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SUMMARY OF RESEARCH NEEDS

Alfons Weersink

Near the conclusion of the workshop many of the major issues that had been addressed by presenters over the two and one half days began to surface as presentations referred to earlier statements, and the discussion began to refer to the common ground of what had already been said. Participants were asked to submit a list of two or three major issues that they believed were worthwhile pursuing. This note provides a summary of what was suggested as well as what was discussed after the overview was presented.

The essential research needs of the dairy industry are in many ways similar to the research needs of any sector in agriculture, and yet also point to certain fairly unique situation that have arisen due to different institutional approaches in Canada and the United States. The needs are in the areas of supply response, demand analysis, pricing, industrial organization, institutions and regulations, and distributional effects. The first section of this review will focus on the data and the methods that are necessary to address these questions.

DATA

The most basic issue that faces agricultural economics is the development of appropriate data files on industry that are continuous and allow us to see the nature of both economies of scale and economies of scope at the same time. Primary emphasis should be placed on production costs at the farm level and by region. A renewed theoretical emphasis will need to be placed on the definitions that we use in terms of farm size and the apparent—and sometimes not apparent—linkages through to the processing level. Similarly, reviews of transportation costs and costing procedures are required that may also shed insight on the overall network of movement effects in this sector.

At the price level itself we have farm price surfaces for Class I to Class III milk that do not include the California effect. Yet there are very strong pressures that may force pricing distortions in the areas surrounding California simply because of its immense size as a market as well as a supply point.

At the processing level there are even greater questions surrounding the nature of value added and whether this value is indeed added because of the nature of the product produced or the particular tastes and preferences that are known to the companies in the industry. Is there any similar dominance in the retail sector and does it make a difference? What are the major price effects of supply managed products such as are prevalent in Canada and the comparable price managed systems in the United States? Linkages and leakages may well be more significant in this context than in other sectors.

Data will also be needed on non-tariff barriers and administrative practices that include labelling and packaging requirements.

The main data challenge facing agricultural economists as they analyse the milk market is whether or not data actually capture the kind of information that is useful, and how can this be assembled in an orderly fashion. If we do not address this problem we will be faced with the situation in which our models move millions of gallons of milk as marginal cost curves are balanced yet in the real world very little milk actually moves without recovery of all prices and transportation costs, and utilization charges from the processors. These transactions costs may well be more significant in this sector than in any other that we face.

METHODS

It is fairly clear from the producers perspectives that there is a sense that the industry is moving towards a more regional focus with specialization in production and more concentration on systematic issues. The models that we use currently tend to extend simple cost minimization or revenue maximization schemes through a number of analytic engines that produce a series of transfers and shadow prices for any further movement. What is often introduced as an enabling assumption is the capacity utilization in each sector at the first next level of processing before product is moved any further. The algorithms that we use fill aggregate capacity as if the access for milk were the same in all areas and that there is no shortage or surplus within any particular region that goes unfilled. In effect many of the models that we use impose "success" on all of the sectors by assuming that everyone makes money by means of their activities even if there is a capacity adjustment due to losses or exceptional profits. This may not be the case unless our models focus more on how the

capacity in the system fills up and the adjustments in the capital markets that this may cause. There are some who question openly whether exports of milk products are realistic at all unless the capacity to handle and ship is put in place.

The models that we use assert perfect competition in the results that are presented, but there is concentration in the processing industry at least and probably in other areas of the industry as well. The assumption that quantity optimization is always in effect may be proven inappropriate if clear patterns of concentration can be identified. Withholding quantity may well be present and prevalent within the industry but has been undetected so far because of the analytic biases in the models that are used.

The models that we have are essentially static, moving product around with little concern for how that movement might actually take place. The dynamics of the shifts in supply and demand can have severe long term effects that are a fairly significant challenge to the overall pattern of adjustment. An equation of motion introduced into the modelling frameworks for a perishable product must recognize the physical properties of milk as well as its profit generating potential.

PRODUCTION

The emphasis on production has largely been as if a model or representative farm could be developed and used to identify technological transformation functions and to bring along the entire family of production and cost equations that would determine supply. There are many who question whether technology transfer actually drives the size of the dairy farm, especially if the technology is discontinuous and open up ranges within which there are no meaningful solutions. Some have expressed concerns that these discontinuities not only drive farm size, but additional pressures such as optional usage for land located near to urban centres, alternative feed supplies from many different possible rations, and overall concern for health conscious diets may be fairly significant as well.

On the production side there is also the mystery of why Canada's milk/cow production results have flattened out when comparable results do not exist in the United States.

Reactions of farmers to changes in prices and costs are no longer viewed by some as stable and predictable. Indeed the factors that influence farm decision making seem to be changing rapidly and an increasing reliance on off-farm income may well move reaction functions into new regions of decision making. Given that individual farm decision making may have become more volatile, how are regional reaction functions valid? The ability to

speaking meaningfully about a Canadian or U.S. farm perspective is being challenged by many studies on the dairy industry.

