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Impact of CGIAR
Training in the Developing World:
Bangladesh, a Case Study

C.A. Meisner
October 1997



CIMMYT

*Sustainable
Maize and Wheat
Systems for the Poor*

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¹ Craig A. Meisner is an agronomist with the International Maize and Wheat Improvement Center (CIMMYT). He is stationed in Bangladesh, P.O. Box 6059, Gulshan Dhaka-1212, Bangladesh.

CIMMYT is an internationally funded, nonprofit scientific research and training organization. Headquartered in Mexico, the Center works with agricultural research institutions worldwide to improve the productivity and sustainability of maize and wheat systems for farmers in developing countries. It is one of 16 similar centers supported by the Consultative Group on International Agricultural Research (CGIAR). The CGIAR comprises over 50 partner countries, international and regional organizations, and private foundations. It is co-sponsored by the Food and Agriculture Organization (FAO) of the United Nations, the International Bank for Reconstruction and Development (World Bank), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP).

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Preface

A fundamental aspect of the centers that make up the Consultative Group on International Agricultural Research (CGIAR) is that they are training institutions. The main focus of their training activities are researchers working for national agricultural research systems (NARSs) in developing countries. In training these scientists, CGIAR centers contribute to improving NARS research capabilities and assist them in their efforts to develop improved crop technologies and deliver them to poor farmers. This ultimately contributes to increasing cereal production in the developing world.

The great potential of training courses provided by CGIAR centers in general, and CIMMYT in particular, makes it necessary to ensure that the courses are meeting the goal of instructing NARS researchers in areas that are relevant to their work and their institutions. For this reason, in 1995 a survey was conducted among Bangladeshi researchers who attended training courses at CIMMYT and at the International Rice Research Institute (IRRI), another CGIAR center active in Bangladesh, between 1968 and 1994. This brief but important document reports on the results of this survey and attempts to interpret the perceptions of survey respondents.

By conveying the opinions and specific recommendations of former trainees vis-à-vis important aspects of CIMMYT's training courses over more than 25 years, this report provides valuable feedback that will be taken into account in our constant efforts to better target and design the courses we offer. We are confident that in so doing, we will improve a critical aspect of our collaboration not only with Bangladesh, but with other countries in the developing world as well.

Sanjaya Rajaram
Director/Distinguished Scientist
CIMMYT Wheat Program

Abstract

Two centers belonging to the Consultative Group on International Agricultural Research (CGIAR)—CIMMYT and the International Rice Research Institute (IRRI)—have assisted research efforts at the Bangladesh Agriculture Research Institute and the Bangladesh Rice Research Institute for more than 25 years. Some of this assistance has involved sending Bangladeshi scientists abroad for training at either CIMMYT in Mexico or IRRI in the Philippines. After so many years and so many scientists' attendance at these courses, questions naturally arise as to how useful and relevant the training is and how much it has impacted the participants' professional development, the research capabilities of their respective research institutions, and national cereal production. In an attempt to provide an answer to these questions, in 1995 a survey was conducted among Bangladeshi scientists who attended courses at CIMMYT and IRRI between 1968 and 1994. A questionnaire focusing on aspects such as the relevance and applicability of the course content was sent to more than 100 former trainees. A majority of them filled out and returned the questionnaire. This paper attempts to interpret the respondents' perceptions of the training they received and the effect it has had on them and their institutions over the years. Their responses suggest that CGIAR training has had significant positive impacts on Bangladeshi research institutions and, through them, on national cereal production.

