

FRANCHISING THE FARM

Mary-Howell and Klaas Martens

Originally published in Rodale Institute's 'New Farm Magazine'
April and May 2004

When our friend, Sandy, asked us in January to “franchise the design of our farm onto his farm”, that seemed like a crazy idea. After all, we fiercely independent farmers are accustomed to reinventing the wheel for every problem that comes along, rightly convinced that our farm and our problems are unique from all others. Franchising is for McDonalds, not for farmers like us!

However, Sandy is from the business world and he looks at problems and solutions very differently than most farmers do. Maybe there is something to this franchising idea – identifying a package of key factors that work on one farm and transplanting them reasonably intact to a new situation, leaving sufficient flexibility for appropriate adaptation. If nothing else, it helps us look at organic farming more as a holistic system that has a definable set of interrelated pieces that must be managed.

Never ones to resist a challenge, we are attempting here to develop a franchise-able model for a organic grain farm, knowing full well that some vital elements may be quite difficult to transplant. But, if it means that toxic pesticides are eliminated from even a few more acres on this earth, then it is well worth doing.

FARM MANAGEMENT

The choreography of work on an organic farm during the season is complex and can be very stressful especially if the weather doesn't cooperate for desired timing of operations.



The 'ideal' is rarely achieved!

Therefore, the farm manager must be able to 'see' both the details AND the whole picture of what needs to be accomplished at all times, able to quickly make well-reasoned and appropriate adjustments in operations and timing while staying calm under stress and frustration. They must think about not only WHAT needs to be done, but also WHY it is needed. Such people must be able to coordinate all the

interrelated activities throughout the season and the people doing them. A superior farm manager is certainly not unique to organic farms – we frequently see that the best

conventional farm managers make the best organic farm managers if they are willing to apply the principles of organic farming to what they already know.

The successful farm manager must take a balanced 'whole farm' view of day-to-day activities, medium range activities (within the week) and seasonal activities, providing stability, positive attitude and vision. They must be able to prioritize and coordinate jobs efficiently and attentively, on time, with minimal downtime, and in the most effective order. They must also be able to maintain and analyze the records and plan/implement changes to make the farm more profitable, less labor intensive, and more humane for all on it.

A successful farm manager must project and plan input and machinery needs, making sure that the right amounts of seed, fertilizer, inoculant, wear parts, repair parts, wagons etc are in the right place at the right time, and that required machinery is prepped and ready before it is needed

If there are employees, the farm manager must facilitate and optimize personnel issues, monitoring output, and providing calm stability, priorities, flexibility/adaptability and linear vision under stress. They must anticipate needed technical support, making sure all workers are supplied with inputs and materials when needed and are promptly collected/returned at mealtimes and breakdowns to reduce idle time.

These jobs can be done by one extraordinary and exhaustingly overworked person, or shared among the available people according to ability, interest and need. All the jobs are important. As Klaas regularly reminds me, the most important job on a farm is the one that is NOT getting done!

SOIL MANAGEMENT

The first step in organic soil management is to take representative soil samples from all fields and have them analyzed for macro and micro-nutrients, CEC, and % base saturation. The results from these soil tests will guide you in choosing the right amendments needed to correct specific problems, but first you must familiarize yourself with fertility amendment products that are allowed under organic standards and their anticipated effect. We have written a separate article on allowed organic soil fertility amendments and their effects that will soon be printed in New Farm.

Unfortunately, soil tests results are not an absolute thing. Researchers at Rodale in the 1980's took one sample of soil and sent it off to 70 different labs . . . and got 70 very different results. Indeed, the pH of the sample ranged from 4.7 to 6.9 with lime recommendations ranging from 0 to 7 tons per acre! Readings and recommendations for NPK and micronutrients were equally variable. It is not uncommon for labs to liberally recommend 'insurance' or excessive fertilizer that may not be necessary and may not be correlated with any crop response data. You need to work with a lab that is familiar with organic farming and with your general geographic area, and then compare your results year to year from that lab, rather than trying a different lab each year. It is also a good idea to calibrate any lab's results to your own farm by taking a soil test from one of

your best producing fields. This will give you an approximation what a good soil test from that lab should look like and give you a better idea of what range of results you will want to see for your other fields.

