



# RAFI COMMUNIQUE

RURAL ADVANCEMENT FUND INTERNATIONAL

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## A Report on Germplasm Embargoes

**ISSUE:** Plant genetic resources are embargoed for economic, property, phytosanitary, and political reasons. Emphasizing the history of political embargoes--with the USA as a case study--RAFI evaluates the implications. New data on US embargoes shows scope of problem.

**COUNTRIES AFFECTED:** All countries but especially African states and others in Asia and Latin America without national germplasm programmes and policies.

**IMPACT:** RAFI concludes that the current impact of most germplasm embargoes has not been serious--but that the spread of both property and political embargoes threatens world food security. IBPGR's role related to embargoes requires close examination.

**ACTION:** This issue should be addressed by the IBPGR Board at its February, 1989, meeting and by the FAO Commission on Plant Genetic Resources in April, 1989.

## FOUR KINDS OF EMBARGOES

Reviewing the debate over germplasm embargoes, RAFI has concluded that distinctions must be made between the four basic reasons for embargoes:

- Technical (Quarantine-related, etc.);
- Economic (industrial & export crops);
- Property (private or intellectual property rights);
- Political (foreign policy inspired).

There appears to be widespread acceptance of the practical necessity of both technical and economic embargoes. There is a split (South/North) over the nature of property embargoes. Political embargoes, on the other hand, are universally opposed - at least publicly - by all countries.

Many countries make a distinction between the embargoing of basic food crops and of nonessential food and industrial crops. There are no examples of food crop embargoes for economic reasons. There is, however, at least one example of a government-imposed embargo of food crop germplasm for property reasons (where national economic considerations are a factor).

The distinctions between the four causes of embargo are not always precise. Phytosanitary and other technical reasons are often given in support of what are fundamentally economic or political embargoes, for example. In the case of property embargoes, it is not clear whether a distinction can be made between the property rights of farmers as exercised by the State under "Farmers' Rights" (are these actually political embargoes?) and the property rights of private enterprise as expressed through Plant Breeders' "Rights" and gene patents.

In the course of its study, RAFI has been disturbed to learn that the problem of political embargoes is well-known to IBPGR (International Board for Plant Genetic Resources) which, in spite of its knowledge, has continued to encourage some States to forward germplasm for storage in other States that have been known to apply such embargoes. There is no indication that IBPGR has shared its knowledge with the States donating germplasm.

### I. TECHNICAL EMBARGOES

#### Experience:

For either phytosanitary or technical reasons, most countries

regulate the international flow of germplasm to and from their borders. The problems of disease control can make it difficult for some countries to send germplasm of some crops and even harder for other countries to receive material. In the process of assuring the safety of the material to be exchanged, rare germplasm is often destroyed.

Some countries, however, use procedural delays or phytosanitary regulations in order to either reduce the flow of germplasm or to ensure that the material they send will be dead on arrival. In discussions with scientists in several countries, both Indonesia and India have been identified as often sending "dead" germplasm in fulfillment of international requests<sup>1</sup>. GTZ officials have also accused Ethiopia of using technical constraints as cause for not sending barley material to<sup>2</sup> the German Federal Republic. Ethiopia vehemently denies this<sup>2</sup>.

In 1984, the Senate Standing Committee on National Resources in Australia published a report on plant breeders' rights which included a four page appendix listing plant varieties being denied Australia because of the lack of patent protection in that country<sup>3</sup>. Upon close examination, it appeared that many - if not most - of the varieties listed were embargoed for phytosanitary reasons. US exporters, in particular, complained of the problems of Australian quarantine regulations<sup>4</sup>. US Government officials also concurred that the major problem with Australian access to American varieties was due to quarantine<sup>5</sup>.

#### Evaluation:

In RAFI's opinion, there are serious problems related to the exchange of germplasm due to improperly applied technical regulations. Overwhelmingly, these problems are of a technical and bureaucratic nature, however, and are not due to ill will or an unwillingness to exchange. The FAO Commission on Plant Genetic Resources should work with IBPGR to ease this problem.

Where technical considerations are used as an excuse to embargo, RAFI believes that the major causes are economic. Countries are reluctant to create competition for their export crops in another country. Fruits, condiments, ornamentals and major industrial plants such as rubber and oil palm may be examples of such embargoes for some countries. RAFI believes these problems can only be resolved by practical negotiations leading to mutual benefit for exporter and im-

porter.