Impact of CGIAR Training in the Developing World: Bangladesh, a Case Study

C.A. Meisner

Introduction

Since Bangladesh became a nation in 1972, kindling its development has depended on foreign assistance of various kinds. Some of that assistance has been through the support of agricultural research institutions such as those belonging to the Consultative Group on International Agriculture Research (CGIAR). The CGIAR has 16 international centers throughout the world. Two of these centers, in particular, the International Maize and Wheat Improvement Center (CIMMYT) and the International Rice Research Institute (IRRI), have given a great deal of support to Bangladesh, some of it through scholarships and grants to attend various short courses at their international headquarters. These two centers have focused a great deal of effort on the human development of the scientists of two institutions in Bangladesh, namely, the Bangladesh Agriculture Research Institute (BARI) and the Bangladesh Rice Research Institute (BRRI). Both CIMMYT and IRRI offer (or have offered in the past) short courses addressing crop and/or genetic improvement, agricultural machinery design, and farm supervision, among other subjects.

What impact have CGIAR courses had on human, scientific, and institutional development over the years? Rice and wheat production has increased over the last few decades (Figure 1). However, whether those increases can be correlated to the training of scientists, genetic introductions/development, or agronomic technology development has yet to be seen. The general goal of CGIAR training is to make scientists more capable of handling all aspects of their national cereal improvement programs, including genetic improvement, agronomy, and management.

Few studies have tried to assess the impact of this training, though the CGIAR's international agricultural research centers have injected a tremendous amount of funds into it over many years. Davies (1991) included the training aspect in his attempt to summarize the work of the CGIAR centers, among other international organizations. Other reports (FAO, 1989; Anderson, 1988) have clearly indicated the need for training courses, but have not assessed their impact. One study (Pray et al., 1985) reported on the collaborative work of the CGIAR centers in Bangladesh until 1984. However, it did not attempt to survey course participants nor assess the impact of training in Bangladesh.

Given the unique nature of the involvement of two CGIAR centers in the human, scientific, and institutional development of Bangladesh during more than 25 years, this paper attempts to assess the impact of training by surveying the participants who attended such courses. This includes evaluating their perceptions of the training courses and the impact they have had on participants' work and institutions. Based on such an appraisal, CGIAR centers will be better able to assess or reassess their own training programs.

Materials and Methodology

In February 1995 a questionnaire was prepared and mailed to more than 100 scientists in Bangladesh who had participated in training courses at either IRRI or CIMMYT from 1968 to 1995. These scientists were taken from lists obtained by the IRRI and CIMMYT offices in Dhaka. Nineteen questions were formulated to elicit information that would make it possible to assess the impact of training on the participants and on their current scientific endeavors (Table 1).

Results and Discussion

Survey participants returned 61 questionnaires by May of 1995 to the Wheat Improvement Project Office in Dhaka, Bangladesh. As revealed by the 61 surveys returned, 24 former trainees were working at BARI, 34 at BRRI, and 3 at other institutions. Thirty-seven percent had received their training at CIMMYT, while 58% had attended courses at IRRI. Five percent had participated in training courses at both institutions.

In categorizing their current work, 61% of respondents considered that they worked solely as scientists, 21% rated their work as a mixture of administration and science, 11% were involved in administration or other nonscience activities, and the remainder was involved in technology transfer, teaching, or training. Yet all were still involved in agricultural research or development in some way. However, since only 61 out of 100 questionnaires were returned, it is possible respondents who did not return the form were no longer working in agriculture. When we further asked that respondents quantify the time they dedicated to science, administration, and other work activities, they estimated that on average 76% of their time was spent on science, 24% on administration, and 16% on other activities. However, when asked about their position at the time of training, 91% clearly considered themselves as active scientists, with only one professed administrator among the group attending any training course.

The average length of the courses attended was 5.6 months, but ranged from 1 to 27 months. Generally those who attended courses for 20-27 months obtained higher degrees from the University of Philippines at Los Baños, near IRRI. Many respondents had attended more than one course, with eleven going to two courses and four going to three courses. Participants had attended some CGIAR training course almost every year from 1968 to 1994 (Figure 2).

The course topics varied depending on the CGIAR center and the year. Most (30) of the participants attended rice production/technology courses, 11 wheat improvement/breeding, 7 rice improvement/breeding, and the remaining 13 studied wheat or maize improvement, agricultural engineering, or research station management (Table 2).

