

# **Financing the Feeder Pig Business in Manitoba: Considerations**

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June 2005

## **ABSTRACT**

The considerations of financing the feeder pig business in Manitoba are many and varied and depend on prevailing economic conditions, both in the Province and in the Mid-west region of the United States. This paper describes current finance issues and considerations of the business as discussed in mainstream academic journal articles and by producers of feeder pigs. A set of preferred options are suggested by the author.

## **BACKGROUND**

After eighteen months of sustained healthy financial margins in raising feeder pigs, Manitoba's number of annual feeder pigs produced remains relatively flat. In the past, sustained positive margins of this magnitude would have been enough to spur a significant expansion in the Province. Not this time. And this flat-line in numbers is occurring in a market where 3.5 million weaned pigs move south annually to the United States. In addition, there is an able processing industry in Manitoba willing to take additional hogs. It is with this background in mind that considerations for financing the feeder pig business in Manitoba are cited. Financing is considered in its broadest sense, interwoven with issues of economics, business, timing and risk. The discussions move from the general to the specific, concluding with some preferred options suggested by the author.

## **SECTIONAL FORMAT**

This discussion paper is divided into three sections – first, a review of selected finance and risk literature published in mainstream academic journals followed by the author's commentaries on the perspective they provide to the feeder pig business in Manitoba; second, a summary of findings gained from informal discussions with participants in the Manitoba feeder pig business; third, a drawing up of a set of considerations and suggestions by the author for preferred options when it comes to the business of financing feeder pig operations in the Province.

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## I. REVIEW OF SELECTED LITERATURE *(with commentary)*

### *Family Business*

The family business is generally defined as a firm which is predominantly owned and operated by a single household. Using both internally and externally financed physical capital and fixed human capital, the family business produces output each period. It divides that output among current consumption, payments to its external financiers, and future physical capital. The household is concerned not only with the utility it derives from its consumption over its lifetime, but also the well-being of the next generation (see Bhattacharya and Ravikumar, 2001).

The evolution of the family firm depends upon primary capital markets in the economy. If the business operates in an economy without primary capital markets and all growth must be financed through internally generated funds, growth is constrained. If the business operates in an economy with developed capital markets, the capital constraint to growth is very much relieved. The family will, through external financing, borrow to acquire additional physical capital to expand the production of output as long as the rate of financial return of the added output exceeds or is at least equal to the cost of borrowing (i.e. the interest rate).

An emerging realization about family businesses is that their dominance diminishes as capital markets develop (see Bhattacharya and Ravikumar, 2001). In economies with developed capital markets, family businesses tend to grow to the point where they restructure themselves as publicly held corporations.

It is important to recognize that, even with diminished dominance, family businesses are still very important in all economies. They account (1985) for 40% of the U.S. gross domestic product (GDP) and 60% of its workforce; 66% of Germany's GDP and 75% of its workforce (see Rosenblatt et al., 1985).

*The family farm has been the mainstay of the development of rural Manitoba. As capital markets have developed, the number and size of corporate farms has grown. It is a predictable development in all developing economies. The feeder pig sector has been well-serviced by debt financiers for many years. Government lenders (both federal and provincial), commercial banks and credit unions have all provided debt capital to the sector. Increasingly, innovative investor schemes are bringing equity capital into the sector from outside on terms that producers can live with. It is all part of the development of a more sophisticated capital market needed to finance modern facilities and systems. In Manitoba's feeder pig business today, there are two general classes of operations – the family barn and the investor barn, each with their methods of financing facilities, operations and risk. Each makes their own significant contribution to the Manitoba economy.*

### *Venture Capital*

Venture capitalists and entrepreneurs negotiate terms at the time of formation of a new company. The counterparties bargain over financing, share valuation, and profit distribution. Mostly they bargain over control. Control can be defined as the unilateral ability to make production decisions. Earlier studies define the distribution of control rights as a binary function – one that can take on a value of only zero or one. In these studies, control was seen as an indivisible right that

could be held at any one given time by only one party (see Chan et al. 1990). Later studies model control as a continuous variable rather than a binary variable (see Kirilenko, 2001). In these models, the allocation of control rights between venture capitalists and entrepreneurs is determined by a negotiated process. As one venture capitalist explained: "...you put it [contractual clauses including control rights] down on paper ... that's when you really begin to know each other ... the things they [the entrepreneurs] think are important to them and tell you a lot about them ... it's a way to figure out what the other person is all about, not just what they say they are all about." (see Landstrom et al. 1998).

