

WHEAT QUALITY

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THE CASE FOR IMPROVING WHEAT QUALITY

Wheat and flour quality have been matters of particular concern to the Wheat Board in recent years and in that time wheat quality, or to be more exact, too much wheat of the wrong quality in relation to the market's needs - has been the cause of more problems for the Board than any other single issue.

Which leads to the question "Are growers really interested in improving the quality of the wheat they grow?" or perhaps "Are wheat breeders really interested in providing superior quality as well as attractive yield in their wheat cultivars?" Certainly they are interested in the minimum standard for milling grade wheat but beyond that the answer generally is "pay me for quality and I'll be interested".

But, in effect, this is just what the present premium and discount system does. It pays a standard price for varieties with standard qualities; something extra for varieties whose qualities are above the standard and/or for which market demand exceeds supply; and something less for varieties whose qualities are below the standard and/or for which supply exceeds demand.

Understandably, of course, growers do not quite see it

that way as over the years they have not been accustomed to considering the different quality requirements of the market for which they produce wheat.

And this lack of concern for the market's quality needs above the required minimum has not been confined to growers. It was an accepted part of the system by all concerned until the Wheat Board's inter-industry meeting on wheat and flour quality in 1977.

Progress has been made since the 1977 meeting with improving wheat and flour quality but if we are to develop a viable milling wheat industry in New Zealand I believe that wheat breeders, wheatgrowers, wheat brokers and even the Wheat Board will need to be much more conscious of the market's quality needs in the future.

In the absence of this consciousness we should not be surprised if there is increasing pressure from users of wheat and flour and consumers of flour products for imports to meet quality as well as quantity deficiencies in the domestic wheat crop.

Encouragement to this pressure in the future could come from -

- * user demand for quality improvement to match rising material costs
- * closer economic association with Australia
- * the phasing out of import licensing.

DEVELOPMENT OF N.Z. WHEAT INDUSTRY

(and who is responsible for developing a viable milling wheat industry in New Zealand?)

The Wheat Board Act places on the Wheat Board the responsibility for promoting the orderly development of an efficient New Zealand wheatgrowing industry.

Clearly the Board can make progress in this only with the full co-operation of wheatgrowers.

In my experience there has always been a high degree of co-operation between the Board and growers at the national level but at branch and 'grass roots' level this is not always so evident.

An indication of this was given by a recent Lincoln College survey which purported to show that wheatgrowers generally were not over enthusiastic about the Board.

Although the Board regarded the manner in which the survey results were collected and publicised as 'unfortunate' to say the least, we did not really find them surprising as in our experience wheatgrowers generally have little understanding of what the Board does for them.

So perhaps as we have a captive audience of farmers, I could be permitted to digress a little from wheat quality and put in a plug for the Wheat Board.

N.Z. Wheat Board

The New Zealand Wheat Board is a non profit making statutory body with an annual turnover of about \$120m from the purchase and sale of wheat and the sale of flour, bran and pollard.

The Wheat Board Act requires wheatgrowers to sell their milling grade wheat only to the Board.

In return, growers have a guaranteed market at a guaranteed price to the full extent of New Zealand's requirement for milling wheat.

And the Board must buy that wheat before the end of the season even if it is not what the market really requires.

All marketing costs, apart from the cost of transport from grower's farm to nearest rail are met by the Board which recovers these costs in the price of flour.

In addition, although not required to do so by the Act, the Board pays a storage allowance covering a substantial proportion of growers' storage costs as an assistance to growers with storage and finance until their wheat can be taken up by the Board.

Again this is paid for out of the price of flour.

In other words, wheatgrowers incur almost none of the costs associated with the marketing of their product and make no contribution to the cost of the Board's operations.

What other sector of the farming industry is so fortunate?

Without the Board, growers would, I suggest, be in a much less favourable situation. In Australia, as I understand it, growers carry all the costs of storage and distribution to the point of sale and also the administrative and export development costs of the Australian Wheat Board.

One would think that in the circumstances growers might at least be mildly enthusiastic about the Board! But perhaps that is too much to expect especially when it seems that the only thing the majority of growers give the Board credit - or rather discredit - for is the setting of the

wheat price.

This is, of course, the one thing the Board does not do. Wheat pricing is a matter for Government not the Board and in my experience the price set has generally been below that recommended by the Board.

The Wheat Board Act also requires the Board to encourage wheat growing in New Zealand subject to certain limitations, and to encourage the use of New Zealand grown wheat.

The Board is therefore committed to the twin policies of encouraging self-sufficiency in wheat production, within the limits set by the Act, and the production of wheat which will meet the different quality needs of the market.

NEW ZEALAND MARKET FOR WHEAT

This brings us to the questions.

- * What is the market for wheat in New Zealand?
- * What are its quality needs?

Those of you who have read the Board's paper "The Market for Wheat in New Zealand" published in January, 1980, will know that the Board assesses the market in quantity terms at a total of about 360,000 tonnes - 300,000 tonnes for milling and 60,000 tonnes for non-milling purposes.

In quality terms the market's requirements for milling wheat are broadly -

- * Wheat which will provide a 'stronger' flour suitable for the production of bread, cracker biscuits, fruit cake, puff pastry and similar products.

