



WILL AI SOLVE SMALL-HOLD FARMERS' PERSISTENT POVERTY AND HUNGER?

"How much technology affects the essence can be learned from the fact that the Bible was written thousands of years ago, without computers and AI."

In the 60s and the 70s of the 20th century, the irrigation of my Kibbutz orchards was done using high (4-6 m) sprinklers, irrigating from above the tree canopy.

To reduce the water evaporation, we would irrigate during the evenings and nights.

With no remote control in those years, it was necessary to physically reach each of the many plots spread around the Kibbutz, set the water flow meter to the desired amount, and then open the main faucet.

Several evenings per week, my father would ask me to join him in manually opening the irrigation in our orchards.

I was looking forward to it, as it meant doing the dream of every kindergarten boy on earth; getting on the tractor, either the blue Dexta or the red Massey Ferguson 135, and driving on the bumpy, dusty dirt roads to the plantations.

It was far better than a roller coaster, jumping on the wooden seat mounted behind the driver's seat, holding tight to it, trying not to fall.

When arriving at the plot, my father would set the water meter, open the faucet, and then, when the sprinklers were working and getting us wet, we would drive around the plot to ensure all units were adequately working.

Those were the 60s and the early 70s, and there was no better satisfaction for a farm boy than the mix of tractors, dirt, and a “physical” manner of irrigation, where at the end of the day, you have a good feeling of completing a mission with blessed exhausting tiredness.

Most farmers, even today, don't use irrigation. *"World Bank estimates that **rain-fed** agriculture is most significant in Sub-Saharan Africa where it accounts for about **96 percent** of the cropland."* [source](#).

GAME-CHANGING AGROTECH

Then when the 80s came, my Kibbutz switched the irrigation systems from sprinklers to the novel Israeli-invented drip irrigation.

Shortly after, we had automated computer systems to open and close the irrigation as many times a day as we wanted. There was no more need to reach those plots for irrigation.

In the 90s, our orchards were connected by communication lines to a computer in the office.

Now we knew the status of every plot every minute of the day and could program the irrigation computers from the comfort of the office.

Furthermore, from the 80s, innovation became the name of the game in agriculture, where every Israeli farmer tries to be more innovative and advanced than the others.

My Kibbutz orchard team was implementing many agrotech innovations, and over the years, we won several competitions in different technological fields, including in irrigation.

You may conclude that from the 80s, the state of the Israeli agro sector continuously improved.

Surprisingly, it didn't!

In fact, looking back, the Golden Days of the Israeli agro sector were the 60s and 70s and ended in the 80s.

Why do I say this? How can I be sure?

Agriculture is a way of life, but it is a business as well.

I measure the agro sector success based on individual **farmers' business success**.

The income per hectare of my Kibbutz orchards came to a standstill in the 90s.

While until the 80s, Israeli farmers could make a good living from less than 10 hectares, in 2023, with all the innovation, the income/profit generated from the same land can't support them anymore.

In 2023 farmers need 5 to 10 times greater cultivated area to support the same life level they enjoyed before.

Technologies are used to improve efficiency and drive production costs down, BUT the technologies are expensive.

100 YEARS - TWENTY GROUND BREAKING TECHNOLOGIES			
TECHNOLOGY	YEAR INTRODUCED	TECHNOLOGY	YEAR INTRODUCED
Tractor	1906	Precision Agriculture	1980
Synthetic Fertilizers	1909	No-Till Farming	1980
Crop Rotation	1910	GPS Technology	1990
Hybrid Seeds	1920	Biotechnology	1990s
Pesticides	1939	Automated Dairy Systems	1990s
Mechanical Harvesting	1950	Commercial Organic Farming	1990s
Green Revolution	1960s-1970s	Agricultural Drones	2010s
Drip Irrigation	1965	Vertical Farming	2010s
Controlled-Release Fertilizers	1970s	Blockchain in Agriculture	2010s
Genetic Engineering	1973	Artificial Intelligence	2010s

The years mentioned are approximate and represent the general introduction or significant advancements of these technologies in agriculture.

AgroTech companies make more sophisticated technologies that serve their best-paying customers and a growing smaller portion of global farmers.

