

No-Till On The Plains 2001 Speakers - Matt Hagny

Eyes Wide Open: Cutting Production Costs in Tough Times

It pains me to have to say some of the following, but I feel it must be said, given that so many ag producers have what could be called a "desperado" personality trait -- a persistent irrational belief that some financial miracle will come along to save them, that if they just keep pluggin' away everything will be okay in the end. The reality is that good financial performance is almost always a result of carefully orchestrated decisions year-in and year-out. And that good financial performance is indeed necessary for everything to be okay.

Identity Crisis

Before we get into the nitty gritty of reducing costs in your no-till, you need to ask yourself a threshold question: what business are you in, and *should* you be in that business? One shouldn't assume anything, especially something as basic to your life as what work you do, or where the bulk of your money is invested. Many companies reinvent themselves numerous times over their histories as they see potential in various industries wax and wane (for instance, BF Goodrich hasn't been in tires for over a decade -- they do aerospace now). Some of these moves turn out to be vastly profitable, others range from mediocrity to disaster. One thing is certain within any market or industry: there will be tough times. If you think farming is the only business to face severe pressures, you haven't paid much attention to all the bankruptcies, mergers, downsizings, and other strife outside of ag (how would you have liked to have been in the oil industry during the mid-1980s? or typewriters in the 1990s?). In the early 1900s there were literally hundreds of car manufacturers, as well as hundreds of airplane and farm tractor manufacturers. Everybody was attracted to the opportunities in this brand new market. Competition increased, forcing the vast majority of manufacturers into mergers or bankruptcy. A tiny percentage survives, mostly by having gotten huge. Market entry has become nearly impossible as these industries have matured, and the margins are often razor thin. We are seeing the same pattern in the new industries created by the computer and Internet: a frenzy of innovation and new businesses springing up, followed by a few companies (Intel, Solectron, Sun, Cisco, Dell, Microsoft, Oracle, Siebel, Yahoo) gaining enormous market shares in each sector and crushing or buying out their competitors. Andy was right, only the paranoid survive.

The point is not to take for granted that you are in the business of producing undifferentiated grains or fiber or livestock. Step back from the day-to-day stuff every now and again to ask yourself: is this really what you want to do with your life? (You're not going to live forever.) Is this the best possible use of your time, and your family's time? Of your capital? Do you have a reasonable chance of succeeding in this endeavor? Do you enjoy what you do? (If so, then figure out how to make a decent living from it, otherwise you'll be miserable.) Please don't get me wrong, I think farming is an extremely noble and worthwhile occupation, and has been and will continue to be very rewarding financially to many producers. But the simple fact of the matter is that not all of you will succeed (we as a society could guarantee you a reasonable income, but that has been tried in the former Soviet Union and didn't work very damn well). It's nothing terribly personal: business failures occur for many reasons, including poor management, but also including lack of opportunity or just plain bad luck (perhaps you farm in an area of particularly poor soils or inhospitable climate where long-term success is doomed). You can do everything right and still fail (although the inverse isn't true -- do everything wrong and you are assured to fail). Yes, it seems messy and brutal and unkind, but the system really does work best that way, ensuring that products and services are provided more cheaply and efficiently than what any central planning committee could do.

So the question is whether you have the desire, the skills, the discipline, and the opportunity necessary to "have a go" at crop production over the next few years and have a reasonable chance of earning a decent return on your investment of capital and time. In other words, choose which battles you fight. Go into it with a plan, and then constantly re-evaluate whether you have the right plan, or even the right battle. (I have this conversation

with myself many times during the year. I think I'm as willing as anyone to assume enormous risks, but I also think we have all seen one too many movies with a happy endings -- it doesn't always turn out that way in real life.) What makes you so sure you will be in that tiny percentage that survives not only this downturn, but the one after that, and the one after that?

I have dealt with a number of clients over the years, some of whom came to no-till from a position of strength, some out of desperation ("I sure wasn't making any money farming with tillage, so I'll do no-till"). Most of the ones who came to no-till out of desperation are no longer in business. This is not to say that no one ever recovers from a crisis, or that the underdog never overtakes the leader. But times of crisis require exceptionally clear-headed management to successfully navigate. In fact, management might even be defined as doing the proper thing in the face of adversity.

"If You Don't Have a Competitive Advantage, Don't Compete!"

