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Foxglove and lupine: whimsical blooms from seed to sale

By Rebecca Kutzer-Rice

Spring is our busiest sales season on our flower farm, Moonshot Farm in East Windsor New Jersey. We can never seem to grow enough. Our spring bread and butter are overwintered crops, which we sow in late summer and plant in the fall for blooms the following spring. There are two spiky spring favorites about which I get a ton of questions from other growers: foxglove and lupine. They can be a little tricky, but benefit from similar techniques. So, once you nail them they can be huge moneymakers. Here's a deep dive on how we grow these popular, whimsical blooms.

Cafe Creme foxglove is an interesting biennial variety loved by florists.

The high tunnel advantage

Many flowers benefit from being grown in the high tunnel, but foxglove and lupine do especially well. Both are prone to rot due to wet roots during the winter, when the soil outside often stays saturated until spring. The high tunnel environment enables them to dry out more readily during the winter and avoid rotten roots.

We've found that outdoors foxglove and lupine often don't bloom until late May when the weather is already getting quite warm. The blooms are often quite short and stunted due to the heat and they shut down rapidly as temps rise. In the tunnel, the plants bloom significantly earlier, as much as four to six weeks sooner. This enables them to reach their full potential before temperatures get too high. It also gives us blooms when flowers are scarce and means we can usually hit Mother's Day (and even Easter) with these flowers.

Lupine is technically a perennial, meaning that it will return and bloom year after year. Our farm is in central New Jersey Zone 7A, which gets quite hot in the summer.

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(Left) Lupine works great in Mother's Day bouquets along with ranunculus and tulips. (Right) Camelot series is a first-year-flowering foxglove that's reliable and versatile.

We've found that lupine plants often die or at least struggle in our summer heat and that it grows best as a fall-planted hardy annual. We transplant one big round usually in mid-October.

Many species of foxglove are biennial, meaning they need to be planted by early fall and then have a cold winter in order to bloom the following spring. There are several modern varieties of foxglove that are "first-year flowering (FYF)," so, they will bloom even without that cold period. We've found that all varieties of foxglove do best when fall planted, but we also plant an early spring succession (March transplant). The blooms tend to be smaller on the spring-planted ones but they're still plenty big for June bouquets and weddings.

If you're in a cooler zone (zone 5 and below), it would be worth experimenting more with spring plantings and perennializing, but the hardy annual approach works well for zones 7 and above.

As soon as the plants are done blooming in the spring, we rip them out and get a summer crop in. On our farm, we do not allow any crops to perennialize in the high tunnel. Even with the added labor and seed costs of re-planting each year, we find it's much more profitable to grow a separate summer crop than leave plants to bloom the next season. Asters, celosia, and marigolds can all be transplanted in June after the foxglove and lupine are done.

Seeding and transplanting

While we order plugs for many varieties on our farm, we find foxglove and lupine both pretty easy to start from seed. Foxglove has a long plug growth time, around 10-12 weeks. We start it in early August for a mid October transplant. Lupine grows a bit faster, so we start it towards the end of August.

Both are cool weather plants and germination can be a bit tricky during extreme summer heat. We will sometimes place our trays under the benches, where the shade keeps them a bit cooler. We cover seeded trays with frost fabric, a trick I shared in my article about asters in the August 2025 GFM, and water right through it. The fabric retains moisture and lets light in as the seedlings emerge. In the summer, the trays often need to be watered twice a day during germination to prevent drying out.

The internet is full of tricks for lupine germination — from freezing seeds to nicking them with a nail file or soaking. We've found all of this is unnecessary as long as the seed is fresh, so we simply purchase new seed each summer. Both lupine and foxglove suffer from being rootbound, so it's critical to transplant as soon as the plug holds a shape.

Neither crop is a particularly heavy feeder. We prep our beds with a basic nitrogen rich fertilizer before planting, then don't give any additional feed. As a big bonus, lupine is a legume with a nitrogen-fixing and compaction-helping taproot.

In our warm climate, foxglove produces one large central stem and then a few smaller side shoots before the plants peter out due to the heat. We transplant them just 6 inches apart to maximize stems per square foot.

On the other hand, lupine is a true cut and come again flower that will make around four to six stems per plant over several weeks. We transplant it 9 inches apart to give it plenty of space to bloom. Lupine is invasive in some regions, especially in zones colder than ours, so keep an eye on it. We have never had any issues with unwanted plants and find it can be terminated easily in our warm climate.

Our farm has heavy weed pressure, so we plant almost everything into black landscape fabric. This year we've been experimenting with a new white-on-black fabric. I'm excited to try this for our hardy annuals as it's a bit less hot than the black fabric.

By transplanting in mid-October into the high tunnel, the plants have around a month to get well established before temperatures get quite cold. We keep them very well watered via drip irrigation during this time, but only have to water once or twice from November through February. If growing them in the tunnel, be sure to ventilate well during sunny days.

Both foxglove and lupine are quite

A May market display showing foxglove, which we don't wrap in paper to best show off its flowers.

hardy (down to zones 3 to 4), and we don't provide any extra protection like frost cloth. We also plant them on the colder outer rows of our tunnels, saving the toastier interior rows for more tender plants like scabiosa.

If field planting, the danger is less cold weather and more wet feet. I think raised beds could be a great option for these plants, and I'd also plant a bit earlier (mid-to-late September) to allow them more time to establish in the field.

With the landscape fabric, we do not need to weed either crop as they have bulky leaves that quickly shade out the bed. While many crops overwintered in the tunnel do need netting for support, we find that neither foxglove or lupine needs it. Overall, they are very low labor crops on our farm.

Harvest and post-harvest care

Lupine is one of our earliest hardy annuals to bloom, typically beginning as early as late March. First-year-flowering foxglove varieties start for us in mid-April, with old-fashioned true biennial types blooming later in late May. Both lupine and foxglove ripen rapidly on sunny days and require near daily harvest. They're also popular with bumblebees so it's important to harvest early in the day as their ripening will be sped by pollination. Like other spike flowers, we like to harvest them when they're around a third to half open for our retail sales channels.

Also like other spike flowers, both are geotropic — they will bend against gravity post-harvest. It's critical to keep them upright. We wrap stems loosely in kraft paper to en-

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Lynn Byczynski
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Russel series lupines blooming in the unheated high tunnel. All images courtesy of the author.

sure they stay straight in the buckets. We store both varieties in Chrysal Professional 2 (holding solution), which keeps them fresh and helps open remaining buds on the stems.

Lupine sometimes gets a bad reputation as a cut flower as it can be prone to shattering. We find around 10 to 20 percent of the stems will shatter no matter what. To combat this, we keep them in the cooler for 24 hours then do a "shake test." Any stems starting to shatter are discarded before we bunch them for market. Lupine also has a relatively short vase life (around four to six days). We try not to hold it for more than 48 hours in the cooler as it can deteriorate after this time.

Foxglove is a bit more forgiving and seems to hold well up to five days in the cooler then lasting around five to seven days in the vase.

Pests and issues

Our biggest pest for both foxglove and lupine are aphids. Aphids thrive in the unheated high tunnel and take over before beneficial insects are active. Because foxglove and lupine both contain toxic compounds, the aphids sucking on them can become poisonous themselves. As a result we've found that introducing beneficial insects is less effective on these species. Both species also have a specialist aphid just for them (the lupine aphid and the foxglove aphid), which we've found difficult to control.

Good sanitation has been critical for early spring aphid control. In the fall, we try to give our tunnels at least two to three weeks without any plants to prevent any straggler pests. We clean tunnels out and close them up to allow them to get extremely hot and kill pests. This step has greatly reduced the amount of aphids we see, but regular scouting is critical. Each week we look under the leaves of plants to monitor for any signs of aphids.

Because beneficials are less effective on foxglove and lupine, we will sometimes resort to organic sprays. A rotation we have found quite effective for them is a mix of an azadirachtin-based spray (like Azagard) plus a biopesticide (like No Fly). Spraying every six days for several weeks has worked well to interrupt the aphid lifecycle, which can be explosive in early spring. It's important to spray at the first sign of aphids, as once their populations rise they're nearly impossible to eradicate.

Our only other issue with foxglove has been bud blast — essentially the flowers will fall off the plant before they ever open. Dr. Alicain Carlson of Syngenta Flowers, who breeds the Camelot foxglove series, visited the farm and explained that this is due to high heat and extreme temperature fluctuations. In the future, we'll be more careful about ventilating houses and also think the white fabric may help.

Favorite Varieties	
Lupine - Russel Series	Our go-to lupine; comes in individual colors but the mix is also great
Lupine - Woodfield Hybrids	Pricey seed but softer colors than Russel; great for florists and wedding work
Foxglove - Camelot Series	Our go-to foxglove; can be planted in fall or spring
Foxglove - Dalmation Peach	Slightly shorter than Camelot but great for florists and wedding work
Foxglove - Cafe Creme	Uniquely shaped foxglove; brown is harder for retail but it's beloved by florists; later to bloom than FYF types
Foxglove - Candy Mountain	An old fashioned biennial type; will bloom later than FYF types and provide a great natural succession
Foxglove - Pam's Choice	Another true biennial series with rich dark centers

Marketing

In early spring, customers are hungry for flowers and it's not much effort to sell them. We find lupine is particularly popular and extremely nostalgic for many folks. We do like to warn customers about its short vase life and propensity to shatter, but we still sell every single stem we can grow.