Calcium and magnesium play a critical role in weed control. Many of us in New York have found that on soils with a CEC above 8, a 7:1 (% base saturation) calcium:magnesium ratio will probably be optimal for weed control and crop plant growth. This is equivalent to approximately 11:1 or 12:1 Ca:Mg if measured in pounds or parts per million. This particular ratio appears to be a key factor regulating weed population size and strength. When magnesium levels are high relative to calcium levels, high weed populations and soil compaction are likely to be problems. Many prevalent weed species, such as foxtail and summer annual grasses, thrive in hard compacted soils that are often also low in calcium and high in magnesium. For this reason, weed control can be often improved by calcium amendments, such as gypsum (calcium sulfate), that do not add extra magnesium. However, in a soil is excessively high in calcium, different weed species will be favored. A correct balance between the two minerals is needed.

It is important to interpret soil tests for the organic farming production system model. Many soil testing labs only recommend units of chemical fertilizer and therefore the rates not always useful for organic farmers. It will usually be FAR too expensive to apply a recommended number of NPK units using typical low-analysis organic amendments, and it is unnecessary, since most organic amendments contain lots of nutrients that are slowly available but will not show up using the standard fertilizer analysis tests. Many other native soil nutrients will become more available when a soil is limed. The nutrients were there all along, the lime did not supply them, but change in the biology and pH of the soil converts them into a more available chemical form.

Many people take their soil tests during the winter because it is more convenient and the fields are not covered with crops. However, the time of year that a soil test is pulled can make a significant difference. We had a SARE grant in 1999 and 2000, conducting soil tests on 6 fields every six weeks to see if there were seasonal fluctuations in nutrient availability. In general, most nutrients stayed fairly constant throughout the year, but there were major fluctuations in organic matter and phosphorus. This is hardly surprising, since phosphorus is so dependent on microbial activity. In some fields, a soil test taken in the winter showed low levels of phosphorus, while soil tests taken in the same field in late spring and summer showed high levels of phosphorus. Using the winter reading to plan soil amendments might very well have resulted in over-application of phosphorus.

When adding soil fertility amendments, even lime or gypsum, treat your soil gently, don't forget that it is alive! If the recommendations call for more than 1-2T of lime, apply it over multiple years allowing the materials to react and move into the soil slowly. Otherwise, even good materials can have a negative effect on the soil by disrupting microbial balance.

There's much more soil fertility than just going out and buying stuff. The REAL source of soil fertility and soil health is the microbial activity of the soil and the activity of the soil organic matter. Organic matter and a healthy diverse microbial population will provide important plant nutrients, improve the cycling of nutrients in the soil, improve soil structure and tilth, stimulate crop plant rooting, provide microbial competition to keep pathogens in check, darken the soil so it warms up earlier in the spring, and buffers the soil against drastic changes in chemical composition. Many conventionally farmed soils around here barely have 1-2% organic matter. We are aiming for at least 4%, and that takes time and intentional work. Including cover crops, like red clover, that produces lots of biomass, chopping straw from small grains back into the field, and using composted vegetable matter and manure will add active, healthy organic matter that will feed the microbes and cycle nutrients as it turns into humus..

Careful analysis of soil conditions, especially drainage, is also necessary. Adding tile drains, diversion ditches, and strip cropping can slow erosion, increasing yield and the effectiveness of field operations and can pay for themselves many times over. Often cost sharing funds are available through governmental programs for land improvement to provide good incentive for needed projects. Check with your local NRCS and FSA offices to see if you qualify for these programs in your county.

CROP MANAGEMENT

Organic certification requires a diverse crop rotation with a variety of crop types. Crop rotation is also our defense against insects, diseases, weeds, and the best way to manage soil fertility and organic matter. Where conventional farm subsidy programs and broad spectrum herbicides reward an ever decreasing number of crops on a farm, organic



farming works best with a wide repertoire of crops. Indeed, it can be argued that there is rarely “bad” land on an organic farm, though there may be land for which we have not yet found the appropriate crop. We need to use care in selecting the crops that will grow well and produce a high quality product in our area that we will be able to sell at a profit.