-- Jack Welch, CEO of General Electric

Killer work schedules won't make your farm profitable. You can work around the clock and still lose money. Surprised? Only if you still haven't realized that your farm is a business that needs consistently good management. All farms are affected by erratic markets and weather, and yet there are vast differences in financial outcomes between operations -- due largely to management.

If you are like the vast majority of grain producers, you are trying to capture economies of scale -- employing large equipment and buying supplies in large quantities to farm considerable acreages. Since returns per acre are low (and will always be low), more acres are constantly needed to improve profitability. This will be true even after switching to no-till and stretching machinery costs over more acres with rotational diversity (it gives you an advantage for awhile, but then everyone else follows suit). Even with identity preserved (IP) or niche grains, such as high-oil corn, tofu soybeans, chickpeas, mungbeans, popcorn, confectionary sunflowers, etc., the pressure remains. Except for those who have exceptionally deep pockets, most farm operations need to rent land to feed the need for acreage expansion, which brings the farm's success into the quirky realm of having the right social contacts or farm "profile" to be able to rent land as needed.

Not everyone in agriculture needs to pursue those large acreages of grain production. A slightly different track is to capture smaller-scale production markets, such as vegetables or produce (sweet corn, pumpkins, tomatoes, strawberries, etc.). Or an orchard. Or Christmas trees. Or sod. Or a vineyard. Or a fish farm. Or even a hunting lodge. There are people who make very respectable incomes from these activities; however, all of these businesses have their own unique financial pressures and management difficulties, albeit slightly different ones from grain farming.

So you have carefully considered the options, and are planning to pursue large-acreage grain and livestock production. So what exactly is your niche, your competitive advantage? Everyone in your neighborhood grows crops. How will you achieve production costs that are below average? Are you the very best in the neighborhood at adopting profitable new technologies? Are you big enough that you can negotiate rock-bottom input prices? Are you an expert in finances and management? Merchandizing? Are you very good at equipment maintenance and repair? Are you a skilled agronomist? Are you good with livestock? Whatever you aren't so good at doing you should hire out -- immediately. You can't be an expert at everything, and if you haven't found time to get proficient at a necessary skill by now, you probably won't find the time or discipline to do it in the future, either. People always tend to overestimate their own skills (this is a fact borne out by many many studies), so even if you thought you were being exceptionally honest in this self-assessment, you probably aren't as good as you think. And even if you are, you need to work hard at staying on top, as business is a lot like Lewis Carroll's Red Queen and you too will soon need to run twice as fast just to stay in the same place.

Crop Rotation and Costs

Crop rotation is the lynchpin of economic success -- all other efforts at reducing production costs hinge on getting this one right. The advantages of rotation have been known since antiquity, and yet we still fail to embrace it. We look at the costs and profits for the crops we plant, pick the most profitable/lowest cost/easiest crop and say "I'm going to plant the whole farm to that crop," without regard to what this will do to the profitability of that crop. It's not scalable. It's not divisible. It's a system. Each crop in the rotation has the potential to reduce weed and disease pressure for other crops in the future, not to mention spreading workload and risk immediately. I cannot emphasize enough the importance of having very high diversity of crops in your rotation.

Getting the rotation right is probably one of the most challenging aspects of no-till (or any other tillage regime, for that matter) since very little systems research is done (an exception is found at www.dakotalakes.com). In any given location, the difference between a very good crop sequence versus a poor sequence is often in excess of \$50/A and may exceed \$100/A. And it is the simplest thing to get right, in theory -- all you have to do is plant the crops in the "right" order. At this moment, we are still only cognizant of the most obvious "good" or "bad" crop sequences, and we are aware that there are trade-offs to be made: sometimes a crop is placed in a sequence that doesn't maximize its potential, but we are willing to accept a small loss there to gain even more potential elsewhere in the sequence. Our understanding of these implications is still in its infancy, but the astute producer makes good use of our existing knowledge in planning his or her rotations.

In Argentina, farms and CREA groups (farms pooling management information and money for on-farm research) often analyze different crop sequences for cost and yield implications. They'll often look at each crop (corn, for example) in five or six different sequences (corn after wheat/DC bean, corn after sunflower, corn after pasture, etc.) to determine how it best fits into their rotations. Since the data comes from a number of fields over a number of years, the analysis is a very powerful way to sort amongst possible crop sequences. It may take decades for science to uncover the reasons for good or poor performance in any given sequence. For the Argentine farmer, it is enough just to know which to choose.

