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sunday business - agri-biz col. - june 12, 1977 - page 1 <<

Agri-Business Column <<

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By Ferdie J. Deering

"Our nation's agriculture is the most efficient in the history of mankind in terms of production per man," a speaker told an agricultural engineers convention, "but it may be the least efficient in terms of output per unit of energy input."

Thus he stated a theme that well-fed critics have nurtured into a nationwide campaign against ~~farms~~ and farming.  
/ farmers /

One group argues that "the transformation of agriculture into a fossil fuel-based industry has been pursued for the sake of profit." The implication is that food producers ought to be happy to work for the country and not expect to make money.

Mechanization has been blamed for excessive fuel consumption, increased soil erosion, higher unemployment and aggravated ~~soil~~ problems. Extremists have advocated a return to  
/ / social /  
manual labor on smaller farms and use of organic farming.

A couple of years ago, U.S. Department of Agriculture scientists figured out what it would take to reconvert to use of horses and mules for agricultural power.

We would need 61 million work animals, compared to an estimated seven million horses and mules now. Most horses ~~now~~ are

\*pd

sunday business - agri-biz col. - june 12, 1977 - page 2 <<

kept for riding and are not suited to pulling plows.

It would take about 180 million acres of farm land to grow feed for the animals needed, half of present crop acreage.

We would have to boost the farm work force from four million to over 30 million, requiring major shifts in housing, services and employment, if it could be accomplished at all.

The basic fallacy of such suggestions is that net output of food would be reduced. There would be less food per capita and we could not feed ourselves, much less the world.

Food is ~~inde~~ indispensable for people to have energy for living and for work. It takes energy to produce energy, and we may expect too much if we ~~exp~~ hope for pound for pound return.

AGriculture is the ~~nation~~ nation's largest industry and it uses more petroleum than any other |single industry. Essentiality of food adds significance to this usage and its output.

It has been estimated that fuels (coal, oil, natural gas, etc.) consumed in growing, processing, transporting, wholesaling, retailing, /refrigerating and cooking foods amount to 12 or 13 per cent of our national energy use, 1970 statistics. .

During that year, it was calculated, the average Ameri-

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MORE <<

\*pd

sunday business - agri-biz col. - june 12, 1977 - page 3 <<

American received and ate 1,500 pounds of food, with an energy ~~enx~~ content of 3,300 calories per day. Statisticians said the food contained less than one-sixth as much energy as was required to produce and deliver it.

Current estimates indicate fuels consumed in growing food products amount to only three per cent of our total energy budget. About half of this is used directly on farms, and the other half is used to produce fertilizers, fuel and supplies.

Edison Electric Institute has said that about 2.5 per cent of the nation's ~~electric~~ is used to perform some 400 farm tasks that formerly were done by manual labor.  
/ electricity /

With all of this, ~~agri~~agriculture's greatest sources of energy are ~~renewable~~ or are replaceable: Solar energy, land, water, air. Solar energy is most abundant and costs the least.  
/ renewable /  
Our best crops convert less than one per cent of available solar energy, but returns are high and probably can be increased.

"We spend 1.5 million BTU in producing each acre of corn, but this returns 35 million BTU in total grain energy," says Dr. James A. Whatley, ~~associa~~associate director of the Oklahoma Agricultural Experiment Station.

Nitrogen fertilizer is essential for a productive

MORE <<

\*pd

sunday business - agri-biz col.- june 12, 1977 - page 4 <<

agriculture. This requires energy, about 22 cubic feet of natural gas per pound of ammonia manufactured.

"So in agricultural production, we substitute energy for fertilizer," Whatley said. "Is this a good trade? Definitely, yes! In fact, it is a necessary trade in order to feed ourselves. Without nitrogen fertilizer, the world would be in instant panic."

By supplementing photosynthesis to ~~one~~ convert solar energy into food for humans and animals on a more productive basis, crop yields have been doubled.

Energy is consumed, but it yields rich returns. Agriculture converts energy that people can not digest into energy forms that we must have and which we can use for better living.

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To BE CONTINUED