*Venture capital is a source of financing for investor-type barns in Manitoba. As with any share structure there is a negotiated deal when it comes to financing, share valuation and profit (loss) distribution. There is also a negotiated deal when it comes to control. The control issue is oftentimes the 'deal-breaker' as entrepreneurs seek the autonomy they need to operate efficiently and investors seek the control they need to protect their investment.*

*Typically, the venture capitalist is looking for a model that involves an initial capital investment followed by three to five years of rapid growth in volume of business followed by an initial public offering of shares to allow them to get their money out if they so desire. While it is rare that these events and timelines unfold exactly as planned, they are typically within the set of expectations of the investors at the outset and entrepreneurs seeking interest in hog-related projects can benefit by keeping their expectations in mind.*

#### *Diversification Discount*

The value of an asset depends on the asset's future cash flows and future returns. When considering the addition of an enterprise to an existing business, the question arises whether, in general, adding diversity to an enterprise, increases a business's asset value by more than an expansion of the existing line of business.

Studies show that the average diversified firm is worth less than a portfolio of comparable single-segment firms (see Lang and Shulz, 1994 and Berger and Ofek, 1995). To arrive at this conclusion, these studies have run successive regressions on cross-sectional firm-level data. Firm values are placed on the left hand side and investment and cross-subsidization variables are placed on the right hand side. Their findings are conclusive – other things being equal, a diversified firm will suffer from the diversification discount.

The literature has groped, rather fruitlessly, for an explanation of this fact (see Morck, 1990 and Rajan et al., 2000). Suggested explanations include irrational managers, competent but self-interested managers and wasteful spending, perhaps related to confusion and inefficiencies that come with diversification. Another suggested explanation is that firms generating lower cash flow tend to cluster together into diversified units whereas high cash flow single-line businesses remain in their lines of business (i.e. the diversification discount is simply a result of the particular business lines included in the mix, not the diversification itself).

*Whether or not the rationale is understood, the diversification discount seems to be a reality. Perhaps its implication is as simple as the risk-return trade-off – a business must give up some profit to reduce risk (in this case by diversifying*

*their production portfolio). Under this scenario, the grain farmer who adds a feeder barn sacrifices some upside profit available in the years that the grain sector thrives for year-over-year profit stability. There are also some complementary gains which suggest gains without and offsetting trade-off. For instance, manure offers a replacement input from the livestock operation for chemical fertilizers in the crop operation.*

### *Forecasting Profitability*

A standard economic argument is that, in a competitive market, profitability is mean reverting within as well as across industries (see Fama and French, 2000). This implies that entrepreneurs will tend to leave relatively unprofitable industries and enter relatively profitable industries. Lagging firms eventually adopt innovative products and technologies that produce above normal profitability for the ‘first-in’ firms. The prospect of failure gives firms with low profitability incentives to allocate assets to more productive activities.

Mean reversion in profitability is generally considered to be predictable (see Brooks and Buckmaster, 1976). Evidence that confirms economic predictability is, however, generally weak (Freeman et al., 1986). Many tests are based on time series models fit separately to individual firms that have long earnings histories (i.e. 20 or more years), which makes solid data scarce. A survivor bias is created (i.e. only the “survivors” are included in the study). Cross section regressions of changes in profitability on lagged changes and other variables use large samples and minimal survival requirements and data is easier to come by (see Easton, P.D. and M. Zmijewski, 1989).

Fama and French (2000) used a cross sectional regression approach. To quote them on their results, “Confirming standard economic arguments, we find strong evidence that profitability is mean reverting. In a simple partial adjustment model, the rate of mean reversion is about 38% per year. But a simple partial adjustment model with a uniform rate of mean reversion does not do justice to the rich patterns in the behavior of profitability. Specifically, we find that the rate of mean reversion is higher when profitability is far from its mean, in either direction. The rate of mean reversion is also higher when profitability is below its mean.”

*Feeder pig producers are well aware of the mean reversion tendencies in their business, especially when it comes to price. Volatile prices are the norm with a tendency to revert to a mean value somewhere around \$68/cwt Canadian. It is likely that farmer recognition of this mean reversion slows the industry expansion during periods of profitable prices since it is understood that the prices are likely to soften by the time the new production hits the marketplace. It is the role of the price risk management scheme to capture and extend highly profitable prices while providing a “soft landing” when prices decline. The mean-reverting characteristics of market prices provide an opportunity to be long cash hogs on the rise and short cash hogs on the fall. Granted, getting timing, direction and magnitude right is quite a challenge.*

### *Relationship Lending*

Three studies use data from the U.S. Federal Reserve Board's National Survey of Small Business Finances to assess the effect of relationships on the availability of credit.

Cole (1998) finds that a lender is more likely to extend credit to a firm with which it has a preexisting relationship as a source of financial services but that the length of this relationship is not a significant factor in determining the lender's propensity to make credit available.

Peterson and Rajan (1994) find that the loan rate increases with the number of banks from which the firm borrows and decreases with firm age. They also find that the loan rate does not appear to vary with the length of the firm's relationship with its lender and does not appear to vary with the amount of supplemental financial services they purchase from the lender.

