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THE FUTURE OF THE NEBRASKA FOOD SYSTEM

The Nebraska food system is powerful and vulnerable. The state is a leader in the production of corn, hogs, beef cattle, beans, and other agricultural products. Twenty-one percent of all Nebraskans are employed on farms and in food related industries. Agricultural exports generated $1.8 billion for the Nebraska economy in 1982, a figure smaller than usual because of the deep recession which plagued the national economy at that time.

A relatively small portion of the foods that Nebraskans eat is produced in the state. Food is supplied to Nebraskans by producers, processors, shippers, brokers, distributors, and retailers. Not only does the complexity of this system add to the cost of food, but the large number of links in the system means that there are many points where it is vulnerable--to bad weather, increases in the cost of energy, labor and management disputes, and other events. These and other systemic factors can explain many current farm problems. High levels of farm debt, monocultural farming, deterioration of rural communities, and soil erosion can be traced to the predominance of high production and capital and chemical intensive agriculture in the state. This article describes the condition of the Nebraska food system and argues that diversifying agriculture and producing specialized vegetable crops can tap an important market--the local Nebraska market.

MONOCULTURE

In the name of economic efficiency, Nebraska agriculture has become less diversified. The small integrated farm producing several crops and livestock has largely been replaced by large monocultural operations. In the past thirty-five years the acres of harvested cropland have remained constant, while the average size of a Nebraska farm has increased by 39 percent and the number of farms has fallen by 69 percent (Figures 1 and 2). Further, corn and wheat account for more than 50 percent of the production from Nebraska's harvested cropland. If hay and soybeans are added, the portion of harvested cropland devoted to these crops is 94 percent. The implications of this development are larger than the obvious hazard of dependence upon too few markets. Since farmers produce few of the inputs necessary for growing these crops, they must depend to a great extent upon purchased inputs. A farmer raising only corn does not have livestock manure to use as a fertilizer. If beef is to be produced in feedlots, the cattle must be fed with purchased corn. The manure produced by the feedlot must be discarded, often resulting in ecological damage.

Monocultural farming has been praised for its efficiency. Efficiency means that an activity produces desired effects. If the effect desired is an increase in production for export, then the monocultural trend has been efficient. Over the past twelve years, farm exports for the U.S. have tripled. Nebraska has shared in this boom. If the desired effect is stable farm communities, increased real income for farmers, improved availability of affordable nutritious food for Nebraska consumers, or the ability to live within ecological margins, however, this trend may not be deemed 'efficient'.

FINANCIAL CONDITION

In a recent article, UN-L ag economist Bruce B. Johnson states that "a financial crisis of major proportions currently grips a significant portion of the U.S. farming sector. . .in Nebraska, present financial problems appear to be even more acute than what prevails nationwide." By 1983, agricultural debt in the state grew to more than ten times the 1960 level. Nebraska ranks fourth in the nation in debt load per farm.

The financial condition of Nebraska agriculture is difficult to analyze. A different picture emerges for various groups of farmers in the state. For example, a balance sheet for Nebraska agriculture as a whole shows a relatively sound financial position. A major reason for this, however, is the large number of non-farm landlords in the state. These seventy-five thousand landowners own nearly 32 percent of all the farmland in Nebraska, yet they account for little of the agricultural debt in the state. Non-farm landlords are in a relatively good financial position and tend to make overall Nebraska farm finance appear sound. If one excludes the non-farm landowners' holdings, however, one sees a very different picture.

There are 42,000 indebted farmers in the state. Many of these farm operators increased their debt during the 1970s. This was a period when land values, generally the basis upon which money is loaned to farmers, rose substantially. More recently, however, the value of land has decreased. This, coupled with low prices for commodities, has precipitated a financial crisis. Many farmers are so deeply in debt that they are increasingly becoming credit risks, according to Johnson. He emphasizes that "whether these farmers could sustain another low income year with further asset depreciation is debatable. Economic survival lies in the balance--a delicate balance indeed."

