

Comparing different grow systems

Its not an easy choice, but it can be critical in a greenhouse business success. Here we break down 4 systems and compare feature by feature. If energy efficiency and being organic are your priorities than in soil would be optimal. If maximizing profit, with high upfront capital and labour costs then towers might be the way to go. NFT and DWC are somewhere in between.



Variables:	NFT	DWC	Vertical Tower/Barrel	In Soil / ORGANIC living Soil
Pros	Can be built easily with 4" sewer pipe. Is a very light apparatus in comparison.	Can be passive, No root clogging, large thermal mass regulates temps and nutrient,	Highest plant count, walls of green cool temps in the summer	Most versatile, Highest nutrient content for vegetables, low maintenance
Cons	Prone to clogging and causing overflows. Higher nutrient concentrations req.	Heavy, limited in plant varieties (lettuce & other leafy greens)	Can be high maintenance, prone to clogging, high nutrient req, added head height for pumps	Weeding is typically the biggest complaint. Trade cleaning for weeding with hydroponics
Distinguishing Characteristics	Specially designed channels increase yields and capital investment	Plants not affected if a pump stops working	Beautiful walls of plants, very nice height for harvesting etc. excellent for herbs	The most natural and nutrient abundant way to grow. Not always intuitive.
Nutrient Delivery	Water flows through channels with roots dipped into a thin moving film	Plants float on rafts with roots dipped in nutrient rich water	Roots are draped inside and a misting/drip system delivers	Roots and biology work together in the soil to trade for needed nutrients+compost
Oxygen Delivery	Water is oxygenated at the reservoir via waterfall or air pump	Aerial roots don't need oxygen input with specially design rafts	Aerial roots and mist	Light fluffy soil allows plants to breath
Plant count/ Space utilization	~360plants/100ft2(Lettuce/herb)	~225- 336plants/100ft2 (lettuce/herb)	~1200 plants / 100ft2 (lettuce/herb)	Under and overplanting allow for very high plant count with increased management
Energy costs	Pump runs 24/7	Pump is running ideally 24/7 can be less water at lower head height	Higher head height and lots of towers needs specialized pump running 24/7	Lowest energy cost with zero pumps needed
Start up Costs/Cost per plant spot	AMHydro ~\$2500/360 spots 4" pvc pipe ~ \$1000-1500/360spot	Wooden bed w/liner ~\$600/225-336spots (depending on raft selection)	~\$3000-\$10,000/ 1200spots ~\$500-\$1700/200spots	Cheapest option to get started with. Depending on site soil and ammendments may be req
Tolerance to pump failure	Low tolerance	High tolerance	Very low tolerance	Very high tolerance
Disease Control/ Cleanability	Fairly easy to clean. Cleaning in between each crop	Easy to clean, rafts need additional cleaning, water bourne disease is a concern	Some designs are easier to clean than others. Some designs are very time consuming to clean.	No cleaning required, disease is managed through correct irrigation and soil management

