



Mud to Money: Lessons From 15 Leading WNC Local Food Farms

December 2017

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For:



With funding from:



Over the last decade, Asheville and the greater Western North Carolina region have made significant strides towards building a robust local food economy. Annual sales under the *Appalachian Grown* local foods brand alone top \$200 million. The Asheville area is also one of only a few areas in the country that experienced an increase in the number of new farms in the most recent agricultural census (USDA 2012).

While these are strong advances for WNC small family farms, it is also clear that some farms still struggle with attaining financial sustainability and success. To help address this, the Appalachian Sustainable Agriculture Project (ASAP) and Mountain BizWorks have joined in a multi-year effort to provide high-quality business coaching and training to beginning and established local food farms.

Along with a consultant, Emergent Opportunities, Inc., Mountain BizWorks conducted this benchmarking study to better understand the current state of financial and business management practices and performance for area farms serving local foods markets.

Photos courtesy of Appalachian Sustainable Agriculture Project



The study focused on identifying best practices, key pieces of advice, and core concerns from established and relatively successful farmers, so that study results could be used in training earlier-stage farmers, and to identify areas of need or opportunity to help further the success of already-established farms. Data collection for the study consisted of a series of lengthy and detailed interviews with 15 established farmers from across WNC (described below).

In addition to publishing the report, Mountain BizWorks and ASAP will be incorporating the tools and strategies identified into trainings at the Business of Farming Conference, stand-alone workshops, and into Mountain BizWorks' one-on-one farm business coaching services. Visit www.mountainbizworks.org/farm to learn more about upcoming trainings.

The Study Cohort: 15 Established Vegetable Farmers

Researchers limited the farm cohort for this study to only farms that primarily grow vegetables for local markets. After much discussion, it was decided that orchards, dairies, value-added products, or animal operations had substantially different needs and financial systems, and that a focus on just one type of farm was the wisest course for this limited study. In the future, we hope to expand this research to cover other prominent farm types in the region.

Fifteen established produce farmers participated in the study. These farms collectively account for over 3,000 acres in production (ranging from 2 acres to over 1,000). The farms hail from across Western North Carolina including from the High Country, Foothills, Asheville metro, and Southwestern communities. These farms represented 223 years of cumulative farming experience with a median of 15.5 years in farming. Annual revenues for the farms studied ranged from under \$100k to over \$1m. Total annual revenue for the study group was \$3.6m in 2016 (median: \$164k).

Differentiating Between Small and Large Farms

15 farms took part in the study. While many of the study results and findings held true across all of farms surveyed, some of the findings and best practices clearly corresponded with farm size. Farm size in our study is determined by acres of land currently in vegetable/produce production, since that seemed to be a better determinant of what markets a farm sold into than overall farm acreage, given the [large amount land required to raise grazing animals](#).

For the purposes of this study, we considered any farm below 12 acres to be a small or "market" farm, following conventions set out in the [Grower to Grower study](#) released in 2006 by the University of Wisconsin-Madison Center for Integrated Agricultural Systems. Large farms were those with over 12 acres in vegetable/produce production. Our study cohort had seven small farms and eight large ones; three farms were under 3 acres of land in produce production; four were between 3 and 12 acres in produce production; five farms were between 13-100 acres; and three farms were over 100 acres.



Animals Are a Common Part of Diverse Mountain Farms

While we focused specifically on vegetable producers, five farmers we interviewed did have livestock incorporated into their enterprise, while another farmer amended their soil with aged manure from a family livestock operation. These farmers noted that livestock provided them with a valuable source of soil nutrients, and were important to farm diversity in terms of income and risk management as well as maximizing utilization of lands that are hard to grow row crops on.

Some farmers we surveyed had previously raised animals and decided to stop doing so, in no small part because they simply didn't like the killing process. Another farmer is currently moving away from raising animals on their small farm, finding that while the gross income numbers from raising animals looked good, the net profit from animals was low relative to the amount of time and energy and land required to raise them. All of this points towards a need for further research on animal-focused farms in WNC.

Mud to Money Benchmarking Study Report Sections & Structure

This benchmarking study report consists of six chapters, each of which is also designed to function on its own as a “mini-report” that is easy to read and distribute on its own. Brief overviews of each chapter, including links to those chapters, follow below.

1. Farm Goals

In order to understand the strategies, advice, and concerns of the farmers interviewed in this study, we felt that it was useful to understand the goals – both financial and otherwise – that motivate them to farm. Farm Goals compiles and categorizes farmers' responses to the questions, “What are your financial goals for your farm? Are there any other goals you have for your farm?”

What do farmers want? To get out of debt, to make a decent middle-class income, and to build a business that serves their community, sustains a thriving ecosystem, and has the infrastructure and healthy landscape in place needed for the next generation to have it a little easier.

2. Farm Financials Part I: Systems and Tools

Farmers in Western North Carolina (WNC) use a variety of tools and approaches to manage and track their finances and farm records, from paper log books to smartphone apps. Similarly, the ways and the depth to which they used the data they collected differed, depending on farm size, market channels, and a given farmer's interest and energy for data analysis and adopting and setting up new technology.



But while their methods and tools for collecting and analyzing data varied, their reliance on data as a decision-making tool was nearly universal. This chapter of the report covers some of the core tools that farmers are using to collect and analyze data from their farms, as well as some up and coming systems that farmers are experimenting with right now.

[3. Farm Financials Part II: Approaches and Lessons Learned](#)

This chapter dives into how farmers use all the data they've gathered, as well as broader decision-making frameworks, to make strategic decisions about their farm. The first part of this chapter contains eight specific examples of systems that farmers use for data-based decision-making, while the second part covers the broader philosophical and strategic considerations that farmers take into account in making decisions for their farms, to ensure their farms are sustainable and successful in the long term.

[4. Farm Labor](#)

Labor was not initially intended to be a standalone part of this study; only one of the 18 questions we asked participants was about labor. However, we soon found that labor is the single largest cost, and largest source of ongoing concern, for almost every farmer interviewed in this study. All but one of the farms interviewed expressed considerable alarm on how difficult it was to find, recruit, and retain reliable farm laborers, from apprentices to H2A workers and everything in between. Their specific concerns, and some research opportunities and ideas for how to address them, are covered here.

[5. Advice for the Next Generation](#)

The farmers interviewed for this case study have a collective 223 years of hard-won experience on the farm, and a multitude of learnings to pass on. We asked farmers what lessons they'd want to share with the next generation of farmers, and the answers ranged from highly practical information around cash flow, finances, and marketing, to philosophical musings on how to work within the community, find things you love, and be a lifelong learner. This chapter concludes the report on a high note, helping to provide a sense of perspective, as well as lots of valuable advice, for farmers both new and experienced.



Mud to Money:
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WNC Local Food Farms

FARM GOALS

A survey of farmers' top goals and aspirations for their farm enterprise.

The *Mud to Money Series* by Mountain BizWorks explores farm business and financial management best practices identified from in depth interviews with 15 established WNC vegetable farmers.

Mud to Money Chapters:

- Introduction & Acknowledgements
- Farm Goals
- Financials Part 1: Systems & Tools
- Financials Part 2: Approaches & Lessons Learned
- Farm Labor
- Advice for the Next Generation

Full report & additional resources at:



www.mountainbizworks.org/farm

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Introduction: Goals Anyone Can Identify With

During our interviews with 15 established WNC farmers, with farms ranging from a couple of acres to over 1,000, we engaged every farmer in a conversation around their financial and holistic goals for the farm.

We found that all of the farmers had humble, practical aspirations that spoke to their hard work and dedication on the farm: get out of debt, make a middle-class income, pay workers better, work overtime less, pass the farm on to someone else (ideally without the burden of a mortgage), and take great care of the land and their community. These goals are at once inspiring and telling. This chapter shares the goals from the interviewed farms, organized around several common themes, to help readers understand what drives farmers to get out into the field every day come rain or burning sun to grow the food their communities rely on. We hope these goals provide a useful framework for helping readers understand the motivations behind the strategies, systems, advice explored in other chapters like [Farm Labor](#), [Systems and Tools for Gathering and Analyzing Farm Data](#), and [Approaches and Advice for Farm Decision-Making](#).

Financial Goals

Get out of debt

“Transition to private operating loans, and have them be smaller. We would like to go to Farm Credit but can’t do it yet; FSA is hard to get away from for now.”

“Stop taking out annual operating loans (that’ll take a while, but even reducing it really helps).”

“Get rid of credit card debt.”

“Don’t want next generation to be in debt when they start farming; debt hurts when you make money but don’t get to keep any of it.”



“Get out of the operating loan cycle. Get the initial investment it took us to get to this size paid off, and then be able to make a good profit.”

“Be completely independent, with no reliance on outside financing within next 2-3 years.”

Make a Living Wage

“We’re pragmatists, but also idealists. We believe that growing local food for people should earn a middle-class income. We want to claw into the middle class, be able to save for retirement, be able to take vacation or travel, not worry about money all the time. We think that’s around \$65-70k of net income. We’re planning and thinking about how to structure enterprises to hit that net. Through this, we’ve realized that what we were saying is ‘reasonable’ is actually the ‘best we can do’ - to hit that \$65-70k, you have to be perfect at everything.”