(continued on page 2)

This article was derived from a larger study, *A Step Toward Regeneration: A Study of the Nebraska Food System*, published by The Cornucopia Project of Rodale Press, 33 East Minor Street, Emmaus, Pennsylvania 18049

FIGURE 1

Decline in Number of Nebraska Farms

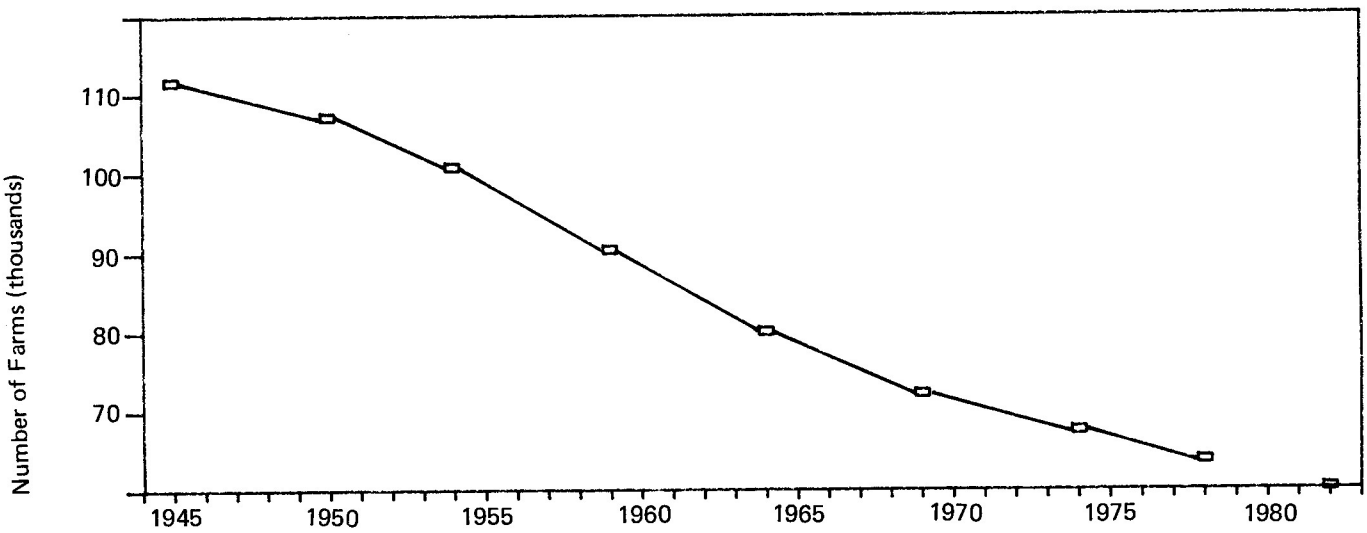
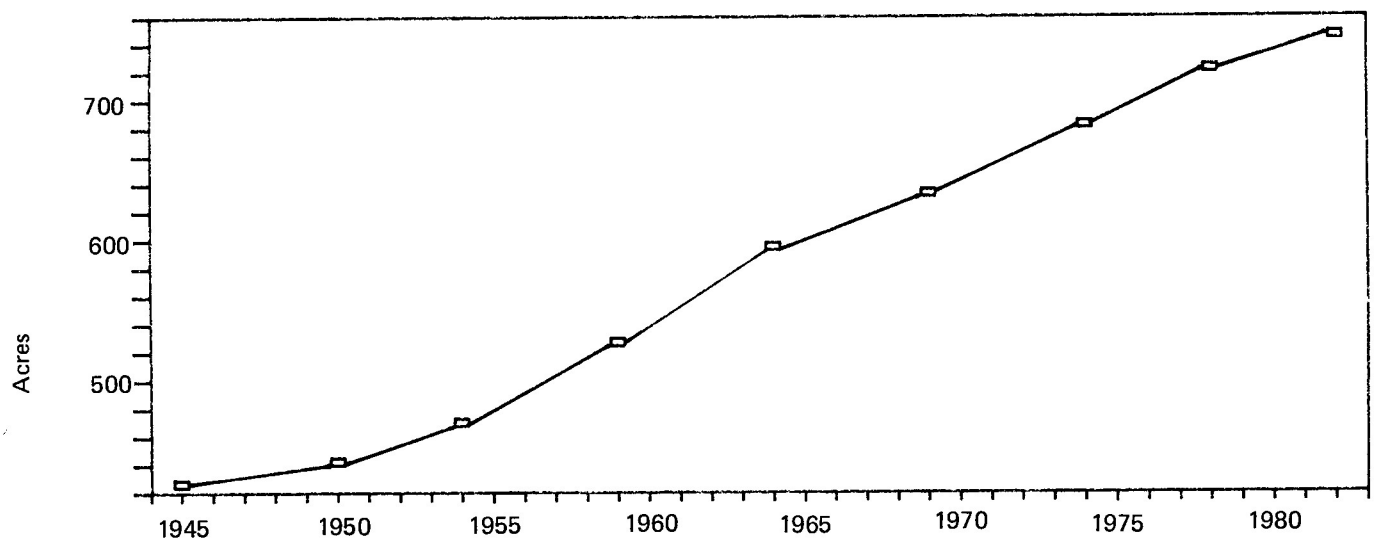


