

PD-ABS-539  
10644

ABSP ANNUAL WORK PLAN 1999-2000



---

# **Agricultural Biotechnology Support Project (ABSP)**

**Work Plan**

**October 1, 1999 - September 30, 2000**

**Project Title:** Agricultural Biotechnology Support Project  
**Project Number:** 936-4197  
**Grant Number:** DAN-A-00-91-00126-00

**Contact information:**

Dr. Catherine L. Ives  
Director, ABSP  
Institute for International Agriculture  
324 Agriculture Hall  
Michigan State University  
East Lansing, MI 49924  
Tel: (517)-432-1641  
Fax: (517)-353-1888  
Email: [ivesc@msu.edu](mailto:ivesc@msu.edu)

**ABSP**

# **Agricultural Biotechnology Support Project**

## **Annual Work Plan**

**October, 1999 – September, 2000**

### **INTRODUCTION**

This document outlines the goals, objectives, and activities of the Agricultural Biotechnology Support Project (ABSP) [DAN-A-00-00126-00] for the second year of its most recent amendment. The period that this report covers is from October 1999 through September 2000.

The primary goal of ABSP is:

***To improve the capacity and policy environment for the use, management, and commercialization of agricultural biotechnology in developing countries and transition economies.***

This goal is achieved by meeting the following objectives:

- 1) *Establishment of a policy framework in developing countries and transition economies which promotes the use, management and commercialization of biotechnology by both host country and multinational agribusiness and research institutions.*
- 2) *Improvement of marketed crops through strategic research partnerships between the US and developing country public and private sectors.*

Throughout this work plan, planned activities are related to these two objectives. This report also provides a travel matrix. The purpose of these trips, and their relations to the two primary objectives of ABSP are explained in the narrative report. The report is divided by calendar quarters; i.e. October-December, January-March, April-June, and July-September. It should be noted that a number of the planned trips have not been finalized and dates are subject to change. A reporting schedule to MSU and USAID is also provided corresponding to the work plan.

**QUARTER 1****OCTOBER – DECEMBER, 1998****General Management Issues**

During the first quarter of this work plan, the management staff will be involved in a relocation to the Institute of International Agriculture (IIA) at MSU. The management team has desired this move for a number of years, as ABSP is currently managed from numerous offices in different buildings across campus. The relocation is scheduled for November. This will improve communication and work output of the management team in the long run; in the short-term, this relocation may disrupt management operations during this time. Also in the first quarter, management will be stretched due to planned health and personal absences.

During the first quarter of this work plan, ABSP will coordinate with USAID/Cairo and its partner institution in Egypt, the Agricultural Genetic Engineering Research Institute (AGERI) to smoothly execute its stand-alone grant with the mission. This grant has been almost an entire year overdue, and our subgrantees are eagerly awaiting funds to begin their research.

**Activities that meet Objective Number 1: Establishment of Policy Framework**

Numerous activities will occur during the first quarter of this work plan that will assist developing countries in establishing an appropriate policy framework for biotechnology. They include:

- Final reporting and presentation of results of the assessment team from the University of California at Berkeley on the potential privatization of AGERI. Dr. Catherine Ives will travel to Berkeley for this presentation. Additional work will begin on the follow-up to this report and selecting the next assessment team from UC-Berkeley for the formulation of a business plan for AGERI. AGERI and USAID/Cairo are expected to use the results of this current report in formulating future support and institute management changes.
- Linkage building in biotechnology and biosafety in Africa. Dr. Andrea Johanson will travel to Nairobi in September to begin working with the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA). This follows an assessment by ISNAR (partially supported by ABSP/USAID) on the feasibility of a biotechnology program and regional biosafety regime under the guidance of ASARECA. This organization will meet and decide how/if it will pursue a program in agricultural biotechnology. ABSP will be working with ASARECA to provide information on the current status of biotechnology in developed countries, technologies that could be easily adapted, etc. in order to assist these countries in developing and using biotechnology. This effort will be supported by the Africa Initiatives funds from USAID/Africa Bureau. More details regarding this effort are appended to the work plan