## II. ECONOMIC EMBARGOES

### Experience:

The economies of many countries often hang upon the export market for (largely) nonessential food or industrial crops. As a result of a legal action initiated by the Foundation for Economic Trends, RAFI has obtained extensive documentation from the United States Government related to all aspects of plant genetic resources. Document [175351.1] (June, 1986) - a cable from the State Department in Washington to the US Embassy in Rome - expresses sympathy with Third World countries imposing economic embargoes. Paragraph 2 also makes the distinction between economic and political embargoes:

2. (...) THE CROPS IN QUESTION GENERATE SUBSTANTIAL INCOME FOR THOSE COUNTRIES. THERE ARE OBVIOUSLY IMPORTANT REASONS TO SAFEGUARD THE GERmplasm -- EVEN FROM SCIENTIFIC RESEARCH (ONE REMEMBERS WHAT HAPPENED TO BRAZIL AFTER THE RUBBER TREE WAS PLANTED IN INDONESIA). USDA OFFICIALS HAVE ALSO POINTED OUT THAT IN THE MATTER OF EXCHANGE OF GERmplasm, AN "EMBARGO" MAY ALLOW FOR EXCEPTIONS, E.G. A COUNTRY MAY PERMIT SAMPLES TO BE EXCHANGED FOR RESEARCH PURPOSES, OR WHEN ASSURED THAT THE RECIPIENT WILL NOT PASS THEM ON TO A THIRD COUNTRY. THERE ARE ALSO DIFFERING DEGREES OF OPENNESS WHICH CAN BE MISINTERPRETED. THE U.S., FOR EXAMPLE, WHILE MAINTAINING A POLICY OF FREE EXCHANGE, PERMITS NOT MORE THAN ONE-HALF OUNCE OF TOBACCO GERmplasm TO BE EXCHANGED FOR RESEARCH PURPOSES.

US sources also contend that Cuba imposes a tobacco germplasm embargo and that germplasm was smuggled in diplomatic pouches to a Central American state and then to the USA.

We have also included under the economic category, Japan's embargo of public sector rice germplasm that might be used to develop inbred lines for the production of hybrid rice. The embargo was imposed specifically to prevent Occidental Petroleum from establishing property rights over material in Japan obtained by the company from China. China, in turn, had originally obtained its material from Japan. Whether a property embargo or an economic embargo, it is unusual in that it involves Asia's major food crop.

**"ECONOMIC" GERMPLASM EMBARGOES**

Crop	Country/Region	Holder	Discussion
Black Pepper	India	Government	probable importance' FAO COAG ((1983) says, 'freely available within India only'
Cocoa	Ecuador	Government	FAO COAG (1983) survey indicates restrictions
Coffee	Ethiopia	Government	Germplasm embargo in effect since 1977
Fruits	Thailand	Ministry of Agriculture	Report to IBPGR states that government 'imposed a ban on exportation of mango, durian, grape, pomelo
Fruits	Malaysia	IBPGR National Rep.	IBPGR report describes as 'not too keen in sharing mango'
Fruits	Indonesia	Government	IBPGR report indicates authority 'was willing [to share mangoes] but only on a limited basis'
Rice	Japan	Government	To protect development of hybrid rice by Occidental Petroleum;
Sugarcane	China (Taiwan)	Government	FAO COAG (1983) survey says 'available ten years after release of variety'
Sugarcane	Uganda	Government	FAO COAG (1983): 'Restricted'
Sugarcane	Worldwide	Public & Private	Fijian representative to IBPGR regional meeting in 1981 noted 'political' problems with the exchange of germplasm
Tobacco	Turkey	Government	FAO COAG (1983) reports that Ministries of Agric. and Monopolies must permit export
Tobacco	United States	Government	US Government documents concede that the quantity of germplasm exchanged is restricted for economic reasons
Vegetables	Tropics	Governments	In 1979, an IBPGR consultant reported, '..there are in addition political problems which limit the practical availability of material in existing collections'

### **Evaluation:**

Although economic embargoes are understandable, their impact can be extremely damaging to many economies. The "botanical chess game" of the Colonial era has left many "new" producers with dangerously narrow germplasm bases and highly vulnerable to environmental stresses. Latin American coffee growers need Ethiopian germplasm. Malaysian rubber producers need material from Brazil. East African tea estates need help from India and China and so on.