“Start with the big picture - we started a farm to earn a living. Our written-down goal from the beginning was, ‘We will earn a living from growing food, and will figure out what the crops will be from there.’”

“By year 3, we hadn’t netted any money, but we knew more about what was possible and reasonable. To earn a teacher’s salary each – not great pay, but people can live off of it – that became the definition of ‘a living.’ Free food is a benefit, but that’s not worth 100 hour weeks. We were lucky to be able to live with in-laws for a while, but by year 3, we had to get more specific and set goals for savings, earnings, and so on.”

“To support one full-time farmer, year-round, with an income of \$30-40k. The farm does not do that yet.”

“Pay one of us full-time in 2018 – start paying for work, get him a livable income for the amount of work that’s put in. We would need to net a minimum of \$25k for that to work. The long-term goal is to replace the other farmer’s income, including benefits, as well.”

“Put our kids through college, retire, own our own home... but ultimately, we don’t want to increase our acreage, but instead to do better with the acreage we have. As we age, to do the things we enjoy doing, bring in income.”

“Eventually, I want to include myself in income by forming LLC or C-Corp and shift to monthly pay. Currently I’m only paying myself out of net income.”



Afford Healthcare

“I’m very grateful for my healthcare subsidy, but I would like to be able to cover our own health care. Our standard of living is great; it’s the savings and healthcare (without subsidy) that’s hard to get.”

“As we get older, health insurance is a big one. In many communities, some place like the Chamber of Commerce will have a group policy that people like me can be a part of. The only thing we’ve found is the Lutheran Church has a policy for group insurance. It would be great if a group like the Chamber or similar had insurance.”

Increase Farm Staff Pay, Training, and Benefits

“Keep increasing the season when we can employ people (making it a better job for us and for them). Maybe get to the point where we have season-extended growing and year-round core employees, even management-level employees, and then have seasonal workers in the summer and other peak times.”

“Increase worker pay – away from interns and stipends. Now that we have a couple of return laborers – our farm doesn’t really seem to work without that kind of laborer –we’ve got to figure out year-round work. Need to increase labor retention. Working towards a salary instead of a stipend system. Already have tiers, of ‘assistant manager’, ‘experienced intern’, ‘newbie intern’ – assistant manager gets food, stipend, and housing including utilities.”

“Keep increasing the wages of my crew.”

“We have always valued education and teaching young farmers. Despite the challenges, we value passing on knowledge and have maintained this.”

“Becoming better managers, so that we can train managers.”

Life Goals

Work Less

“Work less time – we’ve gotten the hours per week down, but it’s still 6 days per week.”

“Work less. Personally have been getting better at this; worked less this year than last year. Going from 80+ to 70 hours is a big difference. Not working in construction this winter really gave me time to reflect.”



“Mostly the time thing. Work less and keep people on year-round.”

“Making the farm not dominate our full-time farmer’s life, but be a career – have a similar morning and evening as other people in the country; go on vacations, et cetera.”

“Goals moving forward are to be in a business that’s value-added, a little less hustle, hopefully be able to focus on a smaller mix of crops, streamline the operation to a level of efficiency that doesn’t require a lot of hired hands, have our weekends available to play – fish, sail, hike, camp, et cetera. In winter here, the season doesn’t really end. We were still picking some things in the field in January, greenhouses were full of crops, so the idea of being able to play in WNC’s mellow winters wasn’t really viable. By the time we were done selling stuff, we were starting onions.”

Transition Farm to another Farmer

“Would like to see it successfully transition to another farmer when we’re done.”

“Get to point where we can pass off the farm to the next generation (whatever that means) without a mortgage. That’s part of why we’re building a tiny house as an AirBnB to bring in income. Ideally, an apprentice will be the right fit, be here for multiple years, and be the right person to pass the farm to.”

“We’re saving for retirement, not for selling the farm per se.”

“Always want to continue growing, to be healthy, to continue to expand assets as well as acreage. To be sustainable for the long term. If it’s God’s will and desire, I want my sons to be able to choose to have the same opportunity that their dad does.”

“The farm is a family operation, with lots of different assets. Would love to see someone in the future develop agritourism on the farm, and connect those assets and operations together.”

“Would like to see this farm become an incorporated establishment, owned by the farmers.”



More than a Profession

Sustainability Goals

“Keep pushing the limits of sustainability – to keep pushing the boundaries of cover cropping, creek bank restoration/riparian buffers, integrating edible perennials into buffers, and so forth.”

“The three legs of sustainability are really important to us: social, economic, and environmental. It’s really cool to be part of the community and feed people, but we need to make sure it’s sustainable.”

“This is part of why building soil is so important. Lessen the number of animals (especially the ones that require grain inputs from off the farm, like pigs and chickens.) Increase productivity from vegetables; not doing more, but switching where the work is and decreasing inputs so that we make more from less.”

“As far as the property itself, we would love to have time to nerd out plant-wise, plant and restore areas, feed into the horticultural passion. We’re scientists at heart; we see this as our big lab, and having the opportunity to fulfill that dream and goal is a big part of this.”

“Buying land to increase land base and stability – going beyond 5 year leases, which have some inherent instability.”

Values-Based Farming

“To make sure we’re growing things that are both profitable and diverse. That’s a value we have, which is why thinking about wholesale is less appealing; we like the complexity of growing different crops. Even if it was more profitable to grow only a few crops, it wouldn’t match our values as a farm.”

“Our farm practices, growing practices, biodynamic practices are living our values. But our marketing outlets don’t necessarily do so. We’re up against more institutional barriers with the selling.”

Connecting with Community

“Would love to host a garlic fest in the area some day.”



“Thinking we’ll set up lawn chairs by the farm-stand eventually and have everything be U-pick.”

“I miss my CSA members and the people interaction with my community. Would love to get to the point where the farm has both a wholesale and retail/tourism side to it; maybe even put in an event space.”

“We’ve been selling food to a pretty elite audience for many years – people of means and education who can afford it. We’re wondering how our food can get to people who don’t have as good a level of access and privilege. Have some ideas about this - moving past donations to a better system.”



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FARM FINANCIALS PART I: SYSTEMS & TOOLS

How WNC farms track
production and financial data
for smart decision-making.

The *Mud to Money Series* by
Mountain BizWorks explores farm
business and financial management
best practices identified from in
depth interviews with 15 established
WNC vegetable farmers.

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Introduction: Data is Essential for Making Smart Decisions

“Financial information is the main feedback tool for farm decision making. We’re going to do sustainable agriculture, so our practices are constrained in that way, but we are not going to grow crops that don’t generate their own income.”

Farmers in Western North Carolina (WNC) use a variety of tools and approaches to manage and track their finances and farm records, from paper log books to smartphone apps. Similarly, the ways and the depth to which they used the data they collected differed, depending on farm size, market channels, and a given farmer’s interest and time for data analysis and adopting new technology.

While the methods and tools for collecting and analyzing data varied, reliance on data as a decision-making tool was nearly universal. 14 out of the 15 farmers we talked to, ranging in gross income from under \$100,000 to over \$1M per year relied heavily upon financial and field data to improve their farm’s productivity and performance, and keep the farm financially sound.

As one farmer put it, “Financial information is the main feedback tool for farm decision making. We’re going to do sustainable agriculture, so our practices are constrained in that way, but we are not going to grow crops that don’t generate their own income.”

This chapter covers some of the systems and approaches that farmers are using to gather and track data about their farm’s field and financial performance, and farmers’ advice about setting up and using these tools and systems. In our interviews, we found that the two are so inseparable that any discussion of one inevitably ties into the other. This includes tools for harvest tracking, sales record-keeping, tax filing, and invoicing/point of sale systems.

Finally, we recognize that all the data in the world won’t help anyone if they don’t have the right mindset and framework to put it to use. In [Farm Financials Part II: Approaches and Lessons Learned](#), we discuss specific ways and approaches that farmers are taking to use this



financial data to make better decisions on their farms, and we share some key advice that these 15 farmers, with their 223 years of collective experience, wanted to pass on to their peers.

Advice and Systems for Gathering and Analyzing Farm Data

As the table at right shows, the farmers surveyed used a diverse set of tools to gather and analyze data from their farms, including financial and sales data as well as harvest records, equipment depreciation, and crop performance.

| Of the farmers surveyed... | |
|----------------------------|--|
| 5 out of 15 | Use spreadsheets |
| 5 out of 15 | Use an accountant or bookkeeper |
| 6 out of 15 | Use paper records |
| 10 out of 15 | Use QuickBooks |
| 10 out of 15 | Use multiple tools to gather & analyze data |
| 12 out of 15 | Track income and profitability of specific crops |

This diversity was true both at the overall level, and on each farm as well; two thirds of the farmers surveyed used more than one tool to track performance, integrating these tools into a system that suited their particular operation. Every large farm used Quickbooks (though not everyone actually liked the software), while every small farm but one at least used spreadsheets to track their financial and/or crop data. The particular tool and system choices that farmers made seemed to be tied largely to farm size and the kind of markets sold into (i.e. farms that into wholesale markets need a strong recordkeeping system), as well as each farmer’s appetite for technology, and the time they were willing to dedicate to data collection and analysis.