In general, it is a good idea to alternate row crops and solid planted crops, legumes and non-legumes, and soil depleting and soil enriching crops. Deep shading and allelopathic crops can ‘treat’ particularly weedy areas. Cover crops can add valuable organic matter and nitrogen and reduce erosion, weed and pest problems, and nutrient loss. Remember that you will need to use organic untreated seed, unless it is not available in the quality, quantity and variety you require. Finding

sufficient supplies of organic seed will take somewhat more effort as the seed supply develops.

In developing a multi-year crop rotation plan, it is useful to ask:

1. Which crops are agronomically well-adapted to my soils and climate and will maintain and improve the long term productivity and health of my soil?
2. Will my intended crop rotation control erosion, minimize pest damage and disease, break weed cycles, and add organic matter to the soil?
3. Will my intended whole-farm crop rotation produce a consistent and adequate income over multiple years by producing a variety of crops that have a reliable market and price?
4. Will my intended crop rotation make effective use of my available resources, including labor, time and equipment?

Our basic crop rotation consists of (Year 1) field corn, (Year 2) soybeans or red kidney beans, (Year 3) spring small grain such as oats or barley, underseeded with medium red clover, (Year 4) winter grain such as wheat, spelt, triticale, rye, or barley underseeded with clover (Year 5) field corn or processing vegetables. The red clover supplies sufficient nitrogen for a good corn crop, the straw and red clover supplies organic matter, the alternation with row and sod crops allow for effective weeding and pest control. The addition of winter small grains to the rotation also is important to spreading out the work load – they are planted in late summer/early fall when we are between harvests, and harvested in mid-summer when we have just finished cultivating.

All crops have an optimal time when they should be planted. Once you get out of this optimal planting window, plant vigor and yields will suffer. In New York, barley needs to get in by the first week of May, oats should be planted by May 15, corn should be all in the ground by June 7. If the ground isn't fit or if the particular crop is outside its optimal window of when it should be planted, sometimes we simply are better off not planting it.

When we reach the end of the optimal planting window for a particular crop, we should move on to the next one, even if all the acres we had planned are not planted yet. If the spring planting season ends and still not all the acres are planted, it will soon be August and time to start planting the winter small grains. We found that when we focused exclusively on getting corn planted, regardless of how late it got, we didn't manage to get the soybeans planted during their optimal planting window, which in turn prevented us from planting sweet corn at its optimal time etc. We would have been far better off calling it quits on corn when it got too late, keeping all the other crops and the weeding/cultivation on schedule.

EQUIPMENT MANAGEMENT

Before 'going organic', it is important to take a serious inventory of your equipment to identify and fill the critical gaps. We don't need the most expensive new paint on the block, nor we don't necessarily need to own everything, but we do need reliable access to certain essential pieces in good repair and adjustment.

For organic grain farmers, Public Enemy #1 are WEEDS. You will need appropriate types of equipment to prepare the soil in a way that can be cultivated and then do a good and timely job on the early and midseason weeding. We feel that, at the least, you will need a good plow and disc with a tractor large enough to pull them, a corn planter and grain drill, a coil tine and/or finger weeder for early season 'blind cultivation', an easily adjusted cultivator and small cultivation tractor, and reliable access to a combine and wagons/trucks.

Keep a list of needed repairs and use rainy days to work down the list. Project your equipment needs and timing, and have equipment ready to go when needed. Avoid wasting valuable harvest weather repairing a worn combine or a rare dry day in the spring getting the planter ready. Far too many farmers in the Northeast failed to get their crops harvested last fall because they were waiting for the grain to dry to storage moisture. By the time they've gotten the grain harvested this spring, field losses are astronomical. If they had been ready with a combine just as the corn and soybeans hit physiological maturity and were prepared to dry the crop, the extra yield could have easily been sufficient to offset the drying costs.

Many farmers hire some operations as custom work. This works fine as long as the custom operator is willing to do the work at the right time. Custom combining, especially for corn and soybeans, presents special problems. Because so much of the conventional American corn and soybean crop is genetically modified, the custom combine is very likely to have been combining GMO crops just before coming into your organic field. Unless the combine is cleaned very thoroughly, there is a very good chance that your crop will be contaminated. If you hire custom combining, you will need to familiarize yourself with combine cleaning procedures and be sure you do it before any of your organic crop is harvested.