Dr. Ives will be working with the Stockholm Environment Institute as a member of the Steering Committee (SC) for the East African Regional Network on Biotechnology, Biosafety and Biopolicy (EARN). She will be attending the SC in Tanzania in October, finalizing research projects and exploring policy-building efforts. EARN and ABSP will be working together in the development of a biosafety risk assessment manual for use by developing country scientists and regulators. The EARN program will assist in

building technical capacity in Africa in basic molecular techniques, and in assisting in the development of regulatory policy within its targeted African countries (Tanzania, Kenya, Uganda, and Ethiopia). Dr. Ives will serve as a linkage between EARN and any proposed ASARECA Biotechnology Program to ensure efficiencies between the donor organizations

- Collaborations with the International Service for National Agricultural Research (ISNAR) to assist developing countries in the general management of biotechnology within an overall agricultural research portfolio. ABSP Director, Dr. Catherine Ives, will lecture at a course sponsored by ISNAR in the Philippines in November. Participants to the course will originate from Indonesia, Thailand, Vietnam, and the Philippines. ABSP will use this opportunity to discuss the importance of incorporating Intellectual Property Rights (IPR) within international research collaborations involving biotechnology. Additionally, during this period, ABSP will explore the possibility of working with the Philippine government in the development of a risk assessment workshop for members of the Philippine Biosafety Committee and promoting continued collaboration with ISNAR in MSU sponsored short courses on IPR management and food safety.

- IPTTO/Biosafety/Field testing in Indonesia.  
During this quarter, ABSP will also work closely with collaborators in Indonesia who have requested our assistance in a number of policy areas. In June 1999 the Indonesian Minister of Agriculture inaugurated the Intellectual Property and Technology Transfer Office (IPTTO) which will be under the Agricultural Research Foundation, belonging to AARD. The office will serve as Indonesia's legal and regulatory technology transfer arm in agriculture. Drs. Maredia and Erbisch, ABSP's Technology Transfer Coordinator and Director of MSU's Office of Intellectual Property, respectfully, have been invited to speak at a conference on the transfer of agricultural biotechnology and commercialization and to provide technical assistance to the IPTTO to assist them in developing general policies and procedures for the office.

Secondly, ABSP will provide assistance in general biosafety awareness via the participation of Dr. Ives in a conference in Indonesia on the development of Indonesia's biosafety regime. Dr. Ives will provide evidence of ABSP's capacity building efforts in this area and the impact of that training.

Finally, ABSP will be working with both the Indonesian Biosafety Committee and USAID's Biosafety Committee to obtain approval for the field testing of transgenic potatoes developed in collaboration with MSU and the Research Institute for Vegetables (RIV) in Indonesia. The potatoes are expected to be planted in February 2000 (see Research Collaborations below).

- Continued development of information resources for LDC collaborators. ABSP will continue to support CABI's AgbioTechNet to provide information on technical, regulatory and legal aspects of agricultural biotechnology to our LDC collaborators. We will also continue to support our collaborators' subscriptions to AgbioTechNet and increase the number of LDC institutions ABSP supports.

### **Activities that meet Objective Number 2: Research Collaborations**

Obviously, the execution of subgrants to institutions involved in research collaborations with AGERI during this quarter will be an important activity to promote the development of improved, marketed crops.

Under DAN-A-00-00126-00, research collaborations will continue to focus on moving material from the research laboratories, greenhouses and fields in the US to developing countries. However, research will continue throughout the year to update and improve material – both potatoes and cucurbits – and to develop a regeneration-independent transformation system for cucurbits. To that end, a summary of the current and future status of this material is given.

