

A View from Slightly Down Under



Dr. Carlos Torres checks results in a test plot of edible beans.

Staff Report

In an effort to examine the scope and consequences of the race to the floor that bedevils agriculture internationally, *Acres U.S.A.* contacted Carlos Torres, a agronomist in Sonora State, Mexico. Torres is an American-educated crop specialist who spent most of his formative years with the Green Revolution's Norman Borlaug.

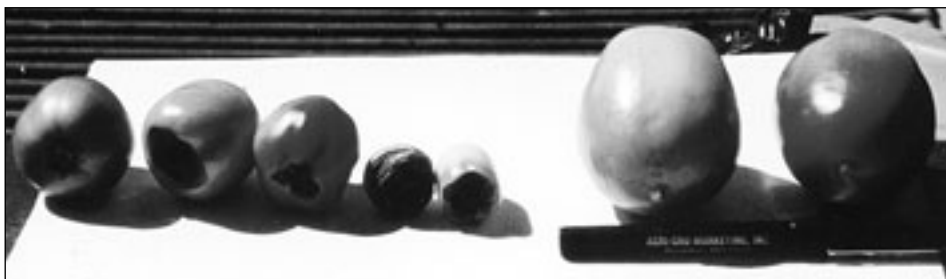
Borlaug, it will be remembered, pioneered new varieties based on the use of NPK fertilizers and toxic-rescue chemistry. Much of that technology has hung on, but it has also been invaded by developments called organic and results that

help blunt the nemesis of the arid areas below Arizona.

Biologically correct approaches are now being used chiefly on vegetable crops, mainly potatoes, tomatoes, cantaloupe, watermelon, cucumbers, jalapenos and chile peppers. The chief effect has been to deal with drought and erratic water conditions, with yields of more bins and bushels of greater quality.

In an area that rarely gets more than 11 or 12 inches of rainfall per annum, a pattern of drought years continues to affect farm employment tremendously.

"Due to the lack of water, the dams and reservoirs are low or dry. Usually in the wintertime, well over 200,000 hectares are under cultivation," Torres told *Acres U.S.A.* The water shortage has reduced the production area to 47,000 hectares. A



Tomatoes grown conventionally (left) were markedly inferior to those grown using bio-correct supplementation.

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ACRES
A VOICE FOR ECO-AGRICULTURE

January 2004 • Vol. 34, No. 1



Dr. Torres (behind sign) and field staff inspect a tomato test plot.

hectare is 2.5 acres. This means only 21 percent of the previously planted area is now being cropped. The reduced cultivation has translated into a decline in fertilizer use and a shortfall in employment in an area where agricultural jobs are virtually the only employment. The usual 1.1 million labor days for the valley have been cut to the bone.

“This affects everything in this area,” Torres said — much as imports have canceled out cotton production, this in a land where everything depends on agriculture, machinery, diesel, parts, with hand labor taking the hardest hit.

The use of labor in greenhouse production is fantastic. Those tomatoes that decorate restaurant salads require 200 labor days on one farm operation alone. Watermelons require about 60 labor days. Cucumbers require 20 labor days, and so on. Torres said that production this year was small in relation to the size of the valley, which has 25,000 hectares under irrigation.

BACKGROUND

Dr. Carlos Torres is a product of the American education system, having specialized in chemistry. He holds degrees from Wisconsin and California and spent those 23 years mentioned earlier with Nobel Prize winner Norman Borlaug. His time of learning took him to Brazil. His

knowledge of crops is “in depth” and controversial. Just the same, the premises that swept agriculture shortly after World War II have to be modified, and there are plenty of guidelines.

There was a time when 50,000 hectares were under cotton. Under WTO, China and India — and some of the “stan” countries — have taken the market. Mexico can’t compete with those poverty-pocket labor costs, therefore imports have swept domestic production under the rug, much as has been the case in the United States. The race to the floor has swallowed Mexican cotton.

Dr. Torres illustrated the point: “Go to China. To produce one metric tonne of wheat costs about \$60, or 600 Mexican pesos. Using irrigation and fertilizer costs about \$120 for the same production. We had one of the largest productions per hectare of wheat here, about eight tonnes per hectare, more than 120 bushels per acre.”

If Mexico can’t compete with China, is there hope for the United States? The record suggests the answer is “no.”

Most of the Mexican tomatoes, cucumbers, cherry tomatoes and watermelons

Reprinted from

 A VOICE FOR ECO-AGRICULTURE
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are exported into the United States. The same is true for jalapeno peppers.

