PLANT VARIETY LEGISLATION AND THE SEEDS ISSUE

The Australian government is about to produce a "fait accompli" to the public in the form of the Plant Variety Act. Due to be introduced into Federal Parliament in February 1980, the bill has been delayed whilst fundamental changes were being made to it and it is now scheduled to appear in August of this year.

Efforts by individuals and groups in Australia to obtain information on the nature and implications of this Act have been consistently met with evasive and unsatisfactory answers from politicians and supporters of the legislation. Little regard has apparently been paid to overseas experience with such legislation where sufficient time has elapsed to enable its effects to be assessed.

Much of the information available to the public in Australia has been based on Pat Mooney's book Seeds of the Earth: A Private or Public Resource (1979), compiled from information gathered from United Nations agencies, the American Academy of Science, and many other agencies and individuals. This book has been the subject of reviews and articles in a number of leading magazines and newspapers both in Australia and overseas and of a two hour programme on the A.B.C. (Oct. 1979; repeated Feb. 1980). Proponents of the legislation have been conspicuously silent over the issues raised; the arguments in the book have been unsatisfactorily dismissed by the Federal Attorney General as "essentially erroneous" and by the secretary of the Industries Committee for Plant Breeders' Rights as "hogwash".

SOME OF THE MAJOR OBJECTIONS TO PLANT PATENT LEGISLATION

1. Transnational chemical and food companies are being involved in the large scale takeover of seed companies around the world.
2. There is evidence of seed production being linked to these companies' manufacturing, processing and retailing activities.
3. An international scheme (U.P.O.V. Convention) exists where measures are being taken for the application of plant patent laws to the largest possible number of plant species; this will include all food crops. Variety control will mean market control.
4. Loss of valuable genetic resources, especially in the Third World centres of diversity (Vavilov centres) is being greatly exacerbated by such laws.
5. Emphasis on uniformity, breeding around narrow genetic bases is increasing major crop vulnerability to disease and other environmental pressures.

THE AUSTRALIAN LEGISLATION

The scheme will permit a person who has developed a new plant variety (not hybrids) to apply for the grant of a right which would confer ownership of that variety on him. This also prevents rivals from taking new varieties and selling then under a new name. The rights would permit a plant breeder to levy and collect royalties from persons using new varieties registered under the scheme.

Two groups have been pressing for the legislation (Nation Review, March 1980).

a) The Industries Committee for Plant Breeders' Rights is a committee representing Australian and foreign seed companies. Co-funders of this committee include Shell, Yates, Wright Stevenson, Continental and New World Seeds. It is understood that substantial funding has been made to the committee (whose secretary is a Yates director, and chairman a patents attorney).

The committee has been seeking an American type of legislation which excludes protracted periods of merit testing. A breeder need only supply "scientific evidence" that his new variety is distinct, uniform and stable. This system favours quick and profitable returns on new varieties.

b) The Australian Seed Producers' Federation, a smaller and less well organised group is seeking the European, U.P.O.V. system which requires merit testing

by government agencies before a new variety is marketed. It is claimed freer exchange of material and greater quality control will be possible under this scheme.

Late changes to the Australian draft legislation have been sought in which some plant breeders have pressed for changes from the American type to the European type of legislation (Hansard, Feb, 27th, 1980) the matter has been referred back to State Ministers of Agriculture for their approval, and to date all but W.A. have approved.

Similar amendments have been proposed to the American legislation of 1970 amidst a good deal of controversy. Changes are sought, amongst other things, to bring America in line with European schemes and thus facilitate American entry to the U.P.O.V. Convention (U.P.O.V. fees are estimated to cost American taxpayers $100,000. Tilth, Feb. 1980).

EARLY PLANT BREEDER LEGISLATION

The practice of patenting plant material has existed in an infant form in some countries since the 1930's, its main purpose being the protection of certain ornamentals and vegetative material. However, since the 1960's, the patenting has been altered to include vegetables and other major crops. Currently, most European countries, U.S.A., South Africa, New Zealand, Japan and some South American countries have patent legislation and Australia, Canada and Ireland are presently in the process of approving such laws.

THE SIGNIFICANCE OF PLANT PATENTING LEGISLATION

Plant breeders and seed companies can recover their investment in breeding programmes basically by two means: one is by hybridisation which in effect is an inbuilt plant variety protection. Growers cannot save seed from one season to the next since they will not breed "true" - thus the grower has to buy new seeds each year. The second way is through the system of plant breeder patents which protect a breeder's investment in the ownership and development of germ plasm.

Patenting as such, is a legitimate process whereby an inventor, or in this case, a breeder is entitled to some recompense for the time, effort and money invested in developing a new product.