## 1. Cucurbits

### *Trials underway for 1998-99 seasons*

Country	Collaborator	Crop/type	Objective
Egypt	Inst of Hort/AGERI	squash, cucumber tropical pumpkin	multivirus resistance and adaptation
Philippines	East/West Seed Co	melon, cucumber,	multivirus + powdery mildew
Indonesia	East/West Seed Co	melon, cucumber,	multivirus + powdery mildew
Jordan	Peto/Seminis	squash, cucumber, melon,	multivirus + powdery mildew
Morocco	Rogers/Novartis	squash, cucumber, melon,	
Ithaca, NY		all	all

### *Proposed for second season 1999*

Morocco	Domaine Agricole		
India	Seminis	cucumber, melon	multivirus + multifungal

## 2. Potatoes.

- Egypt: Completed three years of field-testing. Will work with AGERI over next 2 quarters to register seed and obtain clear title to material for commercialization.
- Indonesia: Field test is awaiting approval from Indonesia and USAID Biosafety Committees. We will work with Indonesia and USAID to receive approval for field testing in 2000.
- South Africa: The Agricultural Research Center (ARC) of South Africa has expressed interest in testing material in South Africa. We will work with ARC this year in order to obtain appropriate approvals for field-testing.

Commercialization of the various potato varieties and constructs will require negotiations with holders of various intellectual properties (i.e. promoters, drug resistance markers, Bt genes, etc). These negotiations are currently underway and will continue throughout the coming year to obtain clear commercialization rights to the material developed at MSU.

**QUARTER 2****JANUARY – MARCH, 2000****General Management Issues**

During this quarter, the External Board of Directors will be notified regarding the annual meeting to be held in conjunction with the ABSP/AGERI workshop in Egypt (see Quarter 3 for more details). A site visit to Egypt will be conducted to assess the progress on the new grant and to put together the program and logistics for the conference.

A site visit to Washington, DC to meet with the USAID project officer will also take place. The purpose of the visit will be to begin discussions on a new USAID follow-up program to ABSP.

The Management Team will continue to upgrade and improve its database management system, including an improved contact database of expertise in all fields of agricultural biotechnology. Related to this, the Management Team will also begin the process of systematically identifying expertise in agricultural biotechnology, both internal to MSU and throughout the US, as a component of laying the groundwork for future USAID-funded programs in agricultural biotechnology.

The annual technical report will be submitted to USAID during this quarter.

**Activities that meet Objective Number 1: Establishment of Policy Framework**

There will be a number of initiatives this quarter to assist developing countries in establishment of a policy framework. In the area of intellectual property, a new initiative will be the development of two additional information resources on plant variety protection and patents in agriculture and technology transfer of biotechnology-derived research tools and products. This effort will be carried out by ABSP staff, and will consist of the development of bulletins in a question and answer format that clearly describes what PVP and patents are, their importance to agricultural biotechnology, and how scientists and administrators should conduct their research in this new world of proprietary information. Additionally, a bulletin will be produced that contains standard technology transfer agreements including MTAs, Research and joint venture agreements, and License agreements. This material will be made available to LDCs via the ABSP and CABI web sites and in hard copy.

Much effort during this quarter will be focused on the development of a biotechnology program with ASARECA. The Director and Assistant Director of ABSP will travel to Africa to continue discussions with ASARECA on the development of this program. Topics for discussion include: development of a small grants program, promotion of a regional biosafety initiative, capacity building in biotechnology, technical training in risk assessment, and donor coordination. Related to this effort, ABSP intends to support the participation of African scientists at the International Centre for Genetic Engineering and Biotechnology (ICGEB) courses, described below.

Two different workshops on biosafety and risk assessment for the environmental release of genetically modified organisms (GMOs) have been scheduled within the Year 2000 by ICGEB. ABSP has attended these courses, and believes them excellent training opportunities for African scientists and regulators. From 27-31 March 2000, in Trieste, Italy, there will be a workshop on *Biosafety: Science and Policy in Risk Assessment of*

*Transgenic Organisms: A Case Study Approach.* The organizers will be George Tzotzos, UNIDO, Vienna, Austria, Gilbert Howe, University of Bristol, UK, and Giovanni Ferraiolo, ICGEB, Trieste, Italy. The workshop aims to offer a comprehensive approach to biosafety and is directed at scientists actively involved in biological risk assessment and/or biotechnology regulations.

