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Fast Track Implementation Agreement

**Integrated Pest Management (IPM) Techniques
for Sustainability of Small Cotton Growers
in the Southern Cone of South America
with a Pilot Project for 400 Small Farmers
in Formosa, Argentina
(CFC/ICAC/36FT)**

Between

**The INTERNATIONAL COTTON ADVISORY COMMITTEE
1629 K Street NW Suite 702
Washington DC 20006, USA**

and

**The MINISTRY OF PRODUCTION
PROVINCE OF FORMOSA
Casa de Gobierno de la Provincia de Formosa, 6° Piso
Formosa, Argentina**

and

The COMMON FUND FOR COMMODITIES

29 March 2007

Fast Track Implementation Agreement
between
The INTERNATIONAL COTTON ADVISORY COMMITTEE
and
The MINISTRY OF PRODUCTION, PROVINCE OF FORMOSA
and
The COMMON FUND FOR COMMODITIES

for the implementation of the project

Integrated Pest Management (IPM) Techniques for Sustainability of Small Cotton Growers in the Southern Cone of South America with a Pilot Project for 400 Small Farmers in Formosa, Argentina
(CFC/ICAC/36FT)

1. The Common Fund for Commodities (CFC) has approved a grant contribution of up to USD 120,000 for the project entitled “*Integrated Pest Management (IPM) Techniques for Sustainability of Small Cotton Growers in the Southern Cone of South America with a Pilot Project for 400 Small Farmers in Formosa, Argentina*” (“the Project”) the description of which (in the Spanish language) is attached as Annex I hereto. CFC will provide this Grant on the basis of the terms and conditions set out in this Agreement.
2. The Project shall be implemented by the Ministry of Production, Province of Formosa (“the Ministry”) who will act as the Project’s Implementing Agency and assume overall responsibility for the implementation of the Project and for its operational and financial management. During project implementation, the Ministry will closely co-operate with parties indicated in the Project Description and may delegate/sub-contract activities to those and/or other parties as deemed required, thereby adhering to the procedures laid down in Schedule 1 to this Agreement. The Ministry shall duly consult with CFC and ICAC as appropriate. The activities to be undertaken under the Project are to be completed on or before 31 October 2008, or, as the case may be, such later date as CFC shall establish. CFC shall promptly notify ICAC and the Ministry of any such later date.
3. The Project and its budget is fully described in Annex I. The following is a summary of the costs and financing of the Project:

CFC (cash; up to)	USD 120,000
Ministry of Production (in kind by/through the Ministry)	USD 169,200
FULCPA * (in kind)	USD 80,000
Total	USD 369,200

* FULCPA = Fundación de Lucha Contra el Picudo Algodonero, a collaborating party in the project.

4. The amount of USD 120,000 is the maximum that CFC will make available for the Project. An amount of US\$ 20,000 for costs related to ICAC and CFC project supervision and monitoring and for Contingencies will be managed directly by CFC, leaving an amount of USD 100,000 to be managed by the Ministry for project implementation and management. All disbursements by CFC from the Grant will be made in accordance with and subject to the provisions of Schedule 1. The Common Fund will only finance activities in, and procurement from, CFC member countries. The

Ministry shall ensure that its committed counterpart contributions as well as those from other project parties will be made available in a timely and transparent manner.

5. Upon completion of the Project, the Ministry shall within one month submit to CFC a certified statement of incomes received and expenditures incurred. Advanced but unspent funds shall be immediately returned by the Ministry to CFC upon completion of the Project.
6. Project progress reports shall be prepared by the Ministry and submitted to the ICAC and CFC at four-monthly intervals, starting one month after the completion of the first four-month period, thereafter after completion of each subsequent four-month period. A Project Completion Report, reflecting the highlights of project implementation and its achievements, as well as major issues related to the management of the project shall be prepared by the Ministry. In order to enable end-of-project result assessment, the Ministry shall ensure that adequate base-line data will be collected early in the project implementation phase, to facilitate such end-of-project result assessment. The Project Completion Report shall be prepared and submitted to CFC and ICAC not later than one month after completion of the Project. Copyright on each report or project publication shall rest with the CFC.
7. ICAC shall supervise the implementation of the Project as set out in Schedule 2.
8. Any amendment to this Agreement shall be made in writing and carry the signature of each of the Parties.
9. This Agreement shall enter into force upon signature by the parties concerned.
10. In accordance with CFC regulations for implementation of Fast Track projects, the CFC reserves the right to suspend or cancel the Project in case of the terms and conditions of this Agreement not being adhered to.
11. Schedules 1 and 2 and Annex I constitute integral parts of this Agreement. In the case of any discrepancy between a Schedule, the Annex and this Agreement, the latter shall prevail.

Signed for the **COMMON FUND FOR COMMODITIES**:

.....
Amb. Ali Mchumo
Managing Director

Place

Date.....

Signed for the **INTERNATIONAL COTTON ADVISORY COMMITTEE:**

.....
Terry P. Townsend
Executive Director

Place

Date.....

Signed for the **MINISTRY OF PRODUCTION, PROVINCE OF FORMOSA:**

.....
Ing Luis Bastera
Minister of Production, Province of Formosa

Place

Date.....

SCHEDULE 1

Use of the Proceeds of the Grant Disbursements from the Grant

Section 1.01: The Ministry shall cause the proceeds of all disbursements from the Grant to be applied exclusively to the financing of Eligible Expenditures. Eligible Expenditures means expenditures reasonably incurred after the date of entry into force of this Agreement in the purchase of goods and services, which are to be financed from the proceeds of the Grant.

Section 1.02: The Ministry shall open and maintain a bank account or a ledger account (**the Project Account**), separate from the other accounts in the Ministry, to receive and administer the funds received from CFC for the implementation of the Project. Withdrawals from the Project Account shall be made exclusively for payment of Eligible Expenditures. If CFC shall have determined at any time that any amount deposited in the Project Account is not required to cover further payments for Eligible Expenditures, then the Ministry shall, upon notice from CFC, refund such amount to CFC.

Section 1.03: (a) Upon opening of the Project Account in accordance with Section 1.02, an amount of USD 70,000 shall be disbursed from the Grant and deposited into the Project Account for coverage of Eligible Expenditures, such on the basis of a request (using Form 100, Annex III of the Financial Procedures Manual) duly signed by the authorized representative of the Ministry.

(b) Upon completion of the project, or earlier if deemed required, the Ministry may request the balance of the earmarked amount to be disbursed. Such request shall be supported by (i) a certified statement of expenditure and related financial information, identifying all expenditures made under the Project since the first deposit, and (ii) such other documents or information as shall be required pursuant to reporting provisions notified to the Ministry by CFC. On the basis of such request CFC will disburse from the Grant and deposit into the Project Account such amount as shall have been justified by the evidence supporting such request in accordance with the above, always provided that (i) such amount shall not exceed the aggregate amount required for payment of Eligible Expenditures, and (ii) the aggregate amount to be disbursed by CFC from the Grant to the Ministry shall under no circumstances exceed USD 100,000.

