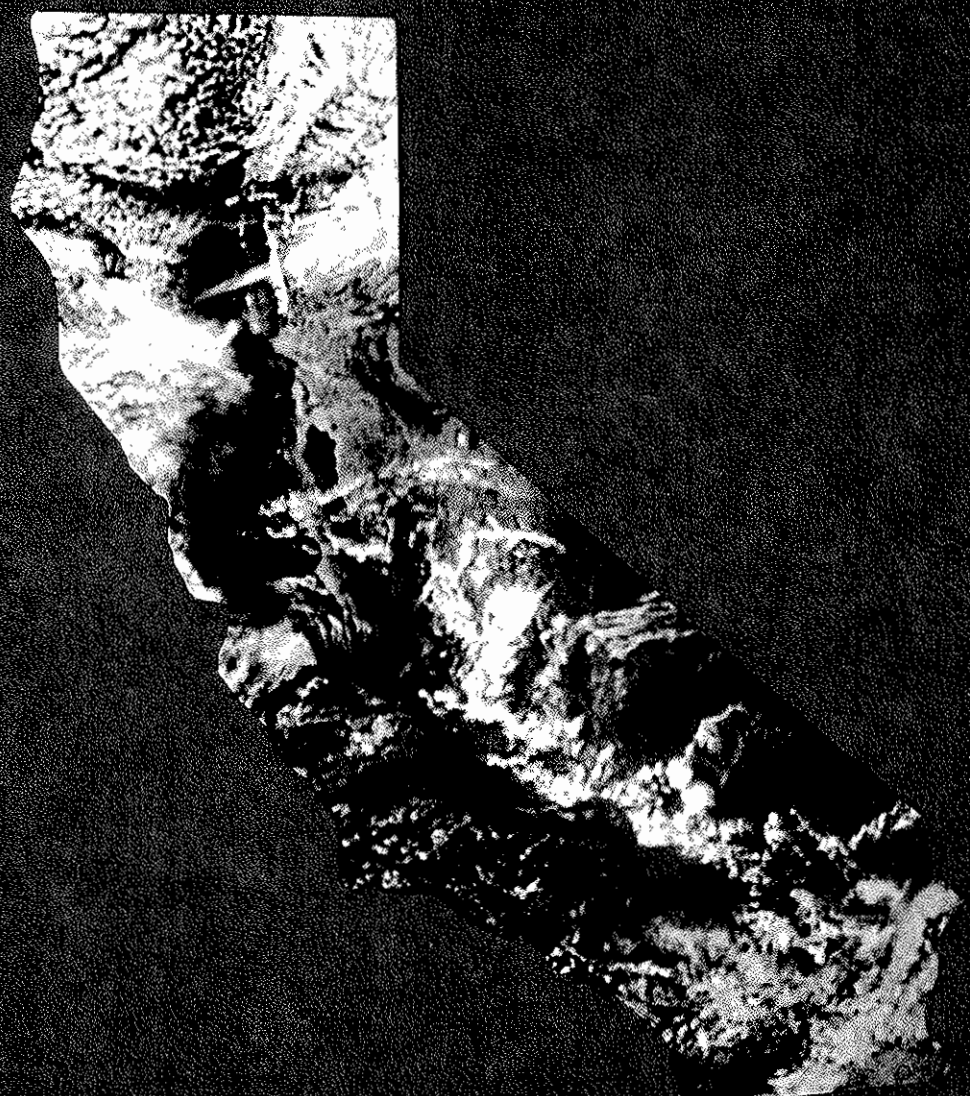
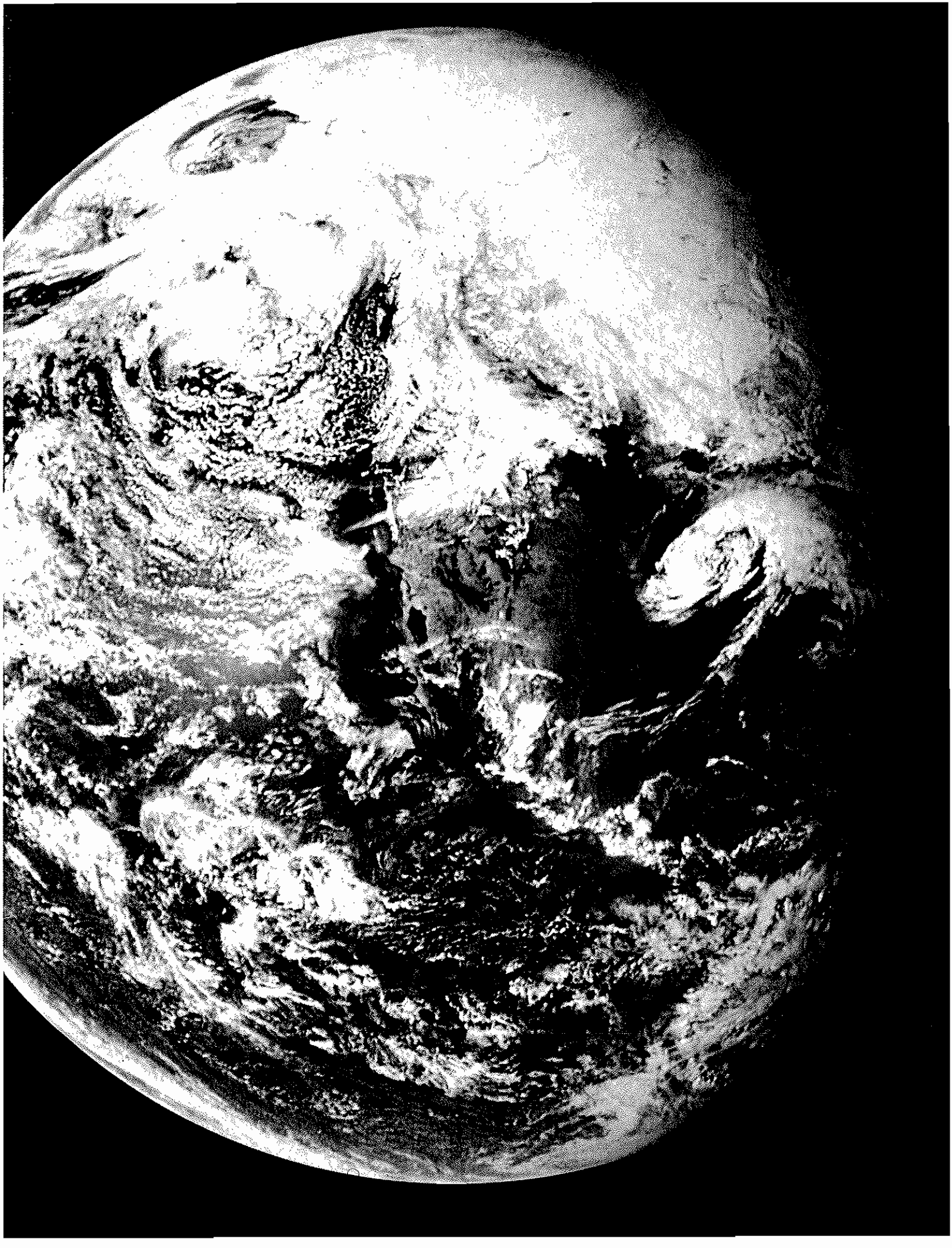
Vision 2010: California Agriculture





Vision 2010: California Agriculture

Reaching out to current and future generations to protect this state's number one industry.

Printed compliments of Agricultural Foundation, Inc. and Richard Peters,
President of the State Board of Food and Agriculture.

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THE twenty years leading up to the year 2010 will be crucial to the future of California agriculture.

No like period in the past has brought agriculture and its allied industries to confrontation with such a variety of complex and difficult issues.

They have developed steadily as California has grown into the nation's most populous and dynamic state. They are not issues that agriculture can face and solve in isolation. They are issues affecting every California resident, and can be solved only in concert with the rest of California society.

The central question is whether society generally will understand the implications of these issues for the future. Will society then incorporate in its proposed solutions an appropriate concern for the future of agriculture?

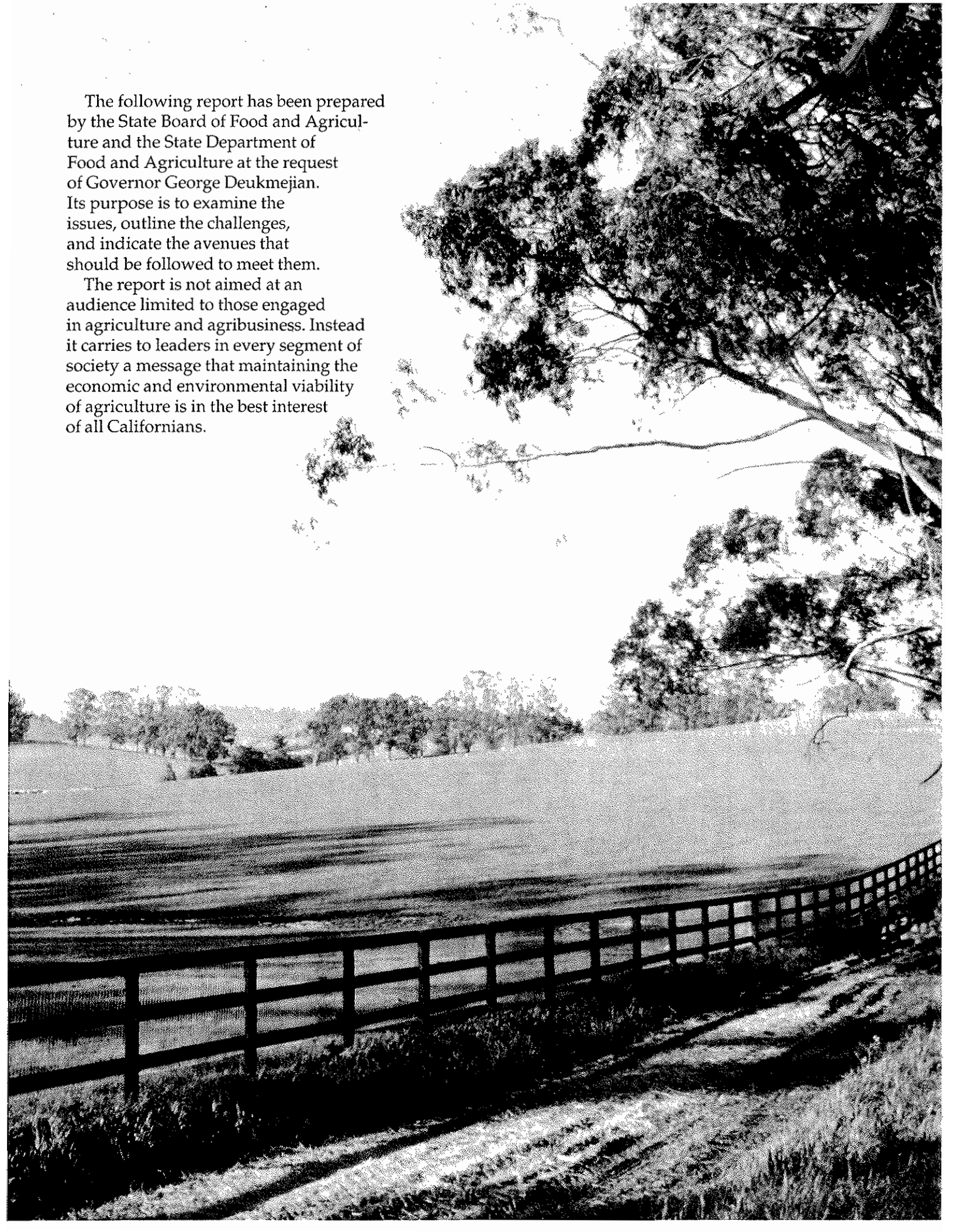
Failure to do so has the potential to do great harm to the state's largest industry. That effect would not be felt by farmers and ranchers alone. It would be felt throughout the state's economy, by citizens and consumers.

