Chapter 3

The Small Farm Perspective

Regardless of how they are portrayed in the media including some of the agricultural press the small farms still play a vital role in U.S. Agriculture. There is little debate that large farms will continue to grow in size and overall the number of farms will decrease. The small to medium sized farms will still exist and as is being demonstrated by many smaller farmers they will do so in a profitable manner but most likely in much smaller numbers than today. In the future however I expect to see the most growth from two groups of farmers. The first group will be the full time farmers with 2,500 acres of ground or more and the second group will be those part time farmers with less than 500 acres. The full time farmer attempting to make a living farming 800-1,000 acres is going to become less common.

The misconception that becoming large is the only way to be profitable in farming is widely accepted by the public and sadly even by many inside the agricultural community. The "Get Big or Get Out" mindset of the 70s and 80s was tempered by the problems faced by the farm debt crisis in the late 80s but many of those beliefs live on. I don't buy it, through my personal relationships and researching this book I have seen too many examples of people who are running small and medium sized farms and doing it profitably.

In January of 1997 Professor Willis Peterson of the College of Agricultural, Food and Environmental Sciences at the University of Minnesota wrote a paper entitled "Are Large Farms more Efficient?" Professor Peterson very convincingly raises questions about the validity of the methods used by the agricultural census to measure farm profitability and efficiencies. His three main complaints about the calculations are detailed below:

1) **Home Valuation** - To estimate the value of the farm the census requires that the respondents report the value of the land and ALL the buildings- including the farmhouse. As a result the value of the house is included as part of the cost of a farm input but does not show up as an output. On a small farm the house will obviously account for a much larger percentage of the inputs than on a large farm. As farm size decreases this discrepancy is accentuated more and more and making the actual farming operation appear less efficient when in reality home size has absolutely nothing to do with the efficiency or profitability of the farming operation.
2) **Land Quality** - The census shows that average yields are higher on large farms. Since a plant does not know if it is growing on a large or a small farm the evidence appears to indicate that large farms are usually situated on the higher quality land. Failure to take land quality into account (which admittedly would make the statistics much more complex to gather) will make the large farms appear more productive.
3) **Off-Farm Income -** Due to off the farm job requirements, many part-time farmers may be forced to shift to a less intensive management technique. For example the prime planting days may overlap with end of quarter work at the off farm job.
4) **Crop Patterns –** Corn and Soybeans account for 2/3 of the crops grown on large farms but only about 1/3 on small farms which tend to grow more wheat and alfalfa. These lower value crops often used for livestock feed. The differences in crop valuations can also make the large farms appear more productive.
5) **Farm Location –** Small farms are more often located closer to population centers where land prices are higher. These higher prices are independent of land quality yet are a prime factor in determining efficiency of the farm.
6) **Equipment Maintenance –** In terms of percentage, small farms spend nearly four times as much as large farms on equipment maintenance. Much of this is undoubtedly due to the fact that smaller farms typically run older cheaper equipment and spend more on repairs. This converts the large fixed cost to a variable cost which artificially diminishes their efficiency values.

Professor Peterson goes on to explain that farm and family background also make a difference. The farmer who inherits 1,000 acres of good farmland is more likely to end up with a

large productive farm that one whose parents owned 160 acres of marginal land even though both are of equivalent managerial ability. "Where one ends up depends a lot on where one starts.", says Peterson.

The point is that there is a place for small farms in the agriculture industry of the future. Unlike the past however even the smallest farmer will have and increased emphasis to execute sound management and creative production practices if they hope to make a profit.

All of the changes and advanced technology presented in the previous chapter may seem a little intimidating to someone starting a hobby farm today. While indeed they are intimidating; many of these technologies will not be directly relevant to the small farm. The primary reason is the expense and impracticality of implementing these expensive systems on a smaller farm with a limited number of acres to spread out the costs. These choices may not always be black and white decisions and will require some educated analysis. For example the folly of paying $3,000 for a GPS light bar to save $2 an acre on a sixty acre farm is evident, spending the extra money for roundup ready beans and spraying vs. a weekend spent walking forty acres of beans will be less obvious.

