

## Jesús León Santos Mexico (1966- )

Farming is always difficult in a mountainous area like the "Mixteca" region in Southern Mexico, home to the Mixta Indians. Soil erosion is a major problem there. It is one of the poorest areas in Mexico.

In the 1970s many Mixtecan farmers tried the new varieties of corn seed that the government had introduced to increase the production of corn in Mexico. Over the short run, it was a success. Corn production increased enough in Mexico to avoid serious food shortage. (Part of the Green Revolution<sup>1</sup>.)

However poor farmers like the Mixtecs couldn't afford to purchase seed every year, nor the extra fertilizers the new varieties required. Those who tried the new varieties also found that after a while the soil seemed to be wearing out, producing less in spite of the fertilizers.

Then the price of corn went down in Mexico, and corn farmers' income from selling their corn decreased so much that it wasn't even enough to pay for the cost of growing it. Thousands left the area because they just couldn't make a living there. In fact, Leon's eight siblings left.

Leon didn't follow them. He stayed because he had a dream. It was restore the Mixteca region, and he had first started forming this dream when he was a teenager.

He decided not to embrace industrial agriculture<sup>2</sup> but to take another path: to improve the land and to continue using and improve on traditional agricultural methods. It has taken many years of effort, but today the formerly barren hillsides are green and young Mixtecs are deciding to stay and work the land rather than go to other places to find work.



**Jesús León Santos**

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2008/northamerica](http://www.goldmanprize.org/2008/northamerica)

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<sup>1</sup> Green Revolution is explained later in this article.

<sup>2</sup> "Industrial agriculture" is the name given (by those who don't think it is a good thing) to modern farming methods which require large investments by the farmer in buying seeds, fertilizers, and providing lots of water for crops. These kinds of costs require large volume production so they also require machinery and large amounts of land. Almost always this farming method also relies on the use of pesticides and herbicides.

## ***The Farmers Organize Themselves***

In 1980 Leon together with other Mixtecan farmers founded CEDICAM (Center for Integral Small Farmer Development in Mexico). They met with people of each community to come up with ways to improve their crops that didn't require spending money. Gradually a movement began to return to growing varieties of corn traditionally grown in Mexico. However, whereas people traditionally had selected the largest ears of corn to save, they began to focus on how many ears the plant was producing and other characteristics of interest, such as tolerance to particular soils or limited amounts of water. Leon says, "People have now understood that local varieties are much better."

"The Green Revolution displaced our local resources, said Leon, referring to modern agricultural practices with hybrid crops and chemical fertilizers. "Our dependence on the outside, that led to our ruin."

--**Jesús León Santos**  
Malkin, 2008

Since soil erosion was a major problem for everyone, they established a small nursery and started organizing people to plant trees which would hold the soil. The number of people involved grew, and they organized several other community-run nurseries.

Currently (2008) Leon and CEDICAM are working with more than 1,500 small-farm farmers (12 Hectares or less) in 12 communities. They have planted more about 2 million trees in the last 10 years and reforested more than 1000 acres. People are planting up to 200,000 native trees a year. The trees not only hold the soil, but also allow water to filter into the ground instead of running off as it used to do.

Their leaves contribute badly-needed organic matter to the soil which is essential to its fertility. Now people can find firewood close by rather than walking long distances for it, and spring water flows in the area's streams have greatly increased.

## ***Stopping Runoff with Terraces and Ditches***

Using stones from the fields, the Mixtecons have rebuilt terraces from the ruins left by their ancestors, and have built many new ones. They plant on the terraces, which also slows erosion.

To further slow down rain runoff, the Mixtecons have built or rebuilt around 2000 kilometers of ditches that follow the contours of the land. Now, water which previously ran off and was lost is held until the soil can absorb it. It filters down and recharges aquifers, bringing dry streams to life.

"What's impressive is that they did all this from scratch. Money is not the crucial factor here. It's their ability to work bottom-up, creating farmer-to-farmer networks and promoting low-tech solutions that tap local knowledge."

