Lerma Rojo

Introduction -

The two parts of term lerma rojo seem rather inconsequential. Lerma is the second longest river in Mexico and rojo is a common last name in Spanish speaking countries. Though Lerma rojo means a lot more to all of us. Do you know that all of you sitting here are probably alive because of Lerma rojo. In fact, lerma rojo is responsible for saving almost a billion lives all over the world.

Lerma rojo is a story of our parent’s generation which was battling starvation. Lerma rojo is a story of human endeavor to strive for a better world and to make sure that dooms day predictions are proven wrong.

My dear Toastmaster of the day, President and fellow toastmasters, today I will narrate an extraordinary tale of two men, Norman Borlaug and Monkombu Sambasivan Swaminathan, who gave the world a gift named Lerma Rojo, a semi-dwarf variety of wheat that ushered in the green revolution.

Background -

Humans, like many other animals, used to survive on food that was hunted. Later they discovered and mastered farming, which is regarded as the single most important innovation in the history of mankind. This allowed people to have food excesses that could be stored for a longer duration unlike meat. In the last ten millennia world population has doubled ten times. Most of the calories that made this increase possible have come from three plants: maize, rice and wheat. The oldest, most widespread and until recently biggest of the three crops is wheat. To a first approximation wheat is the staple food of mankind, and its history is that of humanity.

As the graph of population was growing at an exponential rate innovations in wheat farming were inevitable. Initially more land was sowed for increasing production. Later mechanized farming through tractors improved efficiency. Then introduction of fertilizers, insecticides and pesticides increased the yield. But even after all this the problems persisted in the middle of the 20th century where developing world was suffering from acute food shortage. Suddenly everybody started believing in the words of Thomas Malthus, an eighteenth century British economist, who had predicted that mankind would suffer from large scale starvation because of population explosion. The situation was grave and solutions were required.

Story -

The year was 1944 and the World War 2 was coming to an end. Norman Borlaug, whose ancestors had come to America from Norway, had till then worked for DuPont was invited by the Rockefeller foundation and the Mexican government to head Cooperative Wheat Research and Production Program in Mexico. Mexico was suffering from severe food shortage and was heavily dependent on external supply. He left his pregnant wife, Margeret and 14 month old daughter, Jennie to help the cause of humanity.
He worked for 16 hours a day, 7 days a week for almost 20 years in field experiments to cross breeding different varieties of wheat and painstakingly test them for improvements. He and his team came up with varieties that were not only adapted to new environments but also disease resistant.

Another big break had come with a phenomenon called dwarfing. Wheat stalks used to grow very tall and the seed head became larger due to nitrogen fertilizer used by Borlaug in poor soil. Taller wheat grasses tend to collapse under the weight of the extra grains and got damaged—a trait called lodging. To avoid this Norman again cross-bread this with Norin-10, a Japanese dwarf wheat variety. In 1964, Lerma rojo, a complex crossbread, semi-dwarf, adaptable and disease resistant variety of wheat was born.

All these efforts lead to bumper wheat production in Mexico. In the 20 years of Borlaug's arrival, Mexico increased its wheat production 6 times and from a net importer it became a net exporter of wheat.

India was suffering from recurring famines and was dependent on US to supply red wheat to fill its 20% deficit in wheat production. During the early 60s, M S Swaminathan, was carrying out field research on Mexican dwarf wheat variety. Swaminathan was already known all over the world for his research on potato and wheat but still had to fight his way through the Indian Bureaucracy to get Norman Borlaug to visit India. After years of persuasion Norman came to India in 1963 and initial results were fruitful. They worked on a war footing with a mandate to relieve mankind from starvation. They had road shows all over the country in general and Punjab and Haryana in particular.

But in India, we don’t make things happen, accidents happen and we are at the right place at the right time. During 1965, war broke out between India and Pakistan. As it happened, the war proved a godsend, because the state grain monopolies lost their power to block the spread of Borlaug’s wheat. Eager farmers took it up with astonishing results. By 1974, India’s wheat production had tripled and India was self-sufficient in food; it has never faced a famine since. The Malthusian catastrophe, once again was avoided.

In 1970 Norman Borlaug was awarded the Nobel Peace Prize for firing the first shot in what came to be called the “green revolution”. M S Swaminathan was named as one of the 20 list of most influential Asian people of the 20th century by Time Magazine.

Conclusion –

Late 60s and early 70s marked an inflection point in Indian history. It taught the whole country that problems, however grave they might be, can be conquered. Today, India is a country on the move, with scorching growth rate and young demographics to sustain it for several decades. Wonder how much credit should go to two men who challenged the status quo and rose above all to save a billion lives.