Berger and Udell (1995) find that, when it comes to floating rate lines of credit, the loan rate premium (over the lender's prime rate) decreases with the length of time the firm has had a business relationship with the lender. They also find that increasing the length of time the firm has had a business relationship with the lender decreases the probability that the lender will require collateral for the loan.

*While these three studies utilize a varied approach and come to somewhat different conclusions they all agree that the relationship of the farm manager to its lender is important, both in terms of increasing the probability of obtaining loans and increasing the probability of obtaining loans on relatively beneficial terms (i.e. repayment period, prepayment penalties, security requirements). Relationship duration seems to be more important for the determination of rates and collateral requirements for lines of credit (used for working capital that cannot easily be repossessed) but less important for mortgage loans (have collateral written against them). The message to existing and hopeful participants in the feeder pig business is clear – “Get to know your lender and prospective lenders.”*

### *Integrator Contracts*

The integrator contract is common in the feeder pig business. It is often entered into by the farmer who is averse to price risk who wishes to be sheltered from inherent price volatility in the industry. The contract may provide access to capital not otherwise available to the farmer, especially the beginning farmer. It also provides the integrator with a guarantee of delivery to its processing plant.

Tsouluhas and Vukina (1999) describe the terms of such a contract as follows. “A production (grow-out) contract is an agreement between an integrator company and a farmer (grower) that binds the farmer to specific production practices. Contracts vary from company to company, but all of them have two main components. One is the division of responsibility for providing inputs, and the other is the method used to determine grower's compensation. Both features have been subjected to modifications over time and are still undergoing changes. The grower provides land and housing facilities, utilities (electricity and water), and labour. Operating expenses such as repairs and maintenance, clean-up costs, and manure and mortality disposal are also the responsibility of the grower. The integrator company provides animals to be

grown to processing weight, feed, medication, and services of field men. Typically, the company also owns and operates feed mills and a processing plant, and provides transportation of feed and live animals. Items like fuel or litter can be the responsibility of either the integrator or the grower, or they can be shared. The decision about the volume of production, that is, the rotation of batches on a given farm, is determined by the integrator, and so is the size (capacity) of the technological unit (finishing floor).”

The authors analyze contracts between a risk-neutral integrator and many risk-averse growers, when grower bankruptcy due to price volatility is possible. They search for remuneration schemes that work to the satisfaction of both sides. Remuneration schemes generally provide incentives to growers to exert effort since pig performance (i.e. rate of gain, feed conversion) depends on it. Most contracts tie remuneration to fixed performance standards while some link remuneration to the performance of any one grower to the performance of the rest of the growers under the contract.

*While an integrator contract may provide a participant in the hog business with capital not otherwise available and it insulates the farmer somewhat from the vagaries of the hog marketplace, the farmer is still left to compete. Remuneration contracts are tied to performance; discounts will apply should performance not measure up to standard. There is also the counterparty risk associated with any contractual arrangement. So, when assessing any integrator contract it makes sense to view the contract as offering an exchange of risk rather than full risk mitigation. For instance, price and delivery risk can be mitigated under an integrator contract, effectively exchanging them for counterparty risk (i.e. the risk that the contract will not hold true at the time of delivery). The length of term of the integrator contract is also an issue for consideration. Oftentimes, up close contracts take a narrow basis where further out contracts take a wider basis threatening profitability.*

#### *Tax Benefits of Debt*

Do the tax benefits of debt affect firm financing? Graham (2000) examines this question. He defines a firm’s tax function as a series of marginal tax rates. Since tax functions fall as interest expense increases, the tax function that begins flat becomes downward sloping – it ‘kinks’ downward. Firms aggressively using debt operate beyond the kink where the marginal tax benefits of debt are decreasing. Firms more conservative in their use of debt cease to borrow before they hit the kink.

Graham points out the value the debt-conservative firm could add if it used more debt. He suggests that, if firms are profit maximizing, their cost of debt function should intersect the tax benefit function on its downward-sloping portion. By leveraging beyond the kink, the debt conservative firm could add more value. They are, in fact, ‘leaving money on the table’ by under-financing.

The other side of the argument should be noted as well (see Andrade and Kaplan, 1998). That is that the risk financial distress increases with such leveraging up and the cost of financial distress can be substantial or crippling if it becomes severe. This is the trade-off theory - firms use less debt when the expected costs of financial distress are high.

