

# The Summit-to-Summit Merry-go-Round

by Erna Bennett (\*)

<http://www.grain.org/seedling/seed-02-07-2-en.cfm>

Five years ago, in the December 1996 issue of Seedling, Camila Montecinos asked some pertinent and hard-hitting questions about the popular and much discussed sui generis principle which was proposed as an alternative to patenting animals and plants. In her article she marshalled some hard facts and arguments to expose the doubtful nature and fragility of the concepts on which it was based, and suggested that the sui generis option was perhaps a dead-end alley. The article should have stimulated a major debate. It explicitly invited a debate. But there was none. Why? The publication of this quietly reasoned and soberly assessed case was followed by a deafening silence. It was the kind of silence that might follow the use of an irreverent expletive in church. Everybody hears it, but good manners demand that we all pretend that we did not. Could this be a possible explanation of the silence that followed? Or did we hope that the many spectres revived by the article might go away by themselves if left well alone?

I am one of the many guilty of silence in a situation that called instead for a chorus of voices. I carried that issue of Seedling several times around the world with the intention of replying, but never did. How many others, I wonder, must have done the same thing?

History, however, is not born of good intentions, but of actions arising from debate. No debate, no action, no solution. But we can no longer ignore the long, depressing backlog of doubts that has accumulated around the sui generis story. These range from doubts about the ability of a sui generis system to counterbalance the increasing corporate control of genetic diversity to other more fundamental doubts about the whole notion of property rights over a common resource of human society. Could sui generis really offer any protection to the descendants and inheritors of the anonymous generations whose labour through the centuries created genetic variation in the first place?

## A history of appropriation

The urgency and gravity of the sui generis issue is beyond doubt. It was so five years ago, and it is even more so now. Like every issue relating to the common resources of human society, the sui generis debate has to do with the exploitation and expropriation of a majority, mostly poor and powerless, by a few who are rich and powerful. Genetic resources are no exception to this rule. The long battle to protect and conserve genetic diversity has revealed the full fury of very powerful vested interests prepared to stop at nothing to establish and maintain total control over such resources, by plunder when necessary and increasingly by legal and diplomatic trickery.

Corporate manoeuvres to take over the genetic resources of agricultural crops entered their present phase with the Plant Breeders' Rights legislation of 1962. This legislation conferred marketing rights not on plant breeders as its authors falsely suggest, but on the companies employing plant breeders. This move marked the onset of a massive privatisation which saw plant breeding transformed, in the course of a single decade, from a largely public service to a heavily privatised industry increasingly tied to giant agro-chemical corporations.

This transformation coincided with the Green Revolution and the dependence it created amongst farmers on the use of high-response varieties (more commonly and misleadingly called high-yielding varieties). These varieties greatly increased fertiliser and pesticide inputs for some major crops. At the same time, the intense commercialisation of agriculture and the competition this stimulated led to a growing demand for new sources of genetic diversity, leading in turn to a greatly increased exploitative interest in genetic resources. These

developments also had a profoundly negative influence on plant breeding itself and on the entire human environment.

The transition from Plant Breeders' Rights in the 1960s to the patenting of life forms was a short but logical, and wholly anticipated, step. Since the 1970s, the corporate take-over of a field long associated with the public sector and relatively small local enterprises has proceeded at breakneck pace. In the late 1970s and 1980s, pressure began to grow around patenting and intellectual property rights (IPRs), and the battle, already world-wide, became intense. This period saw the growth of NGO involvement, and later added impetus from civil society organisations (CSOs).

### **UPOV: Protecting Industry, not Agriculture**

The Union for the Protection of New Varieties of Plants (UPOV, from its French derivation) is a multilateral agreement that has been adopted by countries offering common rules for the protection of the ownership of new varieties by plant breeders at the national level. Set up in 1961, UPOV went from six original European members to around 20 by the early 1990s. Today there are 37 (?) members.

Through successive revisions to the original UPOV Convention (in 1972, 1978 and 1991), the protection offered to plant breeders has become more and more similar to patents. In fact, the 1991 revision was meant to put the UPOV system on nearly equal footing with the patent system.

