



Vertical Farming, four marketplaces (already) ready in Italy

Vertical farms represent a revolutionary solution for primary food production. To be competitive with traditional farming, it does not even need to meet particular economies of scale in its adoption. There are, in fact, already at least three ready markets. Let's discover them while we wait to dig deep into the first day of AquaFarm in Pordenone Fiere, on 26th and 27th January.

Milan/Pordenone, 23rd January 2017. According to Dickson Despommier, the creator of the idea of a vertical farm, who will open the vertical farm session at AquaFarm in three days, 50 buildings, each one 30 storeys high, with half a block as base, all dedicated to vertical farm, would be enough to meet 50% of New York's inhabitant's protein amounts. It will probably take years to reach that point, but vertical farms have a special characteristic, which is part of their appeal: to be convenient, their adoption doesn't have to meet any specific economy of scale. Markets for their products already exist, they are quite large and the traits of vertical farming allow to serve them more efficiently and even to develop aspects thus far impossible.

We have counted at least four markets, just in Italy, worth over a billion all told. Here they briefly are. The first, and the most substantial, is the **IV Range**: raw groceries and vegetables, cut and packaged, ready for use. In Italy, last year, the industry has exceeded 750 million euros' worth, and 3 billion in the first five European countries, in which we are in second place, after Great Britain (VVS Bruxelles data). This branch is the main one to grow in the fruit and vegetable sector (the others are exotic fruits and small fruits), the consumption of which, despite media fashion, is still 15% lower than that of 2000 (CSO data). Most consumption is concentrated in metropolitan areas, and also in "off-season" periods. For ready-to-use products that are eaten raw, the most important quality parameters to monitor are nitrates (derived of an excess in fertiliser) and hygienic quality (cleanliness, pesticide and fungicide residue, extraneous objects). The farming techniques used in vertical farms (so-called "soil-less" techniques, like hydroponics and aeroponics) are ideal to guarantee these parameters are respected, and they also allow unthinkable yield, which, alongside the reduction of water and nutrient use, and the elimination of fungicides and pesticides, and automation, reflect on the cost. Because they are completely independent of the outside environment, vertical farms can even be harvested every six weeks. Nowadays, in Italy less than just less than 100,000 tons of IV Range products are sold each year: how many farms would it take to produce this amount? How flexible is the market, compared to its price? These question will soon be answered...

The second market, **herbs**, has an annual consumption for about 120 million euros. Home farming is not added to this estimate, which is of relevance. Regardless, we import a lot, and not just plants that cannot be farmed in our fields. As an example, saffron, the red gold. We produce 600 kilos of it, at the most, but in bad years we fall to 450 kilos. However, we import about 22.5 tons of it. Vertical farms are perfect to grow crocus flowers. A hydroponic method has been devised, in fact, allowing two harvests a



year, thanks to the plant being isolated from the outside environment. So even risotto alla Milanese and Montalbano's bass fish profit from vertical farming...

Then there are **medicinal and pharmaceutical plants**, those grown to extract active ingredients or complexes used in many, many productions (just think of colourants from plants). To remain on the topic of plants solely for pharmaceutical and herbal use, hydroponics or aeroponics in vertical farms allow for external agent contamination to be reduced to a minimum, beside the increase in yield, as well as plant growth control and useful complex production. Varying the nutrient administration, in quantity and contents, relative weight of active ingredients compared to others can also be influenced, while varieties that grow with difficulty or not at all, as well as "delicate" plants - like marijuana... prescription marijuana - , can be farmed by acting upon irrigation.

The fourth market, just born but potentially in great expansion, is the market for **plants that, if grown in a regulated manner, result free of substances not tolerated by a part of the population**, which has to put up with a restriction of their diet. Supplying nutrients devoid of these un-wanted substances, which are unnecessary for plant growth, they will not be present. A case already in production in Italy is that of tomatoes grown in hydroponics, free of heavy metals, such as nickel. Even nickel-free "pummarola" is fit for vertical farms...

The AquaFarm 2017 conference program is available and constantly updated on the Program section of www.aquafarm.show Web Site. Participation is free. This is the link to the online pre-accreditation. It will however be possible to register during the event.

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