Crop Records Are Essential

Harvest and Crop Records

Twelve out of fifteen farmers interviewed kept careful records of their harvests and sales at a per-crop level, logging data on a real-time or weekly basis, and often doing a review at the end of the month. Harvest records were generally entered either in the field through paper log-books or smartphones (including field workers sending text messages to the farm manager with harvest data), or on whiteboards or digital docs when products were placed into storage.

These harvest records allowed farmers to understand productivity and profitability for each crop and to see trends over time. Some farmers even went so far as to track weather conditions over time, to see how that affected harvest numbers or labor time required per crop.

Not every farmer kept highly detailed records of every crop (i.e. exact income per bed). But even those that were a little more lax in their recordkeeping dove deep into data when a given crop seemed to be problematic, or if they wanted to see how worthwhile a crop was for the space and time required to grow and harvest it. “If there’s a crop we’re questioning, wondering about, then we look



at the numbers much more carefully. Doing a study right now, for example, on green beans – picking beans is very expensive from a labor perspective, but they bring a good price at market. So we can compare hours spent (labor cost) to income and space, get exact numbers on it.”

Tracking harvest records is also important for helping to understand how much a given crop contributed to farm sales, and how that crop performed next to its peers. On larger farms, small differences are multiplied by scaling up; on small farms, space is always at a premium. In both cases, understanding crops’ profitability and performance is key to successful farm operation. As one farmer put it,

“It’s sometimes hard to balance record-keeping... But some things are key to keep track of – what you’re sowing, what you’re harvesting, and what you’re making/earning.”

Forms in the Field

Google Forms is emerging as a tool that farmers can use to track conditions and harvests in the field; this is particularly important for farmers working to keep records for their organic certification. Standardized forms allowed them to easily ensure that the necessary data was entered, in the format required, i.e., “Google Forms make it really easy to keep up w/ organic certification. We made a Google Form to make it easy for other people to do data entry.”

But some farmers noted that unskilled or undertrained workers were entering data incorrectly, and that they had to default to doing it themselves. “I was catching errors from other people - things it takes experience to catch – so now I just do most of it myself.”

Forms are useful for more than just organic certification, however; here is one example of how Google Forms integrates with production and harvest tracking workflows:

“We enter production and harvest data into a Google Form from whiteboards, look at input costs, then use invoice information to look at what we made on the crop. This allows us to get clear crop-by-crop comparisons of income, expenses, and labor hours. That way we can compare how a crop does square-footage-wise and labor-wise, look at what’s taking way more inputs or labor or square footage than it’s returning in income.”

Farmers Market Sales Records – Before-and-After vs. Point of Sale

Similarly, nearly all the farms surveyed kept careful records of what went to and was sold at each market or channel. For farmers markets, the general practice was either a) to log (by count or weight) what went off the farm, and what came back from market - a “before-and-after” system, or b) to log sales at the market in real time – a “point of sale” or POS system.



Before-and-After

Every farm's processes were different, based on the people, products, and markets, but some time-tested systems stood out, like this example of a before-and-after market sales process used by a farmers market-centric farm: "As things go into the cooler, they're divided by market channel (one area per farmers market, one for the CSA, etc.). Everything that goes in goes onto a whiteboard, and that's what we took to market. When we come back, we weigh and count everything that's left, and that's how we track sales. This is really easy, takes maybe 10 minutes longer to clean up at end of market than it would otherwise. Then that info needs to get entered; we are trying to record via Google Sheets, and make something that can be smoothly copy/pasted into our database to save us data entry time."

Point of Sale (POS) Systems

Several farmers still used paper log-books to record sales at market; one market even tracked sales per customer in their paper system to better understand whether an underperforming market was worthwhile relative to a favorite market of theirs. Meanwhile, other farmers are using digital POS systems like **Square** to gather sales data in real time, but integrations between digital point of sale systems and financial management tools (i.e. QuickBooks) were noted as a sticking point in this process.

Recordkeeping for Wholesale Customers

Farmers who sold a significant portion of their produce into wholesale markets kept farm more extensive records, due to the detailed inventory tracking and invoice records required to service and manage wholesale accounts. Wholesale client sales also mean extended liability, and a requirement to know and be able to report back data about a given crop or shipment, in case of a food safety or quality issue. Once a farmer starts selling wholesale (especially into grocery stores or through brokers), good recordkeeping is a necessity, not a choice.

Farmers managing wholesale accounts really appreciated **invoicing software**, especially email invoicing; as one farmer noted, "It's great to send invoices via email; you know when a buyer has clicked on it, can do automated reminders, compile customer invoices to say how much they owe, et cetera"

With that said, not all email invoices are made equal. Square invoices in particular were problematic: "The issue with Square is that their invoices are pretty ugly right now. I would love for it to replace QuickBooks invoicing to be our single system of recording income and managing invoices." On the other hand, **Wave** is a software that some farmers really liked for invoicing, but those same farmers noted that while Wave's invoices were good, Wave's reporting was lacking at the crop and product



level, that their accounting software wasn't up to par with QuickBooks, and that their data was hard to export.

Wintertime Deep Dives and Crop Planning

11 out of the 15 farmers interviewed analyze their sales records and farm records at least on a monthly basis. However, much of the deeper analysis for all but the most data-centric farms needs to "wait until December", when things slow down and there's time to do a deep dive into the books and do crop planning. As one put it, "For me, I usually don't have all my info caught up until at least November, when things slow down. Then I can go back, enter the info that's been missing, and start making decisions for next year."

Many farmers do their deep dives at the same time as (or soon after) doing their taxes, whether that's through software like TurboTax or an accountant. **QuickBooks** and the **Veggie Compass** system are two of the core tools that farmers are using for this longer-term analysis and crop planning.

QuickBooks is the Software Used by Large Farms. But it's Not Built for Diverse Mountain Farms.

Every large farm surveyed (8 farms, with large farms defined as those with over 12 acres in vegetable production) uses QuickBooks as their core financial management tool, especially for wholesale accounts. Only two of the small farms (under 12 acres) surveyed use QuickBooks with all but one of the small farms relying on spreadsheets (e.g., MS Excel, Google Sheets). Few farmers seemed to really like QuickBooks as a software, but most who used it concluded that it was pretty much the only game in town, despite its shortcomings.

Areas for improvement included:

- How it handles unemployment insurance regulations for farmers in NC
- Being better suited to highly diverse farms; it's adaptable, but not designed for farmers
- An agriculturally-focused software is needed – "QuickBooks doesn't understand agriculture"

Six out of seven small farmers used spreadsheets (Microsoft Excel, Google Sheets, or similar) to track field and/or financial data; they are the predominant tool used by small farms.

In terms of alternative bookkeeping software, some farmers are experimenting with a software called Wave as an option, but initial reports from farmers surveyed seemed to imply that its accounting functionality still leaves things to be desired.

Veggie Compass – a Useful, if Time-Consuming Tool

Farmers who have used the **Veggie Compass** tool did seem to really appreciate the insights it gave them, but the time it takes to fill out seems to prevent most farmers from using it regularly.



“We did fill out Veggie Compass once, and it would be a good exercise to do so again. Veggie Compass helps us understand deep levels of production cost and market pricing, and helps us understand if it’s worthwhile to drive to Market A vs. Market B, et cetera. Our first time using it was helpful, and inspired us to change some pricing.”

“We use a series of Veggie Compass-type spreadsheets to track cost per crop per year carefully. Thanks to those, it’s pretty easy to understand the cost to grow and harvest an acre of crop. We don’t allocate overhead per crop, but could do so easily thanks to our chart of accounts in QuickBooks.”

TurboTax or an Accountant?

Farmers with a head for software and numbers largely seemed to really like TurboTax, despite its occasional imperfections. “Software-wise, TurboTax does a pretty good job. There are a few questions it doesn’t really answer, but it’s a huge cost savings over a CPA.”

However, other farmers noted that it was just easier to hire a local accountant once their numbers were together. The level of analysis they did made it quick and cheap for an accountant to get them over the finish line: “We have an accountant for the farm business taxes. The key is to have numbers so laid out that it’s easy for him to do them.” “Our taxes are done by a local accountant – we do all the work for her, and then she does the final version.”

Other Tools and Resources

Smartphones in the Field

Smartphones (and the apps that run on them) are increasingly being used by farmers to collect data in the field, market the farm, and even to make sales and take orders while a crop is being harvested.

“Smartphones have tremendously increased productivity for us. They can look things up in the field, make sales on the go, and write up an invoice on the fly. We can also get emails, texts, and Instagram messages in the middle of harvesting and have the crop sold by the time the harvest is done.”

They are also important for farmer-to-farmer networking. “Instagram is all about farmer networking for me. I don’t care if someone from Iowa follows me, but I can look at farms all over the US and get ideas, see what they’re doing.”

With that said, legacy applications like Microsoft Access, which some farmers built their data collection around in the days of specialized farm apps, have some struggles working with newer technology. “Making Access communicate with smartphones has been difficult; it just really doesn’t really want to integrate though it’s something we’d love to solve. We’re now trying to record via Google Sheets and make something that can be copy/pasted into Access to save on data entry time.”