You also have to be sure that a combine operator, either hired or yourself, is doing a careful job to maintain quality. More than one load of food grade soybeans have been downgraded to feed grade because they were harvested too wet or handled too roughly, resulting in stained or damaged beans.

It is equally important to document the cleaning of combines, trucks, bins, and grain handling equipment that are used for both non-organic and organic product. Cleanout logs are often the only evidence that you can show that your organic grain was kept from being contaminated with conventional (especially Roudup Ready) grains.

The other thing to remember about hiring custom harvest is that you will still need to arrange for wagons, trucks, storage facilities and markets to be ready whenever the custom operator gets to you. Because you aren't necessarily the person scheduling the harvest, sometimes it is difficult to provide the transport equipment and delivery as soon as the combine arrives. Whether you harvest your own or hire a custom operation, if you deliver your crop to the buyer right out of the field, make sure they have given you the go-ahead to deliver before you start loading the wagons! This is especially important if they are doing the drying.

The most critical factors in successful crop production – timing and observation – are the most difficult to transplant. These come with experience and attention, through familiarity with the soil conditions, the plant characteristics, and the equipment’s abilities and quirks. It is essential to know when to time operations optimally, how to set the cultivator to match soil and weather conditions, the species of weeds you are battling, the signs of physiological grain maturity, and what to do when things go wrong. This takes time, working with someone with experience who can show you the smell, the look, the feel and what it all means, and guide you through the complex decision-making “if-thens”.

GMO MANAGEMENT

NOP standards clearly prohibit the use of genetically modified organisms in organic farming, and some buyers will reject any organic product that tests positive for genetically modified DNA. While it is becoming increasingly difficult to keep all GMO traces out of our crops, organic farmers must do their very best to actively implement practices that limit the risk.

There are 4 main ways that genetic engineered products can arrive on organic farms. These are (1) purchasing seed already contaminated with genetically modified DNA, (2) pollen drift from neighboring GM fields, (3) accidental mixing with contaminated equipment, and (4) using other agricultural products, such as inoculants, that are derived from GM materials or manufactured using GM organisms.

It is important to consider the perimeter of the farm to evaluate the risk from neighboring conventional GMO crops. Cross-pollinating crops that are upwind and uphill from organic crops of the same type (i.e. corn) present the greatest hazard for pollen drift contamination. Using organic seed is our best, though unfortunately not perfect, defense against contaminated seed. Any equipment that is hired or shared with conventional farmers presents a serious risk and must be thoroughly cleaned first.

For more information on strategies to minimize GMO contamination, see <http://www.acresusa.com/toolbox/articles.htm>.

SALES MANAGEMENT

It is important to match crops with markets. Some organic crops, like soybeans, are very easy to sell, while other crops like corn, rye, and barley are more difficult to move unless you have nearby organic dairy farms, an organic feed mill or grain co-op. Before putting any seeds into the ground, it is important to plan your markets, make contacts, and if possible, obtain favorable contracts.

Many organic grain market opportunities are not entirely as they first appear. You may be expected to store the product for months until the buyer is ready to take delivery. Since organic farms generally produce a larger number of different products because of crop rotation requirements, this may necessitate more bins, storage facilities and appropriate handling equipment. You may find that the cleanout is higher than with

similar conventional products, but it is possible to find an alternative market for the cleanout with some crops, like soybeans.

When contacting a new buyer, it would be a good idea to ask following questions –

- (1) how quickly do I ship the product after harvest?
- (2) will you take the product uncleaned, and will I be paid on clean or uncleaned weight? How much cleanout/dockage is there likely to be?
- (3) can you dry the crop for me, and if so, what are the drying costs?
- (4) am I responsible for arranging and/or paying for delivery?
- (5) how quickly do you pay after delivery?
- (6) Are you interested in buying more than one crop from me? Sometimes buyers will agree to buy one hard-to-move crop in order to get a second crop that is in shorter supply.
- (7) And if you're not familiar with the buyer, then ask if they will you 3 references of other farmers they have bought from within the past 12 months?

Sales documentation of organic product is more complicated than with conventional product. Each load must be accompanied with a :

(1) Bill of Lading listing you as the seller, the date, the buyer, the product identified as 'certified organic' with the certifier, the lot number, an actual or estimated weight, and the weigh slip.

