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INTRODUCTION

Farmers in Canada, like those throughout most countries of the world, have experienced rapidly changing financial conditions and growing uncertainties in recent years. Canadian farmers have been affected by international changes in interest rates, energy prices, trade relations, and exchange rates, as well as by domestic changes in inflation, credit, taxation, and commodity policies. Of particular importance to Canada is the relationship with the United States, Canada’s major trading partner. Canadian prices for beef, pork, grains, oil-seeds, and (to a lesser extent) fruits and vegetables are largely established by the United States, with adjustments in Canada for exchange rate differentials. Dairy, chickens, turkeys, eggs and tobacco, on the other hand, are operated in Canada through supply management systems, restricting supply and establishing prices through cost of production formulae.

Internationally, the most significant impacts in the last ten years have occurred from rising energy prices and interest rates and changes in exchange rates. Canadian energy prices have been adjusting to international price levels in recent years and now are considerably higher than US prices. Interest rates, on the other hand, have followed the US in an attempt to maintain a positive capital account trade flow. Canadian exchange rates have strengthened against most international competitors except the US, reducing Canada’s competitiveness with those countries. Relative to the US, however, the Canadian exchange rate has fallen from about $.97 Can = $1.00 US in 1975 to a low of about $1.40 Can = $1.00 US in March 1985. This drop in exchange rates relative to the US has protected Canadian farmers somewhat from the extreme adjustments occurring in the US, but has not isolated them from these changes.

This paper examines the changes in Canadian agriculture arising from changes in financial conditions and growing uncertainties in the 1980s, and is organised into two parts. The first half of the paper provides an assessment of the changing financial environment in Canada, examining
changes in farm incomes, returns from changes in asset values, and the changing capital structure in Canadian agriculture. The second half of the paper examines how these changes affect farm organisation, management and the formulation of related agricultural policies. This final section will address lessons from Canada regarding farm survivability, farm finance, management of asset values, taxation, supply management and quota allocation, minimising long term capital costs, and involvement in the formulation of macroeconomic policies.

THE CHANGING FINANCIAL ENVIRONMENT FOR CANADIAN FARMERS

Farm Incomes
In Canada, the most recent era of high prosperity in agriculture began in 1973, when farm incomes nearly doubled in one year to over $3 billion in total. Since that time, farm incomes have been maintained roughly at the 1973–5 range of $3–4 billion each year, with the notable exception of 1981 when high incomes in the prairies pushed total incomes up to $4.7 billion level. In 1983 total income fell to only $2.7 billion, and is expected to remain around $3.2 billion for 1984 (Statistics Canada 1985).

In assessing incomes throughout this period four important considerations should be noted. First, despite the unusual increases in the prairies in 1981, the steady level of farm incomes across Canada in the last 12 years has meant that in real terms farm incomes actually have been falling. By 1984, the expected Canadian farm income of $3.2 billion in real terms now amounts to only about 83 per cent of the 1970 income and only about 34 per cent of the 1973 income. As a consequence, many farmers feel that agriculture has lost ground in recent years relative to the rest of the economy.

The second consideration involves income instability. Although aggregate incomes have stayed in a narrow range since 1973, individual farm incomes have shown great variations. Statistics Canada (1984) data over the 1967–82 period show that the average year-to-year variability of individual farmers was much greater than the variability of average provincial or Canadian net farm income, and that farmers as a group probably had the greatest variability in their incomes of any group of workers or small businessmen in Canada. Furthermore, farm income instability has actually increased in the latter years. Cash grain farmers are likely to be the group of farmers with the greatest variability because of their dependence on widely fluctuating international markets and exchange rates.

The third consideration that needs to be mentioned is that agriculture is a very heterogeneous industry with really no ‘typical farm’. Although incomes worsened somewhat in the 1980s, all farmers have not been affected equally. Established producers, for example, generally have
fared much better than new entrants and those making recent expansions. Producers of supply-managed commodities generally have received high returns, while beef producers in particular have experienced a long period of depressed prices and the possibility of significant decreases in demand. Even within similar sized operations, differences in management can make large differences in earnings. As a result, one must be very careful when relating industry aggregates or averages to any particular group or individual.