Each respondent was asked to quantify how much of what he/she learned during the training course he/she was able to implement upon returning to Bangladesh immediately after the training. The answers ranged from 0 to 100% but, on average, 61% of the training was felt to be useful in their work. Over the years, the percentage of training that they implemented in their work generally remained the same; however, some assessed the percent of training implemented had increased by 30%, while an equal number felt theirs had decreased by the same percent.

When asked specifically which training topics they found most helpful, the participants gave quite a range of answers. However, when we asked the participants which topic they found the least helpful, 54% stated that all topics discussed during training were somewhat helpful. Among the topics listed as less helpful were those that were least useful in Bangladesh, such as chemical weed control (labor is still cheaper), farm machinery (even now, there is very little mechanization), and crop modeling (computers are hard to find and, if found, difficult to maintain). Some mentioned that the menial field work they were required to do as part of their training was distasteful for a formal training program at an international institute.

When asked if they would go back for a refresher course, 80% of respondents stated they would. Overall, most of the participants felt the course was valuable to their current position within the institution (Figure 3). When further probed as to the value of the course in providing direct outputs for their institution, they gave the same courses high to medium value (Figure 4).

We asked whether participants knew of other institutions, besides the CGIAR centers, that offer courses comparable to the one they attended. Thirty-nine percent felt there were other institutions that offered similar courses, while the rest claimed there were no other institutions, either within Bangladesh or outside the CGIAR centers, where they could attend such courses. Of the 24 participants who listed such institutions, 50% claimed their own institution could and should offer similar courses. The remaining 50% listed institutions in Europe and Asia.

We raised the question of whether the CGIAR centers should offer more in-country training. Sixty percent felt there should be more in-country courses, but the others did not. Those who did not wish more in-country training specified reasons such as the lack of training facilities, a shortage of trained specialists, and limited access to information in Bangladesh, and the fact that overseas training offered the added incentive of foreign travel. Those who thought there should be more in-country training included a list of courses that could be taught; many are not currently offered by CGIAR centers, for example, computer and data analysis. Asked to list some of the differences between CGIAR-based and in-country courses, 18% felt there was no difference in value obtained between attending a course at a CGIAR center and an in-country course, except for the expenses.

Lastly, we asked all participants to rank course topics they thought would be most valuable in the future, i.e., that would enable Bangladesh agricultural research institutes to develop more sustainable and productive agricultural research systems. Table 3 lists the average ratings by rank. Overall, the participants perceived their training at the CGIAR centers to be valuable both to their work and to their institutions. The rating of future training topics provides a clear indication that they regard IRRI and CIMMYT as important sources of genetic material and that their opinion of the centers' training

courses on genetic improvement is quite high.¹ These ratings, coupled with the high value assigned to sustainability issues, water management, and the environment, suggest that CIMMYT should retool previous courses on crop management alone to cover natural resource management. While this term, natural resource management, is in 'vogue' in western circles, the notion fits the reality in much of South and Southeast Asia, since they, more than most areas of the world, are faced with populations that compete directly for natural resources.

While assessing the direct impact of training is difficult, the efforts of the CGIAR centers in Bangladesh over a period of 25 years have borne much fruit. The Bangladesh Rice Research Institute and the Bangladesh Agriculture Research Institute have released more than 25 rice varieties and over 16 wheat varieties, respectively. Currently 100% of all wheat and more than 50% of rice hectareage are sown to modern varieties. Production levels of both cereals have increased dramatically (Figure 1). Technology is available to the growers, though they have not adopted all of the technology due to economic constraints. However, the perception of the scientists who have trained at the CGIAR centers is clearly positive.

Additional benefits of CGIAR training are the exposure of national scientists to scientists from other countries who also participate in the training courses. As countries and economies open up and more emphasis is placed on "global perspectives," this knowledge of other agricultural scientists and their systems will probably become more valuable through time. Also, access to communication through fax and electronic mail allows greater exchanges among scientists all over the world. Contacts made at international centers' training courses will prove more valuable in the future.