(2) a signed 'clean truck affidavit', stating that you inspected the truck or wagon before loading and that it was clean. This affidavit documents that you, the owner, has taken full responsibility for the organic integrity of the product and have done all you can to prevent any co-mingling with non-organic product or other contaminants. This doesn't have to be all that fancy. You can get a package of generic Bills of Lading from the local office supply store and just write the signed clean truck affidavit statement at the bottom .

(3) After delivery, it is YOUR responsibility to supply the buyer with a copy of your organic certificate and any other sales documentation that your certifier requires (i.e.transaction certificate, organic transfer monitor etc).

Most organic buyers will not pay for organic product until they receive a complete set of documentation because their certification would be at risk if you fail to deliver full evidence of product certification. Save copies of all this documentation for your records, you WILL need it during next year's inspection!

ADMINISTRATIVE MANAGEMENT

Organics is absolutely fanatic about record keeping. Complete and accurate records are very important, both for our certifier and for our own farm management. After all, how are you going to know whether you make money on the enterprise if you don't run the numbers?

Complete, readily accessible field and financial records are our best way to understand what happened this year and how we can do better next year. It is our only way to accurately calculate the cost of production for each crop 'enterprise' and for each field,

and to determine whether profit was made, whether input costs were justified, and whether the right agronomic decisions were made.

Field record keeping can be as simple as a notebook with a page for each field on which is written all field operations, inputs and harvest/storage records. Field maps and 3 year field histories should be in the notebook too. Some farmers prefer higher tech farm record computer programs, and there are some good ones commercially available. Some farmers even write their own computer record-keeping programs!

Whichever record-keeping approach you choose, it is important to consider whether it –

1. fits your personality and abilities, so that updating will get done promptly and completely with minimal error
2. compiles all the necessary information in a way that is simple and easily accessible
3. allows you to summarize and re-organize data for analysis and projection

In addition to field records, it is important to manage other organic documentation, including saving copies of all the seed and input tags and labels, invoices, weigh slips, Bills of Lading, transaction certificates, check stubs, grading reports, contracts etc. Your inspector will want to see them! The simplest approach we have found is to each year, maintain a manila folder for each crop into which all information pertaining to it is deposited. This keeps this information together and easily accessed with minimal effort and time. Remember to save at least one your seed bags and input containers until after the inspection if you can't remove the label.

Of course, another piece of administrative management is paying the bills on time. This is far from the most glamorous job on the farm, but it is one of the first noticed when not



done. While paying the bills, it is essential to consider whether the expenses are reasonable and appropriately matched to the farm income and needs.

Financial management also includes payroll, workers comp, withholding tax and all that rigmarole, carrying appropriate insurance for the business and equipment, investigating crop insurance as protection against disasters, and working with the

USDA Farm Services Agency and Natural Resources Conservation Service to qualify for cost sharing conservation and other programs. There is also cost-sharing money available in most states to help cover organic certification costs. Ask your certifier for the name of the correct state office to contact about this.

CERTIFICATION MANAGEMENT

To sell products as organic, you must be certified organic. There are over 75 USDA accredited certification agencies now listed on the National Organic Program website, but in reality, most areas are best served by two or three certification agencies. In the Northeast, the choice is generally between a regional certifier and several of the larger international private certifiers.

While all NOP-accredited certification agencies now use the same standards, there are significant differences in which details are emphasized and how the certification process is handled. Certifiers also vary greatly in price and in their attention to farmer support/education. While certifiers are not supposed to tell individuals how to 'overcome barriers to certification', they are allowed to distribute informational newsletters and hold group educational meetings. Some certifiers do a great job of farmer education and support this way, while other certifiers choose to do virtually nothing at all. It is valuable to shop around a little for your desired certifier characteristics and for a certification staff who can communicate well with you. Ask other organic farmers in your area which certifiers they favor and why.

The first step in becoming certified is to request an application/information package. This includes the standards (rules) and an application. Some certifiers also include valuable recommended record-keeping master forms and guidance information. Pay attention to the deadline for application submission. Once you get past the deadline, the cost rises steeply! Along with the application, you will need to submit clearly labeled field maps and 3-5 year field histories for all crops and inputs.