Sometimes, farms are using even simpler systems, like text messaging from field workers to farm managers, to get data in from the fields. However it is done, the ability to collect data in real time and get information from workers to farm management is very important, and points to just how critical cellular and broadband coverage is for modern American farmers.

Paying for Financial Oversight

Four of the eight large farms surveyed had a bookkeeper or an accountant they worked with to run the numbers for their operations and keep their finances in order. A small farm we spoke with also recently hired a bookkeeper who has experience working with farms in the region. They are excited to work with that bookkeeper to ease the burden of their annual wintertime data crunch.

Farm Business Training and Professional Development

Two farmers noted that Holistic Farm Business Management classes were really helpful. As one of them noted, “We got a lot out of the Holistic Farm Finances 2-day course that we took from Organic Growers School in January. It was a little too late for us to implement then, but it did encourage us to get a bookkeeper to do monthly statements; and ideally, the long-term goal would be to have a multi-dimensional cash flow forecast that we could compare actuals to every month.”

“We’re so diversified, have so many enterprises, that it takes a long time to get something like that set up. So that didn’t get implemented this year, but it was a really great training and we would like to take it again to get a little deeper.”

What Are Farmers Looking For In Their Software?

As farmers talked about the tools they use to collect and analyze data from the farm, we gathered a few key elements of what farmers are looking like in their “Dream System(s)”

- An online pre-order and order system that generates invoices, with data that’s easy to export.
- Something that can integrate across expenses, sales tracking, and profit. Also relies on newer technology, but easy to use, and something that can be implemented as you go.
- QuickBooks (or equivalent) designed *for* smaller-scale farming and agriculture. This means designed for diverse farms, often combining vegetable and animal agriculture, potentially some row crops or forage crops as well.
- Point of Sale software with beautiful, elegant invoicing and detailed info on sales by market channel, vendor, item, etc. – well integrated into financial analysis software
- Automated importing of data from field (i.e. Google Forms) into databases



Conclusion – No Single “Right Way”, but Lots of Good Advice and Opportunities

Looking back over all of these practices and tools, there are no blanket answers for “what’s the best way to collect and use farm data?” The right answer will always be a little different, based on the styles, reasons, businesses, and goals of each farm. With that said, there are lots of lessons that can be learned from the farms in our area, and systems or tools that could help farmers struggling with a specific issue overcome that problem by seeing how farmers in similar situations are making things work.

Beyond sharing these lessons and tools from area farmers – in workshops, 1:1’s and online platforms all over WNC and beyond – it seems as though there are some specific areas of training that could help farmers make the best use of the tools that they do have available to them. These include Point-of-Sale + QuickBooks integrations, Veggie Compass workshops that detail out how to implement it in a manageable way, and more Holistic Farm Business Management classes, as well as trainings on using Google Forms or Microsoft Access on the farm.

And there are some specific ways in which digital tools could be improved; something along the lines of a “Quickbooks for Small Farms” was asked for repeatedly. And an improved farm-friendly point-of-sale software that integrates well with QuickBooks or its successors seems like a common need. Both of these have the potential to help nearly all of WNC’s vegetable farmers, as well as numerous other small farms across the country, grow and succeed.



Mud to Money:
Lessons From 15 Leading
WNC Local Food Farms

FARM LABOR

Labor is the single largest cost and concern identified by WNC local farms.

The *Mud to Money Series* by Mountain BizWorks explores farm business and financial management best practices identified from in depth interviews with 15 established WNC vegetable farmers.

Mud to Money Chapters:

- o Introduction & Acknowledgements
- o Farm Goals
- o Financials Part 1: Systems & Tools
- o Financials Part 2: Approaches & Lessons Learned
- o Farm Labor
- o Advice for the Next Generation

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Introduction: Farm Labor - A Key Cost and Core Concern

Labor is the single largest cost, and largest source of ongoing concern, for almost every farmer interviewed in this study. As one farmer put it, “Labor is going to be the biggest issue and the biggest danger for farmers in the coming years.”

Labor was not initially intended to be a standalone part of this study; only one of the questions we asked participants was about labor. We asked farmers, “Who works on your farm? What kind of labor do you use – owners, family, interns, ‘WWOOFers’, paid farm workers and laborers?”

On review of the results from the 15 farms interviewed, it was clear that labor needed its own chapter, diving into the struggles, concerns, and ideas about labor that farmers shared during their interviews.

The small farms interviewed predominantly relied on apprentices, interns, work-trade, and similar sources of farm labor to supplement the labor of the farm owner/operators, with limited numbers of hourly employees. Larger farms (over 12 acres) relied much more on hourly employees and contract laborers. Both types of farms expressed considerable alarm on how difficult it was to find, recruit, and retain reliable farm laborers, from apprentices to H2A workers and everything in between.

Large farms have the capacity to place sizeable bets on a given crop, but the lack of labor available to pick crops in an otherwise good year can lead to painful losses as crops sit in the field and go to waste. Two different farmers interviewed in the study recently lost \$125,000 and \$150,000 respectively in un-picked product due to labor shortages. That represents the difference between a banner year that erases debt and sets them up for future success, and a year that barely breaks even, or even loses money.

Larger farmers must take larger risks, investing big sums of money (for example, \$10,000 per acre to plant, grow, and tend tomatoes) with the hope of great returns in a good year. Losing hundreds of thousands of



dollars because the crops simply can't get picked in time means that a good bet and good luck are squandered, and a farm might not get another such opportunity for several more years. Moreover, larger farms often produce on contract for wholesale buyers like grocery chains, hospitals, and restaurant groups; when they can't deliver product, those contracts may be lost, and reputations damaged.

Small farmers generally have more diverse farms, and less drastic consequences for a missed harvest. However, labor shortages on small farms can also ruin a business, and put great strain on the farmer and their relationships.

Speaking of relationships, we would be remiss not to mention just how important friends and family are to many farms in WNC, small and large alike. Without their help in the field, in the packing house, in the farm-stand, and with key investments at various points along the way, many of the farms we spoke with could never have gotten to where they are today.

Interns and Apprentices

Mounting Costs

While many of the small farms utilize apprentices and interns for much of their farm labor – people who get part of their payment for their work in the form of education and mentorship – these laborers still require a significant amount of money. While apprentice wages are generally low, there are living stipends, food stipends, housing requirements, and other expenses that add up. In the words of one small farmer, “It’s like another mortgage every month.”

Sizeable Investments in Training and Mentoring

Training new workers every year costs substantial time and money, and many small farmers note that they primarily bring on apprentices because they believe that there’s an intrinsic value to teaching someone. Great farm apprentice/internship programs, “support [apprentices] in learning and growing in the areas they’re interested in, provide mentorship such as with regular check-ins, and overall provide a deeper exchange than just ‘you work, we give you money.’”

For many farmers that have apprentices, this value is a core part of why they farm: “We have always valued education and teaching young farmers. Despite the challenges, we value passing on knowledge and have maintained this.” This even influences how these farmers view their own learning, “We have a goal of becoming better managers, so that we can train managers.”

At the same time, as one farmer noted, “As you get older, sometimes you just want stuff to get done.” This is why many small farmers pay more for experienced laborers, strive to bring people back for



multiple years (some are exploring incentive packages to ensure talented people return season after season), and ensure that their teams include some experienced, committed workers.

Recruitment Difficulties

In addition, finding and recruiting apprentices and interns is more difficult in WNC than in some other farming hotspots in the state and around the country. One farmer noted that the Chapel Hill area, for example, has “an almost limitless supply of students and others who are excited to work on a farm, and even a hierarchy of farms that people graduate up through; that is not the case here.” Other farmers who have moved their businesses from other locations such as the Northeast noted similar disparities between WNC’s intern/apprentice labor pool and that of the places they first learned to farm in, even at farms close to WNC’s regional universities.

These labor pool difficulties are particularly pronounced in the more rural areas. As one farmer noted, “None of the people who work on our farm live here [in WNC]. When hiring nationally, it can be tough to recruit someone to a remote rural county.” Another rural farmer noted, “We have struggled with labor pretty consistently and couldn’t find apprentices for three years. We don’t have the magic answer yet.”

Regional Struggles with Hiring

Both small and large farmers alike seemed to have a hard time finding solid, reliable local labor to work in their farming operations. As one large farmer noted, “I have hired 65 locals that haven’t worked out since 2012.” Another farmer several counties away had a similar tale, noting that, “We always hire people who walk on our farm and want a job, but we’ve only had 1 guy who was solid, and wasn’t a contract laborer of some sort.”

While some farmers seemed to be more able to find local workers, the majority of farms surveyed noted that finding good local labor is hard, even at solid wage rates.

And those local laborers that are reliable and talented are at a premium. “People aren’t beating down the door for farm jobs, even at \$10-12 per hour (we pay \$16 per hour for crew leaders and have to keep them if we possibly can as it takes years of training).”

Farmers are Trying to Hire More People Year-Round

Despite the barriers to finding reliable local labor, many farmers are working hard to try and make farming a quality, full-time, steady job both for themselves and for their workers. As one farmer put it, “We need to get cash flow in through the off-season to keep people employed. We have a great crew right now and want to keep them on, keep cash flow moving, and keep the heart of the farm pumping.”



