AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A = ADD, C = CHANGE, D = DELETE

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/Bureau Cluster# 0203

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1256

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Winged Bean Research

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE: MM 6, YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		BUDGET
A. AID APPROPRIATED		1,100
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
TOTAL		1,100

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY F. GRANT	E. FIRST FY G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1)	111 I	963		700		1,100	
(2)							
(3)							
(4)							
			TOTAL	700		1,100	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve rural and urban poor nutrition with the introduction of adapted food legumes.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To conduct basic research on Winged Bean productivity, adaptability, and nutritive qualities.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Leon F. Hesser

Title: Director, Office of Agriculture

Date Signed: MM 07 DD 07 YY 77

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

BEST AVAILABLE COPY

PROJECT IDENTIFICATION DOCUMENT
Cluster 0203 - Project 06

1. Summary

Title: Winged Bean Research

Time Period: To begin FY 79

Estimated Cost: $ 1,100,000 Life of Project Cost.

Probable Investigators: A grouping or consortium including Alabama A&M, University of Illinois, IITA, University of Florida, National Biological Institute (Indonesia), University of Papua New Guinea, University of the Philippines/Los Banos, University of Hawaii, some involvement of the Asia Foundation and National Academy of Sciences.

2. The Problem.

Edible legumes are important sources of dietary protein, and sometimes also of oils which are a valuable source of calories. In many tropical areas, productivity of adapted legume species is low, and other species, (such as soybeans) have obstacles to their food use which currently limits their utilization. New or little-known species which could have wider cultivation and use could furnish a valuable addition to the supply of nutritious food in these areas.

The winged bean (Psophocarpus tetragonolobus (L.) DC) is a little-known legume species which has recently been identified by a National Academy of Sciences study team as a potentially significant food crop for the humid tropics (NAS ad hoc Panel Report, 1975). This species presently is cultivated only as a garden crop in Papua New Guinea and some other areas of Southeast Asia. Research in other humid tropical areas, notably West Africa, has indicated that it may have real potential value throughout the humid tropical zone.

The species is so little known that research is needed even on such elementary matters as its nutritional value, water, and fertility requirements, photoperiodic response, and propagation. It produces both seeds and tubers, eaten freely by those who grow it in Southeast Asia, and also has edible leaves. The total protein and oil contents are comparable to those of soybeans, but the amino acid, lipid, and tocopherol contents are somewhat unusual. Protein content of the tubers is unusually high. However, information on its food use is so scanty that its potential for utilization on a wide scale is not clear.

3. Specific Topics Needing Research.

The NAS panel report points out needs for study of the winged bean in the following subjects:

a. Germ Plasm Collection.

The panel recommended that a concentrated germ plasm collection effort be made, especially in Papua New Guinea, Indonesia, Thailand, Malaysia, the Philippines, and Burma. Some of this work has been undertaken, but not in a well-organized manner. No. central site has been designated for preservation and maintenance of the collection. This needs to be done soon if the collection is to be adequately safeguarded.

b. Varietal Selection and Improvement.

No organized selection or breeding work with the winged bean has ever been done. The panel recommended that one or two well-qualified research institutions undertake major plant breeding work, and that several other institutions in tropical areas conduct varietal trials and smaller-scale plant breeding. Principal objectives would be increasing yield and reliability of production (especially of seeds and tubers on the same plant), development of short, erect types suitable for larger-scale cultivation, and improving resistance to diseases and pests.

c. Taxonomy.

The taxonomy of the genus Psophocarpus is poorly understood. It is basic to plant breeding programs to know the relationships of genetic strains involved. Little such information is now available which could be useful for improving the cultivated forms. This work could be done by one institution, with cooperation by other qualified workers.

d. General Agronomic Studies.

Almost nothing is known about the agronomic characteristics of this plant, or how its cultivation could be manipulated to fit it into rational cropping systems. Research is needed on:

(1) Nitrogen fixing ability

(2) Water requirements

(3) Photoperiodic requirements and possible alteration

(4) Vegetative reproduction

(5) Seed-setting habits and their modification

(6) Tuber development

(7) Cultivation methods

(8) Value for forage or soil-building.

e. Nutritional Evaluation.

The panel points out that little is known about nutritional effectiveness of the winged bean nor about possible antinutritional factors. Topics requiring research include:

(1) Protein content and quality (and their variability) of seeds, tubers, and leaves.

(2) Levels of trypsin inhibitors, hemagglutinins, and flatulence factors, and means of modifying these.