--**Miguel Altieri**  
--Campbell, 2008

## ***Sustainable Agriculture***

The Mixtecons' experience with modern industrial farming was that it is not sustainable. When they tried it, they found that their soils became depleted, and they disliked having to buy new seed every year. They also found that the new hybrid varieties being "pushed" by the government required more water than they had available.

Leon taught the Mixtecos about sustainable agriculture. Sustainable farming starts with planting seeds saved from a previous crop, not bought. The soil is nurtured by applying (free, because they make it themselves) compost which contributes organic matter that improves soil structure and water retention, as well as providing the same growth promoting elements that chemical fertilizers do. Leon first worked with a small group of farmers, and after the neighbors saw how much more could be grown in this way, they also began using sustainable methods.

Instead of huge fields of a single crop, they plant as their ancestors did for hundreds of years (sustainable), in the "milpa" style: corn, squash, beans- and other vegetables - on the same plot of land. Harvests improved in many communities — in some, as much as 50%.

The Mexican government has over the past two decades gradually discontinued most support for small-scale farmers. They argue that they are "inefficient." They point to the fact that about two-thirds of Mexico's corn farmers are small-scale farmers, and they harvest less than 25% of the country's total corn production. However, the government's analysis of "efficiency" is based only on corn production. Mixtecos are producing far more than corn in their fields, which is completely ignored; and the social benefits are not included either.

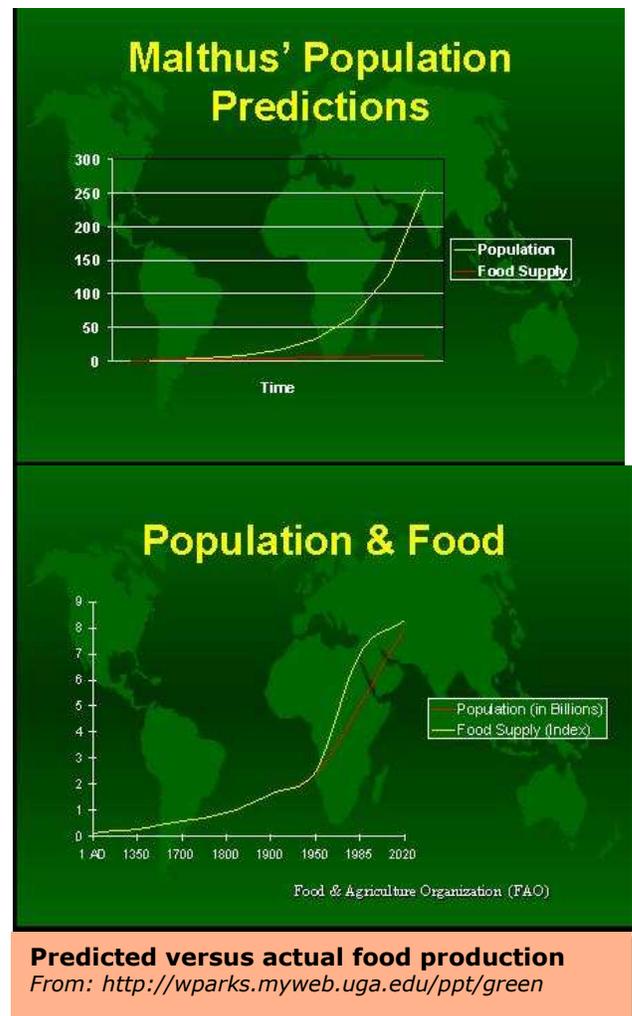
In the past, Mixtecan people were discarding their old customs because they didn't want to seem ignorant. Now they are proud of their small farms and realize what a great contribution they have to make to the Mexican economy. Their diets have been greatly improved and people are not leaving their home and families to look for work in the city because they can now make a living on their land.

## **Goldman Environmental Prize**

In 2008, Jesus Leon won a Goldman Environmental Prize for outstanding environmental achievement. The prize website has a video on his work and his speech on accepting the award is there.

## **The Larger Picture: The Green Revolution**

The bad experience that farmers in this part of Mexico had in the 1970s and 80s with modern methods of farming is part of a larger story — the story of the so-called Green



Revolution. In the 1960s and 70s, especially, many new varieties of crops (chiefly wheat, rice, and corn) that responded well to fertilizer were introduced in various parts of the world. For example they introduced a dwarf variety of wheat which doesn't fall over (as the traditionally-grown varieties do) when it is fertilized and irrigated to make it grow faster.

