the charging and financing system is reviewed so that those facing severe financial or foreign exchange constraints continue to have access to the service and those who are able to pay do so. Consideration might be given to a system of discriminatory charging by country, such as is operated by the Asian Institute of Technology, whereby industrial country subscribers pay full cost and are encouraged to donate more.

Note: At the time of writing, the results of a review of CIC charges are pending.

QUESTIONNAIRE FOR CIC SURVEY (1979)

SURVEY OF CASSAVA INFORMATION CENTER SUBSCRIBERS

Name _____

Institution where you work _____

Country _____ Profession _____

Highest degree: (Mark only one)

Agricultural technician _____

B.S. (Agr. Eng. or other) _____

M.S. _____

Ph.D. _____

Other (please specify) _____

Type of work:

% of time dedicated

Research _____

Teaching _____

Administrative _____

Other (please specify) _____

Does your institution have an established research program on cassava?

Yes _____ No _____

What percentage of your working time do you dedicate exclusively to aspects related directly to cassava?

Abstract cards

1. The following areas are covered by the cassava abstracting service. On which one(s) do you require the most information for your work? (Mark the 5 most important areas in descending order of importance, no. 1 being the most important, no. 2 the next, and so on).

A00 Botany, taxonomy & geographical distribution	_____	G01 Breeding, germplasm, varieties & clones, selection	_____
B00 Plant anatomy & morphology	_____	G02 Cytogenetics	_____
C01 Plant development	_____	H01 Cassava foods & nutritive value	_____
C02 Cyanogenesis	_____	H02 Nutritive disorders in humans	_____
C03 Chemical composition, methodology & analyses	_____	H03 Animal feeding	_____
D01 Soils, water, climate & fertilization	_____	H04 HCN toxicity & detoxification	_____
D02 Cultural practices	_____	I01 Cassava starch & its properties	_____
D03 Productivity & yields	_____	I02 Uses, industrialization, processing & storage	_____
E02 Bacterioses	_____	I03 Industrial microbiology	_____
E03 Mycoses	_____	J00 Economics & development	_____
E04 Viroses	_____	K01 Rotational schemes & intercropping	_____
E05 Mycoplasmal diseases	_____		
E06 Nematodes	_____		
F00 Entomology & pest control	_____		

- 2a. What percentage of the abstract cards you have received correspond to your areas(s) of interest?

- 2b. What percentage has been useful in your work?

3. What do you do with the cards immediately after you receive them?
(Mark the best alternative with an X).

Read and/or look them over _____

Discard them _____

Do not receive them _____

4. After reading or checking the abstract cards, you: (Mark the most appropriate alternative(s) with an X).

Circulate them among your colleagues _____ Throw them away _____

Classify them by categories _____ File them in numerical order _____

Classify them by authors _____ Other (please specify) _____

- 5a. What percentage of the cards have motivated you to get the whole article and read it?

- 5b. What percentage of the abstract cards served as your primary source, making it unnecessary to obtain the complete article?

Abstract volumes

6. Have you received or used any annual cumulative volume of abstracts?

Yes _____ No _____

7. Have you consulted the author and/or subject index included at the end of these volumes?

Yes _____ No _____

8. After receiving the cumulative volume of abstracts, what do you do with the cards corresponding to that same year?

Continue to save them _____ Throw them away _____

9. Would you rather receive volumes on specific categories (i.e., A00, B00, C00, D00, E00, etc.) instead of the complete cumulative volume?

Yes _____ No _____

Photocopies

10. When you are interested in an article from one of the abstract cards on cassava and you want a photocopy of it, from whom do you get it and how often?

	<u>Very often</u>	<u>Often</u>	<u>Not often</u>
Cassava Information Center - CIAT	_____	_____	_____
Other sources (please specify)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

11. In some countries it is difficult to obtain foreign currency (i.e., US dollars). To what extent is it a problem for you to pay in US dollars or Colombian pesos when requesting photocopies from the Center?

Very difficult _____ Not too difficult _____ No problem _____

Specialized searches and inquiries to the Information Center

- 12a. How many times have you requested specialized bibliographical searches directly from the Cassava Information Center?

_____ times

- 12b. How useful was it?

Very much so _____ Somewhat _____ Very little _____ Not at all _____

12c. When you have directed questions or consultations to the Cassava Information Center, have you been satisfied with the answer you received?

Yes _____

No _____ If not, why? _____

13a. How many times have you requested specialized bibliographical searches on cassava from information centers other than CIAT?

_____ times Name of the center _____

13b. How useful was it?

Very much so _____ Somewhat _____ Very little _____ Not at all _____

14. When you have a problem or question related to cassava that cannot be solved in your own institution, to what institution, information center or person do you go? (Write the first source of information in no. 1, the second source in no. 2 and so on).

1. _____

2. _____

3. _____

4. _____

General

15. Have you ever written an article, note, report or pamphlet on cassava for publication in any media? (journals, mimeographed, etc.)