For 41 consecutive years California has been the nation's #1 state in terms of farm production and income. No other state can approach California's total of more than 250 crops and commodities, including nearly one-half of the nation's fruits, vegetables, and tree nuts.

California agriculture employs more than 400,000 workers directly on its 84,000 farms and ranches, and many thousands more indirectly in food processing and other activities required to carry their production to global markets. It is a state and national asset of the highest order.

The following report has been prepared by the State Board of Food and Agriculture and the State Department of Food and Agriculture at the request of Governor George Deukmejian. Its purpose is to examine the issues, outline the challenges, and indicate the avenues that should be followed to meet them.

The report is not aimed at an audience limited to those engaged in agriculture and agribusiness. Instead it carries to leaders in every segment of society a message that maintaining the economic and environmental viability of agriculture is in the best interest of all Californians.



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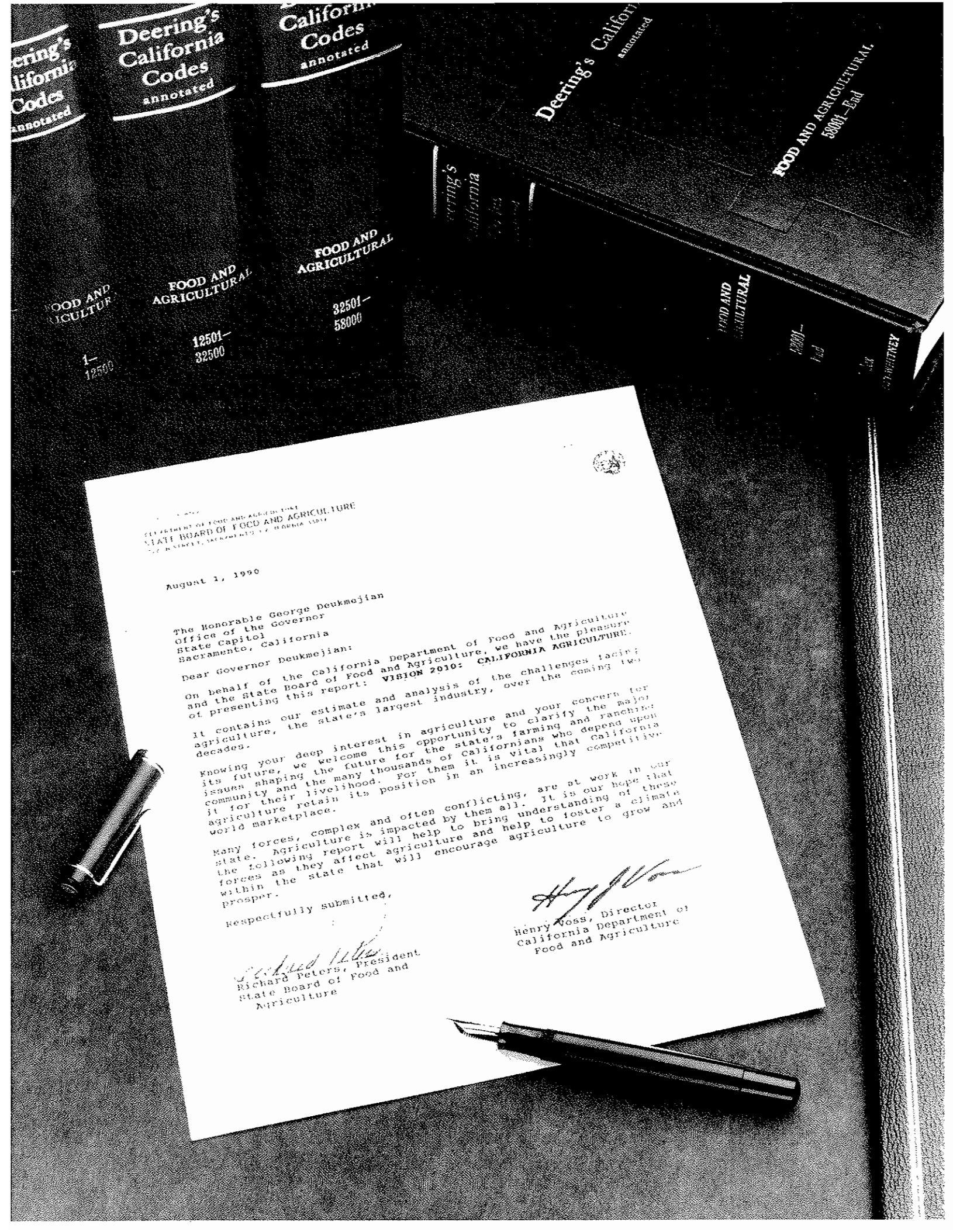
Deering's California Codes annotated
FOOD AND AGRICULTURAL
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DEPARTMENT OF FOOD AND AGRICULTURE
STATE BOARD OF FOOD AND AGRICULTURE
August 1, 1990
The Honorable George Deukmejian
Office of the Governor
State Capitol
Sacramento, California
Dear Governor Deukmejian:
On behalf of the California Department of Food and Agriculture and the State Board of Food and Agriculture, we have the pleasure of presenting this report: VISION 2010: CALIFORNIA AGRICULTURE.
It contains our estimate and analysis of the challenges facing agriculture, the state's largest industry, over the coming two decades.
Knowing your deep interest in agriculture and your concern for its future, we welcome this opportunity to clarify the major issues shaping the future for the state's farming and ranching community and the many thousands of Californians who depend upon it for their livelihood. For them it is vital that California agriculture retain its position in an increasingly competitive world marketplace.
Many forces, complex and often conflicting, are at work in our state. Agriculture is impacted by them all. It is our hope that the following report will help to bring understanding of these forces as they affect agriculture and help to foster a climate within the state that will encourage agriculture to grow and prosper.
Respectfully submitted,
Richard Peters, President
State Board of Food and Agriculture
Henry Voss, Director
California Department of Food and Agriculture

The Basics: Land, Water, and Air

Land

LAND suitable for farming and ranching in California covers about 30.6 million acres, approximately one-third of the state. But the best farmland, the prime land that gives the highest yields and produces the most valuable crops, is not so abundant, only a little over eight million acres as of 1990.

If it is the most advantageous for agriculture, this first-class land is also by and large the best suited for urban development. While there is pressure now on land of every type, from the valleys to the foothills and mountains, the advance of developers of housing, office buildings and shopping malls, manufacturing plants, and recreational facilities has impacted the prime land most spectacularly.

There is a finite amount of Class One soils. No more is being created. Once it is covered by concrete and buildings, it is not apt to be reclaimed.

Questions raised today concerning the future use of agricultural land in California are not new. The state has been involved with these questions since World War II. Government at every level has attempted to deal with them. A series of legislative actions has been taken with the aim of reconciling opposing forces interested in developing or protecting farmland of every description. Yet land use policy has become a steadily more pressing challenge as time has passed and urbanization progressed.

Obviously, society has some difficult decisions to make. How valuable does it consider this first-rate farmland, or for that matter all types of agricultural land including rangeland, to be? To what

extent is it willing to go to limit development of farmland for other purposes? Where is the authority over these policy decisions to lie? How are the rights and interests of owners of agricultural land to be recognized and protected?

While these questions are being pondered, conversion of agricultural land continues at the rate of almost 72,000 acres annually. The population growth that first engulfed Southern California and then moved up the coast has now spilled over into the Central Valley and the Mother Lode region. The San Joaquin Valley, the core of California's specialty crop farming, is growing faster than any other part of the state.

Growth of population and economic activity is no longer sought after in many areas. A no-growth movement is developing in communities besieged by traffic congestion, air pollution, and soaring prices for housing.

Clearly, the public is becoming more interested in preserving open space. Zoning authorities and planning agencies are responding as are elected officials. In some instances, however, where large areas are proposed for public purchase and preservation for wildlife habitat or for wilderness, as in the Mojave Desert, landowners see this as a threat. They view as unfair the removal of land that they have long used under permit from government agencies and/or land that they need for their livelihood or for their farming operation to continue as viable economic units.

Most farmers on the fringes of growing urban centers resent efforts to limit their ability to sell their farmland to developers at prices that will secure their future and that of their families. They must be adequately compensated if society wants this land to remain in agricultural use.

Some interesting approaches to these problems have evolved. Everything from strict zoning regulations to use of taxing power in the Williamson Act has been proposed. Most recently, purchase of landowners' development rights so that land will remain in agriculture has gained favor among planners. So has purchase of so-called "agricultural conservation easements" which would permanently prohibit nonagricultural development. A significant question is *how much money* is to be raised to carry out such programs if they are adopted? How? Through bonds, local taxes, fees (mitigation), statewide initiatives, private contributions?

The greater question, however, is just how much value to California and the world is this unique agricultural economy? If that value judgment is high, there is no time to waste specifying steps that will protect this vital land base from conversion to nonagricultural uses. Agricultural interests should be clearly identified and be given relative priority ratings during this public debate.

Development of land use policy runs up against the allied question of how to stimulate declining rural economies.