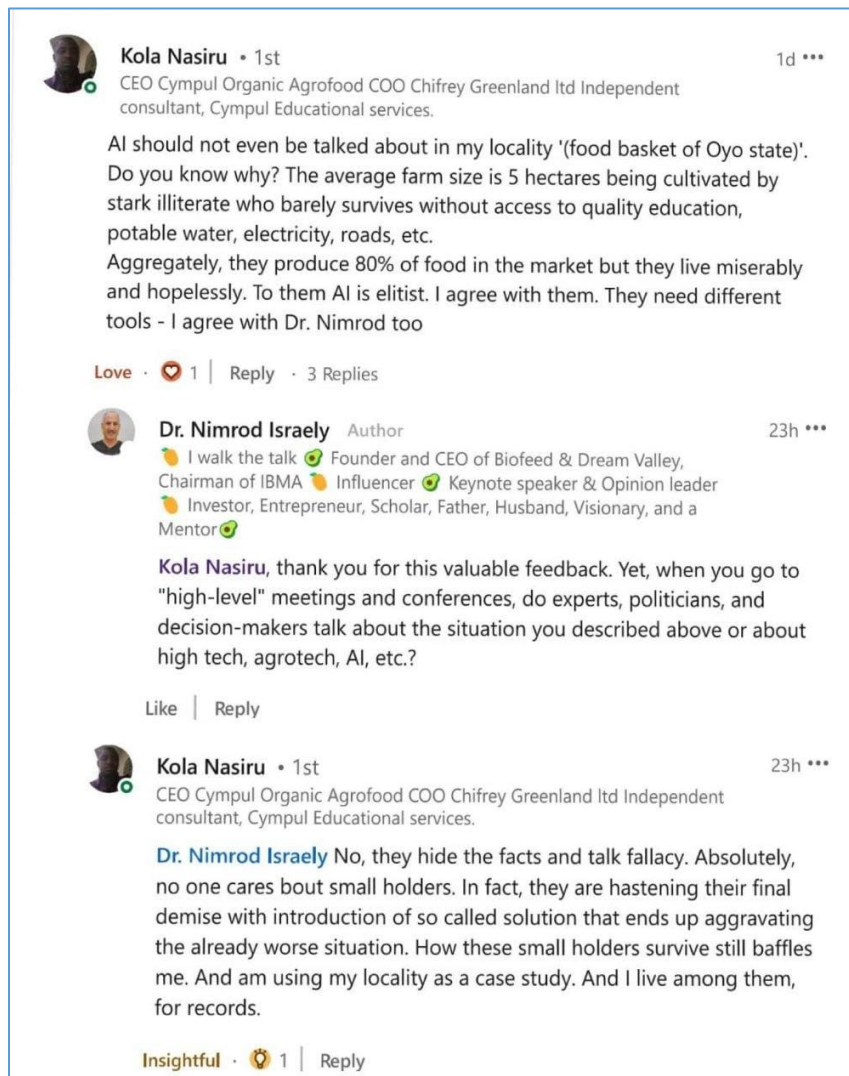
97% of global farmers are small-hold non-professional farmers. Look at the list of the breaking-through innovations in the table and ask yourself, “*Did I see a significant drop in poverty following the introduction of any of those innovations?*”

Is your answer positive or negative?

If positive, please share information to support this. I would love to educate myself.

If your answer is negative, ask yourself, “*Why is poverty not reduced with technological advancements?*”

Another interesting question would be, “*What was unique about the Israeli agro sector until the 80s that enabled it to reach its peak before the technological age?*”



The screenshot shows a LinkedIn discussion thread. At the top, a user named Kola Nasiru, CEO of Cympul Organic Agrofood COO Chifrey Greenland Ltd, posts a comment. The comment discusses the challenges of small-scale farming in Oyo state, Nigeria, where farmers are often illiterate and lack access to basic infrastructure like electricity and roads. They produce 80% of the food in the market but live in poverty. Kola Nasiru asks for feedback on whether AI is elitist and if different tools are needed. Below this, Dr. Nimrod Israely, founder and CEO of Biofeed & Dream Valley, replies. He thanks Kola Nasiru and asks if experts and decision-makers at high-level meetings talk about the situation described. Kola Nasiru replies that they often hide facts and talk fallacy, arguing that the introduction of so-called solutions is hastening the demise of small holders and that the situation is baffling. The thread includes engagement metrics like 'Love', 'Replies', and 'Insightful'.

Kola Nasiru • 1st 1d ***
CEO Cympul Organic Agrofood COO Chifrey Greenland Ltd Independent consultant, Cympul Educational services.

AI should not even be talked about in my locality '(food basket of Oyo state)'. Do you know why? The average farm size is 5 hectares being cultivated by stark illiterate who barely survives without access to quality education, potable water, electricity, roads, etc. Aggregately, they produce 80% of food in the market but they live miserably and hopelessly. To them AI is elitist. I agree with them. They need different tools - I agree with Dr. Nimrod too

Love · ❤️ 1 | Reply · 3 Replies

Dr. Nimrod Israely Author 23h ***
🗣️ I walk the talk 🌱 Founder and CEO of Biofeed & Dream Valley, Chairman of IBMA 📢 Influencer 🎤 Keynote speaker & Opinion leader 🧠 Investor, Entrepreneur, Scholar, Father, Husband, Visionary, and a Mentor 🌟

Kola Nasiru, thank you for this valuable feedback. Yet, when you go to "high-level" meetings and conferences, do experts, politicians, and decision-makers talk about the situation you described above or about high tech, agrotech, AI, etc.?

