Plant genes

Rifkin opens new campaign

Washington

JEREMY Rifkin, the campaigner against genetic engineering, has taken up a new cause: protection of plant germ plasm. In a suit filed in a federal court last week against the US Department of Agriculture (USDA), Rifkin, whose legal manoeuvres have held up field trials of genetically engineered microorganisms for two years, accuses USDA of "gross negligence" in looking after its collection of seed samples at Ft Collins, Colorado. The suit says the National Seed Storage Laboratory (NSSL) is so poorly managed and underfinanced that "thousands" of samples collected from all over the world are lost each year.

The Rifkin suit is the latest wrinkle in a highly politicized international dispute over the control of germ plasm. NSSL says it always makes available its samples (excluding narcotics) in response to a request from a qualified plant breeder, regardless of the request's country of origin. But Rifkin and his fellow plaintiffs, who include pressure groups from Malaysia, Spain and Canada, object to seed companies using the NSSL collection to develop usable breeds that may be highly profitable.

USDA drags feet

Washington

CONGRESSIONAL concern over the US Department of Agriculture (USDA)'s slow preparations to regulate biotechnology research is unlikely to be eased by a report published last week by the General Accounting Office (GAO). GAO found that in 1984 and 1985 together, the department will support biotechnology to the tune of \$40.5 million, including 87 projects that involve planned releases of genetically engineered organisms into the environment, most in the next five years. But GAO says that USDA was unable to provide information on the number, location and objectives of specific biotechnology research projects.

Denied official information, GAO conducted a questionnaire survey of institutions conducting USDA-supported research. The results of the researchers' own estimates of the risk of their planned environmental releases are, however, unlikely to surprise anyone. Asked whether their planned environmental releases would represent a reason for concern, 75 of the 87 contemplating such experiments checked the "no problem" box, nine the "very minor problem" box and three did not know. Asked what effort would be required to correct any problem that did arise, one solitary brave soul said a problem might be uncorrectable, noting, however, that this was the least likely outcome.

Tim Beardsley

The Rifkin version of this is that "industrialized nationals and transnational corporations attempt to seize control over the world's genetic resources in order to exert unchallenged power over the world's economy in the Genetic Age". The reason for the international involvement in a suit is that NSSL was for a time the principal repository of the seed collection maintained by the International Board of Plant Genetic Resources (IBPGR), an organization funded by the World Bank and the United Nations Food and Agriculture Organization (FAO) which has catalogued some 300,000 food crop varieties from around the world.

Rifkin says that NSSL, which is a backup safety repository, has haphazard collection policies; that most food crops other than a few staples are not collected at all; that samples are inadequately documented; and that genetic variation in the samples is lost because seeds are planted out too infrequently and in unsuitable locations. Rifkin wants USDA's total budget for germ plasm increased from its current level of about \$12 million to \$40 million, the figure recommended in an internal USDA study and in a study by the seed company Pioneer Hybrid.

While rejecting some of Rifkin's specific charges, USDA officials say they accept that the suit has been brought in good faith and readily agree that the situation at NSSL is far from satisfactory. Dr Charles Murphy, of USDA's Agricultural Research Service, admits that lack of storage space is becoming "a serious problem"; NSSL has put in a bid for extra funds towards a new storage building to replace one that will soon be full. And Murphy agrees that NSSL's lack of knowledge about many of the samples it has received is its "biggest concern"; efforts are now being made to implement a new computerized database management system. But the figures Rifkin quotes for the proportion of unusable samples make "no sense", according to Murphy. Many samples have not yet received "plant identification" documentation simply because NSSL has not yet been able to ensure the stocks are viable.

Dr Lewis Bass, curator of NSSL, also says that germ plasm storage should be a "higher priority programme", as it "will have far more impact on mankind than anything in the space programme". He says NSSL could use more money but that "we do a good job with what we get". Nevertheless, he agrees that the process called "enhancement" — getting the useful properties into strong varieties that can be used by breeders — has barely started.

IBPGR officials decline to comment on the specific charges being levelled at NSSL; they say that it is only by maintaining a strictly apolitical stance that IBPGR

has been able in the past to deliver samples to any country in the world.

The international aspect of the row is likely to come to a head this week at an FAO meeting in Rome. There, IBPGR's cherished apolitical stance may be seriously threatened: radical Third World countries have demanded that IBPGR be given a statutory foundation and guidelines that would make patenting of seed varieties illegal. In order to avoid becoming politicized, IBPGR may have no choice but to duck out of FAO's sphere of operations and become an independent scientific body.

Tim Beardsley

Bioengineering

Plan for field tests of bacteria

Washington

THE first environmental releases of genetically engineered organisms are expected to be approved this week by separate US government agencies. The Environmental Protection Agency (EPA) will give the nod to Advanced Genetic Sciences of Oakland, California, to conduct a field test of a bacterium modified to protect from frost damage, while the National Institutes of Health (NIH) will formally approve a proposal by Agracetus of Wisconsin to field-test a modified tobacco plant as a model for studying plant viral disease resistance.

Advanced Genetic Sciences had voluntarily sought approval for its experiments from NIH, but withdrew the application after legal complications bogged down a similar proposal from Stephen Lindow of the University of California at Berkeley.

The environmental impact assessment for the Agracetus proposal was signed by NIH director James Wyngaarden in September; NIH officials have in the meantime been deciding how much of the assessment will be made publicly available. The decision is that the entire document will be released, with only the details of the test location deleted. But it is unlikely that NIH will become involved in future environmental impact assessments of agricultural field trials; under new rules recently adopted, NIH can leave regulation to another agency if this is considered appropriate, and EPA is likely to deal with most such proposals in future.

Advanced Genetic Sciences has produced a modified strain of *Pseudomonas syringae* which has had deleted from its genome the gene for an ice-nucleator protein which in natural *Pseudomonas* is expressed in the cell membrane and triggers the growth of ice crystals when the temperature drops below freezing. Experiments with *P. fluorescens* will follow. Tests will involve treating strawberry plants with the modified bacteria.

Tim Beardsley