Where rural towns are losing population, need arises for new

diversified business and industry in order to create employment and secure the tax base for local services. Ideally, such diversification would come from agriculturally related activities such as food processing and manufacturing of farm equipment. In a number of areas, notably the San Joaquin Valley, power plants have been established using agricultural waste. There may be a future for raising trees able to tolerate salt-laden drainage water from irrigated fields. Resulting timber might then be processed into wood pulp and other products in nearby plants.

California, in contrast to other parts of the country, already has begun a steady movement of business, industry, jobs, and people from traditional urban centers into locations that formerly were solidly rural and economically dependent on agriculture. The northern San Joaquin Valley as far south as Los Banos, for example, is developing into a vast bedroom community for the Greater San Francisco Bay Area. Once-remote small towns in the Mother Lode, to mention only one such area, are growing rapidly as people seek them out for retirement and recreation. Desert lands have been developed into golf courses, resorts, and sites for restaurants and condominiums. Few areas have been left untouched.

This continuing developmental growth, encouraged by California's many natural advantages, will do far more than anything government might conceive in order to stimulate rural economic progress.

Such prospective evolution raises questions of demand for land and water, of deteriorating air quality, of growing requirements for housing and transportation, and for developing a public consensus on the future of agricultural land.

Water Quality and Quantity Threatened

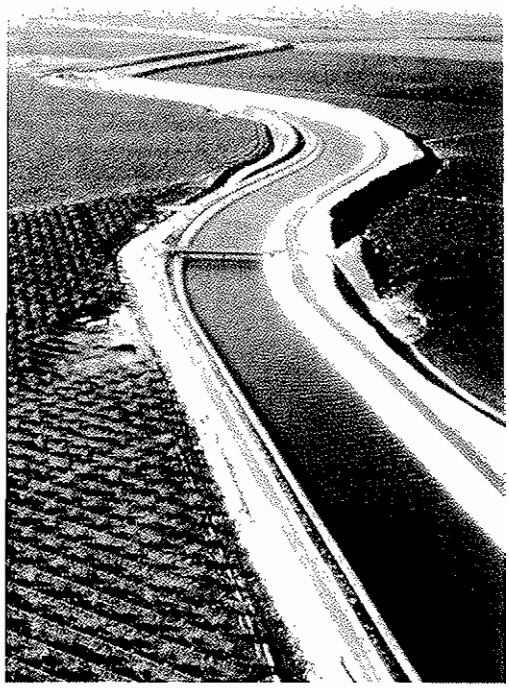
Semiarid California could never have developed its world-renowned agricultural system without the extraordinary federal and state projects that were built to store and distribute water. These projects, and the many smaller ones developed with both public and private funds, were admired and applauded.

Now the public attitude has changed decisively. Large-scale water projects are out of favor, no matter how valuable they might be in providing insurance for both urban and rural interests against drought and flood. The result is an increasing struggle for control of water.

Unfortunately, this shift in opinion has come at a time when the demand for water is on the increase. Successive dry years have proven that extended drought is indeed possible. Underground reservoirs of water are being depleted. The quality of water for both urban and agricultural use is deteriorating.

Obviously, then, as in the question of protecting agriculture's

land base, society must face up to realities of the water dilemma and come to firm and comprehensive decisions about what is best to be done; remembering that agriculture, the state's largest industry, lives on water of good quality and that the state's citizens live off the products of agriculture. The water supply problem is really quite simple. California is using more water than it is taking in. It receives more than twice as much water in runoff from rain and snow as is needed to meet total demand, but the amount stored in surface reservoirs and pumped from wells falls well short of the need.



More water could be pumped from below ground but these natural reservoirs are already being depleted. In some areas they have been pumped so heavily in dry years that the land above them has subsided. As water is pumped from greater depths, it also becomes more costly. Rather than planning to draw more from underground, agricultural interests are attempting, when they have additional water available, to pour it into these aquifers to rebuild them. At the present time an average year sees two million acre-feet more water being pumped from underground than is replaced. That deficit is enough to cover two million acres of land to a depth of one foot.

In past years, as future demand was calculated, dams, surface reservoirs, and canals were constructed to gather and distribute more water, taking pressure off the shrinking underground supply. Today it is questionable whether the public will support building additional large-scale water storage facilities. Furthermore, the public is demanding more water for recreational and environmental use and to maintain stream flows for bird life and fisheries. California's expanding towns and cities will add demand for additional water supplies.

The California Department of Water Resources has estimated that by the year 2010 the state will be using about four percent more water than today. Unless more water supplies are developed, there will likely be 700 thousand acre-feet less water available. That reflects loss of water previously obtained from the Colorado River which is only partially offset by additional groundwater pumping. As this squeeze continues, agriculture will feel the greatest pressure.

Various strategies can be adopted to deal with this problem. All are well known: building additional facilities for water storage; greater efficiency in management of water, particularly in irrigation; using reclaimed wastewater (although that is a limited option); and "banking" more water in underground basins as it is available. Yet all of these, it appears, will not be enough to make up the projected deficit.

The result will be increasing competition for water. Urban interests are likely claimants and certainly may outbid agriculture. There are legal limits to the amount of water that can be transported from areas where it originates. Environmental interests have succeeded in establishing legal claim to additional supplies.

Long-held water rights may therefore be eroded. The State Water Resources Control Board has the power to modify these rights by holding the public interest to be paramount. Marketing of water between contracting parties is favored by some as an efficient way of allocating water, but use of this option will probably be limited.

For agriculture, the situation is further complicated by the question of water quality.

Foremost is the threat to as much as one million acres of irrigated land in the San Joaquin Valley. Water draining from these lands, laden with millions of tons of chemical salts, cannot now be exported from the Valley. Plans for a master drain to carry them eventually out to sea have been dropped. Proposals for handling the problem within the Valley through such approaches as evaporation and desalinization are expensive and questionable as long-term solutions. They fail to satisfy the long-term requirement for taking the salty water completely out of the Valley, preferably far out to sea. Irrigated land that is currently producing high-value crops such as fruits, nuts, and vegetables will have to be either taken out of production or converted to growing other products lower in value.

This scenario is being played out in other parts of the state as well, although that situation is not so serious as in the San Joaquin Valley.

Unknown at present is whether there is an additional potential problem from contamination of water by chemicals used as fertilizers, and as controls for pests and crop diseases.

Volumes could be written about various aspects of the basic problem: the prospect that between now and the year 2010 the state will find itself lacking the reliable water supplies needed to satisfy all demands and that water available will not always be up to the desired quality.

Nothing in this analysis portends well for agriculture. It may be that at some future time the public will recognize the need, reverse its present attitude, and support development of additional water storage. But that is only conjecture. Farmers and ranchers must adapt to pressures for water quantity and quality. They can contribute to their own destiny through increased efficiency in use of water and by organizing to negotiate on water questions with other segments of society. The situation is already urgent and will continue to be difficult and complex.

One thing is certain. The state cannot afford to allow water problems to cripple irrigated agriculture and render it noncompetitive in national and world markets. Water cost must be factored into policy decisions. So must the cost to landowners of adopting new water management practices such as drip irrigation. An urgent need is for research and development of new technology that will stretch the water supply and minimize its cost.

Air Quality

More people, more cars and trucks on the roads, more industry, more mechanization — add up to an air pollution problem that is already severe in Southern California and not much less serious in many other parts of the state, including the Central Valley.

Informed forecasts of future air quality in California are alarming. They contemplate, as just one example, that in the rich farming areas of the southern San Joaquin Valley, air quality may someday be as bad as or worse than that in New York City or Los Angeles.

The cost that air pollution levies on agriculture is not yet fully established but, based on what is already known, it is significant.

Central Valley studies indicate that bad air cuts yields of beans, melons, and grapes by as much as twenty percent. Losses for other crops such as alfalfa, cotton, citrus fruit and potatoes are apparently somewhat less, but still costly.

The State Air Resources Board has counted the cost of such losses statewide as running into the hundreds of millions of dollars annually.

Ninety percent of crop damage is now traced to ozone, the product of the reaction between sunlight, heat, and fumes from fuels, chemicals, and combustion. Other significant pollutants include dust, particulates released into the air by power plants, even emissions from some crops.

To reduce air pollution, costs must be compared with potential benefits.

Numerous prescriptions are offered. They include substituting alcohol-base fuels for petroleum, stricter controls on emissions from vehicles of all types, increased use of public transit, and more stringent limitations on emissions from business and industry.

If by the year 2010 a marked improvement in air quality can be achieved, both the state at large and agriculture will benefit. Among the agricultural beneficiaries will be growers of specialty crops and certain significant field crops including cotton and alfalfa.

Without improvement, agricultural losses will continue to mount.

Again, agriculture's future hangs on the price that society in general is willing to pay.

Beyond the immediate future there is growing alarm over consequences of an eventual warming of the atmosphere, the so-called "greenhouse effect." The exact effect on agriculture is the subject of some controversy but it certainly will not be favorable. California is now considered a significant contributor to global warming.

Whatever steps may be taken to mitigate, and hopefully to reduce air pollution, it will continue to limit productivity of California agriculture. The only real question is degree.

Food Safety and Quality

FOOD in the United States has long been abundant, wholesome, and of high quality.

That reputation has been undermined, however, by a continuing barrage of accusations leveled by a number of special-interest groups which maintain that food supply is being contaminated by synthetic chemicals.

Reassurances by government officials and well-qualified scientists have only partially allayed public concern.

Reliable surveys have shown that, with few exceptions, if chemical residues are present at all on food products, they are in amounts well within limits carefully established to protect the public health.

Critics refuse to accept such evidence, however, and continue to encourage public fears. As a result, consumer confidence in the safety of the food supply has eroded.

The consequences for California agriculture are far reaching.

Nutritionists encourage consumers to eat fresh fruits and vegetables for health only to have consumers discouraged by allegations that they carry harmful chemical residues. Markets for red meats and eggs have been disrupted by charges that they promote heart disease. The poultry industry has been assailed by charges of unsanitary plant conditions.

Recognizing public concerns, food retailers have adopted marketing campaigns offering consumers foods certified free of chemical residues and additives. To some extent, at least, such marketing strategies cast doubt on the safety of foods not so presented.

Restrictions on the use of agricultural chemicals have steadily tightened. At the same time new legislation has set in motion a process of reregistration that promises to reduce the supply of chemicals. This process may bear particularly on chemicals used in producing California fruit, nut, and vegetable crops because of the expense involved for manufacturers.

In large part, because of fear that many chemicals used in today's efficient agriculture will be denied to them in the future, growers have become interested in what is being called alternative agriculture; i.e., new production systems using fewer chemicals, acceptable from an environmental standpoint, but permitting growers employing them to remain efficient and competitive.

