



Araçatuba, 2024.

A MINI MEMOIR

From the interior of São Paulo to the world. Unafraid.

From Araçatuba to Piracicaba, from Piracicaba to Ithaca, from Ithaca to Texas. Luis Orlando Tedeschi on what it cost, what he gained, and why he still plays chess on a 1980s computer.

BY **LUIS ORLANDO TEDESCHI**

TWO BOOKS A WEEK

I was born in Araçatuba, in the interior of São Paulo state, Brazil, in 1969. The municipal library let you take home two books a week. That was not enough for me, so I read the others right there, sitting between the shelves. I think that is where I learned the one thing I still use every day: curiosity does not respect the limit someone wrote on the door.

That childhood had a bit of everything. Judo, from 1976 to 1986, which taught me control, discipline and respect. Classical guitar, which I started studying in middle school and gave up in my first year of high school. Chess, which I never gave up. Mathematics, with my teacher Zé Luiz and the game

of Nim. And Carl Sagan and *2001: A Space Odyssey*, which left me looking up for the rest of my life.

And computers. The first was a CP 300. Then, in 1982, a CP 500, the one I loved most and of which I do not have a single photograph. I did not know it yet, but a boy programming a Brazilian cassette-tape computer is training to become a modeler.



A Prológica CP 400 Color.

PIRACICABA: AN AGRONOMIC ENGINEER AT THE BORDER



ESALQ, Piracicaba.

I entered ESALQ, the agricultural college of the University of São Paulo, in 1987 and graduated in Agronomy Engineering in 1991. Not an animal scientist: an agronomic engineer. I make a point of saying it, because almost everyone assumes I came from animal nutrition. I came from soil and plants. It was also in Piracicaba, as an intern at CIAGRI, the college's computing center, that I met my wife. She was an intern there too.

For my master's in Animal Science and Pastures, with Professor Celso Boin, I studied the growth curves of Guzerá cattle and their crosses on pasture. That is where the question appeared that I never let go of: why do two identical steers, from the same pen, eating the same ration, fatten differently? The table said they should be the same. They were not. The table described the average of a population, and I wanted to understand the individual.

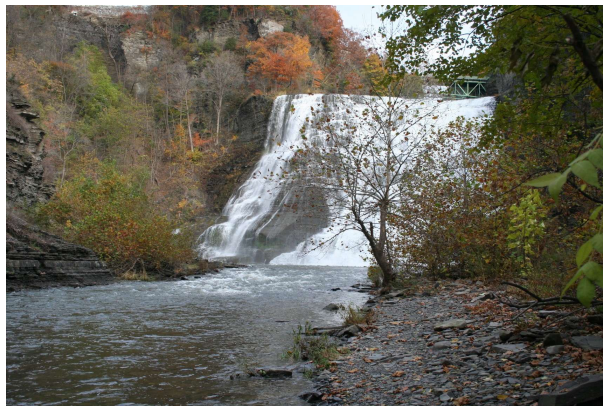
In 1994, Professor Danny Fox, of Cornell University, came to ESALQ to give a talk on the CNCPS, the cattle nutrition model his group was building. It was Professor Celso Boin who introduced me to him. We talked, and he invited me to come to Cornell. I still have the recordings of those talks. On tape.

"Nobody gets invited for writing a pretty letter. Someone opens the door, you are already doing the work, and someone notices."

After the master's came a year almost nobody knows about: a FAPESP fellowship, with Professor Celso Boin, in which I built, in a spreadsheet, a system of nutrient requirements and diet formulation based on the CNCPS. When I arrived at

Cornell, I did not go to learn modeling from scratch. I went to the place where what I was already doing had been invented.

ITHACA: EIGHT YEARS, THREE OF THEM WITHOUT A GUARANTEE



Ithaca Falls, New York.

In 1997 I moved to Ithaca, New York. A PhD in Animal Science with Professor Danny Fox, defended in 2001; then a postdoc, and then three years as a research associate, by then a member of the Cornell faculty, with my name on the door. Eight years in all.



With Danny Fox, 2013.

I like to undo the idea that this was a leap. In a FAPESP report from 1997, written while I was still in Piracicaba, there was already a paper in preparation signed with Fox. The bridge existed before the move. That is how these things really happen: nobody gets invited for writing a pretty letter. Someone opens the door, you are already doing the work, and someone notices.