If you make intelligent choices and have saved some startup capital the biggest advantage you can have as a smaller farmer is that you should not require the massive leverage that most large farming operations require. As will be discussed later the variable cost per acre to put out corn and soybeans (excluding rent) can be in the range of $100 to $180 per acre. If you multiply that times 4,000 acres the annual outlay required for a large farm is enormous. Add to that a couple $150,000 combines and a couple semi trucks and tractors and the equipment alone required to farm that much ground will quickly approach the high 6-figure range and some even go over a million dollars. A million dollars of leased equipment and annual operating loans of $600,000 can add up to a lot of interest.

If you as a small farmer try to operate with the same leverage you may soon find yourself having a bankruptcy sale. Expensive equipment purchases requiring financing made before your farm is cash flow positive should be avoided if at all possible. Though the thought of

$25,000 worth of inputs to farm a small 150-acre farm may seem large, if you can find a way to fund those initial inputs yourself you will start the game $10 per acre ahead of most large operators.

In addition to the operating loans the large farms require they will on average have much higher equipment costs. Granted they have a lot more acres to spread the cost out but the efficiency and uptime they require necessitates that they replace their combines and tractors every few years. They simply cannot afford to miss one or two days of downtime due to equipment breakdowns.

I know of more than one farmer who paid less than $5,000 for a used combine twenty years ago and are still happily using them today. The older combines may take a couple hundred dollars in repairs every year and cost a day or two of downtime every season but on small acreage a little downtime is certainly a more cost effective than financing a newer combine. Assuming you are capable of making some repairs yourself and can afford a day or two in your schedule to fix equipment, then you can pick up a couple more dollars per acre in cost of equipment related interest and more than a couple in equipment depreciation.

To a beginning farmer of any size keeping costs down should be paramount. Most of the successful small farmers I have met could undoubtedly be called cheap. Thanks to many government programs there is some very cheap and tempting money available to farmers. Even so, avoiding interest payments on equipment is probably one of the easiest costs to control. Many of your expenses such as seed, fertilizer, and to some degree rent are largely out of your control so you must do all that is possible to keep costs down where you do have some control.

Recent studies have shows that the cost of machinery is a significant factor in the difference between profitable farms and unprofitable farms, the study showed the same basic results independent of farm size. I can at any time find farmers farming 1,000 acres with $400,000 tied up in equipment. At the same time I guarantee you that I can find another farmer in the same county farming the same 1,000 acres with less than $100,000 of equipment. At the end of the year when they both bring in the same crop the farmer without the payment on the

additional $300,000 of equipment will close his books with $20,000-$50,000 more in his pocket. So when someone tells you that you can't start farming because it takes quarter million dollars worth of equipment just smile and keep working your plan. I have been to several retirement sales for farmers that were farming 500 to 600 acres and all of the equipment combined brought less than $40,000.

It is also safe to say there are grain farmers today who are farming 100 acres with $100,000 worth of equipment - not profitably but it is their hobby and they have made the decision to make machinery a priority over profitability. If that is why you got into farming there is nothing wrong with that, but just be sure you know why you are buying equipment and if you are interested in making a profit you should do a cost/benefit analysis before looking for specific equipment. How much of your farm is a hobby and how much is a business is almost entirely up to you. As mentioned earlier, if you can implement a minimum-tillage farming approach your equipment costs can be greatly reduced.

One of the best things you can do is get out in the farming community and ask questions of those farmers running similar sized operations in your area. You do need to be aware that the range of opinions you get may be vastly different. It is quite interesting to listen to many large farmers tell you that the only way to make money is to get big and there is no money in small farming. You will then talk to a small farmer who will tell you there is no money in the large farms and you need to stay small, raise specialty crops, and keep your expenses low. The truth is probably in the middle. There are both large and small farmers making money and large and small farmers losing money. The result is more likely tied to the efficiency of how the farmer runs his operation rather than purely on size.

