

## Putting It All Together to Have Profitability on a Small Farm

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Pleasant Valley Farm is located in a valley in a rural town 25 miles northeast of Saratoga Springs, New York and we have been operating it as an organic fruit and vegetable farm since 1988. We have 2 children, Robert (age 10) and Kimberly (age 7) who are homeschooled and help on the farm. We own 60 acres and rent our neighbor's 120 acre farm, both of which have somewhat, limited tillable soil for good vegetable production. We use a total of 6 acres for vegetable production, 1/2 acre for large fruits and 1/2 acre for small fruits, and keep another 4 acres in cover crops for rotation. We grow a diverse selection of more than 40 types of vegetables and fruits for retail sales at four area farmers' markets that operate each week May 1st through the end of November.

Since the start of our farming career 15 years ago, our goal was to make farming a full-time venture, to not work off the farm, and to raise a family with a good quality of life. We were able to accomplish our goals in a matter of 4 years and become profitable by using a combination of good business management techniques, good record keeping, season extension and creative marketing. Profitability to us means each year being able to pay all of our bills, maintain what we have, invest money back into the farm, put money away for retirement, and have a comfortable lifestyle.

Good business management is probably the key factor to our success. We treat our farm as a business so that farming becomes a lifestyle that we thoroughly enjoy. A good accountant that specializes in farms is very important. If the accountant is well versed in farming, taxes can be greatly reduced and the farm can be set up to be most beneficial in terms of type of business, health insurance, employees, expenditure categorizing, etc. Part of good money management is knowing when to spend money and when not to. Accountants can play a part in determining this, but also our own records help us to justify expenses for improvements on equipment or purchasing equipment to make labor more efficient and crops more profitable.

Our goal from the beginning was to reinvest \$10,000 each year back into the farm and it was critical to know what would give us the best return on our money in order to continually increase our profitability. In our early years, we realized that irrigation was essential because the lack of irrigation was costing us a loss of at least \$10,000 each year due to inconsistent seedings, loss of sales, and low yields. The year after irrigation was installed (at a cost of about \$15,000 for 4 acres), the irrigation made us an extra \$30,000. Another early purchase was a barrel washer, which cost \$1000 (built by farmer Dick de Graff). We could calculate from our records that the barrel washer paid for itself in only two weeks! Similar improvements we found to be good business expenditures over the years included: a walk-in cooler, field tiling for drainage, basket weeders, potato planter, tater point to dig potatoes, manure spreader specific for spreading compost, and a vegetable washer.

In our first 8 years, we had only spent a total of \$12,800 on all equipment. In our 9th year, we finally bought a new tractor with a loader and 5 foot rototiller (\$21,000) when the farm was finally making enough money to justify the higher debt. It's important not to incur early unnecessary debt, and it's amazing what you can live without during the start-up years. We know how to save money, but also know that we have to spend money to make money, provided we've calculated the return on our dollars spent.

Our business management techniques involve a lot of attention to detail. Knowing what crops are worth spending time on is important since there are only so many hours in a day. Time management is critical to making the most of our day and ensuring that what we are doing is profitable. This doesn't mean that we avoid doing things we enjoy or not growing a few crops because they have a low return per hour or acre; farming should be fun, but we strive to make everything as profitable as possible. One example of this is parsnips; we read once that parsnips are one crop that a farmer should grow because they taste good, not because they make you any money!

Attention to detail covers all aspects of our farm from weed control to preparing produce for markets. We realized early on that if we prevented weeds from going to seed, it would reduce our weed seed banks and labor spent in weeding. Good weed control also increases harvest efficiency, yields, and everyone's morale; we enjoy working on a farm that everyone can be proud of in terms of organization and visual appearance.

Preparing our produce for markets incorporates many rules and details to ensure consistency of product, customer satisfaction, and efficiency in preparing. Since we sell at farmers' markets and there is a lot of competition between vendors, drawing customers to our table is important for our continued success. In order to do this, we only want to send the best to the markets and have a table full of products that we are proud of. When we hire employees, it's important for us to know if they are detail oriented or whether they have a this-is-good-enough attitude; we've learned that matching personalities helps maintain a positive atmosphere on the farm. We all know that happy employees are the best kind!