Finally it must be recognised that farm incomes are only one part of the returns to agriculture. Additional returns may come from changes in the value of assets (such as land and buildings and quotas), and from special taxation treatment provided to farmers. These considerations will be discussed in later sections of this paper.

During the rest of the 1980s, the Canadian farm income situation is likely to remain very weak under normal production conditions (barring a major war, drought, etc.). For grains, there now appear to be abundant supplies of both wheat and feedgrains throughout the world. World prices for these products in turn are heavily influenced by US production levels and grain policies. Grain prices throughout the rest of the 1980s therefore could remain weak if bumper or even good US grain crops were produced and no major catastrophes occurred in other major producing countries. Furthermore, the US has considerable excess capacity in diverted acreage and production capabilities in both coarse grain and wheat production, so that it could probably respond quickly to any single year shortfalls in other countries with increased production, preventing large-scale price recovery. In recent years, for example, the US has had the capacity to produce about 1 billion bushels of corn in excess of its normal domestic commercial and export uses. This excess capacity represents the equivalent of Canada’s entire feed grain production and illustrates the kinds of pressures the feed grain sector could face in the rest of the decade.

US grain support programmes also affect Canadian prices. Of particular importance to Canada is the US loan rate for grains, which essentially represents the support price at which the US government will buy US grains from US farmers. Besides supporting US farmers, however, this support price also serves as a price floor for international prices, providing protection for Canadian farmers as well. In 1983 the loan rates for wheat, corn, and barley were dropped from $3.65 to $3.30 US, $2.65 to $2.55 and $2.16 to $2.08, respectively. Present international prices basically are being supported at these levels by the US loan rate. Current discussions (August 1985) are being directed at possibly even lower levels of loan rates for incorporation into the forthcoming 1985 US Farm Bill.

As a result of these conditions I see several years of tight financial conditions for grain farmers, with any improved income positions resulting from unforeseen natural disasters, etc. Substantial improve-
ments may even require two years of crop failures to generate sizeable shortages. Given these conditions, grain incomes are also likely to remain very unstable.

On the livestock side, established producers of the supply-managed dairy and poultry commodities are likely to continue to prosper. Current quota prices, on the other hand, are now so high that they effectively 'eat up' all the operating profit of producing these commodities by new entrants and serve as very effective barriers to entry. In hog production, low grain prices are likely to encourage large buildups with resulting low pork prices over the next few years. Beef breeding herds are now in pretty good shape with herd reductions having occurred over several years in the US, even though slaughter is still up, due to liquidation of heifers. The large herd reductions, however, should improve prices over the next several years. Unfortunately, beef demand appears to have fallen in recent years, and still remains a problem. Some improvements in demand in the US may be occurring with their economic recovery and may help a little. On the other hand, increased pork and poultry production resulting from expansions in response to low grain prices could restrict the recovery for beef. As a result, only a moderate improvement in beef is forecast.

A further important consideration in livestock income is the recent reaction of the US to Canadian stabilisation for pork. The US International Trade Commission preliminarily ruled that Canadian stabilisation for pork production caused injury in the US even though Canadian studies (Martin and Goddard 1985) showed no appreciable supply response from the stabilisation programmes. The US Commerce Department finally imposed countervailing duties for hogs, but not for pork. The move by the US government to impose countervailing duties on hogs and other products is likely to increase uncertainties in trade in the future.

Changes in asset values
The second major influence on farm viability and survivability in the remainder of the 1980s will be changes in the value of farm assets, such as land and buildings and production quotas. Changes in asset values can be extremely important in generating wealth among established farmers, and building up (or reducing) their equity for use as financial reserves in difficult times. Changes in asset values also affect the cost of farm entry, and thereby the credit and potential cash flow requirements of beginning farmers.