In fact, Malaysia and Brazil have established a successful model for other countries. In a carefully negotiated agreement, the two countries jointly collect rubber germplasm in the Amazon. Duplicate samples are sent to Malaysia where the sixty year old research programme in that country applies its wealth of technical knowledge to the development of improved cultivars. That technical information is shared with Brazil. Both parties benefit'.

Both the FAO Commission on Plant Genetic Resources and the UN Conference on Trade and Development (UNCTAD) could play a helpful role here in facilitating South-South cooperation.

### **III. PROPERTY EMBARGOES**

#### **Experience:**

The most readily documented embargoes are those related to private or intellectual property. Although the Union for the Protection of New Varieties of Plants (UPOV) stipulates the free exchange of "patented" varieties for scientific research and permits the use of patented material as an initial source of variation in developing other varieties, Article 5 is only binding among the 18 industrialized countries that are members of the Convention.

It is also true that non-UPOV members are not bound to honour variety patents and may use them without the permission of the breeder.

Nevertheless, property embargoes are widespread and many private companies are reluctant to make available material in private gene banks. The Gene Bank in Dublin even excludes access to its public material unless the applicant is from a UPOV member state.

#### **Evaluation:**

Intellectual Property embargoes represent a growing and serious constraint to plant breeding in industrialized countries but are not a major concern in the Third World - as yet. However, other (private) property embargoes imposed by the old estate enterprises for banana, rubber, tea, sugarcane, tropical fruits, etc. do handicap the ability of Third World governments to improve production.

According to sources in UPOV, as many as 42 states in Asia, Africa and Latin America are now giving some consideration to joining the UPOV Convention. RAFI believes that this will increase the pressure against free exchange - not merely of elite lines but of all germplasm in the hands of breeders. Through the FAO Commission and UPOV itself, Third World Governments need to explore the application of farmers' rights as a means of safeguarding national sovereignty of botanical treasures and ensuring that the farmers who have given the world crop genetic diversity benefit from their contribution.

**"PROPERTY" GERmplasm EMBARGOES**

<u>Crop</u>	<u>Country/Region</u>	<u>Holder</u>	<u>Discussion</u>
All Crops	United States	Private sector	A business consultant told a US State Dept. Conference in 1981 that, 'secrecy is already being extended to private germplasm collections' in the DNA agricultural research field
?	United Kingdom	Hurst, Gunson Cooper, Taber	A 1981 FAO/UNDP survey indicates germplasm is not available except 'on an exchange basis by special arrangement'
?	Netherlands	Cebeco- Handelsraad	1981 FAO/UNDP survey says 'with the exception of a few accessions'
?	Netherlands	Nunhems Zaden BV	1981 FAO/UNDP survey says 'willing to discuss the possibility of exchange'

V	?	Ireland	Semi-governmental	1981 FAO/UNDP survey indicates exchange of germplasm is restricted to UPOV members	V
V	Banana	Honduras	United Brands Co.	In 1981, an IBPGR consultant noted that the company had an 'important collection but its composition is not published and its potential value to the world at large unassessible. I can only Referring to United Fruit Co. and other clonal material, a 1981 IBPGR report states that, 'Some restrictions have been experienced in the availability of this material' note its existence and IBPGR Booklet describes collection as 'restricted' in 1980 consultant's survey	V
V	Cocoa	Central America	Companies & Governments	In 1980, the IBPGR secretariat wrote that, 'seed companies are reluctant to release germplasm of use in ongoing breeding programmes' and noted their desire to see an 'embargo on the release of such seeds for five or ten years'	V
V	Rubber	Liberia	Firestone Co.	Brazilian officials have complained of need to pay royalties to sugarcane firms in 1983	V
V	Sugarbeet	Europe	Companies	The Tea Research Council of Kenya reported in 1981 that requests to firms for clones received only a 'fair' response	V
V	Sugarcane	United States	Hawaiian Planters Association	Some difficulties in obtaining samples noted by Ottawa Gene Bank	V
V	Tea	Kenya	Companies	Libby subsidiary has indicated reluctance to give some material to Ottawa Gene Bank (1983)	V
V	Tomato	Canada	Campbell Soup Co.		V
V	Tomato	Canada	Nestles Co.		V

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## POLITICAL EMBARGOES:

### Experience:

#### The Case of the United States

The heated debate over whether or not certain states exercise germplasm embargoes for political reasons began in November, 1981, at the biennial FAO Conference in Rome. RAFI staffers circulated photocopies of a letter dated January 19, 1977, to Richard H. Demuth, Chairman, IBPGR, from T.W. Edminster, head of the U.S. germplasm system. In part, the letter stated:

"... We are willing to accept selected collections for long-term maintenance at Fort Collins. They would become the property of the U.S. Government, would be incorporated with our regular collections, and made available upon request on the same basis as the rest of the collection. To do otherwise would entail extraordinary, and we think unjustifiable, costs.