Foxglove has a well-earned reputation for its toxicity and indeed both the seeds and the stems are extremely poisonous. Many cut flowers are poisonous, but foxglove is especially so, and we will sometimes warn customers with young kids or pets against it. It's worth noting that lupine is also poisonous, but not as much as foxglove.

We use compostable kraft paper sleeves for flowers on our farm, but they don't work great for foxglove and lupine whose top buds are closed. Sometimes we will display them without any wraps at the market for the best color and show. Large glass vases can work well for this. Early on when stems are both in short supply and massive, we will occasionally sell them by the single stem. Just a handful of blooms can make an incredible display. Both flowers also work beautifully in mixed bouquets with other early spring flowers like ranunculus, poppies, and lilies.

Although our farm is retail-focused, florists love both blooms and they're great for wedding work. For bridal bouquets, their hollow stems will benefit from being wired to prevent breakage. If you're looking for some whimsical fairy flowers to round out spring production, I hope you'll consider trying both foxglove and lupine.

Rebecca Kutzer-Rice owns Moonshot Farm, a specialty cut flower farm in East Windsor, NJ. She grows flowers year-round including in a geothermal greenhouse, for retail markets in and around NYC.

Ten tips to increase farm financial sustainability

By Olivia Vogel

All of the farmers I know who grow food for local markets find their inspiration in environmental or social convictions. Along with the lifestyle of farming, these convictions motivate farmers to stay the difficult course of growing food for local markets without government support. I have yet to meet a farmer who considers the financial aspects of a farm their true passion. If that is you, we need to meet ASAP! Jokes aside, as one of the three pillars of sustainability, financial sustainability is a vital but often overlooked part of a farm business.

My personal connection to this topic began as a kid growing up on a farm without off-farm income and sharp seasonal and annual financial swings. The paycheck was not determined by effort or even the quality of crops for sale, but by weather in faraway places, national and international policies, and people who lived very far from the farm.

While studying agricultural economics in college, I learned that sustainable agriculture has three pillars: financial, social, and environmental. It is like a three-legged stool. Without equal support from all three legs, the stool is difficult and uncomfortable to use and could topple over at any moment. Having grown up on a conventional grain farm with no price control over the crop, I found the prospect of financial sustainability indispensable and determined to work in local food farming where farmers had more price control.

Topics related to social and environmental sustainability dominate the local food conversation, and we keep the money talk brushed under the rug. (Notable exceptions to this include Wendell Berry's writing and the discussion around parity pricing.) We do not talk enough about how farm families may live at the poverty line, struggling to afford healthcare, a modest vacation, and retirement or college funds.

Businesses and households operate more smoothly when financial goals are clearly defined and progress towards those goals is tracked. Without financial clarity, stress multiplies on the farm and in the home, often leading to strained businesses or relationships and uncertain futures.

If any of this resonates with you, or even unnerves you, I challenge you to keep reading. As I work with farm businesses on their numbers, I am increasingly encouraged by how much can improve over the course of just a few years. Simply facing the numbers (no matter how good or bad) and opening up the conversation around finances will greatly improve business decisions. Lessons learned this year will pay dividends in future years. In that spirit, here are 10 tips to make progress on financial sustainability this year.

1. Create a budget and actually track it

A budget is like a yardstick. It measures the performance of your business. How can you know how your business is performing without a tool for measuring its performance? While your business will certainly not align perfectly with your budget,

creating a budget allows you to make informed adjustments instead of just winging it. One aspect of your farm business may exceed your goals, a budget will show this and give you the opportunity to celebrate a win. Another aspect of your farm business may under-perform, a budget will also show this, letting you course correct as you go.

I recommend a 12-month budget, using the actuals from last year as guideposts. A budget with less than a 12-month view makes it hard to capture the seasonal swings of farming. If that is overwhelming or not possible, start by developing a three-month budget. Any budget is better than no budget. The most important part is that you track it as you go. Set a monthly date to compare your budget to your actuals.

If you are new to this, there are many budgeting tools online to get you started. For example, if your business uses Quickbooks, you can upload your budget online and easily compare the budget with your monthly actuals. Don't overcomplicate it.

2. Calculate product margins

I recently spoke with a farmer who shared that they had so much money coming in and out of their business through the summer months that they do not really know where it is going or if their wholesale crops were profitable. One of the most important factors of financial sustainability is knowing your product margin — how much money you are making on a product.

This is different from the selling price of the product. To calculate product margin you need two numbers: 1. Income and 2. Cost of Goods Sold (COGS). Here is an example: A farm sold $100,000 of poultry this year. It spent $60,000 on COGS: $30,000 on feed, $8,000 on chicks, $2,000 on bedding, and $20,000 on processing. That means the product margin on poultry is 40 percent (30 to 50 percent is healthy). For every $1 of poultry income, 60 cents cover COGS. The remaining 40 cents cover fixed costs (e.g. gas, insurance, marketing) and hopefully provides income.

Product margins can be complicated in farming when costs and income are spread over the course of multiple years. This can be navigated through inventory management, but I recommend keeping the calculation simple at first. The goal is to be able to make a good business decision. What is the point of growing that extra crop if it is not even making money for your business? You may be able to tweak the sale price (and increase the product margin), or you may decide to focus your efforts on another product. Knowing product margins will keep you from flying blind here.

3. Discuss financial goals with partners

Don't get lost in the weeds, have a long-view conversation. Immediate goals should be informed by long-term (10 plus years) goals, so it is important to make clear long-term goals and to discuss them with household and business partners. For example, the owners of a farm business want to transition out of full-time farm work at a certain age. This is a clear long-term goal. Knowing this goal could lead to conversations around whether the owners plan to sell the business or assets. They could decide to vigorously fund a retirement account or be debt-free. They might get creative and sell extra equipment lying around that still needs to be "cleaned up."

The important thing is to have the conversation preemptively before age

or tragedy makes it unavoidable. Financial and lifestyle goals can and should change throughout the years. Keeping your partners in the loop is the healthiest practice for everyone.

4. Prepare a balance sheet

A balance sheet gives a snapshot in time of the net worth of a business. It lists your assets (what you own), your debt (what you owe), and the difference between the two (equity or net worth). Retained earnings set aside in a high-yield account and the equipment that your business owns are examples of assets. Bank notes and credit card balances are examples of debt. If your farm business has taken on debt, the bank requires a balance sheet.

If you do not have debt, you may not have prepared one before. It is a good practice to review your balance sheet annually as an indicator of financial health. As a business ages, its equity or net worth should increase, making it more financially resilient.

5. Stare down financial "failure" with your loved ones

One of the benefits of preparing a balance sheet is getting a bird's eye view of your business's solvency — the ability to cover debt. There are times when a business should shut down. Poor solvency can be an indicator of those times.

TW: Farmers have a significantly higher rate of suicide than the general population. Financial pressure is a major contributing factor. Rural isolation, uncontrollable events, and market volatility pour on the stress. I strongly encourage any farmer facing financial pressure, including poor solvency, to talk through the worst-case scenario with their loved ones and/or seek professional help. Whatever decision needs to be made, don't make it in a silo. Pulling in your closest friends and mentors is essential to navigating a challenging decision.

6. Preplan monthly or quarterly financial meetings

This is the most important tip on the list. The best intentions in winter or early spring are easily abandoned when the busy season arrives. Busy months are also the months when the most money passes through your business's doors, making it the most important time to have a handle on your finances.

If staying up to date with your finances is a chore for you, I suggest "habit stacking." Try pairing morning yoga or coffee — anything you look forward to — with one hour of bookkeeping. This can help you avoid dropping that New Year's resolution to stay on top of your books. Additionally, I recommend preplanning monthly or quarterly meetings to review key financial documents with your business partner. A little accountability goes a long way.

7. Find trusted professionals with agriculture knowledge

Another way to find accountability is by asking for help

from a trusted professional. If you set a fitness goal, you might hire a trainer or attend a group class to help with follow through and to benefit from outside expertise. A trusted professional with agriculture knowledge can help you achieve your farm business goals, even when days on the farm get long and hot.

This advice is broad. Take it and apply it to tax planning, estate planning, business profitability — any area of your business where outside expertise or accountability could be helpful.

8. Identify as a small business owner

Learn business basics. Look for opportunities to step outside of the farming bubble and learn from other small business groups or owners. Perhaps a local group, online community, or entrepreneurship course is what you need to help grow your farm business. Even a few books on topics such as leadership, finances, and decision-making can go a long way in building resiliency as a business owner.

Farmers enter business with a range of knowledge and experience. There is no shame in asking "basic" business questions. We all need humility to learn and courage to ask.

9. Build a business "emergency fund"

Farm businesses experience seasonal swings of income and expenses. Even with a healthy bank balance in May, payroll in September could be stressful. An "emergency fund" in personal finance helps ease mental stress and mitigate risk as life throws curve balls.

Similarly, building a business emergency fund (retained earnings) has major benefits in reducing risk in business. There is no one size fits all with an emergency fund. You can decide how big it needs to be and how vigorously to fund it.