FIGURE 2

Increase in Farm Size in Nebraska



Source: *Nebraska Census of Agriculture*

(continued from page 1)

Larry D. Swanson has pointed out that whether a rural community thrives is closely related to the size of its surrounding farms. Swanson found that as farms become larger and land holdings are concentrated in fewer hands, the number of shops, churches, and professional people in the community declines. The trend in Nebraska has been toward fewer larger farms. The combination of this trend, unstable income, and burgeoning farm debt has meant a great deal of hardship for many small farmers and their communities. Swanson also argues that the last large group of new farmers in Nebraska comprised veterans of World War II. Since that time, the average age of farmers has increased. Recently, however, a new group of young farmers has attempted to enter the farming profession. Trouble in the ag economy is especially hazardous to this group. They may account partially for the record numbers of farm auctions and foreclosures in 1982.

SOIL EROSION

A major problem facing the food system of Nebraska is soil erosion. Topsoil carries the nutrients necessary to support plant growth. This soil is formed has plant and animal tissue and animal wastes decompose into inorganic plant nutrients. . .a very slow process. Each year in Nebraska more than 117 million tons of topsoil are lost due to water erosion--enough soil is washed from Nebraska land each year to bury the state capitol and the ten acre capitol grounds under 609 feet of rich topsoil. Since the capitol building is 400 feet tall, the statue of the Sower on top of the building would be 209 feet beneath the surface. This does not include the soil which Nebraska loses to wind erosion.

An overall estimate of soil loss due to wind erosion is not available. This is because of variation across the state in the land's condition. The soil in many areas of Nebraska is sufficiently

(continued on page 3)

(continued from page 2)

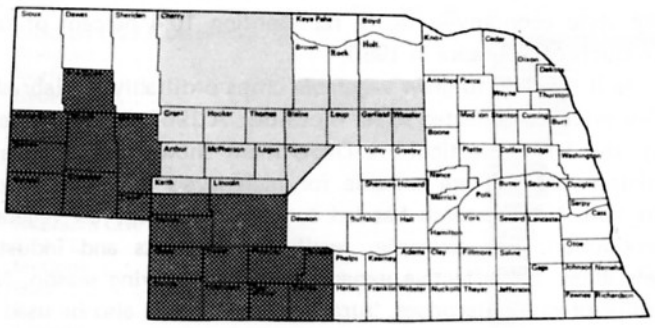
sheltered from the wind, and has enough vegetation and residue to prevent severe wind erosion. Many counties, however, are subject to large wind erosion soil losses. (Map 1) Keith Ticknor, a forester and resource conservationist with the United States Soil Conservation Service, points out two trouble spots for wind erosion in Nebraska. First, the western and southwestern wheat growing regions (including most of the Panhandle) are subject to typical soil losses of 5 to 10 tons per acre each year. This high rate of soil loss is an important problem. The soil will regenerate at a rate of 5 tons per year. That is, the soil can tolerate 5 tons per year of erosion--the nutrients, water, and organic matter in the soil can be roughly replaced at this rate. This tolerable rate of soil loss, though, applies to the land's tolerance and not the tolerance of crops. Some crops, such as corn, will sustain damage at soil loss rates well below 5 tons per acre.

The second trouble spot for wind erosion in Nebraska is the Sandhills. Yearly erosion rates of 50 tons per acre are not uncommon on rangeland in this area. Increasing irrigation development has led to additional soil erosion in the Sandhills. The Soil Conservation Service estimates that each year 15 to 20 tons of soil are lost on acres where center pivot irrigation is used on sandy soil.

Plants require sunshine, as well as nutrients and water. Each year because of soil erosion, Nebraska loses over 1000 acre feet of water that would have been available to support plant growth. In addition, the state loses 49 million pounds of nitrogen and over 12 million pounds of phosphorous, nutrients which are crucial to sustain plant growth. As erosion depletes the productivity of the soil, additional nutrients must be added. These additional nutrients must be purchased by farmers. In order to replace the nutrients lost due to soil erosion, Nebraska farmers must pay about $18.6 million for commercial fertilizers.

