PRODUCTION AND USE OF WHEAT IN NEW ZEALAND

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ABSTRACT

This paper is comprised of two parts. The first presents some statistics on the production of wheat, and its use for flour manufacture and as stock feed. The production of varieties is also documented. The second part discusses some of the pricing policies which have influenced this pattern. The averaging of wheat and flour freight costs allows a constant farm gate price which encourages (or discourages) production where there would otherwise be higher (or lower) transport costs. The fixing of premiums and discounts for wheat varieties prevents millers from collectively valuing varieties in relation to their demand for use in food. Thus the equalisation and fixing of milling and transport costs prevents any direct relationship between production and use. A more complex issue is whether quality standards should be enforced.

INTRODUCTION

A paper on this subject could be a bald statement of statistics. That would not be contentious; neither would it be very useful. Comments could be made on the physical and demographic factors that influence wheat production and use. In particular, attention could be given to the factors affecting yield and quality differences between varieties. That would be more useful, but many of those factors will be covered in the following more technical sections. Comments here will therefore be restricted to the influence of economic rewards and restrictions on resource use in the wheat industry.

ISSUES IN THE QUALITY/QUANTITY CONFLICT

The frequent inverse relationship between yield and quality in wheat production has allowed some emphasis on quantity at the expense of quality. The position taken here is that the quality/quantity "conflict" in the selection and valuing of wheat grades is basically an economic problem. Reaching agreement on the measurement of quality is important, but the "conflict" must be resolved in economic terms. There are two broad issues.

Firstly, quality should not be classified according to major physical differences. Rather the grading system should be limited to those characteristics of wheat which have commercial significance. That is, wheat grading should be related to user requirements. Very few grades may be required. Further, these grades may not be existing varieties.

Secondly, the setting of premiums and discounts for quality differences should allow the matching of supply and demand for relevant wheat grades. The grower's choice of varieties and management practices will depend on their likely returns. Encouragement in extension material should make financial sense. In turn, grower returns should be based on the relationship between the level of production of wheat grades and the quantities of each required for flour and other uses. Some set of price differentials will provide sufficient incentives for growers to meet requirements.

It is therefore essential that price premiums and discounts continue and that they reflect the valuation of users. Establishing what are the appropriate wheat and flour grades and the price differentials between grades is a major task. This paper investigates alternative administrative mechanisms or pricing policies which might be used to do this.

STATISTICS ON WHEAT PRODUCTION AND USE

A brief summary of statistics is given first to provide perspective on the comments which follow.

Table 1 indicates the price differentials which have been paid for varieties, and the proportions of each produced. From the 1981 harvest the average price to growers is to be linked to the f.o.b. price for Australian Standard Wheat (ASW) — to the average of prices for the past 2 years and the coming season. Table 1 indicates that the premium for Hilgendorf of 20% is to continue for 1981.

Table 2 indicates total New Zealand wheat production (as estimated by MAF) together with Wheat Board receivals. The table indicates that New Zealand Wheat Board receivals have usually fallen short of New Zealand requirements. On the one hand this would tend to depress flour standards to increase the amount available from New Zealand wheat. On the other hand it provides the opportunity to obtain shortfalls in particular grades from overseas, thereby improving quality. The effect of weather on grade availability could be handled by this means.

Table 2 also indicates that the major use of flour is for bread. The "Other" category includes flour supplied to grocers, pastry cooks, cake kitchens, and for use in starch and baking powder.

WHEAT BOARD POLICY

The present situation is that the Wheat Board is extensively involved in matching wheat production and flour requirements. This responsibility requires that it evaluate end use requirements for wheat based products,

TABLE 1: Varietal Production and Price Differentials in Board Receivals.

Harvests		Ave Price	Kopara	Takahe	Karamu	Aotea	Hilgendorf
1976	% Rec*		32.5	—	22.4	34.7	6.4
	Price**	102.88	102.88	-	?	102.88	113.17
1977	% Rec		40.8	2.9	16.8	30.5	5.6
	Price	110	110	110	?	110	121
1978	% Rec		41.1	18.0	14.2	17.0	6.7
	Price	120	120	120	114	120	144
1979	% Rec		32.6	31.4	15.6	11.2	5.6
	Price	127.5	127.5	127.5	114.75	127.50	153.00
1980	% Rec		36.4	38.2	8.0	3.3	8.1
	Price	140	140	140	119	140	168
1981	Price	183	183	183	155.55(SI) 169.28(NI)	183	219

*Percentage of Wheat Board receivals
**Price paid to growers free on rail in $/tonne

TABLE 2: Consumption of Wheat and Flour

Item	1977*	1978	1979	1980	1981
Estimated NZ production	388,200	354,000	328,800	326,912	324,693
Wheat Board receivals	365,479	299,424	285,899	257,508	256,845
Australian imports	10,173	-	26,308	52,929	53,324
Total Board receivals	375,652	299,424	312,207	310,437	310,169
Wheat utilisation					
Flour	229,408	226,095	226,531	224,665	227,105
Bran	27,144	25,657	25,483	21,787	28,668
Pollard	37,265	35,969	34,740	34,775	41,611
Feed Wheat		4,442	13,629	5,661	8,129
Flour utilisation					
Bread bakers	126,313	129,562	125,265	125,278	128,059
Biscuits	16,594	15,786	15,195	15,411	16,492
Hi ratio flour	2,902	2,925	3,115	2,311	2,421
Self raising flour	2,495	2,455	2,830	3,550	3,067
Other	81,104	75,367	80,126	78,115	77,075

*Year ended 31 January

define appropriate flour grades and establish price premiums for appropriate wheat grades. This is a major task.