Innovative California growers will adopt such systems if they prove out, but much remains to be done in research, and in "trial and error" testing by growers themselves, before they can be finally judged.

Dr. Charles E. Hess, Assistant U.S. Secretary of Agriculture for Science and Education, has commented that "the widespread awareness of the need for economical and environmentally sound

ways to farm has not been matched by the availability of reliable and practical information on what, in fact, can be done."

Promising theory does not always translate into sound practice. Jumping to conclusions that present farming methods are outmoded and should be discarded does a disservice to growers and consumers alike.

If chemicals are banned or their use greatly restricted and manufacturers are discouraged from developing new, safer, and more effective chemicals, growers may cease growing some crops on today's scale. If so, they will no longer be available to consumers in volume and at such reasonable cost as they are today. Some may not be grown at all.

Events are forcing the nation to re-examine food safety policy. Some argue for a "no risk" policy. Others for a "negligible risk" standard that appears much more practical. Some believe benefits from use of chemicals should be balanced against risks from their use. Others are reluctant to recognize any benefits from chemicals although the very abundance and high quality of foods belie that viewpoint.

Crucial decisions on such questions will have much to do with the cost and availability of food in the future. Decisions should be based on solid scientific evidence, objectively interpreted.

The public deserves to be far better informed on food safety issues. They should understand that use of chemicals in agriculture and food manufacturing is controlled according to scientifically established safeguards, that California has the nation's most comprehensive controls already in place and that these have recently been strengthened further through legislation proposed and supported by organized agriculture.

By the year 2010 agriculture will have changed its methods in many ways reflecting environmental concerns, economic demands, and new technology. Chemical use will be reduced, as it has been steadily over the years, and additional environmental safeguards will be built into farming systems. This will be accomplished through a combination of regulation, application of research, and the contributions of biotechnology. The process is under way and every precaution will be taken to protect the public.

Marketing

International Marketing/Trade

THE United States is the richest single-nation market in the world. Yet without foreign markets, California agriculture could be in serious difficulty.

Of California's $16.6 billion in agricultural sales in 1988, $3.9 billion was earned from exports. California alone supplied almost 11% of U.S. agricultural products sold in foreign markets and 90% or more of U.S. exports of 17 different commodities.

California must continue to emphasize export marketing, looking particularly to the developing nations of the Pacific Rim.

The outcome of the current Uruguay Round of international trade negotiations being conducted through the GATT (General Agreement on Tariffs and Trade) will greatly influence the future.

If the final GATT agreement should substantially reduce trade barriers and agricultural subsidies, including government-financed export sales promotions, and improve the GATT's trade dispute settlement procedures, effects will vary according to commodity.

Government-supported crops and dairy products may find the new trading world more difficult. Supported crops including cotton, rice, wheat, sugar, and feed grains are planted on close to 40% of this state's cropland. Fruit, nut, and vegetable crops, together with beef and poultry, would likely find easier access to foreign markets but may also suffer increased competition as U.S. barriers against foreign goods are lowered.

The Uruguay Round is scheduled to end in December of 1990. Any agreement to which the U.S. is party must be approved by the Congress. Congress may balk at provisions opening the U.S. market to increased foreign competition or in conflict with farm support programs. The final impact of the Round, therefore, is difficult to predict at this time.

While multinational negotiations have been going on, the U.S. has also reached bilateral agreements with important trading partners including Israel, Japan, Canada and Mexico.

Should the GATT talks fail to produce significantly freer international trade conditions, many observers expect the reaction to be organization of competing regional trade blocs. For the U.S. it would be logical to pursue a North American and Caribbean bloc.

A crucial question would be which way the nations of the Far East would lean. The U.S. and Australia are seeking a closer economic relationship among Pacific nations, including Japan, although at the present they downplay the suggestion of a close trading bloc.

The world's largest trading bloc, the European Community, has

steadily added adherents. Its advantages in dealing with Eastern Europe, the Mediterranean nations and Scandinavia are obvious.

Readjustment of California agriculture to changed circumstances under new trade agreements could extend over several years and be painful for some growers, beneficial to others.

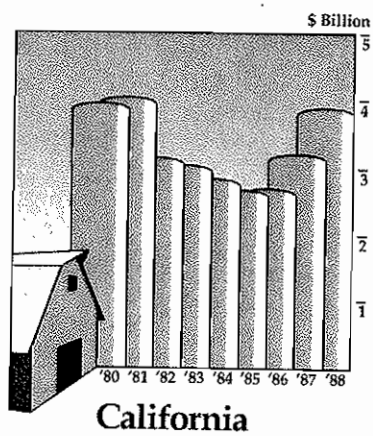
U.S. agriculture's efficiency is well reorganized but agriculture worldwide has gained in productivity. Other nations have become competitive and are often able to undercut U.S. prices. Lower labor cost is a decisive factor. Technology that U.S. agriculture has developed has been freely supplied to competing nations and they have developed their own, as in the case of drip irrigation.

Agricultural markets continue to become more and more global. American capital has been attracted to countries such as Mexico, Brazil, and Chile in order to take advantage of opportunities for year-round production and lower costs. The largest food companies in the United States are now international, and foreign capital has invested in U.S. agriculture. California has also received its share of foreign investment in meat production, fresh produce, and winemaking.

In this international atmosphere traditional relationships have become blurred and new ones are taking shape. The U.S. advantage is not what it once was.

While government influence on the terms of world trade is highly important, even crucial in some cases, once access to markets is obtained skill in market development takes primacy. Where California agriculture has had the opportunity to compete freely it has done well. Federal and state overseas promotion programs have provided much support.

Competition is strong almost everywhere. It is especially intense in the most lucrative markets: Western Europe, Japan, and the United States.



California Agricultural Exports

Source: California Department of Food and Agriculture

Domestic Marketing

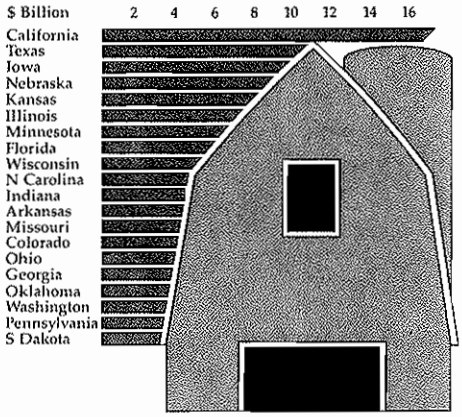
Food marketing techniques have become steadily more sophisticated in recent years. Research has identified the needs and desires of specific population segments, encouraging "target marketing" to a much higher degree.

Social changes including the growing number of two-income families and the larger proportion of elderly consumers have created new marketing opportunities.

Ethnic foods have been eagerly received by an affluent new generation of consumers.

Food technology has created a continuing flood of new products, many aimed at use in recently developed appliances such as the microwave oven and designed to fit the demand for convenience and time saving in food preparation.

Top 20 States in 1988 Cash Farm Receipts



1988 U.S. Total Cash Receipts
$151.4 Billion

Source: USDA, Economic Research Service, Economic Indicators of the Farm Sector

Fast-food chains and the food service industry which supplies restaurants, hotels, and institutions are now major markets. Supplying them has led California agribusiness into new marketing channels.

Direct marketing to consumers through roadside stalls and farmers' markets has developed new strength, riding on the wave of enthusiasm for fresh produce.

In these new and volatile circumstances, the food industry has concentrated heavily on adding value to its products through processing and packaging, and also on differentiating products in the marketplace in order to achieve better margins. Large food companies now spend millions on research, development, advertising, and promotion. Aiming a family of products at a particular segment of consumers, a so-called "niche market" has often been highly successful.

Consolidation of the food industry through mergers and buyouts has become so extensive as to arouse apprehensions among producers of farm products. They fear loss of competition for their output and the accumulation of market power by a few large international firms.

A historic response of growers to this type of threat has been to vertically integrate into processing and marketing of food products. This has been done successfully in California by grower-owned cooperatives and private enterprises. The urge to move in this direction continues, but to compete successfully in the high-powered world of food marketing requires considerable capital and management skill.

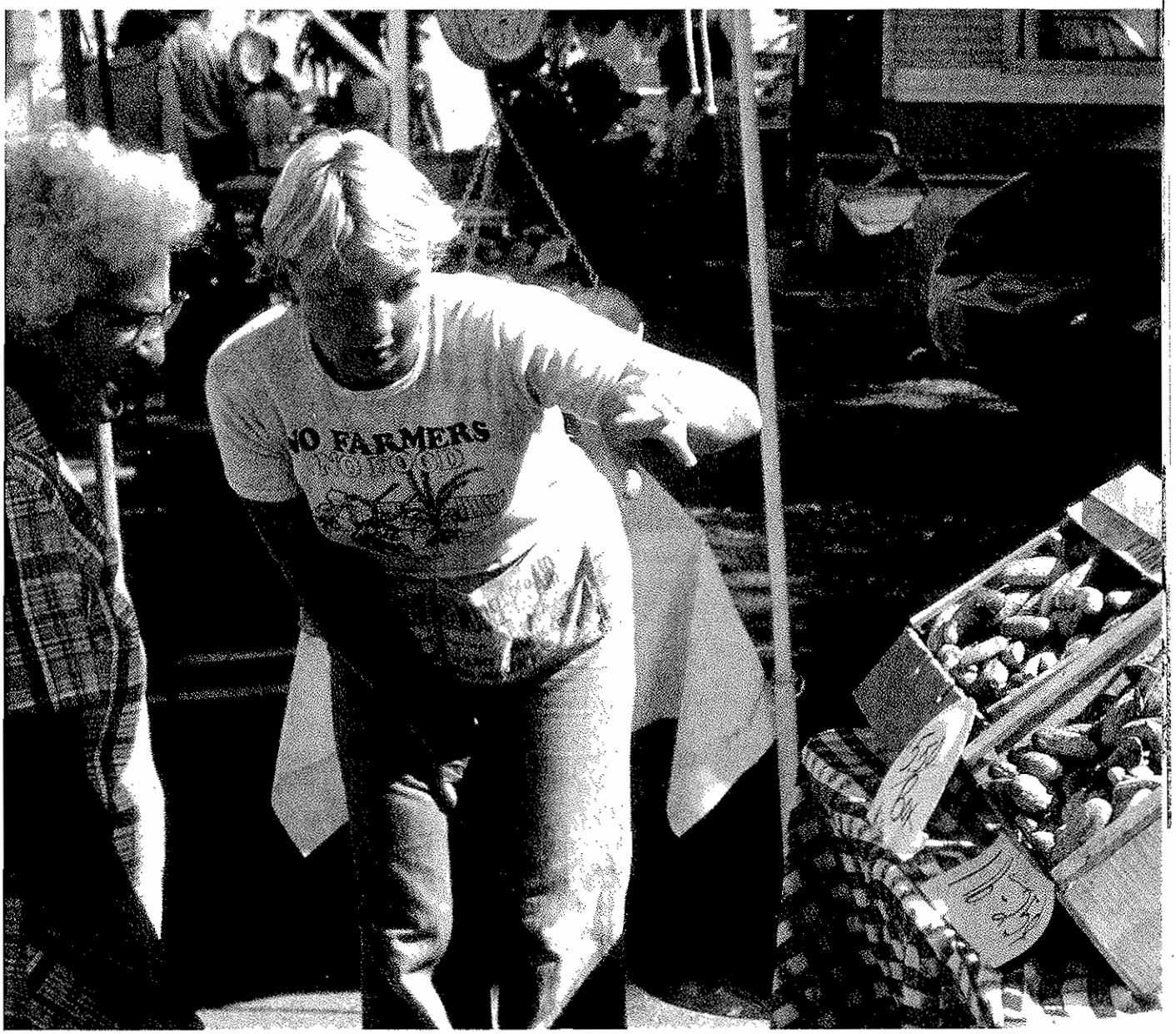
Growers have also responded by financing generic advertising and promotion campaigns for their products. Again California has been especially prominent in this type of activity. Growers and processors in this state have also depended upon industry-financed marketing orders and agreements, both federal and state, to carry on research into marketing and new product development, to develop promotion campaigns, and in the case of federal orders to establish limits when needed on the flow of product to market. The latter function has become controversial in recent years but is strongly supported by the majority of growers.