Section 1.04: Appropriate documentation, including all original invoices and proof of payment, evidencing that all expenditures financed from the Grant were Eligible Expenditures, shall be retained by the Ministry in a manner which will allow easy retrieval and inspection, in accordance with paragraph 7 of this Agreement, if and when deemed required by CFC. If so requested by CFC, the at the time designated external auditors of the Ministry shall undertake a partial or full audit of the Project Account (as defined in Schedule 1, Section 1.02) in accordance with terms of reference determined by CFC in consultation with the Ministry. The costs of such external audits shall be met from the proceeds of the Grant or otherwise by CFC.

SCHEDULE 2

Project Supervision by ICAC

Section 2.01: ICAC shall supervise, in collaboration with CFC, the implementation of the Project. ICAC shall examine all information submitted to it by the Ministry with respect to the execution of the Project. It shall assess whether the actions undertaken, the expenditures made and the results achieved by the Ministry conform with the provisions of this Agreement and the Project Description. It shall also assess the continued relevance of the Project activities and the prospects for the successful implementation of the Project, including impacting on the target beneficiaries.

Section 2.02: If an accurate assessment of the aspects of the Project as referred to in Section 2.01 cannot be made on the basis of the information available, ICAC shall take such steps as may be necessary to obtain from the Ministry the information required.

Section 2.03: ICAC shall co-operate with CFC in all respects, so as to ensure the attainment of the objectives of the Project.

Annex I

Project Description (in the Spanish language)

Project Title:

“Integrated Pest Management (IPM) Techniques for Sustainability of Small Cotton Growers
in Southern Cone of South America with a Pilot Project for 400 Small Farmers
in Formosa, Argentina”
(CFC/ICAC/36FT)

29 March 2007

PROJECT SUMMARY (CFC/ICAC/36FT)

Project Title:

“Integrated Pest Management (IPM) Techniques for Sustainability of Small Cotton Growers in the Southern Cone of South America with a Pilot Project for 400 Small Farmers in Formosa, Argentina”

Project Execution Agency:

1. Ing. Luís Basterra
Minister of Production
Ministry of Production of Formosa Province
Tel/fax 54 3717 426465
Cell 54 3717 9619675
E-mail: lebaster1@infovia.com.ar
2. Foundation for the Fight against the Boll Weevil (FULCPA)
Ing. Jorge Vartparonian
President of FULCPA
Buenos Aires.
Telephones: 54-11-43128000 and 43144482
Fax: 54-11-45086425
E-mail: fulcpa@fibertel.com.ar
E-mail: jvartparonian@tipoiti.com

Participating Institutions:

1. Secretariat of Agriculture, Livestock, Fisheries, and Food of the Ministry of Production
2. National Under-Secretariat of Agriculture, Livestock and Forestry
3. SENASA (The National Agricultural Sanitary and Phytosanitary Service)
4. INTA (National Institute of Agricultural Technology);
5. PAIPPA (Comprehensive Action Program for Small Farmers)

Supporting Institutions:

1. Cotton Chamber of Argentina and Foundation for the Fight against the Boll Weevil (FULCPA)
2. SEVERAL PRIVATE COMPANIES and Growers' Associations.
3. MAF Agrarian Movement of Formosa
4. DEPROA (Defense of Agricultural Producers)
5. ARGENTINE AGRARIAN FEDERATION

Project Duration: 18 months

Starting date: March 1, 2007

Project Cost:	CFC grant:	US\$ 120,000	(32%)
	Counterpart contribution	US\$ 249,200	(68%)
	Total:	US\$ 369,200	

Integrated Pest Management (IPM) Techniques for Sustainability of Small Cotton Growers in the Southern Cone of South America with a Pilot Project for 400 Small Farmers in Formosa, Argentina

Background

Cotton is affected by a number of pests, including the boll weevil. Among all pests, the boll weevil is more difficult to control than others that attack the cotton boll. However, control is possible and the United States has carried out successful experiments to control the boll weevil with eradication programs that began in the eastern cotton belt of the United States and are still in the process of implementation in many states of the South and the Southeast. In Argentina, small cotton growers -- those working under three hectares -- will find it difficult to survive when the boll weevil arrives in the region. Originally, those growers were able to produce cotton with only occasional sprays.

The goal of this project is to demonstrate that cotton production can be made viable by lowering boll weevil infestation levels.

In some cases, such as Formosa Province in Argentina, boll weevil infestation can be held in check with the use of modified cotton boll weevil kill traps. The capture cylinders in the boll weevil kill traps may capture thousands of cotton boll weevils that are left all over the crop debris, a situation that may be improved by spraying. Cotton boll weevil traps must be set out following the destruction of the crop debris for a minimum of four months or as long as they continue to draw boll weevils from the surrounding area. Areas where the boll weevil rarely goes into diapause offer a window of opportunity to exterminate it by means of pheromone entrapment.

Project Area

The project will be carried out in Formosa Province, Argentina. Six areas were selected in the province. The 400 cotton growers chosen in these six areas will be supplied with an average of ten traps per hectare. Each small producer is expected to be planting an average of three hectares. To ensure that the seed being used for planting does not become a source of infestation, each small producer will be supplied with 25 kg/ha of certified seed and twenty cotton bags per hectare. Growers will also be supplied with fertilizer (urea) and certain insecticides to control the pink bollworm (*Pectinophora gossypiella*) (optional). These measures, along with the instructions of 6 extension workers, will allow the growers to increase their output by 500 kilograms of raw cotton per hectare. This yield increase could be used to offset the additional expenses that would be incurred in the event that the cotton boll weevil does turn up. The cotton harvest bags and the cotton thread used to sew them up will increase the value of their cotton because it will be free of polypropylene contamination. The traps will reduce the need for spraying, thus improving the environment and lowering the cost to SENASA, in as much as the state is responsible for destroying the pest in the cotton fields of the small growers.

Project Objective and Scope

Small cotton producers (under 3 ha.) in Argentina and Paraguay would not be able to withstand the advance of the boll weevil in the region. Brazil had to deal with similar circumstances in its SOUTHERN and SOUTHEASTERN regions and the small cotton farmers had to give up cotton production. Brazil had the option of inviting its small cotton growers to remove their crops to the country's Northern and

Northeastern regions (Mato Grosso, Bahia and Goias). The small cotton farmers of Formosa, Argentina, do not have the option of relocating to other production areas. They have to find a way to improve their integrated management practices to control the attack of the cotton boll weevil.