Recently two main flour grades were defined from which the wide range of baking products must be obtained. Category A has a high baking score and is particularly designed for bread manufacture. Category B is primarily for biscuit manufacture. Wheat grades supplied to millers for the preparation of these two grades of flour are varieties of wheat — the main ones being listed in Table 1. Millers do not have the option of selecting wheat lots.

AN ALTERNATIVE POLICY

To provide a contrast to the present administrative mechanism, a radically different policy is described. This is to allow market forces to establish flour grades, and to price lots of wheat in relation to those grades. Under this arrangement the Wheat Board's role would be limited to working with trade associations in defining mutually acceptable quality categories and to authorising the importation of required grades. Bakers, in order to meet end use requirements, would request particular types of

flour. Millers would in turn select appropriate lots of wheat to produce these flours. Would such a system work?

ASSESSING END USE REQUIREMENTS

What is the rationale for continued Wheat Board involvement in setting and pricing wheat grades?

One reason might be to protect consumers. An objective might be to increase the nutritional content of wheat-based products and their convenience/presentation qualities. Thus one view is that the baking score of flour and wheat varieties has gained importance through consumers' concern over bread texture.

If consumers can choose between bread types, and their preferences count, it can be argued that this is sufficient to force bread manufactures to alter the range of products being offered. It would follow that the market mechanism would take care of this matter and that administrative interference is not warranted.

If consumers cannot choose, and this has significant health implications, there may be justification for control. But to justify a policy emphasis on wheat varieties and their baking scores, it would need to be shown that there is a strong relationship between wheat varieties and bread quality — that milling and baking methods are relatively unimportant.

FIXING PREMIUMS AND DISCOUNTS FOR WHEAT GRADES

As indicated earlier, the Wheat Board follows a policy of setting premiums and discounts for different varieties of wheat. The Board's objective is to ensure that wheat supplies match mill requirements. Two issues arise with this policy:

a. Are there no variations within these varieties that warrant price differentials?

b. Are millers unable or unwilling to assess wheat quality and pay price premiums to growers accordingly?

Similar issues could be raised in relation to the flour grading system.

On the first issue it would seem that important differences in commercially significant quality characteristics do occur within varieties. There is also a lack of consistency. What is not clear at the moment is how a better grading system could be defined and implemented. It would need to be easily understood and applied by growers. One constraint is the lack of central storage system which could more accurately test and aggregate wheat according to grades.

The second issue is whether millers would, in a free market environment, pay appropriate premiums for quality. This raises the point that a quality premium is not essential if that product can be easily produced. If, however, quality grade was in short supply then its limited availability could be expected to command a premium. Conversely, millers would be reluctant to choose wheats with poor flour making qualities. This principle works in other contexts; why would it not work in wheat?

Under the present wheat pricing formula, a premium for a grade could only be justified if its quality exceeds that of ASW. An important question then is whether a 29% premium for Hilgendorf is warranted.

AVERAGING OF FREIGHT AND MILLING COSTS

A policy is followed of not charging the costs of freight and milling to the wheat involved in the operation, but pooling these costs and making an average charge. This allows constant wheat prices to farmers and (f.o.r.) flour prices to bread manufacturers, irrespective of location of freight and milling costs.

There may be regional welfare arguments for doing this but it is worth noting some of the deleterious effects. Firstly there is little incentive to seek least cost methods in providing freight and milling service — with a consequent rise in total costs. Secondly, wheat production is encouraged in areas where there would otherwise be low transport costs. Distribution costs presently do not directly influence production decisions.

Of particular relevance to the wheat quality issue is the effect of pooling costs in distorting economic signals. Not only is the effect of location lost, but preferences for flour grades, or for wheat for stockfeed purposes, are not accurately relayed to the farmer. For instance, would wheat production in the Manawatu increase if freight advantages in certain end uses were allowed to compensate for quality discounts.

CONCLUSION

It has been argued that the wheat quality/quantity conflict is basically an economic problem. It requires the matching of wheat grades with end use requirements. Measurement of quality differences is important but achieving that does not either define commercially appropriate grades or ensure appropriate levels of production.

Price differentials for grades should continue. Considering how these might be determined has identified a number of important items for a research agenda. One is the relative effectiveness of administrative and market pricing mechanisms. Do consumers need a helping hand in improving the quality of bread and other wheat based products and, if so, where should this be applied?. Do present wheat varieties and flour categories adequately distinguish commercially significant quality differences? What distortions in wheat production and use are introduced by the pooling of freight and milling costs?

These topics are undoubtedly contentious. But that is no reason for ignoring them.