Rights granted to breeders under UPOV are powerful. The Plant Variety Protection (PVP) afforded under UPOV gives the breeder full commercial control over the reproductive material of his or her variety. This means that farmers growing PVP varieties are prohibited from selling the seeds they harvest from the crop. In addition, they are increasingly being prevented from saving and exchanging seeds on a non-commercial basis. PVP also means that farmers pay royalties on every purchase of seeds. Furthermore, only licensed growers can multiply the variety for sale. Under the terms of the 1978 Act, UPOV makes two exceptions to the commercial monopoly. Farmers are allowed to save seed for their own use and breeders are allowed to freely use PVP varieties to develop newer ones. But these exemptions are restricted in the 1991 Act, which is now the only Act open for accession to countries looking to join UPOV.

Nationally and internationally, IPRs became a guiding dogma in an increasingly privatised world. The cash nexus came to govern every relationship, and the idea of "public service" atrophied visibly. Plant Breeders' Rights, which have little to do with plant breeders and even less to do with rights, are really concerned with the conferment of market privileges for the employers of plant breeders. Patents formalise and legalise private claims to the results of innovative genetic activities of which a significant part are social in origin. Patents have come to be used as a legitimising cover for intellectual and genetic plunder. In the course of a single decade, IPRs came to dominate the policies and mind-set within the UN and its agencies. They also came to weigh heavily on the tactics and strategy of NGOs and CSOs.

Society's values shifted rapidly from norms of public service and the common good to others justifying the concept of individual property rights, which were absorbed almost painlessly by perpetrators and victims alike. Property became god. Those who owned the ball made the rules and shifted the goal posts for the new game. Players who were not ball-owners had no choice, or felt they had no choice, but to accept the new rules.

## Negotiating with the robber

In this age when the word, if not the practice, of “rights” was accorded such a well-cultivated lustre that it was the very worst of bad taste to question the notion of IPRs, it seemed to some that the only way forward for the defence of popular rights lay in playing the Game by the system’s new rules. So the idea of “Farmers’ Rights” was invented. It was felt that this would create a place within the new system of property-based legislation for recognising and rewarding farmer innovation.

Since the principles of property-based relationships were recognised by some NGOs, and the concept of Farmers’ Rights offered no fundamental challenge to the system, the debate on genetic diversity became institutionalised. The battle front shifted to the conference and committee rooms of the powerful. At the same time the poor and vulnerable were given the impression that their cause was a subject of “participation” and “negotiation.” In reality, though this became evident only with the passage of years, their struggle had entered a minefield scattered with diplomatic duplicity and endless legal wrangling.

But Farmers’ Rights was a fundamentally flawed argument that had been proposed by some who feared that to confront the robber who was already in the house might be to court conflict and disaster. A more discrete course, they thought, might be to “negotiate” terms which would permit him to proceed with his plunder but, at the same time, work out some sort of a “just” settlement that might placate his victims. In short, those defending plunder’s victims armed themselves with the weapons of the enemy – the recognition of property rights, however legitimately or illegitimately that property had been acquired.

The flaw, however, remained. It became the core of what Camila called “a conceptual chaos” caused by the attempt “to develop the indigenous community equivalent of the basic concepts of the present industrial and post-industrial property system.” Hence a tangle of arguments proliferated around the concepts of “collective intellectual property” and the “just and equitable distribution” of its benefits. The tangle emerged because most of those whose forebears created the genetic wealth that is so greatly desired by the wealthy and their powerful corporations find the concept of property a quite foreign one. Their view is that we are the custodians of nature and its wealth, but it is not our property.

This view is not confined to non-western social systems. Attempts to dismantle it and replace it with a culture based on private property date back centuries. An early example of privatisation by trickery occurred in Ireland at the time of the Tudor invasions. The English sought (successfully) to overcome Irish resistance by trickery, applying a policy of “Surrender and Re-grant”. Some of the Irish chiefs who under Irish (Brehon) law governed clann lands as elected leaders on behalf of the clann, were persuaded to surrender the land to the English crown, which then re-granted it to the chiefs who thus became owners under English (feudal) law. The trick was that at the same time they became subjugated to the English king.

The principles of public service and the public good survived until recently. In her article, Camila noted that “the foundations of our present scientific development were created under an explicit assumption that knowledge is a common good that is created for the common good.” But she observed that the “exchange [of knowledge] between scientists, which is a basic tool for accelerating the creation of knowledge, is being systematically dismantled,” and with it public science that is “characterised by free access, free creation and working for the common good.”