I recommend putting aside 15 percent of profit if your business has debt until you have saved several month's worth of expenses in your emergency fund. You may have a different target starting out (e.g., one payroll), but whatever it is, identify the goal and make a plan for this year.

10. Identify your strengths

Finally, it is okay to ask for help. Quite frankly, it is almost certainly wise. While a business owner should regularly review and understand their finances, they do not have to be the one to prepare the financial statements.

I have seen too many husband-wife farming teams where the bookkeeping automatically falls to the wife. If the wife is not interested in bookkeeping or does not have the skills to do it independently, stress mounts. Identify if there is a numbers-oriented member of your team. Let them do the bookkeeping regardless of their gender or role. Maybe it is a task to outsource just like meat processing, seed saving, or barn building. If so, great. Find a proven, trusted professional and start the process.

I hope these tips help, friends! Your business is about to have another year's worth of money run through it over this year. I hope you take this year as an opportunity to improve just a little bit over last year. If applying all 10 of these tips feels overwhelming, choose a few achievable tips from the list and focus on those. Long-term sustainability is realized through incremental change.

Olivia Vogel runs Marble Creek Consulting, offering bookkeeping and financial analysis services for farmers. She lives in Lexington, KY, and has worked in Kentucky's local food system for over 10 years. She can be found at marblecreekconsultingky.com.

Diagnosing storage disorders, decay and diseases

By Caleb P. Goossen, Ph.D., Crop Specialist for the Maine Organic Farmers and Gardeners Association

(Left) Fig. 2. "Soft Cottony rot" of carrot, caused by white mold (Sclerotinia sclerotiorum) infection. Photo by Eric Sideman. (Right) Fig. 3. Advancing black rot infection on butternut squash. Photo by Eric Sideman.

Storage crops are a key element for year-round income for many farms. Extending your season for the first time, however, may mean extending your work and needed areas of expertise more than anticipated. On top of the normal in-season work to raise a diversity of crops, and know-how to keep them looking good until sold, you need to be aware of potential decay and disease issues beyond what you easily notice in the field, as well as optimal handling and storage conditions (most of which differ between crops). Even then you still cannot fully rest while your fields are resting — you also need to adopt regular scouting of your stored crops, over weeks and months of storage, to catch potential issues before they worsen or spread.

Any issues that you encounter with your stored crops give you an opportunity to perform a "post-mortem" that will inform your plans for the coming year's harvest and post-harvest. When storage crops are handled well — especially when paired with winter-grown greens — and you are providing for customers who truly appreciate a SLOW (Seasonal Local Organic Whole) food diet as much as you do, the potential rewards may make the extra futzing about in the cold off season feel more than worth it.

I like to break up storage issues into categories of abiotic storage disorders, pre-harvest infections, and post-harvest infections — though of course all of these broader categories interact with each other.

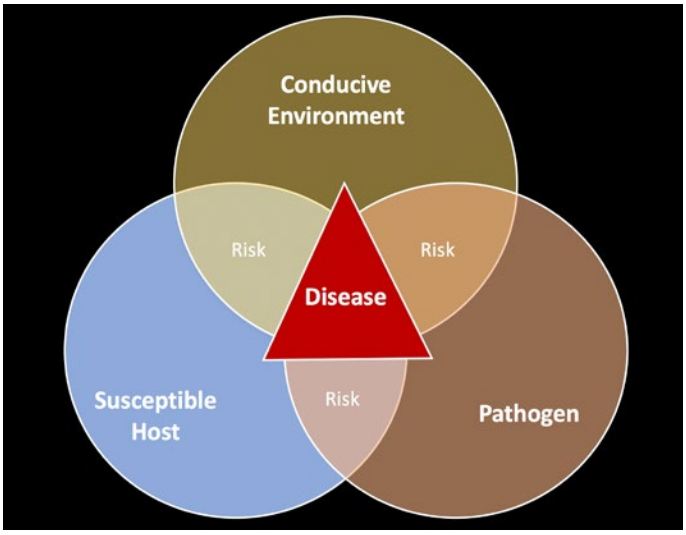
Abiotic storage disorders

Similar to storage conditions differing from crop to crop, abiotic (i.e., not caused by a pathogen) issues are typically specific to individual crops, though they can also easily affect several different crops at once.

"Hollow heart" or similar internal browning typically occurs prior to storage, and may often be limited to a single crop, and sometimes to an individual variety within that crop. While it may not be noticed in potatoes or other root crops until they're taken out of storage, the damage occurred months prior when the crop was still growing. Most commonly, hollow heart is due to irregular water availability to the crop, which equates to interruptions in the availability of calcium, and less commonly boron, getting to where rapidly growing tissues need it. While nutrient levels in the soil may play a role, particularly in the case of severe deficiencies, more commonly the problem is due to an inconsistent and widely fluctuating amount of water in the soil. Different varieties frequently have varying susceptibility to the issue, so if you're encountering it, you may find value in trialing other varieties in the coming growing season — in addition to evaluating your irrigation.

Abiotic issues that truly occur during storage are usually the result of insufficient management of environmental conditions for the crop(s) (Fig. 1). Optimal storage conditions vary quite a lot between different crops, and specifics are well beyond the scope of this article, however USDA Agricultural Handbook 66 ("The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks") is readily available, and the most comprehensive guide to the topic. Beyond the Root Cellar by Sam Knapp is another good one- see the GFM archives for excerpts or to buy the book.

The most obvious winter storage issue — though not always noticed in a timely manner on crops that are stored very cold — is freezing damage, which can create a spot that has



(Left) Fig. 1. The disease triangle. Courtesy of Caleb Goossen. (Right) Fig. 4. Penicillium decay on garlic. Photo by Eric Sideman.

a "water-soaked" appearance, usually where the crop was in contact with a very cold surface. All farms' storage setups differ, but freezing risk is greatest for crops closest to exterior surfaces, particularly walls facing strong winds. Storage crops will generate a small amount of heat as they respire, which typically rises in a storage area, keeping upper levels warmer. While cold air will settle at the floor, many storage area floors are in contact with the earth or are well insulated enough to act as a thermal mass that doesn't reach freezing temperatures — your mileage may vary.

Similar to freezing damage, chilling injury can affect crops that are best stored warmer. For example, winter squash can be injured at temperatures below 50 F. Because this temperature range is less uncomfortable to us, chilling injury may be more difficult to notice as it occurs. At the very least, chilling can cause more rapid moisture loss, and possibly skin shriveling. Over time it may cause skin pitting, which can allow decay organisms an entry point.

Relative humidity is the other critical storage condition that varies quite a bit by crop type. Not enough humidity will cause crops to lose water and shrivel, or at least lose turgor pressure — the positive pressure of water inside their cells that makes them firm, an important sign of freshness and vitality for your customers. Too much humidity for a given crop type may encourage growth of decay organisms, or unsightly root growth from the crop.

The third environmental consideration that is most important to keep in mind when diagnosing storage crop issues is each crop's production of, and sensitivity to, ethylene gas. Ethylene is the plant hormone that causes fruit to ripen — which is essentially the opposite of our goal to maintain crops in a state as close to dormancy as we possibly can. Storage carrots that have become bitter are often the result of ethylene exposure, which causes them to produce a bitter compound in their skin. Ethylene issues can be difficult to pin down — several crops will produce much more ethylene if wounded than otherwise, and one of the negative effects of ethylene that we hope to avoid is an increase in respiration within the crop. Lower temperatures help to keep respiration and ethylene production rates down, but ethylene-driven increases in respiration can lead to higher temperatures, potentially creating an unwanted feedback loop as that leads to greater ethylene production.

Airflow, typically achieved through proper ventilation, is the unifying component, affecting temperature, humidity levels, and potentially ethylene levels as well. Additionally, stagnant air can lead to pockets of air with low oxygen levels — the potential cause of another abiotic disorder, "blackheart," in potatoes. With considerations in place to maintain temperature and humidity levels in acceptable ranges, it's best to optimize airflow and ventilation to bring in and circulate fresh air as needed.

Pre-harvest infection

When growing storage crops, it is true that in most cases crop quality will be highest at the time of harvest. Flavor may improve after curing and/or storage of some crops, as starches are converted to sugars, however, that too is limited by the crop's condition at harvest. Unfortunately, that truth can be drastically worsened by any unnoticed infections already present at harvest time that may blossom into smelly crop losses in storage. The following is a sampling of some of the more common issues.

White mold (Sclerotinia sclerotiorum, see the September 2025 GFM for my article on that topic) is a "generalist" disease, capable of infecting hundreds of plant species. While it could show up as a problem on stored winter squash, for example, it is perhaps most damaging when it shows up as "soft cottony rot" on stored carrots (Fig. 2). A minor infection on a carrot crown may not be noticed at harvest time, however, the disease thrives in the high-humidity conditions that carrots store best at and can easily spread to the rest of the crop in the same bag or container if given enough time. The cottony visible growth is

fungal mycelia, which allows the disease to spread, and is often followed by rotting that turns carrots, parsnips, and potentially other crops into a soft mush. Active infections that have not progressed enough to be easily visible are probably the most common pathway for a white mold issue in storage, however, storing root crops "dirty," with soil still attached, may allow for white mold sclerotia to travel with the crop, and later germinate and infect the crop.

