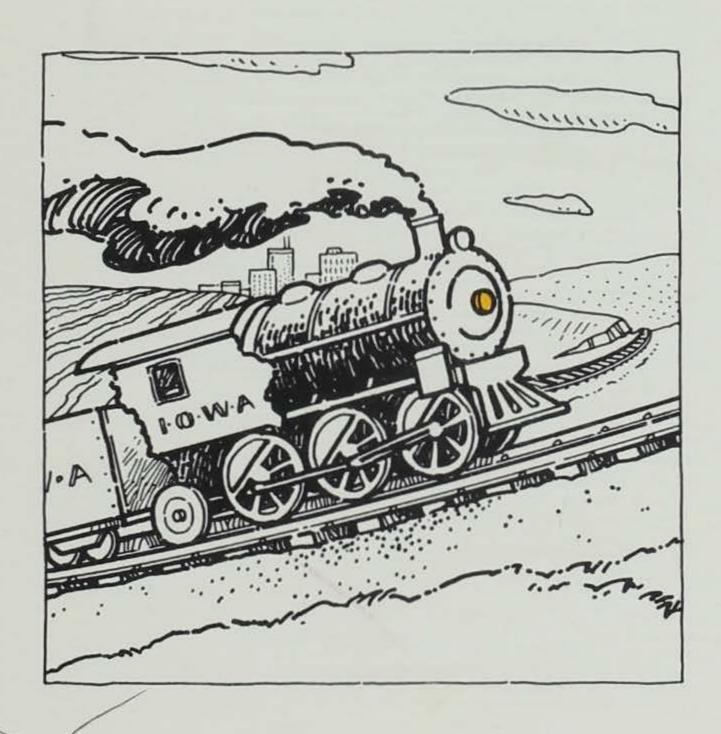
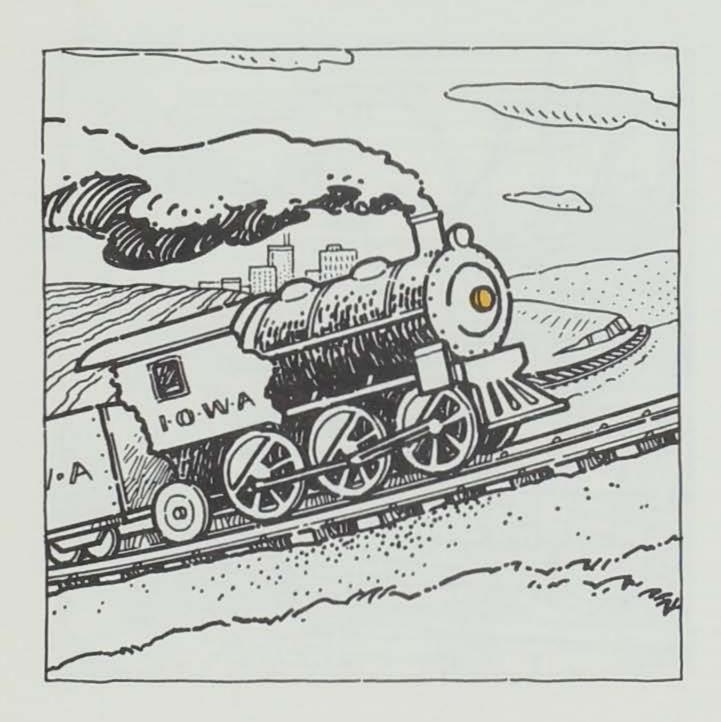
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the little state that could

a 21st century storybook about a state that believed and invested in itself

Story: Karen Bolluyt
Pictures: Thomas Rosborough
Artistic Director: Anita Albert
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Iowa State University
Research Foundation, Inc.



Once there was a little state in the middle of a large nation.

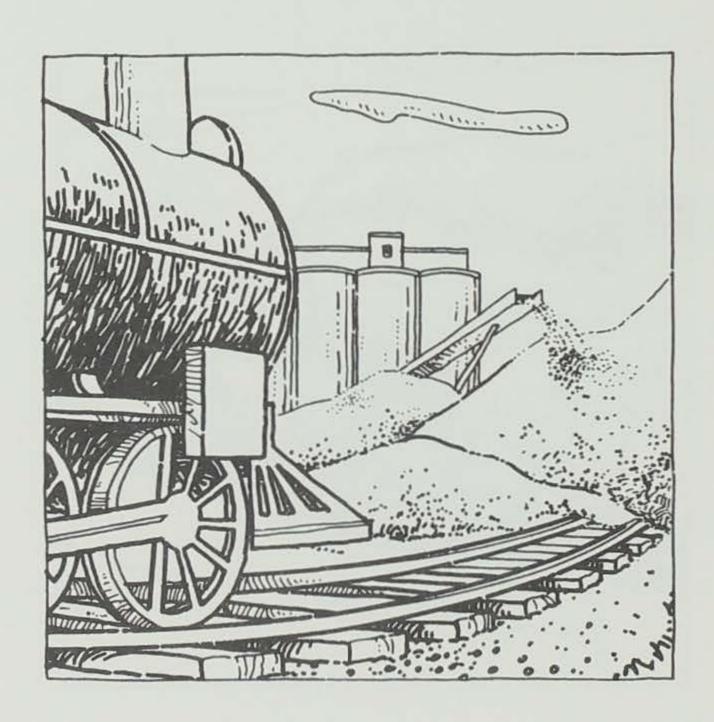
Agriculture was the foundation of the state's economy . . .

and agriculture was in trouble.

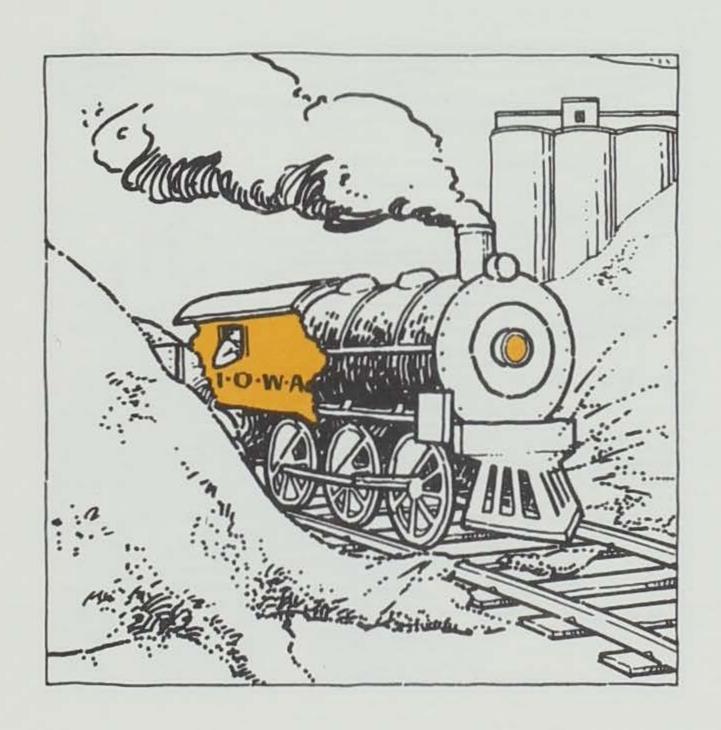
"You have an uphill battle," said gloomy doubters.