Yes _____ No _____

If your answer is yes, please include the following information: full name of the author, title of the article, publishing source and no. of pages.

16. With reference to the previous question, have you sent your article or note to the CIAT Information Center?

Yes _____ No _____

17. The main obstacle we have encountered in the case of cassava is the recollection of material, which is so dispersed and of limited circulation. Would you be willing to send us material in exchange for photocopies of articles of your interest?

Yes _____ No _____

18. Do you feel that you should receive all the publications CIAT brings out on cassava (as is currently done) or only the publications related to your specific area of work or current interest?

All cassava publications _____

Publications related to your area of interest _____

19. In your opinion, what other services should the Cassava Information Center offer its subscribers?

20. Mark with an X how helpful each of the following services offered by the Information Center has been to you:

	<u>Very much</u>	<u>Somewhat</u>	<u>Little</u>	<u>Not at all</u>	<u>Not familiar with it</u>
- Abstract cards	_____	_____	_____	_____	_____
- Annual cumulative volumes	_____	_____	_____	_____	_____
- Monographs & manuals	_____	_____	_____	_____	_____
- Newsletter	_____	_____	_____	_____	_____

"SEARCHER" QUESTIONNAIRE

Dear

On

, you made an enquiry to CIAT concerning

On

, our Documentation Services Unit sent you a reply.

In order to ensure that the service we provide meets the needs of the users as closely as possible, it would very much appreciated if you could answer the following questions. Please return the completed form in the enclosed envelope as soon as possible, and at the latest by 30 April, 1981. Thank you. Your cooperation will help us greatly to serve you better.

1. What kind of activity was your enquiry intended to support?

Private business _____
 Public research _____
 University research _____
 - undergraduate _____
 - post graduate _____
 Other (please specify) _____

2. How much of your working time:

- was devoted to cassava at the time of the enquiry? _____ %
 - is now devoted to cassava? _____ %

3. Did you request or look for an answer to your question from any other sources?

Yes ☐ No ☐

4. If "yes", what were the sources? _____

5. What percentage of the information that you were seeking came from:

(a) CIAT _____ %
 (b) the sources stated in 4 above _____ %

100 %

6. Please indicate your level of satisfaction with the speed of our response (1 = low, 5 = high)

1	2	3	4	5
---	---	---	---	---

7. Please indicate your level of satisfaction with the content of response (1 = low, 5 = high)

1	2	3	4	5
---	---	---	---	---

8. How many other people have used the information that we provided?

9. How important to the purpose of your work was the information that we provided? (1 = low, 5 = high)

1	2	3	4	5
---	---	---	---	---

10. Regular subscribers to the Cassava Information Centre receive ten sets of abstracts cards per year, an annual cumulative volume of abstracts, newsletters (4 per year), and other special publications. The annual fee is US\$16.00. According to our records, you are not a subscriber.

Do you wish to become a subscriber?

Yes ☐ No ☐

If "no", could you please state your reasons:

11. We would be interested in receiving any formal or informal report on any cassava-related activity that you are or have been involved with. If you wished, this could be included in our newsletter and abstract cards for wider dissemination. In return, we will send a similar amount of any material (photocopies of articles) that you request.

"INTERVIEW LETTER"

Dear

Over the past eight years, IDRC (International Development Research Centre) has supported a number of "specialized information centres" (SIC's) in partnership with various agencies. Many of the SIC's are in special agricultural fields, and the first of them to be established was the Cassava Information Centre (CIC) at CIAT. The CIC is considered to be a model of how a specialized information service can be developed at a research centre of excellence to serve developing countries.

In order to maintain improvement in the service provided to those who need information about cassava, the CIC circulated a questionnaire in 1979 to those on the mailing list at that time. The response provided useful feedback to the management of CIC. Building on this information, CIAT and IDRC would like to go a stage further and try to obtain some estimates of the value of the information provided by the CIC, particularly in terms of the contribution to the research and development process. We feel this might best be done by giving a few selected cassava workers the opportunity to express their considered judgement freely, rather than by trying to force replies to perhaps inappropriate questions into small boxes in a questionnaire.

Recipients of this letter have been identified by members of the cassava team at CIAT as people whose work completely or significantly involves cassava, and who are users of the CIC at CIAT, either directly or indirectly. For the purpose of this "interview letter", we are considering three categories of user:

- A - paid-up subscribers, who regularly receive the abstract cards, annual cumulative volumes and newsletter.
- B - past subscribers.
- C - users who have indirect access to the above services through a colleague or a library.

We have identified you as being in category _____. Would you please confirm whether or not this is correct. If you are in "B" or "C", we would appreciate your comments on problems of paying the subscription, the adequacy of being an "indirect" user, and any other issues you wish to raise.

The following are some examples of the various kinds of benefits of the information centre that could be considered, but we offer them to you more as a stimulus to your thoughts than as requiring specific responses. (Our suggestions are numbered, however, and it would help us greatly if you made reference to the numbers in your reply, where relevant).