If the growers were organized in local groups they would derive economic benefit from the implementation of management recommendations: use of short-cycle varieties; inspection and destruction in the autumn of infested floral outbreaks left on the ground; limited use of insecticides (no more than 4 to 6 applications); destruction of crop debris at the end of the harvest. The actual proposal will incorporate these concepts into a Model Project in six areas in the province of Formosa, in northern Argentina, where they will also be using a new trap that works with pheromones. Six extension workers will assist some 400 small cotton farmers in the region. The level of cotton boll weevil entrapment, trap density and yield per hectare will be closely monitored so that the results may be implemented throughout the country and adapted to the growing conditions of Bolivia, Paraguay and Brazil. Close cooperation is expected with ABRAPA (Associação Brasileira de Produtores de Algodão), CADELPA (the Cotton Chamber of Paraguay) and ADEPA (the National Association of Cotton Growers) to implement a regional project of major importance.

There are some 25,000 growers in Argentina, 85,000 in Paraguay, and many thousands more in Brazil. All of them are faced with the serious threat of disappearance because of production costs surpassing revenues. If the Model Project is a success -- as it should be --, the provincial and national governments will be in a position to help those small growers.

The CFC/ICAC Project is a priority, as it will provide the funds with which to launch industrial production of the modified boll weevil traps. Small-scale tests are already under way in Argentina and they have succeeded in trapping thousands of boll weevils during the destruction of the crop debris in fields that were not sprayed. The modified traps to be used in the project will be known as "CFC Almirón Traps" (Hugo Almirón was the originator of the idea). The decision to develop these traps was partly due to the success of techniques employing pheromones in instruments used to attract cotton boll weevils as related by the researchers involved in Project 04, financed by CFC/ICAC, "Integrated Management of the Cotton Boll Weevil in Argentina, Brazil and Paraguay." In their conclusions, "devices to attract and capture" were mentioned as possible tools to be used to control the cotton boll weevil. The intention of this Model Project is to achieve that goal.

Justification

The urgency of this project lies in the great number of small cotton farmers in Argentina and other countries in the Southern Cone who are faced with a limited number of beneficial insects in this part of the world and high pest reproduction rates. In Parana, Brazil, there were 30,000 cotton growers just 20 years ago. Today there are hardly 600 and they have to spray their crops up to an average of 12 times to control the cotton boll weevil, with the ensuing environmental damage and elevated cost of lint production. In Argentina, small cotton farmers urgently need this assistance to be able to survive. SENASA has developed a prevention and eradication program that contemplates the use of 30,000 traps in Argentina and Paraguay and minimal use of insecticides. However, the prevailing NORTHEAST winds continue to ferry the cotton boll weevil from Paraguay to Argentina following the destruction of the crop debris up there. The six locations to be used for the project may give rise to a Model Project that will serve to determine just how viable

quality cotton production really is. This is important for many links in the chain, such as growers, ginner, spinners, the cottonseed oil industry (employing 9,000 workers) and the many other workers employed in cotton-related services in the region. The conclusions and technique issuing from this Model Project may then be adapted to the growing conditions prevailing in the areas worked by small cotton farmers in Bolivia, Paraguay and Brazil.

Production and consumption of organic cotton has recently taken an upward turn. In some cases the techniques involved in this project may be used by small growers of organic cotton. It will be a simple matter to evaluate the effectiveness of these traps in replacing insecticides during the 2008 harvest.

Six extension workers will provide the small growers with careful training and supervision in the proper care and use of the traps, which will be distributed together with the corresponding pheromones. The growers will be in charge of ensuring that they are changed regularly. They will also receive training in methods designed to produce greater yields, harvests free of contamination and in IPM techniques to be employed against other pests. All the data compiled on the infestation levels by the SENASA prevention and eradication program, on cotton production, etc., will be carefully recorded and correlated in order to come to rational conclusions in connection with the use of these traps and the determination of their real potential.

The goal is to deliver maximum benefit to the growers and to improve the quality and yield of the cotton crop. This is to be achieved by avoiding as many sprays as possible and using the traps to kill the greatest number of cotton boll weevils at the lowest possible cost before they go into their reproductive phase. If the traps were distributed at a rate of 30 per producer (ten traps per hectare) it would entail an initial investment of US \$25.00 per hectare, which is the cost of two insecticide applications. This initial cost would be a one-time investment if the farmers are capable of using and handling the traps properly. Nine pheromone changes over six months would cost US \$59.00 per hectare, that is, the equivalent of 5 insecticide sprays. We would then be able to determine whether or not this is enough to destroy the boll weevil population that invades the fields and prevent them from reproducing.

This would be an inexpensive way to reduce the cost of mass insecticide use in the program while having a beneficial impact on the environment. The decision on whether to spray or not will be in the hands of SENASA in each individual case, as determined by the number of weevils captured in the program traps.

The success of the program will be measured by the following parameters: a) cotton quality before and after project, particularly as regards contamination levels; b) quantity of hand-harvested cotton before and after the project; c) need for sprays before and after the project; d) the cost of the technique used to replace insecticides. As the trap system is improved, the number of traps per hectare may be reduced and the crop would be sprayed only when absolutely necessary, as in the areas of the US program where the pest has already been eradicated (93% of the cotton area). The cost of spraying, which is currently being borne by SENASA, will come down considerably when the job is turned over to the small growers themselves. Once the information from this project is in, it will be up to the provincial governments to determine the level of aid to be provided to small growers so that they can remain on their *chacras* (holdings).

This technique would not work well in areas where pest density is very great, but it

might be implemented by SENASA once the Paraguayan authorities have carried through their eradication program. The entire cycle should not take more than 5 years and the entire ecosystem could be protected and preserved for cotton.

The traps would be set out in 2007 before the destruction of the crop debris and the ensuing capture of the cotton boll weevil would be carefully monitored to ensure that it is proceeding properly. This would lay the groundwork for a new cotton harvest in the 2007/2008 season. Government support should be provided in compliance with WTO (World Trade Organization) standards to ensure that cotton will remain viable in South America and that the small growers would be able to receive aid with which to purchase the traps and the pheromones. This way, governments might also be able to reduce their spending on unemployment subsidies.

The provinces of the Argentine North East have a serious unemployment problem and it is important to support plans that will help stem migration. Medium and large producers in the same context may decide individually if they wish to invest in the available technology, in the installation of traps, in more insecticide or in other techniques such as stakes with poisoned bait, or ultimately, they may decide to change crops. Small farmers rarely have those options and they find it difficult to raise other crops profitably. If they are capable of harvesting by hand and avoiding contamination with polypropylene, chicken feathers and other products, they will be able to command a higher price for their cotton and offset their increased expenses. If they opt for organic cotton, they can afford to work with the appropriate methods, use the correct technologies to avoid spraying and get a better price for their product.

The Inter-American Development Bank (IDB) instructed the Inter-American Institute for Cooperation on Agriculture (IICA) to design a regional plan to deal with the cotton boll weevil. This plan is currently under way and is being coordinated by Licenciado Jesús Leguiza who is familiar with the Model Project. In the state of Texas, in the United States, the eradication of the cotton boll weevil has improved the productivity potential and lowered costs.