"You'll never make it," said gloomier cynics.

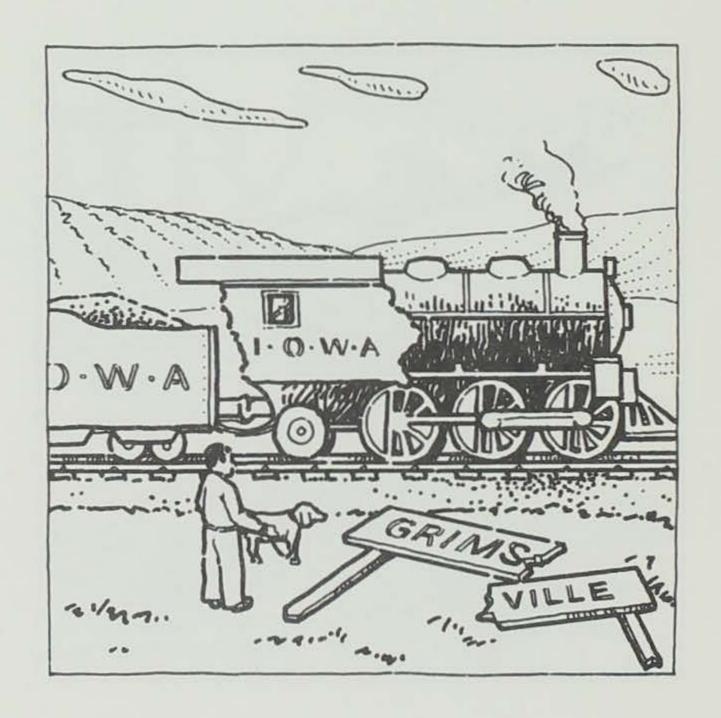
"Watch me!" said the little state.



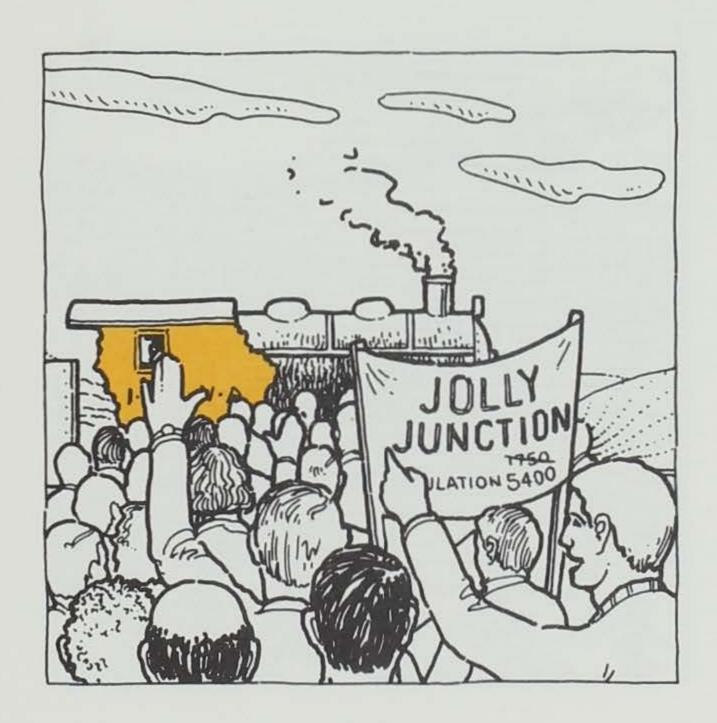
"You are producing more than the world can afford to buy.
You are sinking in a sea of surplus," said the pessimists.



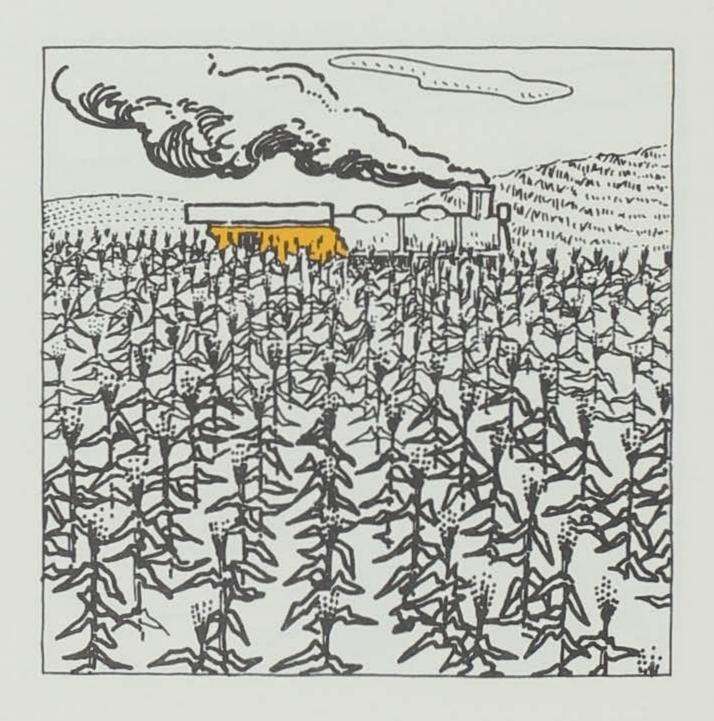
"I'll find new uses for raw agricultural commodities. I'll take the lead in creating better trade policies and agricultural programs," said the little state.



"Your cities and towns are losing jobs and people and services," chanted a chorus of doomers and gloomers.



"I'll create new economic opportunities to support human services and thriving towns and cities," said the little state.

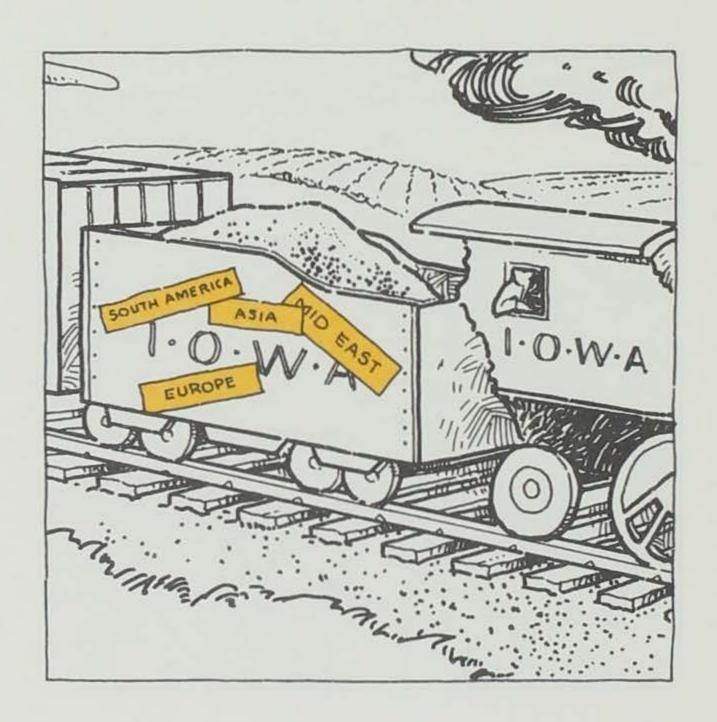


"You are too dependent on a half dozen commodities," said a pessimistic crowd.



