



# Your Living Environment

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## AGRICULTURAL PRODUCTIVITY — MIRACLE OR MYTH?

"The U.S. farmer has created history's agricultural miracle. Three million farmers supply the needs of the 200 million people in the nation with so much left over that one fourth of the land output is exported. The U.S. Farmer's ability to produce has become the envy of the world" (*Top Op*, August 1969, pp. 16 and 64).

"The U.S. farmer today produces enough to feed and clothe himself and 41 others at home and abroad" (*The Farm Index*, February 1969, pp. 14-17).

"The increase since 1945 in productivity per man in [British] agriculture is more than double that in the manufacturing industry as a whole... and is even considerably greater than in the chemical and allied industries, which are well-known for their efficiency" (*Modern Agriculture and Rural Planning*, John Weller, p. 293, The Architectural Press, London 1967).

Similar statements attesting to the ever-increasing productivity and efficiency of agriculture appear regularly in the mass media. Much is made of the astounding statistic that one modern farmer can feed 40-50 people, while his crude 1910 counterpart could feed only six.

### WAS GRANDFATHER THAT BACKWARD?

Most people accept these astounding statistics at face value, thus happily agreeing that the mechanized farmer of the 70's is some 700 per cent more efficient than his grandfather. Nothing could be further from the truth!

In this issue of *Your Living Environment* we aim to not only substantiate that comment, but to go even further and prove that productivity-wise, 60 years of mechanization and technological progress has left the individual farmer back precisely where he was at the beginning of the

century. We know that sounds incredible, but that is why you need to read on!

Dr. Georg Borgstrom, world-famous food scientist, was asked by Ambassador College interviewers what he thought of the statement that *one farmer now feeds 45 other people*. His answer was straightforward and dogmatic —

"It's entirely false. Very few farmers in America feed themselves."

Dr. Borgstrom elaborated on the agricultural productivity *myth* in an article that appeared in the *Michigan Farmer* early in 1966;

"You can't compare a farmer of 1900 with a farmer today. They are not the same kind of animal. In 1900 [or even 1910] he butchered animals, delivered meat and milk to the cities, churned butter, salted meat, made sausages, farmed with horses for which he produced his own feed, made his own machines, baked bread, made all his own repairs, and built his own buildings.

"Today all these things are being done outside of the farm. Besides about 6.5 million farmers [in 1966] actually producing food for the country, you have more than 22 million people building roads to bring things to the farms, making machinery, processing and delivering farm products and bringing food and farm products to the farms, not to speak of all the various categories of salesman.

"If you divide this number (22.5 + 6.5) into the 195 million population of 1965 you can see that it takes in relative terms nearly the same number of people to feed America today that it did in 1900 or 1910."

### AGRI-BUSINESS — THE INVISIBLE FOOD PRODUCERS

In 1910 farms were tiny, self-contained food factories, producing not only food, but also their own needs in fertilizer, seeds, machinery, fuel,

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homes, buildings, recreation, transport, clothes, roads, etc. Whatever the farmer produced could be truly regarded as the results of his own energies and efforts.

Not so today! Produce from the farm of the 1970's is no more the result of the individual farmer's effort than a new car is the product of the man fitting steering wheels on the assembly line! Both farmer and car worker are vital, but nevertheless are only small cogs in a huge complicated production system.

In food production most of man's effort comes not under the old heading called *farming* but under *agri-business*.

"Agri-business is the whole business of producing and marketing food, not just growing it on farms. It has three main branches: supplying things to the farm (tractors, fuel, machinery, seeds, sprays, fertilizers, and so on); the actual farming; and getting the products onto the consumer's plate (processing, storing, transport, packaging, and distribution). The importance of the middle stage, the actual growing of the food, has been waning, while the before and after stages have waxed. Fifty years ago, the American farmer's slice of the whole cheese was fifty-four per cent. Today [1965] it is down to seventeen per cent and still dwindling; for every man working on the land, two are employed on off-the-farm activities. Although in Britain we spend less than Americans on processing, packaging and distributing our food, Mr. Sykes [Geoffrey Sykes, noted agricultural farmer/economist] estimates £75 out of every £100 worth of agri-business to be spent off, not on, the farm. The trend continues" (*Brave New Victuals*, Elspeth Huxley, p.37).

