Weighing the Social Costs of Innovation

A lawsuit against the University of California challenges farm mechanization research and its consequences

Oakland, California. For more than 20 years, agricultural scientists at the University of California have been at the forefront of research that has led to the creation of laborsaving machinery. Mechanical tomato harvesters, widely regarded as a technological triumph, were made possible by the university's research, for example. But this symbol of modernization is now being assailed in a county courtroom here where the university's right to conduct certain types of research is being challenged.

On 12 March, a trial began over the legality of spending public funds for mechanization research that allegedly benefits only agribusiness. Although the groups that brought suit have been looked upon by many as Luddites, they have raised serious legal and social issues with broad implications for academic research in agriculture and other fields as well.

California Rural Legal Assistance, an advocacy group, filed the lawsuit in 1979 on behalf of the California Agrarian Project and 17 farmworkers. The legal group charges that the university and its board of regents violated state law by spending tax dollars to benefit private interests. The lawsuit also claims that mechanization research is counter to federal land-grant acts, which, according to the group's interpretation, require federally supported research in agriculture to benefit small farmers and laborers, not agribusiness. Mechanization, it alleges, drives the small farmer out of business and displaces thousands of farmworkers. Legal group attorney William Hoerger notes that "putting laborers on welfare is not a social plus."

The group is seeking broad restrictions on agricultural research. It would, for example, require the university to weigh the social consequences of mechanization projects, such as loss of jobs, before they are undertaken. It would also make agribusiness pay for all expenses related to academic research that it now subsidizes in part.

The university, which has the largest academic research budget in agriculture nationwide, denies the charges and says that the lawsuit is a threat to academic freedom. James Kendrick, Jr., university vice president of agriculture and natural resources, asserts that if the school loses the case, it would lose its freedom to decide which research projects to pursue. The university argues that the heart of the dispute is a social issue, not a legal one, and that the appropriate battleground is the legislature, not the court.

Using this argument, the university fought for a year to have the case dismissed. But in 1980, California Superior Court Judge Spurgeon Avakian surprised university officials by ruling that the lawsuit was based on legitimate grounds. Avakian said in his decision to try the case that "It is a judicial question whether legislative and constitutional mandates are being followed in the allocation of public funds to particular research projects." Furthermore, if the allegations are substantiated, the university may be required "to restructure the methods and criteria by which agricultural research projects are chosen." Avakian stated, however, that "It is not a matter for judicial decision in this case whether agricultural mechanization is good or bad for society."

Avakian's ruling was one of several setbacks for the university in the 5-year history of the lawsuit. In 1980, then Secretary of Agriculture Bob Bergland undercut the university's arguments by announcing that federal support of farm mechanization research was inappropriate. This year, the university lost another legal skirmish when it tried to bar the legal assistance group from relying on certain expert witnesses during the trial, arguing that their testimony was irrelevant to the legal questions of the case. But again, Avakian overruled their objections. The university's problems have been somewhat offset by the fact that the California Grange has joined the university in its defense. The Grange represents many of the state's small farmers, who ironically are the ones allegedly hurt by mechanization.

So, after 4 years of collecting depositions, the trial opened in the Alameda County Court Administration Building where divorce and child abuse cases are the daily fare. In his opening statement, attorney Hoerger argued before a packed courtroom that "University of California research is for sale and this is systemic." Citing 28 specific research projects that allegedly promote mechanization, Hoerger said that equipment manufacturers, seed companies, chemical companies, commodity groups, and large independent farmers all exercise undue influence on the university at the expense of public funds even though agribusiness contributions account for a small percentage of the total research and development budget.

To bolster its case in this nonjury trial, the legal group has gathered some big guns in agriculture to testify on its behalf, including three faculty members from the University of California itself. They include:

- Alex S. McCalla. A former dean of the university's College of Agricultural and Environmental Science at Davis, McCalla is expected to testify that the source of funds, rather than scientific importance or the university's goals, is the most important factor which influences the direction of research.
- William Friedland. Friedland, a sociology professor at the Berkeley campus, will assert that the social impact of agricultural research can be predicted and will describe the influence of agribusiness on university research.
- Richard C. Lewontin. A Harvard geneticist and biologist, Lewontin will disclose the findings of a Ford Foundation study he recently completed that examines how universities, including the Davis campus, determine their research goals. According to the legal group, the study concludes that agribusiness is the main beneficiary of the research.
- Willard W. Cochrane. Cochrane is a leading agricultural economist who recently retired from the University of Minnesota. He will explain his theory that technological innovation does not benefit the small farmer.

It is unclear what legal strategy the university plans to take during the trial, which is expected to continue for at least 2 months. Kendrick says that an official from the U.S. Department of Agriculture will testify on the university's behalf, but, other than that, the university is holding its cards close to its vest.

University administrators prefer to ar-

gue the social issues of the case. Kendrick said in an interview after a long day on the witness stand, "We don't deny that machines take the place of the worker." But "it is society's role, not the inventor's role to compensate the worker . . . [It is] not society's right to impose a go or no go on a discovery." Charles Hess, dean of the College of Agricultural and Environmental Sciences at Davis, is worried that the university may be required to judge the social impact of technology. "At what point do you cut off the analysis?" The tomato harvester, he notes, displaced thousands of workers, but also created a host of other jobs on the farm and in food processing as overall production of tomatoes increased.