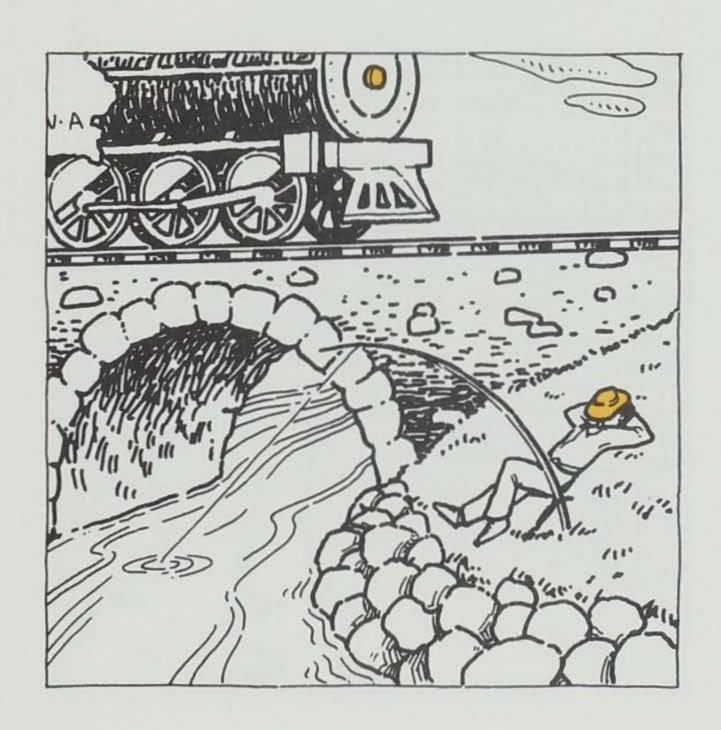
"I'll build a diversified economic base in production and processing. I have huge advantages in soils and climate. I have well educated people who know how to work.

"And I'm at the crossroads of the nation, a perfect spot for a distribution center," declared the little state.



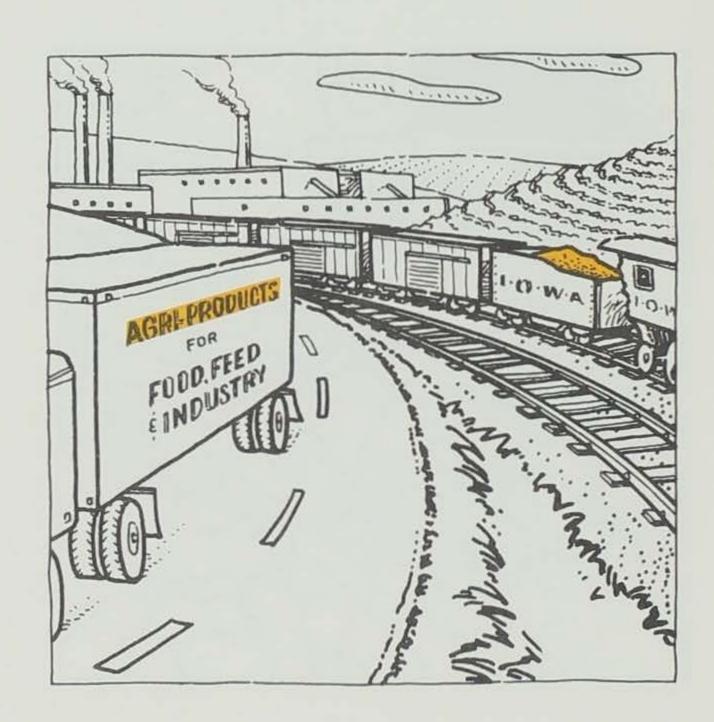
"Foreign competition is too tough for you," said the naysayers.

"I'll be even smarter at producing and managing and marketing, and I'll find ways to break down trade barriers," replied the little state.

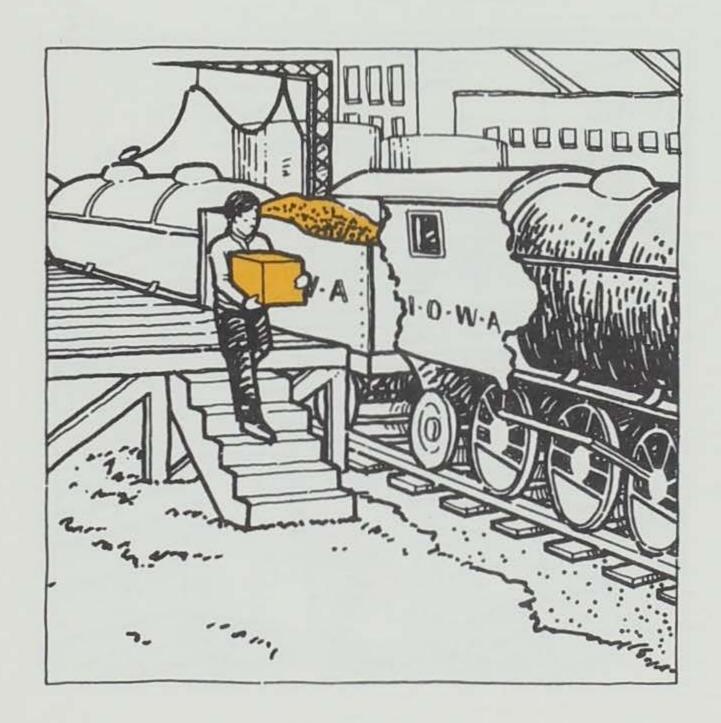


"Your soil is emigrating to the Mississippi Delta, and the quality of your water is in danger," said the doubters.

"I'll protect my soil and water further into the future than any of you dare to look," said the little state, which didn't talk like a little state at all.