As you know it has been our policy for many years to freely exchange germplasm with most countries of the world. Political considerations have at times dictated exclusion of a few countries."

The letter was later printed in full in a special issue of the Dag Hammarskjold Foundation's Development Dialogue along with the following paragraph:

Prior to the 1981 Conference, we talked on the telephone to Dr. Quentin Jones of USDA (and an IBPGR Board member). Jones confirmed that the policy stated in the 1977 letter was still operational. The facts were not at Dr. Jones's fingertips but he was able to recall that the grain embargo against the Soviet Union over Afghanistan had also included a germplasm embargo. Asked for a list of countries on the US 'black list' he denied any knowledge of such a list, but added that embargoes either had been or were in effect against a number of countries. These included Afghanistan, Albania, Cuba, Iran, Libya, and Nicaragua as well as the Soviet Union. He did not know whether other countries who joined in the Soviet grain embargo also extended their embargo to germplasm.

Pat Roy Mooney, "The Law of the Seed", Development Dialogue, 1983:1-2, p.29

Yet, on December 7, 1983, Quentin Jones replied to a letter from Professor H.M. Munger [8H16.1] of Cornell University defending the US germplasm exchange policy:

There have been situations involving severance of diplomatic relations between this country and some of those having centrally managed economies. The germplasm exchange route between the United States and such countries involves our embassy or consulate in the foreign country and their counterpart offices in the United States. When these offices are not in operation, exchange takes place through a third party. Our policy statement for the NSSL was honest and straightforward in all regards including this possible exception to direct "free" exchange. It is our stated policy that the germplasm we hold is "freely available to all bona fide researchers." Channels of exchange may have to be altered at times.

By-the-way, the only country mentioned by Mooney that has asked for and not received germplasm from us directly, is Albania. He evidently rationalized that if one soviet bloc country was not supplied then probably it was safe to assume that others were not.

A telex [14U530] from the US Embassy in Rome to the State Department in Washington in September, 1984 shows that, contrary to other comments, IBPGR was well aware of past US germplasm embargoes (point 3 below). The telex also shows the disorganization in the Embassy in that - almost three years after the circulation of the Edminster letter and a year after its publication in Development Dialogue, Ambassador Millicent Fenwick still did not have a copy of the crucial letter (point 1 below).

1. ACTION REQUESTED: TO AVOID CALLING ATTENTION HERE TO FODAG'S INTEREST IN SUBJECT. WOULD BE APPRECIATED IF DEPARTMENT COULD SEND US FULL TEXT OF EDMINSTER LETTER CITED IN REFTEL.

2. MEETING WITH MR. TREVOR WILLIAMS, CHIEF, FAO CROP GENETIC RESOURCES CENTER, ON SEPTEMBER 25 PROVIDED OPPORTUNITY TO ENQUIRE ABOUT "DOCUMENTARY EVIDENCE" CITED IN REFTEL. EVIDENCE CONSISTS OF CABLES SENT TO FAO COUNTRY REPRESENTATIVES IN 1979

-- AND REPLIES -- ASKING THAT THEY SECURE INFORMATION ABOUT ANY INSTANCE WHEN A REQUEST FOR GERMPLOSM OF FOOD CROPS (REPEAT OF FOOD CROPS) HAD BEEN TURNED DOWN. REPLIES CITED NO CASES INVOLVING FOOD CROPS; THEY DID MENTION, HOWEVER, SEVERAL INSTANCES WHERE LDCS HAD THEMSELVES RESTRICTED MOVEMENT OF GERMPLOSM OF CROPS OF PARTICULAR COMMERCIAL IMPORTANCE TO THEM E.G. COFFEE IN ETHIOPIA, BLACK PEPPER IN INDIA.

3. WILLIAMS ALSO COMMENTED THAT, WHILE HE UNDERSTANDS U.S. HAS NEVER FORMALLY DENIED REQUEST FOR GERMPLOSM, THERE HAVE BEEN INSTANCES WHEN THE WORD WENT OUT THAT "FOR DIPLOMATIC REASONS" ANSWERS TO GERMPLOSM REQUESTS SHOULD BE SLOWED DOWN, NOT ACTED ON, OR ANSWERED THROUGH INTERMEDIARIES (E.G. CANADA). WILLIAMS UNDERSTOOD THIS WAS CASE WITH CUBA AFTER CRISES OF EARLY 1960S AND WITH ANGOLA IN MID-1970S.