From 3-8 April 2000, in Florence, Italy, there will be a workshop on *Biosafety: Advanced Research and Procedures: Case Studies for Designated Experts*. The organizers of the course are Marcello Broggio, Istituto Agronomico per l'Oltremare, Florence, Italy and Giovanni Ferraiolo, ICGEB, Trieste, Italy. Following the suggestions of many biosafety focal-points and resource persons ICGEB has added this course, directed exclusively to officers in Governmental Agencies and/or designated experts, working in the area of risk assessment of GMOs at official level (governments, scientific institutions, private sector etc.). This second workshop aims to offer to scientists with advanced expertise in risk assessment and/or biosafety regulative framework a dedicated forum for advanced discussion and information sharing.

The general approach in both workshops will focus on case study presentations and discussion for the environmental release of genetically modified organisms (GMOs). These programs will assist African countries in the initial phases of building their biosafety frameworks and hopefully provide an impetus to regional team building. ABSP will work with ICGEB in supporting these courses, and with ASARECA in identifying appropriate participants. Again, funds for this effort are provided by USAID/Africa Bureau.

Also during this period, ABSP is planning on sponsoring a session at the Biotechnology Industry Organization's (BIO) annual meeting in Boston, MA. ABSP is working with BIO, the world's premier biotechnology industry organization, to develop a session on potential partnering opportunities in agricultural biotechnology with developing countries.

### **Activities that meet Objective Number 2: Research Collaborations**

Collaborations with CIP. We have an ongoing relationship with the International Potato Center (CIP) to assess the transgenic potatoes developed by MSU researchers. This material has not yet moved into the field, and we plan to visit CIP during this quarter to assess this possibility. Obviously, approvals from USAID's Biosafety Committee (as well as the Peruvian government) will be required before this occurs.

During this quarter, we anticipate again planting transgenic potatoes in Egypt. The planting of this material, and subsequent monitoring, will require the travel of project members to Egypt. This is outlined in the travel matrix.

We also hope to conduct field trials with transgenic potatoes in Indonesia during this quarter. However, this testing will depend upon receipt of field testing approvals from the Indonesia Biosafety Committee and the USAID Biosafety Committee. Applications were submitted in the spring and summer, respectively, so we are hopeful that approval can be received by planting season. Travel of project personnel for this is budgeted and shown in the travel matrix.

Field tests of improved cucurbits will also continue (these are not genetically engineered).

During this quarter, a visit to Advanta in the UK is planned. This is a follow-up visit to discussions over the past year on the commercial use of the Bt gene in our transgenic potatoes.

**QUARTER 3**

**APRIL – JUNE, 2000**

**General Management Issues**

None

**Activities that meet Objective Number 1: Establishment of Policy Framework**

The main activity during this quarter will be a combined conference and External Board of Directors (EBOD) meeting in Egypt. The purpose of the meeting will be to present current research results, develop joint work plans for the remaining grant period, and provide the EBOD with a concise summary and explanation of work to date.

Also in relation to Egypt, the next assessment team from UC-Berkeley will be in Egypt to develop a business plan for AGERI. It is possible that this team will overlap with the workshop and be able to provide the EBOD with preliminary findings of their work. ABSP will also sponsor the participation of African and Asian collaborators to attend the Agricultural Biotechnology International Conference to be held in Toronto in June. The theme of this conference, *Agbiotech: The Science of a New Century*, explores the many opportunities agricultural biotechnology offers the world through scientific breakthroughs, commercial developments and technology transfer. It will be a unique opportunity for our collaborators to make contacts and learn about new breakthroughs in agricultural biotechnology that may be adaptable to their country's agriculture.

**Activities that meet Objective Number 2: Research Collaborations**

During this quarter, the field trials of transgenic potatoes (in Egypt and possibly Indonesia) will be evaluated and reported to USAID. Also the results of field trials of cucurbits will be evaluated and reported.

**QUARTER 4**

**JULY-SEPTEMBER, 2000**

**General Management Issues**

ABSP will submit the annual impact report to USAID during this quarter.

**Activities that meet Objective Number 1: Establishment of Policy Framework**

The main activity during this period will be a workshop/conference on *Plant Biotechnology Research for Developing Countries*. This will be the second workshop that has been sponsored by USAID on this topic; the first, held 10 years ago and coordinated by the National Academy of Sciences, formed the basic framework for the ABSP project. It is time to re-visit these findings and priorities, given the rapid changes in the biotechnology industry and the rapid scientific advancements in this field. The findings from this conference, which will be by invitation only, will assist USAID in developing continued efforts in agricultural biotechnology for developing countries.