Like | Reply

Kola Nasiru • 1st 23h ***
CEO Cympul Organic Agrofood COO Chifrey Greenland Ltd Independent consultant, Cympul Educational services.

Dr. Nimrod Israely No, they hide the facts and talk fallacy. Absolutely, no one cares bout small holders. In fact, they are hastening their final demise with introduction of so called solution that ends up aggravating the already worse situation. How these small holders survive still baffles me. And am using my locality as a case study. And I live among them, for records.

Insightful · 💡 1 | Reply

From LinkedIn.

THE PACKAGE

Technologies are tools to do things more efficiently. The Kibbutz farmers incorporated more advanced technologies after reaching good professional results and a high income per hectare.

As presented in the irrigation story, the more advanced dripping irrigation and computer systems that control those helped to save the Kibbutz farmers' expenses, i.e., labor and water. However, we have not experienced any jump in profitability.

Furthermore, the advanced technologies often had significant downsides.

For example -

- **The use of pesticides**; created biological disruption and human/environmental health issues.
- **The use of fertilizers** poisoned the soil and the groundwater.
- **The use of dripping irrigation** increased the problems of nematodes.

For too many years, we seem to think it is enough to provide farmers with technologies for better results.

When I say "results," I am not talking about 'more yield,' though it is essential.

'More yield' *per se* is an unsustainable feature if the business is losing.

The desired results would be; a profitable agro system where farmers' livelihoods are improved.

Today's results are degrading farmers' profitability per hectare and livelihoods. This is not sustainable; this must be stopped.

A sustainable, thriving agro sector exists when the three pillars of ***The agricultural Package*** are in harmony and compatible:

- **Ecosystem (Coherent value network)**
- **Novel Business Model**
- **Enabling technology**

Artificial Intelligence (AI) is an advanced technology that can't help small-hold farmers if we don't develop the two other parts of the Package to match it.

Hence, we can expect AI to contribute to advanced professional farmers in developing economies but little to none to non-professional small-hold farmers in developing economies.

SYSTEM HARMONIZATION REQUIRES PROPORTIONS OF ITS ELEMENTS



For best performance, a car has a certain proportion between its parts. Similarly, balancing and harmony between The Agricultural Package's elements is mandatory. Like a vehicle with a big and powerful engine but punctured wheels and a broken chassis will not go far, a farmer with state-of-the-art technologies but an outdated or incompatible ecosystem and business model will remain impoverished.

What should we do to use the power of AI to benefit small-hold farmers?

We should focus on improving the Ecosystem and Business Models pillars, and then it will be "natural" to use more advanced technologies, including AI.

Focus on improving The Agricultural Package as a single unit, not as separated parts.

Remember, you can provide people with computers for free and ask them to write books or computer codes. Still, it will be worthless if there is no electricity to power those computers, the people can't read, and there is no market to buy the books or codes if miraculously they write some.

Do you agree? Even if not, message me.

TAKEAWAY MESSAGE

- **TECHNOLOGIES**, including AI, are "tools," not magic. They can't turn a failed agro sector into a successful one.
- **TECHNOLOGY** optimizes performance, provided that **the other parts** of the system allow it.
- **INTRODUCING ADVANCED** technologies does not compensate for the lack of proper ecosystems and business models.

- **THE AGRICULTURAL PACKAGE (TAP)** is the system that determines the agrobusiness results.
- **THE THREE PILLARS** of the TAP must be balanced for optimal business results.

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**** Mental and Economic Freedom Are Interconnected ****

See you soon,

Nimrod



Dr. Nimrod Israely is the CEO and Founder of [Dream Valley](#) and [Biofeed](#) companies and the Chairman and Co-founder of the [IBMA conference](#). +972-54-2523425 (WhatsApp), or [email nisraely@biofeed.co.il](mailto:nisraely@biofeed.co.il)

P.S.

If you missed it, here is a link to last week's blog, [Can Solving Your Personal Problem Impact Millions? From One To Many, A Journey Into Scalable Innovation.](#)

Link to [recent columns](#).

P.P.S.

[Dream Valley](#) is a field-proven disruptive business model based on the successful Israeli model. Contact me if you view yourself as a potential investor, business partner, or client. [Email](#), +972-542523425 (WhatsApp/Text)

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***Change Begins With A Decision
That The Existing Reality Is A Choice
and Not A Decree of Fate***