Opportunities to develop new farm products are constantly sought. In recent years kiwifruit and pistachios have had marked success. Attempts are ongoing to determine commercial possibilities for jojoba, guayule, and kenaf. Fuels and other products may be created from farm products on a larger scale if economic conditions and environmental considerations warrant. Years of trial are usually required, however. Also required is substantial "risk" capital. In some cases, as with development of ethanol and methanol fuels, government financial support is required, at least during the initial stages.

Food marketing today is a high-stakes game, volatile and competitive to an ever-evolving, high degree. California is fortunate to possess the climate and resources to produce a greater variety

of high-quality food and fiber products than any other comparable area in the world. It also has the infrastructure and skills to process and market worldwide.

These fundamental attributes give California strong advantages domestically and internationally. If California agriculture and agribusiness are not overly burdened by new restrictions and regulations by foreign trade barriers, or by fiscal policies which might adversely affect value of the U.S. dollar in relation to other currencies, its natural advantages can probably deal successfully with growing global competition.



Energy and Transportation

CALIFORNIA agriculture uses only about five percent of the energy developed in the state from all sources, but what it does use is indispensable.

Electricity and fossil fuels drive agriculture's vehicles and implements, pump its water, process its products, and take them to market around the world. About seventy percent of the electricity is used to pump and distribute water for irrigation, upon which the state's most highly valued crops depend.

Many types of energy are potentially available for agriculture; grain is converted into fuel today with corn being the principal source. Sugar can also be converted. Waste and residues from farming (biomass) can provide energy that is used in a number of processing plants and power stations around the state. There is limited use of biomass conversion on farms. Solar heating and energy generated by wind power are other alternatives.

For the foreseeable future, however, electricity and fossil fuels will be dominant energy sources. The factor that could most severely limit use and encourage a shift to other sources of energy is cost.

Electric power rates have increased steadily even though they are controlled by the Public Utilities Commission. Farm customers now pay about three times as much per unit for electricity as they did ten years ago. At issue here is the cost of service provided by power companies. Farmers and ranchers hold that they should not be forced to help pay the higher cost of providing new service to growing communities. Hearings on this issue will determine whether to approve a sharp rate increase for agricultural customers this year.

Power companies have offered lower rates to growers during certain times of day and many have seized the opportunity. But even this shift is probably only delaying the day when rising power costs will force changes in the way California agriculture operates. Growers may generate their own power and leave the public power systems. This also carries the threat of being self-defeating for agriculture as a whole. As customers leave the systems, fixed costs of power companies must be carried by a smaller pool of customers and rates will rise.

Obviously, the burden of higher power costs rests most heavily on irrigated agriculture. There is no doubt irrigation efficiency can be improved. Drip irrigation uses less water and energy than other types. But it also requires a heavy investment and is not always suited to the crop. Economics rules what the growers can do.

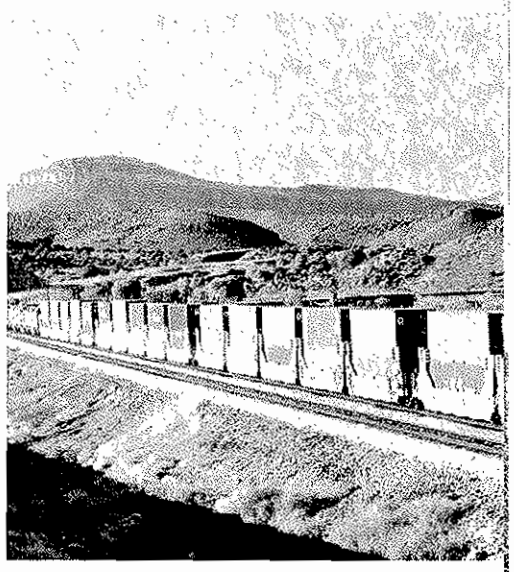
The issues of energy cost and availability that face California's highly mechanized and irrigated agriculture deserve serious and comprehensive study. In any such analysis contributions of agriculture to the state's economy should be a leading

consideration. Fuel costs also affect distribution of California's huge outflow of fresh and processed farm products. Once carried almost exclusively by rail to the many distant markets that California agriculture served, these products now travel primarily by truck. Truck rates have also risen, especially in the peak harvest periods, and at that time trucks are often hard to hire. Deregulation has increased competition but it also has reduced the supply of trucks.

Only about fifteen percent of the state's fresh produce now moves by rail. Even then, when the produce reaches distant market hubs it must be finally distributed to customers by truck. Railroads have greatly diminished their service to agriculture. Whether it will be continued at its present level is questionable although there has been some movement toward modernizing equipment and developing new types of service, such as the "stack trains," which have not yet been fully tested.

In summary, trucks remain the primary method of bringing agriculture the materials it needs such as fertilizers and equipment, and for taking its products through to the ultimate consumer.

Everywhere in California highway congestion is increasing while roads and bridges are not only proving inadequate to handle heavier traffic, but are falling into disrepair. Experts testify that under these circumstances the cost of carrying products rises and the quality of just-harvested fresh products may be lowered. Bumpy roads mean bruised fruit. Meanwhile, as city streets become more crowded, some communities are threatening to limit the number of hours that trucks can operate.



All these factors point to increased costs of transportation and the need for a massive move by government at all levels to improve roads and highways, to encourage other means of transportation for people commuting to and from work, and to provide incentives for private operators to improve equipment. Agriculture might schedule more of its truck movements at off-peak hours, but that would be limited during the hectic harvest season.

Research is being conducted on improving means of protecting products after harvest and on their way to market.

California exporters of farm products are also concerned over the rising cost of ocean freight. The U.S. Department of Agriculture reports some shippers are paying fifty percent more than they did just three years ago. With export sales presently bringing in about one-fourth of the state's farm income, ocean freight rates become a crucial factor in determining California's ability to compete in foreign markets.

California agriculture achieved its renown through raising a great variety of crops in quantities no other state could match, and in demonstrating that it could deliver quality products to distant markets with cost-effective efficiency. That ability is threatened today. Unless significant improvement is achieved by the Year 2010 this advantage may be severely compromised.

Labor

CALIFORNIA agriculture must hire some 900,000 workers each year to bring in its rich harvest of crops. But two thirds of them will do farm work for only a few weeks out of the year. When they are needed, as during the peak summer and fall harvests, they are needed badly. Only about one third have stable, year-round jobs on farms and ranches.

Many follow the crops from area to area and state to state, returning to the same employers each year. An increasing number have settled down to stay in one area and supplement farm work with what other jobs may be found. Yet while these demonstrations of their wish to stay in farm employment are reassuring, there is no question that the situation contains uncertainties for both workers and employers.

Employers make every effort to keep key workers and hold experienced crews together but they cannot offer work when there is none. Workers, on the other hand, while skilled at farm work and accustomed to it, may well be tempted away by more steady employment in other lines of work.

California agriculture has mechanized many tasks, at least in part, but labor demand is still high because acreage of the most labor-intensive crops — the fruits, berries, vegetables, and grapes — has been increasing.

Traditionally, the farm labor force has been mostly male, of Hispanic origin, and a high percentage of the workers entered the country illegally, eagerly seeking work and wages that they could not find at home.

Direct contact between these workers and landowners has diminished in recent years. Growers have come to depend increasingly on labor contractors and farm management companies to hire and direct the crews. This system has left many with only an arm's-length influence on labor management. How this may affect operations if the labor pool should shrink seriously in future years is a matter of concern. Nonagricultural industries have developed sophisticated systems of procuring and managing labor in times of shortage that are not presently available to agriculture.

Of most concern, however, is the new element introduced into the farm labor picture by passage of the Immigration Reform and Control Act (IRCA), which is intended to stabilize and legalize the work force. Its influence will depend upon how vigorously it is enforced and how the influx of foreign workers is controlled.

There is not enough experience as yet to establish what the law's effect will be. It is reasonable to assume, however, that agriculture will face a less abundant supply of labor.

Farmers and ranchers may respond to that situation by offering workers better terms of employment. But labor cost is a major expense. California growers are in competition with others

around the world who pay far lower wages and far fewer benefits such as pensions and insurance. The question then arises, how far can California growers afford to go in order to assure their labor supply?

If workers' compensation is generally to increase, then worker productivity must also rise in order that California remain competitive. New technology, particularly in mechanization, automation, and robotics, may be crucial to improving efficiency.

It has been forecast, for example, that half the harvest jobs in wine grapes, raisins, olives and lettuce could be eliminated by applying technology already in hand.

There is another side to this as well. Technology can eliminate jobs but can also make farm work more attractive by easing physical burdens, opening the opportunity for more skilled and higher-paying work, and thus help to mitigate worker shortages.

Continuing urbanization in areas of the state, most importantly the Central Valley, that are still today predominantly agricultural, will raise the possibility of alternative employment. Members of farm worker families may thus find the means to establish themselves permanently and raise their standard of living. This may in turn tend to stabilize a local farm labor supply.