Botrytis neck rot can infect garlic and onions in the field, but may leave the field as only a latent infection. Rapid successful curing can prevent post-harvest infection and/or stop the disease's progression to the bulb, which can occur from latent infections if onion necks have not sufficiently dried. Practices that encourage thinner/dryer necks at harvest can help to prevent this storage issue.

Gummy stem blight is the name given during the growing season to infections of Didymella bryoniae, which confusingly enough is also called Phoma cucurbitacearum at a different stage in its lifecycle. When it infects winter squash, we call the disease black rot (Fig. 3). While black rot infection establishes most easily by entering harvest wounds, squash fruit can be infected in advance of harvest as well. While effective curing will help to hasten wound healing, in either case, controlling gummy stem blight during the season limits its infective potential before or during harvest.

Post-harvest handling and infection

As the disease descriptions listed above hint at, crop handling at harvest and post-harvest can make a real difference. That difference can be amplified by the greater harvest volume of storage crops, representing many weeks of sales relative to in-season harvest volumes. Focusing your harvest on the healthiest crops you have will not only help you to minimize accidentally including latent infections but will also ensure that your crops are starting the storage season at their greatest potential. In other words, stronger, healthier crops will carry less disease and decay inoculum with them and will be more resistant to infection by any that are present. Similarly, taking care to minimize crop bruising and wounding, as well as to speed curing — when crop-appropriate — to heal wounds, limits the easiest entryways for disease and decay organisms to exploit. These practices result in higher quality produce at the same time they are reducing your risks of storage losses.

A classic example of a post-harvest storage disease is Penicillium fungi ("blue mold") showing up on garlic in storage (Fig. 4); it is typically worst when the crop had suffered wounding and/or been cured slowly or ineffectually. But take care to not push crop-curing conditions to extremes — waxy breakdown is an abiotic disorder of garlic that may also go unnoticed until after storage, despite the fact that it frequently began post-harvest, caused by exposure to high temperatures.

If storage conditions get too far out of range, soft-rotting bacteria can get established and liquify crops. This is rarely a problem when best practices have been followed and the crop is cold enough and free of liquid water, but the odors associated with bacterial soft rots in worst conditions (low oxygen levels, warmer conditions, and with free water) can cement themselves in your memory, and are more likely to enforce your use of future best practices than anything I could say here!

General best practices

Grading your crops — whether that's into separate 1st and 2nd quality bins, or plastic storage bags — allows you to prioritize the sales of crops that may not hold as long, reducing losses while maintaining overall quality.

Sanitation of harvest and storage equipment and containers reduces the source of decay organism inoculum that's most in your control.

Every crop has its own handling and storage condition demands. While USDA Handbook 66 is probably the most comprehensive guide across crops, it isn't the final word — many growers have found their own best practices that work best in their specific circumstances.

Monitor storage conditions and crop status. You can do the best job getting your crops into ideal storage conditions and have it all be for naught if you don't ensure that the conditions your crops are experiencing haven't drifted out of your target ranges, or that a few "bad apples" aren't "spoiling the whole barrel." There are many new technology solutions that can assist with monitoring storage spaces — and are often much more affordable than previously, and certainly come with a lesser cost than losing a crop.

Regular scouting is still important. No monitoring will replace your eyes, nose, and brain.

Storing crops long term is already a situation where we want to avoid "garbage-in, garbage-out" but emphasis on high-grading your crop, to start with the best of the best, and using best post-harvest practices to limit wounding allows you to start with stronger, more resilient crops and less disease inoculum. Breaking crops out into storage areas that are as fine-tuned to the crop type's optimal conditions as makes sense for your systems, and regular monitoring to catch issues and prioritize sales before crops begin to decline in quality, are key practices. Done well, these practices can help you be proactive in reducing crop losses, while lowering the risk of them catching you off guard in the first place.

Caleb Goossen is the organic crop specialist of the Maine Organic Farmers and Gardeners Association (MOFGA) and the author of MOFGA's Pest Report newsletter (sign up at mofga.org/newletter-sign-up-pest-report). Formed in 1971, MOFGA is the oldest and largest state organic organization in the country. MOFGA's mission is to transform the food system by supporting farmers, empowering people to feed their communities, and advocating for an organic future. Learn more at mofga.org.

Farm sabbatical: how it worked out for one group of farmers

And ideas for shorter breaks if you can't take a sabbatical

By Jason Townsend

"How ya gonna keep 'em down on the farm
After they've seen Paree'
How ya gonna keep 'em away from Broadway
Jazzin around and paintin' the town
How ya gonna keep 'em away from harm, that's a mystery
They'll never want to see a rake or plow
And who the deuce can parleyvous a cow?
How ya gonna keep 'em down on the farm
After they've seen Paree'"
--Arthur Fields -1919

All of us in this business get overwhelmed. We do this work out of love for plants, for watching them grow, for being in the soil, for taking care of the land. But sometimes - often times - it's just hard work. The work can take its toll on the body, and it can be so all-consuming that there's not much energy or time left for having fun. I remember one farmer early in my farming career complaining that at a certain point in the season, he barely had the energy to walk to the mailbox at the end of day.

So what if you could just take a break to recharge – a real break, not just a month in the winter, but a full year, something like a "sabbatical from farming." While I know this will not be a realistic possibility for many, it might be for some, and I wanted to share my observations of a thriving small-scale vegetable farm that did just that – took an entire year off!

The farmers wish to remain anonymous, but I'll describe some basic background of their farm. Right off the bat, they're story is not of a typical "family farm." Instead, they are a three-way partnership of equal business partners successfully farming on leased land for – here it is – 20 solid years. All three are first generation farmers. All three are firm believers in flexible hours and avoidance of a locked and irreversible schedule. They embody Wendell Berry's reference to "freedom from an employer and freedom from employees." Over the years, they have found strategies for dividing farm responsibilities and the farming calendar in ways that work for all three.

Along the way, they have developed a profitable, much-loved CSA farm in their community. The CSA includes 150 families plus donated shares for the burgeoning refugee community in a nearby city. They grow in Zone 5A in New York's Mohawk Valley and the farm is made up of ~10 acres with ~3 acres in production of market vegetables and flowers each season and the rest in cover crop rotations. Each of the three farmers lives simply, well within their means, with well-guarded savings and small business enterprises outside the farm, and each tries very consciously to, as you might say, "go lightly on the land."

But even with 20 years of well-oiled separation of responsibilities and hours guarded for family and creative pursuits, farming is, well, farming. These farmers are in their 40s and 50s – they've been at this their entire adult lives. Beyond the toll on the body and energy, the question can also creep in, as one of them puts it, "is running a farm truly how I want to be spending my one wild and precious life on earth?"

Now the thought of putting a pause on a colossus that you have invested 20 years of your life in, of putting a pause on a farm that has become a treasured community bulwark – well, that would cause many of us to embark on an agonizing, list-making, pros-and-cons-obsessing jour-

ney. But I am here to relate to you that these folks made the decision in a matter of minutes.

As they tell the story, the decision-making conversation didn't even take up the time of a full bed of carrot weeding. As one of the farmers put it, "Each of the last few years, the idea has crossed my mind. I like round numbers so when we hit our 20th year, it felt right, and well earned." She brought it up out in the field one day. One of the other partners, after 20 years of fairly sedentary living, had recently caught the travel bug, so she was quickly on board. The third partner, the most flexible of the 3, perhaps the most light-on-the-land-living of the three, threw up his hands and contributed "either way" to the conversation. The votes were in and the decision was made before well before the weeds were out of the carrots.

And with a long bed of carrots to go, the conversation turned to some even thornier issues – how would they break the news to the CSA? Would they be able to retain their members? Would they themselves ever want to come back to farming… "after they've seen Paree"?

To break the news to their CSA, they decided to keep it a guarded secret until Autumn so as not to affect the current season's experience. When they did reveal the news, with a promise to be back in 2026, most members responded with, "well deserved, we'll miss you and see you in 2026!" They also accepted $25 deposits for the '26 season, and did later send out a mid-summer picture of field preparations for the '26 season, to answer the doubts of anyone skeptical they would come back to the farm.

So what was it like in March and April of 2025 to come into spring without all the wild madness of planting season? A joy, they all say, but also - perhaps surprisingly - an abiding sense of restlessness. Although they figured they'd be able to enjoy their land all the more without the pressures of farming, they found that much of their relationship with this land was bound up into the work schedule. To answer this to some extent, they kept their line of garlic going and entered an agreement to grow potatoes and winter squash for a neighbor – a way to keep their hands in farming, low pressure, just enough.

One of the farmers reflects that, "I was surprised to find how good it felt each time I had a few hours of farmwork to do!" And as a bonus, they were able to do a few "primp and fluff" projects that likely would not have otherwise happened – some drainage, some infrastructure, some improved facilities…soothing stuff. It also didn't hurt that the area experienced the worst spring weather in decades followed by a scorching 3-month drought: what a year to take off farming!

In all this, there was lots of time to rest and respect the body, reflect, and reset. One partner relates that their body was very happy to take a season off the heavy lifting and squatting, but that she also made sure to hit the gym frequently to stay in farm shape! Another mentioned

intense relief not to be immersed in the emotional worry and physical strain that such an adverse weather season would have otherwise demanded. All three mention the word "freeing."