If you have observed that the figures and estimates of the extent and scope of *agri-business* appear to vary from different sources, you're right. *Agri-business* is so large, so vast, and so integrated into the fabric of our total social-industrial system that it is difficult to precisely define where the activities of *primary* and *secondary* industries begin and end. Different authorities have various definitions for the limits of *agri-business*. In addition, the situation varies from country to country, and from year to year. But it is an indisputable fact that the modern farmer is only a tiny part of a huge and complex system.

The present American Secretary of Agriculture, Earl Butz, underlined the point in the USDA Year-book, as far back as 1960:

"The modern farm operator is much less self-sufficient than his father was. He buys many goods and services needed in his production that father produced on his farm.

In a very real sense, *he assembles 'packages of technology'* that have been put together by others on a custom basis. For example he buys his tractors and petroleum, whereas his father produced horses and oats. Think for a moment of the technology that goes into the modern feedbag, with its careful blending of proteins, antibiotics, minerals, and hormones, as contrasted with the ear corn and a little tankage put out for the hogs in his grandfather's day....

"A large share of their operating expenses goes for items that their grandfathers produced on the farm himself, but that the modern farmers 'hire' someone else to produce for them....

"Countless steps in the processing of food and fibre that once were done on the farm have long since moved to the city."

A generation ago, farmers were producing most of their own fuel, power and fertilizer, but now industry is furnishing farmers each year with:

6.5 MILLION TONS OF FINISHED STEEL  
(More than is used for a year's car output)

45 MILLION TONS OF  
CHEMICAL MATERIALS  
(About five times the amount they used in 1935)

18 MILLION GALLONS OF  
CRUDE PETROLEUM  
(More than is used by any other industry)

285 MILLION POUNDS OF RAW RUBBER  
(Enough to make tyres for 6 million automobiles)

22 BILLION KILOWATT HOURS OF  
ELECTRICITY

(More than enough to serve the cities of Chicago, Baltimore and Houston for a whole year)" (*Yearbook of Agriculture, Power to Produce, 1960*, pp. 381, 382).

It is difficult for the mind to grasp quantities of this size, and bear in mind that those figures don't account for the astronomical increase of the last ten to fifteen years! It is even more difficult to visualize the amount of *time* and *personnel* needed to supply these annual 'inputs' to agriculture. Take fertilizer for instance:

"For the United States the quantity required [annually] exceeds *seventy million* tons. This corresponds to *six* gigantic freight trains of forty-ton cars, *each spanning the entire continent* from New York to San Francisco [3,500 miles]. To organize the delivery of all these car-loads carrying lime and fertilizers constitutes a major

task" (*The Hungry Planet*, Dr. Georg Borgstrom, Collier-MacMillan, London, 1967, p. 435).