(3) Oil and fatty acid contents; significance for human nutrition; means of extracting oil and using residual meal.

(4) Cooking methods and their utilization in various areas.

(5) Socioeconomic implications of introduction or expanded cultivation of this crop.

4. Organization of the Project and Probable Costs.

An informal working group on the winged bean already exists. The Asia Foundation has assumed a coordinating role for this group, after the initial impetus given by the National Academy of Sciences.

It is proposed:

a. That a working conference on research status and needs for the winged bean be held, probably in the Philippines, late in 1977. A.I.D. should cosponsor this conference. Cost is estimated at about $30,000.

b. That a collaborative research program, involving at least the institutions listed in 1. above, be undertaken in FY 79. Costs to A.I.D. are estimated at $500,000 per year.

4

Development of a collaborative research program grant proposal should take place after the conference; this proposal should be ready for further consideration by April 1, 1978.

ENVIRONMENTAL THRESHOLD DEC_ _ON

TO: AA/TA, Mr. Curtis Farrar

THRU: TA/PPU, Mr. Ken Milow

FROM: TA/AGR, Leon F. Hesser

SUBJECT: Environmental Threshold Decision

Project Title: Winged Bean Research

Project Number: 931-1256

Project Manager: Keith Byergo

REFERENCE: See page 4, Project Identification Document, attached. recommendation for a Negative Threshold Decision for the Environmental Determination, impact.

dated 7/7/77.

On the basis of the Initial Environmental/Examination (IEE) referenced above and attached to this memorandum I recommend that you make the following decision.

XXX 1. The proposed agency ation is not a major Federal action which will have a significant effect on the human environment.

_____2. The proposed agency action is a major Federal action which will have a significant effect on the human environment, and:

_____ a. An Environmental Assessment is required; or

_____ b. An Environmental Impact Statement is required.

The cost of and schedule for this requirement is fully described in the referenced document.

_____3. Our environmental examination is not complete. We will submit the analysis no later than _____with our recommendation for an environmental threshold decision.

Approved:_____

Disapproved:_____

Date:_____

BEST AVAILABLE COPY

3. Specific Topics Needing Research.

The NAS panel report points out needs for study of the winged bean in the following subjects:

a. Germ Plasm Collection.

The panel recommended that a concentrated germ plasm collection effort be made, especially in Papua New Guinea, Indonesia, Thailand, Malaysia, the Philippines, and Burma. Some of this work has been undertaken, but not in a well-organized manner. No. central site has been designated for preservation and maintenance of the collection. This needs to be done soon if the collection is to be adequately safeguarded.

b. Varietal Selection and Improvement.

No organized selection or breeding work with the winged bean has ever been done. The panel recommended that one or two well-qualified research institutions undertake major plant breeding work, and that several other institutions in tropical areas conduct varietal trials and smaller-scale plant breeding. Principal objectives would be increasing yield and reliability of production (especially of seeds and tubers on the same plant), development of short, erect types suitable for larger-scale cultivation, and improving resistance to diseases and pests.

c. Taxonomy.

The taxonomy of the genus Psophocarpus is poorly understood. It is basic to plant breeding programs to know the relationships of genetic strains involved. Little such information is now available which could be useful for improving the cultivated forms. This work could be done by one institution, with cooperation by other qualified workers.

d. General Agronomic Studies.

Almost nothing is known about the agronomic characteristics of this plant, or how its cultivation could be manipulated to fit it into rational cropping systems. Research is needed on:

(1) Nitrogen fixing ability

(2) Water requirements

(3) Photoperiodic requirements and possible alteration

(4) Vegetative reproduction

(5) Seed-setting habits and their modification

(6) Tuber development

(7) Cultivation methods

(8) Value for forage or soil-building.

e. Nutritional Evaluation.

The panel points out that little is known about nutritional effectiveness of the winged bean nor about possible antinutritional factors. Topics requiring research include:

(1) Protein content and quality (and their variability) of seeds, tubers, and leaves.

(2) Levels of trypsin inhibitors, hemagglutinins, and flatulence factors, and means of modifying these.

(3) Oil and fatty acid contents; significance for human nutrition; means of extracting oil and using residual meal.

(4) Cooking methods and their utilization in various areas.

(5) Socioeconomic implications of introduction or expanded cultivation of this crop.

4. Organization of the Project and Probable Costs.

An informal working group on the winged bean already exists. The Asia Foundation has assumed a coordinating role for this group, after the initial impetus given by the National Academy of Sciences.