Nobody puts the part that hurts on a CV, so I will put it here. The language: writing science in English is not speaking English, and my first manuscript came back covered in red. The distance: family, friends, weddings, funerals. That bill is not paid once; it is a monthly installment, for decades. And the time: eight years between arriving in Ithaca and holding a permanent position, three of them on a contract that could simply not be renewed.

I had many hard days in Ithaca, and out of them came a saying I still repeat. Things get hard, sometimes very hard,

and there are days when we feel tired and discouraged. It is OK to give up. For five minutes. Let the tiredness come, feel the discouragement. Then go back to work.



Ithaca, New York.

"It is OK to give up. For five minutes."

But I gained things I did not know I was buying. Working beside people at the highest level of a field permanently changes what you consider "good enough". My lab-bench colleagues of 1998 became today's editors, reviewers and co-authors. And I joined a group that built models, and left knowing how to build them, not just use them.

That is not learned by reading; content is in books, and a good book reaches anywhere. It is learned by working beside people like Professor Van Soest. And networks are not built at conferences, trading business cards. They accumulate, over



Research associate, Cornell: my name on the door.

decades, with people who worked next to you when nobody was anybody yet.

My first first-author paper in the *Journal of Animal Science* came out in 2000, on ruminal nitrogen.

TEXAS: THE SNOW FOUND ME

In August 2005 we moved to College Station, Texas, where I joined Texas A&M as an assistant professor. Associate in 2010, full professor in 2015. I left Ithaca convinced I had left snow behind forever. In February 2021, it found me, and plenty of it. Other winters have brought snow and freezing rain too. Between the temperate and the subtropical, anything is possible: all four seasons in a single day. It is a good meta-

phor for a career: you change places, but the problems that are yours come with you.



Texas, February 2021.

My work fits in one sentence: give each animal what it needs, no more and no less, and be able to predict it before feeding it. That became software. The websites for our models have had more than three hundred thousand visits, and the countries that use them most are Australia, Brazil, the United States and Canada. A model published in a paper is an argument. A model someone downloads and uses on a farm is a tool. I have spent my career trying to turn arguments into tools.

The "before" is the hard part. After feeding, anyone can measure. Predicting takes knowing what the feed really supplies, not what the table says; what the animal really needs, which changes with size, body composition and environment; and a mathematical model that does the arithmetic honestly about its own uncertainty. And excess is an error too. Over-feeding is not generosity: it is nitrogen in the groundwater, methane in the atmosphere and money on the ground. Precision has always been an economic agenda and an environmental agenda at the same time.

"A model published in a paper is an argument. A model someone downloads and uses on a farm is a tool."

And tools travel on their own. There have been more than two hundred scientific activities in twenty countries, one hundred and forty of them by invitation. I never asked to speak anywhere.

In Sardinia, a collaboration with Professor Antonello Canas, of the University of Sassari, began in 2005 and continues today. Out of it came the SRNS, the small ruminant model behind the 2007 NRC. A long collaboration is not sustained by projects alone. It is sustained by friendship, by visits, by bringing the family along, and by a great deal of good food.



With Antonello Cannas, on our porch, College Station, 2016.



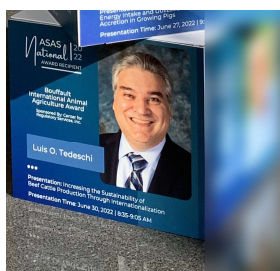
With my wife and our daughter Nicole, Sassari, 2022.

In 2016, the conversation was on the porch of our house in College Station. In 2022, in Sardinia, with my wife and Nicole along, it went on at a wine tasting in Sassari.

RECOGNITION COMES LATE

My first award came in 2011, twenty years after graduation and six years after I became a professor. Between 1991 and 2011 I was not doing anything wrong; I was doing exactly what I do today, just without an audience.

When recognition comes, it comes in a slightly comic way: in 2022, at the annual meeting of the American Society of Animal Science in Oklahoma City, my face appeared printed on a cardboard cube in the lobby of the convention center. It was the Bouffault International Animal Agriculture Award. It rewarded exactly the travel, the collaborations and the Brazilian students of twenty years, none of which I ever did with an award in mind.