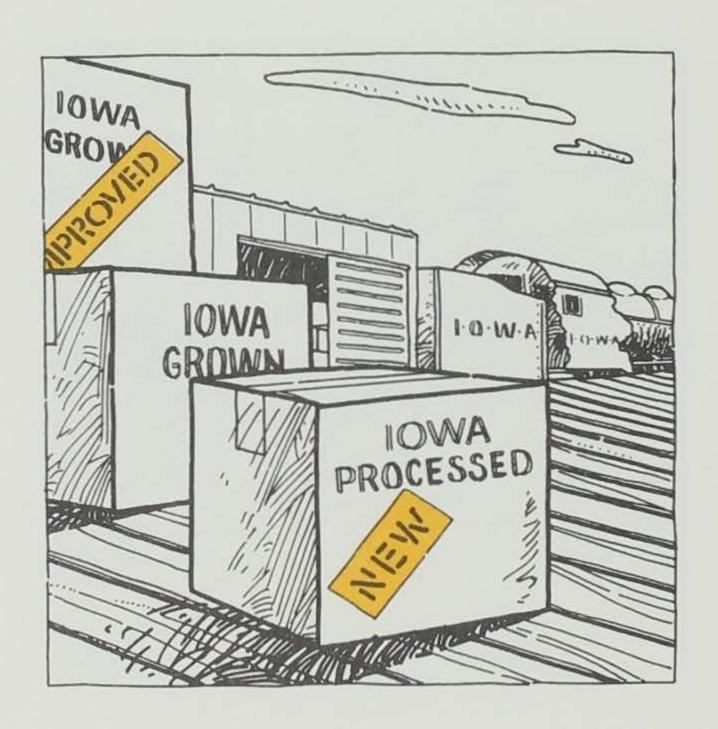


It didn't act like a little state either. Farmers got stronger with new marketing strategies, diversification, new management tools, and crops and livestock that offered valuable special qualities to buyers.

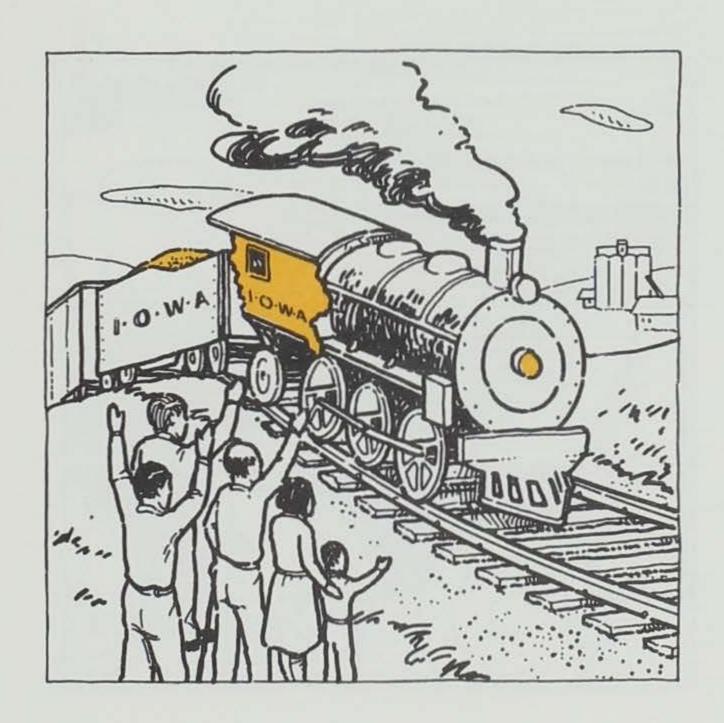


More and more plastics, fuels, and other petroleum products were replaced by products produced in Iowa from Iowa crops.

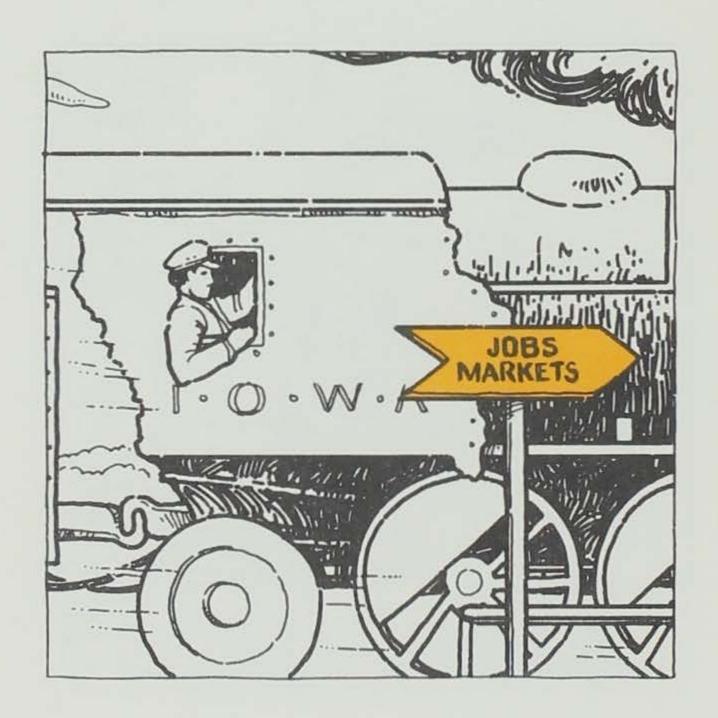
People found better ways to ship meat long distances and keep its quality high, much to the pleasure of consumers in far places.



Traditional products—oils, proteins, and starches—were improved, and the sound of efficient new processing technology hummed throughout the countryside. New people in new jobs joined the chorus.

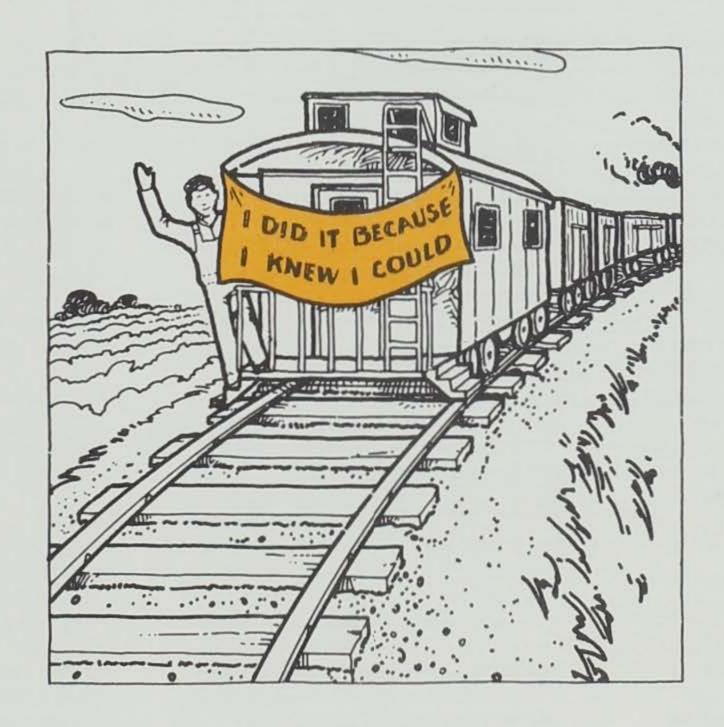


And so, the little state showed how to win an uphill battle.
"Say," said the doubters, "what keeps you going anyway?"



"It's no secret," answered the state, which most folks no longer called 'the little state.' "The engineer and crew know where I'm going and keep me heading there no matter what.

"And my drive wheels don't slip. I invest in good traction, so I can set the pace, not chase behind."