And free as they were, there was lots of time for fun. The list of travel destinations (keeping in mind that envy is among the 7 Deadly Sins) included Sweden, Sri Lanka, Maui, Maine, Yellowstone, the Grand Tetons, and plenty of time in the beautiful Adirondacks. The Adirondack Preserve, if you're not familiar with it, is a NYS forest preserve covering more land than Yellowstone, Yosemite, and the Grand Canyon combined – perhaps New York's best idea ever and a treasured retreat only 1 hour from the farm. The mountains provided a chance to "deeply relax and sink into the wilds, swimming its waters, breathing with its trees, and sleeping under its stars."

Then came Fall, an early winter deep in snow, the long series of gray days that cover this part of the valley with low, wet Lake Ontario clouds for weeks at a time. You all gonna get back to farming? Each asked themselves this question in different forms and iterations over the course of a deeply enjoyable sabbatical year. And each one seems to have come to the same conclusion: "We are resoundingly, emphatically ready to get back to growing."

With a chance to reflect, to reorganize each of their farm roles, and to optimize their farm experience, all three are refreshed and looking forward to the upcoming season. They are also all the more clear-eyed about their farming career path: each one feels "that there is no other career we would rather pursue, and also we're not ready for retirement!" What's more, CSA sign-ups are running apace and they appear to be on target for 85% retention, which has been their target for many years now.

How ya gonna keep 'em down on the farm after they've seen Paree'? Maybe the answer is that sometimes you need to go see Paree to know how much you love being down on the farm. The radical leap these folks made might not be possible for all of us, but maybe there are ways we can all think of to create mini-sabbaticals within our farm lives (a week off in the summer? some 3-day weekends? a harvest day or two where you just trust the crew can get it done without you?). These getaways can be critical to feeling good about all that the farm is. And if you have a situation where a full and well-deserved year off is a possibility, well, here's a success story you can model on!

Jason Townsend is the owner of Kingfisher Farm, a certified organic vegetable and fruit farm near Utica, NY. Kingfisher Farm is 12 acres of vegetables, orchard, small fruit, and a tree nursery marketing through CSA, farmer's markets, and online sales.

How to work with extension agents and other folks who help farmers

By Sarah Geurkink and Dakota Moore

Have you ever been frustrated by (or heard farmers complain about) a technical assistance (TA) provider who is not helpful, not interested in organic production, or not responsive? TA offered by cooperative extension or local non-profits is meant to be a useful resource for farmers, but one bad experience can sour a farmer's enthusiasm for taking full advantage of it. On the other hand, there are many darlings in the TA world who are kind, knowledgeable, practical, and accessible. It can be an invaluable resource.

As TA providers at two farmer-serving organizations in Kentucky, we'll make our case for the value of strong relationships in the TA realm. We'll draw on our own past and present experiences on both sides of the technical assistance relationship, as well as those of farmers and colleagues we've talked to. We'll offer strategies for farmers to build and strengthen their relationships with TA providers to help lighten the load of farming, optimize farm operations, and enjoy some quality professional community.

'TA providers' is the broad term we'll use for a spectrum of 'folks who help farmers.' These can come from cooperative extension, Natural Resources Conservation Service (NRCS), conservation districts, or local nonprofits. While all of the points we make may not be appropriate for all types of TA providers, they can all ideally be part of a scaffold of support for producers who are busy running a complex operation.

Sarah came to the Barr Farms to show the protocol for tomato tissue sample collection to farmer Adam Barr when he inquired about a strategy to dial in high tunnel tomato fertility.

An initial connection

If you are new to farming, just haven't reached out to a TA provider before, or want to make new connections, there are several ways to find a TA provider and make the initial connection to put your farm on their radar:

Ask around. Ask your farming peers to introduce you to the resources and people that have been most helpful. Inquire through social media groups or listservs specific to your crop, state, or region. These are often coordinated — or contributed to — by TA providers. Local Cooperative Extension Service, Farm Service Agency, or Farm Bureau offices often partner with universities, associations and organizations that have TA providers. They can refer you or point you in the direction of relevant in-person events coordinated by TA providers.

Do in-person stuff. Take full advantage of educational events by also meeting and learning about the TA provider services that are available to you. Introduce yourself, your farm, and your needs to the folks you meet.

Keep up with the news. Newsletters geared towards your region or enterprise often feature contributions by TA providers whose services are relevant to you (like this great magazine). Besides alerting you to TA providers, keeping up to date with this type of information can make your work with them more productive, saving you both the time they'd spend getting you up to speed.

Find the right fit. Be clear and transparent about the scale and stage of your farm when you connect with a TA provider because some are funded to help specific types of farmers. Someone tasked with helping commercial farms is not the right person to help a farmer who isn't producing or selling any products yet, but they can usually make an appropriate referral. Once you get to a commercial level, reach back out to that original TA provider, they'll be happy to see your growth and jump into helping you.

When a TA provider is just not a good fit, whether in communication style or personality, those differences can keep you both from success. If getting an answer from a TA provider feels like pulling teeth, look for help else-

where.

Learn how they work. Be mindful of a TA provider's workload, communication preferences, and boundaries. They are likely helping many farmers, coordinating events, and (sometimes) teaching courses. Reach out during business hours when possible, and learn how they communicate best. An 8:30 p.m. phone call or a 1 a.m. email may be buried by ones that come during the workday. Don't hesitate to give them a nudge if a question has gone unanswered for a bit.

Understand their context and share yours. Learn what the TA provider is great at, but also what they don't have experience in. They might be experts in greenhouse infrastructure but when it comes to insects they wouldn't know a flea beetle if it bit them in the… kohlrabi. This is good to know so you don't expect more than they can give. It's also good for the TA provider to know your strengths and weaknesses so they know where you need the most help. Maybe you can grow perfect produce but have trouble selling it. This can help put your entire operation into context and direct their focus.

Be flexible. Having some degree of flexibility is a prerequisite in agriculture. You may have previous experiences with TA providers who have signaled skepticism about your production system, or you may (reasonably) be skeptical that a TA provider who typically recommends conventional methods can help you on your organic farm.

A grower made an initial connection with Dakota by requesting that his irrigation pond water be sampled. Dakota has since been a go-to resource for that grower.

We suggest keeping an open mind and being open to TA providers who don't share all your opinions or preferences.

While they might not be able to tell you about the latest organic method to tackle your issue, they can help in other ways: referring you to a specialist, pointing out grant opportunities, or helping you optimize your packshed efficiency or up your food safety game. Plus, people can adapt

(Left) A farmer got this brand new irrigation pump back in working order after it was under five feet of flood water the week before. The farmer shared his plans with Dakota to use a deer stand to keep it from being flooded again. This idea was immediately helpful to another grower Dakota was assisting. All photos courtesy of the authors. (Right) Joseph and Abbie Monroe at Valley Spirit Farm grow vegetables and raise beef cattle. Pasture management is a gap in Sarah's ag knowledge, so OAK contracted with grazing expert Greg Brann to join her on a farm visit and offer technical advice for the beef side of the operation. Sarah learned a ton about rotational grazing and crop livestock integration from this visit, and the Monroes got great advice for both of their enterprises.

and learn, and they are more likely to stretch outside of their comfort zone if you also are willing. Give the free TA services that are available to you a try, and take full advantage of ones that are a good fit. This is all in service of your own growth and becoming the best farmer you can.

Develop the relationship

Once you've made an initial connection with a TA provider, having quick access to them when you need it might take an initial time investment before you need it. Here are a handful of low-lift ways to do this, best practices for a positive outcome, and general principles that could help:

Get their butt out of the office. Invite them to see your farm. This can help them better understand your operation and goals. Depending on their availability or expertise, you could get a lot out of an in-season visit when the farm is in full production. They might spot early signs of a pest that can be managed before it gets out of hand, point out a tweak in your cultivation equipment that will achieve a better weed-kill, or snag a sample of a crop with a mystery disease for diagnosis. If services like plant, tissue, soil, or water sampling are in their wheelhouse, you can take advantage of those, too.

If an in-season stand alone visit feels overwhelming (everyone is busy), an invitation to an upcoming field day or farm event you are hosting might be a lower lift. Alternatively, the off-season can allow for a longer visit that's easier to schedule. Extra time can keep the visit more relaxed and informative for both of you. Even if you don't have any big questions the first time they visit, or if they don't have any groundbreaking insights right away, having a new set of eyes on the farm while you talk through the systems, successes, challenges, and evolution of your farm can give you a fresh perspective and new ideas.

Share your wins. TA providers love to hear about farmers' successes: cobbled together equipment that turned out to be a brilliant solution, a huge harvest of a crop they helped you troubleshoot, a game changing piece of equipment you invested in. A great TA provider knows there is a lot to learn from farmers. Your great ideas, systems, and knowledge are often some of the most interesting things they learn about and the most useful insights they will share with other farmers.

Beginner's mindset can be an asset. Don't be discouraged if their background, experience, and values don't immediately align with yours. There is a lot of value in a beginner's mindset, and it could lead to solutions or opportunities you wouldn't have thought of. The TA providers who are now most beloved and valued also started out green. Ideally, the beginners are in this for the long haul alongside you. If you're an experienced grower, invest in your TA provider by providing reading recommendations, asking them to join you at conferences, or suggesting skills they could learn that will empower them to better serve other farms in the future.