*Farmers act to maximize after-tax profits. Typically, when profits are high, farmers will choose taking on debt and paying more interest over paying more taxes. They do, however, recognize the risk and cost of financial distress that can come with an aggressive debt-seeking approach and it tempers their desire to debt finance an expansion or acquisition. It is a prime example of trade-off theory.*

*The question also arises as to whether a grain farmer will add a feeder pig enterprise during times of high profit and taxes in their sector, or will be more likely to choose to reinvest in their own sector by replacing equipment or buying more land.*

### *Debt Policy*

Finance literature cites a number of factors that affect debt policy of firms. Financial flexibility is one where debt-conservative firms choose to use debt sparingly to maintain capacity to absorb financial bumps, or fund ‘war chests’ for future acquisitions (see Graham and Harvey, 2001).

Myers et al. (1998) quote a Sears treasurer, “at Sears, we are very conscious of having been around for 110 years, and we’re planning on being around for another 110 years. And when you think about what you need to do to ensure that that happens, you come to appreciate that financial conservatism allows you to live through all kinds of economic cycles and competitive changes.”

Firms tend to use debt conservatively if they are in an industry with volatile or cyclical cash flows. (see Graham, 2000).

Jensen (1986) suggests that managers of firms with free cash flow might lack discipline. It may be preferable to commit free cash flows to interest payments to discipline management into working more efficiently.

Corporate managers choose conservative debt policies to optimize their personal utility functions (i.e. keep their jobs) rather than maximize shareholder value. Stultz (1990) suggests managers pursue their private objectives by controlling corporate resources, not committing to pay out excess cash flow as interest payments. CEO’s tend to prefer to raise capital by issuing equity, not debt.

Chevalier (1995) finds that industry concentration can affect desired debt level. She sites supermarkets with low debt have a competitive advantage in concentrated markets where they compete with highly levered rivals.

*The debt policies of existing and potential participants in the feeder pig business reflect many of the observations posted in the paragraphs above. Typically, farmers have long experienced the vagaries of operating in the agricultural sector and have been schooled in the wisdom of building sufficient capital reserves to survive downturns and finance opportune expansions and acquisitions. The question is whether a feeder pig operation presents an opportunity to ‘strike’; it’s a question of perspective and timing.*

### *Hedging*

#### *(a) Inter-temporal Hedge*

The implicit assumption in earlier literature around competitive firms acting under uncertainty is that the firm is myopic – i.e. it acts as if it plans to end

production at the end of the current period (see Sandmo, 1971). More recent literature has questioned this assumption and suggests that the forward looking (i.e. non-myopic) risk-averse firm actually makes decisions inter-temporally, with multiple production cycles in mind (see Lence and Hayes, 1998).

*A feeder pig business is an example of such a forward-looking firm. It remains in business for several production cycles. Its input and output prices are positively correlated (i.e. the price of replaced weanlings is derived from the price of finished pigs just marketed). The farm's end-of-period cash flow includes the costs required to initiate production in the subsequent period. During high priced output periods, replacement weanlings are pricey. During low priced output periods, replacement weanlings are less expensive. So there is this inter-temporal hedge available to the feeder pig business, without the use of futures markets. The farm is partially diversified across time.*

*Note that this inter-temporal hedge is not available to the start-up barn since it has nothing to sell prior to the first production period. If the initial barn fill occurs at a time of pricey weanlings and that production cycle happens to be one with a sharp price decline at the time of feeder pig market-readiness, an economic disaster is in the making.*

*Note also that this inter-temporal hedge can also be lost due to counterparty non-compliance (i.e. the weanling supplier refuses to refill the barn with less expensive weanlings when the feeder pig business has just sold the output from the last production period at a very low price).*

#### *(b) Oil and Gas*

A study of the hedging practices of oil and gas producers (see Haushalter, 2000) concludes, there are, to date, no widely accepted explanations for risk management as a corporate policy. Discussions in the literature and in the trade are not conclusive about what determines the extent to which a company hedges, how a firm's value is impacted by risk management, and to what degree a firm's hedging strategy relates to other management decisions. The study reports that, in a data set representing the oil and gas industry, the fraction of production hedged is positively correlated to both the size of the firm in terms of total assets and the debt to asset ratio (leverage) of the firm, suggesting that there are significant economies of scale in hedging and that increased leverage and financial risk encourages hedging. The study also reports a negative correlation between the fraction of production hedged and the basis risk associated with the hedging instruments. Basis risk is the degree to which cash prices of a commodity are uncorrelated with futures prices of the same commodity. The larger the basis risk, the less effective is the hedging program and the less likely it is to be utilized.

*Although there is no direct data to support the assertion, it seems reasonable to suggest that the feeder pig business in Manitoba would follow the same general hedging approach as participants in a sister commodity, oil and gas. If this is the case, we would expect that the fraction of production hedged would increase with total assets and debt to asset ratio of the operation. Also, the fraction of production hedged would increase with an increasingly predictable basis.*

(c) *Gold*

All commodity producers struggle with price risk in the cash markets they participate in and seek the best method of dealing with it in an economical and effective way. A study of the gold mining industry (see Callahan, 2002) reveals a myriad of hedging approaches in that industry and no real convergence on a system of choice. The study concludes that hedging practices may act to smooth earnings but they do not necessarily increase shareholder wealth. In fact, some investors place a premium on volatility in the sector, looking for a risky investment as part of their overall portfolio.

