



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
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

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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.