In Canada, capital appreciation or depreciation has been largely ignored by farm groups in assessing the returns to agriculture and the viability of the sector. This is unfortunate because capital value changes can increase or decrease a farmer's wealth and total returns from agriculture by greater amounts than his current operating income. For example, real capital appreciation (adjusted for inflation) for Canada as a whole exceeded net farm operating income in four of the last six years of
In the 1980s the opposite has happened, with farmers losing more from declining land values than they earned from their operating incomes. In Canada, Statistics Canada (1985) indicates that land values fell between 1982 and 1983 by about 4 per cent. In nominal terms this represents a cumulative loss in farm wealth of about $4.2 billion. Inflationary losses would add another $6.7 billion, resulting in a total decrease of real (adjusted for inflation) farm wealth of about $10.9 billion. In 1983 Canadian farmers only earned about $2.7 billion in operating incomes, or about one-fourth of their losses in wealth. It will take many years of profitable farming to make up these losses, but large capital appreciation could recapture the losses in a single year.

It is unfortunate that farm organisations have not paid more attention to capital value changes in assessing the viability of farming. By ignoring capital value changes, farm organisations underestimate the viability of agriculture when capital appreciation is occurring (as in the 1970s) and greatly underestimate the severity of problems facing farmers when land values are falling. Many farmers cannot ignore falling land values even if they would want to, as banking institutions carefully consider falling equity and collateral values in their decisions to maintain or call in outstanding loans.

Changes in land values are influenced by the profitability of farming, non-farm demand for land, the cost of credit, and the expectations about future land value changes. In recent years, future expectations have played a very major role, as land has been purchased as a hedge against inflation by farmers and non-farmers alike. As such, land investments have taken on many of the characteristics of a growth stock, whereby the overall return to land is determined by both the current return and expected future changes in the value of the asset itself. During the 1970s land values continually increased beyond their capability to generate current returns. Between 1976 and 1979, the percentage rate of real capitalisation even increased while the percentage rate of return to capital was falling rapidly (Clark and Brinkman 1984), indicating a strong growth-stock speculative element. With the decreased profitability in the 1980s, land prices have fallen drastically as the decline in expectations about future returns (over a number of years) has been decapitalised into the present land price. As a result, land values in some areas have fallen much greater than the reduction in profitability because the expectations about future capital gains have also changed.

During the remainder of the 1980s land values are likely to remain relatively weak because of both the expected tight profitability position of grain farmers and the apparent change in future expectations about land values. Further large declines in land values across Canada are not too likely, although nominal land values could be maintained at their present level – causing real decreases each year. Price declines would be good news for new farmers, however, who would be faced with lower capital requirements and greater potential for capital appreciation in the future. Significant land value increases in the next few years, on the other hand,
are also not very probable, meaning that farmers probably will not have this added return to supplement their operating incomes. This is a very important consideration, as research examining rates of returns in Ontario (Brinkman 1981) has identified capital appreciation to land as a very important component in generating comparable farm and nonfarm returns. Furthermore, constant or declining land values will not provide farmers with increased equity to help bail them out of difficulties in financing their farms, as occurred in the 1970s.

Capital Structure of Agriculture
The most significant change in the capital structure of Canadian agriculture in the last decade has been the tremendous increase in the value of capital employed on farms (Brinkman and Warley 1983). In nominal terms capital values of farm land and buildings, machinery and livestock increased from 1971 to 1981 by 441 per cent, representing an increase in real terms of 2.3 fold. Of the total capital value, land and buildings account for nearly 79 per cent. Overall this means that agriculture has become an extremely capital intensive industry. In the 1940s, for example, the ratio of capital to value added in agriculture was about 4 to 1. By the first half of the 1970s it had increased to about 8 to 1. In recent years the capital to value added ratio in agriculture has been about four times higher than in mining, about eight times higher than in manufacturing, and over 15 times higher than in construction and forestry (Brinkman 1981). The extremely high capital intensity makes agriculture very sensitive to changes in interest rates, inflation, and policies like credit and taxation affecting capital availability, use and transferability.