To quote Gordon A. McCreary, V.P. Corporate Affairs, Kinross Gold Corporation, “In addition to the many risks inherent in gold mining that gold companies must manage, we also must deal with volatile gold prices. Throughout the 1990’s it became common practice for gold companies to attempt to manage gold price risk through gold hedging. Some companies sold production forward for several years in the future and have recently been penalized in the stock market for giving away too much of the upside for downside protection. Other companies have steadfastly remained unhedged and although they paid a price in the lean years with poor performance, they are reaping the rewards in the current “bull” market for gold. Kinross has been in the middle ground as a modest hedger in the mid to late 1990’s and since the spring of 2002 has been delivering into its small hedge position and not replacing them. Kinross expects to be completely unhedged within 18 months by delivering a small portion of production into the residual gold hedge book. Approximately 10% to 15% of our gold production over the next six quarters will be used to eliminate our gold hedge position completely.”

*Although gold is probably more of a cousin to the feeder pig business than a sister, there is something to note here. Some investors (i.e. often institutional investors) are searching for high volatility investments to add to their portfolios with returns that are uncorrelated with the other assets they are holding. Their preference may be for an investment using an approach of little or no hedging, which can be accommodated by investor barns. Funds from large institutional investors have not yet been much a part of the financing tools of pig production units in Manitoba but, under the right conditions, these institutional investors might be worth approaching. If they are interested in investing in the gold mining business they just may be interested in investing in the hog production business.*

(d) *Agricultural Commodity Hedging*

Many studies of agricultural commodity production assess strategies to satisfy the dual, and perhaps competing, objectives of reducing price volatility and adding profit. An evaluation of cotton put options as a price management tool (see Bennet, 2003), concludes, “...put options purchased four cents in-the-money between 21 and 31 May provided the highest net price received by Texas cotton producers.” Clearly, the objective of adding profit is part of their price management equation. A study of hedging strategies for Quebec hog producers (see Gervais and Doyon, 2004) describes the search for put options offered at *actuarially advantageous terms*. Again, the objective of adding profit is clear.

Other studies of agricultural commodity production focus solely on the goal of minimizing downside risk. A study of price risk in canola (see Wallace, 2003) compares the financial risk of a contracted position against an un-contracted position and estimates the cost of a worst case scenario. A study of price risk management in the wool industry (see Mitchell, 2003) suggests the management of price risk is important to ensure producers do not end up producing goods at a loss.

*Adverse movements in the prices of factor inputs, outputs, or both can render a previously stellar farm illiquid or insolvent in a very short period of time. The stakes are high. Consequently, a myriad of risk management methods have been tried by farmers to tame the effects of ever-volatile price ranging from self-funding, to futures and options trading, to forward contracts. Their search has not yet led them to a fully satisfactory method.*

*Self-funding may leave the agricultural producer with an inadequate reserve to cope with the magnitude of a loss related to adverse price movements. The trading of futures contracts, while acting to remove price uncertainty, comes with the load of transactions costs, margin financing, basis risk and the loss of opportunity to realize gains from favorable price movements. Options mitigate adverse price movements and leave the farmer with the opportunity to realize gains from favorable price movements but can be expensive and are not always available in the specifications desired. Forward contracts, while acting to remove price uncertainty, leave the producer exposed to counterparty default risk and with the loss of opportunity to realize gains from favorable price movements.*

*A better method will entail the identification of offsetting parties willing to take the downside price risk under terms acceptable (i.e. favorable) to the feeder pig producer (i.e. for an acceptable rate). The risk exchange can then be consummated through some sort of efficient, fully collateralized bond mechanism (i.e. safe and guaranteed) with low transactions costs.*

### *Catastrophe Risk*

Private insurers have a difficult time providing coverage for catastrophe risk (see Jaffee and Russel, 1997). The threat of a cluster of correlated claims simply poses too large a liquidity risk to allow them to safely write the coverage. Often, catastrophes are listed as exclusions on commercial policies and fall under the class of ‘uninsurable risk.’

The task of catastrophe insurers is to search for substantial sources of capital to finance the upper layers of catastrophic risk. But the task is not an easy one. Generally, insurance companies are comfortable with loss ratios that are reasonably smooth and predictable. Losses are paid out of ongoing premiums collected. They make things work with an interspatial spread of risk. With catastrophe insurance, however, the pattern of losses is highly variable – most often next to nothing but once in a while massive. The need is for an intertemporal spread of risk. Unlike other lines of insurance, catastrophe insurance requires access to large pools of liquid capital at all times just in case the big loss strikes. Insurers generally look to reinsurers to provide those upper layers of catastrophic risk but, to get them on side, agreeable terms need to be negotiated and solid relationships established.