In Formosa and other regions of Argentina this has not been accomplished and the pest is spreading. This is why proper knowledge of IPM techniques to control this pest and others are completely essential for small cotton growers. Governments can assist these growers at the outset to help them survive, but it is the small growers themselves who must master these control techniques if they are to have a sustainable future. The goal of small growers' organizations is to apply any and all techniques that will make their efforts sustainable. This Model Project will help them achieve this goal.

Scientific Issues

It is a well-known fact that the cotton boll weevil does not secrete pheromones after the destruction of the crop debris because it has nothing to feed on. Thus it is at that precise moment that the pheromone traps are most attractive and they soon fill up with weevils. In the highly infested area of Paraguay (Ñeembucú) and in the southeast of Chaco province (Basail), Argentina, experiments have been carried out using the enhanced "Almirón" trap that can accommodate up to 2,000 weevils. This means that, with a density of 10 traps per hectare, 20,000 boll weevils will be destroyed. This is an extremely high figure rarely attained, but in other cases, with lower insect densities, the traps could be a powerful and attractive enough factor to

avoid excess spraying. The idea is to arrive at an infestation-driven per-hectare trap density that will make it possible to avoid spraying.

Captures of <i>Antohomus grandis</i> in Traps in the Formosa Province						
Month	2001	2002	2003	2004	2005	Total
January	18	0	0	49	35	102
February	20	0	0	555	571	1,146
March	15	0	11	763	501	1,290
April	29	6	167	480	461	1,143
May	83	26	804	1,647	2,915	5,475
June	511	97	2,146	3,201	2,857	8,812
July	16	106	1,030	4,936	13,490	19,578
August	4	53	342	1,504	21,708	23,611
September	3	7	352	637	7,584	8,583
October	0	2	41	315	3,000	3,358
November	0	1	5	128	1,421	1,555
December	0	0	12	75	350	437
Total:	699	298	4,910	14,290	54,893	

Technical Issues

Using traps to capture and kill the greatest number of weevils without affecting the environment is very useful in ecological pest management. The project will benefit from the advice of local and international experts in cotton boll weevil management. The economic question is to determine when pest density is so large that it becomes indispensable to spray in order to ensure acceptable yields. The other question is to determine the ideal trap density per hectare as a function of the yield expected on small growers' holdings.

In Central America the number of necessary sprays got to be so large that cotton growing became unprofitable and wound up being abandoned. The BOLL WEEVIL was the KEY pest. The idea of using enhanced trapping for prevention instead of spraying for eradication, in cotton fields close to infested areas, is the foundation for determining the cost of the effective techniques for using the traps. Eradication techniques kill off beneficial insects and birds and bring about secondary pest infestations. The advance of the cotton boll weevil has been detained for ten years in Argentina thanks to the use of eradication techniques, but the time has come to complement those techniques with prevention procedures in which the "Almirón" traps may play an important role, counting on the support of the CFC, the province, the national phytosanitary authorities and the private sector. The most vulnerable link in the cotton value chain is the small producer and they have now been exposed to a new challenge for which they are not prepared. Extension and dissemination of information about this pest among small growers in organized groups will play a very important role in successfully detaining the spread of the boll weevil while preventing or reducing the destruction of the environment through practices that will be an important feature of this project.

III. Description of Project Components

The first component is the organization and coordination of all the institutions that are to participate in the project. This phase is currently under way and will be complete by May 15, 2007. Each institution will have a clear picture of its responsibilities and of the cost implications of executing the activities involved in ensuring the success of the project and achieving the desired results. Contacts have already been established with the authorities of each institution to ensure that there

will be cooperation at each level. The following persons will be actively involved in the project:

- 1) Ing. Luís Basterra, Minister of Production of Formosa Province;
- 2) Ing. Jorge E. Vartparonián, Vice President of the Cotton Chamber of Argentina and President of FULCPA (Foundation for the Fight against the Boll Weevil);
- 3) Dr. Javier de Urquiza, Secretary of Agriculture, Livestock, Fishing and Food (SAGPyA) of ARGENTINA.
- 4) Ing. Ricardo Sánchez, Director of Plant and Animal Health of SENASA.
- 5) Dr. Amadeo Nicora, Vice President of INTA and official in charge of cotton in the INTA (National Institute of Agricultural Technology) project;
- 6) Ing. Lucrecia Santinoni, Director of Agricultural Production and Forestry of the Under-Secretariat of Agriculture, Livestock and of SAGPyA – ARGENTINA.
- 7) Ing. Jorge Neme, President of PROSAP (Provincial Agricultural Services Program) SAGPyA-ARGENTINA;

b) The second component, the complete design of the project plan -- which has been ready since January 30, 2007 --, was executed by Ing. Marcelo Polak with the cooperation of technical personnel from the production section of Formosa Province, SENASA and INTA. The 400 small cotton growers must be carefully selected so as to be certain of their contribution, the suitability of their lands for growing cotton, of their technical ability to carry out the procedures that will be explained by the 6 extension specialists, who will be designated in cooperation with INTA, SENASA, and the provincial authorities.

c) Until such time as the effectiveness of the new domestically-produced traps is proven, the work will proceed with the trap models and the pheromone used by SENASA in its control program. Production of the domestic traps will be entrusted to an industrial company. The company that designed the traps will be responsible for purchasing the materials and preparing the stamping materials needed for production. Effectiveness tests will continue in different areas of the province with the support of INTA.

d) A threshold number of pheromone strips is to be purchased by SENASA and distributed following the destruction of the crop debris in the 2007 season. Insecticide strips are also to be provided, although it has been established that their use is not essential.

e) FULCPA will deliver 24,000 cotton bags to the provincial authorities of Formosa Province for subsequent distribution to the 400 growers, along with 10 lengths of cotton string to sew the bags after each individual use; cotton straps for the picking bags will also be distributed. These materials must be in the hands of the growers before the end of February since the harvest begins in March. The bags must be resistant enough to allow their reuse in March of 2008 to continue prevention of polypropylene contamination.

f) The extension specialists are to receive intensive training in the techniques of the

project from Ing. Marcelo Polak, Technical Director of the project. Training will take place in March of 2007. Parallel to the training, he will prepare the documentation that is to be kept as a record of each producer's individual situation, the number of traps, the boll weevils caught in each trap, the aid received by each producer, the cotton output by each producer, etc. Producer training will begin in March of 2007.

g) FULCPA will prepare 30 tons of certified seed (non-transgenic traditional varieties) for distribution to the provincial authorities of Formosa Province for subsequent distribution to the growers after the destruction of the crop debris in 2007. Similarly, 60 tons of urea will be distributed to the growers as soon as they have finished planning their cotton in October of 2007, or alternatively, seeds for production of the organic fertilizer and/or cover.

h) Ing. Marcelo Polak must be fully informed. He must also supervise the destruction of the crop debris and SENASA's spraying activities for the 400 small growers chosen to participate in the activities provided for in the Model Project. Data recording will begin in February of 2007 and will continue until July of 2008, after the end of the cotton harvest. The outcomes of the project will be ready in August 2008.