On the other hand, population growth and movement of new industry into rural areas also poses the threat of siphoning off experienced farm workers into other occupations that may promise steadier work and perhaps higher pay.

In all of these suggested eventualities the intervention of the federal government and the degree to which immigration laws and regulations are enforced will be decisive in determining the size of the farm labor pool and its character.

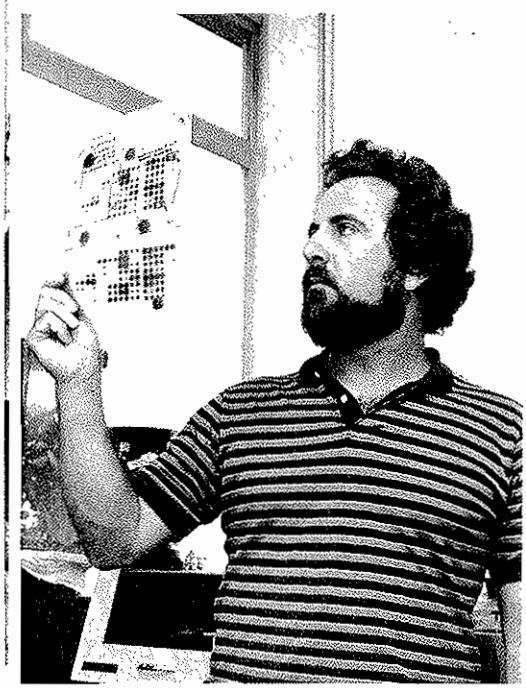
It is possible that an increasing number of the unemployed from the cities will enter the farm labor market but nothing in history suggests that this is apt to happen. The main sources will most likely continue to be those that California agriculture has looked to for decades past.

At present, nothing indicates that California agriculture's need for workers, and for hand labor, will diminish substantially by the year 2010. Not, certainly, if the irrigated high-value specialty crops continue to be so important.

If the labor force does gradually fall well short of the need, however, some crops presently important to California will no doubt prove uneconomic for many growers. Production of these crops will then move substantially to other states and to other countries like Mexico where farm labor costs are materially lower. This trend is already strongly evident in the case of some vegetable crops even though no shortage of farm workers has yet developed in California.

Should such a situation arise, it is logical to assume that California will turn back to a more extensive type of agriculture, raising livestock and crops that are more readily mechanized, and be forced to settle then for an accompanying drop in the state's farm income.

Education, Research, and Extension



OVER a century ago the United States adopted the policy of providing public support for agricultural education and research, and for the extension of knowledge to the farmers and ranchers who have put it to use in building the world's most admired and imitated agricultural industry. No nation has ever made a more productive investment in its future.

Perhaps because agriculture has been so successful and the U.S. food supply is so abundant, this public support has waned in recent years. Society has found other needs more pressing.

This decline in public funding runs counter to the nation's best interests. The U.S. once clearly dominated world agriculture. That is no longer the case. Our superiority is no longer unchallenged.

The Board of Agriculture of the National Research Council has reported that U.S. agriculture "faces new and complex challenges of responding to aggressive competition on a global scale, ensuring good nutrition and a high-quality food supply for all our people, safeguarding our natural resources, and enhancing our environment."

To meet these challenges, the Board continued, "The United States needs to invest in the future, to revitalize and reinvigorate one of its leading industries, the agricultural, food, and environmental system in its broadest sense...needs for profitable new uses for agricultural products, more cost-efficient production, and new markets remain high."

Unquestionably, California has the scientific infrastructure to lead the nation in agricultural research.

The unequaled research complex of the University of California matches its Agricultural Experiment Station, the oldest continuously operating facility of its kind in the nation, with its network of field stations, centers which concentrate on particular lines of study, and statewide Cooperative Extension offices with a long history of effectively turning the results of research into practical, productive operations in the field.

The California State University System complements the UC system with four schools of agriculture at Cal Poly Pomona and San Luis Obispo, CSU Fresno, and CSU Chico. These institutions combine research with education and have developed a close association with agriculture.

In recent years programs of cooperative research between the University of California and the four State Universities have begun.

If this extensive system is to flourish and add its very considerable potential to the solution of the many problems facing California agriculture it must be nourished with the financial support that will provide talented staff with the research tools needed. That support has lagged in the face of the acknowledged

fact that the type of research needed in the decades ahead to keep California on the lead edge of agricultural technology is growing more, not less, expensive.

California must maintain its position as a leader, for just one example, in the developing science of biotechnology. Public institutions and private industry in the United States are in competition with well-funded, government-supported programs of research into every phase of biotechnology in Europe and Japan. The new and more efficient animals and plants, diagnostic tools and pharmaceutical products that biotechnology will produce have the potential to revolutionize agriculture. The U.S., and California in particular, cannot afford to be left behind. Higher crop yields and higher quality, more productive animals, lower costs of production, answers to problems of pests and disease, enhancement and protection of the environment, and assurance of food safety are all at stake in pursuit of research and particularly of biotechnology, which, while still in its very first stages of development, clearly promises advances of enormous portent to both agriculture and consumers.

The potential of alternative agriculture systems and of such progressive approaches as Integrated Pest Management and biological control of insect pests will not be fully developed without continued research. Much of it will necessarily be basic research, the type providing new knowledge for the eventual successful application of practical production problems.

Breakthroughs will be exceedingly rewarding to society as a whole, not to farmers and ranchers alone. History has proven this many times. But such advances cannot be achieved unless scientists and those who carry information to the ultimate users are adequately supported.

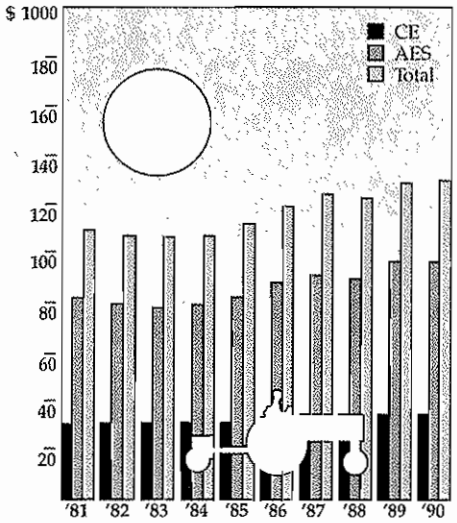
To think that because agriculture, particularly in California, has proved so productive in the past all the important problems have been solved is to succumb to a dangerous delusion. Problems projected for the next two decades are in many ways more difficult than those of the past, and they are not confined to agriculture alone.

Educational Changes Needed

Considered in its fullest scope, agriculture extends well beyond the field, the orchard or vineyard, or the pasture and range, into finance and management, research and education; the handling, processing, and marketing of farm products and foods; engineering and the environment; all the techniques and processes by which people are fed and clothed.

The career opportunities involved are many and, unfortunately, too little comprehended by most students.

Financial Commitment to Agriculture by U.C.



University of California
Division of Agriculture & Natural Resources
Division Resources,* 1981-1990
In Constant 1980 Dollars

*Includes state, federal and endowment income, gifts and grants, sales of products, fees, and other services.

Like any other industry, agriculture must have a continual infusion of new, intelligent, and well-educated people. Few of them can be expected to enter their school years already predisposed to agriculture based on personal experience or family influence. Today's society is not structured to produce an inflow of students who know from the start that they want to be involved in agriculture or some allied occupation.

Vocational instruction in agriculture does not reach many students in urban schools who, if they were aware of the possibilities, might commit to careers in agriculture and agribusiness.

School systems should give more emphasis to these career opportunities. Informational courses in agriculture should be offered that will tell students how agriculture is structured, how it operates, and how it contributes to the general welfare. Without this type of information, whole generations of students will become adult voters in almost total ignorance of the state's largest industry. That is hardly in the public interest.

Adult education in agriculture is becoming increasingly important as agriculturalists and the professionals who work with them in occupations such as pest control management have need for regular updating on the latest information and technology. The UC Cooperative Extension system, obviously an important key to this function, has also suffered from declining financial support. Even as this has been happening, Extension staff has been deluged with new demands for service.

The State Universities have developed their own methods of outreach to agriculture which complement those of the University of California. These efforts, too, require consistent financial support.

Education in and about agriculture should not be regarded as serving agriculture alone. It is part of the process of developing an informed public.

The Challenge of Communications

Active farmers and ranchers now number less than two percent of the population. Few urban dwellers have any direct knowledge of agriculture through family or business. Agriculture is not the same industry that older generations may recall. Newer generations have had little contact with it.

What information most people receive about agriculture's position on many public issues usually comes to them piecemeal and with little objective interpretation. Often it comes in "crisis reports" by the news media. These reports tend to be based on self-serving announcements from special-interest groups.

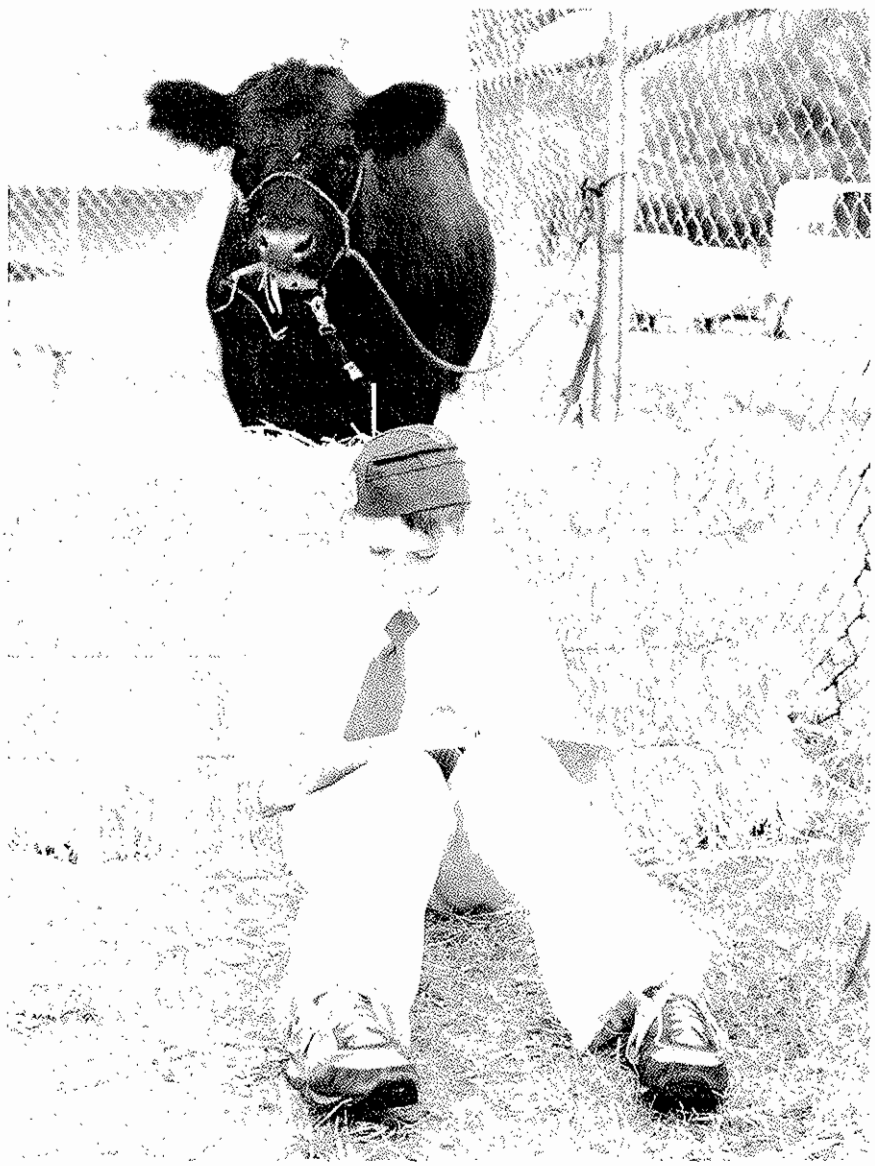
This communications problem now is taken much more seriously by agricultural interests than in the past. It is to be hoped