If all this was news to the American State Department, it was obviously well-known to the international scientific community. Document [14U489] from the American Embassy in The Hague to the State Department in Washington a month later (October, 1984) confirms the views expressed by Trevor Williams. The telex quotes a letter from J.J. Hardon, Acting Director of the Dutch Gene Bank and a longtime representative for The Netherlands in the Rome debates:

... FINALLY, YOU STATE THAT THE U.S. IS COMMITTED TO THE PRINCIPLE OF FREE AND UNRESTRICTED EXCHANGE OF GERMPLOSM WITH ALL NATIONS. I TRUST THAT THIS MEANS THAT PREVIOUS RESTRICTIONS IMPOSED ON SUCH COUNTRIES AS CUBA, NICARAGUA, AND VIETNAM HAVE RECENTLY BEEN LIFTED.

By June, 1986, a telegram from the State Department in Washington to the Embassy in Rome [175351.1] shows that the strategy had turned toward pointing fingers at the foibles of other countries. Paragraph one shows the State Department's remarkable lack of information while paragraph three points to a strategy for the FAO debates:

1. INFORMATION CONCERNING SPECIFIC COUNTRY EMBARGOES ON PLANT GERMPLOSM IS UNAVAILABLE IN WASHINGTON. OFFICIALS AT USDA ARE AWARE OF INDIVIDUAL INSTANCES OF DENIAL OF GERMPLOSM, BUT DO NOT HAVE THE DETAILED INFORMATION REQUESTED.

2. A DIRECT REQUEST TO THE COUNTRIES IN QUESTION APPEARS TO BE THE ONLY WAY TO OBTAIN CORRECT INFORMATION. THE DEPARTMENT IS NOT ADVERSE (...) BUT SUSPECTS THAT THE REQUESTS MIGHT BE POORLY RECEIVED. (...)

3. NONETHELESS, THERE IS NO QUESTION BUT THAT MANY COUNTRIES APPLY A DOUBLE-STANDARD BY SIMULTANEOUSLY RESTRICTING THE EXCHANGE OF GERmplasm WHILE SUPPORTING THE UNDERTAKING AND ACCUSING THE U.S. OF RESTRICTING GERmplasm "FOR POLITICAL REASONS". OBTAINING THE INFORMATION REQUESTED WOULD PROVIDE USEFUL "AMMUNITION" FOR THE U.S. ARGUMENT. DEPARTMENT WILL PROCEED TO QUERY U.S. MISSIONS IN THE COUNTRIES MENTIONED FOR INFORMATION IN THE PUBLIC DOMAIN CONCERNING RESTRICTIONS ON GERmplasm (ADDING TO THE LIST REFTEL ...

"POLITICAL" GERmplasm EMBARGOES			
Crop	Country/Region	Holder	Discussion
All Crops	United States	Dept. of Agric.	USDA told IBPGR in a 1977V letter that access to itsV germplasm for some coun-V tries could be restrictedV for political reasons V
?	Poland	Government	1981 FAO/UNDP survey V reports 'may be some V problems involved' V
Cereals	Canada	Government	1980 USSR grain embargo V includes germplasm V
Sorghum	Africa & Asia	Unidentified	A 1981 IBPGR report notesV that, 'In view of the V difficulty of obtaining V some of these [sorghum V genes] from certain V sources...', although V whether 'sources' are V corp.or not is unknown V
Sorghum/ Millets	United States	Government (USAID)	In 1984, USAID offered toV support SADCC germplasm V enhancement programme if V cultivars did not go to V "socialist" states V

With the retirement of Quentin Jones and the appointment of Dr. Henry Shands to the post of National Program Leader for Plant Germplasm, the USDA began a serious effort to clean up its embargo problem. Paul J. Fitzgerald, Agricultural Science Advisor, Plant Germplasm, negotiated with the US Treasury on behalf of Shands and, on 25 July, 1986, wrote to Shands [175345.2]:

I had a pleasant telephone call and a most welcomed message from Cheryl Opacinch, Office of Foreign Assets Control, Treasury Department, (...) regarding my earlier request for exemption of plant germplasm from the embargoes imposed by the U.S. on North Korea, Cuba, Viet Nam, Cambodia, Nicaragua, and Libya. She called rather than responding by letter because of the lengthy delay since my original request of April 29 and my recent inquiry of July 21.