Maybe you are starting your hobby farm and hope to graduate to full time farming someday. If so a small farm is a great way - maybe the only way - to get started. If you can pull it of you wouldn't be the first one to do it. As you lay your plans just keep in mind that the "jump" from part time to full is going to be the hardest part. There will be a maximum threshold of how much land you can farm on a part time basis and a minimum threshold of land at which you must farm to earn a sustainable living. How far apart those two are will depend on your management

skills, financial position, and too many other factors to count. Unless you can land a very large amount of land in one deal you may need to sacrifice some profits to get you through the transition years. Working out creative custom work deals and equipment sharing will make it possible to farm more land on less time but can consume a large amount of your profit. If you are lucky enough to the point where you are ready to make the jump to full time you can terminate those deals and raise your profit margin by completing all the work yourself.

While you should of course take advantage of all government programs and subsides don't make the mistake of assuming they will keep a poorly run farm afloat. Given the current trends in agriculture and the subsidies that are based on production, the large farms will continue to absorb most of the subsidies. There have also been recent programs to help the farmers-market type of growers as shown by the recent increases in community-supported programs. So where does that leave a 400 acre corn and soybean farmer…somewhere in the middle.

How much will it cost to get started

You may be saying enough already! "How much it will cost to get started?" Unfortunately that is something for which I am sorry but cannot give a specific answer. Too many variables from size of farm, to crops grown, to individual skill sets come into play. If you are willing to buy old equipment, forgo the one-ton dually pickup, build your own shed, contract out your harvesting and you already own some land you can probable get started pretty cheap. On the other hand if you want to go first class with newer machinery, pay for all service on the equipment, build a big shed and a new pickup truck then the sky is the limit! Lest I abandon you completely Appendix E. provides some worksheets you can use to start your calculations.

Excluding land the biggest expense you will probably encounter is your initial equipment purchase and possibly a storage shed. How much you spend is greatly up to you the farmer. To help you with these decisions, chapters eight through ten will give several strategies are provided for controlling equipment costs and what to look for in older cheaper equipment.

I have heard stories of farmers starting their operation based on a complete rental program; rented land, rented equipment (from other farmers or the dealer), rented grain storage, etc. While this may not be the cheapest route of production it will certainly cut the up front capital requirements. You will have to do a cost benefit analysis on each piece of equipment to determine which approach is best for your farm.

To provide a specific example I will I was determined to do no-till on my first 160 acres but could not afford the $12,000-$15,000 cost of a decent used small no-till planter that had the features I wanted. I was lucky enough to find a friend willing to do custom work for me and complete my no-till planting for $9 an acre. At $9 an acre I would have to plant over 1,300 acres to equal the cost of purchasing a planter of my own. On my 160 acres I concluded that depending upon my tax situation it was going to take six to eight years to just to break even on a planter purchase. If I included fuel, equipment wear and tear, and my time it was even longer. As much as I wanted to do my own planting there was just no practical way of cost justifying it. If I add acres the scenario will change and if I reach the point where the return is in more like four or five years I may reconsider for now I am more than happy to pay to have it done.

Another example is harvesting. Custom rates usually run $20-$25 an acre or more. Given that you can find a decent older combine for use on small acres for under $5,000 it only takes about 200 acres to pay for a used machine. In that scenario if you have the time to spend on a slower harvest and the ability to fix the machine a used combine purchase is a no-brainer.

In the long run equipment ownership is typically the least expensive option, at least for high use equipment. Rental and custom work however can preserve capital which may be more profitably used in other areas of your farm. Rental or custom can be a good option if you want to try a new practice (such as strip till) and you don't want to buy the custom equipment just to evaluate a new practice You may find that your local equipment dealership has some used machines that are not being used. Some dealerships will rent used equipment for short periods of time.