that others interested in the same issues will join in a concerted effort to keep the public better and more objectively informed. If this is done, agreement can be much more easily and equitably reached among the very disparate groups that make up our increasingly complex society.

Among results of such understanding should be improved public recognition of the importance of agriculture as a source of economic strength for the state, and of agricultural education, research, and extension as supports for the industry.

This desirable end will not be reached, however, unless all interests come together in a spirit of cooperation and understanding.

The State and the State Legislature may make a resounding contribution by establishing as public policy the continuation of agriculture as an economically viable industry.



Regulatory Environment

UNQUESTIONABLY, society has the need and the right to regulate its members in what they do. Agriculture is one of the most regulated of the nation's industries.

Many of the regulations affecting production and movement of food and fiber have arisen from recommendations offered by the industry itself. This initiative toward enlightened self-policing has been beneficial not only to agriculture but to society as a whole.

Recently, there has been more pressure from interests outside agriculture to impose increasingly heavy and expensive regulation.

How well founded are these proposals? Do they arise from realistic appraisals of situations? What will be the real cost to society if they are implemented? Will they unduly burden agriculture?

Beyond the question of imposing regulations is administration of laws and regulations. Is it efficient and fair? Does it require an unreasonably large bureaucracy?

It is difficult to quantify accurately the costs as opposed to the benefits to society of regulation but one may easily recognize that the added time and overhead expense of compliance with a new regulation, together with the limits it may place on operational efficiency, if multiplied by the enormous number of businesses directly and indirectly connected with agriculture, add up to a significant expense.

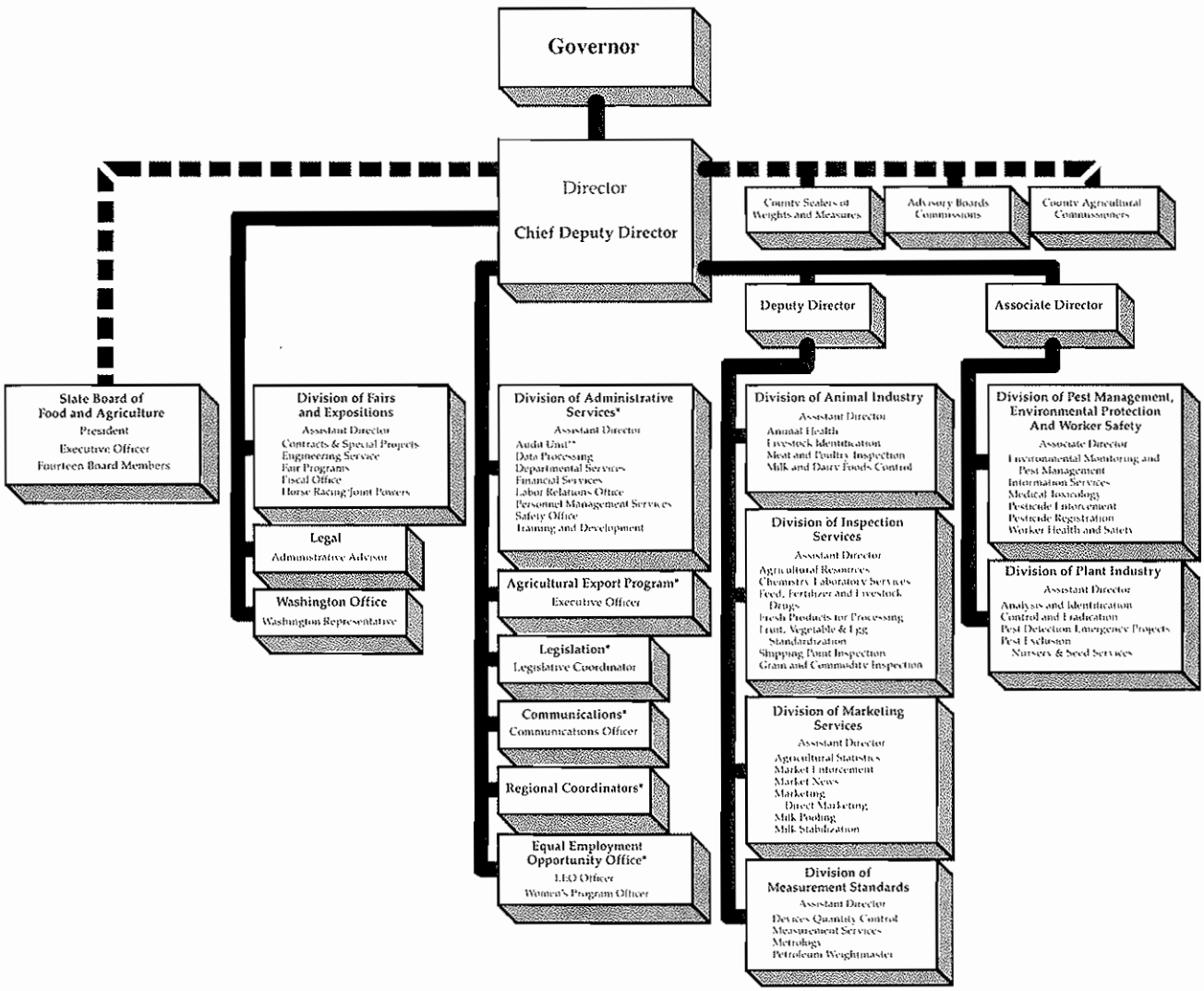
In the next two decades, largely because of increasing public interest in issues affecting food safety and the environment, it is realistic to expect that agriculture will be subjected to increased regulation.

That being the case, and recognizing the vital role of agriculture in our society, it is reasonable to require that the need for additional regulation be judged according to a sensible test of cost compared to expected benefits. Overregulation benefits no one.

Any consideration of additional regulation should include an estimate of whether or not California agriculture can remain competitive.

Nor is it too much to ask that regulations affecting agriculture be subjected to periodic review to determine whether they still apply, are worthwhile, or might be modified or even discarded.

Reasonable regulation in response to real problems is necessary and should be appraised with consideration of the needs and interests of all involved. Regulatory action should be based on well-documented and substantiated information.



California Department of Food and Agriculture

EVERYONE living in California benefits every day from protection provided by the State Department of Food and Agriculture.

The agency's title may suggest that it is concerned only with agriculture. In fact, its responsibilities have so expanded since its founding over a century ago that today it is literally a "people's department."

The CDFA works to assure that anyone buying anything offered for sale in California, from food to gasoline, receives full measure and high quality. This important function is carried out by the Divisions of Measurement Standards and Inspection Services.

Measurement Standards regularly inspects all devices used for measuring, weighing, and counting to assure that they are in good order and consumers are protected against fraud. Sealers of Weights and Measures administer the program in each county.

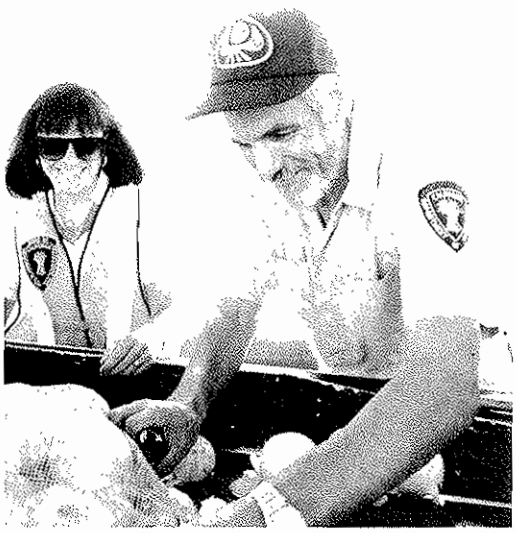
Inspection Services conducts continuous spot inspections at strategic localities to see that agricultural commodities comply with state standards and that deceptive, improperly labeled, and poor quality products are barred from the market.

Producers and consumers alike benefit from the wide range of other CDFA programs including regulation of the use of agricultural chemicals; detection and eradication of pests; prevention and control of plant and animal diseases; enforcement of regulations designed to protect workers and public health and safety; and promotion of agricultural exports.

Agricultural Commissioners stationed in each county represent CDFA and enforce the California Food and Agricultural Code. The Code covers a wide control range such as noxious weeds, apiary inspection, and enforcement of standards for fruits, vegetables, and eggs, nursery stock and seeds.

The CDFA Division of Pest Management is charged with the exceedingly complex task of enforcing the nation's most comprehensive and stringent body of controls over the sale and use of pesticides. Food products are monitored to detect and prevent the sale of any that are contaminated by pesticides. Safety of workers using pesticides is a major concern. Experts continually monitor and analyze the environmental effects of pesticides.

California's mild climate and unequaled range of farm products encourage every known type of pest and plant disease. Uncontrolled, they would quickly devastate agriculture, the state's largest industry. Lesser quantities, lower quality, and higher prices of foods would result. The state's first line of defense against such a calamity lies with the CDFA Divisions of Plant Industry and Animal Industry.



