



Lessons from Japan: What the Western Indoor Ag Industry Can Learn from the East

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Editor's Note: Pieter De Smedt is the US country manager for Urban Crops, a global indoor farming group building fully robotized vertical plant factories. Urban Crops recently opened its regional headquarters in Miami, Florida, and is in the process of hiring new sales agents for the North American region. If you are interested in applying, email Pieter [here](#).

It is well known in indoor agriculture circles that Japan has more experience with indoor farming than the US and Europe, and its plant factories are more advanced. Here De Smedt offers his key takeaways from an event bringing the industry from both sides of the world together.

The **East Meets West: Joining Forces in Ag Tech & Controlled Environment Ag** event took place in Salinas, California a couple of weeks ago. It offered a day of insightful presentations by a number of

Japanese and US-based companies and organizations. The main goal was the exchange of information on the current state and future direction of the indoor agriculture industry in each geography. Equally insightful were the different networking opportunities in between sessions – it is not every day one gets the chance to exchange thoughts with people in your industry from the other side of the globe.

Here are my four key takeaways from the event:

1. Data trumps dreams

When looking back at the overall event and the presentations made by the Japanese companies and organizations, the most striking comparison between Japanese indoor agriculture operations and their US counterparts was their use of data. Japan's indoor ag practitioners are much more data driven than the typically more visionary and – let us be honest – dreamy, story-telling tone of their US peers.

This focus on data applies at the level of the plant factories themselves, i.e. the technical, biological, and financial efficiency of any given plant factory is analyzed by looking at big data and crunching the relevant numbers. Progress is achieved through decisions made as a result of this analysis. The cloud-based program SabaiX by PlantX exemplifies this (<http://www.plantx.co.jp/index-eng.html>) with increased yields as a result. The same applies for Dr. Toyoki Kozai of Chiba University in Japan, known as the “Father of the Modern Plant Factory” who presented his new book “LED Lighting for Urban Agriculture” at the event.

There was a little less excitement about the data presented on the performance of Japanese plant factories: 42% of the indoor plant factories were in the red, 33% break-even, and only 25% were generating some level of profit. The reasons for these sobering performance figures range from excessive capital expenditure and operating expenditure, inefficient production processes, a poorly constructed business plan that fails to capture enough margin by selling to the wrong parties, and so on.

We can assume that similar figures and the underlying drivers would emerge in the US market as well. This is typical of any innovative industry that is drawing in some over excited capital. In the mid- to long-term, the suppliers and growers that will survive will be those who can set up the right infrastructure combined with a correct production process integrated in an efficient sales plan. This has also become apparent at Urban Crops, where we assist our clients in doing just that by looking at their requirements and delivering a design feasibility study that pairs the best and most cost-effective system while giving a clear overview of the required investment and operating costs.

2. Automation will have an increasing role to play

The Japanese data presented by Factory 808 (a Japanese vertical farm) demonstrated that labor accounted for one-third of their operating costs. The total cost is even higher when indirect employee-related costs are taken into account such as training, disinfecting chambers, food safety issues, real estate requirements, and so on. This confirmed Urban Crops' thesis that for larger scale production facilities, investing in the robotization of your plant factory has a variety of benefits to offer.

3. The large outdoor farming businesses are rearing their heads

Although they have no doubt been following the developments close-up, this was one of the first times that I saw a proportionately large number of open field farming companies attend an event with an exclusively indoor ag focus. Rocket Farms, Del Cabo, Church Brothers, and others were present in the crowd. On the one hand, this can be explained by the location of the event in the heart of the salad bowl, Salinas, California. Nevertheless, it seemed to imply that these companies are looking to diversify their production methods and – perhaps even more importantly – locations. Could we start to see California-based farming groups setting up indoor grow facilities near some of their larger markets?

4. Looking beyond food production

A lot of the incumbents in the indoor ag market are currently focused on leafy greens production and other food. That's because, to a large extent, the marketability of indoor ag and relatively high prices offered for local food is driving the industry.

Valuable as that may be – considering the early stage of the industry – Dr. Don Wilkerson reminded us that there are other high value, per pound crops that we ought to look at. His company iBio CMO produces a range of crops for the nutraceutical sector. Although somewhat less romantic than urban local food production, the impact on sustainability as well as the economics is equally, if not even more, impressive.

We have noticed this with our customers as well. Urban Crops has a selection of growth recipes for 160 plant varieties. We continue to expand this selection based on our own assessment of the market as well as requests from our customers to grow new kinds in their systems. Engineering and biological flexibility is, therefore, key.

The East Meets West: Joining Forces in Ag Tech & Controlled Environment Ag event demonstrated that we must continue to go beyond our own borders and stay in tune with developments in all parts of the world if we want to stay relevant.

A global industry requires a global understanding.