However, on closer investigation, plant patent laws would appear to be not quite so simple; in fact they are downright misleading, and it is the effects of such laws that should be fully brought to the attention of the public as soon as possible.

1. Multinational takeover of seed companies. Overseas, in the wake of plant patent legislation, large scale acquisition of seed companies has occurred. Seventeen multinationals now control the world germ plasm for major agricultural seeds. The world's largest seed company is Royal Dutch Shell. Other names include Ciba-Geigy, Monsanto, Upjohn, Union Carbide, I.C.I. and Sandoz. The same seventeen companies hold over half the plant patents issued in the U.S.A. since the introduction of patent legislation in 1970. In Britain, over 80 seed companies were bought out in the first week after legislation was introduced (Mooney, 1979).

In Australia similar situations already exist and the feeling is that multinationals are "waiting in the wings". Shell and Australian Paper Manufacturers have recently increased their interests in Yates; I.C.I. has holdings in Hortico, and Bloms is owned by Zaadunie, a Dutch multinational. (Save Our Seeds, 1980, National Times April 1980.)

In some crops, single corporations dominate total world germ plasm holdings, e.g., United Foods holds two thirds of world banana germ plasm. The amount of germ plasm in circulation can in fact be greatly restricted once it moves into private hands, contrary to claims of freer access to material made by proponents of the legislation.

With world seed control comes world food control. Plant patenting places

a public resource in private hands for private profit; market control and profitability is assured by patenting and hybridisation; small seed companies are disappearing and the formerly active role in plant breeding by public institutions greatly diminished.

2. Breeding Biases

a) Chemical bias. There is evidence that corporations are linking breeding programmes with their products (fertilisers, pesticides), processing (varieties suitable for mass harvesting) and marketing, often to the detriment of the environment, profitability of the farmer and nutritional requirements of consumers (Mooney, 1979).

Experiments are underway in Europe, for example, to market seeds encapsulated in fertilisers, pesticides and herbicides "required" to bring them to full production; seed/chemical "package" deals are already available to farmers.

Chemical companies are unlikely to show interest in less profitable lines requiring minimum chemical inputs, or for example, in the cheaper appomictic hybrids (from which seeds can be saved), or multiline cereals (with inbuilt genetic variations used to increase disease resistance).

b) Hybrid bias. Plant patent legislation explicitly covers non-hybrid varieties; it provides a means of ensuring monetary returns on registered new varieties. Hybrids on the other hand, already have an "inbuilt" protection (see paragraph 1, Significance of Plant Patent Legislation). Many hybrids (and non-hybrids) undoubtedly have desirable qualities such as disease resistance or high nutritional value, and there will always be a place for them.

However, overseas experience indicates that companies tend to favour varieties that respond to chemical inputs, or that meet producer or retailer demands. A good example of this has been the development of the Florida MH 1 hybrid tomato, now grown in Australia. This tomato is picked rock hard and green, and will only ripen off the vine if subjected to a company's ethylene gas product - tastefully known as 'degreening".

Some commercial horticulturalists in Australia admit that flavour is low on the list of priorities, displaced by such qualities as thick skins, uniform ripening period, suitability for harvesting and long shelf life (Nat. Times 'The Great Tomato Tragedy', Jan 23-8th, 1978).

3. Erosion of genetic material. The majority of our modern vegetables have their origin in centres of great genetic diversity found almost entirely in the third world (Vavilov centres). Thus we find for example, our onions came from Ethiopia, apples from Asia, and potatoes from South America.

These areas are now under a wide range of pressures and many valuable peasant cultivars, and wild species, forbears of our western crops have been lost for ever, or are under serious threat. The loss of these great reserves of genetic material from which plant breeding material is drawn has been greatly accelerated by the introduction of western "high-yield" varieties displacing indigenous species (which may in fact perform quite adequately). These new varieties more often than not require high chemical inputs.

Plant patent legislation favours the activities of multinationals in third world countries and in this sense greatly aggravates the continuing world-wide loss of plant genetic material.

4. Genetic Vulnerability. With the emphasis on physical differences between varieties, patenting tends to encourage short term breeding around limited genetic bases. Slight changes are made to base or standard material and then marketed as a new variety. Growers feel that they have a wide range to choose from but often the proliferation of brand names disguises the genetic uniformity of the seeds.

An example of this was the attack on an American corn crop in the early 1970's by a blight from the Philippines; despite the 160 varieties grown, over 50% of the nation's crop was affected in some way by the pathogen. In another example we find that 95% of the U.S. commercial pea crop is bred essentially around

two varieties. Similar instances occur with tea, coffee, bananas and rice. Such situations can mean starvation in the third world, or economic misfortune to western farmers.