Despite this optimism, the problem was not resolved. On February 12, 1987, Henry L. Shands sent a "Fact Sheet" to key players on the embargo issue in the Reagan Administration [178345.1]. Embargoes were sufficiently a problem to have Shands call a meeting to try to clear up the policy confusion. Shands identifies three immediate embargo problems: material from South Africa and another unidentified country; material to Nicaragua. The memo emphasizes the confusion but also explicitly concedes that the United States does embargo germplasm to some countries for political reasons. The title says it all:

1. **Subject: Movement of Germplasm to and from Embargoed Nations**
2. **Nature and Background of Issue:**
  - a. ARS Plant Introduction Office has been unable to secure APHIS permits to ship germplasm to embargoed nations because APHIS requires Treasury Department permit.
  - b. Treasury Department wouldn't issue export permit because of foreign policy to not send materials to those nations.
  - c. Treasury agreed to consider issuing permits on a case by case basis. (see attached memo of P.J. Fitzgerald.)
3. **Present situation:**
  - a. Three amaranths destined for Nicaragua (from Rodale) have been awaiting approval since November.
  - b. A request to import virus-free fruit stock from

South Africa was awaiting certification of the originator by APHIS when the commercial embargo (in and out) on S.A. was put in effect.

- c. A request for a large quantity of grass seed by an ARS scientist in Arizona for arid range studies has since been caught in the embargo issue.
- 4. Sensitivities:
  - a. FAO activists will denounce 3.a. as proving the U.S. denies germplasm requests.

**Other points:**

- a. The real question seems to be: Does the exchange of germplasm override foreign policy? (i.e. embargo) State seems very uncomfortable to be put on this spot. This may be a "put up or shut up" situation regarding germplasm.
- b. It may take Congressional declaration of germplasm being above policy to get future action.
- c. Declaration of germplasm as a humanitarian aid item such as medicinal supplies still makes it subject to export controls. (i.e. medicine destined to a Catholic church in Nicaragua was denied license since the church was known to be controlled by the Sandinistas. Germplasm could not be sent to a government controlled research center, for example.)
- d. Each embargoed country has a different set of regs.
- e. Embargo on S.A. bans import of all agricultural products, seed, and clonal. However, Ms. Opacinch believed in the S.A. case, that Mr. O'Laughlin had the authority to approve or not. I judge that since the amaranth is to go to a Sandinista controlled site, no one at this meeting will have the authority to authorize such a shipment.

In September, 1988, RAFI contacted Rodale to determine the status of the amaranth material and was informed that Dr. George White of the USDA (Plant Introduction Officer) has advised Rodale to simply mail the seeds to Nicaragua first class. Sources within USDA confirmed that formal approval was never given. Rodale has no confirmation of the arrival of the seed in Nicaragua and is arranging to ship duplicate samples to RAFI in Canada for transshipment to Nicaragua.

**Evaluation:**

Several points need to be emphasized:

Firstly, US foreign policy does hinder the free flow of germplasm both in and out of the United States. No one - least of all the US Government - is aware of the extent of the problem.

Secondly, germplasm embargoes are simply caught up in broader trade embargoes and are not so much a tool in international politics as a pawn.

Thirdly, RAFI's review of the stack of documents provided by USDA convinces us that Dr. Shands and other officials in the U.S. system are trying to meet both the letter and the spirit of the "free exchange" principle but are confounded by the Administration's attitude toward, in particular, Central America and Eastern Europe.

Finally, while the system clearly serves the interests of industrialized countries, there is no grand design or plot at work. As Dr. Jones points out in one of his letters, the U.S. 1977 letter to IBPGR was frank in identifying its political problems. The United States might successfully argue that it merely put in writing what other countries also do but fail to put in writing. Certainly, the general "openness" of the U.S. Government cannot be better shown than through the ability of its critics to obtain sometimes damaging (and often embarrassing) telexes and letters by legal means.

Nevertheless, a critique of the U.S. situation is appropriate given the massive role U.S. gene banks play in global germplasm conservation. The United States has an IBPGR mandate for the protection of more than 20 crops.