Collateral benefit. Farming is multidisciplinary, and

(Left) In a mid-season visit to Idylwild Farm, Sarah showed Mike Hass how to collect plant samples for the University of Kentucky diagnostic lab and tissue samples for nutrient analysis. (Right) In Sarah's first farm visit to Lazy Eight Stock Farm, Bryce Baumann showed Sarah around his farm systems. Pictured, Bryce is explaining the seeder he put together using parts from a Blackmore Can-Duit seeder, otoscope speculums, dosing needles, and a dental lab vibrator to efficiently seed multiple varieties of a crop in the same tray. With Bryce's permission, Sarah was able to share this system through OAK's social media highlights for other farmers to learn from.

no single person will have every answer you need. Many TA providers are generalists. Rather than possessing all knowledge, a great TA provider has access to a diverse network of experts and specialists. Their job is to help you find the best possible advice from the smartest people on the topic.

They often have connections you would not otherwise have access to. A referral to a specialist is not an unwillingness to help, but it is entirely reasonable for you to ask the TA provider to do the legwork of reaching out and explaining your context and query. In some cases, that would be the specialist's preference. Keeping the TA provider looped into your continued communications with the specialist enables them to translate the recommendations you get into steps that are appropriate for your farm system. It will also help them provide answers to similar farmer queries more quickly in the future.

Stay in touch. Over time as you work together, you'll have new opportunities to share more information. A good advisor will remember (much of) your conversations and reach back out with relevant and useful resources as they come across them. Having some background on your farm will also make it easier for them to quickly assist with an emergency production challenge that you bring to them during the busy season. While you don't need to build a deep working relationship with every TA provider you meet, keeping in touch regularly with one or two will keep you connected to the large network of resources in your region.

There is no finish line to the process of building a working relationship with a TA provider, and new ones are always coming on the scene. Be patient and open-minded. No one TA provider will perfectly meet all your needs, just as you won't always get everything right on your farm. The learning happens in those gaps in knowledge and the particularities of each farming operation. Your connections with quality advisors who are actively improving — and on your team — will take a significant mental and emotional load off your farm management journey.

Sarah Geurkink provides production support for commercial organic farms with the Organic Association of Kentucky. She is entering her third year in the job. Before that she managed vegetable farms for 13 seasons. Dakota Moore is the Grower Outreach Coordinator for the Kentucky Horticulture Council. He loves getting out to farms to talk produce safety, crop insurance, irrigation management, and anything cut flower related. Dakota previously worked in ornamental greenhouse management, arboretum management, and floral design.

Pivot points: Lessons from farmers who embraced big changes

By Sarah Janes Ugoretz and Dan Fillius

"One night after work, I logged into my bank account and saw my business account was overdrawn. I realized I'd set my credit card payment to pay off the full balance, which drew a big payment and overdrew my account. That sent me into a spiral — feeling really discouraged and deciding that I didn't have to keep doing this or subjecting myself to this level of stress and risk.

This was a choice I'd made, and I had other choices. It was a realization that I didn't have to keep doing this if it wasn't working, and what I wanted most was to take a break. I was burnt out, fully burnt out, and didn't have the mental reserves to push through this setback. Maybe in another year I could have, but at that point, the tank was empty." — Jordan Scheibel, Middle Way Farm, Grinnell, Iowa, excerpt from Pivot Points Season 1, Episode 6.

Has an established grower's decision to exit the industry left you feeling totally surprised and maybe even a little anxious for answers? When we were farmworkers, seeing respected, successful growers send out liquidation auction notices shook our confidence to the core. Could we "make it" when respected growers were choosing to leave the industry?

We also saw fellow farmers shake up their operations in big ways — whether in ownership, scale, or scrapping a long-time market. Have you found yourself wondering about the stories behind these decisions, and whether it's something you might consider exploring?

Enter: Pivot Points, a new podcast where co-hosts Dan Fillius and Sarah Janes Ugoretz take a closer look at the big changes farmers have made in their business models, and by extension, their lives. Through candid conversations, farmers share openly about these changes and the journeys that surround them. In doing so, they're giving voice to a core goal Dan had when first tossing around the idea for this podcast: to explore change in a productive way that adds context, instead of leaving growers wondering or even struggling in isolation.

The first season of Pivot Points explored farm transitions and exits, shifts from farming solo to farming collaboratively, and adjustments to both scale and enterprise. As we re-

flect on these conversations, we're excited to share some of our big "ah-ha" moments with you.

See change as an invitation

Farming is full of uncertainty. Since there are few things farmers have full control over, change may be the last thing they're willing to embrace. All of our conversations, however, showed us that change can unlock that next level — of relief, of joy, of ease, of performance.

Of course, change can feel intimidating, exhausting, and downright scary at times, but as Adam Montri pointed out, we can also find comfort in recognizing its inevitability. Adam had been operating Ten Hens Farm in Bath, Michigan, for 15 years by the time he decided to close his operation and focus more on his family.

During that decade and a half, time passed, needs changed, and priorities shifted. Reflecting on his own experience, Adam shared a simple invitation: "Think about what matters to you now and how those things change over time. Things that were important to you at 25 — some of them are going to still be important to you at 35, 45, and 55. But some of them won't be." And that recognition is where things can get a little interesting.

Whether related to physical needs, personal well-being, or evolving interests — big things happened when farmers gave themselves permission to consider and to ultimately pursue change within their farming journey. We spoke with farmers who started writing and performing poetry, competing in golf tournaments, and — in the case of Jordan Scheibel — practicing meditation.

"So many things had fallen off when I started full-time farming," Josh said. "It became all-consuming, and other parts of my life atrophied." A major change in Middle Way Farm's scale brought with it more time and energy for Jordan to revive and deepen his meditation practice.

Others talked about coaching soccer teams, taking extended vacations during the growing season, and — perhaps every producer's dream — growing food purely for fun. Ellen Polishuk exited farming after spending 25 years with Potomac Vegetable Farms. Today, she applies those hard-earned skills helping current farmers as a coach and advisor, while also tending a robust garden. "I garden like crazy now, tons of flowers and vegetables, including stupid ones like onions, sugar snap peas, and melons because there's no money attached," she said. "It's just for love. It's my health space."

We also heard farmers talk about how change needed to happen so they could actually keep farming. Hannah Weber with Green Things Farm Collective farmed alone for years before merging with other established farms to form a collective business. "I couldn't go on doing what I was doing," she recalled. "[There are] all sorts of different reasons why you burn out, but for me it was truly just doing so much and not really seeing the benefits or seeing how this could become anything else without a real drastic change."

Even with all of the good that change can usher in, a throughline across our conversations was that it takes a lot of grit and heart to take those first steps. Hans and Katie Bishop began their vegetable operation as an offshoot from Hans's family corn and soybean operation in central Illinois. They grew and hit numerous external benchmarks for success — including winning Marbleseed's Farmers of the Year in 2017 — before deciding to shutter the vegetable operation.

As Hans reflected, this was an emotional and incredibly difficult decision, but it was the right decision for them. "You're not a coward if you long for change. Change is good, and it takes courage to make substantial, fundamental change."

Definition of "success" isn't universal

Our second "ah-ha" from Season 1 pushed us to question our own preconceived notions of what success looks like in farming. So often when we think about the trajectory of "making it" in farming, we think about those final pieces of the puzzle: dropping that off-farm job and finally farming full-time, scaling up acreage and hiring employees, or landing that huge wholesale account.

Equally important in this conversation are the unwritten norms that accompany farmers on their way to success — namely, that farming and burnout are a package deal. After years as an intern, Ariel Pressman started and ran Seed to Seed Farm where he focused on wholesale vegetable sales to the Twin Cities. "When I started farming 15 years ago, part of the unspoken expectation was you should be a little miserable," he recalled. "This is hard work, and you should look like somebody who's been through some hard stuff if you're a 'real' farmer."

And, as Ariel went on, the finish line truly is the finish line. "Farming is the only industry I know where you have to die on the farm to be successful."

For a long time, the path to success has meant pushing through at all costs, grit and grind, even if something just isn't working. And, as Ellen Polishuk pointed out, "the complete marriage of farm and personal life" makes it pretty hard for farmers to disrupt this system. Your job is your identity is your community. "Farming is completely entwined with your life," she said. But just as our conversations pointed to change as an invitation to reflect and reassess, farmers showed us time and again the many different iterations that success can take over the course of a farmer's career.

Whether scaling up, scaling down, joining forces, or shifting enterprises, one constant was that farmers' paths towards their own versions of success weren't linear. They were often messy and full of emotion and hard decisions. But on the other end of those hard decisions, the loudest regret we heard was that farmers wished they had made a change sooner.

For Jenny Quiner, that change and shifting vision of success meant leaving the industry entirely. Jenny founded Dogpatch Urban Gardens in Des Moines, Iowa, expanding from salad greens production into farmstand retail and greenhouse production, adding a garden center along the way. During our conversation, Jenny echoed sentiments that many farmers likely can relate to: "When it's busy season and you don't even have time to do laundry, you wonder, 'What am I doing? Why am I doing this?' Then, in the winter, when you're enjoying your family and relaxing, it's like, 'Oh, I can keep doing this.'"