Also during this quarter:



CABI will continue to update and improve AgBioTechNet with news and reviews.

Via the subcontract with Virginia Tech and in collaboration with ABSP management and the EARN/SEI project, progress will be continued on the biosafety manual.

ABSP will continue to support individuals to attend MSU sponsored courses on Food safety and Intellectual Property Rights (July 2000). We are currently in discussions with the US Embassy in India regarding the sponsoring of participants. In addition, we will sponsor participants from Africa as part of the Africa Bureau support. This effort is important to the biotechnology initiative with ASARECA, as the research scientists will need to know how to access proprietary material to conduct their research, and how to protect their innovations.

ABSP will continue to work with potential collaborators in the Philippines, Morocco and elsewhere in the establishment of regulations and policies related to biosafety.

**Activities that meet Objective Number 2: Research Collaborations**

Continue to improve potatoes and cucurbits via laboratory, greenhouse and field trial experiments. Continue to explore additional testing sites for improved materials.

**REPORTING SCHEDULE FOR ABSP PHASE II PROJECT – 2000-2001**

<b>YEAR</b>	<b>JANUARY</b>	<b>APRIL</b>	<b>JULY</b>	<b>OCTOBER</b>
<b>2000</b>	<b>Annual in-depth Technical Report</b> (for work performed January 1998-December 1999) Submitted to MSU and USAID	<b>Short Progress Report</b> (Quarterly – January 2000-March 2000) Submitted to MSU Only	<b>Impact Report</b> Submitted to MSU and USAID	<b>Short Progress Report</b> (Quarterly – July 2000-September 2000) Submitted to MSU Only
<b>2001</b>		<b>Short Progress Report</b> (Quarterly – January 2001-March 2001) Submitted to MSU Only	<b>Impact Report</b> Submitted to MSU and USAID	<b>Final Technical and Impact Report</b> covering entire 3 year period (August 1998-August 2001) Submitted as final report to USAID

## ABSP TRAVEL SCHEDULE 1999-2000 FISCAL YEAR

TRAVELER	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP
C. IVES	CALIFORNIA - BERKELEY	TANZA <sup>1</sup>	INDO PHILIP	URUGUAY <sup>3</sup> DES MOINES <sup>4</sup> ITHACA	WASH, DC UNITED KINGDOM	EGYPT <sup>1</sup>	BOSTON EAST AFRICA	MOROCCO CALIF.	EGYPT <sup>1</sup>	TORONT	WASH, DC		
A. JOHANSON	KENYA <sup>2</sup>	VIRGINIA		URUGUAY <sup>3</sup>		EGYPT <sup>1</sup>	EAST AFRICA		OHIO <sup>4</sup> NY/ ITHACA EGYPT <sup>1</sup>	TORONT QUEBEC	WASH, DC	LOUIS.	
K. MAREDIA	INDONESIA	WASH, DC		INDIA URUGUAY <sup>3</sup>		ATLANTA/ AUTM		DALLAS	INDONESIA/ PHILIPPINES EGYPT <sup>1</sup>	TORONT			DES MOINES
F. ERBISCH	INDONESIA								EGYPT <sup>1</sup>				
P. TRAYNOR					MSU				EGYPT <sup>1</sup>				
S. GIBBONS									EGYPT <sup>1</sup>				
M. LACEY						EGYPT <sup>1</sup>			WASH, DC EGYPT <sup>1</sup>				
M. MADKOUR							BOSTON <sup>4</sup>						
W. PETT					INDONESIA	EGYPT <sup>1</sup>			EGYPT <sup>1</sup>				
D. DOUCHES					CIP/PERU	EGYPT <sup>1</sup>			EGYPT <sup>1</sup>				
E. GRAFIUS									EGYPT <sup>1</sup>				
R. GRUMET									EGYPT <sup>1</sup>				