After the application is submitted, expect an inspection during the summer and then you will probably get your certificate in September or October. The certification process takes on average about 6 months, although it can take longer than that. First time applicants are not supposed to sell their crops as 'certified organic' until they have their certificate in hand.

FURTHER RESOURCES

Naturally the best place for additional resources and information is (www.NewFarm.org), and all the other terrific publications that the Rodale Institute has been putting out over the past 50 years. The Rodale Institute has long been a leader in defining and developing organic agriculture and has inspired and educated countless organic farmers and gardeners around the world.

Additionally, Acres USA is a fine publication for information which prints a monthly newspaper full of articles on alternative agriculture, economics and health. Acres posts a selection of these articles on their website, www.acresusa.com. A number of our articles on organic grain harvest and storage quality, GMO management strategies, the audit trail and organic grain marketing are posted at www.acresusa.com/toolbox/articles.htm Acres also maintains an extremely extensive mail-order catalog bookstore with wide-ranging

books on alternative agriculture, health, economics and lifestyle that is also accessible through their website.

The Appropriate Technology Transfer for Rural Areas (ATTRA) program is funded through USDA and is an outstanding resource of information. Their website is packed with articles, resources and workbooks, and their specialists will answer specific questions from users. Best of all, it all is free! The ATTRA website is attra.ncat.org.

The Sustainable Agricultural Research and Education (SARE) Network is also funded through USDA and provides bulletins, books, and research grants. Their website is www.sare.org. SARE has recently published a valuable 30 page booklet entitled "Transition to Organic Production" which accompanies a 3 video series. For basics in soil science, especially for the Northeast, SARE's "Building Better Soils for Better Crops" by Fred Magdoff and Harold Van Es (2000). is worthwhile, as is their "Managing Cover Crops Profitably" (1998) and Steel in the Field by Greg Bowman(1997). SARE also sponsors the long-running electronic forum called Sanet which provides an arena for information sharing and debate worldwide with many organic enthusiasts.

While your certifier will supply a copy of the National Organic Program's standards, it is a good idea to become familiar with the NOP website yourself for the regular updates and news. The NOP website is www.ams.usda.gov/nop

For a straightforward description of organic farming principles, the Canadian Organic Growers (COG) have produced 2 books, Organic Field Crop Handbook (1992) and Organic Livestock Handbook (2000). These books present a reasonable overview of concepts in a easily understood. There are also videos that accompany the books. The phone number for COG is 613-231-9047. Their website is www.cog.ca.

Any good organic farmer should have a detailed weed identification guide. For the Northeast, the best one we've found is "Weeds of the Northeast" by Uva, Neal and DiTomaso (Cornell Univ Press, 1997) with excellent pictures and detailed descriptions. No doubt there are weed guides of equal quality for other geographical areas. There are several extensive collections of weed pictures on the Internet. The Weed Science Society of America maintains an enormous collection of pictures of weeds at www.wssa.net and Rutgers University in New Jersey maintains a smaller collection of weed pictures and information that is more applicable for the Northeast at www.rce.rutgers.edu/weeds

We have learned much from many other sources, including the outstanding but challenging writings of Dr. William Albrecht, books by Neal Kinsey, Charles Walters, Joseph Cocannouer, Donald Schriefer, Sir Albert Howard, Rudolph Steiner, and Ehrenfried Pfeiffer and old agricultural texts and weed management research by Dr. Bernard Rademacher and Dr. Walter Muenscher. Our old college soil science, plant pathology, seed technology, and entomology texts are still frequently consulted.

For regular inspiration, we highly recommend that all new and existing organic farmers make time to regularly watch two fine films, "My Father's Garden" (Bullfrog Films,

Oley, PA) and “Life in the Soil” (Mokichi Okada Association, Honolulu, HI) These films eloquently and beautifully remind us why we are doing this and why organic farming indeed the most important thing in agriculture today.

...FRANCHISING?

Now, we were REALLY sharp, we would work with lawyers to patent these ideas as intellectual property and start making the Big Bucks through technology transfer and licensing fees. We're not that high tech!

So folks, help yourself to any or all of this franchise, and help us make this world a better place for our children and yours. Perhaps you can help us develop other necessary factors in this organic farming franchise.

After all, Hamburger University wasn't built in one day!