IV. Project Execution

The Ministry of Production of Formosa Province will serve as Executing Agency. FULCPA will work in coordination with the Cotton Chamber of Argentina and with the technical support of SENASA and INTA.

The Cotton Chamber of Argentina brings together all of the segments of the cotton chain, from growers to exporters. FULCPA was created to wage the battle against the cotton boll weevil and it has been working for the last ten years within the Cotton Chamber; it is a tax-exempt foundation acknowledged by AFIP (Federal Administration of Public Revenue) and operating under the laws of Argentina. Agronomical Engineer Marcelo Polak of FULCPA will provide support for the six extension specialists. The executing agency will provide ICAC, Cadelpa (Paraguay) and ABRAPA (Brazil) with status reports on the project. It will also explore the possibility of a broader project to adapt and apply the knowledge acquired in the present project.

The Model Project will develop an information package designed to create a regional boll weevil control strategy (currently coordinated by IICA) together with the foreign consultants responsible for prevention and eradication planning. FULCPA has participated in regional negotiations with the private institutions of MERCOSUR, such as ABRAPA (Brazil), CADELPA (Paraguay) and ADEPA (Bolivia), with a view to reaching an agreement and a common approach against the cotton boll weevil. In the past, when the state institutions were in financial straits and there was an urgent need to acquire insecticides, toxic bait tubes and traps, FULCPA provided SENASA with the necessary funds.

V. Collaborating Institutions

PAIPPA (Comprehensive Action Program for Small Agricultural Producers), headed by Dr. Alberto Zorrilla, is the institution in charge of providing liaison between the project and the small growers who will be participating in it. It will be PAIPPA's responsibility to choose the small cotton growers to be included in the Model Project, 400 of them from among the growers of the associations located in the areas of Pirane, San Martin 2, Güemes, Ibarreta, Tacaagle and Belgrano who are interested in participating. The PAIPPA Institute and the Ministry of Production of Formosa

Province, with the collaboration of Agronomical Engineer Marcelo Polak, will decide which growers will participate in the implementation of the Model Project.

INTA (National Institute for Agricultural Technology) will provide the extension specialists and the advisory support for the tests to determine optimal trap distribution in different circumstances.

SENASA (National Agricultural Sanitary and Phytosanitary Service) will be in charge of phytosanitary controls in Argentina and of the Cotton Boll Weevil Prevention and Eradication Campaign. FULCPA will at all times act to provide its cooperation.

PROSAP AND PRODERNEA, under the direction of Ing. Jorge Neme, will supervise and monitor the project to determine the funds that will be required to adapt and perfect SENASA's preventive activities in order to ensure that the small growers will remain viable.

SAGPyA will supervise the project and provide cooperation to enhance the opportunities open to Argentina's small growers to compete in the international marketplace. It will help promote the use of acceptable environmental control practices.

Head Researchers

Ing. Marcelo Polak will be in constant communication with Dr. Zorrilla of PAIPPA and with researchers Drs. Gerald McKibben and William L. McGovern of the Boll Weevil Research Laboratory (BWRL) in Starkville, Mississippi; Dr. Sebastian Barbosa and Dr. Grande, of Brazil, Ing. Oscar Peterlin and others in INTA, and Ing. Ricardo Sánchez and other SENASA officials. Polak will also maintain contact with Licenciado Jesús Leguiza of the Inter-American Institute for Cooperation on Agriculture (IICA) and Ing. Carlos Ramírez of SENASA.

FULCPA and the Ministry of Production of Formosa organized a regional conference on the boll weevil to analyze the prevention and eradication possibilities mentioned in this Model Project. The conference was held on November 29, 2006 in Formosa with the participation of some of those named above.

VI. Project Supervision

The Technical Information Section of ICAC will direct the project. An ongoing flow of information on the activities and outcomes of the project will be maintained with the head of the Technical Information Section through Ing. Jorge Vartparonián. Ing. Marcelo Polak will draw up the first quarterly report as of March 1, 2007, the project start-up date. Ing. Marcelo Polak will be the technical advisor of the project and will supervise the work of the six extension specialists, coordinate all activities with the growers, the provincial authorities, SENASA, INTA and other organizations participating in the project.

VII. Project Beneficiaries

The direct beneficiaries in the project area are:

- a) The 400 small growers in Formosa Province chosen to participate in the Model Project.
- b) The 25,000 small and medium growers -- averaging 20 hectares each -- in Argentina to whom the information and the outcomes of the model program

will be circulated. This will be important for their survival in the fight against the cotton boll weevil.

- c) Over 150,000 small growers in Paraguay, Bolivia, and Brazil for whom some of the outcomes of the Model Project may be adapted to provide the foundations for a more far-reaching project.
- d) Cotton growers in Venezuela, Peru, Colombia and Central America, who have practically given up cotton growing, will also benefit from some of these experiences and, in certain cases, resume their cotton production.
- e) The ginners, oil pressers and spinners of Argentina, Bolivia Paraguay, and Brazil, as well as related industries such as transportation, and the sundry services that employ hundreds of thousands of additional workers. The value chain provides jobs in areas with a high unemployment rate, under-exploitation of installed ginning capacities, i.e., in Argentina, the use rate of installed ginning capacities is less than 30%.
- f) CFC and ICAC. The enhanced trap may be designated the “CFC Almirón” trap. The particular interest of all links in the value chain represented in FULCPA implies that, if successful, the project will have the support of the entire chain.
- g) All participants in the project, especially the small growers, who will benefit from the training, the contacts and experience sharing, as well as from improved cotton quality and yield.
- h) PAIPPA will cooperate with the participating growers to help them find organizational formats that will help them achieve the lower increases in pest control expenditures implicit in the implementation of the project. Also important is the connection with Fonfipro (Provincial Trust Fund) for a Revolving Credit Fund for the purchase of the necessary inputs, tools and equipment. These activities are not included in the Model Project but will complement it. The small growers in the areas chosen for the project will work in collaboration with the extension specialists, thereby benefiting from their collective expertise. Each community will be able to adopt a zonal approach that is vital for the success of the project.

