# FLOWER POWER

## *Something new under the sun*

*Modern agriculture is experiencing what we can only call a revolution. New realities are confronting all human beings on a scale that is difficult to comprehend and manage. Agriculture, at the magnitude that it is practiced currently, incurs a significant toll on the earth, from soil erosion and carbon sequestration to excessive emissions and overuse of fertilizers and pesticides. These impacts, collectively, exacerbate the bigger crisis of climate change, pushing us further past a point of no return. The aforementioned revolution is a direct and ambitious response to these cold hard facts, which is the pursuit of sustainable and regenerative agriculture. Innovators from all walks of life who are passionate about growing plants and raising animals have turned the industry on its head to ameliorate and to some degree reverse the effects of past methods. We like to think we are in this group of innovators, trying to change the farming landscape for the better.*

BY TOM PRECHT

My wife Sarah and I have always wanted to create something together that we could call our own. We weren't sure if that was a hobby, a small business, or an intellectual project. Turns out it was all three! We started our farming adventure in 2018, with little more than a backyard and desire to be outdoors with our hands in the dirt.

My mother, Diana Precht, had been a gardener for decades and like most good parents, exposed me to her passions (although it took me a good 30 years to embrace it). She specialized in growing Dahlias, a cut flower species with incredible genetic diversity and stunning beauty. She inspired us to view some tutorial videos via

*Tom Precht frames out the greenhouse structure for their aquaponic flower enterprise in Poolesville, Maryland..*

a popular online course produced by Floret, a brilliant flower farmer based in the Pacific Northwest and avid Dahlia grower. Five minutes in and we were hooked.

We immediately went home, bought seeds, trays, soil, lights, tools, and whatever else we thought we needed and began to flower farm. Let's quickly address a distinction that is important for clarity. Gardening is generally a practice that is for private use only; you grow food or flowers for your own consumption and enjoyment. Whereas farming is generating these products for others to enjoy, and typically with the intent of making an income from that production and sale (although donating is just as valid a farming validation too). Okay back to the story!

We saw some early success, a few thousand dollars from selling our zinnias, cosmos, sunflowers, and other cuts. Then each successive year we saw more revenue, generated more relationships with floral designers and florists, incurred even MORE expenses, and expanded what flowers and foliage we grew. It seemed like this might be an actual career option. Would it ever pay as much as a lawyer, or a technical salesperson would make? Uh, no, not likely. But we were at a point in our lives when meaning and passion held more value than the almighty dollar. So, we set out to start a real-life flower farm and make it our real-life job. And thus, Grateful Gardeners was born.

What about the environment? We care deeply about it, we want to preserve it, we want to restore it. It was a core principle in our business ethos from the beginning. When we came up with our three-word mission: "Local. Sustainable. Collaborative.", we memorialized how important it was going to be in everything we did on the farm.

We dove into organic and sustainable practices, figuring out how we could implement all new methods and technologies related to this type of farming. We read books, talked with other farmers, listened to podcasts, watched YouTube videos and documentaries, took courses, volunteered on other farms, and absorbed every piece of information we could. In the end we took up many popular practices; only using Organic Materials Review Institute listed products, worm tea fertigation, soil amending, reduced plastic usage, cover cropping, no-till, just to name a few. But one approach spoke to us, the art of growing plants in water, or hydroponics.

Upon investigating hydroponics further, we realized there was an even greener alternative to hydroponics, the less well-known aquaponics. Hydroponics has many ecologically friendly ramifications, not the least of which is dramatic reductions in water usage and the complete elimination of soil

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from the growing process, which eradicates erosion. But there are still some downsides to it, namely that it isn't a closed loop system, it requires heavy monitoring and control, and often the system must be purged of the excess nutrients that can build up. Because it's an artificial nutrient addition driving plant growth, balancing that can be difficult. Aquaponics on the other hand recreates a natural symbiotic relationship among three entities: fish, plants, and bacteria.

Have you ever looked at a lake or a pond and wondered, how is it that fish can live in that? Aren't they excreting waste into the water? Wouldn't that be toxic for them? The answer is that certain bacteria convert the nitrogenous waste from fish into a form of fertilizer that plants can readily absorb. The basic cycle is fish excrete waste, bacteria convert the waste, plants absorb the waste and then return clean water to the system, and the cycle repeats indefinitely. All three participants are in balance and the overall ecosystem and habitat thrives.

Aquaponics is the replication of that same system in a controlled environment of a greenhouse.

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Vegetables have been the most studied and researched crops in aquaponics systems, for good reason; we need more food in this world to feed a growing population. But we are flower farmers and so we looked at whether any inquiries had been conducted with flowers in aquaponics. They really had not, which was surprising.

We began writing grants to obtain funding to research this possibility and create the appropriate conditions to produce flowers via aquaponics. In 2021, we received a small USDA Sustainable Agriculture Research and Education (SARE) grant to begin the first phase of the project. Later that year we were awarded an even bigger grant from Maryland's Tech Development Council (TEDCO) through the Agriculture Rural Recovery Challenge; $200,000 to build a greenhouse and commercial scale aquaponics system to grow dahlias and lisianthus year-round. This was mind blowing!

It's pushed us to substantially expand our farm operation. We purchased a new 34-acre property in Poolesville to build this dream space. We are building and implementing this system with the assistance of a special consulting firm based in Denver, Colorado, the Aquaponics Source. We are teaming with Regen Aquaculture based in Kentucky, experts in aquaponics research and development. We are being guided by Dr. John Dole, the acting Dean of the College of Agriculture and Life Sciences at North Carolina State University. He is one of the top floriculture experts in the field of cut flower production. We hope to produce tens of thousands of stems this year all through this groundbreaking technology, but more importantly show other farmers, flower and vegetable alike, that this approach is valid and lucrative and hugely impactful to the fight against climate change.

We believe we are on the forefront of a changing dynamic in agriculture, the widespread adoption of sustainable farming methods. All it takes is an open mind, and a willingness to try something new. The sky is truly the limit.

*Grateful Gardeners was founded in 2018 by Sarah Daken and Tom Precht, a husband and wife team who were former corporate professionals in the law and scientific fields respectively. Sarah has litigated for the Montgomery County Attorney's Office for 22 years and Tom was a Ph.D. trained neuroscience researcher and former scientific salesperson. Tom and Sarah have three mostly grown kids, two big retrievers, some chickens, and loads of plants on a 34-acre property in Poolesville, MD.*