

GUEST EDITORIAL: RESPONSE

Classical biological control and social equity:**A reply to Altieri**

Altieri (1991) raises some very important moral issues in his Guest Editorial, but I am not sure that in classical biological control he has chosen the best focus for his points.

His key point about the 'genetic debt' that developed countries owe to developing countries certainly highlights a great social inequity, and one that seems about to become entrenched in international trade legislation. However, the solution should not be greater protectionism but rather fairer sharing of the profits and benefits by all.

It seems to me amazingly arrogant of humans to consider that they can take exclusive possession of any life form and enshrine this right by law. Man is one species in a world environment that also encompasses all other living organisms, and all cohabitants of this environment, whether human, avian, arthropod or whatever, should have equal rights from an ethical point of view. The more enlightened humans now realise that man cannot exist in isolation but must live alongside and in harmony with the other components of his environment, and I suggest that this also implies giving equal right of access to all forms of life without unfair advantage to any one group. I will discuss below how this view can still be reconciled with pest control.

In my view all humans should have free and equal access to any genetic material. The problem comes between developing and developed countries in that the latter say that the laws are protecting the intellectual property that made the genetic material special, not the genetic material itself. This is an argument that may be a long time reaching philosophical resolution, but it could be resolved practically by agreement for free access to all genetic material whether modified or unmodified, with equitable rewards for the countries that contributed the material in the first case *and* for the intellects that improved the material in any way. In some fields of endeavour there is now mutually beneficial cooperation with goodwill on both sides – why not also in this field? Unfortunately the current arrangements owe less to goodwill than to commercial cupidity.

The targets for the champions of equity should be plant and livestock breeders, and perhaps also genetic engineers, rather than classical biological controllers. The movement of control agents from developing countries to developed countries is largely reflecting the movements of the original germplasm now being attacked by the pests. The developing countries in which classical biological control agents are sought will have the pests under control, because it is only in such areas that scientists can seek effective natural enemies; these countries are therefore not likely to have to buy back their own control agents. The agents admittedly produce economic

gain to the developed countries' crops, but it would seem to lack justice to deny access on such grounds to agents that are merely restoring an upset balance of nature. It might be better to recompense the developing countries through reciprocal aid projects that address other pest control problems in their own countries.

My philosophy of the rights of all organisms in an environment need not preclude control of what man considers to be a pest in that environment. If a pest threatens man with starvation and hence extinction, man is not being given the right to continue living in the environment. But the aim should be reduction of the pest to an acceptable level rather than extinction of the pest species. Pest management scientists are increasingly coming to the view that the safest way to ensure an unhindered supply of food may be mixed cropping in species-rich environments – systems that approximate as closely as possible to natural ecosystems while still being able to produce food, with minimal amounts of human perturbation. In this regard, I strongly recommend study of a recent publication by Pimbert (1991), which contains much food for thought. It may well be that only by coming to the sort of balance with nature that Pimbert describes will man be able to survive. Any sort of balance is admittedly unlikely while human populations grow as rapidly as they are doing.

Altieri (1991) considered that even when developed countries had undertaken classical biological control in developing countries, it was usually for the benefit of commercial plantations owned by overseas or colonial interests rather than for any benefit to the local population. He noted only four significant exceptions to this. However, on a smaller scale my own centre, ACIAR, is trying further to redress the imbalance through projects aimed at achieving biological control of pests in the following situations:

- salvinia (*Salvinia molesta*) in Sri Lanka, Malaysia, Philippines, Fiji, Kenya and Zambia;
- water hyacinth (*Eichhornia crassipes*) in Thailand and soon Malaysia;
- giant sensitive plants: *Mimosa pigra* in Thailand and soon Malaysia; *Mimosa invisa* in Western Samoa;
- banana skipper (*Erionota thrax* (Linnaeus)) in Papua New Guinea;
- fruit piercing moth (*Othreis fullonia* (Clerck)) in Western Samoa, Fiji and Tonga;
- banana aphid (*Pentalonia nigronervosa* Coquerel) in Tonga;
- breadfruit mealybug (*Icerya aegyptiaca* (Douglas)) in Kiribati and Federated States of Micronesia; with this pest and the banana aphid the natural enemies are being obtained from a developed country (Australia) for use in the developing countries.

Further projects are now under development. Our mode is to assist the Australian and developing country scientists to work together as partners in collaborative projects, from which both parties develop greater experience and expertise as a further investment for the future. We also supported preparation of works by Waterhouse and Norris (1987, 1989) which gave comprehensive background information to help developing countries in the South Pacific undertake their own classical biological control operations, and we have now started a similar exercise with colleagues in South East Asia.

Far greater inequity and injustice between developed and developing nations is that relating to pesticide marketing practices and usage, to which Altieri (1991) also referred. His summary examples could be multiplied many times, demonstrating repeatedly the unethical and insulting double standards that he noted, and the immoral commercial practices that follow from them. Some steps are now being taken to redress these injustices but it will be a long and painful battle. I suggest that those who wish to restore dignity and equity to developing countries should target this aspect of pest control rather than classical biological control.

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Reply from Altieri

From a philosophical standpoint I share Ferrar's views that there should be a fairer way of sharing the profits and benefits resulting from genetic exchanges between different nations of the world. There is no doubt this is a

highly desirable humanist ideal. However, as the recent UNCED earth summit in Rio showed, humans are far from reaching agreement on this ideal. World leaders expressed strong disagreements about whether or not to include a provision in the biodiversity treaty making genetic materials of all kinds the sovereign resource of the originating country and whether southern nations have control over who has access to their genetic resources and demand compensation for their use. Disagreements weakened the final text of the treaty which now states that the north must provide the south with funds and technology to preserve biodiversity, but no formula or mechanism for payments for the use of genetic materials was specified.

No developing country is willing to protect biodiversity at the expense of national development and ecological sovereignty. This is understandable in a world where northern biotechnology and private corporations have put a price on genes, and where that which once belonged to all is now becoming the private property of few. The ethical questions that Ferrar raises are transcendental but unfortunately have lost significance at a time when financial objectives and free trade dominate all transactions, including exchanges of organisms. This is a reality that the developing world recognises, accepts and confronts. The only possible defence mechanism is to regulate access to biological resources and demand compensation for their use.

It would be highly desirable to have a world as suggested by Ferrar in which all resources and technologies are equally shared. But in reality the North-South dichotomy that we see with environmental issues represents a clash of cultures, of visions. The North emphasises exclusive property rights following capitalism, free markets and individualism. The South on the other hand, emphasises the notion of shared property rights, following ancestral traditions of communal ownership.

The main contradiction arises from the fact that the North considers all biotechnical innovations as proprietary rights to be patented except any innovations made by developing world farmers in their fields. Obviously the South regards this as unfair and demands that their biological resources be also protected through proprietary protection. As in the case of seeds, biological control agents cannot be excluded from such actions.

An acceptable solution to this problem will require the emergence of a "new ethic" that allows the common interests of all nations to prevail over those of rich individual countries. Any agreement should start with the premise that sustainable development is not viable if it is not conceived as a process enabling all countries—not just a group thereof—to realise their aspirations in an equitable and egalitarian manner. The question remains whether the Rio conference served as a platform to initiate such a process.

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