Overhead

These are called "fixed" costs by economists as they do not change much in the short-term. They are basically your land, buildings, and machinery. Costs of living can also be thought of as fixed, as they will be incurred every year regardless of farm profitability. Land costs can be minimized in a number of ways, which I will not go into here.

Machinery costs per acre can be greatly reduced by no-till, especially if diverse rotations are used. Reduced machinery per acre is one of the primary advantages of no-till: if you haven't reduced machinery per acre after completing the transition to no-till, something is wrong. Many producers make the mistake of purchasing seeders that are too large when switching to no-till. If your crop diversity goes from one or two crops up to four or five, you now need only a fraction of the width of seeder that you needed previously (assuming no conflicts of seeding or harvesting windows), or else you need a lot more acres to farm. And with the elimination of tillage, more time is available for seeding. Plus, no-till seeders are usually capable of operating efficiently at faster ground speeds than conventional-till seeders.

Other ways to improve efficiencies of machinery is better maintenance, better support crew and equipment, and operating them 24 hours a day. Other industries that are capitalized as heavily as ag (and are less seasonal) make sure their equipment runs 24x7 as much as possible. This of course, means hiring more people rather than investing in larger equipment (substituting variable costs for overhead). Other steps to reduce downtime can have a huge impact on acres covered with a machine -- everything from streamlining the tending process to meticulous off-season maintenance.

It is difficult to give a benchmark for a "competitive" cost per acre for machinery -- it varies by region and by operation, depending on such things as field size, distance between fields, length of window for the operation,

average number of weather delays during the window, labor force available, etc. However, if the *total* costs of ownership divided by the acres covered for a machine are average or above average for your area, then hiring custom work is viable. Outsourcing some of these operations often makes good business sense.

Many of you have both grain & livestock in your operation, probably for diversity and some synergistic effects. But for the typical family farm, those synergies may be an illusion. Both livestock and grain production use a great deal of overhead. Every hour and every day that you are doing stuff for the grain enterprise, the livestock equipment sits idle, and vice versa. So you end up with excessive overhead for both enterprises in an attempt to get it all done, plus you have twice the number of things to keep track of. I think there are many potential advantages for the operation that has both grain and livestock, but also that it takes a minimum of four full-time people doing the physical work to effectively exploit the opportunities.

Due to their very nature, fixed costs are tough to reduce in times of financial stress. This is where good management is very cautious about accumulating overhead when times are good.

Variable Costs

Let the rotation do the heavy lifting. One thing we Europeans have been notorious for doing is throwing more technology at problems, attempting to use brute force rather than studying the system to find the "leverage points." Unfortunately for us, the brute force method is inefficient and the poor understanding of the system results in many unforeseen and unintended consequences. Far too many problems we face are of our own creation (we have met the enemy, and he is us). I am certainly not advocating the shunning of technology; instead I would urge more intelligent usage through better understanding of the system -- whether that system is crop production, human health, an ecosystem, international cash flows, whatever. We as a species are just beginning to grapple with some of those really complex interactive systems, and we must recognize our own ignorance even as we forge ahead toward a better scientific understanding. In the meantime, we'll make do with what we currently know.

For grain cropping, it is beyond debate that monocultures or very limited rotations increase the prevalence of certain problematic weeds, insects, and diseases. A great amount of effort and dollars are expended to combat these problems, usually with limited success. Some examples: breeding wheat for tolerance to tanspot, *Pseudomonas*, and scads of other diseases found in monocultures; in-crop herbicides for cheat; fungicides for tanspot; more winter-hardy wheats to handle the microclimate created by massive tillage which is done to reduce the severity of some diseases found in monoculture wheat; corn rootworm insecticides; corn rootworm Bt; corn breeding for tolerance to GLS and anthracnose; most cotton insecticides and fungicides; breeding soybeans for white mold (*Sclerotinia*) resistance. Even with all the technology, many subcritical infections and infestations nick away at yields in those short rotations and monocultures -- death by a thousand cuts.

Diversity of crop rotation drives many of these damaging insects and diseases to negligible levels by depriving them of a host for an extended period. In the case of weeds, the various crops grow at different times of the year, compete in various ways with the weeds, and allow a variety of herbicide families to be used to further reduce the levels of these weeds.