*Two major risks to the feeder pig business are disease and price and both are considered uninsurable because of the highly correlated, catastrophic nature of the perils. An outbreak of Foot and Mouth disease could cripple the entire industry. Dramatic price declines hurt all pig producers. These clusters of claims violate the insurability criteria, “the premiums of the many for the losses of the few.” Full indemnity is simply too costly for private insurers to bear on their own and premium rates would be prohibitive. Reinsurers will not support the offering without governments providing a stop-loss cover.*

*Methods of alternate risk financing, given the possibility of these catastrophic events, need to be explored. For instance, it may be possible to make disease insurable under a national plan if provincial and federal governments agree to provide a stop-loss cover at some level (i.e. beyond the capacity of participating insurers and reinsurers). The plan would require full agreement on biosecurity protocols, both on-farm and regional. The goal of the livestock disease insurance plan would be to cover named disease risks and perils normally listed as exclusions on livestock property and casualty policies. Specifically, if productivity of a herd suffered sufficiently due to infection by a named endemic disease, and was ruled to be so by a qualified veterinarian or a sanctioned authority, policy-holding producers would be indemnified for associated lost income. Furthermore, if the flock or herd was deemed by a qualified veterinarian or sanctioned authority to best be destroyed for the sake of the farm and the industry, producers would be indemnified for the lost animals at the greater of market value or their investment in the animals, and for the business interruption expenses incurred while rebuilding the herd. Indemnification would supplement that of the Health of Animals Act as administered by the Canadian Food Inspection Agency (i.e. for reportable diseases).*

## **II. SUMMARY OF INFORMAL DISCUSSIONS**

Informal discussions were held with several participants in the feeder pig business in Manitoba.<sup>2</sup> While the discussion “moved off in all directions” the author attempts here to provide a few notes on some of the expressed thoughts as they relate, directly or indirectly to the financing of the feeder pig business in Manitoba.

### *Economics of Feeding Pigs in Manitoba*

Discussions with feeder pig producers invariably come around to the questions of cost of production and profitability of the enterprise in Manitoba versus America in Iowa, Minnesota, Nebraska and South Dakota. There are some who suggest that the American producers currently have a marginal profit advantage in feeder pig production and that this fundamental economics goes a long way in explaining the current annual flow south from Manitoba of 3.5 million weaned pigs.

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<sup>2</sup> The author wishes to acknowledge the generous offerings of ideas, perspectives and opinions.

There are a number of arguments sited around building this case and they are listed here:

1. The strong competition for market hogs from numerous American processors creates a better selling environment than that in Manitoba where there are a limited number of processors in the marketplace. The better selling environment potentially adds revenue and profit to the American hogs.
2. The American hog processors allow a wider weight range for carcasses without discounts being applied. The wider weight range facilitates higher feeder barn utilization and a cost savings for American feeder barns versus feeder barns on the Manitoba side who market hogs locally.
3. Increasing fuel costs have made transportation costs a big issue for feeder pig producers. The greater the distance from processor, the wider the transportation basis. The freight to move a weaned pig south is about \$1.00 to \$1.50 more than local delivery. The freight to move a market hog south is \$7.00 to \$8.00 more than moving it to a local processor. The cost differential suggests it is economical to move the pig south at the weaned pig stage if it is to end up an American processor.
4. Since countervail duties are applied on a value basis, it is cheaper to pay the countervail duty on lower-valued weaned pigs than on higher valued market hogs, if they are both to end up at American processors. While recent countervail duties have to date been struck down and refunded, the mitigation of the risk that they may “stick” some time is somewhat achieved by crossing the border with lower valued pigs.
5. American feeder barns have the opportunity to work with medications not registered for use on the Manitoba side. These medications may reduce net costs to the American producers.

#### *The Contrarian View*

While the five points hold merit as explanations of the current flow of weanlings south, the longer term outlook may see some reversal of that flow for the following reasons:

1. Expansion of the processing capacity in Manitoba will increase the local buying pressure adding a few points to market hog revenue.
2. Expansion of American sow barns will increase the weaned pigs available locally and decrease the demand for Manitoba weaned pigs.
3. A strengthening Canadian dollar will make Manitoba weaned pigs less attractive to American buyers.
4. Border issues may become constraining to cross-border movements of weaned pigs.

5. Effective medications currently registered in America may gain registered status in Canada.

#### *Clustered Sow Barn Expertise*

The number and size of sow barns in Manitoba exporting weaned pigs to the United States (about 3 million 5 kg pigs and 500,000 20 kg pigs move south annually) is a reflection of the clusters of sow-barn management residing in the Province. The sow barn managers can grow weaned pigs that the Americans like because they can make money finishing them.