¹ It is surprising that soil science and agronomy also received high ratings considering that both centers recently de-emphasized these topics.

Conclusions

Two CGIAR centers, CIMMYT and IRRI, have worked in Bangladesh for 25 years. The results of the survey of their training efforts reported in this paper show that regional scientists and their institutions perceive the training received as valuable. Evidence presented in this paper also suggests that CGIAR center training has had a positive effect on past, current, and, hopefully, future cereal production in Bangladesh (Figure 5).

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Table 1. Questions used to survey the trainees who attended training courses at CIMMYT and/or IRRI.

1 Full name (optional):	15 Considering the total input you and, through you, your institute may have received professionally from any particular CGIAR center training, how would you rate its training courses as output (circle the best answer): Of the lowest value Of a medium value Of the highest value
2 Institution and address of your current employment:	
3 Current designation:	
4 Current major type of work (circle best answer): a) Scientist b) Administrator c) Other (specify)	16 Do you know of any other institute either in Bangladesh or in other countries that offers courses comparable to the training you received at the CGIAR center(s)? Yes No If so, where?
5 Quantification of current type of work by percent of time: a) As a scientist _____% of time b) As an administrator _____% of time c) As other (as specified in question 4) _____% of time	17 Do you think CGIAR centers should offer more in-country training courses? (Circle best answer) Yes If so, which ones? No If not, why not?
6 Name, year, and duration of training course(s) attended at IRRI and/or CIMMYT: Course name(s): Location(s) (IRRI and/or CIMMYT): Year of course(s): Duration(s) in months:	18 If the same course that you took at the CGIAR center were offered for the same duration at your own institute by the same instructors, what would or would not be different from what you found valuable when taking the course overseas?
7 Your job designation at the time of course(s):	19 Please rank the course topics listed below in terms of which you think would be the most valuable in the future to enable Bangladesh agricultural research institutes to develop a more sustainable, productive agriculture research system. (Highest priority = 1; medium = 2; lowest = 3)
8 Major type of work at your job at the time of course(s): (Circle best answer) a) Scientist b) Administrator c) Other (specify)	Course topics
9 If you could quantify the amount of training you were able to implement in your work upon return to Bangladesh right after your training, what percentage would you assign?	Agricultural Engineering, Farm Machinery
10 Over the years, has the amount of training implemented in your work in Bangladesh: Increased by _____%? Decreased by _____%? Stayed the same as answer # 9	Agronomy
11 What major training item(s) or topics that you learned do you find the most useful to your current job? Please specify in detail.	Breeding
12 What major training item(s) or topics do you find the least useful to your current job? Please specify in detail.	Environmental Issues
13 If given the chance, would you like to return to the training course(s) for a refresher? If so, what topics would be of interest?	Gender Issues
14 Would you say that the training course(s) you received has (have) been: a) Very valuable to you in your current position b) Somewhat valuable to you in your current position c) Not very valuable to you in your current position d) Other (please specify)	Grain Storage & Quality
	Irrigation/Water Management
	Molecular Biology Techniques
	Pesticide Usage
	Post-Harvest Issues
	Soil Science
	Sustainable Agriculture Issues

Table 2. CGIAR training courses attended by the trainees.

Course Name	Participants (No.)	Course Name	Participants (No.)
Wheat Breeding	10	Multiple Cropping	2
Genetic Evaluation (Rice)	5	Cereal Technology	1
IPM	5	Irrigation	3
Rice Production	8	M.Sc. Degrees	6
Wheat Production	3	General Visiting Scientist	3
Research Station Management	3	Wheat Physiology	1
Rice Agricultural Machinery	2	Maize Production	1
Farm System Research	2	Others	6

Table 3. Ranking of topics deemed valuable in the future for Bangladesh agricultural research institutes to develop more sustainable, productive agricultural research systems.¹