**KEY:**

1. PAID BY STOCKHOLM ENVIRONMENT INSTITUTE
2. PAID FROM AFRICAN INITIATIVES/USAID
3. PAID FROM INTERAMERICAN DEVELOPMENT BANK FUNDS
4. PAID FROM GRANT FROM USAID/CAIRO

# Appendix 1: Examination of a Regional approach to improving and distributing agricultural in Africa

---

## Executive Summary

The Agricultural Biotechnology and Biosafety in Africa (ABBA) proposal requests seed-funding from USAID/Africa Bureau to begin the process of developing a long-term strategy for the improvement of agricultural goods for domestic and export consumption through the use of modern biotechnology. This small request will allow ABSP to generate information about African priorities and needs, relevant US technologies and interests, and prospects for a long-term capacity and collaborative effort between African scientists and policy makers and US researchers and stakeholders.

This effort logically follows the USAID-supported, ABSP-contracted assessment for ASARECA on the feasibility of a Regional Initiative on Biotechnology for Agricultural Research in Eastern and Central Africa. It will build stronger ties between ASARECA and the US research community generally, and ABSP specifically. The activities to be conducted under this proposal will provide ASARECA with information on technologies of interest to its NARS members, and will promote the development of biosafety policies and regulations based upon scientific principles.

---

## Current Status of Biotechnology/Biosafety in Africa

In a recently published study commissioned by the Rockefeller Foundation, ISNAR found that:

- Applications of biotechnology are becoming part of mainstream agricultural research. Research and training in cellular biology for vegetatively propagated crops are now well established. Combined with disease diagnostics, this has contributed to the delivery of improved planting material of major crops.
  - **Further advancements in agricultural biotechnology are severely constrained by a lack of funds, skilled human resources, and equipment. There are good opportunities for donor support in advanced research and training which will enhance ongoing efforts.** Any support to agricultural research, including biotechnology, should focus on a limited number of priority crops, clear objectives, and institutes with the capacity to undertake advanced research.
  - International institutes and international programs have developed good relations with strong African research institutes and provide a window to advanced research institutes in Europe and the USA. In any new initiative, potential national and international partners should be consulted and involved at an early stage. **Collaboration with regional initiatives such as ASARECA's biotechnology program should be actively sought.**
  - **Research and services on policy and management aspects of biotechnology, such as biosafety, should be an integral component of a new donor initiative.**
  - Economic evaluation studies and cost-benefit analysis should be conducted and used to promote awareness among policymakers, research managers and society in general.
-

- **Novel funding mechanisms should be considered, such as competitive funding of collaborative research projects, or funding of research projects with cost-recovery potential.**

In this study, it was discovered that very few countries have so far developed biosafety guidelines, formed National Biosafety Committees, trained technical reviewers, received applications, or approved testing of genetically modified products. However, research collaborations which will result in the need for these guidelines was ongoing (i.e. development of transgenic plantain with resistance to fungus, virus-resistant sweet potato).

These findings, along with their interest in agricultural biotechnology, prompted the United Nations Development Program (UNDP) and USAID/Africa Bureau to conduct an assessment of the feasibility of a Regional Initiative on Biotechnology for Agricultural Research in Eastern and Central Africa in 1999. This assessment called for the development of a Working Group (WG) within ASARECA to continue the process of identifying areas of interest and strategies for a regional approach to biosafety, as well as research. The exact content and level of a regional initiative will be developed by the WG on Biotechnology. This WG may meet three to four times over the next year to cover all the issues involved before producing its report with specific recommendations, which can then be considered by the ASARECA and the other stakeholders.

The assessment also noted that some of the NARS/Universities/private companies in the region as well as the IARCs were already involved in the simpler biotechnology applications. There may be economies of scale that can be achieved by taking a regional approach in such undertakings. The WG will review this and make recommendations on whether these research initiatives should remain a national affair and/or if there is some value addition through regional cooperation.

The report also indicated that the more complex biotechnologies (e.g. transgenic plants) required additional study. It was noted that there were already some developments in this area which could be useful to farmers in the region (e.g. sweet potatoes), although the bulk of the advances so far were aimed at farmers in the more advanced agricultural systems. Given the rapid developments in this field globally, it is conceivable that there could be major breakthroughs in the near future which involve genetic modifications that are targeted towards the constraints of the farmers in the region (e.g. drought tolerant varieties etc).