The industry is currently structured in a similar way to the cow-calf model where Manitoba is home to the genetics and management to produce quality beef cattle that are exported to Alberta for feeding in large feedlots close to the processors. This is the current structure but it is one that could swing with changing economic conditions over time. It is important to note that over half the weaned pigs produced in Manitoba are finished in Manitoba (about 4 million annually).

#### *Return to Labour from Conventional Feeder Pig Barns*

To construct a conventional feeder pig barn with 2000 pig spaces in Manitoba costs about \$600,000. The annual return to labour from the barn is about \$20,000. The wage to investment ratio is 3.3%. To construct a conventional feeder barn with 2400 pig spaces in America is \$480,000 U.S. (\$600,000 Cnd). The annual return to labour from the barn is \$17,000 U.S. (\$21,200 Cnd). The wage to investment ratio is 3.5%. While these numbers give a slight edge to the American wage to investment ratio it is marginal and could swing with small relative changes in earnings.

#### *Straw-based Production Systems*

Straw-based production systems utilizing hoop structures began in the mid-nineties as a kind of cottage industry niche line but it has developed into a more main-stream alternative. Procurement of straw-based hogs by processors in Manitoba is now growing to a near-significant status.

While the total cost of production per hog for straw-based systems and conventional barns is very close to equivalent,<sup>3</sup> there are some notable advantages to the straw-based system. Lower facility costs (\$200,000 straw-based versus \$600,000 conventional for 2000 pig spaces) takes some pressure off high-financing and facilitates the retention of cash reserves to mitigate price and disease risks during the critical start-up period. Composting of the solid manure provides a substitute for chemical fertilizers on nearby fields (a savings of fifty dollars per acre on potato land was reported). (Note: The manure advantage would also apply to the conventional system but with some difference due to the liquid manure in that system). A steady market for straw is created. The hog suffocation risk related to fan malfunctioning that is a concern in

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<sup>3</sup> See the MAFRI publications, "Guidelines for Estimating Swine Hoop Shelter Finishing Costs," April 2004, "Guidelines for Estimating Swine Finishing Costs," April 2004.

conventional barns is not an issue in the naturally ventilated hoop structures. “Neighbor risk” is relatively more manageable with the composted manure.

### *The Need for Profit Now*

There is an acute recognition of the need to profit in the feeder pig business. To paraphrase farmer comments, “There is only profit or loss – no middle ground... Don’t talk to me about next year – I need to see black ink this year... My children have alternatives and they need to see a profit here or they won’t stay.”

### *Management – Critical Factors*

When it comes to feeder barn management there are some critical factors that the successful producer must get right – the genetics must be okay, the disease load can’t be too high, drug-free periods must be honored, the rations must be formulated correctly, market hogs must be weighed accurately at shipping to meet premium weight ranges, and animals must be properly tattooed for identification. If all these things are looked after, the market hogs are easy to sell and processors will be anxious to secure a supply of such hogs under a longer-term contract.

### *Risk Management*

While derivative trading is the normal prescription for mitigation of price risk, there are some inherent problems with the approach. For a futures program, contingent margin monies of about twenty-five dollars a hog must be posted. On 6,000 hogs sold annually, that is \$150,000 of unencumbered capital, which is a lot for any farmer. Options can be pricey, running in excess of \$8.00 per hog or \$48,000 on 6,000 hogs sold annually - a hefty outlay given the narrow margins of the business. Forward contracts are another alternative but the basis tends to get wide for the further-out contracts making it likely the producer will “leave a lot of money on the table” by choosing this price and delivery risk-mitigation method. The current CAISP safety net program, structured on a whole-farm basis provides the potential for revenue protection during major down-cycles in pig profitability. The concern is that experience has shown that these programs “come and go” leaving questions about their longer-term availability (one suggestion was that the half life of these programs is about a year and a half).

A better method will entail the identification of offsetting parties willing to take the downside price risk under terms acceptable (i.e. favorable) to the feeder pig producer (i.e. for an acceptable rate). The risk exchange can then be consummated through some sort of efficient, fully collateralized bond mechanism (i.e. safe and guaranteed) with low transactions costs.

### *Access to Capital*

All farmers are faced with limited access to capital and it forms a major constraint to the expansions of their operations. The financing of facilities normally requires at least a forty percent down payment; the financing of operating capital normally requires at least a thirty percent down payment. Venture capital is out there but it requires the surrendering of a fair amount of control and often involves substantial transactions costs. It does, however, offer some advantages and may be worth the effort to secure. It is somewhat more

“patient” money that debt capital (that comes with an attached repayment schedule) although investors won’t be patient for long if financial performance is falling off that listed in the proforma statements.