Course topic	Ranking	Avg. rating
Breeding	1	1.36
Sustainable Agriculture Issues	2	1.48
Irrigation/Water Management	3	1.52
Agronomy	4	1.57
Soil Science	5	1.63
Environmental Issues	6	1.85
Molecular Biology Techniques	7	1.96
Grain Storage & Quality	8	1.96
Agricultural Engineering, Farm Machinery	9	2.04
Post-Harvest Issues	10	2.05
Pesticide Usage	11	2.06
Gender Issues	12	2.54

¹Highest priority = 1; medium = 2; lowest = 3.

Figure 1. Production of paddy rice and wheat over the past years (FAO data).

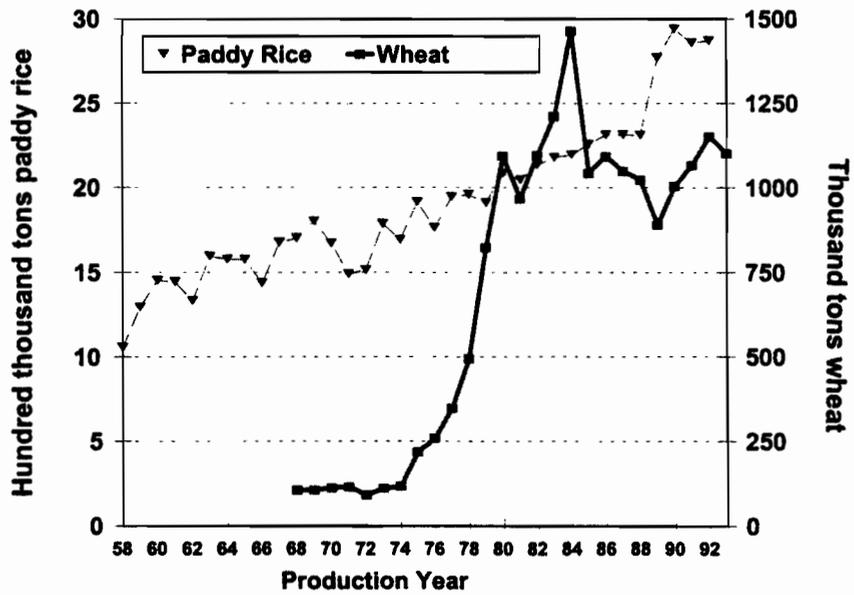


Figure 2. Number of a total of 61 trainees attending CGIAR courses each year between 1968 and 1994.

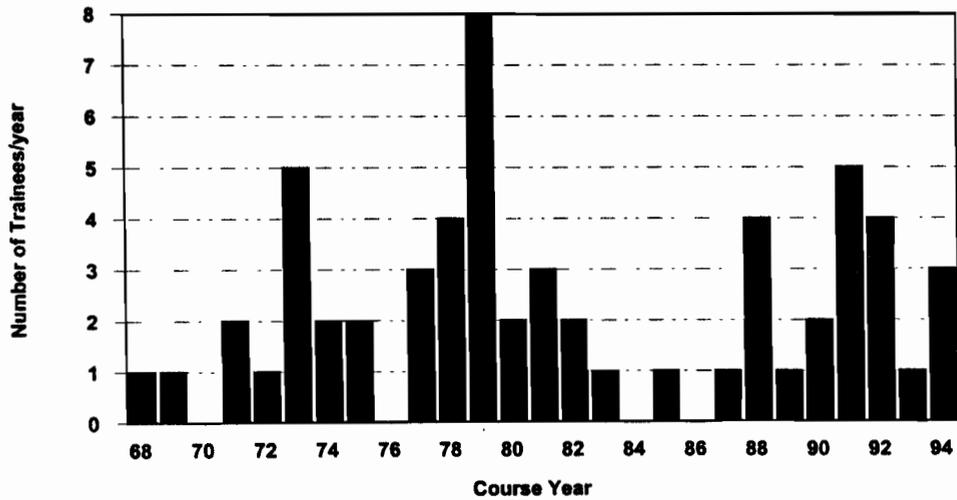


Figure 3. Overall rating of the value of CGIAR courses attended by trainees.