Some external factors such as the amount of time you have to dedicate to the farm will come into play when choosing equipment. If your full time job is a Monday through Friday 8-5 with little flexibility with farming time only on the evenings and weekends then attempting to farm 300 acres with $10,000 worth of equipment may not be feasible. The weather and time demands are going to sent you straight to the loony bin and poorhouse on the same truck.

That being said, I believe it is feasible to start a 100-acre weekend hobby farm on as little as $10,000 to $12,000 worth of equipment. You should be prepared to spend plenty of time working on repairing the older equipment through the inevitable breakdowns and unless you enjoy working on older combines you may want to seriously consider hiring a neighbor or custom harvester to bring in your crops. One trip to the dealer for a major repair can quickly eclipse the value of much of the older machinery. Two or three and it can eat well into the profits of a 100-acre farm and like a runaway combine and keep and going right into your home equity line.

Even though older equipment presents maintenance issues and the large new equipment may at first seem to be the enemy of the beginning farm the exact opposite may be true. The advancements that many large operators feel they need to stay competitive necessitates that they must replace their equipment relatively often. Today's used farm equipment market is flooded with machinery designed for use on the smaller farms of twenty years ago. Much of this is exactly what a new beginning farmer needs. In many ways the older equipment was built to last longer than the new equipment being built today. There are many thirty and forty year old tractors still working as strongly today as when they were new.

The other potentially large expense to be considered is machine storage. If you do not have a shed on the land own it is may be best to try and rent space in a retired farmers shed or a neighbor with excess capacity-at least for your tractor and combine if not the implements. On the other hand you may need a place to work on equipment out of the elements close to your home. Just be aware that a new machinery storage building can be very expensive.

If you ever intend to own your own combine then at a minimum a 13 or 14-foot high shed will probably be required. Price varies greatly depending upon size, brand name, and features. If you must construct a shed, even a relatively small one, expect to spend 15,000 at a minimum and up to 30,000 for a quality building. If you want something larger for future expansion you could be looking at an excess of $50,000 for something in the 100x60x14 size range, even more if you want to add a shop facility. For more information see Chapter 7 – Machine Storage and Shop Facilities.

You should also consider at least first years variable operating expenses into your startup costs. This would include items such as rent, fuel, pesticides and herbicides, seed, repairs, grain storage and drying costs, transportation costs, hired labor, crop insurance, etc. If you want to be conservative it may be wise to plan for your first two years of inputs- if the first year is a weather disaster you don't want to have to give up the farm for lack of operating capital.

One way to offset this risk is by utilizing crop insurance, insuring your crop to a degree that your farm will at least remain solvent in the event of a disaster. Crop insurance is discussed more thoroughly in Chapter 22. Vendors who sell your seed, fertilizer, pesticides, and sometimes even custom work hired will often be willing to wait until after harvest for payment, this can be a great help for cash flow. However, you should determine if any financing costs apply or if you are foregoing any discounts given for prepayment. If there are discounts or finance charges you should weigh the costs of them against the costs other credit sources such as utilizing an equity line or an operating loan.

Like so many items operating costs will vary dramatically from farm to farm. Factors include what crops are grown, weather and insects in a given year, tillage method used, amount of money borrowed, repairs performed yourself, etc.

Since I don't want to leave you with absolutely nothing, the table below is based on my actual production numbers from my first year of farming. These numbers were based on 150 acre farm in Central, Illinois with average soils for the area. There were 80 acres of beans planted and 69.1 acres of corn. As you can see these calculations show that I completed

harvesting and hauling all of my own beans and thirty acres of the corn, if you have all of your harvesting and hauling custom done then your expenses will most likely be higher.