Corn is not a large component of Sonora production, yet Mexico produces about 20 million tonnes of corn from about 8 million hectares in the country. Corn requires about 90 centimeters of water, this delivered as five irrigations.

Kansas may find it difficult to believe that Mexico outproduces the High Plains in terms of wheat production per acre. Yields have clocked in at 5.6 tonnes per hectare, compared to Canada’s 2 tons or the Midwest’s 3.3 tons. The metric tonne is 2,200 pounds, while the American ton is 2,000 pounds.

One of the side departures from the Borlaug system has been the use of Agri-Gro, a plant and soil food manufactured in Doniphan, Missouri, that outranks legislated fertilizers because of its microbial and trace-mineral load.

“We see it three ways,” Dr. Torres said. “We spread it on the crop itself. We apply it in the irrigation water. We inject it into the fertilizers. As a result we produce more volume, better quality, and have less insect problems. For potatoes, we get five to seven times more, and with tomatoes and bell peppers results are greatly improved.”

VALIDATION

Jim Wyatt, a professor at the University of Tennessee, has made a matter of record the apparent mandate for salt-fertilizer agriculture to take a new look at the role of bio-correct enlargement of the microorganism and trace-mineral load in any fertilizer mix. Much the same is true for University of Wyoming research. Research at Southwest Missouri State University conducted by Dr. Mark Wilson has also validated the Agri-Gro and Agri-Cal supplements that now anoint agriculture in a harsh Mexican environment.

RESULTS

The results now being achieved worldwide have been tested in all climates — for example, these numbers from Vestsjaelland County, Sjaelland, Denmark:

- 41.2 bushels more yield
- 45 percent yield increase

The data stack up like cordwood.

Granted, there is a nitrogen requirement and a carbon system has to be working. Major nutrients have to be in place.

Nothing works without water, and water does not do its job if the soil is dead.

Dr. Torres laments the fact that there is so little organic matter in Mexican soils. A pure organic system cannot work without an organic load sufficient to make a natural carbon and nitrogen cycle work. Poultry litter is composted to help repair the scourge of wind and water erosion, but this fix is not enough. Wheat in the winter and soybeans in the summer have depleted the soil. Burning residue was the practice for over 40 years. Soil compaction was the result. Organic matter declined from 1.2 to 0.6 percent. Yes, there is a move to use more compost and refuse.

The largest producers of poultry now see the most valued product, the manure, returned to the soil — three, four, five tons to the hectare. Potato growers often apply too much litter, up to 10 tons per acre.

The requirement of 65 to 75 percent calcium on the soil colloid is the same in temperate, tropical and arid soils. Torres used calcium nitrate via drip irrigation. Water comes from the Yaqui River and deep wells.

“The quality of the water from the land is very good. The quality from the deep wells is not very good.” There is a saline problem, perhaps 2,000 ppm.



Field staff harvest onions grown with Agri-Gro

DISTURBED AGRICULTURE

Agriculture is a disturbed profession. Natural stresses — water shortages, erratic weather — are the smallest part of the problem. Imports from cheap-labor climes seem more lethal. According to Dr. Torres, there is a tremendous ongoing migration. Industry represents only 3 percent of economic activity in Sonora.

The future asks for change. Wheat is no longer a profitable crop, regardless of production in terms of bins and bushels.

The wave of the future, according to Torres, is a greater interest in agriculture because of the insecticide and pesticide overload. “In California, Sonora and other parts of Mexico, organics is becoming very important,” he said.

“We have to integrate organics into agriculture,” Torres summarized. “Everything we have done with Agri-Gro has been very favorable.”

Select any product and the hands-up character of organic comes clear. “With green onions, we have experienced a tremendous increase in quality and production.”

Dr. Carlos Torres sees a mandate for Mexico to cease competing in the political

storable commodities. Canada, Argentina, China, India — “We cannot compete with them. We have to select more crops that can be exported. We have to open some new windows.”

The existing order seems to deny Mexican farmers the one thing they are entitled to: first crack at the domestic market.

But always, the bottom line is the one that causes far-seeing agronomists to worry — water. The tropical forests are still being cut down, the natural water cycle is being interdicted. For less than the cost of an adventure in Iraq, all the rainforests in the world could be saved by making it more profitable for locals to save the trees rather than cut them down, according to Edward O. Wilson, the world’s foremost ecologist.

Those forests are absolutely necessary if ocean waters are to be recycled so that arid lands can be irrigated. The Yaqui Valley needs reservoirs that stay full. El Tepeyac and the southern end of Sonora — with 400,000 population — depends on it. ❖

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