IMPLICATIONS FOR FARM ORGANIZATION, MANAGEMENT AND POLICY FORMULATION

Farm survivability
One important implication of the emerging financial environment in Canadian agriculture has been the effect of the changing financial structure of farms on farm survivability. Real incomes in the 1980s are likely to be lower than those in the 1970s, with net income decreasing as a percentage of gross income. Farm debt has been increasing at the same time, so that debt to income ratios may continue to rise from 3.7 in 1971 to 5.4 in 1982. With interest costs also rising from 5.5 per cent of operating expenses in 1960 to 18 per cent in 1981 and likely to remain in the 14 per cent range throughout the 1980s, farmers are now much more vulnerable to changes in prices, interest rates, and input costs, and therefore much more susceptible to financial failure.

In earlier times, farmers hit with low profitability have been able to survive by operating well below their short-run average total cost curves and still being able to meet their immediate cash flow requirements because they have held considerable reserves of earnings to family-provided resources (labour, management and equity) that could be drawn
down to cope with short-run crises. In recent years, however, minimum 
cash-flow requirements have been increased substantially because of 
greater dependence on purchased inputs, greater debts, and higher debt 
costs (interest). These conditions have greatly reduced the resilience of 
farmers, and are particularly acute for new, commercial-sized operators 
with full-time commitments to farming. As our present generation of 
established farmers retires from agriculture in the coming decade, these 
tight survivability conditions will become more and more widespread. 
As a result, being a good producer will no longer ensure success in the 
1980s. Farmers will need to focus more and more beyond the farm gate 
on both managing their farm finances and on marketing their products. 
These conditions may also increase the demand for non-farm work and 
part-time farming to generate non-farm earnings as security against 
cash-flow shortfalls. Presently we are emphasising the need for farmers 
to build equity instead of expanding, and consider any farm with less 
than 50 per cent equity as a potential survival risk.

Farm credit and finance
Credit is a very important part of the financial environment of farmers 
as it enables them to operate beyond the limitations of their own equity. 
In 1984 Canadian farmers had $20.7 billion in outstanding credit, with 
over $10 billion in new credit (short, intermediate, and long-term) 
taken out in 1984 alone (Statistics Canada 1985). Generally credit in 
Canada has been adequate, although some specific shortages have 
occurred. In recent years, many provincial programmes also have 
emerged to provide additional credit, often at subsidised rates. In 
comparison with the US, our credit system focuses more on beginning 
farmers and family-sized operations, with more effective limits than in 
the US to restrict funds to larger than family units.

In the remaining years of the 1980s, credit availability is not likely to 
emerge as a major financial limitation to Canadian agriculture. Most 
lending institutions have switched already from lending on the basis of 
equity to a more careful analysis of cash flow repayment capabilities, 
which may make some credit less available. This new emphasis is long 
overdue, however, and should help prevent new farmers from over 
extending themselves and getting into financial difficulties because of 
inadequate cash flows.

Pressures for subsidised credit programmes are also likely to increase 
in the coming years as financial pressures for farmers in difficulty 
mount. Subsidised credit programmes available to all farmers may 
provide short-term relief, but may also eventually become capitalised 
into higher land values which then serve as additional barriers to new 
farmers. Selective credit programmes available only to new farmers or 
to those in serious trouble, on the other hand, may still help these 
farmers without being capitalised so highly into land values, because the 
programme would not be available to established producers who want 
to expand. During the rest of the 1980s, interest rates may fluctuate
somewhat, but the very high rates of the 1980–2 period hopefully will not reappear.