For Jenny and her husband, this conversation was on constant repeat until they finally reached a tipping point: Go all in or forge a new path. In the end, Jenny said: "We were just ready for something new. We were ready for a change." And that change meant calling it quits.

Though there is still a lot of stigma around that word, Jenny — like many of the other farmers we spoke with —

invited us to see this in a different light. "If you change or if you close, it doesn't mean you failed. We did a lot of great things for this community, and we're still doing great things for this community."

What is a "normal" life for a farmer?

Our third "ah-ha" is more of a curiosity that we're eager to share with you and to explore more in future conversations — this question of what a "normal" life is when you're a farmer. When farmers walked us through a big change they had made — especially if that change involved scaling way back or quitting farming — the conversation usually involved some version of: "Now we are closer to having a normal life."

While they were growing vegetables, Katie and Hans Bishop spoke about a life full of exhaustion, of strained relationships and fleeting joy, and of the farm always coming first. Now on the other side of their big transition, life looks different. There's more time for rest and play, for visiting with family and friends, and for trips. As Hans put it, with this new phase "there's much more of a resemblance of a normal life."

This tension spoke to us in a big way. Is farming at odds with having a normal life? What does that life look like? Who gets to decide? It's easy to imagine these more spacious realities as a before-and-after or an either/or situation. That is, to accept that a normal life has to wait until farming either scales back or is no longer part of your life at all.

Our conversations with farmers delivered us somewhere in the middle. Just like how we have talked about differing definitions of success, maybe achieving a "normal" life as a farmer just means having the ability to make time for the things that matter — the things that have meaning inside and outside of farming. "We didn't get the balance right [the first time around]," Katie reflected. "But this new edition of our farm is evolving, and we are evolving into people who love the work they do, who still love farming. And, we also have other things in our lives that we're really excited about, too."

This is something we are eager to explore in future seasons of Pivot Points. Where is that inflection point when scuffling and hustling in a farm's early years changes to thriving and allowing farmers to hold space in their lives for non-farm things?

The Tuckman stages of group development — Forming, Storming, Norming, and Performing — are usually applied to a team of people doing a certain task or during a discrete time period. Dan thinks it can also apply more broadly to the lifespan of a farm. Farmers form their business, then storm through sometimes chaotic early years, facing uncertainty and long hours. Norming is the point where systems are implemented that can relieve burdens from individuals, and relationships with customers become more reliable. Once these are in place, the farm can really perform.

Of course, the framework is not that linear in real life. Teams and farms change and usually repeat parts of this process again, storming through new relationships or lost markets, developing new norms in order to perform. Overall, however, we're curious to experiment with bringing this framework into some of our future conversations.

We need more systems to support continuity

Our final takeaway is already well known within the ag community, and yet it feels important enough to include here. Farmers need more advanced systems, programs, and pathways that help them navigate the lifecycle of farming from beginning, to middle, to transition.

Especially in recent decades, farming hasn't been the easiest profession to step into. The barriers facing beginning farmers can often feel insurmountable. At the same time, transitioning an established farm business to new ownership is full of its own challenges. These realities exist against the backdrop of an aging class of farm owners who are growing older and moving closer to retirement. A huge proportion of farmland will be changing hands in the coming years.

Turning first to those early stages of farming, we heard from Nate Lada and Hannah Weber of Green Things Farm Collective. Both got their start at Tilian Incubator

Farm (often called Tilian Farm Development Center), which provided a lot of early support and infrastructure. Both were able to farm — individually, then collectively — after leaving the incubator. However, it can be immensely challenging to prepare your farm business for the next step in those limited incubator years — from securing financing and finding land, to accessing equipment, expanding your markets, and so on.

To Ellen Polishuk, one answer might be found in deepening the incubator model. "I want to see bigger pieces of land with whole infrastructure shared, like the Intervale model — deer fence, coolers, tractors shared among several operations. People can come and go without buying a whole farm, which is impossible now."

We also heard from Jim Crawford and Jenni Glenister of New Morning Farm in Pennsylvania. Jim began the farm in 1972 and began thinking about a transition plan early on, which ultimately saw the reins handed to employee-turned-operator Jenni. In their case, the farm was profitable enough to pay for its own transition. (See GFM March 2020, "Succession planning: retiring farmers keep the land in farming.")

While an incredible position to be in, others may struggle to replicate this model. Which leaves us with a big question: how can our current systems better support affordable and effective transitions?

In speaking about his own experience closing Seed to Seed Farm, Ariel offered some insight. "I tried to find someone to take over the whole thing — accounts, farm name, property, equipment — but couldn't," he said. "You know, the folks that are coming up don't have a ton of money. The folks who are leaving want to be rewarded for all their work and the equity that they've accumulated there." This is a critical gap, Ariel said, and what we really need is a bridge.

"We get in this cycle of people burning out like me, but someone could pick up where I left off without going through the same burnout," he said. What's needed are programs that can provide this bridge by supporting transition processes that are both equitable and affordable. "We see very few second- and third-generation vegetable farms in this country, unlike grain or dairy farms," Ariel said. But we do have successful examples that can show us what's possible. "There's a second-generation vegetable farm near Duluth, Minnesota, and it's stunning to see what happens when the next generation builds on what was there, economically and operationally."

What's coming next?

So what's next for Pivot Points? With Season 1 officially in the books, Dan and Sarah are beginning Season 2 conversations shortly. We'll be talking with farmers about a whole slew of topics from civic engagement and collaborative farming models, to balancing farming and family, acquiring land, and a lot more! If you have a topic or a guest suggestion for future episodes, send them our way. And in the meantime, find Pivot Points wherever you listen to podcasts.

Sarah Janes Ugoretz is a Farm Labor Educator with UW-Madison Extension Dane County in partnership with FairShare CSA Coalition. Drawing from her own time spent working on farms, she now collaborates with farmers to build professional and rewarding farm labor experiences. Sarah can be reached at sjanes@wisc.edu.

Dan Fillius is the statewide field specialist for commercial vegetables and specialty crops with Iowa State University Extension and Outreach. Before joining Extension, Dan grew organic vegetables for 13 years including stints managing the Michigan State University Student Organic Farm and 140 acres of vegetables at Featherstone Farm. Dan can be reached at fillius@iastate.edu, on Instagram @iowa.veg.pro.support, and on the web, extension.iastate.edu/commercialhort/

Tips for building wooden greenhouses

When pulling the plastic, cover the end walls first and secure the plastic to the insides of the walls. Then pull the plastic over the hoops and tack it at the ridge and the corners with short pieces of lath over the gussets. You can then roll lath to the inside of the plastic, pull tight and screw through the plastic and lath into the face of the end wall hoop.

(Top) This is a photo of the bare frame after five years with all of the purlins and braces in place. The frame for the roof vent has been removed in this photo. It can be installed either before or after the plastic. (Bottom) This is the interior of the tunnel shortly before it was taken apart after 5 years of heavy use. The tables in this hoop house are detailed in my book Build Your Own Farm Tools. They are seven years old and in need of simple repairs but are still very functional, even after a couple of moves over the years.

By Josh Volk

In 2020 the conventional metal hoop greenhouse I had been using for propagation was going to be repurposed for COVID reasons and I needed an alternative for 2021, so I built a small wooden greenhouse, just 11'x18'. I chose to do this for a few reasons: It was cheaper than metal construction (at least the materials were), it was a size I could build on my urban lot without a permit, and I thought it might look nicer.

For less than $700 in materials I spent a few days (spread out over a couple of months) building the greenhouse, complete with doors on both ends and a roof vent with an automatic opener. For the past five seasons this has been my only propagation house and it's worked well enough to support my little urban farm, and a couple of others.

It probably would have continued to work for at least a few more seasons but the truth was with the typical plastic greenhouse film it wasn't the most attractive part of our home garden so my partner decided she wanted to look at something prettier and last month we took it down and are passing the re-usable parts to another urban farm.

I'm not going to fully detail the construction out here, but if you have a decent understanding of basic carpentry this quick explanation should be enough to go off of to create your own design. I based mine on one that Ray Devries from Ralph's Greenhouse (ironically not a greenhouse operation) shared with me. They build these quite a bit larger and move them around with a tractor so some of their details are different.

For materials I used all untreated, standard-and-better grade fir lumber, which is typical here in the Pacific Northwest. After more than five years with no protection the base that was sitting on the ground was pretty rotten. It wasn't rotten to the point of being a problem for the standing structure, but definitely not salvageable. I was pretty minimalistic with my use of screws, and used relatively light weight #8 deck screws.

Some of those were broken so it might have been bet-



(Left) The base for the foundation is built on a flat dirt pad.The base plates are added to the sacrificial boards sitting on the ground. All joints are staggered for extra support and backed with extra 2x4 scraps. (Center) To help in building the hoops I used some of the gussets, scrap wood and the base frame to make a simple jig holding everything in alignment while I screwed the hoops together while they were flat on the ground. This is much easier than trying to do it while they are standing up. All photos courtesy of the author. (Right) All of the gussets are cut from plywood in advance.

ter to use heavier ones. On the other hand, the structure was still solid so maybe it was fine for my purpose. The only repair I made in the five years it was in use was one of the door handles that came loose. I think all of the materials other than the base plates will be re-usable and will last through another round of greenhouse plastic.