This also means that farmers are working hard to think about how they'll keep their laborers employed for as long as possible, and give them a sense of steady work opportunities. A need to keep laborers on is even driving some farmers to try and find ways to employ people year-round as opposed to seasonally, as the chances of losing someone are much higher when they have to work other jobs in the off-season.

There are some crews and some locals who have found ways for farm labor to be a year-round job: "We have a few locals who work year-round for different farms in the area. They prune apples in winter and are then back in our greenhouses in February." Figuring out ways for more locals to have year-round income on farms could be an innovative answer to the ongoing challenge of finding workers during the farm season.

Specific Challenges Reported

Below are some examples of the barriers that farmers reported facing in finding and hiring local labor.

Specialization and Skilled Labor Requirements

- "Farm work is very specialized when it comes to knowing what you're doing; caring for plants, pruning, stringing, et cetera."
- "Labor on the farm is skilled. It requires people to know a little about equipment and agriculture, and also requires people who are willing to brave the elements."
- "Equipment operators are especially getting harder and harder to find."

Seasonality of Work and Variability of Labor Output

- "Labor costs per output are highly dependent on crop quality – a laborer could pick a case of tomatoes or 4 cases in an hour, depending on how good the crop is."
- "Sometimes we need a lot of labor, other times our crops pretty much maintain themselves."

Transportation

- "Many locals that expressed interest in farm work don't have a driver's license."

Despite Relatively High Wages, Farmers are Struggling to Find Workers

Farmers are struggling to find good quality, consistent local hourly laborers. This raises several questions about why this is so.

Getting Past Historical Perceptions of Farm Work

One potential problem in how farm labor is perceived by local people, potentially based on the experiences of past eras of farm work. While farm labor has an old reputation as low-paying work, no farmer we talked to hired hourly labor for less than \$10 per hour, and many ranged between \$12-15



per hour, with crew leaders and other trained staff getting additional incentives. In the highly rural regions where many of the farms we interviewed are located, these are solid wages (especially given likely overtime). In addition, farmers are much more attentive to the comfort and well-being of their workers than was the case in some earlier eras. Bridging the gap between past perceptions of farm labor and the modern reality on many local farms, is a significant regional challenge.

Are Farmers Paying Enough for Skilled Labor?

While \$10-15 per hour felt like good wages to the farmers we spoke with, the prevailing average wage rates in most WNC counties range from \$14 to \$19 per hour (source: Quarterly Census of Employment & Wages, NC Department of Commerce). Within NC's [Western Region Prosperity Zone](#), comprised of the 13 western-most counties (and including the Asheville MSA), average wages are \$17.63 per hour. Wages are slightly lower overall in the High Country and Foothills regions (represented in NC's [Northwestern Region Prosperity Zone](#)), averaging \$17.22 per hour, and even the lowest-paid county had an average wage of \$13.62 per hour.

As noted, many of the farms interviewed characterize their positions as skilled labor. Given WNC's relatively low unemployment rates, ranging from 3.5% in Buncombe County to a high of 7% in Graham County (source: 2017 Local Area Unemployment Statistics, NC Department of Commerce), it may be that farm wages are too low to attract and retain the skilled, reliable workers that farmers are looking for.

Raising wages for farm labor is a difficult subject. Many farmers do not even pay themselves the average wage rates quoted above (especially considering the long hours they work.) Also, increases in labor prices may make some crops uneconomical to grow and harvest, or at least force farmers to price them significantly higher than current standards.

H2A Labor is Not Working Well for Mountain Farms

Migrant and contract farm workers, long a backbone of the US farm economy, are increasingly difficult for WNC farmers (and according to recent reports, farmers across the country) to find and hire. This includes foreign farm workers on H2A visas brought in by labor services and contracted out to the farm. An H2A visa is a temporary work visa for foreign agricultural workers with a job offer for seasonal agricultural work in the US. The challenges that farmers noted around these key temporary laborers are laid out below.

Lack of Farm Labor Service Companies in WNC

An economic leakage analysis study of the Asheville-area economy conducted by Mountain BizWorks found that a key missing link in the region's agricultural value chain is a local farm labor service establishments. This missing component has been borne out throughout the study interviews:



“There is a real, clear demand for good companies to bring in farm labor – locals or H2A, we want to hire local people to work here, but it hardly ever seems to happen.”

“I’m concerned that all of those programs (contract labor companies) in NC are in the Eastern part of the state, and half of them are corrupt, taking huge middleman fees.”

“H2A labor has been at least 3 weeks late every year, at best.”

“H2A program didn't work for us. It was hard to interview. They arrived late, etc.”

“H2A does not work here in WNC.”

As such, it seems as though there is a clear value chain gap for effective, reliable contract labor, run by a locally owned and operated enterprise.

Policy Improvements for Agricultural Guest Labor

As one large farmer we spoke with said, “We need a good legal guest-worker program for farmers. We don’t want to throw H2A out as an example; we need programs that would work for us and our diversity here in WNC - a guest-worker program that works for both small and large farmers.”

“Look at the work that Farm Bureau is doing; they’ve come out with some official statements that I’d refer you to. We just need to advocate and educate our leadership, policymakers and lawmakers, help them understand how important it is for the agricultural economy that we have a good, legal, and safe workforce. I don’t know that there is any 100 percent right answer by itself.”

Another farmer echoed this last piece, noting that an effective agricultural guest worker program would “have to look at each region, each crop, and be clear about what their needs are.”

Guest Worker Housing

“Farm housing is expensive and difficult – when we had H2A guest workers come recently, we had to rent trailers for them to live in, and that’s very expensive. This year we hope to put up two trailers and a bathhouse for them to live in. Fortunately, I’m married to an engineer/builder/fixer/electrical person who can make that all work.”

Ingrained racial perceptions also factor into the housing challenge. As one farmer noted, “It’s very hard to get housing for people. One landlord nearby said ‘I don’t rent to Mexicans.’ This guy was willing to lose that income because he didn’t want to give migrant farm workers a place to live. This was a good crew that we knew, that we as a business were going to vouch for and pay housing for.”

The cost of doing nothing regarding the farm labor situation is painfully clear: in Western North Carolina, 2 of the 15 farms we spoke with lost well over \$100,000 of income each (a sizeable portion



of their revenues) during what should have been banner, debt-erasing, life-changing years, because they could not find workers to pick the crops that ended up rotting in their fields.

Big Ideas and Research Opportunities

Research and Program Development Opportunities

Help Local Entrepreneurs Start or Grow Farm Labor Service Businesses

Identify specific best practices in farm labor services (using local and/or migrant labor), and assist regional entrepreneur(s) to provide those services in the right way – equitable, profitable, etc. As one farmer put it, “There is a real, clear demand for good companies to bring in farm labor – locals or H2A, we want to hire local people to work here, but it hardly ever seems to happen. We average \$13 per hour for all of our crews if not more, but it’s still hard to get labor.”

Guest-Worker Housing Policy Improvement

Review USDA-RD funding programs around farmworker housing, see what might be done to address farm-worker housing issues. As one farmer said, “The housing problem is awful. USDA should be building houses specifically around major farming areas for workplace housing. USDA-RD has some cost-share programs for housing, but you have to put down so much money to begin with, that you’ve got to be a rich person to make it work.”

Address Barriers to Hiring Locals

Determine what barriers are preventing capable locals and others that could relocate here from applying for farm jobs, and how we can address those barriers. This includes needing to better understand the wage rate that would effectively attract and retain skilled farmworkers, without pricing that labor above what farmers can actually afford to pay given their products’ prices. Wage changes might address some of this issue, but overall labor availability is also a key problem. Are there pools of capable, reliable laborers that farmers have not yet tapped into?

Rural Transportation Opportunities

Transportation to/from farm seems to be a barrier in some rural communities (potential farm laborers not having a driver’s license) – how might this be addressed? Could shared transportation be arranged?



Big Ideas

Help Farmers Farm Year-Round

Assisting farmers with figuring out how to offer more year-round opportunities that would help keep farm laborers on payroll longer, so that farmers don't lose them in the off season (and so that these workers can have a consistent income throughout the year). This might entail multiple farms and agricultural enterprises cooperating to fill the year, or even to fill a day or week to keep a crew around. For example, the same crew will harvest greens in the morning at Farm X, and pick squash in the afternoon at Farm Z. This last idea comes out of an interview with a large farmer, who noted that his crop planning "...works mostly on a basis of, 'what do I sell into a wholesale market that's going to have the best return on cost, balanced on what's needed for crop rotation, and on keeping my employees and crew fairly steadily busy throughout the season?' For example, I need to have squash as well as greens in the mid-summer; labor needs squash to pick during the heat of the day, when we can't harvest greens."

Look at Alternative Sources of Labor

One small farm is contracting out their bed creation, bed prep, and planting to a landscaping company. "Commercial landscape companies are experts at planting... what we're doing isn't ornamentals, but the skill set is the same as landscaping, so many of the skills are completely transferrable. For example, our walking rows get maintained with a weed-eater."