IX. Project Cost and Financing

Total Cost:	USD 369,200
Contribution by CFC:	USD 120,000
Contribution by Argentina:	USD 249,200

Project Budget CFC/ICAC36					
Component	Source of Funding				
	CFC	FULCPA	Formosa Govt	Others***	Total
No.1. Organization of participating institutions	-	-	-	-	-
No.2. Planning of the project	-	2,000	-	-	2,000
No.3. Industrial production of traps	25,000	-	-	-	25,000
No.4. Pheromones strips	68,000	15,000*	-	-	83,000
No.5. Cotton picking bags	-	-	24,000	-	24,000
No.6. Six extension specialists					
a. Pay and training	-	-	75,000**	-	75,000
b. Transportation	-	-	70,200**	-	70,200
No.7a. 30 tons of certified planting seed	-	15,000	-	-	15,000
No.7b. 60 tons of fertilizer	-	-	-	30,000	30,000
No.8. Project technical manager	-	18,000	-	-	18,000
No.9. External review	5,000	-	-	-	5,000
No.10. Quarterly reports	2,000	-	-	-	2,000
No.11a. ICAC visit to the project	2,500	-	-	-	2,500
No.11b. ICAC supervisory cost	5,000	-	-	-	5,000
No. 12. CFC monitoring cost	5,000	-	-	-	5,000
No. 13. Contingencies	7,500	-	-	-	7,500
Total:	120,000	50,000	169,200	30,000	369,200

* Also includes donations from NGOs

** Includes sponsorship from PRODERNEA, INTA, SENASA and various NGOs

*** Private companies and NGOs

Contribution by Argentina: Component 1: Drive to rally organization participation. No cost.

Contribution by Argentina - Component 2: project planning and design of its implementation: to be completed during the execution of the project by Ing. Marcelo Polak. Cost = USD 2,000.

Contribution by CFC - Component 3: Industrial production of 10,000 traps at a cost of USD 2.50 per trap. Cost = USD 25,000

Contribution by CFC - Component 4: Purchase of 108,000 pheromone strips by SENASA to be used following the destruction of the crop debris in 2007 during 6 months (9 changes, i.e. every 21 days). Total cost: USD 68,000

Contribution by Argentina - Component 4b: Purchase of pheromone strips and supplies, transportation, VAT (traps, insecticides, pheromones, fertilizers, etc.) with the contribution by FULCPA and donations by companies. Total cost: USD 15,000.

Contribution by Argentina - Component 5: Purchase of 24,000 cotton bags weighing 450 grams each; must be very resistant to be reusable in 2008. To be delivered in Formosa Province on time, together with 10 lengths of cotton string to sew the bags, and 3 cotton straps per producer to ensure that there is no contamination. Total cost: USD 24,000 (to be covered by Formosa Province).

Contribution by Argentina - Component 6: Salaries of the six extension specialists, plus the cost of their training over a period of 18 months. Total cost: USD 75,000 (to be assumed by PRODERNEA, INTA, SENASA and Formosa Province).

Contribution by Argentina - Component 6b: Mobility of the six extension specialists in their area of responsibility. Total cost: USD 70,200 (with the contribution of PRODERNEA, INTA, SENASA and Formosa Province).

Contribution by Argentina – Component 7: FULCPA will prepare and deliver to the authorities of Formosa Province 30 tons of certified seed for planting with a germination potential of no less than 75%, valued at USD 500 per ton. FULCPA will leverage this with contributions from the private sector. Total cost: USD15,000.

Contribution by Argentina – Component 7b: FULCPA will timely deliver 60 tons of urea fertilizer to PAIPPA for distribution among the 400 growers at an average rate of 50 kilograms per hectare. Total cost = USD 30,000 (with contributions from the private sector and NGOs).

Contribution by Argentina – Component 8: Ing. Marcelo Polak will work on the project for 18 months at a fee of USD 1,000 per month. Total cost: USD 18,000 (to be covered by FULCPA).

Contribution by CFC – Component 9: ICAC will, in consultation with CFC, organize an external review of project activities. Total cost: = USD 5,000.

Contribution by CFC - Component 10: Ing. Marcelo Polak will deliver six quarterly reports as of the quarter beginning on March 1, 2007 covering the full range of reportable activities. Total cost: USD 2,000.

Contribution by CFC - Component 11: ICAC personnel will pay a visit to the project in due time. The cost will be USD 2,500. The cost to ICAC of supervising the project will be USD 5,000. Total cost = USD 7,500.

Contribution by CFC - Component 12: Supervision by CFC. Total cost: USD 5,000

Contribution by CFC - Component 13: Contingency expenses: Total = USD 7,500.

PROJECT EXECUTION AGENCY

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Project Strategy

Cotton is a highly competitive commodity in the international marketplace. Cotton prices are affected by the subsidies paid by a number of governments around the world and the price has not increased as a function of costs despite a 20% increase in the demand. The most recent ICAC estimates suggest that 25.6 million tons of cotton will be consumed in 2006/07 with a production figure estimated at some 25 million tons. Only 21.3 million tons of cotton were consumed in 2003/04. The demand for cotton is increasing but there are no new lands to add on to the area planted to cotton. Therefore, cotton agriculture must improve its yields by reducing the impact of pests and enhancing other management parameters. Thus the strategy is to make small cotton producers more competitive, considering that they are threatened by the onslaught of the cotton boll weevil and that cotton is their only source of income.

CFC is currently in the process of preparing its Third Five-Year Plan (2008-12) in consultation with international cotton institutions. ICAC, as the international commodity organization for cotton, is consulting with its member governments to identify the priority areas designated for possible financial support from CFC. ICAC organized the forum of stakeholders on September 10, 2006 in Goiania, Brazil together with CFC. The Forum, which attracted a good number of participants, identified the following 10 subjects for future projects:

1. Pest management and IPM strategies, including the elimination of the consequences of pest damage
2. Development of new industrial uses for cotton and cotton seeds
3. Development of alternative uses of cotton by-products
4. New technologies and methods for the transfer of improved production practices
5. More efficient use of inputs and improved practices for more efficient harvests

6. Improved lint quality
7. Improved fiber quality control methods
8. Improved living standards of cotton growers
9. Lower production costs
10. Price risk management

ICAC has informed its member governments of the new five-year plan and has been involved in the process of determining the priorities for the CFC 2008-12 Third Five-Year Plan. Integrated Pest Management and pest control are priorities and will definitely be on the list to be formally presented to CFC for ICAC after receiving the additional contributions of the member governments.