Low-disturbance no-till is the perfect partner for diverse rotations, as it maximizes biological control of unwanted organisms. No-till provides a habitat for large numbers of predatory organisms that keep pest organisms in check (we've long known the virtues of "beneficial" insects and spiders, but done a poor job of keeping them around with tillage destroying their habitat). For a weed seed, the least desirable place to be is on the soil surface, where it is exposed to sunlight, fluctuations of temperature and moisture, and predation by everything from birds to insects to fungi. Many of my clients have employed very diverse rotations and ultra-low disturbance no-till for 5 to 7 years now, and have markedly reduced their weed pressures. As a result of the

intense and diverse rotations in our no-till systems, we have succeeded in avoiding many of the problems and costs of the old system. We rarely use many of the expensive tools that are available (fungicides, insecticides, biotech), preferring to let the rotation solve those problems for us. As grain production becomes increasingly competitive, these producers are in a very good position to continue reducing inputs without "crashing" their system.

As we proceed further down the path of cost reduction, there can be no "sacred cows," no flights of fancy regarding the performance of any product or methodology. We are going to have to become more pragmatic, and view every purchasing decision in light of: 1) what is the probability of this producing x return?, 2) could the money be better invested elsewhere, either on-farm or off-farm?, and 3) if your decision was truly scrutinized in detail by a Board of Directors, or by a team of crackerjack lawyers, or by Jack Welch, would it be defensible? Good businessmen typically view purchasing (and the rest of their business decisions) in a very detached way, never viewing any one course of action as the "only" way to go.

Some areas I think we need to scrutinize more carefully for reducing variable costs:

Seed

1) Produce more of your own. Save and condition your own wheat and (non-RR) soybean seed, as well as covercrop seed. Someone else is profiting from doing this now, and they probably aren't doing anything over and above what you are currently doing to produce grain, other than storing it and running it over a gravity table. In fact, some purchased soybean and wheat seed is deplorable quality, and you usually don't know until you take delivery and are ready to plant it.

2) Shop around more when purchasing seed. Paying top dollar for corn, milo, soybean, sunflower or cotton seed doesn't assure you good seed quality or the best genetics for your area and farming practices -- in fact, they may be quite poor choices. Remember, seed company sales reps and agronomists are out to sell you whatever they need to move out of their warehouse, not what is the best value to you. Seed company personnel often have valuable knowledge about characteristics of hybrids/varieties they sell, but shouldn't be the final word in your decision. And remember that a large number of hybrids or varieties aren't unique to any particular company -- they are traded around more than you imagine. The seed industry has suffered a lot of financial pressure lately, too.

3) Buy less technology in/on the seed. It is not uncommon that many "added traits" and seed treatments actually reduce your profits rather than increase them. All of these products are wonderful tools to have available, and are a great advantage *in certain niche rotations, regions, or cultural practices*. They should not be used without careful thought as to your likelihood of benefitting financially from using them.

4) Reduce seeding rates -- this is only an option if your rates have been relatively high, you have been no-till for several years, and you have the seeding equipment and expertise to achieve consistently good stands. I hesitate to suggest reducing seeding rates as I suspect the majority of producers would benefit from increasing seeding rates on many of their crops.

Fertilizers & Soil Amendments or Additives

1) Do deep nitrate tests. After a drought or other low yielding year, you may have accumulated some residual N in the profile. If you haven't removed much grain from the field for a year or two, your phos. removal rate

would also have been low, perhaps allowing some cutback. Still, I am confident in saying that most no-tillers underfertilize, especially during the early years (the first ten or fifteen).

2) Reduce N losses. Is your biggest loss potential from denitrification, leaching, or volatilization? Different soil types and precip. patterns across Kansas dictate the answer to that question, and suggest methods of minimizing the combination of those losses through application timing, method, source, and N-Serve. Fertilizer N placed subsurface is slightly more efficient than surface applications, and N applied in-crop is often more efficient than that applied pre-plant or at planting (if prone to denitrification or leaching). However, in-crop requires an additional trip across the field, and at-planting greatly reduces planting efficiency. The best choice for you will depend not only on climate and soil type, but also on crop mix, seeder size, workload spreading, labor force, etc.

3) Re-evaluate liming or other soil amendment needs. Except for alfalfa, I see no point in even considering lime applications until pH readings reach 5.5 or lower (avg. top 6"). There has been some fuss over calcium levels (or Ca/Mg ratios) in soils, but I fail to see the response to liming in most Kansas soils. If a field is getting low in pH, consider doing some extra sampling or playing around with a handheld pH meter to find the areas that really need lime and concentrate your dollars on those areas.