Help farmers identify key labor-saving technology/infrastructure investments

Especially if finding and keeping solid workers continues to be a problem for WNC farmers, regional technical assistance organizations have to look for ways to bring some of the technological advances happening in farming right now to the region's farmers. Farm labor shortages in places like California are already leading to increasing mechanization and automation of many traditional farm tasks. For all the dystopian buttons this pushes in a society increasingly aware of the job impacts that AI and automation may have in the coming years, it is also critical that WNC's farms don't fall behind the technological curve, and miss out on truly transformative opportunities.

Connect farmers and apprentices around best practices

It's clear that the quality and quantity of the work that farms get out of apprentices and interns' labor varies widely from farm to farm. A network of small farmers helping to teach one another about apprentice/intern labor best practices might be a powerful tool for increasing the success of small farms in WNC, and narrowing these gaps. Similarly, a network of farm apprentices in WNC, even something as simple as a few regional farm apprentice get-togethers during and after the farming season, might be a great way to help the next generation of WNC farmers grow and learn. There are



organizations working in this area, and high potential for increased impact with better collaboration across the region.

Conclusion

Labor is one of farming's most important areas for focus, investment, and improvement. A concerted effort among farmers and assistance providers is required to address the labor shortage on farms in the region. WNC's farmers have ideas for ways to address the issue. The question now is – who will lead the efforts to test these solutions, and what partnerships might emerge to help spread and scale the pilot programs that do work?



Mud to Money:
Lessons From 15 Leading
WNC Local Food Farms

FARM FINANCIALS PT II: APPROACHES & LESSONS LEARNED

How WNC farms use data to
decide what to grow, where to
sell it and at what price.

The *Mud to Money Series* by
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Introduction: Turing Data into Good Decisions

As one farmer put it, “Financial data determines what to grow, who to sell to, and at what price.”

While there weren’t many farmers we spoke with who loved the financial decision-making aspects of being a farmer, (i.e. “I didn’t get into farming because I love bookkeeping”), nearly all of them noted how important financial data was in helping them run a successful farm. As one farmer so neatly put it, “Financial data determines what to grow, who to sell to, and at what price.”

At a deeper level, data helps farmers recognize production issues, add or drop market channels, and figure out how much to grow and harvest for a given market. For all these reasons and more, we wanted to help farmers figure out how to make better use of the data they gather, by pointing out some of the approaches and criteria that other farmers use to make sense of their own numbers. As such, the first part of this chapter consists of specific examples of systems that farmers use to make the best decisions they can using the data they’ve spent so much time collecting.

Beyond that, while data is key, philosophical and strategic considerations can be just as important. The latter part of this chapter covers the broader approaches and criteria that farmers use to make decisions for their farms, and ensure that their farms are sustainable and successful in the long term.

Approaches to Data-Driven Decisions

In interview after interview asking farmers about how they use financial data to guide their farm decisions, it was clear that financial data was absolutely key in helping them decide “what crops to grow, what enterprises to expand upon, and how to recognize production bottlenecks.” But finances were not the only decision-making criteria. Many other factors contributed to decisions on whether to grow, expand, or shrink a given crop. These included space and seasonality considerations, crop rotations, labor needs and availability, and of course, whether or not there was a market for it.



Each farmer we interviewed had their own system for decision-making, but there were many commonalities among the systems used, as well as some great specific pieces of advice. Following are several examples of how WNC produce farmers decide what and how much to grow in their yearly crop planning, and what to project in terms of their finances, based on the data that they have gathered.

- 1) “We decide what to grow based upon what’s going to have the best return on cost, balanced with what’s needed for crop rotation and keeping my employees and crew fairly steadily busy throughout the season. For example, I need to have squash as well as greens in the mid-summer; labor needs squash to pick during the heat of the day, when we can’t harvest greens.”
- 2) “What crops seem to be working well and seeing profit? How do we feel growing a crop or harvesting a crop? If we decide to expand a crop can we find labor to harvest it? We don’t track space usage down to the square foot, but do look at roughly how much land on our farm map the crop takes up and how much time it takes to care for, maintain, and harvest it.”
- 3) “There is a clear cut-off for crops that don’t beat the median average for sales numbers. Okra for example, was consistently falling below that line, and we said, ‘man, we really like Okra,’ so we did variety trials, figured out the right variety to grow, and it went way up in the rankings.”
- 4) “We keep track of expenses, harvest records, market records, and income in a Microsoft Access database. What’s taken to market and sold at market also gets tracked in Access – that allows us to carefully track performance of each piece of land, each crop. When we enter harvest records and market records from a field, our Microsoft Access database calculates profit from each bed. Between that and our bank account balance, as well as a three year cashflow projection (our most useful tool for financial decision-making, using a template from NC REAL), we really understand our farm’s cashflow.”
- 5) “We use year-to-year data to see what crops consistently beat projections and what don’t. We also breakdown monthly income to see how they compare year-over-year. We use the on top sellers and net earners to bump up production where it works. At the end of the year, go through crop by crop and see what made the most money. Then look at that number, alongside considerations for labor usage, land usage, and so on. At the end of the day, we ask: will it pay the rent?”

“We also use demand from our buyers to determine what to grow. Sometimes it’s a new crop, and we have to discuss how to best grow it. One thing you can’t measure by charts is the anxiety that each market segment brings. For example wholesale contracts require that we



have X amount of crop by Y date and CSAs require a wide variety of crops, but CSA customers will tolerate a crop failure.”

“Big picture, in terms of crop selection, we evaluate market demand, inputs, pest pressure, disease, and then generally we both plant crops that do well in the heat, and crops that do well in cool weather.”

- 6) “We use Excel sheets to track all income and expenses, on a monthly basis. Also do production record-keeping (harvest yields), and a sowing schedule. Those three ways keep track of financial and growing performance of farm; those three inter-relate and are connected.

We know, from experience, that our set sowing schedule should result in X amount of crop. We then look at harvest yields to see if that actually came true. Then we look at sales to see if we sold all of it. If we increased production on a given crop, but our financial records tell us we didn’t sell all of it, or didn’t yield what we expected to, we can make better decisions.”

- 7) “If a crop is profitable, then we think about strengths and weaknesses. As long as they’re paying expenses and labor, we think about how to fit it onto the farm, how does it work into rotation, how does it fill out our seasonal display, and what’s its risk as a crop?”
- 8) “We have input costs detailed out in Excel, production and harvest data in a Google Form from whiteboards, and then sales/invoice data from Square. We layer production, harvest, and sales data in a big Excel spreadsheet, then compare crops using income minus direct expenses divided by bed space. This allows us to compare how a crop does square-footage-wise and labor-wise, and to look at what’s taking way more inputs or labor or square footage than it’s returning in income. We also look at hours and bed space; not because we’re paying apprentices or ourselves by the hour yet, but it’s important to understand this, especially if we do start paying that way.”

Decision-Making Criteria for Selling Wholesale

A couple of farmers selling mostly into wholesale markets provided some insights on how they decide what to grow, and how much of it.

“We track average daily prices for key crops, like squash and tomatoes. We know which crops are selling well, at what price, and work to understand what's driving sales versus what we can afford to grow, as well as the cost of inputs. We know from experience what average amount of inputs and labor are per box, and work to understand production costs versus price on a weekly basis.”



“We basically look at profitability of each crop every year and decide if it’s profitable enough to keep doing it. We also look at volume discounting for packaging materials, for seeds, and so on. If you can’t sell enough of it, buying a special box or ties for it isn’t worth it.

Broader Decision-Making Criteria

While a farm has to be profitable overall to be sustainable (something several farmers mentioned), some crops might be worth growing even if they’re not profitable on their own, or only slightly profitable. Examples include crops that bring customers to a farmers market booth, or that keep a CSA subscription interesting. Farmer comments to this end follow.

“A lot of it, over the years, has just been a sense of things. We do keep planting records - number of row-feet planted and so on. Over the years we’ve gotten good sense of which crops are really profitable and which aren’t. We also grow some crops that aren’t profitable, even on a large scale, because they’re things that people really like.”

“We keep very detailed records, maintain flexibility, and are willing to change... ultimately, it comes down to being sustainable and making a profit. If you’re not going to make a profit, why do it? ... Do certain things end up breaking-even, or even not make a profit? Sure. But it is about how it fits into the big picture. You have to make sure your bills are paid; good credit is of the utmost importance.”

“For our CSA, we have to provide variety. That means we have to grow a number of different crops, some of which we won’t make money on. That said, in the CSA, we can have a crop failure and people will understand.”

“In discussing gross and net revenue, I’m concerned about people not really understanding the overall picture of what these numbers mean. Farming is about more than gross and net, it’s also about assets: your land, your buildings, your equipment, etc. Gross and net income might change dramatically over time based on what you’re growing, what the markets look like, and the focus of the farm that year. There are different ways of thinking about success in agriculture than just profitability. You might have a year where you lose money, but you made your payments, and you’re building your foundation to have a strong, healthy business later on. As strong, healthy businesses grow, production grows and profit grows.”

“We want to make sure we’re growing things that are both profitable and diverse. That’s a value of ours, which is why thinking about wholesale is less appealing; we like the complexity of growing different crops. Even if it was more profitable to grow only a few crops, it wouldn’t match our values as a farm.”