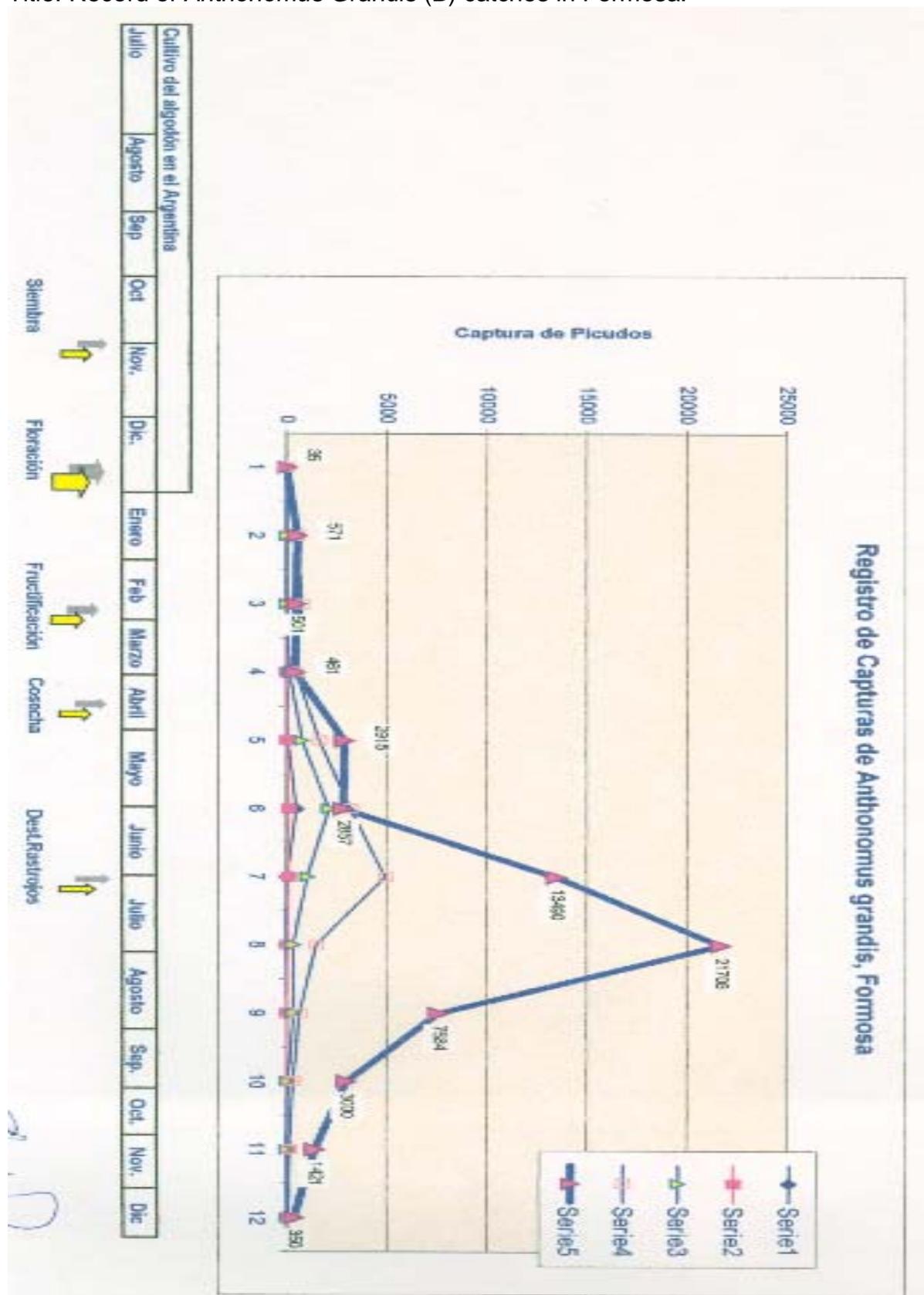
Current Status of the Work

The cotton boll weevil arrived in Brazil in 1983 and went on from there to Paraguay in 1991 and Argentina in 1994. Boll weevil damage in Brazil turned that country into a net cotton importer, and it has been due exclusively to the complete relocation of the cotton growing areas that Brazil has succeeded in recovering its cotton production. It is a well-established fact in the cotton research community that the cotton boll weevil is a very serious pest because it is very difficult to control, much more so than other important pests that attack cotton crops. CFC sponsored the project entitled "Integrated Pest Management of the cotton boll weevil in Argentina, Brazil and Paraguay CFC/ICAC/04." The five-year project was started in August of 1995 and concluded with the last workshop held in Brazil in June 2000. The project centered on the biodynamics of the pest, as well as on the development and enhancement of biological and cultural management and the evaluation and validation of new management techniques. The project also focused on the appropriate use of insecticides designed to produce a gradual but steady shift toward less toxic products, while evaluating the boll weevil's resistance to insecticides. Several interesting and very useful recommendations were implemented by the governments and the project also found that it is very important to understand the dynamics of the pest population and its feeding habits to develop more effective management techniques. Aside from pheromone traps, the project also underscored the importance of catch in the traps, the treatment of the borders and the destruction of the crop debris. The project also drew attention to the importance of biological management and the number of chemical treatments that will improve yields, as well as the guidelines for reducing environmental impact. The present project is important for the implementation of the recommendations of the tri-national project. Greater details on the tri-national project that was consolidated into the CFC project are available in CFC Technical Paper No. 16. On-line information is also available at the ICAC website: <http://www.icac.org/projects/CommonFund/Boll/english.html>.

In Formosa, the SENASA PREVENTION AND ERADICATION program is intended to protect small growers against the cotton boll weevil by detecting infestation levels through the catch in the pheromone traps. However, the number of traps used is not enough to attract and destroy the cotton boll weevil. This project will determine the number of traps that will be needed to develop an economically feasible catch program. The trap to be used in the project, the "CFC Almirón," was designed to contain up to 2,000 cotton boll weevils in the cylinder.

The graph on the next page shows the crop growth phase and the number of cotton boll weevils caught in the traps.

Title: Record of *Anthonomus Grandis* (B) catches in Formosa.



Foot notes:
 Cotton growing in Argentina
 Planting: Early November
 Fruiting: Late February
 Soil preparation: Early July

Flowering: Late December
 Harvest: Mid-April

The enhanced pheromone trap has been tested with promising results in small-scale trials. SENASA has been working for ten years in Formosa, Corrientes, Chaco and Santa Fe in Argentina, trapping and controlling the boll weevil. It has also been active in Ñeembucú, Paraguay. However, in 2006, for various reasons, the infestation spread into a number of other areas in Chaco, the heart of Argentine cotton production. Thus FULCPA is launching this project to prevent the cotton boll weevil from invading and destroying cotton crops in Chaco and Formosa.

It is not easy to mobilize public opinion and rally governments and growers behind boll weevil prevention and control. However, the cost of preventing the invasion of the cotton boll weevil is much less than the cost of eradicating it once it becomes established. Support from ICAC and CFC for this project is essential for its success. The participation of the private sector is already guaranteed, along with the support of Formosa Province and the National Secretariat of Agriculture, Livestock, Fishing and Food of Argentina. Also essential is the support of INTA and SENASA.

The contamination problem is a serious one and has international implications. Small growers use polypropylene, plastic and jute bags because they are less expensive than cotton bags. As in many other countries in the world, nothing has been done and nothing achieved in Argentina to encourage small cotton growers to avoid contamination of the cotton with polypropylene, in spite of the campaigns waged in the mass media by the provincial governments and the Cotton Chamber of Argentina.

Small producers have always found a market for contaminated cotton and are generally incapable of understanding why it is that their prices are suffering contamination discounts. It has been estimated that contamination brings the export price of cotton down by 5 to 10%. Targeted extension work and free delivery of cotton bags and sewing thread will certainly help them achieve improvements in their harvesting techniques, particularly as those techniques lead to an increase in the price they get for their product. The project will quantify the polypropylene in the cotton produced by the selected growers and a control producer. The details of the study will be worked out by FULCPA and submitted to ICAC in mid-January, 2008.