"And . . . everywhere I go, Iowans from many walks of life keep me running."

"You didn't mention a brakeman," said the doubters, who had a hard time getting into the spirit of things.

"That's right," called the state, pushing ahead.

Making the Story Come True

Everybody pulled together for the little state that could. Private citizens provided the fuel; policymakers charted the course and opened the throttle; and the drive wheels set the pace of progress. Those drive wheels—agricultural research and extension—are the subject of the next few paragraphs.

Research provides the scientific basis for progress. Extension interprets and delivers research results to people who put new technology and new ideas to work. In science and technology, the lead is the position to take. Leaders earn the rewards of economic development—jobs, good schools, vital communities. Others try to catch up and cut their losses or give up without a fight.

Iowa can't give up without a fight. Ten years from now, people somewhere will be making money by producing and processing agricultural commodities. They'll be supporting families, farms, communities, and a multitude of agriculturally based businesses. Iowa has enviable natural advantages among the states competing in the agricultural sector. And it has an enormous interest in exploiting those advantages—at least 3 of every 10 Iowa jobs are based in

agriculture, and agriculture generates more than \$26 billion in state income each year.

"The Little State That Could" is a story with a solid base in reality. lowa's multibillion-dollar agricultural industry will stay in the state and grow if we are willing to work smarter and harder with our resources. Researchers and extension specialists are ready to write important chapters in the how-to manual.

But Iowa research and extension programs are handicapped by inadequate resources—budgets that make it difficult to compete for faculty, federal grants, and private funds. In 1985 California produced farm commodities worth \$14 billion and invested \$72 million in agricultural research and \$33 million in extension. Minnesota had production worth \$7 billion and invested \$24 million in research and \$12 million in extension. North Carolina: \$4 billion produced and \$30 million (research) and \$22 million (extension) invested. In 1985 Iowa produced \$10 billion in farm commodities and invested \$12 million in agricultural research and \$11 million in extension. Iowa's annual investment in Iowa State University's agricultural research

and extension programs amounts to about 1 percent of the state's total budget.

Iowa's research and extension programs don't need to be the biggest in the nation, but we think they should be the best. The Iowa Agriculture and Home Economics Experiment Station and the Cooperative Extension Service have proposed investment strategies to return Iowa to leadership in agricultural science and education. The sponsors of this publication urge you to read about their plans in the brief document that accompanies this story.

We also urge you to support the Board of Regents' 1987 legislative requests for the Experiment Station and Cooperative Extension. They are for an additional \$2.2 million for the Station and \$2.5 million for Extension. (Uses for these funds also are outlined in the accompanying document.)

Public investments in agricultural research and extension are essential to Iowa agriculture. Iowa's prosperity will be tied closely to the health of its agricultural sector for the foreseeable future. Let's do what must be done to be "the state that could."

Iowa and Agriculture—An Investment Strategy

There are those who watch what happens, those who wonder what's happening, and those who make things happen.

An Economic Partnership

The Iowa economy is inextricably linked with agriculture for the foreseeable future. One of every five Iowa workers has a job in the farm input industry, farm production, or food processing and distribution. Add farm-related transportation, construction and other supporting industries, and agricultural employment approaches 30 percent of Iowa's work force. And agriculture directly generates more than \$26 billion in state income each year.

The agricultural sector in Iowa is much more in figure 1 in input

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Almost 60 percent of agricultural jobs and income are in food processing and distribution, which employs 126,000 people and adds more than \$15 billion in annual sales to Iowa's economy. Value-added industry based on our agricultural commodities is a promising area of growth.

Agriculture also depends on the development and performance of Iowa's nonagricultural economy. Off-farm jobs are essential to the economic well-being of 50 to 60 thousand families. A vigorous state economy helps keep these families on their farms.

Agriculture and Economic Development

Profitable, competitive enterprises and jobs that provide good incomes—these are the goals of economic development because they support families, communities, social services and the infrastructure that every state needs. Iowa's economic development should be based on a common-sense strategy that builds on our strengths:

1. Develop industry to produce goods and services that can be sold outside Iowa. One Iowan selling to another isn't enough.

Iowa and Agriculture An Investment Strategy

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The agricultural sector in Iowa is much more than farming. As figure 1 illustrates, Iowa's farm input and production sectors support many rural and urban people and companies.

Agricultural input industries employ more than 27,000 workers and add \$1 billion to Iowa income each year. Farm production employs 77,000 agricultural workers and generates more than \$9 billion in annual product sales.

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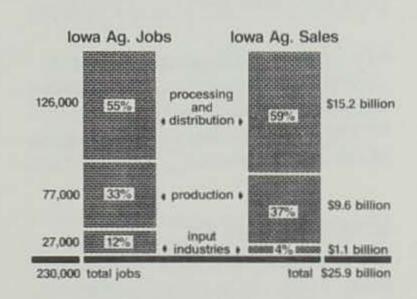


Figure 1

Agriculture and Economic Development

Profitable, competitive enterprises and jobs that provide good incomes—these are the goals of economic development because they support families, communities, social services and the infrastructure that every state needs. Iowa's economic development should be based on a common-sense strategy that builds on our strengths:

- 1. Develop industry to produce goods and services that can be sold outside Iowa. One Iowan selling to another isn't enough.
- Develop industry to produce substitutes for imported goods and services. This means making it better and cheaper in Iowa.
- 3. Add value to raw materials produced with basic Iowa resources—soil, water, favorable climate and productive, well educated people who are capable of adjusting to technological progress.
- 4. Retain, expand, diversify and increase the efficiency of industry already in Iowa. An industry located in Iowa is here for a reason. Build on it.

Prepared by the Agriculture and Home Economics Experiment Station and the Cooperative Extension Service Iowa State University

January 1987



Agriculture fits this strategy. It is export oriented. It has only begun to tap the potential for value-added processes. And Iowa's relatively small population and large agricultural productive capacity are assets for economic development because so much of what we produce will be sold outside the state. Current difficulties in agriculture should not obscure the longer run opportunities that agriculture offers. Agriculture can provide a base and a bridge to a broader, more diversified state economy.

Research Sets
Pace of Progress

If Iowa's economy is to develop, we need to work smarter and harder than anybody else. We must be first-rate managers. We need appropriate technology and an international outlook. We have to be first with new ideas. We need to build on Iowa's unique characteristics. We must compete on our terms. And we must protect the resource base that makes agriculture possible.

These are not profound secrets of success. The will to pursue and practice them is what separates watchers and wonderers from those who make things happen. In 1985 the Agriculture and Home Economics Experiment Station identified six areas in which strong research programs can contribute to lowa's economic development. These programs directly support the four-point development strategy.

- to improve the protection of lowa's natural resources, including its soils, water, environment, and wildlife;
- to improve resource use in the production of Iowa's crops and animals, emphasizing profitability and potential diversification;
- to improve decision-making in the production and marketing of lowa's agricultural commodities and the management of farms and other agricultural businesses:
- to improve the potential for value-added processing of Iowa commodities for domestic and international markets;
- to improve evaluation of public policy alternatives and their impact on Iowa; and
- to improve the ability of Iowa communities and organizations to provide social and human services and enhance the quality of life in the state.