#### *Rural Lifestyles*

Rural lifestyles do not run cheaply these days. The “lifestyle overhead” that must be extracted from the feeder barn operations is growing over time so either the profit per pig needs to rise or more pigs need to be marketed to sustain lifestyles.

### **III. PREFERRED OPTIONS**

The following list of preferred options is the authors. It comes from a weighed consideration of the information presented in Sections I and II above.

#### *Debt Financing*

The debt financing of facilities normally requires at least a forty percent down payment; the debt financing of operating capital normally requires at least a thirty percent down payment. There is no strong argument for relaxing these required rates (leveraging to excess is not a “good thing” in a volatile business like feeder pigs).

#### *Operating Monies*

An operating line of one hundred fifty percent of that likely to be required should be established at the start-up of the feeder pig business to provide contingency operating money should the business run a loss on one of its early turns. The objective would be to fully revolve the line of credit every four months in an “all-in all-out” barn but on some turns that may not be possible.

#### *Timing of Payments*

Payments on facility loans should be structured thirdly (every four months), corresponding to the timing of emptying “all-in all-out” barns and the revenue flows that correspond to that timing.

#### *Contingent Financing*

Contingent financing should be arranged at the time of loan approval for the financed facilities. The financier finances a reserve of two thirdly loan payments (“two in the bank,” so to speak) which is fully collateralized by holding the physical monies. The producer earns interest on the reserve monies at the rate charged on the loan so it is cost-free (unless, of course, the monies are used to make an otherwise missed thirdly payment during a time of financial duress, which would entail an addition to the thirdly loan payments for the duration of the repayment period).

### *Prepayment*

There should be no penalty for prepayment of principal on the facility loan. Prepayment should be encouraged during prosperous times with monies being added to the contingent financing pool as a form of self-insurance retention.

### *Risk Management*

A new method of price risk mitigation needs to be developed – one that is more affordable and effective than currently available methods. Options are expensive (too expensive, some would say). Futures come with burdensome requirements for margin monies. Both options and futures involve significant transactions costs. Forward contracts limit delivery alternatives and normally come at the expense of a wide basis which often requires producers to “leave money on the table” when the physical product is delivered and the financial transaction is completed. None of the current methods is fully satisfactory.

A new and improved method is likely to take the form of a specialized reciprocal insurance exchange backstopped by reinsurance treaties and catastrophe-type bonds (the parallel is the insuring of a catastrophe like a hurricane or earth quake since dramatic price declines affect all producers at the same time). Affordable premiums, reasonable price coverage and low transactions costs would be the objectives of such a method. If designed and implemented well it could earn broad participation.

### *Disease Insurance*

The need is to design and implement a broad-based insurance plan affordable to livestock producers in supplying a basic level of protection from disease perils. The plan would need the volume and spread of risk necessary to satisfy economic and sustainability criteria. The plan would also need to be premised on a comprehensive on-farm biohazard risk management program.

The livestock disease insurance plan could cover named disease risks and perils normally listed as exclusions on livestock property and casualty policies. Specifically, if productivity of a herd suffered sufficiently due to infection by a named endemic disease, and was ruled to be so by a qualified veterinarian or a sanctioned authority, policy-holding producers would be indemnified for associated lost income. Furthermore, if the flock or herd was deemed by a qualified veterinarian or sanctioned authority to best be destroyed for the sake of the farm and the industry, producers would be indemnified for the lost animals at the greater of market value or their investment in the animals, and for the business interruption expenses incurred while rebuilding the herd. Indemnification would supplement that of the Health of Animals Act as administered by the Canadian Food Inspection Agency (i.e. for reportable diseases).

## CONCLUDING STATEMENT

### *New Entrants*

It is quite a challenge for interested individuals to join the ranks of owner-operator feeder pig producers, particularly if they are beginning from a small equity position. One, it's difficult to put together the capital to finance the infrastructure; two, it's difficult to put together the capital to finance operations, three, it's difficult to put together the capital to finance risk, and four it's critical to "know what you are doing" once the operation is up and running.

To smooth the entrance pains it seems that an association with some sort of feeder pig syndicate is necessary. Where critical mass is required for efficient overall operations, many of the feeder pig business functions may best be performed through a central agency – sourcing large blocks of capital, sourcing of 20 kg weanlings, setting feeding regimes, negotiation of processor contracts, bulk purchasing of supplies, provision of risk management services, provision of trucking services, and the provision of extension, training and veterinary services. Under the syndicate the new producer can get up and running with a contractual arrangement whereby they are bound to specific production practices and have the support to see them done right. The contract will normally have two main components. One is the division of responsibility for providing inputs, and the other is the method used to determine producer's compensation. Skillful negotiation of these terms by both parties followed by a solid commitment to deliverables is required to keep both sides of the contract happy and hopefully profitable.

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