Decision-Making to Ensure Year-Round Cash Flow

Nearly every farmer we interviewed worked on the farm full-time; in many cases, farm couples both worked on the farm full-time. In an effort to make this sustainable many farmers are looking for ways to generate year-round cash flow, and/or to save up enough to provide their own capitalization for the spring season.

“We’re full-time, year-round, so we try to have year-round cash flow. Cash typically flows out in winter/spring and in in summer/fall. Now we’re working to figure out how we can actually spend some of our income in the fall, so that we spend it before we have to pay taxes on it (because you pay income tax on what’s left).”

“We’re looking at how to have more regular cash flow throughout the season. When we started, we were all about seasonality, seasonality, seasonality... but in working with value-added producers, they want to have the seasonal crops in their products when the season is high, which means they need them early enough to make products and get them on shelves when the “season” starts. This means more frozen and dried product, to extend shelf-life, give value-added producers product when they want it, and smooth out our cash flow.”

“What we’re focusing on is what works well – what sells most robustly for the longest amount of time.”

“When doing crop planning, we also think about seasonality; if we have a crop that’s going to sell at a low cash-flow time, that starts to matter; it might not be extremely profitable, but if it brings in money in early spring, late fall-to-winter, that’s good to know.”

Avoiding Operating Loans

Farmers we interviewed were particularly focused on finding ways to avoid operating loans, and debt in general. This was a goal that many farmers shared with us when we asked them how they would like to see their financing change.

“It would be nice to be able to stay away from operating loans. We’re now thinking of farm carry-forward as our own operating loan, semi-formally paying ourselves interest towards carry-over funds every year. We also know enough now not to buy equipment that won’t pay for itself.”

“Long term, our goal is to have enough sales that our reserve can carry us through low cash flow points.”

“We will always have equipment loans, because equipment will always be getting upgraded every 5-10 years, and as you max out capacity, you’ll need tractors and such. But I’d love to see us get to the point where we have enough money in the bank that we don’t need operating loans. We’re slowly getting there, paying off buildings and greenhouses. I think we can get there.”



“We’ve been working on more year-round cash flow the last 2-3 years; growing early crops so that we can self-finance instead of getting operating loans. Any time you’re paying interest charges, you’re working for someone else; credit is absolutely necessary, but it’s best to limit the need to use it.”

Striking a Diversity Balance

For WNC farmers, especially produce farmers growing crops that are difficult or impossible to insure, diversity is a survival strategy and a constant balancing act, as well as a values system.

“Diversification provides security, but if you’re too diversified, you’re too spread out and can’t excel at any one thing. There’s no one answer for what’s right – depends on farmers, farms, personalities. But it’s a worthy thing to think about, discuss, and consider; always be asking, ‘What’s your diversity balance?’”

“Because we’re not doing the CSA now, we have less of an obligation to maintain certain diversities. We don’t need to grow filler crops for the box like kohlrabi and can select for things that are more profitable for their space.”

“Our crop insurance is variety. We don’t have enough of any one thing to have actual insurance, so it’s all about variety of what we sell and where we sell.”

“One of the problems with being diversified is that you take out that top-end profit potential; I can guarantee you that ever year, something isn't going to do well. You reduce some risk, but lose potential for profit.”

Time Efficiency

Even on small farms that relied on apprentice and intern labor, the time required to cultivate and harvest a given crop, as well as the time required to service a given market, were important factors in determining whether to continue growing it.

Similarly, the time involved in figuring out and using a new farm management tool was key in determining whether or not the average farmer used it. As one noted, “You’re inevitably in over your head on the production side of things, so it’s hard to put in time elsewhere.”

“When we really want to know about a specific enterprise or a specific activity, we can get detailed on it. A big challenge is trying to figure out labor-per-crop numbers. We’re trying an app called BeetClock. It would work well if everyone had the app and it would sync, but as it is, someone has to aggregate all the data. At this point, we need a data-keeper for the farm, someone to do motion studies and data entry; a lean manufacturing specialist essentially.”

“The highest performing farms are converting labor to dollars at a much higher rate than we do. Crops are different, markets are different, so we recognize that we might need to change the crop mix to



follow high-performing farms. They grow year-round which helps convert paid labor to dollars at a higher rate (that is, getting paid for a higher percentage of work done on farm themselves).”

Meanwhile, farmers who do value their time and carefully look at the true costs of what they sell, often run into market competition from competitors who do not. This could be attributable to a number of factors (e.g., inexperience, lack of reliance on farm as key income source, lack of detailed cost analysis, desire to attract customers by underpricing competitors), but in the end, “Markets always have someone undercutting prices because they’re not factoring in their time.”

Maximizing Productivity and Profitability of Growing Space

Many of the most successful small farmers carefully look at their beds’ productivity and profitability to ensure that they’re making the most from their limited land resources.

“We look at the amount of space something takes, for how long, and what the total yield is; that’s how we determine profitability of that crop.”

“We track time from bed prep to harvest, where in the field that crop is, and how much space is taken up by a given crop broken down by crops started in greenhouse, crops grown in greenhouse year-round, crops grown in the soil on our own land, and crops grown in the soil on leased land.”

“We don’t track space usage down to the square foot, but do look at roughly how much of land on farm map the crop takes up and how much time to care for, maintain, and harvest.”

“We use mostly the same fertilizer, same amount of irrigation tape, and such in all of our beds, so ‘rent per bed’ is something we can break out fairly easily using QuickBooks. Only things like hoop beds and tomatoes cost more and need to be costed differently. In the last few years, we’ve been able to understand total revenue per bed versus overhead cost per bed; the goal is to get every crop making \$600 dollars per 100 feet of bed.”

Costs Associated with Change

While several farmers noted that they would like to use different software and systems than their current ones, they were also acutely aware of the costs involved in changing – not just in money, but also in time and frustration. With time always at a premium, and many of the alternatives seeming to be uncertain, farmers would need clear assurance that the change is really worth it. Otherwise, the general consensus was, “Our systems aren’t bad, and changing over might be more trouble than it’s worth.”

If there truly is software available that would make life significantly easier and/or save farmers money over the current options, our interviews suggested that significant technical assistance and farmer-to-



farmer discussions would likely be needed in order to change the standards and help WNC's farmers get over the adoption gap.

Conclusions

Every farm is unique, especially in a region famous for the diversity of its climate conditions and geography. Farmers also tend to be independent types, leading to even more diversity in the ways farms are run and managed. Even so, there are some clear best practices that emerged in this round of 15 interviews, spanning farms grossing everything from less than \$100k to over \$1M per year.

While collecting data is not everyone's favorite farm chore - gathering it is nearly as essential as cultivating the rows. The most successful small farmers were those who kept careful farm and business records, and even farmers with decades' worth of experience still made sure to get the data necessary to see how crops and sales were faring month-to-month and year-to-year.

It was clear that while data and financial information are essential to making good decisions for the farm, they also need to be weighed against other, less measurable factors. Farmers need to weigh labor availability, crop rotations, local and national weather reports, customer demand, and their own likes and dislikes in order to arrive at a well-balanced decision. Data's role is often to highlight areas that need addressing and successes that should be celebrated, pointing the way to a profitable, sustainable future. We hope the frameworks in this report will help others make their own hard choices.

The unfortunate fact is that according to the data collected through this study, most farmers in Western NC, even many of those identified as the most successful, still aren't making a living wage. A few of the farmers we spoke with are making what one farm couple called "a teacher's salary each - not great pay, but people can live off of it." Farming is inherently risky, and the diversity required by WNC's growing conditions means that few farmers here can win big.

Moreover, [labor shortages](#) can often prevent farmers from actually winning big, as crops sit unharvested in the field. The best farmers we spoke to are either at or approaching the living wage line, but more work still needs to be done in order to make farming in WNC the kind of profession that can support a family in the long term. The details of what farmers are working towards in terms of profitability, net income, and benefits are addressed in the [Farm Goals](#) chapter.



Mud to Money:
Lessons From 15 Leading
WNC Local Food Farms

ADVICE FOR THE NEXT GENERATION

The *Mud to Money Series* by Mountain BizWorks explores farm business and financial management best practices identified from in depth interviews with 15 established WNC vegetable farmers.

Mud to Money Chapters:

- o Introduction & Acknowledgements
- o Farm Goals
- o Financials Part 1: Systems & Tools
- o Financials Part 2: Approaches & Lessons Learned
- o Farm Labor
- o Advice for the Next Generation

Full report & additional resources at:



www.mountainbizworks.org/farm

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Introduction: Farmers Share Lessons They Learned the Hard Way *(So You Don't Have To)*

The farmers interviewed for this case study have a collective 223 years of hard-won experience on the farm, and a multitude of learnings to pass on. The final question we asked in every interview was, “What are the most important decisions that you’ve made as a farmer, that you’d want to pass on to the next generation of farmers?”

The farmers interviewed for this case study have a collective 223 years of hard-won experience on the farm, and a multitude of learnings to pass on. The final question we asked in every interview was, “What are the most important decisions that you’ve made as a farmer, that you’d want to pass on to the next generation of farmers?” Answers ranged from highly practical information around cash flow, finances, and marketing, to philosophical musings on how to work within the community, find things you love, and be a lifelong learner. With so much experience, passion, and knowledge to pass along, we let their words speak for themselves...