In addition to the loss of soil nutrients, the value of the state's cropland is diminished through soil erosion. Using the average value of farmland in the state and the average depth of the state's topsoil, the money value of this loss to Nebraska may be estimated at $98 million each year, or about 75 percent of the amount (less farm expenses) earned by Nebraska farmers in 1980. In the economist's parlance, this represents a 'disinvestment'. While it is a disinvestment in money terms, it is more importantly a disinvestment in the future of Nebraska farming. By allowing the land to be blown and washed away, Nebraskans are allowing the destruction of a way of life.

MAP 1
Erosion Prone Lands by County



counties losing 5-10 tons per acre per year of soil

counties with land subject to blowouts

FOOD EXPORTS AND IMPORTS

Each year Nebraska consumers eat 1.5 billion pounds of food at a cost of $1.37 billion. Since agriculture is such an important industry in the state, one may be lead to believe that a large amount of consumption bodes well for the state economy. After all, since the state produced $1.7 billion in agriculture commodities, $1.37 billion in food consumption represents substantial support for the state's leading industry. Yet this line of reason ignores an important point. There is a difference between raw agriculture commodities and consumable food products. One difference is processing. Even simple foods require some processing. Raw fruits and vegetables must still be harvested, packed, shipped, and displayed. In addition to processing, the consumption of food in the state will not support the state's agriculture unless farmers grow the foods that people want to eat. In the state, little food is produced for human consumption.

Because Nebraska processes little food and produces very few vegetables and fruits, Nebraska imports at least $777 million of food each year. Food imports represent a substantial drain on the state economy. If some of these dollars can be retained within the state, economic activity can be expanded. This expansion also would reflect economic activity generated through 'multiplier effects'. For example, if one dollar of food imports were replaced with in-state production, there would be an initial impact of one dollar as some individual in the state receives one dollar of income. As workers are paid to produce the additional output and as suppliers are paid for equipment and raw materials, the initial impact generates secondary impacts on economic activity. The resulting effects are greater than one dollar. In general, a one dollar increase in spending (generated either by new spending or by retaining dollars that are presently leaving the economy) will result in an increase within the state of $2.53.

In a similar way, the economic impact of the state's exports of agricultural products may be assessed. The value of Nebraska's exports of agricultural commodities is $1.7 billion. The value of the state's export of consumable food products is $32 million. This represents a substantial portion of Nebraska's economic activity. According to the Nebraska Input-Output Tables, each new dollar generated in the crop sector expands state economic activity by $2.14. To properly assess the potential impact of diverted imports, it is necessary to balance these money flows against the revenues that are lost when acres are diverted from traditional Nebraska grain crops. Assuming that the state food system could be fully self sufficient, the state would only have to divert 5.8 percent of harvested cropland from corn or wheat.

(continued on page 6)

Review and Outlook

Output from the state's nonagriculture economy declined 0.6 percent on a month-to-month basis. Physical output includes all goods and services. Agriculture production is excluded because data are unavailable from the U.S. Department of Agriculture.

An examination of change by sector indicates construction recorded an increase, while manufacturing, distributive trade, and government registered decreases. The Bureau of Business Research's net physical volume index for construction jumped 4.3 percent February-March 1985. This is the first gain in the construction component of the index since May 1984. Interest rates have been dropping for some time and this should help construction during the remainder of the year. Most residential and nonresidential construction activity is concentrated in the state's two metropolitan areas surrounding the cities of Lincoln and Omaha.

Output from the state's manufacturing sector fell 0.6 percent on a monthly basis. There has been little movement in physical output from this sector for over a year.

The distributive trade component of the Nebraska economy fell slightly February-March 1985. According to the Bureau of

(continued on page 5)

Notes for Tables 1 and 2: (1) The "distributive" indicator represents a composite of wholesale and retail trade; transportation, communication and utilities; finance, insurance, and real estate; and selected services. (2) The "physical volume" indicator and its components represent the dollar volume indicator and its components adjusted for price changes using appropriate price indexes—see Table 5, page 5.