Extension Is Critical for Success

Iowa State University Extension has kept Iowans informed about research results and helped them use new knowledge for more than 70 years. Its primary role today is to help farmers, businesses and communities use research results to revitalize Iowa's economy.

Iowa citizens, extension specialists and field staff recently identified five priority areas that support Iowa's economic development and its quality of life. They are:

- improvement of the agriculture and economic base:
- management and conservation of natural resources;
- development of human resources;
- improvement of human nutrition, health and safety; and
- development of leadership, organizations and communities.

Science-based development efforts require science-based educational programs. Extension takes that last step from the university to Iowa citizens. The means change, but the extension process will remain critical for progress.

Research Accomplishments

Agricultural research pays its way with solid investment performance, as many of the following examples illustrate:

• B73, a corn inbred developed at the Iowa Station, has an estimated annual value to Iowa of \$250 million. That is 30 percent more than Iowa's total investment in agricultural research since 1930.



- Swine genetics research provided ways to minimize the swine stress (soft-pork) syndrome, which could cost Iowa pork producers \$50 million each year.
- Cooperative research by USDA and Iowa Station scientists has led to the development of soybeans resistant to brown stem rot (BSR). It is estimated that losses due to BSR cost Iowa soybean producers between \$75 and \$100 million per year.
- Research on buying systems that recognize superior leanness in swine is expected to result in a 10-dollar-per-head increase in the price paid to Iowa pork producers—a total annual value of \$160 to \$200 million.
- Experiment Station research on conservation tillage is estimated to have reduced the annual cost of crop production in Iowa by \$100 million.
- Research on obesity led to the development of inexpensive, locally available weight management programs.
- Information and analysis from the Center for Agricultural and Rural Development (CARD) helps Iowans participate in a significant way in the design of national and international public policy that affects rural America.

- Scientists at the Meat Export Research Center helped an Iowa company develop the technology to dry and export blood protein. In the first 12 months this industry added 25 jobs and \$500,000 to the Iowa economy. Within the next 5 years, more than \$5 million may be added to the Iowa economy each year. Furthermore, ISU research expertise kept this growing company in Iowa.
- The Food and Industrial Crops
 Processing Research Center is
 exploring ways to make indus trial products, like chemicals
 and biodegradable plastics, from
 lowa crops.
- Agronomists and agricultural engineers are developing lowcost farming systems that will preserve the productivity of lowa's soil and the quality of ground water.
- Research on the strengths that help farm families cope with stress helped shape family stress programs that reached almost 100,000 Iowans.
- Meat scientists, economists and sociologists in MERC are developing the technology, the marketing techniques and the trade policies required to sell more meat products overseas.
- Plant breeders and food technologists are developing soybean varieties with unique protein and oil qualities for special uses.

Extension Accomplishments

Many of the Station's research findings moved into the hands of Iowa citizens through extension workers. Extension provides this link by conducting educational programs for farmers, private businesses, families, and rural and urban community leaders. A sample of Extension results from the last two years shows:

- Extension recommendations on insecticide use by soybean growers saved them \$6,720,000 in 1986.
- Participants in Extension's crop protection program saved an average of \$1,152, or a total of \$6,500,000 in 1985.
- Each of 10,000 producers who attended marketing meetings averaged an estimated increase of \$500 income, a total of \$5,000,000.
- An average increased profit of \$10 per hog for 400 central Iowa swine producers in the enterprise record program equals \$5,200,000 in total program benefits.
- More than 7,000 farm families, many of whom were facing severe financial stress, used the intensive farm financial analysis offered through the ASSIST program.



- In 50 towns participating in Extension retail trade programs, there were 325 new businesses formed and 1,612 new jobs created.
- More than 9,400 people were involved in 28 community surveys that helped community leaders initiate community action projects.
- More than 2,500 young families participated in the Money
 Mechanics financial management home study course. Nearly
 60 percent reported establishment of a record-keeping
 system, and 56 percent said
 they had gained greater control
 over family finances.
- More than 2,000 trained volunteers helped deliver educational programs. In 1985, 11,500 volunteers assisted the 4-H program. The estimated value of volunteer contributions was \$2,500,000.

 The Cooperative Extension Service made 14,000,000 contacts with Iowans during the last two years.

At the Crossroads

The state's investment in agricultural research and extension has been extremely low compared with investments in states that compete for markets, scientists and processing and distributing industries.

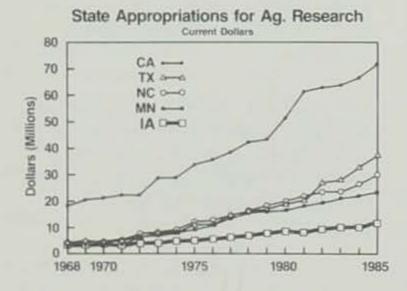
Figure 2 compares Iowa's state appropriations for agricultural research with appropriations in Minnesota, Texas, California and North Carolina—other major farm states. In the late 1960s Iowa, Minnesota, North Carolina and Texas provided comparable support for agricultural research. Then Iowa started falling behind.

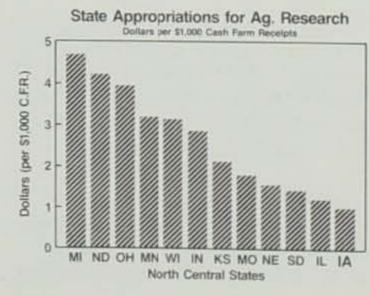
In 1985 California produced farm commodities worth \$13.8

billion and invested \$72.0 million in agricultural research. Texas had \$9.4 billion worth of production and invested \$37.8 million in research. Minnesota: \$7.1 billion in production and \$23.5 million invested in research. North Carolina: \$3.8 billion in production and \$30.4 million in research investments. Iowa: \$9.6 billion in production (second only to California) and \$11.8 million invested in research. Figures 3 and 4 compare lowa's investment in research per \$1,000 in farm cash receipts with neighboring and other competing states.

Adjusting the numbers for inflation shows that while competing agricultural states have expanded their research programs in real terms, Iowa's investment has not grown in nearly 20 years (figure 5).

The same picture emerges for extension. In 1971, North





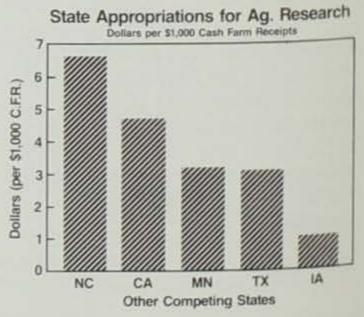


Figure 3

Figure 4



Carolina and Minnesota invested about the same in Cooperative Extension Service as did Iowa. California and Texas invested from about 2 to 2½ times as much as Iowa in 1971. By 1986, Texas and California both invested more than three times as much in extension as did Iowa; North Carolina invested more than twice as much (figures 6 and 7).