4) Avoid "voodoo" fertilizers or other magic potions to "stimulate" the biology in your soil until proven. For most of this stuff: keep an open mind, and a closed wallet. Wait for real science to figure out if there really is an advantage. Most of what is out there is pure bunkum. Some of the stuff sold is actually harmful to your crops and your soil ecology, so not only are you out of quite a few dollars, but suffer reduced yields as well. Skepticism is quite healthy in this category.

5) Do more "stacked" rotations. Most producers have both legumes and non-legumes in the rotation. By stacking (e.g., wht/DC flowers-corn-corn-bean-bean, or something similar), you are less likely to waste residual fertilizer N on a legume crop. By doing four non-legumes consecutively, you really only need to be concerned about applying too much N in the last non-legume crop (the last corn crop before the soybeans) -- assuming you aren't in a climate or soil that is highly prone to leaching.

Herbicides

1) Better rotations and less soil disturbance (see "Crop Rotations" section).

2) Tolerate a few more weeds. But be mindful of whether letting a small amount of some species go will cause you problems during the next one or two crop sequences, otherwise ignore them and let the rotation do its work. Those of you with short rotations will not have this luxury.

3) Be on time with your spraying. Small weeds are easy to kill. I'd rather miss a few late-emerging weeds than not kill all of the first flush.

4) Be mindful of product antagonisms. Use proper adjuvants, carrier rates, nozzles, etc. Avoid conditions that decrease product performance.

5) Use products with both foliar and residual effects, if possible. Do less pre-emerge chemistry and more post-emerge work, taking a "wait and see" stance on weed control (the wisdom of this route depends on knowing your weed pressures in each field and the strengths and weaknesses of various pre- and post- herbicide options for that crop).

Diesel and Repairs.

- 1) Low disturbance seeding results in less horsepower required. Well-designed low-disturbance seeding equipment lets you plant at higher speeds, reducing wheel slip and fuel required (not to mention increasing acres covered).
- 2) Eliminate unnecessary trips across the field.
- 3) Build it instead of buying it. Many of you are quite adept at this already, although I was astounded at some of the farm fabrication I saw in Argentina and Australia. However, if your time in the shop is keeping you from analyzing your finances more thoroughly, this is "penny wise and pound foolish." It is, however, a good way to keep the labor force productive in the off-season while you do the number crunching.

With both fixed and variable costs, keep reminding yourself that you are out to maximize profit, not yield. When budgeting, it is sometimes useful to complete an exercise in which you pretend you must to make 50% reduction in expenses. Once that exercise is complete, a healthy 10% reduction doesn't seem so difficult. Farming isn't about perfection, it's about doing a reasonably decent job on lots of acres. It's about doing the most with the least.

The Big Picture

The foregoing was meant to stoke your thoughts, rather than to give you any take-home recipes for reducing costs. The hard part is the implementation (no one ever said management was easy). Each choice we make often affects other choices, and wrapping your mind around all the variables is very challenging. Good businessmen are often said to possess an almost uncanny sense of where the risks lie, or where the assumptions go astray, or where an industry is headed -- there is a talent here, to be sure, but it often amounts to no more than a bit of analytical thinking, some educated guesses, and being aware of what's going on.

The point is not to ulcerate on every detail. Generally no single decision is going to make or break you. No one has a perfect track record. Do your homework, make a decision, and move on. The key is to make slightly better choices than the next guy, and to be well positioned to take advantage of the occasional bit of good fortune that comes along. Most studies show that farms that are above average in profitability do not excel in any one category, but have instead shaved costs a little in every category while maintaining or improving yields. It certainly is not a zero-sum game.

I hope this hasn't been too depressing. I don't intend to paint a negative picture for our prospects in agriculture. I know of several farm operations in several different states that have achieved an average return on assets (ROA) of 12 to 15% per year over decades -- these people are being rewarded for their management skills. Many of these farmers started with very little and are now doing quite well after a number a years of exceptionally good management, laser-like focus, and a bit of luck now and again. There also are operations who are generating little if any real returns, or who are even depleting their equity when adjusted for inflation. These are the ones holding out for a miracle, or who are so in love with farming as a lifestyle that they have never considered any other occupation. Everybody loves a good comeback story, but only because the outcome was so improbable. It's so easy to delude ourselves into thinking everything will be alright (usually an indicator of too much testosterone), and that the gods shine favorably upon us -- so much so that we never really entertain failure as a possibility. This is unfair to ourselves. Whatever you decide to do with your future, do it boldly. But do it with eyes wide open.

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