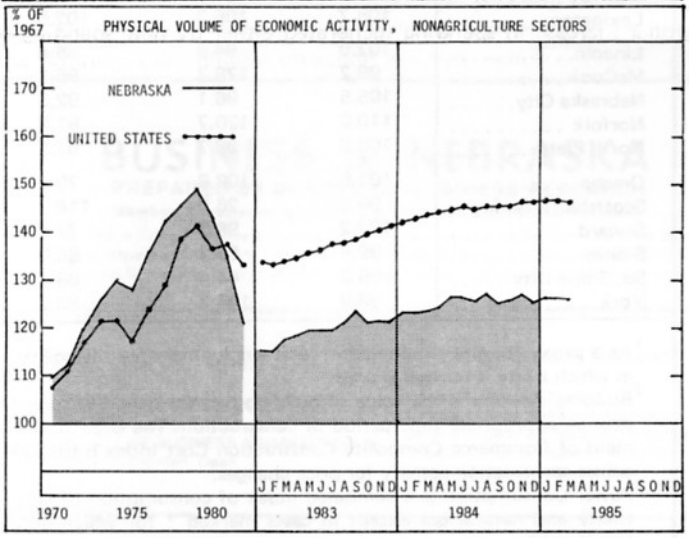
ECONOMIC INDICATORS: NEBRASKA AND UNITED STATES

1. CHANGE FROM PREVIOUS YEAR

March 1985	Current Month as Percent of Same Month Previous Year		1985 to date as percent of 1984 to date	
Indicator	Nebraska	U.S.	Nebraska	U.S.
Dollar Volume	NA	NA	NA	NA
Agricultural	NA	NA	NA	NA
Nonagricultural	105.3	105.7	106.3	106.2
Construction	94.7	100.5	99.1	106.7
Manufacturing	101.3	101.0	103.6	102.7
Distributive	105.5	107.7	105.7	107.4
Government	113.9	106.6	114.5	106.6
Physical Volume	NA	NA	NA	NA
Agricultural	NA	NA	NA	NA
Nonagricultural	101.8	102.4	102.6	102.8
Construction	90.9	96.8	95.0	102.2
Manufacturing	101.7	100.9	103.3	102.0
Distributive	101.7	103.8	102.0	103.6
Government	105.3	101.6	105.7	101.3

2. March 1985 CHANGE FROM 1967

Indicator	Percent of 1967 Average	
	Nebraska	U.S.
Dollar Volume	NA	NA
Agricultural	NA	NA
Nonagricultural	373.7	441.5
Construction	276.1	414.6
Manufacturing	369.8	326.3
Distributive	379.4	506.1
Government	412.6	449.9
Physical Volume	NA	NA
Agricultural	NA	NA
Nonagricultural	126.0	146.6
Construction	77.8	116.8
Manufacturing	148.7	128.4
Distributive	119.0	158.8
Government	151.0	150.0



3. NET TAXABLE RETAIL SALES OF NEBRASKA REGIONS AND CITIES

Region Number[1] and City	City Sales[2]	Sales in Region[2]	
	March 1985 as percent of March 1984	March 1985 as percent of March 1984	1985 to date as percent of 1984 to date†
The State	107.5	106.7	97.8
1 Omaha	116.8	114.7	103.9
Bellevue	126.0		
Blair	110.3		
2 Lincoln	106.9	106.9	96.7
3 So. Sioux City	117.5	111.7	103.0
4 Nebraska City	105.7	97.0	88.2
6 Fremont	116.3	104.7	95.3
West Point	107.2		
7 Falls City	102.4	96.2	89.1
8 Seward	93.7	94.3	84.4
9 York	95.9	93.1	87.3
10 Columbus	104.6	101.6	91.3
11 Norfolk	107.4	105.8	94.8
Wayne	73.2		
12 Grand Island	107.0	103.7	96.8
13 Hastings	110.3	107.1	93.9
14 Beatrice	101.4	96.8	84.7
Fairbury	96.1		
15 Kearney	100.1	97.2	88.9
16 Lexington	105.8	99.5	90.8
17 Holdrege	106.4	101.7	88.5
18 North Platte	97.9	94.7	89.3
19 Ogallala	87.1	85.1	83.0
20 McCook	104.5	99.9	93.0
21 Sidney	105.9	110.3	100.5
Kimball	130.7		
22 Scottsbluff/Gering	95.9	96.1	93.2
23 Alliance	105.9	96.8	95.0
Chadron	101.9		
24 O'Neill	99.2	99.4	90.2
25 Hartington	94.2	87.4	90.6
26 Broken Bow	94.9	97.6	89.9

[1] See region map below.
[2] Sales on which sales taxes are collected by retailers located in the state. Region totals include motor vehicle sales; city totals exclude motor vehicle sales.
Compiled from data provided by Nebraska Department of Revenue.