Bouffault Award, ASAS-CSAS, Oklahoma City, 2022.

Today there are more than three hundred and fifty peer-reviewed papers. In the graph, the first years are little bars of one or two papers. Nobody looking at them would have guessed where the curve would go. More than half of what I have published came out more than twenty-four years after I graduated. Scientific productivity is not speed; it is accumulated infrastructure: students, collaborators, tools. My head did not get better with time. What changed was that, at some point, there were already students, collaborators on four continents and tools ready to be reused. The investment that looks slowest in the first ten years, training people, building tools, keeping collaborations alive, is exactly what decides the next twenty.

CLEAR THE MIND AND FEED THE EGO

I am a normal human being, and I think it matters to say so. Hobbies that take us away from our daily chores clear the mind and, let us be honest, feed the ego a little.



Chess on my CP 400.

Chess goes on: the Sicilian Defense, the Ruy Lopez, and sometimes against a Prológica CP 400 Color that I keep in working order. Thinking several moves ahead is modeling with wooden pieces. I collect old computers: the CP 400, a Gradiente Expert, and today a Raspberry Pi. I have played tennis since 1989. I still read a lot. I have a passion for stingless bees. And I photograph everything, with more cameras than I should own.



The home office, 2017.



The 2024 eclipse, with Nicole.

Carl Sagan's cosmos goes on too. On the floor of my home office, in a pile of books, are *Cosmos*, *Pale Blue Dot* and *Shadows of Forgotten Ancestors*. The hobby and the work live in the same room. In 2024 we watched the eclipse with our daughter, Nicole.

None of these things is on my CV. All of them are in me.

SIX RULES, AND ONE CERTAINTY

When people ask me for advice, I have six rules, and none of them is original; all of them cost me dearly. Find your question, not your topic: topics change with the funding call, a question sustains thirty years. The training that looks wrong is your asset, as long as you do not hide it; an agronomic engineer in animal nutrition was a handicap for two years and an advantage for thirty. Go where the question is: mobility is not disloyalty, and you can always come back. Build tools, not just papers. Do the boring foundation work, because nobody wants to do it, and that is exactly why it pays. And learn to wait: science pays late, and in compound interest, but only to those who stay.

I do not have a seventh rule about work-life balance, because that one I did not get right. But I have one certainty: time with family is never time lost. A career will demand trips, deadlines and nights, and it will keep demanding them. It is the family that does not wait. Nicole's graduation, in 2020; Nicole receiving her Texas A&M ring, in 2023. No paper, no award, is worth more than being there on those days.

ALWAYS COMING BACK

For many years I thought I had left Brazil in 1997. Seen from a distance, I clearly had not. I coordinated a Brazil–United States consortium funded by CAPES and FIPSE that brought nineteen Brazilian undergraduates to the United States. Since 2011, every summer, I take American students the other way, to learn about ruminant production in Brazil. Ten of my seventeen visiting scientists have been Brazilian. That was not a plan. It was gravity. Pirassununga, Viçosa, Botucatu: over the years, Brazilian institutions have welcomed me and my students the same way this Program once welcomed me.



Toucan, Araçatuba, 2023.

And when I go back home, to Araçatuba, the same neighbors welcome me: toucans in the yard, burrowing owls on the lawn, buff-necked ibises on the chimney. That is the interior I carry with me.

In November 2026, the Graduate Program in Animal Science and Pastures at ESALQ

turns sixty. What a program like that does, when it works, is bet on people who have not proved anything yet: an agronomic engineer who wanted to work in animal nutrition without quite knowing what that meant, for instance. I was one of those bets.

People bet too. In 2006, at the Cornell Nutrition Conference, I ended my talk by thanking Danny Fox with a quote attributed to G. K. Chesterton. I repeat it here, because it is still true:

“There is a great man who makes every man feel small. But the real great man is the man who makes every man feel great.”

G. K. CHESTERTON

So when I talk to students, I always end the same way. I am from the interior of São Paulo, from Araçatuba. There is no right place that good science has to come from, and nobody needs permission to go. The world is big, but not that big, and it belongs to no one. Go. Unafraid. And, if you can, come back and tell the story. ■

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