Opposing these trends the logical next step is to reject intellectual property altogether, she says. Why has this not happened? “Why,” she asks, “do we continue to negotiate, attempting damage control through accommodation, accepting being governed by rules that we know to be extremely damaging? Have we lost hope? Are we afraid? Do we feel cornered?”

Here is the crux of the whole story. We are witness to the collapse of an entire system of values and its replacement, under the pressure of a now globalised privatisation, by another based exclusively on the cash relationship. It is a system already torn by internal weaknesses and contradictions, but within which we ARE cornered.

## **Abandoning Farmers' Rights**

I was invited to be present at the April 2001 meeting in Spoleto, Italy [which met] to put the final touches to the International Undertaking on Plant Genetic Resources. It turned out to be a disturbing experience. The first inter-governmental meeting I had attended in at least a decade and a half, this was a blood-chilling déjà vu, marked by the same legal play with words concealing savage obstructionism, and the same arrogant determination to satisfy the same private corporate interests that had crept through the gaping cracks of our defective defence of the public interest in the 1970s. The meeting produced a toothless, truncated document, scattered with beautiful words. This was the best that Spoleto could do.

Even more chilling, however, was the apparent belief of some observers at the meeting that they were at last moving towards victory in what had been a long and difficult war of nerves and wits. But what about access? What about Farmers' Rights, which had in any case become, as Camila observed, "closer and closer to the concept of intellectual property, to the point that official documents now typically put them side by side." Access is still subject, apart from a limited number of crops, to conditions that favour the powerful. And Farmers' Rights have been deliberately abandoned to the complexities and ambiguities of national interpretations.

What's new about all this? Nothing. The International Treaty on Plant Genetic Resources which was finally agreed several months later concedes nothing but a few fragments of bracketed text and some "room for re-opening discussion" on the "key issue" of Farmers' Rights – a decision that was applauded. Re-opening discussion? The wealthy and the powerful concede the possibility of talking about all these problems again. But decades of discussion have yielded nothing that is not surrounded by an infinite tangle of "ifs," "buts," and "provided thats" that presents a permanent barrier to change, and provides a citadel for the vested interests resisting change. Here is the point of these unending games with words and this objective has been achieved.

The Treaty was described as "weak," but it is not at all weak. From its beginnings this agreement set out to promote the interests of the powerful, and it has done so.

Now that the new ground rules had been established the Treaty could happily be signed without any great danger of the hostile resistance from below that would otherwise have remained on the agenda. This treaty, the fruit of seven years of negotiation and warmly acclaimed by mainstream media, has been judged by CSOs to be neither fair, nor equitable, nor comprehensive. Could we have expected otherwise?

Camila summarises the situation. "The balance sheet," she says, "shows an increase in laws and regulations that manage, facilitate, and organise expropriation of resources relative to those protecting them." She adds, "Regrettably, the gradual deviation of discussions towards alternatives or exceptions inside the existing system has lost us precious time." [emphasis added] But what can now be done?

### **Beyond declarations of intent**

In such a context, a major task is to define what alternative system can take the place of the existing system. Do we mean a new system of control and regulation within the present social system? Or do we mean a new social system? How do we propose to define such a system? Or achieve it? Using what criteria? By what means? What models are we in a position to, or prepared to propose?

As far as genetic resources are concerned, declarations of principle and intent have not been wanting over the past four decades. There has been no shortage of beautiful words, persuasive arguments or declared concerns. However, among the decision-makers with the power there is, and always has been, a wide divergence between declarations and deeds, and these are the forces which govern the existing social system.

Introducing its recommendations, the 1967 Conference on Genetic Resources in Rome said, "it is deemed a national and international obligation to discover, conserve and make available the

world's plant genetic resources to all who at local, national or international level may profit man by their access to them." Yet almost forty years later access to genetic resources is more restricted than it ever was.

Why? Because, in the words of the Bogève Declaration of 1987 on Biotechnology in the People's Interest, the use of such resources "is inevitably linked to the society in which [technology] has been created and is used, and consequently it tends to reflect the social characteristics, whether just or unjust, of that society." In other words, however enlightened legislation may be, its effectiveness depends on its social context and on how many of its provisions survive the persistent and savage amputations carried out by state administrations that serve the interests of a powerful and privileged minority.