The additional grain production avoided the worldwide famine that some had predicted for the 1950's. Those predictions assumed that food production would not increase; but it did increase. In fact it kept up with population growth for around 40 years. This is why the introduction of these new varieties, along with the farming practices required to make these new high-yielding varieties grow well, is called the Green Revolution.

But, as the Mexican farmers found out, the new crop-growing system is highly dependent on externals -- things that have to come from the outside -- including seed, fertilizers, pesticides, herbicides and also often additional water supplied by irrigation systems. In many countries and areas, farmers with small holdings, especially in places with a poor transportation system, usually had no access to the money, credit, or technical help required, so they didn't benefit from the Green Revolution.

Dr. Vandana Shiva asserts that the increased food production called the Green Revolution was not primarily due to the superiority of the new crops, but to the increased water applied to them. In her country, India, many drought and flood-resistant varieties had been developed over the centuries, and traditional agricultural methods and crops were adapted regionally to the climate. The need for increased irrigation, as well as the substitution of monocultures of wheat, rice, and cotton for more diverse traditional cropping systems, caused many problems in India as it also has elsewhere (see Shiva references).

If you research "Green Revolution" on the internet, you will find sites that emphasize the good things about it, and others that emphasize the bad. There are a few that present a somewhat balanced picture.

In the general press you hear a lot about how great the Green Revolution was. That's because the companies making money from selling seed, fertilizer, pesticides, and herbicides have a lot of money to advertise and to influence politicians and policy makers.

Proponents of small-scale farming don't have this kind of money. They point to studies showing that we could produce just as much food, and have a much healthier planet, if we produced our food using methods that don't create dependence and that don't ruin the soil (for example, see Tilman 1998).

## References and Further Reading

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### **Green Revolution**

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- International Food Policy Research Institute *Green Revolution: Curse or Blessing?* A fairly balanced account. At: [www.ifpri.org/pubs/ib/ib11.pdf](http://www.ifpri.org/pubs/ib/ib11.pdf)
- Parke, W. *Defining the Green Revolution*. A PowerPoint presentation of the major issues in simple language. Definitely "pro" - the possible negative effects are barely mentioned. At: <http://wparks.myweb.uga.edu/ppt/green/index.htm>
- Shiva, Vandana 1991. *Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*. Zed Books, London. Dr Shiva has written numerous books on agriculture, especially with regard to the objectives for and influences of multi-national corporations on the world food supply. You can find many videos of her speeches (great for practicing English listening skills) on YouTube, and many interviews by simply Googling her name. Personally I do not agree with some of her views, but I do think she makes a lot of good points. Check it out for yourself and see what you agree and disagree with.
- Shiva, Vandana 2002. *Water Wars: Privatization, Pollution, and Profit*. South End Press, Cambridge, Mass., USA
- Tilman, D. 1998 *The Greening of the Green Revolution*. Nature, 396: 211-212 Online at: <http://www.nature.com/nature/journal/v396/n6708/full/396211a0.html> On the advantages of sustainable agriculture.

## Discussion or Essay Questions

*When you talk or write, please try to use some of the new words you have learned in this reading. If you have noticed new grammatical structures, try to use them, too.*

1. What are the advantages and the disadvantages, in your opinion, of government support for large-scale food production (that is, on huge tracts of land) in a country? What about your country in particular?
2. See if you can find actual data (as opposed to opinions) on the internet or elsewhere comparing advantages and disadvantages of small versus huge farms.
3. A lot of food production and distribution is now controlled by multi-national corporations. What are possible consequences of this?
4. Even with the increased food production brought about by the Green Revolution, there are still plenty of hungry people in the world. Do some internet research and find out what opinions and evidence there are about the causes of hunger in today's world and some suggested solutions. What is your opinion after reading what you find?
5. Some people are saying that we need a new Green Revolution to combat hunger in many parts of the world, this time using genetically modified varieties. Tell or write about your opinions about this, and your reasons.

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