Unfortunately, the high capital requirements for Canadian farms are creating some difficulties, as they are making the family farm too expensive for the farm family. Traditionally, Canadians have focused on a system of farming with 100 per cent ownership of land. This system has worked well in the past, but investment costs are now causing a number of highly qualified new farmers to fail or stay out of agriculture simply because they cannot generate the cash flow to service the cost of full ownership. Some of the alternatives to full ownership under conventional credit arrangements that should be explored include better long-term leasing arrangements, variable and indexed farm mortgages, shared appreciation mortgages, equity financing through corporate shares, perpetual mortgages through interest payments only, and agri-development bonds with tax credits or exemptions on depositor interest.

Management of asset values
In the 1980s successful farm operators in Canada are likely to need to devote much more attention to asset value management, rather than emphasising exclusively farm production and even operating financial management. Probably the most useful consideration for asset management is the time of entry, as this determines more than anything else the potential for land value appreciation or depreciation. New farmers must critically evaluate entry or expansion on the basis of maintaining capital values rather than entering simply because they are ready. It makes little sense to work diligently to generate current income only to see asset values fall by similar or greater amounts from falling land prices or declines in other asset values. Other tools of asset management involve more diversification to avoid ending up with low salvage values for specialised assets committed to specific commodity production when the price of the commodity falls and relocation to take advantage of different land values (relative to productive capacity) in different regions.

Taxation
Taxation policies can have a significant impact on the financial environment of agriculture, although they often are not recognised as being as important as they are. Currently there are a number of Canadian taxation provisions available exclusively to agriculture or available to other Canadians but utilised more by farmers because of the particular conditions of farming. These provisions in the approximate order of impact on the financial and organisational structure of agriculture include:

1 Deferment of capital gains taxes on farm property transferred from parent to child;
2 Cash method of accounting;
3 Exclusion of first $500,000 capital gain and half of additional amount*
4 Business inclusion of the farm residence**;
5 Limitations on deductions of up to $5,000 against non-farm income by part-time farmers;
6 Investment tax credits**;
7 Optional inventory livestock valuation method;
8 Depreciation of half of the purchase costs of producer quotas;
9 Clearing and land improvement costs treated as current rather than capital expenses;
10 Income splitting;
11 Hiding the costs of income-in-kind from farm produced food;
12 Forward averaging* and 5-year block averaging provisions.

Overall these taxation provisions typically have

- lowered the incidence of taxes on farm related activities;
- increased the demand and prices for farm assets, especially land;
- promoted larger farms and expansion of existing units over new entrants;
- promoted owning over renting;
- promoted growth within farm families over new entrants from outside agriculture; and
- encouraged production decisions based on taxation benefits rather than market signals.

Although a few features of Canadian tax policy tend to distribute benefits relatively equally to large and small farmers (treatment of the principal residence for business purposes and the hiding of income-in-kind), taxation provisions generally are worth more to those with high incomes than low incomes and particularly to established producers over new entrants.

The impact of taxation policy on farm organisation and management in the remaining years of the 1980s is likely to continue to promote growth from established operations, concentration of land ownership, and entry into agriculture from within established farm families rather than from outside of the sector. Use of the cash method of accounting will continue to encourage livestock producers to expand (even when market signals would indicate contraction) to avoid paying taxes by purchasing more livestock to feed in order to offset their incomes. Tax credits on new machinery also will encourage over-capitalisation of machinery on farms, and provide established producers with a competitive advantage over new producers, who should be starting out with used instead of new machinery. Changes in taxation policy, on the other hand, could alter these impacts significantly.