Some of our management decisions are made by a hunch, but many are based on the records that we keep on our farm. Record keeping is very valuable for running a farm business. Maintaining very simple records works well in our farming system and it requires minimal time outlay. We keep field seeding records in a notebook and what is listed is: date of seeding, variety, row footage, and spacing. From these few numbers, the square footage of each crop can be calculated. For example, many of our crops are planted in beds which have 4 rows planted 14 feet apart and are 100 feet long and have two feet between beds; each of these beds is therefore 550 square feet. We also use a simple spreadsheet in a notebook in the washing station that is filled in each harvest day showing the product, quantity packed for the market (bunches, heads, pounds, etc), and the quantity that returns from the market. From those few numbers, a total quantity sold of each product can be determined at the end of the year, and therefore its total approximate value.

These simple records help us utilize two rules that we employ in our management. The first rule is what we call the "\$10,000 per

acre rule.” What that means is that each crop is expected to have a minimum gross value of \$10,000 per acre if extrapolated out. This calculation is determined by using our records that show the square footage of each crop that is grown on and the actual dollar value that each crop produced for the entire year. The extrapolation is necessary because we do not grow an acre of most crops and we need to have a system to compare them evenly. Planting most crops intensively in rows 14 inches on center is important to utilizing small acreage to its fullest extent on our farm.

If a particular crop is not making us \$10,000 per acre, then we must once again make a management decision on that crop to raise its value. Some of the options to accomplish this are: improving our production and harvesting techniques; changing the variety; packaging or displaying it differently; increasing the price; or extending its growing season. Another option is to discontinue growing the crop, which we rarely do because that would reduce our diversity.

To give an example of how this rule has worked for us, we will examine pea production. In an average year (or an average over several years), our records showed the following:

**SUGAR SNAP PEAS:**

Income = 538 pints @\$3/pt = \$1,614

Field space = 2,700 square feet

Since 1 acre = 43,560 square feet, the actual acreage planted is  $2,700/43,560 = .062$  acre

Then to extrapolate to show the value of the crop for one acre:  $\$1,614/.062 \text{ acre} = \$26,032$  per acre

Using these same formulas and our records, the value of the other peas were:

**SHELL PEAS:** \$8,614 per acre (at \$2.50 per quart)

**SNOW PEAS:** \$48,214 per acre (at \$3.00 per pint)

Thus, we decided to stop growing shell peas because the market would not bear a high enough price to make it profitable to grow according to our standards and there were no other options available. We increased our plantings of sugar snap and snow peas to accommodate what quantities the markets would bear.

Each year we evaluate our crops during the winter based on those simple records we keep 3 days per week when we harvest; the calculations take only a day or so to give us the final data. We are beginning to use our computer more and more, but for the most part, pen, paper and a calculator give us the valuable data!

The second rule that we employ in our management to maintain profitability is the “\$30 per hour rule.” What that rule means is that each employee, while harvesting and preparing produce for the markets, must be earning a minimum value of \$30 per hour for each crop. An average worker can pick 25 pounds of beans in an hour and for us, that is a value of \$62 since we retail them at \$2.50 per pound. Beans therefore meet our criteria and are profitable enough to grow. Raspberries however are a different story, since an average picker can maybe pick only 13 half-pints in an hour. We sold them for \$2 per half-pint; thus the value was only \$26 per hour at best. Since our customers love organic berries, we were able to raise the price to \$2.50 and could still sell all we were growing (now \$33.50 per hour). Raspberries are still a low value crop when compared to most of the other crops we produce, so we therefore leave them to harvest last each market harvest day, and

we pick as much as time allows before the truck pulls out for the market. In this way, we are maximizing our income for the market by harvesting the most profitable crops first.

Season extension has been important to our farm since it makes certain crops more profitable and it extends our growing/selling season. Our farmers’ markets begin May first each spring, and season extension has given us the opportunity to provide customers with an abundance of produce in May, which is in high demand after a long winter. Selling early crops also produces an income of much needed spring money. Having produce for the first markets gives us the advantage of getting customers in the habit of coming to our table first, and hopefully sticking with us all season long. Likewise, season extension allows us to have the greatest amount of diversity for our October and November markets. Creating a colorful display filled with a diverse supply of abundant, fresh, quality produce draws customers every week.