On an international basis is there a competitive advantage or a comparative advantage that might never be breached - or at least not appear to be worthwhile for a considerable period of time? On an even larger scale, are there other broadly reaching agricultural policies that will have a significant impact on dairy as other sectors advance or recede? Is there a theoretical explanation for the "no trade" regions of our marginal cost curves that are derived from production analysis or must our analysis of production become more encompassing and sensitive to broader issues?

DEMAND ANALYSIS

The demand elasticities that we use are rather volatile and not overwhelmingly convincing. Further efforts that extend the type of methodologies that we use are in order. Should we look at long term demand or short term demand? What impact does the perishability of milk in its raw form and the somewhat slower perishability of processed products have on these elasticities? Do milk components have the same or different elasticities? Are there biological regimentation pressures on these elasticities that may alter overall potential profitability?

The true values of milk components by consumers and by markets which may also involve processors remains elusive. The potential for misguided policy is large when there is an assumed demand that is prepared as a result of a theoretical elasticity and an existent clearing point, with no basic assessment of the capacity of the market to actually clear products.

In the same fashion the potential for market growth and the overall ability to develop new markets and new products seems to be suspect if the current period model is somewhat ill defined.

PRICING

Currently economic theory does not have a lot to say about price transmission mechanisms or marketing chain efficiency. In essence theory assumes that the transmission is complete and that there is an efficient and effective allocation in transmission of price signals. The ability to understand this market will be enhanced when this issue of speed of transmission and price spreads along the marketing chain are investigated.

In dairy, is there a broadcast impact of concentration at any one sector that has an effect on prices or is the concentration at a specific sector of the industry a damper on the overall process of adjustment. It was observed by several presenters that the volatility in U.S. milk prices at the farm gate was quite profound, but that the actual price at the processor level was perfectly flat through time. Do the processors blend milk prices across time or through corporate structures in order to bring this about? Are there other pressures that support this effect?

In terms of pricing are there market structural issues that would generate higher or lower differentials for milk used in fluid markets versus industrial milk?

INDUSTRIAL ORGANIZATION

Throughout the workshop it has been implicit in the discussions that many believe that there is a market for milk products in the international arena and that indeed there are potential markets for both Canadian and U.S. producers. Critical questions remain about whether or not a new initiative in large scale milk exports would be well received by the major international corporations that are currently active in the market. If it is potentially worthwhile for large processors to consider vertical organization options in order to overcome potential difficulties with the U.S. Farm Bill, will the international corporations not be encouraged to control their own production?

There is also some reason for concern as to whether or not institutional or contractual arrangements would take over and cause new systems to emerge in the structure of the industry. Is there a potential for producer organizations to attempt to coordinate markets in an expanded world trade environment?

What factors will influence this overall adjustment and will there be room for government policy to react to these changes as trends emerge?

INSTITUTIONS AND REGULATIONS

For the purposes of relations between Canadian and U.S. producers there is a question as to how cooperation can be improved. If cooperation depends on harmonization of standards and policies, how do we effectively define harmonization in order to achieve this. Is there any reason to believe that harmonization in dairy will be more effective than it has in other areas (such as softwood lumber) where conflict among partners has lead each group to retreat behind its own protective shield based on certification? Areas where emphasis should be placed include packaging, labelling, quality and areas in which there are similar

terminologies and regulations. If similar interests are the motivation, then how do we define these similar interests and on what basis do we implement these understandings?

Are non-tariff trade barriers and trade related investment measures a significant factor in this industry and are there more being created or less as the result of free trade? Can these be successfully eliminated to the benefit of producers or processors or both? Is there a common interest that would lead to complementarity as a result of negotiations amongst producers and processors in each country or with their counterparts across the border?

Is there an effect that can be detected for a change in the distribution system that can be foreseen and planned for?

DISTRIBUTION

Recent agricultural policy in both countries has focussed on deregulation. Little analysis has been done as yet on whether there have been major improvements in efficiency and industry effectiveness as a result of these efforts. Whether there is an inertia in this process is also worthy of further investigation.

Areas of emphasis include the effect of deregulation within regions, across regions, and between the producer and the consumer. The critical analytic question then becomes deciding which policies are capable of making a difference in terms of this adjustment process and how major advantage can be determined in this area.

The overall discussions of the workshop focussed on how the future might unfold if the common interest of Canadian and U.S. producers were brought together by agricultural economists. Yet beneath the surface there was a considerable degree of uncertainty based on the major issues outlined above. The issues identified above are listed to encourage independent research by all who see a particular question that needs to be addressed, and therefore this listing is merely the seed from which new research projects can flow.