*Available to all tax payers but utilised more by farmers.
**Available to self-employed businessmen only.
Supply management production systems
In Canada one of the responses to growing financial difficulties in agriculture in the 1970s was the creation of national supply management systems for chickens, eggs and turkeys to complement existing systems for dairy and tobacco. To restrict supply and thereby facilitate the establishment of higher prices these systems grant farmers production quotas, which become the permanent right of the farmer to use or sell. One of the most important lessons to be learned from Canada, particularly for those European countries considering establishing similar systems, is that these systems are not long-term solutions to low income problems. Without a doubt, these systems in Canada have provided very large benefits to the initial producers in both higher incomes and capital appreciation in quota values, thereby generating short and intermediate-run benefits. These benefits, on the other hand, have now become capitalised into the price of the quota which second generation new producers must buy to begin production of the commodity and thereby represent long-run costs. In the province of Ontario in 1984, for example, the quota costs alone for full-sized family units were $180,000 (dairy), $350,000 (turkeys), $400,000 (tobacco), $450,000 (broilers), and $750,000 (eggs) (Warley 1985). In dairy, our calculations show that the quota costs are so high that the return to milk production over variable feed costs, interest and depreciation on the cow and just the interest on the quota generates only about a $100 return per cow, allowing virtually no return to labour and capital invested in land, buildings and machinery. In other words, the only way a dairy farmer can now afford to purchase a quota at current prices is if he has increased his milk production per cow and requires no other additional barn space, milk handling capacity, machinery, land or labour. As a result of the high level of capitalisation in quotas, Canada is rapidly nearing the point in some of the supply management systems when no further adjustments will be profitable, both for new entry and expansion on existing farms.

Policy changes to minimise the long-run cost structure
From a policy standpoint there is an important need to shift the treatment of financial problems in Canada from short run crisis solutions to approaching farm finance, at least in part, from the standpoint of minimising the long-run cost structure and reducing the transfer of benefits out of the sector that were designed to help farmers. As identified in the previous section on supply management, programme benefits designed to help the financial position of farmers typically have simply been capitalised into fixed assets, which have become costs to the new producer and entailed higher future credit requirements. In many cases the selling farmer even ends up taking the capital out of agriculture, requiring that agriculture continually refinance itself out of retained earnings.

In Canada too little attention has been devoted to the determinants of long-run capital structure and the capitalisation of programme benefits. The discussion on alternative financing methods in the section on Farm
Credit and Finance is an example of the potential for different impacts on long-term costs from different financial instruments. Considerable impact on long-run costs and farm financial viability also could be generated through different rules for quota allocation, transfer and use. For example, the costs of quotas could be greatly reduced, while still providing benefits to operating farmers, by requiring all quotas to be used or returned to the board (to avoid long-term quota leasing), allocating quota rights for fixed periods of production (say 20 years) instead of making them a permanent right, providing graduated entry programmes to new entrants, retaining final rights to the quota in the hands of the board of government and leasing out rather than selling the rights and restricting quota transfer and sale (together with provisions requiring that quotas be used or lost) for new marketing boards to insure that producers holding livestock in anticipation of the new board intended to use the quota for production rather than trying to get rich quick at the expense of other farmers by quickly selling off their new quota rights (Brinkman 1983).

More attention to macroeconomic policies
The final implication of the changing financial environment is that Canadian farmers (and probably all farmers world-wide) need to devote much more attention to macroeconomic policies affecting inflation, interest rates, exchange rates and taxation. Canadian farmers typically have good access to Ministries of Agriculture; but they have been very delinquent in approaching Ministries of Finance, Revenue and External Affairs about macroeconomic policies. This expanded involvement must be a high priority for agricultural producers and organisations in the rest of the 1980s, as changes in macroeconomic policies now can affect farmers more than their traditional commodity policies.

CONCLUSIONS
Without a doubt, the changing financial environment in Canadian agriculture will have a significant impact on farm organisation and management. It must be remembered, however, that despite the weakened financial environment, Canadian farmers as a group still remain in a relatively strong financial position. Overall Canadian farmers own nearly 82 per cent of their assets, and the average net equity of farms producing $2,500 or more gross sales in 1984 was $418,000 (Farm Credit Corporation 1984). Despite falling land values in some areas in recent years, farmers as a group still have, on average, more wealth than any other family-oriented wage or small business operation in Canada. Canadian farmers are some of the best in the entire world, and I am certain that they will be successful in meeting the challenges of the changing financial environment of the 1980s.
REFERENCES


Farm Credit Corporation, Canada, *Farm Survey*, Ottawa, 1984.