Invasions of pests and diseases through travelers are blocked by inspectors stationed on major highways and at airports, harbors, and railway stations. Backing up their protective network are thousands of insect traps at scientifically selected locations throughout the state. These have successfully detected the arrival of many exotic pests, including the tremendously destructive Mediterranean fruit fly. Swift eradication is the only feasible method of preventing these pests from establishing themselves as permanent problems. To deal with such pests is a difficult and never-ending task. Efforts are not always completely successful, but action is essential to protect the food supply.

Animal Industry's responsibilities extend beyond dealing with real and potential livestock and poultry disease outbreaks. They include assuring that meat and poultry food products are wholesome, clean and properly labeled. The Division also enforces inspection and sanitation of the more than 16 million pounds of milk California dairies produce every year. Livestock

producers are provided protection against theft through the brand inspection program.

Marketing of California's crops, livestock and poultry products (valued at $17.3 billion in 1989) is aided in a variety of ways by CDFA Marketing Services. It administers the state's milk marketing law, which encourages availability of an ample supply of milk and dairy products at consumer prices, which have traditionally averaged below those charged elsewhere in the nation. It also protects growers against unfair dealings by those who buy their products. It facilitates the development of direct farmer-to-consumer sales at the production site and through farmers' markets. State marketing agreements providing for programs of research and promotion financed by growers and processors are administered through the Division. In order to provide the essential steady flow of accurate, unbiased information, the Division furnishes the agricultural industry and its customers with market reports, crop and livestock reports, and production forecasts. Without this reliable data agriculturists and brokers would find it far more difficult to operate intelligently and efficiently.

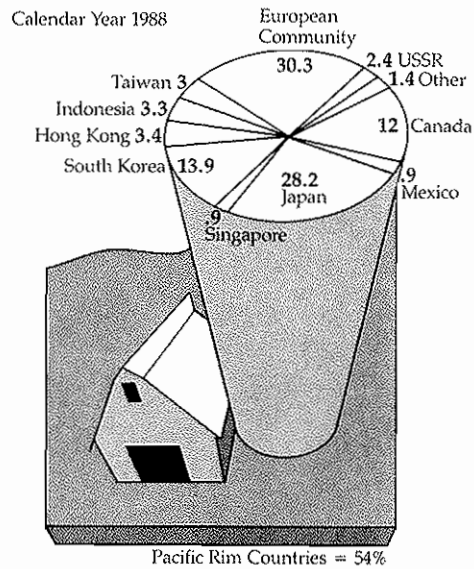
To supplement these marketing services, CDFA administers the Foreign Market Development Program, first of its kind to be adopted by any state. State matching funds are provided for selected export marketing programs. Participation in international food shows and fairs is especially encouraged and supported. In this activity CDFA works closely with the State World Trade Commission and its overseas offices.

Through its Division of Fairs and Expositions CDFA aids the 80 or more district, county and citrus fairs held annually in the state. The Division reviews and approves budgets, provides advice on finance and management, and helps fair staffs plan exhibits and events.

The State Director of Food and Agriculture is appointed by the Governor and is supported by advice and counsel from the State Board of Food and Agriculture, a 15-person body which includes representation from the University of California and the State College and University system, four public members with particular expertise in environmental and consumer affairs issues, and nine members representing production agriculture statewide.

Since it was organized in 1880 as the State Board of Viticulture Commissioners, with responsibility to "study disease of the vine" on behalf of California's growing grape and wine industry, the Department of Food and Agriculture has become a vital professional force in support of California agriculture and the food industry. Successive governors and State legislatures have directed it to assume ever broader and more demanding responsibilities on behalf of both agriculture and the public at large.

California's Agricultural Export Markets Value Basis %



Source: California Department of Food And Agriculture

The Stakes Are High

The future of California agriculture, a bulwark of the state's economy since Gold Rush days, is now at risk.

We can't afford complacency. The threat is real and demands the attention of the public and of government at every level.

What is at risk?

Of all the world's nations, only fifteen exceed California in annual value of agricultural production. That remarkable fact has gone largely unnoticed in this increasingly urbanized state.

California is the nation's leading agricultural state. Agriculture, with its allied interests, is the state's largest and most economically important industry. It leads the world in development and application of agricultural technology, produces a greater diversity of farm products than any other area of comparable size in the world, employs hundreds of thousands of people, and bolsters the local and statewide economy. It supplies an abundance of nutritious food to this state and to the nation.

Yet California agriculture now faces the possibility of a significant reduction in output and a commensurate decline in the ability to be competitive in world markets.

If that should happen, the state will have suffered significant erosion in one of its principal economic stabilizers.

The public seems to expect continued extraordinary performance from agriculture no matter how the industry may be affected by increasing governmental regulation and bureaucratic restrictions. Such expectations are unjustified and dangerous.

If this type of thinking continues to influence public attitude, it can only provoke deterioration of the state's agricultural economy. That will be reflected in the total California economy. To cope with this problem of public misunderstanding, California agricultural interests must consider seriously the need to fund a continuing public education program. Support by all segments of the industry is essential.

Society faces difficult choices as to how farmland is to be managed and protected, air and water quality are to be enhanced, water is to be developed and distributed in quantities sufficient to meet both rural and urban needs, a sufficient supply of agricultural labor is to be assured, and the infrastructure of roads and services that supports agricultural production, processing, and marketing is to be maintained.

Questions concerning use of agricultural chemicals must be decided on the basis of sound scientific evidence, objectively assessed, not on emotional or selfish partisan appeals.

Rational solution of issues affecting agriculture's position in California requires increased public support for agricultural education and research. Toward this end effective pooling of resources by the University of California and the State University System must be accomplished.

Management of agricultural properties in future years will demand increasing professionalism. Efficiency and productivity in farming, while dealing with environmental constraints, will require management specialization. New technologies will call for new training. The state's educational leaders must plan and implement curricula to satisfy this need.

The State should continue to play an active part in developing export markets for California farm products and processed foods. In recent years approximately one-quarter of California's annual gross farm income has been derived from export sales. The state's agriculture is steadily responding effectively to the increasing globalization of agricultural trade. Future growth of California's agricultural economy will depend to a significant degree on continued development of foreign markets.

Agricultural production is becoming more capital intensive. As this trend continues, availability of financing is vital. State agriculture is evolving within a new economic structure which includes a small minority of large farms producing the bulk of the nation's food and fiber and a great number of smaller farms producing primarily for local and specialty markets. Both private and public financing will be required to ensure accomplishment of these diverse objectives.

The cost of energy has increased until it is a very significant factor in agricultural production and processing. The development of alternative energy sources that will satisfy cost constraints and also be environmentally acceptable is absolutely necessary.

A correct balance of costs and benefits of regulation is very important to the future of California agriculture. Urban expansion inevitably brings new residents and industries into contact with long-established agriculture. The interests and aspirations of newcomers should not be permitted to overbalance needs and rights of farmers and ranchers.

It is also clear that the clock cannot be turned back. Change is inevitable. To maintain and improve its competitive position in the 21st century California agriculture must objectively and continuously reassess its structure and institutions in order to initiate necessary changes when and where required.

California can make a lasting contribution to its future well-being by assuring that agriculture is welcomed in its counsels and given a full voice in future planning. Agriculture should continue to be represented at the highest levels of government. The State Director of Food and Agriculture should continue to be a Cabinet member.

Agriculture is prepared to respond positively to the need for cooperation and collaboration with other segments of California society. While naturally dedicated to defending its own legitimate interests, agriculture looks forward to forming effective coalitions with other groups in order to deal with difficult questions of public policy.

The state's largest industry must insist, however, that in order to be fully competitive with other producers worldwide there are facts which must be recognized and given due consideration before policy decisions which impact production and marketing capabilities are decided.

To do less will be to risk a decline in agricultural production, which will be accompanied by loss of employment in both farming and food processing. A continuing deterioration in efficiency and ability to compete could lead to California's losing its long-held position as the nation's number one agricultural producer.

Given a modicum of understanding and incentive, California agriculture will adapt to change, develop new farming systems based on superior technology, and continue to furnish major support for the California economy.

Agriculture's past successes in providing an abundant and safe food supply at reasonable cost to the consumer will not automatically assure similar benefits in the future. The state and the nation need to formulate a comprehensive food policy which will ensure a climate in which agriculture can perform as effectively in the future as it has in the past.

Acknowledgements

The California Department of Food and Agriculture, under the direction of Director Jack Parnell, Chief Deputy Director Dan Haley, and Deputy Directors Bob Fox and Bill Tracy, was commissioned by Governor George Deukmejian to prepare **Vision 2010: California Agriculture.** The project was presented to the Board of Food and Agriculture president, Richard Peters, who has guided this project to completion. This project is now submitted to the governor by the new director, Henry Voss, and President Peters.

A plethora of individuals and organizations deserve recognition for their insight, support and assistance in the process of gathering information and writing this report. Contributing to that end were farmers and ranchers, grower associations, government officials, CDFA staff, university staff, and members of the general public. The shared bond among these individuals was our concern about the future growth and viability of California's agricultural industry. Any errors of omission or fact remain our responsibility.

Supervision of this project fell on the collective shoulders of the California Board of Food and Agriculture under the leadership of the president, Richard Peters. Members of the board include: William Borror, Sig Christierson, Donald Daley Jr., George DeMedeiros, Thomas DiMare, Kenneth R. Farrell Ph.D., Dorothy Ann Harper, Jacqueline Heather, Cherry Ishimatsu, Richard Keehn, Concepcion Minsky, Robert Moore, Charles Smallwood Ph.D., and Louise Willey.

Responsible for the physical compilation were: Executive Officers of the board, Tracyle Sandin (present), and Lucinda Chipponeri; Jacques Franco, CDFA ag resources branch; Wayne Smith; and clerical support by executive secretaries, Judy Curtis (present) and Jo Ann Souvignier.

White papers were submitted by the University of California Agricultural Issues Center and Water Resources Center, Agricultural Council of California, California Farm Bureau Federation, Western Growers Association, Air Resources Board, California Chamber of Commerce, Bank of America, California State Grange, California State Department of Education, California Women for Agriculture, Agriculture Water Advisory Committee, California Department of Food and Agriculture's Issues Center, and California State University, Fresno's Department of Agricultural Economics.

Finally, after all the white papers were collected, reviewed and rolled into one document, special recognition is dedicated to Mr. Henry Schacht who was called upon to exercise his 40 plus years of agricultural writing/reporting to edit and stylize **Vision 2010.**

With the publication of **Vision 2010: California Agriculture** we send into distribution an educational tool that transcends the agricultural community. It reaches out to current and future generations to protect this state's number one industry as we face the dynamic forces of land use, atmospheric changes, water priorities, a changing work force and biotechnical advances.

The board sends out its collective appreciation to all participants for their assistance and patience.