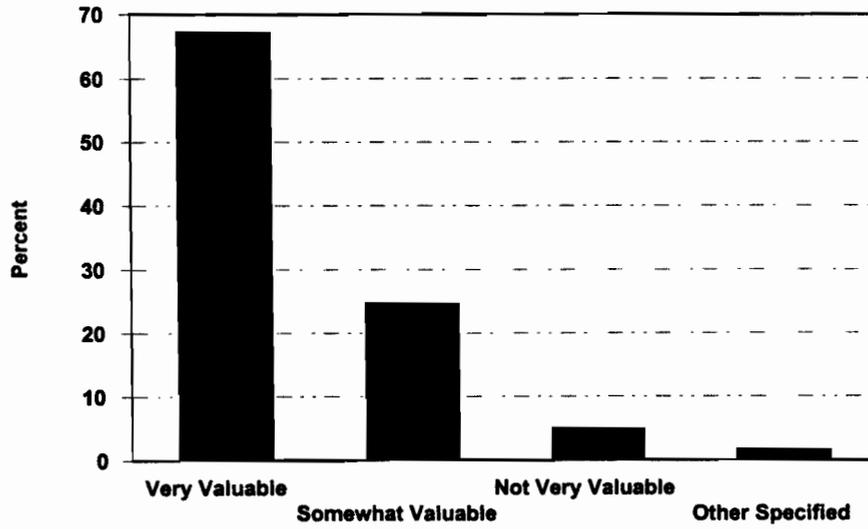


Figure 4. Rating of the value of CGIAR training to the participants' work at the national institution.