### **TRIPS: Breathing new life into UPOV**

The World Trade Organisation's (WTO) agreement on Trade-Related Intellectual Property Rights (TRIPS) obliges all members to provide intellectual property protection for plant varieties at the national level, either through patents or "an effective sui generis system" or both (Art. 27.3b). Few countries have laws that explicitly provide for patents on plant varieties, while others permit it in practice. As patents block anyone but the patent-holder from not only making and selling but using an invention, the patenting of plant varieties would severely affect plant breeding and agriculture at large.

TRIPS does not define what such an "effective sui generis system" for the protection of plant varieties might be. Industrialised countries had the UPOV system in mind when TRIPS was drafted, but UPOV is not mentioned in the Agreement. This means that the jury is out on what is to be considered an "effective" system under TRIPS. The UPOV Convention is an international agreement which sets rules for patent-like monopoly rights over crop varieties (see box on p). It is highly biased toward industrial farming conditions and the bulk of UPOV's members are rich countries of the North.

The 69 developing country members of the WTO were supposed to have implemented Art. 27.3(b) of TRIPS by January 2000. The 30 least-developed country members have until January 2006. And while a mandated review of the provisions of TRIPS Art. 27.3(b) is under way since 1999, it has not yet resulted in any concrete actions to change the Agreement, despite very clear proposals from the South on how to improve it.

Despite the flexibility the sui generis option in TRIPS seems to offer, UPOV-type PVP is increasingly being pushed as the only sui generis option in the South.

Just a quarter of the WTO members from the South have PVP legislation in place. Of these 26 - the vast majority of which only did so in the last few years, because of TRIPS - have also joined UPOV. An additional 25 are currently in the process of joining. And yet another 30 are allegedly seeking UPOV's advice on the conformity of their draft PVP bills with the UPOV provisions.

What does all this mean? Country after country, the sui generis option in TRIPS is gradually being reduced to UPOV-type legislation. The main reason for this is direct pressure from industrialised countries to harmonise intellectual property laws worldwide - not only through global treaties, but also through regional and bilateral trade and investment agreements. This carries serious implications for sustainable agriculture and farmers' rights, because accepting UPOV is the first step toward accepting full-fledged patents on life.

To see a detailed table outlining where all the countries in the South are with respect to UPOV, visit: [www.grain.org/publications/pvp-south-upov-en.cfm](http://www.grain.org/publications/pvp-south-upov-en.cfm)

We need cast no more than a passing glance at any international meeting or summit of recent decades for the confirmation of this. Five years ago the World Food Summit gathered together 9,800 delegates representing governments of 186 countries, including the heads of state and prime ministers of 80. It cost a budgeted US\$1.2 million, [plus] “voluntary contributions” of mostly private sector sponsors to the tune of an estimated US\$7 million. They met in Rome to “discuss” the problem of world hunger and food security. Delegates of 1,500 NGOs also “participated.” Participated? They were provided a four minute time slot to make a statement – one seventh of a second each – to an almost empty session.

A final declaration, listing “Seven Commitments,” from which the right to food was noticeably absent, was “the lowest common denominator” of international consensus. In spite of impassioned appeals from NGOs for support for a “Commitment Eight” to establish a universal “Right to Food” – a proposal supported by Pope John Paul II and many Summit speakers – the best to emerge from this circus was a non-binding pledge to cut the numbers of the world’s hungry from 840 million to 400 million in twenty years. Cuban president Fidel Castro described this as “shameful.” At the five-year follow-up to the summit in Rome in June this year, this time unattended by the leaders of almost all the rich countries, delegates admitted that even this target would not be met.

NGO and CSO involvement in such institutional events has clearly achieved very little, and has had negative effects. “We have embarked,” Camila concludes, “on a meeting-to-meeting, summit-to-summit merry-go-round, convinced that the next international gathering will surely stage the battle that should not be missed,” and we “have turned good intentions into wishful thinking.” Perhaps we should be careful to refer instead to “declarations” of good intentions. The world remembers the G8 Summit at Genova in 2001 for a variety of reasons. Leaders of some of the richest countries in the world, hoping to appeal to public concern and to neutralise popular resistance to their activities with a hypocritical display of ‘generosity,’ promised a sum of US\$1.3 billion for a world campaign against the Aids epidemic. They were well aware as they did so that the minimum UN estimate for such a campaign was at least \$10 billion. Whether national or international, all the institutions of the present system thrive on deceit.