Through the use of floating row covers, season extension houses, and frost irrigation, we have been able to extend the seasons successfully. Row covers have been used extensively on our farm to enhance growth and protect crops in the spring and fall from light frosts. Some of these crops that benefit from row covers are: peas, radishes, beets, spinach, lettuce, carrots, potatoes, swiss chard, beans, cucumbers, squash, turnips, herbs, and rhubarb. As an example, by placing row cover over rhubarb as soon as the snow has melted, production starts one to two weeks earlier (May 1st in our area).

Small fruits such as strawberries and fall raspberries also work well with spring row covers. June-bearing strawberry production (both for matted row and annual bed systems) can be enhanced by applying row cover as soon as the winter straw can be removed. This row cover will stay on until 10% bloom is achieved and pollination is necessary. In our experience, using row covers on fall raspberries, we have been able to start picking Heritage berries by mid-August, thus increasing the yields since more are picked before they are frozen. The technique we have used is to mow down the raspberries sometime in late winter, then place wire hoops (#9 galvanized) over the beds as early as possible (when the snow has melted in March). Rowcover is then placed and secured over the hoops, which are about 18" high in the center of the beds. The row cover must be removed when the plants start pushing up the row cover or when outside temperatures reach 75 to 80 degrees.

Row cover comes in several thicknesses. We use P-17 extensively on our produce, but we have also tried the heavier P-30. P-30 works well in the wide widths (30 feet) but P-17 is adequate in the smaller widths (15 to 20 feet) because there is no need for the added strength for handling. Using P-17 for crop protection for very cold temperatures (below 29 degrees) works well if we use multiple layers. Row cover lasts approximately two years on our farm and during that time, it would be used on at least 2 spring and 2 fall crops. It is important to roll it up, label it, and store it under cover, out of the sun, and out of the reach of mice, whenever it is not being used, in order to lengthen its life. Many types are now available, including a “stronger” brand called Typar.

Since 1992, we have been building season extension houses on our farm. We have termed these structures “fieldhouses” because they are temporary, sit directly on our growing fields, and

lend themselves easily to rotations. We have utilized two home-made designs that have worked well for us. The fieldhouses are all 14 feet wide by 96 feet long with a 6-7 foot height in the center. We have built two plastic-piped fieldhouses with an approximate cost of \$600 each and two metal-piped ones with an approximate cost of \$800 each (materials only for both). Both designs of houses utilize 3-year 110 x 24-foot greenhouse plastic, which lasts us 5-6 years. The two metal-piped houses are constructed in the fall and remain up all winter, since they can withstand snow loads. The two plastic-piped houses are constructed in the early spring (March). All 4 houses are dismantled by approximately June first when all danger of frost has passed. Each house takes 2 people about 8 hours to construct.

Many different vegetables can benefit from being grown in a fieldhouse. We have trialed lettuce, spinach, peppers, tomatoes, beets, swiss chard, basil, and interplanted radishes and scallions. We choose to extend the season on a particular vegetable due to the fact it is in high demand by customers, it's a high value crop, and we would not be able to have it at that time of year if it were not grown in fieldhouses. For example, lettuce is seeded weekly in 200-cell speedling trays in the greenhouse starting in February. Then in March, we transplant 600 lettuce plants each week for three consecutive weeks into one fieldhouse. Planting them 12 inches between rows and 8 inches in row gives us a total of 1800 early, marketable heads of lettuce. Therefore, this one fieldhouse provides us with lettuce for the month of May and the lettuce has a value of about \$3100.

Similarly, we start spinach in the greenhouse in late February in 200-cell speedling trays. As with lettuce, spinach is seeded every week then transplanted into two fieldhouses with a 5-inch spacing between plants and 12 inches between rows. We generally use the varieties Space and Tyee, but several other varieties are trialed every year. We plant two fieldhouses with spinach over a 4-week period and each fieldhouse produces a crop valued at about \$3200 if we pick leaves only and sell them at \$6 per pound (extrapolates out to \$113,000 per acre!). Our timing of transplanting crops into the fieldhouses and out in the fields provides a continuous supply throughout the year.

