

# FUTURE FARMING



Grow-tec provides solutions and technology for grow-rooms. -  
Photos: Grow-tec

## **New crops and higher yields in indoor vertical farming**

**Israeli startup Grow-tec combines new technology with plant science to add new crops to indoor vertical farming. The company**

**mainly focuses on tomatoes and cucumbers, but uses the walls of grow-rooms also for intercropping leafy greens.**

This month Future Farming pays special attention to indoor farming (<https://www.futurefarming.com/tag/indoor-farming/>). developments.

Grow-tec is not a grower itself. The company provides solutions and technology for grow-rooms. “We don’t sell tomatoes. We sell technology”, CEO and Founder Shlomy Raziel says. The setup of Grow-tec includes LED lighting, precision fertilisation, the media in which the crops grow, controlled irrigation, and sophisticated automation.

Coupled with seed selection and genetic optimisation, Grow-tec’s technology solutions lead to extremely high yields and a drastic reduction in water consumption compared to conventional methods. “There are many vertical farming companies around the world”, Mr Raziel says. “Part of our unique solution is that – contrary to the other companies that do mostly leafy greens – we focus on fruit and vegetables, specifically tomatoes and cucumbers. These are high value crops.”





*We have also been able to achieve extremely high yields, ten times higher than anything else that currently exists*

“We have also been able to achieve extremely high yields, ten times higher than anything else that currently exists, in high-tech greenhouses for example. We have been able to reach about 500 kilos of yield per square metre.”

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CEO and Founder Shlomy Raziel: “Contrary to the other companies that do mostly leafy greens, we focus on fruit and vegetables, specifically tomatoes and cucumbers. These are high value crops.”

## **A complete setup of grow-rooms**

Grow-tec combines the cultivation of tomatoes and cucumbers with intercropping leafy greens on the walls of its grow-rooms. “We use the energy of

the lights and climate control – as well as the real estate that has already been paid for – for lettuce on the walls”, Mr Raziel explains.

“The lettuce grows for free, so to speak. The high yield of tomatoes and cucumbers, combined with the very cheap lettuce, adds up to a viable business case. The holy grail of vertical farming is achieving an economically viable company. You see that a lot of vertical farming companies are struggling.”

“ *By the time we leave, a company will have an up-and-running facility*

Grow-tec cultivates crops, using horizontal trellising. Cucumbers and tomatoes grow denser and yield much more. “Often, when you see tomatoes in greenhouses, you see that they are growing vertically. We grow them horizontally, but we stack them up on five or six floors. No part of the stem is without vegetables, so every inch of the plant yields something. And the harvest is easier.”

The company will take care of the complete setup of grow-rooms. “Companies will need a building to house our technology, but everything in the building, we can deliver for growers. We also provide training and a protocol, so basically a sort of cookbook on what you should do, to achieve the same yields as we have achieved. By the time we leave, a company will have an up-and-running facility.”

## Growing locally and independently



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Grow-tec currently is focusing on markets, where it is able to find early adopters of its technology, taking into consideration certain challenges in vertical indoor farming. “The price of energy has gone up for a host of

reasons. And that is also why we currently do not focus on places like Europe, with exception of the most northern part of the continent.”

“Our technology offers a solution for regions that are facing certain challenges in agriculture, and where energy is cheaper or produce is expensive”, Mr Raziel points out. “Where it is more difficult to grow crops, or where there is a willingness to pay more for premium products. Some countries don’t want to be entirely dependent on imports, and our solution enables them to grow locally and independently of anything else.”

Mr Raziel says that the price of the crops that Grow-tec grows, are within existing price-ranges. “The price is in the top end of these ranges, but growers will get premium produce year-round, without pesticides. Currently, our focus is on the Persian Gulf area, for example the UAE, Qatar, Bahrain, Oman and Saudi Arabia – and Singapore.

But the technology is also interesting for places like Japan or Scandinavia, where it is hard to grow crops year-round.”

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Grow-tec says it has been able to achieve extremely high yields, ten times higher than anything else that currently exists, high-tech greenhouses for example.

## **The future of the industry**

Grow-tec expects that indoor vertical farming will eventually develop into a more affordable way of growing fruit and vegetables. Mr Raziel says that the products of Tesla were limited and quite expensive a decade ago. “But now this technology has improved, and you can buy a Tesla at an affordable price. Indoor Vertical Farming will experience the same. How long this will take, I don’t know, but it already makes sense today in certain regions. So, I am optimistic about the future of this industry.”

“ *Lighting and climate control are the main cost components of indoor vertical farming*”

“We are experiencing a slow rise towards a profitable productivity in vertical indoor farming at the moment. It won't happen overnight, it will take time. Only recently, I read that indoor vertical farming company AeroFarms has emerged from a Chapter 11 bankruptcy, after filing for it in June of this year. Obviously, they managed to make their operation more efficient in various ways.”

Lighting and climate control are the main cost components of indoor vertical farming, Mr Raziel says. “They consume most energy. But we see that there are incremental improvements in the energy efficiency of LED lighting, as well as climate control systems. There will be a significant drop in the consumption of energy of these components.”

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## Return on investment

“On the other end, we are also working intensely on the genetics of the crops. Finding the right varieties that are suitable for growing indoors, and that maybe need less energy. That is an ongoing process, and will eventually lead to more efficiency and more affordable produce.”

Mr Raziel says that its technology can offer a return on investment within six to eight years on commercial facilities in some regions. “But this timeline may vary depending on geographical energy costs and the produce price. It may be very different from one city to another. What are the inputs, such as the price of electricity, local produce or labour? We study – on a case-by-case basis – the various markets we are about to enter, to ensure that the return on investment makes sense. And we have a lot of interest in our technology currently.”

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