It is proposed:

a. That a working conference on research status and needs for the winged bean be held, probably in the Philippines, late in 1977. A.I.D. should cosponsor this conference. Cost is estimated at about $30,000, as a small activity, using FY 78 funds under Utilization/Evaluation.

b. That a collaborative research program, involving at least the institutions listed in 1. above, be undertaken in FY 79. Costs to A.I.D. are estimated at $500,000 per year.

Development of a collaborative research program grant proposal should take place after the conference; this proposal should be ready for further consideration by April 1, 1978.

5. It is recommended that the Environmental Determination be a negative Threshold Decision since the project activities will be restricted to research, training, and adaptive trials with no activities affecting the environment.

AGENCY FOR INTERNATIO DEVELOPMENT

PROJECT DOCUMENT ACTION FORM

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PDAF

2. DOCUMENT CODE: 4

3. COUNTRY/ENTITY: TA/BUREAU

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): 931-1256

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (Maximum 40 characters): Winged Bean Research

8. RELATED DOCUMENT CODE: 1 (1 - PID, 2 - PRP)

9. PROJECT DOCUMENT ACTION (ENTER COMMENT FOR * ITEMS IN BLOCK 13)

ACTION TAKEN: A - APPROVED; D - DISAPPROVED*; S - SUSPENDED*; CA - CONDITIONALLY APPROVED*; DD - DECISION DEFERRED*

10. APPROVED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH CODE C. GRANT	PRIMARY TECH CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) FN	111 I	963		700		1,100	
(2)							
(3)							
(4)							
			TOTALS	700		1,100	

11. PROPOSED PLANNING RESOURCES: 1 - APPROVED; 2 - DISAPPROVED; 3 - APPROVED AS MODIFIED

12. PROPOSED NEXT DOCUMENT: A. 3 (2 - PRP, 3 - PP)

B. PROPOSED NEXT DOCUMENT DATE: MM 6 YY 78

13. COMMENTS (Maximum 240 characters)

14. ACTION REFERENCE

A. AIRGRAMS: AIDTOA

TELEGRAMS: STATE

MEMORANDA:

B. ACTION REFERENCE DATE: MM DD YY

15. CLEARANCES

	TYPED NAME	TITLE	DATE	INITIALS
A.	Earl Leng	Chief, TA/AGR/CP	12/1/77	ERL
B.	Leon F. Hesser	Director, TA/AGR		
C.				
D.	Charles Molfetto	Program Analyst TA/PPU/PPA		
E.	Ken Milow	Chief, TA/PPU/PPA		
F.	Robert Simpson	Director, TA/PPU		

16. RESPONSIBLE BUREAU SIGNATURE

17. ACTION DATE: MM DD YY

AID 1330-5 (5-76)

BEST AVAILABLE COPY

PROJECT IDENTIFICATION DOCUMENT
Cluster 0203 - Project 06

1. Summary

Title: Winged Bean Research

Time Period: To begin FY 79

Estimated Cost: $500,000 per year

Probable Investigators: A grouping or consortium including Alabama A&M, University of Illinois, IITA, University of Florida, National Biological Institute (Indonesia), University of Papua New Guinea, University of the Philippines/Los Banos, University of Hawaii, some involvement of the Asia Foundation and National Academy of Sciences.

2. The Problem.

Edible legumes are important sources of dietary protein, and sometimes also of oils which are a valuable source of calories. In many tropical areas, productivity of adapted legume species is low, and other species, (such as soybeans) have obstacles to their food use which currently limits their utilization. New or little-known species which could have wider cultivation and use could furnish a valuable addition to the supply of nutritious food in these areas.

The winged bean (*Psophocarpus tetragonolobus* (L.) DC) is a little-known legume species which has recently been identified by a National Academy of Sciences study team as a potentially significant food crop for the humid tropics (NAS *ad hoc* Panel Report, 1975). This species presently is cultivated only as a garden crop in Papua New Guinea and some other areas of Southeast Asia. Research in other humid tropical areas, notably West Africa, has indicated that it may have real potential value throughout the humid tropical zone.

The species is so little known that research is needed even on such elementary matters as its nutritional value, water, and fertility requirements, photoperiodic response, and propagation. It produces both seeds and tubers, eaten freely by those who grow it in Southeast Asia, and also has edible leaves. The total protein and oil contents are comparable to those of soybeans, but the amino acid, lipid, and tocopherol contents are somewhat unusual. Protein content of the tubers is unusually high. However, information on its food use is so scanty that its potential for utilization on a wide scale is not clear.