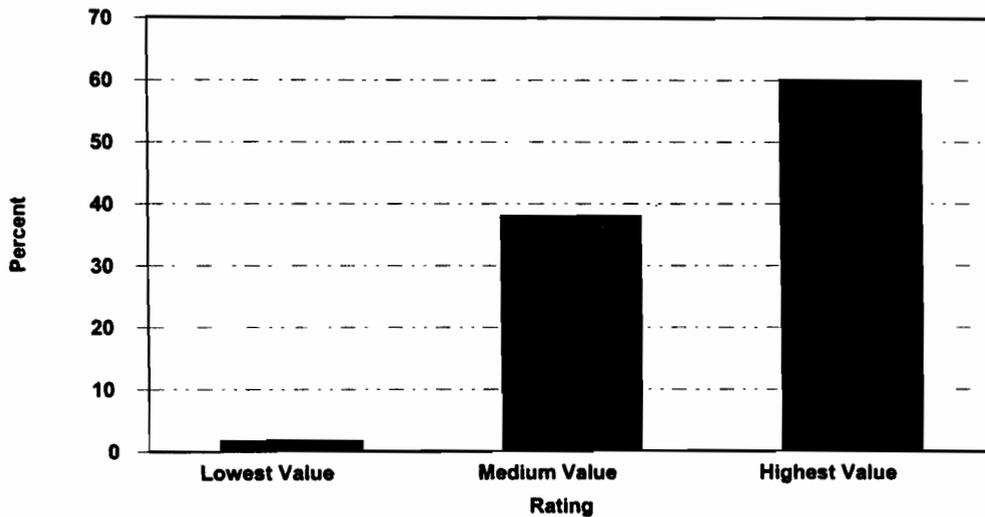
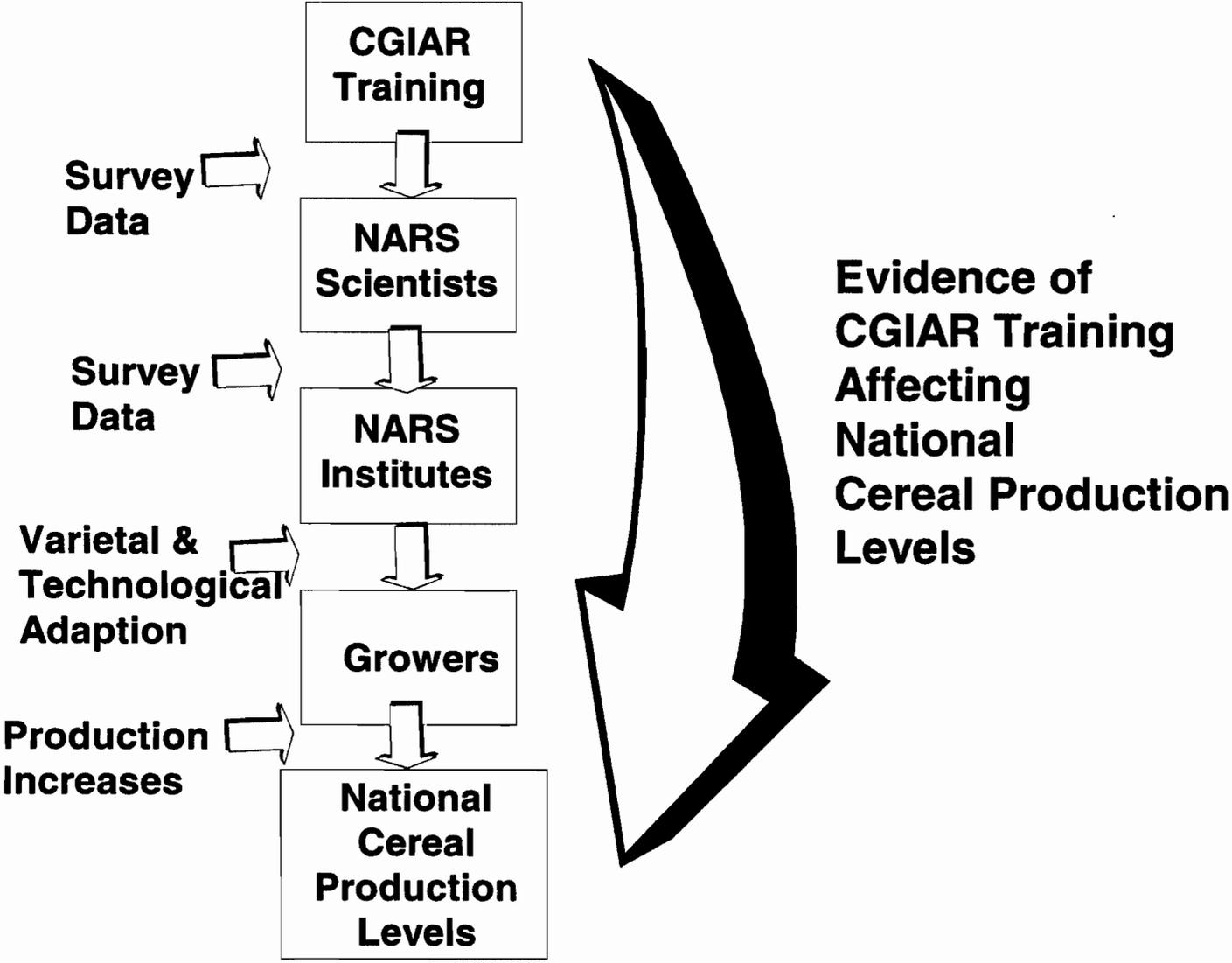


Figure 5. Model of the evidence that CGIAR training programs have affected the NARSs and their national cereal production levels.



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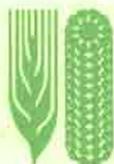
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International Maize and Wheat Improvement Center
Centro Internacional de Mejoramiento de Maíz y Trigo
Lisboa 27, Apartado Postal 6-641, 06600 México, D.F., México