1985 YEAR TO DATE AS PERCENT OF 1984 YEAR TO DATE IN NEBRASKA'S PLANNING AND DEVELOPMENT REGIONS

†Note: The year-to-date totals exclude approximately $120 million in sales that were omitted from January's figures by the Department of Revenue. If these sales were included, the state's year-to-date ratio would increase by 6.1 percentage points. Individual regions would be affected differently.

(continued from page 4)

Business Research's index, this sector slumped 0.7 percent on a month-to-month basis.

Nebraska net taxable retail sales in March were 6.7 percent above March 1984. Motor vehicle sales were up as well as non-motor vehicle sales, both in nominal and price adjusted terms. Inflation continued to moderate as measured by the commodity component of the Consumer Price Index. This element has risen only 2.4 percent over the past year.

Caution is advised in interpreting the state's year-to-date retail sales and sales for cities and regions as approximately $120 million in sales were excluded from January's figures by the Department of Revenue. Until this problem is resolved, total retail sales on a year-to-date basis will remain something of a mystery.

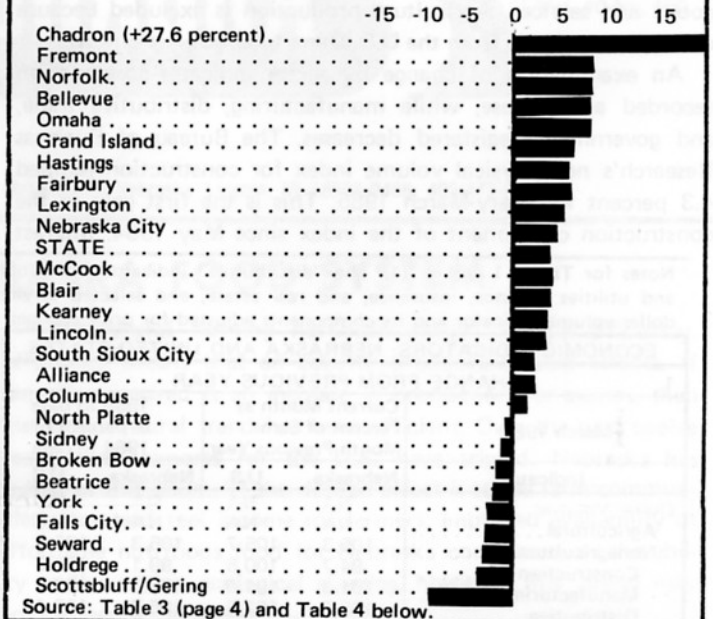
Chadron topped Nebraska cities in the Bureau's city business index. Fremont, Norfolk, Bellevue, and Omaha followed.

A slight improvement in the Nebraska economy is expected in the last half of 1985 because of an anticipated acceleration in growth at the national level. Growth will be stimulated by an accommodative monetary policy that will continue to push interest rates lower. Nationally, housing starts are expected to be particularly strong because of falling interest rates. When housing increases, it affects a number of industries throughout the economy. Nebraska firms will begin to experience somewhat better conditions in the remainder of 1985.

The agriculture sector of the economy, however, remains under pressure. Declining interest rates will aid the component, but liquidation and consolidation are expected to continue. Cattle prices are projected to be slightly higher, but grain exports are expected to decline further from current depressed levels. Financing and credit problems are likely to continue to deteriorate before improving sometime in 1986.

DONALD E. PURSELL

CITY BUSINESS INDEX
Percent Change March 1984 to March 1985



Source: Table 3 (page 4) and Table 4 below.