Beneficiaries and Benefits

Beneficiaries:

- a) Four hundred small growers in Formosa in 2007,
- b) 25,000 small growers in Argentina in 2008, and, as a result,
- c) 200,000 small growers in Argentina and other countries,
- d) 9,000 workers in cotton gins, cottonseed oil plants, spinning mills and many more in ancillary services in Argentina.

Benefits

- a) The project will develop a method by which to suppress the cotton boll weevil without damaging the environment;
- b) Production costs will drop making the Argentine cotton industry more competitive;
- c) More cotton seed will make it possible to produce more cottonseed oil;
- d) The environment will benefit from the decreased use of insecticides;
- e) There will be fewer small farmers migrating to the cities in search of employment;
- f) The government will be able to reduce spending on unemployment benefits.

Project Object and Activities

Object:

- a) To improve the quality of the cotton produced by cotton farmers. The cotton will be consumed by South American spinning mills, which will be equipped with the laboratory equipment (HVI) needed to monitor cotton quality to determine the price, always focusing on the contamination issue;
- b) To increase the per-hectare yield of the small growers;
- c) To study, as well, the costs of each producer in order to determine the increase in earnings per hectare and any other factors needed to increase earning as much as possible;
- d) To determine the number of traps needed as a function of the level of infestation;
- e) To determine the infestation level at which it becomes indispensable to spray insecticides;
- f) To determine the infestation level at which cotton growing becomes economically untenable.

Activities to be carried out by the growers:

- a) Incorporate the received management guidelines and implement them as of April 2007 and until August 2008;
- b) Take possession of the cotton fabric harvest bags and straps in March/April 2007
- c) Wind up the harvest before June and destroy the debris immediately;
- d) Install the traps in June 2007, or sooner if possible;
- e) Withdraw the traps (optional) during the period from December 2007 to January 2008;
- f) Receive the planting seed before September 2007;
- g) Prepare the soil for planting in September-October 2007;
- h) Complete planting in October-November 2007;
- i) Fertilize with urea in November-December 2007;
- j) Bring in the harvest in March-April 2008;

Activities to be executed by the Ministry of Production of Formosa Province:

- a) Determine the small growers participating in the project in March 2006;
- b) Deliver the cotton bags to be used in the 2007 harvest in March 2007;
- c) Deliver the seed for the 2008 harvest no later than September 2007;
- d) Deliver urea fertilizer for the 2008 harvest in October 2007.

Activities to be executed by the extension specialists:

- a) Interview the small growers in the course of 2007;
- b) Follow the guidance of Ing. Polak, INTA and SENASA and the PAIPPA authorities as of January 2007;
- c) Impart guidance to the small growers from February 2007 to June 2008 on the basis of the protocols designed by Ing. Polak – April, 2007;
- d) Report to Ing. Polak on the activities and outcomes - April, 2007.

Activities to be executed by Ing. Polak:

- a) Design the delivery and instruction protocols to be conveyed to the small growers by the extension specialists, underscoring the importance of keeping contamination down and increasing yield;
- b) Train the extension specialists;
- c) Determine the activities in coordination with INTA, SENASA and the provincial authorities;
- d) Determine the outcomes by evaluating the extension program;
- e) Verify that all deliveries of inputs provided by FULCPA and the Ministry of Production have been carried out;
- f) Draft quarterly reports for ICAC and CFC;
- g) Draft a final report comprising project activities, program design and results, project achievements based on pre- and post-project conditions, and impact on producer income.

Activities to be executed by FULCPA:

- a) Deliver 24,000 cotton harvest BAGS with the corresponding dimensions, cotton thread and cotton straps to the Ministry of Production of Formosa;
- b) Deliver 30 tons of certified seed to the Ministry of Production of Formosa;
- c) Deliver 60 tons of urea fertilizer to the Ministry of Production of Formosa;
- d) Deliver 12,000 traps to the cotton farmers of Formosa (May 2007);
- e) Deliver 108,000 pheromone strips to the growers in Formosa (beginning in June 2007);
- f) Accredite the funds coming from NGOs, governments, private companies, etc., to cover the financing of the project;
- g) Deal with management and coordination issues;
- h) Draft the outcome report to be delivered to ICAC, CFC, INTA, SENASA and interested government agencies.

The cost and financing of the project have been detailed above. A greater number of contributors are expected from the public and private sectors, including NGOs. There will be ongoing collaboration with the network of agronomical engineers of the Chamber of Cotton of Argentina in the cotton region.

Risks and Liabilities

Limitations, including institutional, technical and political issues, are summarized below.

- a) The task of aiding the small cotton growers of Formosa Province must be made compatible with SENASA's "Program for the Prevention and Eradication of the Cotton Boll Weevil."
- b) It is difficult to convince those responsible for this project, especially the small growers, that, aside from all of their ongoing problems, they need to be prepared for a threat that many of them have never even seen yet. Many of them have not witnessed the disastrous results that may come about if appropriate preventive measures are not taken, as was the case in Brazil and Paraguay.
- c) Pheromones are expensive. They must be made less expensive, possibly by producing them in Argentina. This is a factor that limits large scale use of traps.
- d) Small growers are accustomed to politically motivated assistance programs that provide them with free inputs through provincial governments. They must

be made aware that they have to accept the cost increases as they will be compensated with better yields and prices that will allow them to enlarge their profit margins.

- e) Small growers are not accustomed to working as a team, but PAIPPA and the producer organizations of Formosa Province are working to change that attitude.
- f) The private sector is not accustomed to working with the public sector. FULCPA intends to collaborate with the government agencies to pursue the common goal of saving small cotton producers, who are responsible for 20% of Argentina's cotton production, and medium producers (working up to 50 hectares), who are responsible for 40% of the country's production.
- g) There are financial issues that must be resolved with the assistance of the public and private sectors and NGOs.
- h) If this pilot project is successful in 2008, many others may be implemented with the general support of government and industry. A minimum of an additional 20,000 more small growers must be trained in the use of the modified traps with enhanced technology, as well as in the advantages of forming partnerships to market their output. The project might help hundreds of thousands of growers in South America.

Work Plan										
2007							2008			
Component No.	Completed	March/April	May/June	July/Aug	Sept/Oct	Nov/Dec	Jan/Feb	March/April	May/June	July/Aug
Component No. 1	15-Dec-06									
Component No. 2	30-Jan-07									
Component No. 3	28-Feb-07									
Component No. 4										
Component No. 5		Feb-March						Use same		
Component No. 6	Feb.									
Component No. 7										
Component No. 8										
Component No. 9										
Component No. 10										
Component No. 11										
Component No. 12										
Component No. 13										