Financial Planning Advice

Learn From and Connect With Other Farms and Farmers

“Just work on a farm and get paid while you learn the ropes. Grow, learn, and don’t start your own until actually ready.”

“Share experiences. Network. Be humble. Be honest. Have integrity. Be active in your community. And surround yourself with good people.”



“If I could go back and do it again, I would have spent at least one season (summer) on a veggie farm that was the size I wanted to grow to, see how they do it, avoid a bunch of mistakes and spent money.”

Plan Ahead for Lean Times

“There will be good years... and there WILL be bad years. Always be preparing for those bad years. And sometimes staffing is a reflection of that too. There are so many ups and downs to farming; you have to constantly be thinking ahead.”

“One thing that we did well was being decently capitalized to start when we began the business, and we’ve continued to manage the cash flow of the business well. That good business planning has allowed us to get through learning periods.”

Take Your Time Growing the Business

“At the time I started, you couldn’t have told me I need to take my time in growing the operation, starting small and keeping the debt ratio reasonable. But growing at a rate where you can keep debt and stress in control is a good practice.”

“Be creative with what you have. We are not an infrastructure-heavy farm, we don’t have a ton of equipment; add things slowly and add things in a smart way. We used a PCS tiller for 5 years, then bought a tractor cooperatively with 3 other farmers, and then bought them out of it.”

“We didn’t start farming to make big money, but you have to make money to keep farming. You’ll have to apply yourself at running the business, not just figuring out how to grow.”



Things Will Cost More Than You'd Expected

"Farming is not actually a cheap business to get into."

"The various inputs – plastic, fertilizer, micro-irrigation, etc. – are very expensive."

"Invest in a tractor or don't make money. Invest in a barn for cold storage. Wish I had known these things would add up to close to \$80k, not including the land."

"Gross sales might sound impressive, but doesn't take long to eat that up in expenses."

Find Ways to Avoid Debt

"Figure out ways to bring in early income; avoid operating loans."

"One thing that we did well was being decently capitalized to start when we began the business, and we've continued to manage the cash flow of the business well. That good business planning has allowed us to get through learning periods."

Put Government (and Nonprofit) Resources to Work for You!

"Use your government resources and put your own tax dollars to work. You, as a tax payer, pay for services like Extension agents, USDA agents, etc. Find out about them and use them."

"Use the resources that are out there, and if you don't know them, ask, because there's someone else out there whose job it is to introduce you to them. And if someone isn't helpful, isn't doing their job, you can go above them, even go directly to your congressman."

"Use all the resources that are out there."



Put Government (and Nonprofit) Resources to Work for You! (continued)

“If you're interested in a grant, call the grant administrator. Ask questions. Ask them how points are assigned, what category gives the most points. As someone who works for the government and has to review applications regularly, I can tell you that it makes our jobs easier when someone actually calls and asks; makes sure things are OK.”

“You’ve got tools. Don’t forget that you have people there whose job it is to help you.
a) Extension can be amazing; b) Research is great here too – i.e. Mountain Horticultural Crops Research and Extension Center; c) Nothing takes the place of experience and education; d) Get to know other professional farmers; e) Get to know FSA, get to know NCSA and Farm Bureau; f) Get to know your ag suppliers; g) Get to know your agronomist; h) Get to know other ag experts in your community;
i) Don’t forget ASAP! They’re tremendous.”

Marketing Advice

Sell It Before You Grow It (Or At Least Research Your Markets Well)

“Determine your markets in advance, plant slightly more than you know you can sell, then you can cherry pick best of each yield and be known for higher quality products.”

“Look at market trends, keep an eye on the weather elsewhere and what it'll mean for crops there; especially important if you're a wholesale farmer.”

“Sell it before you grow it – have buyers and markets for what you grow.”

“Make sure that the markets and crops you’re growing in are the right places.”



Find Your Own Niche

"A lot of 1st generation gardeners read the books, follow the books on how to be a market gardener. Not everyone can follow the same book and all succeed. Look at what other people are selling, what they're not selling, why they're not selling it... can't all grow the same things. Look at the trends, look at the data, and make informed decisions. The world can only handle so many microgreen farmers."

"If something hasn't been grown in an area before, there's probably a good reason why."

"Be creative; look for holes and try to fill them. Finding a niche and a market is intimidating, but you've got to find the thing that you do and get known for."

Learn to Listen Well, and Sell Creatively

"Listen to what people say they want, and to what they say they don't want. If you're not getting an enthusiastic "YES! I want this! I want this now!" that means they don't want it, and they're just being nice to your face. Learn how to read people really quickly."

"If you're going to sell something, you have to be willing to hear a "no", go back to other people and other places."

Distributors Can Help Selling Product, but that Margin Hit is Painful

"If you're not going to sell your own product, you'll need a distributor who's good, but it's hard to make it on distributors alone; they take 20%, and it's hard to lose that profit margin and make it work as a farmer. We sold only direct at first. Only been since we got bigger and had to move more volume that we needed a distributor to help us do that."

"Our profit margin is affected in the end if a direct-sale customer doesn't buy what they say they were going to, have to go through distributor instead."



Find Ways to Stand Out to Your Buyers

“Our buyers like us because we’re not just selling them stuff, but also connecting them to resources like an inexpensive local certified kitchen. One of us loves to help out brainstorming with clients on tastes and flavor profiles. That maintains relationships, keeps buyers coming back and us first-of-mind when there’s a given product they’re thinking about. Have heard of people coming in and pursuing our buyers, saying they can get them product cheaper.”

“That relationship we have with our buyers is key, up to even making sure a given buyer is OK with us selling specialized products to other buyers.”

“Work with your buyers: direct press to them, focus the spotlight on them.”

General Advice

Find What Works for You

“Pay attention to the things you don’t like and that you’re not good at, because what is that teaching you?”

“Balance head and heart. The stuff you love, and the stuff that keeps it all running.”

“Do what you’re good at. We have done almost every enterprise under the sun as farmers – almost all the market channels, agritourism, pigs, sheep, chickens... haven’t done mushrooms, but basically, what we’ve figured out is that you should start to peel away the things you’re not good at, and that you don’t like as much. We raised animals for years, but found that we didn’t like the killing process. Took a break from farm dinners for a while, because it was too much, and then came back with a restructured approach.”



“The way business works is that you have to have a willing customer and buyer that meshes with you. Figure out who it is you’re supposed to be serving, serve them, and invest in that.”

“What works for one may not for another. However, fundamentals and ideas must be shared.”

Do Diligent Weed & Pest Control Early – You’ll Thank Yourself Later!

“I wish I could tell young me to do really good weed, pest, and disease control. Those things have now become economic problems for us. If you don’t do good weed control in your first few years of farming, you’re paying for it for 30 years... you’ve built up a huge seed bank of weed seeds, diseases in the soil, insect eggs, etc. There are economic costs of not doing these things that are accruing now. Even with all the best practices later, you’ll regret those early decisions.”

“Don’t be afraid of plastic (row covers/plastic mulch). I was against it, but I rationalized switching over by saying, ‘I could fill up 2 dumpsters a year with this plastic, or go back into construction and fill up 20.’”

Be Prepared for Weird Weather

“Flooding can be a big issue. Crop insurance is important for this – it won’t pay you big, but it can save you.”

“Weather-related losses can be huge. Crop insurance was only reason we made it through last year.”

“The climate has varied a lot more in the last few years. Grow at least one crop that will do well in heat, and one that’ll do well in cool weather.”



Farming is Hard, Risky Work, but Worth It Nonetheless

“Farmers are independent folks, but also risk-takers and dreamers.”

“You’ll always work more hours than you’d expected.”

“Don’t be afraid to take a leap; different set of stressors but worth it despite some lean times.”

“Don’t be too cautious. You kind of have to have the gambling mentality a little bit, get in there and go for it. If you’re always waiting around, you miss opportunities. We did that here and it backfired on us, but our other experience with that was very successful. And we’re about to do it again; jump into something and see how it goes.”

Don’t Give Up!

“Don’t give up in July! That’s when you feel like giving up, but you can’t. If you give up in July, you won’t have anything in September or October.”

“The only reason I’m still farming is because I just didn’t stop. Even when I maybe should have. You have to be very stubborn, push through it when it’s tough.”

“Don’t give up or get discouraged.”

“I wouldn’t change it, even in the hardest times. It’s fun, and it’s a rush, if you like to gamble. A good way to appreciate what you’ve got.”

“It’s a full-time job with no benefits and minimal control. But it can be anything you want it to be. It’ll be as good as you make it.”

Be a Lifelong Learner, and Be Willing to Change

“Don’t be afraid to change – to try to make it better.”

“If you get set in your ways, that is a recipe for disaster.”



“Stay open minded. Listen and learn.”

“Have a Plan B, Plan C, and so on.”

“Listen to the results you’re getting. If something isn’t working, change it or stop doing it.”

“Farming is a very complex business. It’s so diverse and complex; it is such a business that I think all the education you can get is good. Always need to be continuing your education. Doesn’t matter if you’re a 70 year old or 20 year old farmer; you need to continue your education. You have a Farming Practice, just like a doctor practices medicine or a lawyer practices law.”