4. March 1985 — CITY BUSINESS INDICATORS

The State and Its Trading Centers	Percent of Same Month a Year Ago: Employment[1]	Building Activity[2]	Power Consumption[3]
The State	102.8	99.0	87.5
Alliance	100.7	99.4	91.0*
Beatrice	99.3	78.8	84.6
Bellevue	101.6	47.7	86.8
Blair	101.6	77.1	79.4*
Broken Bow	103.7	106.0	73.9
Chadron	114.4	8,524.6	88.7
Columbus	101.4	90.6	78.9
Fairbury	101.3	509.8	79.0
Falls City	106.5	30.6	95.1
Fremont	102.9	108.0	94.2*
Grand Island	105.5	133.5	104.8
Hastings	102.1	133.0	89.0
Holdrege	103.0	25.8	83.4
Kearney	106.6	116.3	107.4
Lexington	105.7	105.3	102.6
Lincoln	102.0	94.6	85.8
McCook	99.2	178.3	96.1
Nebraska City	105.5	96.1	92.3
Norfolk	110.0	120.7	91.9
North Platte	103.6	99.7	97.2
Omaha	101.6	108.8	79.5
Scottsbluff/Gering	99.8	26.0	118.3
Seward	102.2	98.5	77.6
Sidney	99.4	65.3	88.9
So. Sioux City	98.3	44.4	88.1
York	99.9	106.3	83.7

[1] As a proxy for city employment, total employment for the county in which a city is located is used.

[2] Building Activity is the value of building permits issued as spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Construction Cost Index is used to adjust construction activity for price changes.

[3] Power Consumption is a combined index of consumption of electricity and natural gas except in cases marked * for which only one is used.

Source: Compilation by Bureau of Business Research from reports of private and public agencies.

5. PRICE INDEXES

March 1985	Index (1967 = 100)	Percent of Same Month Last Year	Year to Date as Percent of Same Period Last Year*
Consumer Prices	318.8	103.7	103.7
Commodity component	285.3	102.4	102.2
Wholesale Prices	308.7	99.2	100.0
Agricultural Prices			
United States	245.0	92.5	93.1
Nebraska	238.0	90.5	93.9

*Using arithmetic average of monthly indexes.
Sources: Consumer and Wholesale Prices: U.S. Bureau of Labor Statistics; Agricultural Prices: U.S. Department of Agriculture.

(continued from page 3)

Using a more modest assumption, that of self sufficiency only in fresh vegetable crops, Nebraska could divert less than 1 percent of harvested cropland and net more than a $163 million boost to the state economy--a figure representing 10.4 percent of farm products of Nebraska in 1980.

Is it possible to grow vegetable crops profitably in Nebraska? The evidence collected so far is positive. A 1967 study conducted by the UN-L Horticulture Department shows that the state's climate and soil are suitable for high levels of vegetable production. New research has led to new technology for vegetable production. For example, seedling transplants and industrial gels allow the effective expansion of the growing season. New public-private enterprises, 'rural ventures', could also be used for the new vegetable industry. Control Data started rural ventures as a way for small farmers to operate as a cooperative and to profitably grow and market specialty crops. Today there are 8 rural ventures cooperatives around the country that produce meats, vegetables, dairy products, and fiber. Each cooperative consists of 20 to 30 small farms (80-120 acres) and requires low per farm capital investment. Rural ventures also take advantage of small computers and shared equipment to benefit members.

To summarize, 67 percent of the food consumed by residents is produced in other states and countries. Nebraska can not become less dependent upon out-of-state sources for bananas and citrus fruit, but there are areas (such as fresh vegetables) where the state could become more self reliant. Nebraska consumers can benefit by replacing food imports. Higher quality, fresher produce at reduced prices can result from non-imported food. The lower prices are due in part to lower transportation costs. The USDA estimates conservatively that $.05 of every food dollar goes to transportation costs. For Nebraska, this means that consumers spend an estimated $46 million annually just to transport food from California, Florida, Texas, and other states. This figure could be smaller if dependency on distant food sources were reduced.

THE NEBRASKA FOOD SYSTEM AT A CROSSROAD

High farm debt, soil erosion, and dependence on out-of-state sources for food are parts of a much larger problem. In a sense, they are only symptoms of an agricultural system based on capital and chemical intensive, large, monocultural farming. If the farm crisis is to be resolved, it will be insufficient to deal with problems separately. Nebraska's current agricultural debt problems, for example, will not be solved by additional financing for overburdened farmers. These debt problems are part of a larger problem in the structure of over-capitalized farming. To solve problems in the food system, symptoms must be separated from the disease. The structure of agriculture must change.

Rural communities, farmers and small farms, the soil and water are all parts of a story. It is a story of a powerful, yet vulnerable giant. The food system is at a crossroads. It can continue toward more self destruction with increasing financial and ecological devastation, or it can be rescued by a policy of sustainable agriculture that fulfills the needs of Nebraska's farmers and citizens at large.

PAUL S. ESTENSON

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