### **Reclaiming our reference points**

All this does not mean that nothing can be done, or that it is not more important than ever to pursue every valid initiative with intensified vigour. On the one hand, time is not on our side. On the other hand, public concern is widely assuming new forms and seeking new and untried roads that do not bind us to those institutional structures that have so consistently failed us in the past.

Another world is gathering remarkable force, and calls for our critical appraisal and constructive involvement. Reverses of the past need not nourish pessimism, but serve to re-affirm all the more decisively the road to take. The growing mood that insists on change “from the base up” marks a new stage in the development of concern for the fate of our world and its people and resources. It provides an opportunity, to use Camila’s words, to “reclaim our own reference points.” It is high time for the unprivileged majority to set the rules of the game.

But can they? And what are the rules of the game? What are our reference points for the future? What principles, precisely, are we seeking to defend, and how, precisely, are they to be established and secured?

Our major reference points have already been established and amply expressed. Many civil society organisations in the intense global ferment of recent years have made biodiversity and food security explicit and central components of their own policies. Informed popular resistance to the theft of biodiversity legitimised by the patenting of life forms has now become part of a tidal wave of public opposition that is affecting, and will increasingly affect all of civil society.

This opposition can not any longer be side-stepped as it was at Spoleto in April 2001, when Via Campesina presented a position paper, and more than 250 CSOs presented a strongly worded, open letter to delegates at the meeting. Although Via Campesina represents peasant organisations and farmers' groups all over the world, their intervention was not enough to divert the meeting's dominant members from their principal purpose, expressed over half-a-century of such gatherings, of asserting and consolidating the power of the corporations and the governments that serve them.

The experience of Spoleto, and the more recent experience of the Treaty, confirm for the umpteenth time that playing the game by the enemy's rules has achieved nothing but to show us how we got to where we are. But it has not shown us how to get out.

What is needed is a qualitative change in the relationship of the forces involved in the struggle. Such a change is already apparent in today's developing contest between the world's privileged and powerful and its still un-empowered but numerous majority. In this last, however, an important voice is still under-represented – that of the scientists, technicians, and geneticists whose skills directly serve the corporations. But here also, among these intellectuals till now considered a “neutral” social force, deep concern at the social consequences of the misapplication of their work is growing. Their concern has turned to doubt, and their doubt to anger.

Many of them believe that the technological changes of which they are the agent are a social benefit, or at worst a necessary ill. Traditionally, these intellectuals have chosen to stand aside from serious discussion of the social consequences of their activities. In the growing ferment of our times, they are slowly realising that their own lives are as deeply affected by corporate control of their work as the lives of the poorest and most vulnerable of people. There are unmistakable signs of an increasingly radical stance on social responsibility. Many professional and scientific associations have called for the revival and extension of the ancient Hippocratic Oath that set ethical norms for medical practice that are still widely observed. They have taken committed stands on social and political issues to the point of refusing to work for morally and ethically indefensible interests.

Last year the British Lancet and the US Annals of Internal Medicine published an appeal by some medical researchers “to recognise the need to re-affirm in the context of modern society some of the principles set out for the first time by Hippocrates.” It was accompanied by an energetic attack on the corruption which is “widespread in the fields of medicine in which private interests are most involved,” and sets down a list of fundamental principles and commitments that call for serious consideration.

Is it not time, perhaps, that geneticists and others working in the fields of biodiversity, biotechnology, plant breeding and genetics state clearly their opposition and their resistance to the social and ethical misapplication of their work?

Recently a small group of geneticists, including two Nobel Prize winners, wrote to the US review Science, which was proposing to publish an article on the sequencing of the rice genome, knowing that the corporate-based researchers had no intention of publishing the gene sequences. One signatory of the letter declared that such an action by Science ran contrary to the central principle that progress in science is based on the free exchange of ideas, procedures and results, and to publish the article would imply the review's approval of the privatisation of knowledge. The incident recalls the similar polemics that surrounded the ambitious – and publicly funded – Human Genome Project. Near its completion, it was privatised in a blatant act of theft and many thousands of human genes and gene sequences were then claimed as intellectual property and patented.