#### *Implications for Africa*

There is a strong interest and desire in Africa for the development of biotechnology programs and biosafety regulatory systems. However, for both research and regulation, sub-Saharan Africa suffers from a lack of technical expertise. It seems reasonable, given the paucity of highly trained molecular biologists, ecologists, plant breeders, virologists, etc. that a regional approach to research, technical review and assessment should be explored. While the decision to allow field-testing and commercialization of a GMO would remain a national one, technical reviews and recommendations could be handled by a regional team of experts. In addition, countries could decide to accept certain data from tests in other countries (such as toxicity feeding studies) to streamline the process and lessen the burden on African scientists and administrators.

---

## **Proposal for Agricultural Biotechnology and Biosafety in Africa (ABBA)**

This brief proposal builds on to the assessments funded by the Rockefeller Foundation, UNDP and USAID described above. The ultimate, long-term goal of ABBA is to develop improved agricultural goods for domestic and export consumption through the use of modern biotechnology. To accomplish this goal, significant resources will have to be committed to improving the technical capacity within Africa, promoting regional cooperation between African NARS, linking advanced laboratories to African NARS,

and coordinating a regional framework to develop harmonized policies that will allow researchers and the private sector to access and use biotechnology-derived products, including biosafety policies.

As a first step, in 1999/2000, ABSP proposes to:

1. Conduct a survey of international projects involving biotechnology that may be suitable for near-term field testing in Africa.
2. Collaborate with ASARECA in developing a regional approach to the regulation of GMOs.
3. Again in collaboration with ASARECA and other stakeholders, develop a larger proposal for a biotechnology development program focusing on specific crops, traits, partnerships, training needs and funding mechanisms.

#### *1. Survey*

ABSP has held informal discussions with a number of research groups regarding the development of biotechnology-derived crops that are important for Africa. While it is true that most investment in agricultural biotechnology has been focused on developed country needs (i.e. European Corn Borer resistant maize, potatoes with resistance to Colorado Potato Beetle) there are a number of projects that have been funded to address the needs of developing countries. A number of these initiatives have involved the development of GMOs and have progressed to the point that they will need to be tested in developing countries. ABSP has begun an initial, informal survey to obtain a full inventory/list of these technologies and assess the constraints in bringing these technologies to the field. They include:

- Fungal resistant plantain
- Virus resistant sweet potato
- Insect resistant potato
- Virus resistant cassava
- Virus resistant maize
- Improved nutritional content in sweet potato

The purpose of a formalized survey will be to gather more information regarding these collaborations and others that may have a direct significant impact on African agriculture, and determine which technologies are most suitable for testing in Africa at this time. It should be noted that the survey may also identify more rudimentary biotechnology projects and programs that may have a significant impact on African agriculture (i.e. virus diagnostics). In addition, this survey will allow USAID to prioritize its funding to a few, specific areas that will demonstrate the most impact. These improved varieties should be acceptable to African scientists and policy makers, and should provide an impetus to develop biosafety procedures.

#### *2. Regional Biosafety Network*

Parallel to this survey, ABSP will continue to work with ASARECA to provide biosafety expertise and guidance as ASARECA moves to develop a regional framework for biosafety policy, regulation, and review. ASARECA's recently sanctioned Working Group (WG) on this issue will require input from experts in biosafety policy and regulations. ABSP will provide two consultants over the next year to attend WG meetings and to provide strategies for the development of a functional regional network. This collaboration will provide the WG with competent technical advice and will ensure that regulations are developed upon sound scientific principles.

#### *3. Larger Proposal*

ABSP will work in collaboration with ASARECA in developing a more in-depth proposal for the building of a biotechnology research network in Africa. It will explore funding mechanisms, unique partnering arrangements, training needs and priorities for research (i.e. possibly through competitive grants). This activity will involve discussions and meetings not only with ASARECA, but also with stakeholders in the US public and private sectors.