U.P.O.V.

Countries with plant breeder legislation are currently moving towards the ratification of an international treaty, the U.P.O.V. Convention (Union for the Protection of New Varieties), a body which co-ordinates plant patent laws and aims to "take all possible measures for the progressive application of the convention to the largest possible number of genera and species". Most member nations also have National Seeds Lists which make it illegal for anybody to sell or exchange material not on the seeds lists.

The effect of this in Europe has been the large scale loss of literally hundreds of traditional varieties of vegetables in favour of fewer new patented varieties. It is claimed that Australia does not intend to introduce National Seeds Lists. If Australia seeks entry to U.P.O.V., is it not possible that pressure may be exerted on her to conform?

ARGUMENTS FOR / AGAINST

1. The community will benefit from the greater range of choice. - this is in fact misleading (see section on hybrids and genetic vulnerability). Varieties are bred for "market appeal" and quick returns. Less attention is paid to suitability to climate, flavour etc. Monopolistic control of seed companies means market control, so range of choice is not necessary.

2. Increased access to overseas breeding material. - Australian public institutions have always had access to overseas material through a series of reciprocal international agreements and licensing arrangements.

3. Improved plant qualities - Public agencies have achieved this quite satisfactorily. Are private companies likely to invest in long term breeding programmes in the search for pest resistance etc., when there may be short term chemical, quick "solutions"?

4. Quality control. - Is it enough to have "scientific evidence" from a breeder that his variety is unique, uniform and stable? If there is merit testing (generally done by public agencies) who will bear the cost - the taxpayer?

5. The scheme is voluntary and there will be monopoly safeguards. - In the light of multinational takeovers can this be guaranteed? What is wrong with existing cultivar registration schemes? What protection is there for the small breeder?

6. Provision will be made for Australian native plants. - How adequate are safeguards against illegal plant and seed collecting and plant piracy? Much unique Australian flora is already suffering under severe environmental pressures.

7. The scheme will pay for itself. - Who funds it initially? What proof is there that it will be self-supporting or that it won't be expensive? What happens to plants that have been developed by public agencies on taxpayers' money then taken over by private institutions and patented? In effect, this is paying twice over for seed.

8. There will be no National Seed List. - Can this be guaranteed, especially if Australia seeks U.P.O.V. membership?

9. Public breeding will not decline. - There is no guarantee that there will not be reduced funding if private companies take over breeding programmes. Overseas experience is that public agencies are reduced to routine or long-term work, unless they take out their own patents - in this case, should publicly funded organisations charge royalties on new plants?

10. Growers cannot sell patented seeds. - Control of agricultural seeds will be a great source of profit. Farmers will be prevented from becoming "opportunistic seed merchants" (A.B.C. Tapes)

WHAT CAN WE DO ?

A. Write to the Prime Minister, Minister for Primary Industry, Minister for the Environment, relevant shadow ministers and ask them to oppose plant

legislation and request that they call for increased federal expenditure into public plant breeding and plant conservation programmes, at national and international levels.

B. Contact all relevant State ministers and M.P.s and request as in (A).

C. Contact community interest groups, media and interested individuals and tell them about P.V.L.

D. Support the collection, protection and maintenance of plant material in botanic gardens, herbariums, zoos, gene banks, or private collections.

E. Support the protection of unique, or rich plant habitats particularly in your own state.

F. Save non-hybrid seeds, grow them yourselves or send to seed banks of organic gardening groups.

CONCLUSION

In conclusion, it would be profitable to quote from the World Conservation Strategy (issued March 1980).

> *"As a matter of urgency it is recommended that governments adopt policies that maintain essential ecological processes and life support systems - those plants, animals and micro-organisms that are our sources of food, warmth, shelter and fibre.*
>
> *Industries and other commercial interests regularly using particular plant and animal species should sponsor the maintenance of protected areas for the preservation of relevant species, its relatives and varieties. Such areas should be regarded as crop and commodity banks in which industrial sectors concerned can draw for crop resistance, medicine and industrial uses."*

REFERENCES

ECOS, Aug. 1976, "Conserving our genetic heritage".

Mooney, P.M. (1979) Seeds of the Earth: A Private or Public Resource? I.C.D.A. Ottawa.

Rollason, R. (1980). "Seeds of a Revolution," Nation Review, March 1980. pp14-16.

A.B.C. Broadband, Plant Breeders Rights, Tues Feb. 5th, 12th 1980. (repeat programme from Oct. 1979).

Please note: A file is available at the Environment Centre containing a collection of articles on Plant Variety Legislation if further information is required.

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