The U.S. controls 67% of the world's stored groundnut germplasm, 24% of sugarcane and 20% of pea material making it the lead nation for all three crops. The United States ranks second in the world for its share of chickpea and bean germplasm (21% and 15% respectively) and scores third for cotton (8%). As the graph indicates, the USA ranks first in sorghum, wheat and barley, second in rice and third in soyabeans, fourth in maize and sixth in potatoes<sup>10</sup>.

The simple truth is that the world cannot afford political ambiguity from its most important germplasm holder. American reluctance to participate in the FAO Commission and Undertaking on Plant Genetic Resources and to support the Fund give other countries justifiable cause for concern. Certainly, if

one of the world's most open states (in terms of germplasm exchange) accepts economic, property and political embargoes, there is need for careful intergovernmental oversight, through the United Nations, of all germplasm exchange policies. As Dr. Shands hints in his memo above, legislative action is required - nationally and internationally.

**US Participation in IBPGR's  
Global Network of Base Collections**

<u>Crop</u>	<u>Species</u>	<u>Scope of Collection</u>	<u>Inst.</u>
Allium		Global	NPGS
Amaranthus		Global	NPGS
Cucurbit et al.		Global	NPGS
Eggplant		Global	NPGS
Grasses	Cynodon	Global	NPGS
Grasses	Paspalum	Global	NPGS
Grasses	Pennisetum	Global	NPGS
Legumes	Zornia	Global	NPGS
Legumes	Leucaena	Global	NPGS
Milletts	Pennisetum	Global	NPGS
Okra		Global	NPGS
Phaseolus	Cultivated	Global	NPGS
Sorghum		Global	NPGS
Soybean		Global	NPGS
Sugarcane	Vegetative	Global	USDA
Sugarcane	Seed	Global	NPGS
Sweet Potato	Seed	Global	NPGS
Tomato		Global	NPGS
Vigna		Global	NPGS
Wheat	Cultivated	Global	NPGS
Citrus	Vegetative	NthAmerica	USDA
Maize		New World	NPGS
Rice		Regional	NPGS

Source: IBPGR Annual Report, 1987, p.29-35

In an impressive work recently completed by the Prescott-Allens<sup>11</sup>, the two authors provide data for 226 crops grown in the US or imported into the US each year. The farmgate value of each crop is more than US\$1 million. In the table below, RAFI has analyzed the 15 crops worth more than US\$1 billion each to the American economy.

Combined, the 226 produced or imported crops have an economic value of over US\$65 billion. The lead 15 crops account for 77% (or more than US\$50 billion) of the total. IBPGR has



granted the United States a global mandate over five of the 15 top crops and assigned it regional responsibility for another three. Of the remainder, three are mandated to others, two have no IBPGR mandate at all, and two are only imported.

For 11 of the 15 crops, the USA ranks among the top four holders of stored germplasm in the world. In the case of potatoes, the United States ranks sixth. For the other two crops, coffee, tobacco and grapes, either no information is available or the crop is imported (coffee). With the assistance of IBPGR, US food security is improving.

**The Billion Dollar Crops**  
US Crop Germplasm Security  
and the IBPGR Network

Crop	Average Annual Value of Crop	Centre of Diversity	IBPGR	World
	US Farm Sales/Imports (US Millions)		'Network' Mandate <sup>1,2</sup>	Storage Rank <sup>1,3</sup>
Soybean	11,278.4	Chinese	Global	3
Maize*	10,412.4	Meso-American	Regional	4
Wheat	6,475.1	Near Eastern	Global	1
Cotton	4,233.0	African/Andean	<b>Greece</b>	3
Coffee	3,925.3	African	<b>Import</b>	-
Tobacco	2,851.4	Andean	<b>Greece</b>	-
Sugarcane	1,722.5	South East Asian	Global	1
Grape**	1,524.9	Central Asian/Med.	-----	-
Potato	1,206.0	Andean	<b>CGIAR</b>	6
Rice	1,163.1	Indo-Burma	Regional	2
Sweet Orange+	1,150.3	South East Asian	Regional	3
Sorghum	1,146.5	African	Global	1
Alfalfa**	1,053.7	Central Asian/Euro-Sib.	-----	1
Tomato	1,051.0	Andean	Global	1
Cacao	<u>1,016.0</u>	Andean	<b>Import</b>	4
	<u>\$50,209.6</u>			

**NOTES:**

\* Many authorities consider the US collection to be the largest and most diverse. Although the USSR and Yugoslavia both claim to have extremely large collections, some believe they are no longer viable.

\*\* As of 1987, IBPGR has no network base for this crop.

+ IBPGR information is for citrus.

- No information available.