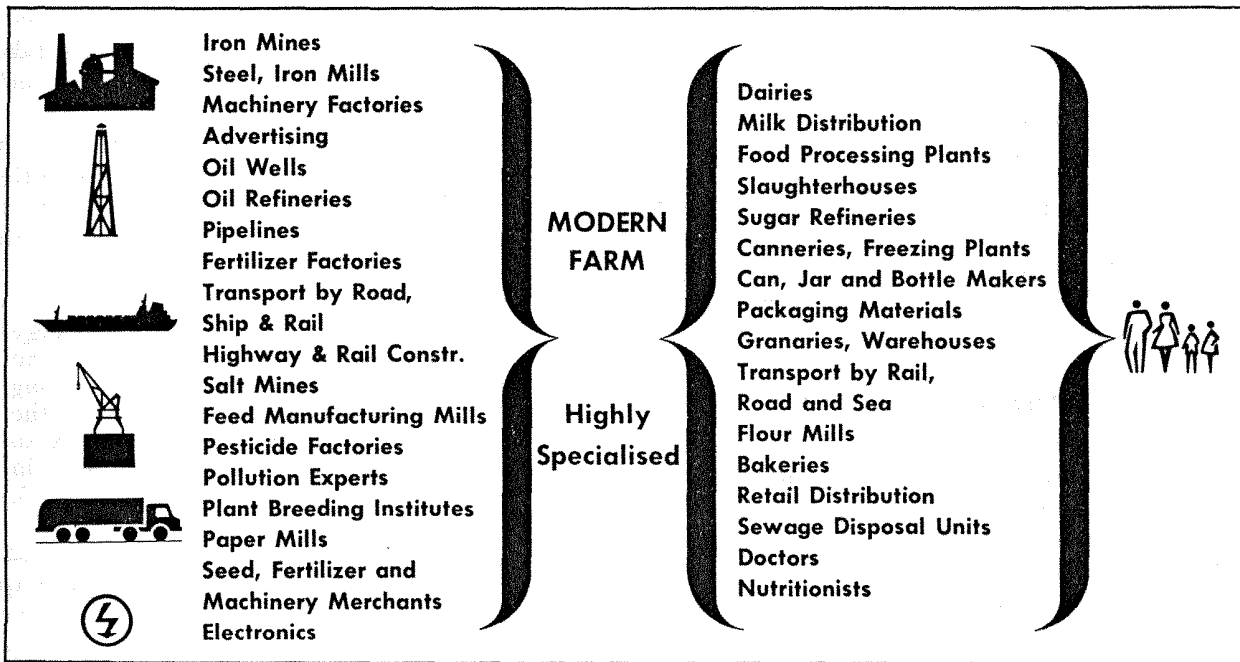
**AGRICULTURE — NOW DEPENDENT UPON INDUSTRY**

So great and so sweeping have been the changes in the system of food production that agriculture has now become shackled to industry and can no longer function without its aid. The editor of a leading British farm magazine put it this way:

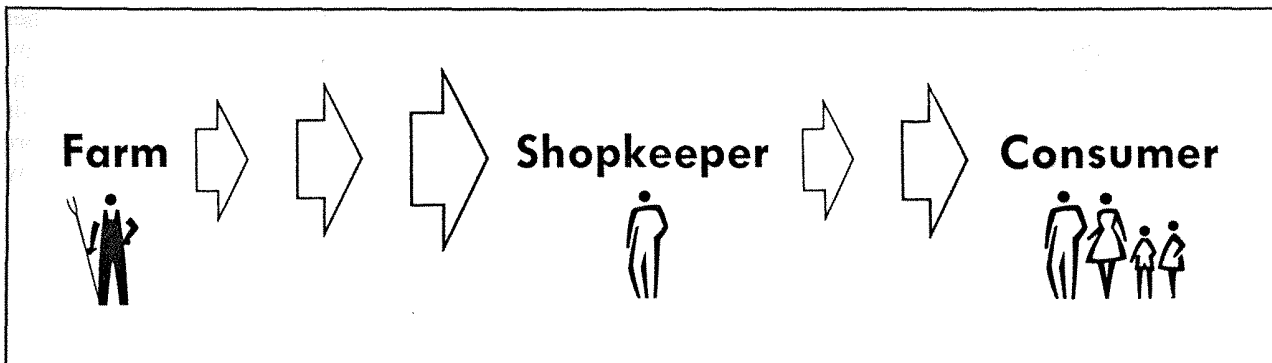
"During the last century and a half it [agriculture] has had to become more and

more reliant upon external supplies of the tools of its trade. In fertilizers it has become dependent upon the phosphates of North Africa, the potashes of Germany. It looks to the industrial chemist for the means of protection against crop diseases and insect pests. Most of all, its machines and implements are the products of factories, skilled technicians, and trained designers; and the sources of its power — petrol, paraffin, and diesel oil are brought from overseas. The output of the British farm is, therefore, by no means all a clear addition to the national