Also note that I was able to obtain significant discounts by prepaying for much of my seed and fertilizers as well as getting some discounts for buying with a larger grower in my area. Some of the discounts can be quite large, for example I received a 10% discount simply by prepaying for seed. You should check custom rates in your area as your spraying, planting, harvesting, etc. may be more or less expensive than the going rates in our area.

In order to have the money to prepay and get the discounts I did have to get an operating line of credit, I was able to secure a new farmer operating loan from my local Farm Credit Service office for $25,000 at a rate of less than 3%. Borrowing money at 3% in order to get a 10% discount is an easy decision but it does add the interest expense.

The numbers in the first table below are for production costs only. Notice there is no equipment depreciation, interest expenses, etc. This is because I was able to pay cash for all of my old equipment used for harvesting and hauling (less than $4,000 total investment) and had all the other work custom completed.

Income		
Corn	$25,875.00	
Beans	$28,000.00	
Strip Till Inc.	$800.00	
Direct Payment-Beans	$1,346.40	*Assuming no LDP Payments
Direct Payment-Corn	$2,659.65	*Assuming no LDP Payments
Total Income		$58,681.05

Expenses		
Rent	$24,000.00	
Seed	$4,866.34	
Soil Tests	$525.00	
Chemicals	$4,895.00	
P&K Fertilizer	$5,600.00	
Nitrogen (AMS)	$2,070.00	($30 per acre applied rate)
Insurance	$1,490.00	(70% RA + Hail)
Strip tilling In Fall	$345.00	(Corn Ground Only)
Planting (No Till)	1,341.00	
Spraying	1,341.00	

Corn Harvesting	975.00	
Bean Harvesting	0.00	
Corn Hauling	146.25	
Bean Hauling	0.00	
Mowing	200.00	
Total Production Expenses		$47,794.59

Production Income **$10,886.46**

I don't want to mislead you into thinking I made $10,000 my first year of farming because in actuality I did have additional expenses that I would not have incurred were I not farming. For example, I spent a lot of time off work getting contacts established for fertilizer, insurance meetings, etc.

In addition to production expenses I also purchased a shed to hold future equipment and had the interest payments on the operating loan. I had approximately $2,400 in miscellaneous expenses, this included things such as a grain moisture tester, various tools, fuel tanks, combine repairs, etc.

Other Expenses			
Miscellaneous Expenses	$2,400.00		
Equipment Depreciation	$960		
Credit Line Interest	$747.15		
Shed Payments	$5,000.00		
Shed Interest	$2,275.00		
Total		$11,382.00	
Income After Equipment Depreciation & Shed Payments			**-$496.00**

To summarize I made just over $10,000 of production income but in the end I ended up subsidizing my operation $500 the first year. It made my shed and equipment payments, covered depreciation, and had I been a little more frugal with the miscellaneous expenses it could have easily broken even. Has the beans yielded one bushel more per acre or the corn two or three bushels more I would have broken even or made money.

So did I make money or not? It all depends on how you look at it. All things considered I lost $500 and did not get paid for my time. On the other hand since what little equipment I have was paid for in cash before starting I did have positive cash flow out of the operation the first year, even thought he bottom line was negative the operation is paying for the shed and equipment depreciation, expenses that will only be hitting the books for the first five to seven years. If I had not purchased the shed it would have definitely been a cash flow positive operation.

I hope this has given you some point at which to start your own calculations. Keep in mind there are just too many variables to give hard and fast answers. Your seed costs may be lower if you don't pay the technology fees I paid for roundup ready beans, they may be higher if you plant higher populations, cash rent prices may be higher in your area, etc. In addition you may be able to cut some expenses by doing things such as working for a neighbor in exchange for cheap custom rates or avoiding the interest payments if you have the cash up front to pay for your inputs.

The main point to remember when starting a small farm is do all that you can to deep production costs as low as possible. If after your first year or two you find that you have excess funds it is much easier to spend that to underestimate your costs and to try and crawl out from under an oppressive debt load and high interest payments.