There certainly are signs of a growing awareness of social responsibility. Has it been born, perhaps, from the same renaissance that has given life to the World Social Forum movement?\*

Might we be observing merely the delayed effects of long NGO campaigns? We may like to think so, but NGOs and CSOs can not automatically be regarded as a sort of moral and political reference point. These groups do not offer a magic formula, simply by virtue of their status. Some are radical, some are conservative. Their range of approaches is as wide as that of the world beyond them – from those that are institutionalised by collaborating within the existing system to those that completely reject it. Cold comfort, therefore, to any who hope for ready-made answers to the problems that torment our generation. Is it not more likely that all this ferment – that the existing system pretends for the moment not to see – is a sign of a rising tide of popular protest at the arrogance and cynicism of power, wherever and however it is exercised?

There is clearly a conflict of interest between public service and private appropriation. It can not be resolved by distant and elitist debates, no matter how hard fought they are. Nor can it be resolved by the increasingly popular so-called non-consensual debates in which participants agree to disagree. But it can be resolved within the context of a worldwide protest that is now assuming a perceptible form and structure, and a reality and immediacy. It is a first step only, but in the right direction. It signals a revolt within the system, and it can draw increasing strength from the popular movement that is assuming a significant dimension everywhere, which in turn can only strengthen our own battle to defend the common genetic wealth of the whole of society.

The day is coming when scientists and intellectuals will accept the need to take social action and accept social responsibility as an integral, and not a supplementary part of their scientific responsibility, adding their voice and their actions to those of millions of others. That will be a day of great hope for a direly threatened world.

\*The World Social Forum is a new international movement for the creation and exchange of social and economic projects that promote human rights, social justice and sustainable development. It takes place in the city of Porto Alegre, Brazil, to coincide with the corporate-financed World Economic Forum which meets in Davos, Switzerland at the end of January. Since 1971, the World Economic Forum has played a key role in formulating the economic policies of the world's richest states and those dependent on them.



## Erna Bennett

Erna Bennett was one of the early pioneers of genetic conservation. After active service in the Second World War in the Middle East and Greece, she returned to her studies. In her early postgraduate years she taught in England, and was engaged in cytogenetic research there and in Ireland for a number of years. Working at the Scottish Plant Breeding Station in the mid-1960s, she returned to her early interest in micro-evolution and the origins of genetic diversity, and began what was then to become a long series of expeditions collecting genetic diversity of mainly forage and cereal crops. At this time she wrote her 1964 paper warning of the need to conserve and protect genetic resources, "Plant Introduction and Genetic Conservation: Genecological aspects of an urgent world problem", which was widely read and translated into a number of languages.

She joined the UN's Food and Agriculture Organisation (FAO) in 1967, where she succeeded in mobilising FAO to become involved directly in collecting the genetic resources of crop plants in many countries, while there was still time. She was responsible for coordinating national and international exploration and genetic conservation programmes in the countries of the Mediterranean Basin and southwest and central Asia as far as Afghanistan, and travelled very widely in the course of her work. She also initiated the first world survey of crop germplasm collections. At this time she co-authored and edited the first classic book on genetic resources with another great campaigner, Sir Otto Frankel. Published in 1970, "Genetic Resources in Plants" helped to convince the 1972 Stockholm Conference on the Human Environment (a predecessor of the 1992 Earth Summit) to call for a global programme on the conservation of crop genetic resources.

While at FAO, Erna became increasingly concerned that the immense efforts to collect and conserve the world's precious and irreplaceable germplasm in which she was involved stood in grave danger of being hijacked by powerful private interests. She observed the initial moves towards first, covert, then overt and massive privatisation of genetic resources and the increasingly dominant role of corporations determined to usurp control of immensely valuable agricultural germplasm. Having battled within FAO for many years to keep corporations out of the UN system, she was eventually forced, as corporate influence over FAO policy reached intolerable levels, to resign from the UN in 1982. Since then, She has stayed active on these and other issues – lecturing, writing and advising – but out of official circles.

Erna Bennett was not alone in the first turbulent years of campaigning for programmes on genetic erosion. She remembers with great warmth and affection many of her early fellow pioneers. But as Pat Mooney wrote in his book *Shattering*,\* "it was this colourful, outspoken Ulster-born Irish revolutionary who first coined the phrase 'genetic conservation' and brought substance and strategy to the term for the world community."

\**Shattering - Food, Politics, and the Loss of Genetic Diversity*, by Cary Fowler and Pat Mooney, University of Arizona Press, 1990

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