**Not the USA Alone:**

The issue of the Soviet Grain Embargo (and the germplasm con-

nection) caused RAFI to look for information in Canada - a country which joined in the embargo. In response to a query from Canadian Member of Parliament, Vic Althouse, dated 29 May, 1984, Dr. Thomas Curren, Research Office, Science and Technology Division, Library of Parliament confirmed that

**"... The simple answer to your question is a qualified affirmative: there was a temporary disruption in the exchange of plant gene resources between Canada and the U.S.S.R. as a consequence of the Soviet invasion of Afghanistan.**

### **The Role of IBPGR:**

Perhaps of greatest concern to the international community is the role of IBPGR in addressing the general embargo problem and the specific U.S. situation for political embargoes. With few exceptions, all the examples cited in this RAFI Communique have been known to IBPGR (many coming from IBPGR) yet the Board has never dealt with the issue.

It would have been reasonable to expect, for example, that following the 1977 letter from Dr. Edminister to the Chair of IBPGR that follow-up letters would have sought clarification on the kinds of political restrictions involved. One might also have expected countries contributing germplasm to the US gene banks to have been advised by IBPGR of the U.S. political policy.

In fact, correspondence from IBPGR to the USDA subsequent to the Edminister letter deal exclusively with technical matters and no questions are raised regarding political constraints. To our knowledge, no donor (of germplasm) has been advised of the U.S. position. Indeed, throughout the intervening years, IBPGR has continually identified the United States as the "base" for more and more crops. According to the cable [14U530] from Ambassador Fenwick to Washington, Dr. Williams of IBPGR appears actually sympathetic to the US situation while telling her of "instances when the word went out 'for diplomatic reasons' answers to germplasm requests should be slowed down, not acted on or answered through intermediaries (e.g. Canada)." Once again, IBPGR's political competence comes into question.

RAFI believes this matter should be thoroughly discussed by the IBPGR Board at its next full meeting and by the CGIAR. The FAO Commission on Plant Genetic Resources may also discuss this with IBPGR when it presents its report to that body

in April, 1989.

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NOTES

- <sup>1</sup>RAFI cannot divulge the names of those who made these statements but we can confirm that the comments have come from both inside and outside each country.
- <sup>2</sup>This example was provided by Ethiopian officials at PGRC/E not as an example of germplasm embargoes but as an example of the problems they face in explaining basic genetics to GTZ administrators.
- <sup>3</sup>"Plant Variety Rights", Senate Standing Committee on National Resources 1984, Australia, Appendix 3, pages 94-97.
- <sup>4</sup>RAFI telephoned US variety suppliers for this information in late 1984 and early 1985. The original list was filled with technical errors on variety ownership, however.
- <sup>5</sup>RAFI obtained statements of Dr. Bernard Lees, then head of the US Plant Variety Protection Office explaining the reasons for his travel to Australia in 1981 via the Freedom of Information Act.
- <sup>6</sup>This is a story sometimes told within the US tobacco industry and has even been the subject of dubious advertisements for "Havana" cigars in the United States.
- <sup>7</sup>This information was obtained from RAFI discussions with officials in Brazil in 1984 and in Malaysia in 1985.
- <sup>8</sup>Bracketed number indicates number assigned by the US Government in fulfilling its legal obligation to provide the document to the Foundation for Economic Trends and other participants in the legal action.
- <sup>9</sup>Telephone conversation with Leon Weber of the Rodale Amaranth Project on 13 September, 1988.
- <sup>10</sup>Data calculated from Plucknett, Smith, Williams, Anishetty, GENE BANKS AND THE WORLD'S FOOD, 1987, Chapter Six, pages 110-141.
- <sup>11</sup>Christine Prescott-Allen & Robert Prescott-Allen, The First Resource - Wild Species in the North American Economy, Yale University Press, 1986, especially pages 198-203.
- <sup>12</sup>From IBPGR Annual Report - 1987, pages 29-32 and 35. In most cases, the US shares "global" status with one or more other states. "Regional" implies a mandate for any region of the world, (ie "New World").
- <sup>13</sup>Data for this column is interpreted from Donald L. Plucknett, Nigel J.H. Smith, J.T. Williams and N. Murthi Anishetty, Gene Banks and the World's Food, Princeton University Press, 1987, Chapter 6 or, if crop data was unavailable from this source, from the appropriate IBPGR "Directory of Germplasm Collections" wherein RAFI has tallied the crop collections held by each state.