University officials believe mechanization research in agriculture has been unfairly singled out. They point out that there are few gripes about the electronics industry, whose innovations have replaced thousands of workers.

Hess argues that industry money does not have the impact that the legal group charges. He concedes that the "private sector does have influence on research," but "that is a healthy relationship." This way "research is more rapidly translated into more practical application."

The suit will raise a slew of difficult, and perhaps unanswerable, questions: Who should consider the social impact of technological innovation? Should inventions be pursued in a social vacuum? Should weapons researchers, for example, more carefully weigh the social significance of their work? Should researchers in general be held accountable for their innovations? Where should the line be drawn?

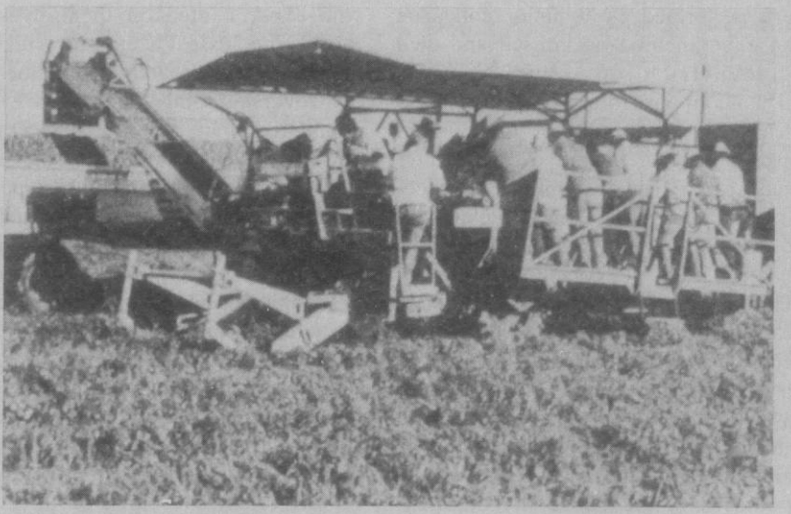
The suit is being tried at a time when the government and industry are striving to encourage industry support of research in many areas. Hess recently wrote that "Because public research funds have been rapidly dwindling, [a relationship with industry] is being looked upon with favor by scientists at many public institutions. Can the university protect the public investment in its research programs through patents and receipt of royalty income derived from products of privately sponsored research? . . . There are not simple answers . . . The challenge is to preserve the beneficial aspects of the relationship . . . and to ensure collaboration through which society will realize the potential benefits." Hess was referring to collaboration in genetic engineering. While a goal to raise the social consciousness of scientists seems worthwhile, the lawsuit, if successful, may open a Pandora's box.—**MARJORIE SUN**

Tales of the Tomato Harvester

The tomato harvester, which was developed by the University of California in the early 1960's, has long been regarded as a symbol of the problems caused by farm mechanization and it will figure prominently in the California trial. But the history of the harvester and the machine's social impact are far from clear-cut.

California Rural Legal Assistance and others have blamed the machine for displacing thousands of workers, forcing the small farmer out of business, and providing the consumer with lousy tomatoes. The harvester is generally held responsible for the pale, bland, tough-skinned fruit that grocery stores pass off as tomatoes.

In fact, according to the university, less than 1 percent of the tomatoes for market are picked by machine. Fresh market tomatoes are still harvested by hand. Tomatoes handled by the harvester are destined for canning and for ketchup, tomato paste, and other processed foods. "I have yet to get a letter complaining about lower quality ketchup," says James Kendrick, Jr., university vice president of agriculture and natural resources.



The tomato harvester: Blamed for displacing thousands of workers, disrupting rural life, and providing the consumer with lousy tomatoes. [USDA photo]

Although critics of the machine allege that it was developed mainly to replace expensive farm labor, university officials contend that a shortage of labor also contributed to its creation. In 1964, the federal government suspended a program that brought Mexican workers into the country to work seasonally on farms at low wages. By eliminating the need for temporary labor, the harvester adds to the stability of the farmworkers' community, the university says.

It is clear that the number of people picking tomatoes is fewer now, but the harvester also opened up new jobs to a wider population. Stoop labor was usually filled by young men. The harvester, however, transports several people on the back of the machine to sort tomatoes that it missed. These jobs are usually filled by women or older men.

Critics also claim that the consumer has not paid lower prices for tomato products as a result of mechanization. University economists say this ignores that fact that demand for tomatoes exploded with the popularity of pizza and other recipes requiring tomatoes. Pricing followed the law of supply and demand, the economists argue.

While mechanization is blamed for the demise of rural life, a whole host of factors come into play. Frederick Buttel, a rural sociologist at Cornell, testified on 16 March on behalf of the rural league that mechanization does lead to a deterioration of rural life. Buttel, however, then went on to say that federal tax policy was probably the single most important factor in shaping the farm community.—**M.S.**