These fieldhouses have given us a great return over the years, especially since the structures are used over and over each year. They are basically unheated except when planted to crops such as tomatoes and peppers. In those cases, the plants were started in the greenhouse in February and planted into the fieldhouse about May 1st when they were in 4 inch soil blocks and flowering. When necessary, we have used a portable, propane- fired heater when the temperature drops below 40 degrees. One year we grew lettuce and then interplanted tomatoes; those two crops grossed \$5300.

In addition to using these fieldhouses for growing early crops, we have also used these structures as an overflow area for transplants which had been started in our small greenhouse in the spring; examples of these crops are: perennials, onions, and greens that are cold tolerant. During the winter, our ducks and laying hens live in one of the metal-piped fieldhouses, which provides them shelter. In the other metal-framed house, we grow hardy greens that are planted in early fall, such as spinach, mache, kale, and lettuce. By covering these greens with two layers of rowcover and putting wire hoops over the lettuce, they provide our family

and friends with good eating all winter long.

Since the installation of our full-overhead irrigation system in 1993, we have been able to utilize frost protection to extend the season both in spring and fall. In the spring, when the strawberries are in flower and rowcovered, they can benefit from the added protection of frost irrigation during cold nights. During the cold autumn nights, crops that are difficult to rowcover, such as staked tomatoes, fall raspberries, and squash can be protected. We have harvested tomatoes till the end of October through the use of this method. The drawback to this frost protection system is that multiple nights of subfreezing weather can cause over-saturation of the soils due to the excessive quantity of water sprayed and possible diseases. We now try to double or triple rowcover strawberries instead of frost irrigating them.

Marketing is very critical to the success of our farm. We feel that we need to be better marketers than growers to be successful. Good production techniques may produce an excellent product, but if we have no place to sell it, then there will be no benefit to our farm. We have in a limited amount, utilized all types of marketing over the years, but have relied on farmers' markets in recent years as the outlet for selling nearly 100% of our products.

At a farmers' market, we are not only selling our produce, but we are also selling ourselves. It is very important that at least one of our family members is present at every market, as customers want to know the farmer. We have policies that are customer friendly that keep them coming back each week, such as a 100% satisfaction guarantee on all our produce. We try to give 110% service to all our customers by giving them more than what they expect, such as special orders, growing advice, recipes, and brochures.

A good tarp system that will protect the produce, ourselves, and customers from the hot sun or rain is critical. We use two different tarps: a white one for cloudy days and a silver one for sunny days. A silver tarp totally reflects the sun and gives dense shade underneath. Colored tarps tend to cast unnatural colors on the produce. We added a brightly colored red and white awning several years ago which brightens up our stand and assists customers in finding us.

A lot of time and effort should be put into your table displays. Fresh, high quality produce should be displayed and kept well stocked throughout the market. Freshness can be maintained by misting the produce with a spray bottle and misting vegetables like carrots and potatoes also enhances their color and makes them more appealing. Displays should be done with color and eye appeal in mind; spread brightly colored items throughout the table to draw attention to everything. Getting to know your customers by name and growing what they want is valuable information. Growing a diverse selection of produce not only helps to make a colorful display, but also promotes "One stop shopping" for the customers.

In order to maintain a profitable farm year to year, stability of income is important and we achieve that by our diversity of crops. In any given year, there are always a few crops that do not do well, while others do better than average. Also, to increase farm net to follow along with all other cost of living increases, we choose not to grow more acreage, but to merely raise a few prices by 25 cents to gain a 5% increase in total income. Increasing our lettuce price alone in 2002 from \$1.50 (where it had been for over 5 years) to

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\$1.75 gave us the 5%! We talk about raising our standards for our rules to \$35 per hour and also \$15,000 per acre; most of our prices and crops are at or above these thresholds already.

In summary, good business management techniques, good record keeping, season extension and creative marketing have helped us to make a living on small acreage. Other factors for our success are having a Mission Statement and Goals to help us achieve the quality of life that we want for our family. There are many other aspects that are key issues in managing a profitable farm, such as: trialing varieties, being knowledgeable about what creates healthy soils; knowing insect and disease life-cycles; managing money; operating a time-efficient irrigation system; and managing labor.

Farming with all its challenges and hard work gives us the lifestyle we thoroughly love and find rewarding.

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Paul and Sandy Arnold's Pleasant Valley Farm is in Argyle, NY.

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