Example: One way to assess the value of something is to imagine what the working situation would be like without it. Some clue can sometimes be obtained by remembering what life was like before it was in place. A few questions that come to mind are:

- 1) Can you recall how you kept yourself informed about cassava before the CIC, and do you think that you are now better informed because of it?
- 2) What are the particular aspects of the CIC that you value which are not provided by other information services?
- 3) If the CIC did not exist, how much extra time and effort would you have to spend to obtain the same state of knowledge that it now provides you? Can you estimate the cost of that extra time and effort?

Example: Receiving up to date information about what everybody else is doing in the same special field should enable workers to avoid unnecessary duplication, to identify gaps in existing knowledge, to focus their own work more precisely, to be inspired through cross-fertilization of ideas, and so on. Some relevant questions in this area are:

- 4) How well do you think the CIC does in fact "cover the field"? Are you aware of work going on that has not been mentioned in the abstract cards or newsletters, or of cassava workers who are not in the directory that CIC produced in 1978?
- 5) Can you think of a specific instance (or instances) when, by virtue of receiving timely information from the CIC, you avoided doing a piece of work that would otherwise have been done unnecessarily? If so, could you please give a short description and value the avoided action in money terms?

Example: Information only has a value in that it contributes to research (R) and development (D) ("development" in the broadest sense). R & D only have a value if they lead to increases in social and economic wellbeing. We fully realize that this is a difficult and nebulous area. One has to be careful about not attributing too much value to the information system, which is only one component of R & D. However, we would appreciate your comments under this heading, perhaps focussing on questions such as:

- 6) What are the expected benefits of the work you are doing, (with any specific examples that you can provide)?
- 7) How important are the CIC services to the achievement of those benefits?

We hope that you will use this opportunity to inform us frankly about your needs and to give us your assessment of what is useful and what is not. Please be assured that your reply will be treated in the strictest confidence.

Please return your reply in the enclosed envelope at your earliest convenience, and if possible not later than 30 April, 1981.

Yours sincerely,

INVENTORY OF CIC PRODUCTS 1975 - 1980Annual Cumulative Volumes

1975 - Vol. I	=	2000 Refs.	(English only)
1976 - Vol. II	=	837 Refs.	(English & Spanish)
1977 - Vol. III	=	444 Refs.	(English & Spanish)
1978 - Vol. IV	=	442 Refs.	(English & Spanish)
1979 - Vol. V	=	476 Refs.	(English & Spanish)
1980 - Vol. VI	=	590 Refs.	(English & Spanish)
1981 - Vol. VII	=	620 Refs.	(English & Spanish)

Monographs

- 1978 - Cassava pests and their control (English & Spanish) - Bellotti, A. and Schoonhoven, A. van.
- 1980 - Literature review of cassava mineral nutrition and fertilization (English & Spanish) - Howeler, R.A.
- 1980 - Agronomic practices for cassava production: literature review (English & Spanish) - Toro, J.A. and Atlee, C.B.

Manuals

- 1977 - Production of cassava planting material (English, Spanish & Portuguese)
Lozano, J.C., Toro, J.C., Castro, A. and Bellotti, A.

MAILING LIST FOR ABSTRACT CARDS (MARCH 1981)ENGLISH

<u>Country</u>	<u>Institutions</u>	<u>Individuals</u>
Australia	7	13
Asia (unspecified)		1
Belgium	1	2
Canada		7
Caroline Island		1
China	1	3
England	2	7
France		2
Germany	2	4
Ghana		1
Holland	1	4
India	4	6
Indonesia	1	10
Italy	1	
Japan	1	3
Kenya		3
Malaysia	1	12
Mozambique		1
New Guinea	2	1
Nigeria	2	15
New Hebrides		1
Oceania		1
Philippines	6	14
Scotland		1
Sierra Leone	1	1
Singapore	1	3
South Africa	2	13
Sri Lanka	2	3
Surinam		2
Swaziland	1	
Sweden	1	
Tanzania		5
Thailand	3	37
Uganda	3	
United States	5	34
Zambia	1	2
Zimbabwe	—	1
Total	52	214

SPANISH

<u>Country</u>	<u>Institutions</u>	<u>Individuals</u>
Argentina	3	
Bahamas	1	
Barbados	1	
Bolivia	11	
Brazil	10	68
Colombia	20	118
Costa Rica	3	10
Cuba	2	5
Chile	2	
Dominican Rep.	2	8
Ecuador	8	14
El Salvador	1	4
Granada	1	
Guatemala	2	8
Guyana	1	2
Haiti		4
Honduras	1	2
Jamaica		2
Mexico	7	22
Nicaragua	1	3
Panama	3	10
Paraguay	1	14
Peru	1	14
Puerto Rico		3
Trinidad & Tobago	2	3
Venezuela	7	43
Total	91	357
CIAT - English		15
CIAT - Spanish		51
TOTAL	143	637