A Time to Choose

lowa is at a critical point. We are choosing whether or not to have a capability for research and extension programs essential to agriculture. Twenty years of nogrowth support for agricultural research has taken its toll. The Iowa Station faces shortages in critical faculty positions. Research equipment in many departments is outmoded, handicapping research faculty who are competing for grants. Salaries for experienced faculty in many departments run about \$10,000 below competing universities.

Extension faces a similar problem. Funds for operating costs and modernizing educational equipment have been insufficient to maintain earlier levels of staff and up-to-date technology. Consequently, Extension has lost some ability to produce and deliver educational programs.

In the future, agricultural experiment stations will be divided between the "haves" and "have nots." The "have" universities will be able to keep their farmers competitive. They will attract input, processing and distribution industries. The "have not" universities will borrow farm technology from the "haves" and adapt it to their farmers. They will not attract the value-added industry that contributes so much to economic growth. A "have not" university will likely reside in a "have not" state.

Another sign of change is that the federal government is targeting some agricultural research money toward leading universities through competitive grants. Over the next few years we may well see the reassessment of the land-grant research philosophy that was established in the 1887 Hatch Act. Do we need federally supported agricultural research in all 50 states? Or do we put the money on winners?

The federal government also has proposed reduced funding for the Cooperative Extension Service on the grounds that much more of Extension should be a state and local responsibility. An effective response will require leaders within Iowa to help develop strategies to accommodate or confront the federal proposal.

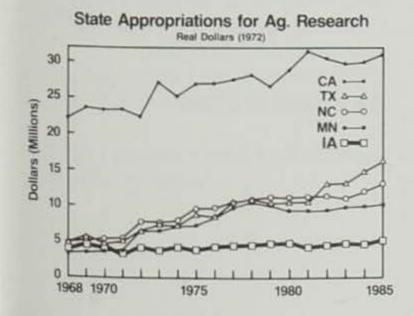


Figure 5

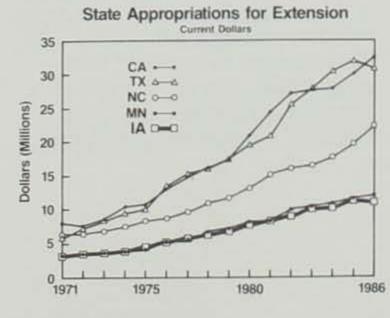


Figure 6

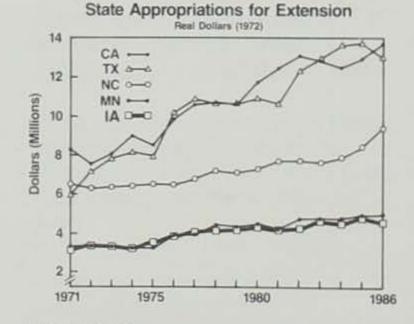


Figure 7



An Investment Strategy for Iowa Agricultural Research

The Iowa Experiment Station still competes toe-to-toe with experiment stations twice its size, but its position is eroding. A renewed state commitment to agriculture and to research is essential. The Station's goal is not for the biggest agricultural research program in the United States. But its carefully targeted programs must be the best.

The Station's investment plan will, over the next five years, restore the Iowa Experiment Station's position of leadership and establish a "have" research program. It targets (1) an increased operating budget, (2) rapid upgrading of critical research facilities, and (3) endowments to support the research and extension centers.

Getting Started—Support of the Regents' Budget

A journey of 1,000 miles begins with a single step. The Regents' current recommendations on the following Experiment Station funding requests are a good place to start.

Improving Educational Quality (1987-88)

1. Continued Development of the Food and Industrial Crops Processing Research Center—a grain quality laboratory Regents' recommendation: \$40,000

- 2. Restoration of Research Capability Lost in FY86-87 Budget Reduction—restore faculty positions and 50 graduate assistantships Regents' recommendation: \$1,000,000
- 3. Meat Export Research Center—continue development of research and extension to increase meat exports—begun by the Iowa legislators in 1984 Regents' recommendation: \$500,000
- 4. Center for Agricultural and Rural Development—increase research in rural economic development and international trade Regents' recommendation: \$500,000
- 5. Restoring Profitability to Agriculture—accelerated development of low-cost farm production, marketing and financing methods Regents' recommendation: \$0

6. Agricultural Diversification new crops for Iowa Regents' recommendation: \$170,000

Total: \$2,210,000

Regents' Capital Requests for Agriculture (1987-88)

- 1. Agronomy Building Equipment—instruments for laboratories in new agronomy addition: \$2,000,000
- 2. Planning for livestock research facilities—swine nutrition and breeding and ruminant nutrition: \$624,000
- 3. Meat irradiation facilities matching funds for \$4 million federal investment: \$1,500,000
- 4. Food and Industrial Crops Processing Research Center renovating facility for research on new products and processes for Iowa crops: \$750,000
- 5. Molecular Biology Building planning and construction of a university-wide research and teaching facility for basic life sciences: \$37,500,000

Total: \$42,374,000



Long-Range Investment Plan

Operating Budget (1988-1994)

The investment goal for the operating budget is to increase the state appropriation to the lowa Station by \$3.0 million each year for the next five years. This increase is large enough to support significant program improvement and small enough to be managed prudently. At the end of 5 years \$15 million in new funds would be invested as follows:

New faculty in critical areas and competitive salaries for top scientists: \$6.0 million

Technical support personnel for research: \$2.5 million

Graduate research assistantships: \$1.5 million

Scientific equipment: \$2.0 million

Research and maintenance on outlying research centers: \$1.0 million

Services, scientific supplies and computer funds: \$1.0 million

Faculty development and retraining: \$1.0 million

Critical Facilities (1988-1990)

During 20 years of flat funding, several key research facilities have deteriorated, with obvious implications for programming, staff recruitment and service to the state.

The investment goal is to generate \$35 million during 1988-90. The capital improvement funds would be invested in:

Agricultural Engineering—present facilities are 1945 vintage: \$6.0 million

Genetics—to meet requirements for biotechnology research: \$5.0 million

Livestock research facilities—for research to keep Iowa livestock producers competitive: \$11.0 million

Entomology—for research related to toxicology, water quality and human health: \$3.0 million

Food Technology—for valueadded research on cereals, oil seeds and horticultural crops: \$7.0 million

Meat Irradiation Laboratory—to finish construction of facilities: \$3.0 million

Endowments for Research and Extension Centers

The Experiment Station and Extension are organized along two lines—departments and centers. The departments focus on science and teaching. The centers focus on problems—particularly problems that require a sustained research effort by scientists from a number of disciplines and an active outreach program. There are three major centers now. A fourth is on the drawing board.

Why create endowments for the centers? An endowed center increases flexibility in managing resources and scientific personnel. It also provides a way to use grants and gifts as ongoing program support. The investment goal: Create four endowments of \$20 million each to support interdisciplinary research and extension centers. Each endowment should generate about \$1.0 million in annual support.

