

PolicyPennings by Dr. Daryll E. Ray

## The looming food crisis?

We tend to cringe when we hear someone argue that food production is not keeping up with demand. We heard Earl Butz make that argument when he began to dismantle farm programs, telling farmers that they needed to plant fencerow to fencerow. They did, and the price soon headed south.

Supporters of the 1996 Farm Bill argued that export demand from China would use all of the corn we could supply as the result of a growing middle class that demanded grain-fed meat. China increased its utilization of corn; the only problem for US farmers was they grew it themselves and managed to export millions of bushels of corn along the way. It took four years of Emergency Payments and Loan Deficiency Payments to keep the crop sector from going belly up.

Today those who are promoting the use of genetically modified crops (GMOs) make the food shortage argument—paraphrasing the pitch: "If you don't get behind GMOs, agricultural production will not be able to keep up with the growth in population." The apparent implication is "Support GMOs or people will starve."

We are not trying to pick a fight with the scientists and companies who provide the basic research on GMOs, just their pitchmen. From our perspective their arguments are disingenuous at best and black-mail at worst.

Despite all of the arguments about a looming food crisis, we think the evidence points in the other direction. First, the problem of undernutrition is not an issue of production; it is a problem of money.

The world produces enough grains and oilseeds to meet the nutritional requirements of all of the people on the earth. So, if the 800 to 900 million who experience chronic undernutrition had enough money, they could outbid livestock producers and ethanol plants for the corn, soybeans, and wheat they need to meet their basic caloric requirements.

Not only does the world's agriculture have the ability to meet the nutritional requirements of those who are alive today; it has the ability to meet the world's needs for the time horizon used by most GMO pitchmen and pitchwomen.

Given the availability of land and yield-increasing technologies, it appears to us that the most pervasive problem that farmers will face for the foreseeable future is the same one they have experienced for the last one hundred years—on average production will exceed demand and chronic low prices will be the periodic norm.

In our local newspaper, the Knoxville News Sen-

tinel (TN), we recently read a story of two different technologies that are extending the growing season for fruits and vegetables here in East Tennessee.

In one case, the farmer took worn-out land that was providing little more than poor pasture and turned it into a year-round production system. The farmer did this by paying attention to the soil and restoring its quality. On this restored land he uses a full-height PVC pipe and plastic system to construct greenhouses, enabling him to extend the growing season in East Tennessee. It's turnips in the winter, cool-season crops well ahead of the usual garden schedule and a longer season at both ends of summer for warm-season crops like tomatoes.

In the second case, the farmer and her father are using hydroponics, greenhouses, and urban land to provide fresh vegetables to restaurants on a year-round basis. Again with greenhouse technology, they are able to extend the seasons for both cool-season and warm-season crops while providing high quality products.

But our optimism about the future of production is more than this. Russia contains as much as 100 million acres of land that once were in production—both before the revolution and during communist times—that now lie fallow.

Much of this land is in the black soil region with fertile soils comparable to the black soil areas of Iowa and northeast China. With proper management this land can produce yields equal to some of the most productive fields in the world, transforming Russia from an importer of foodstuffs to an exporter.

Similar arguments can be made for land in Ukraine and Byelorussia. Both countries have land that was once under production that now lies fallow. This land can be brought back into production with few environmental consequences.

Millions of acres of pastureland in Brazil can be converted to farm ground without reducing a single acre of the Amazon tropical forest.

In the eighties, US land prices rose rapidly as farmers told each other, "They aren't making any more Iowas." Since then both Brazil and Argentina have significantly increased their land under crop production.

Land similar to Brazil's savannah is available in other parts of the world, particularly Africa, which has over three billion acres of savannah. If but one-tenth of that were to be converted to crop production, the world would add not just another Iowa, it

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would add another US to crop production.

It's not only a matter of available land and technology but also a matter of the intensity of land use. Take, for example, Cuba. When the Soviet Union collapsed, they were shut off from supplies of farm machinery and the petroleum needed to run them.

The US had an embargo on trade with Cuba, so the island was on its own. With a combination of urban gardens and low-input agriculture that used more human labor, production rose over a couple of years, and a hunger crisis was avoided.

As we reported last year from our trip to China, the rest of the world seems to be almost wasteful in its utilization of land and other resources when compared to the Chinese. The Chinese use their back yards, highway medians, the yard-wide tops of the banks surrounding fish ponds, and virtually any other vacant strip of land to grow crops.

We do not expect to see that kind of intensity of land-use to occur in the US or most other countries, but given the right conditions it would happen.

Are there limits to crop production on this planet?

There certainly must be. But at the present time we are far from running up against those limits.

Sure, we absolutely need to continue advancing agriculture's productivity to be sure the world can feed itself in future decades-it's the catastrophic urgency part of the current-day pitch that does not ring true.

Aside from the periodic shortfalls-which will occur and can easily be addressed with, yes, reserves-the odds are that overproduction relative to demand will again be the overriding problem for major crop markets during all, or most, of our lifetimes.

The level and distribution of income, lack of access to education and health-care, and political malfeasance-not the world's ability to produce food-go a long way in explaining the systemic undernourishment of much of world's population.

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