**NON-FARM LABOUR INVOLVED IN —  
Food Production — 1970**



**Food Production — 1910**



HAS TECHNOLOGY *REALLY* MADE TODAY'S FARMER 700% MORE EFFICIENT?

wealth. A thousand urban man hours have gone into each tractor, and the tractor has been designed and tooled for at a cost of more than one million pounds sterling. Before the tractor can move an inch, wells have had to be bored in Kuwait or Texas, the oil shipped and refined and transported to the farm. For the corrugated iron or asbestos that have replaced the local timber or village-made bricks for the farm buildings, the sheep netting that is substituted for natural hedges, the grass seeds from New Zealand that take the place of the sweepings of the hay barns, the teat cups of the milking machines that come from the rubber trees of Malaya to take the place of the horny hand of the dairyman, British farming has to depend upon national and international industry and commerce.

"Indeed, the greater the output of the farm, the more external aid there has to go into it" (*Society and the Land*, Robert Trow Smith, The Cresset Press Ltd., London, 1953, p. 235).

That was written *TWENTY* years ago! How much more applicable to agriculture today!!

When we come closer to today, we find that:

"Fred H. Tschirley, of the US Department of Agriculture quoted a 1971 American survey which put the total cost of research and development of a new pesticide at around £2.3m" (*Big Farm Management*, January 1973, p. 25).

#### HOW MANY FOOD PRODUCERS?

It would be interesting to discover how many people really *are* engaged in food production today. Exact statistics on this are, as was stated earlier, an impossibility. However, one agricultural authority, Louis B. Bromfield, estimated that:

"As high as 50 percent and more of our population derives its income, wages, and purchasing power directly or indirectly from an agricultural base" (*From My Experience*, Louis Bromfield, pp. 282, 283).

Noted farm economist, Carl H. Wilken, said:

"More than one half of our labor force is engaged in processing and distributing the products of agriculture" (*Unforgiven*, Charles Walters Jr., 1971, p.27).

In 1970, the United States' work force was about 74,000,000. If, as Bromfield and Wilken estimate, over 50% of our work force works for agriculture

(food production), then over 37 million workers are toiling to feed 200 million people. Divide the first figure into the second and we find that one man is feeding only *five* to *six* people — in the specialized days of 1970.

It is not uncommon for us to pick up the newspaper and read such quotes as:

"Agriculture, the United Kingdom's largest single industry has a gross output of £2,500 million and expenditure of £1,300 million!!!"

(*The Sunday Times*, May 10 1972).

But we seldom grasp the magnitude of these figures and even more important, the implications they have for industry and the rest of society. The charts on the previous page should help the reader to understand that most of the nation's food producers live not in the *country*, but in the *CITY*! You may now begin to realize that most of the labour that produces our daily bread takes place not in the *field*, but in the *factory*, the *mill*, the *mine* and the *laboratory*!

An inescapable thought after examining the above facts is that man might do well to question some of his stupendous *off-the-farm* efforts to produce basic needs! Take for example the chemical fertilizer industry — Borgstrom is quoted as stating:

"You know, it takes the amount of energy you get from burning five tons of coal to make one ton of nitrogen fertilizer. Including the energy cost of irrigation, transporting the fertilizers and so on, you actually have to put more energy in than you get out in increased food" (*Observer Review*, March 5, 1972).

We do not present the facts assembled in this issue of *Your Living Environment* for the purpose of implying that we would all be better off back under that comparatively simple, rural-orientated society of 1900/1910.

We do, however, hope that if you are a farmer we have helped you to assess your true productivity in clearer perspective. And if, on the other hand, you are a city person, we hope that you now have a better appreciation of your dependence upon your nation's agriculture. We say this hoping that you don't think you left agriculture behind, when you or some ancestor finally "*abandoned*" the farm!