The endowment funds would be allocated to the:

Meat Export Research Center to develop value-added meat products for export

Food and Industrial Crops Processing Research Center—to develop food and industrial uses for existing and new crops in Iowa



Center for Agricultural and Rural Development—to evaluate public policy that affects agriculture and the Iowa economy

Agricultural Resource Management Research Center (proposed)—to develop agricultural technologies that conserve soil and water resources and improve Iowa's competitive position

An Investment Strategy for Iowa Cooperative Extension

Extension's goal is to meet lowans' needs at a high level of effectiveness and efficiency. To do this requires an investment in increased programming in (1) regaining profitability and competitiveness in agriculture; (2) protecting and improving the quality of the water resources; (3) improving the management capacity of farms, firms and families; and (4) increasing economic development in rural areas.

State investments also will be used to modernize educational programs and delivery technology and maintain important services that are no longer supported with federal funds.

Regents' Budget and a Long-Term Plan

The first step in the investment plan is the Board of Regents' budget request for 1987-88. The Regents have recommended an increase of \$2,500,000 in Extension's appropriation. This operating budget would prevent continuing reduction in the scope of extension programming if no further reductions in federal funding occur.

The longer term plan is for a \$15,000,000 increase in the state's base budget for Cooperative Extension over the next five years. The funds would be invested in:

Faculty and staff positions in critical areas and competitive salaries for top faculty and specialists: \$7.5 million

Modernized and expanded educational delivery technology updated microcomputer equipment and expanded satellite downlink facilities: \$2.5 million

Increased operating support for telecommunication supplies and services: \$1.5 million

Accommodating changes among federal and county partners—resume state support for increases on federal portion of salaries, funding for increased retirement costs and slowing of shift to property tax base: \$3.5 million

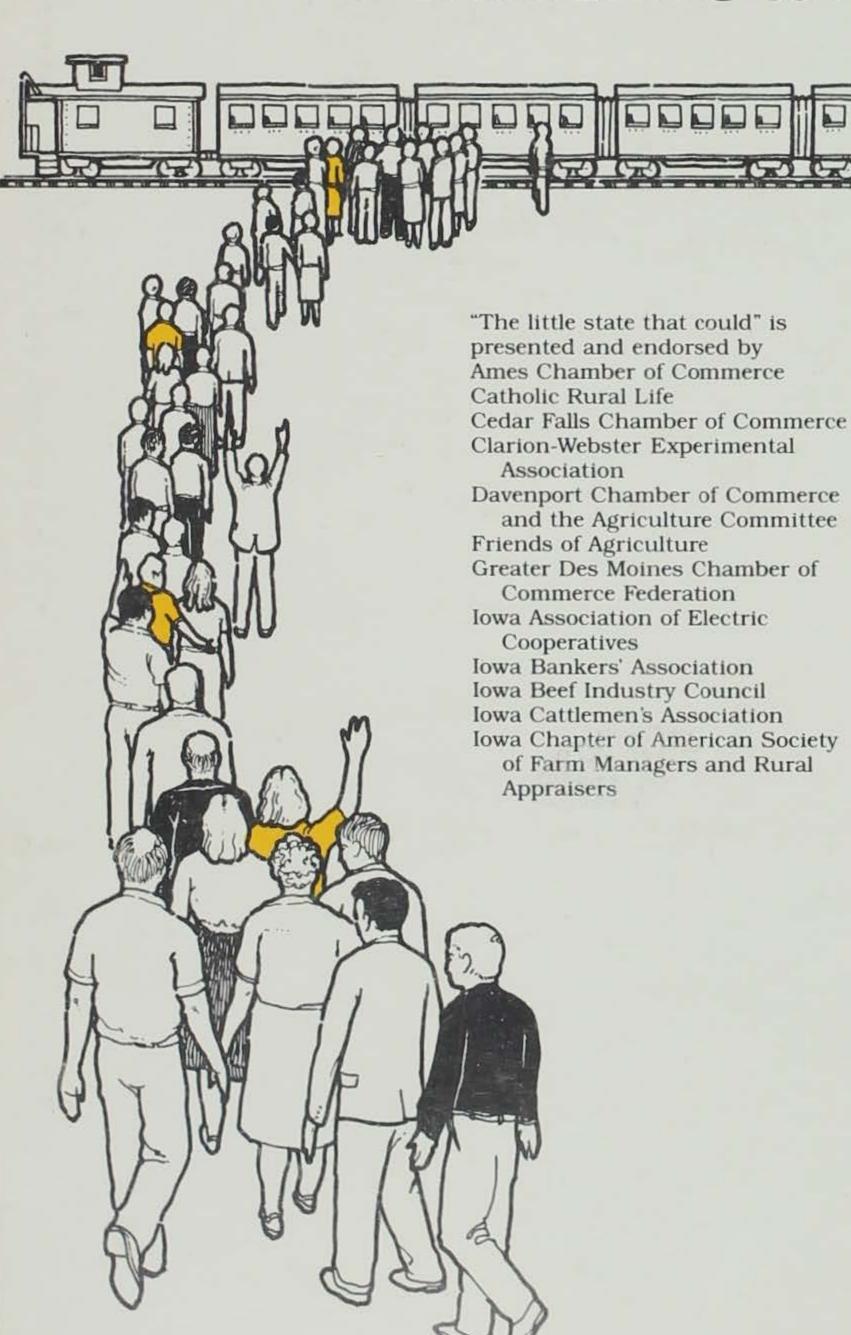
The Heart of the Message

Iowa agriculture is too important to all of us just to turn it over to other states and foreign countries. It is essential for the development of Iowa's economy. But agriculture won't be competitive without research and extension. Today's difficulties in agriculture can be overcome, and Iowans must unite in action based on that belief. Farmers. scientists, extension specialists, agribusinesses and policy makers have all helped create in this state a world-class agriculture of enormous potential. Researchers and extension specialists are ready to play their roles in the resolution of today's problems and the emergence of a more dynamic and vigorous agriculture.

Since "The little state that could" went to press, the following have joined the list of endorsing organizations: The Cedar Rapids Chamber of Commerce The Iowa Soybean Promotion Board







Iowa Corn Growers Association Iowa Corn Promotion Board Iowa Crop Improvement Association Iowa Dairy Foods Association Iowa Egg Council Iowa Farm Bureau Federation Iowa Farm Business Association Iowa Farmers Union Iowa Fertilizer and Chemical Association Iowa Forage and Grassland Council Iowa Grain and Feed Association Iowa Institute of Cooperation Iowa Pork Producers Association Iowa Poultry Association Iowa Sheep and Wool Promotion Board Iowa Sheep Producers Association Iowa Soybean Association Iowa State Grange Iowa Turkey Federation Muscatine Island Truck Growers Association National Farmers Organization/ Iowa Chapter Northeast Iowa Agricultural Experimental Farm Association Northern Iowa Experimental Association Northwest Iowa Experimental Association Shelby-Grundy Experimental Association Southeast Iowa Agricultural

Research Association

Association

Western Iowa Experimental Farm