Here are the basics of the construction from the foundation up:

Foundation

I simply leveled a dirt pad the size of the greenhouse to start. On that I built a simple wood frame from 2x4s that was 11'x18'. The base frame is in two layers with the sacrificial lower level being 2x4s on edge and then a base plate on that from 2x4s sitting flat. This was made from 8', 10' and 12' 2x4s with but with joints and corners supported with short pieces of 2x4, 6-12" long.

Hoops

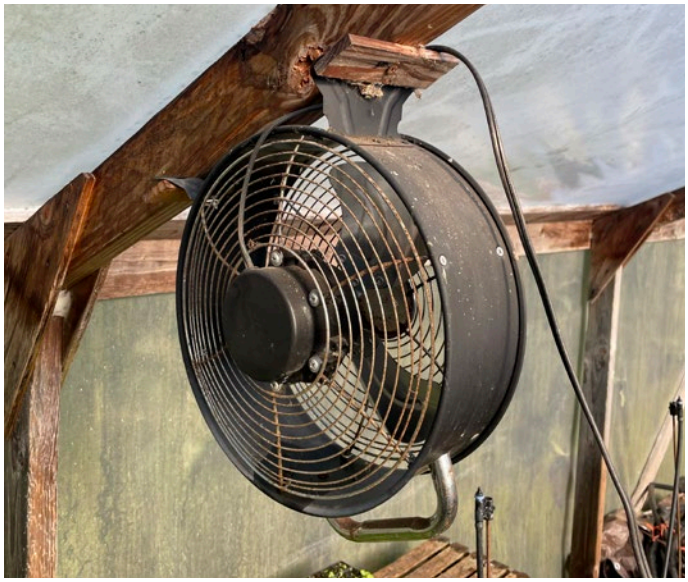
The hoops are also made from 2x4s with four hoops for the structure, one every 6' on the frame. To make the hoops there are two uprights and two rafters per hoop, joined by ½" plywood gussets at the joints. For the connection between the rafter and upright I cut a bird's mouth in the rafter so that it sits locked to the upright. The hoops are attached to the base plate with Simpson brackets. On the outer hoops I bent the brackets down on the outer edges to attach to the face.

Purlins, wall and roof bracing

There are 1x4 purlins at the top of the uprights, and the top and bottoms of the rafters. These are 6' and 12' long and butt joints are staggered. In addition to the purlins there are 1x4 cross braces that run from the bottom of the outside rafters to the tops of the next hoops. There are also 1x4 cross braces for the walls running from the bottoms of the inside hoops to the top of the uprights on the end walls.

End walls and door frames

The uprights on the door frame are 2x4s that have a 1 ½"x ½" rabbet for the door to sit in. It's also notched at the top to fit into the top of the door frame which has the same rabbet. The top of the frame extends past the uprights to screw directly into the hoops. To make it easier and more secure to screw the top into the hoops I notched the ends of the top of the frame so that they sit flush with the outside of the hoop but overlap the inside. At the base of the door frame, I used an extra 2x4 block to secure it



(Top left) Simpson brackets hold the uprights to the base plate. For the brackets on the ends the tab on the bottom was hammered down so that it sat flush on the face of the base plate (shown here). (Top right) The rafters have birds mouths cut on the ends to better lock into the uprights. (Bottom left) Detail showing the block at the base of the door frame for securing the door frame to the base plate. I used a short scrap but I would consider using a much longer scrap in the future. (Bottom right) Inexpensive 12″ fans mounted to the underside of the rafters and used to circulate air in the greenhouse. These were set up on a timer and turned off when irrigation was running.

to the base plate.

To keep the end walls square, attach 1x4 bracing from the base of the outer hoop up to the rafter just outside the door frame.

Doors

The doors are made from overlapped 2x4s on edge so that the thickness of the door is 1 ½". There are two vertical members and three horizontal, glued and screwed together. These hang on two regular door hinges in the door frames. The lap joints connected in this way are enough to keep the door from sagging.

Skinning the greenhouse with plastic

With the doors mounted in the frame on their hinges, but without the latches installed, cut a piece of plastic to generously fit each end wall, leaving enough to cover the rest of the frame with at least 2' overlap at the bottoms of the walls and 6" overlap on the ends.

Attach the plastic to the end wall by rolling the edges around lath strips and then screwing through the lath into the frame. These strips should be attached to the narrow edges of the hoops between the purlins and wind braces, and to the base plate. Do this on all of the edges first, then attach lath strips all around the door frame and all around the edge of the door. Keep things tight! Once this is all in place slice through the plastic at the top and bottom and

(Left) When putting the hoops up I temporarily brace them until they can be tied together with the purlins and then the angle braces can be moved into their final positions. (Right) Detail showing the notch at the top of the door frame and the lap joint of the door itself behind it.

non-hinge side of the door. Leave the hinge side connected. Now the doors are able to swing open and you can install the latches.

Repeat the process with the big piece of the plastic, rolling the edges in lath and screwing them to the face of the end walls. To anchor the whole structure down dig a 6-8" deep trench on the long sides and press the plastic down into the trenches. It's important that the plastic create a J shape, filling the bottom of the trench and coming back up at least a little. Then backfill with dirt and the weight of the soil will hold the whole structure down.

Alternatively, you can drill holes in the base plate and use long pieces of bent rebar driven in at an angle, or some other type of soil anchors. You definitely want to anchor the house well as it is essentially a big sail that will catch even a little wind.

Door latches

The latch on the door is wooden and made from 1x2 and plywood gussets. Part of the 1x2 is cut down to 1x1 and that part extends through a hole cut in the door. On the inside there is a second 1x2 section screwed on at a 90-degree angle and lined up to catch against the back of the door frame when rotated horizontally. On the outside of the door two plywood gussets are used to attach the 1x1 section to another piece of 1x2 that acts as the handle. This is mounted 90 degrees from the interior 1x2 latch so that the handle is straight down when the door is latched.

Roof vent

Using 1x2 and plywood for corner gussets make the frame for a window wide enough that it will rest on the two inside hoops, approximately 6' wide and 18" deep.

Cut a 2x2 the same width as the window frame and notch it so it sits between down between the rafters but also overlaps the rafters matching the thickness of the top purlin. Use 1x2 sections to fill in the gap between the rafter and plastic between the top purlin and the 2x2.

Carefully cut the roof plastic in an x where the window opening will be. Pop your head through the opening and screw lath to the face of the frame on the sides and bottom. You do not need to do this on the top edge.

Cut a piece of 2x3 or 2x4 the length of the window. This will sit on the ridge purlin on the opposite side. Rip an angle at the top that will match up with the window frame when it is sitting flat against the roof. Cover the window frame in plastic using the same rolled plastic lath technique on the bottom edge but putting the lath on the top face on the short sides and

(Left) Anchor the house to the ground by burying the edge of the plastic 6-8" deep along the full edge of the house. The plastic needs to go down and then back up for this to be effective. (Right) Foundation construction.

the top.

Leave 6" of plastic hanging off the top edge. Attach the 6" of plastic to the piece cut to sit on the opposite side of the roof by butting that angle up against the window frame and then screwing a piece of lath over the plastic and into the wood. This will create a plastic hinge and will leave enough plastic to protect the wood. I added two pieces of nylon webbing as an additional hinge support, but I think this was unnecessary and that the plastic by itself makes a good hinge.

The trickiest part of the whole thing probably comes next. Poke your head up through the hole in the roof and carefully maneuver the window frame so that the piece it is hinged to sits at the ridge. Screw this piece to the ridge and if you've done it right the window will now close flush over the hole in the roof once you retreat into the greenhouse.

Next mount a wax cylinder opener to the bottom edge of the window so that when the air in the greenhouse heats up the window will open automatically to vent the greenhouse. This may require adding a block of wood to the inside of the window frame.

I added wooden seedling benches (the ones in my Build Your Own Farm Tools book) with irrigation on a battery timer, and some 10" circulating fans, also on a timer, as well as electric bottom heat mats. In our climate the bottom heat mats were enough heat that I could scrape by without any additional heating.

I suspect that the base frame might last better if it were built on a pad with better drainage (crushed rock?), or even concrete (but that would add to the cost). The sacrificial wood pieces on the bottom can be replaced when the plastic needs to be replaced after 5-8 years. Metal framed hoop houses are definitely a more durable solution and are slightly faster to build (since the hoops are pre-built), but this worked well for my needs for the past five years and so maybe it'll work well for some of you out there.

Josh Volk farms in Portland, Oregon, and does consulting and education under the name Slow Hand Farm. He is the author of the books Compact Farms: 15 Proven Plans for Market Farms on 5 Acres or Less, and Build Your Own Farm Tools, Equipment & Systems for the Small-Scale Farm & Market Garden, both available from Growing for Market. He can be found at SlowHandFarm.com.

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(Left) It's important to carefully square and level the base frame. I screwed a temporary angle brace to keep the base square while assembling the rest of the frame. (Center) When putting up the purlins and angle braces it's helpful to pre-set the screws while they're on the ground. This is easier than fumbling with the screw while also trying to hold the brace in place. (Right) Joints on purlins are alternated so that adjacent purlins have joints on different hoops.