- * Wheat which will provide flour with not only 'strength' but also high viscosity for the production of starch and gluten.

- * Wheat which will provide a 'weaker' flour suitable for the production of sweet biscuits, short pastry, cakes and certain types of grocer's flour.

Minimum standards for milling grade wheat are laid down in the Wheat Board Regulations.

As a means of differentiation above the minimum standard the Wheat Board has classified 'stronger' wheat as category "A" and 'weaker' wheat as category "B". Karamu, because of its inherent characteristics, is not satisfactory for category A purposes and is therefore classified as category B.

The Board supplies wheat to flourmills in these two categories and as far as is practicable, in the quantities of each category required by the mills.

In percentage terms, market demand is normally for about 80 percent 'stronger' and 20 percent 'weaker' wheat with the demand for the former being universal and the largest demand for the latter coming from mills supplying biscuit manufacturers.

In an average season, the total wheat crop, with present varieties, could be expected to provide rather less than 80 percent category A wheat and rather more than 20 percent category B wheat, the extent of the excess category B being largely determined by the quantity of Karamu grown. The Board endeavours to adjust the imbalance by making the lower end of the category B range available to the feed trade.

Also, because of differing seasonal conditions, the percentages may vary from district to district and in an overall poor season, total production and total market demand could be considerably out of balance in quality terms.

In these circumstances, the Board can expect to receive strong complaints about wheat and flour quality from users and consumers at both local and national levels.

DEFINITION OF WHEAT QUALITY

Having looked at the market and its needs, we can now ask ourselves "How should wheat quality be defined?"

I suggest to you that wheat quality is like beauty - 'in the eye of the beholder'!

In other words, what is top quality for a bread baker may not be at all satisfactory for the starch or gluten manufacturer and will certainly not please the biscuit manufacturer.

Therefore, apart from a minimum quality standard, I believe that there can be no one definition of wheat quality which will be generally acceptable.

MEASUREMENT OF WHEAT QUALITY

Whatever definition or definitions we have for wheat quality there must be means of reliably measuring what we are looking for.

Broadly, consideration of a wheat's quality characteristics which wheat breeders should breed into new cultivars requires a measure of

* its milling characteristics. All New Zealand wheat varieties, except Arawa, are regarded as having satisfactory milling characteristics.

* its baking characteristics.

The second, of course, brings us back to the question of baking characteristics for what end use?

Taking the three 'quality' divisions of the market I have already referred to, my view is that for the first - bread, cracker biscuits and so on - the most important factor, though certainly not the only factor, is a measure of a wheat's gluten quality and quantity.

This, plus a measure of viscosity, would apply also to the second division - starch and gluten.

And the third division, sweet biscuits, cakes, etc. could be said, in simple terms, to be a reverse of the first.

However, I know that even these broad generalisations would be questioned by those with more technical knowledge than I have. I would suggest therefore that there is no one means of satisfactorily measuring wheat quality which will be generally acceptable.

Our present bake score test system has proved very satisfactory for determining whether a wheat meets the minimum standard for milling grade but it was not designed for, nor has it proved reliable in, measuring quality above that minimum.

I believe there is a general acceptance of the bake score test as a base for quality determination but it certainly cannot be regarded on its own as an adequate measure of

wheat quality.

What tests are needed to supplement it is a matter on which, at this time, there seems to be no general agreement.

As I see it, our most urgent need if further progress is to be made with improving wheat and flour quality is general agreement on

- * the characteristics we should be looking for in our wheat varieties to meet the different quality needs of the market.
- * the test or tests which will provide a dependable measure of these characteristics.

Until there is that agreement, wheatgrowers, flourmillers and the Board, whatever their reservations will have to continue to use the bake score test.

For this reason, the Board's category A/B classification is based on this test. Category A wheat is regarded as wheat with a BF bake score of 34 and above and category B a BF score of less than 34.

For various reasons - not all of which are associated with the testing system - there are occasions when the wheat supplied by the Board as category A turns out to be category B and vice versa.

Until the stage is reached where -

- * all test samples submitted by growers can be accepted as being fully representative of the lines being offered for sale. Regrettably,

this is not the case at present and although the samples submitted by a proportion of growers can be relied upon, in too many cases sampling appears to be very much a 'hit and miss' procedure.

- * wheat testing methods can provide a reliable and repeatable measure of the main characteristics of the line on offer.
- * the Board can be certain that the line of wheat it receives from a grower is in fact the line to which the test certificate applies.

there must continue to be doubt about the dependability of the Board's A and B category divisions.

PAYMENT FOR WHEAT BY QUALITY

So can we talk about payment for wheat by quality?

Because of the problems I have referred to in defining and measuring wheat quality in terms of the different quality needs of the market, I do not see it as a practical proposition.

Also if wheat were to be paid for on a quality basis there would, under present conditions, need to be an instant means of checking that quality at point of delivery. As far as I am aware there is no such means which would be generally acceptable and because of the range of characteristics that go to make up wheat quality I would doubt the possibility of one being developed.

However, if growers' sampling methods could be relied upon to provide a truly representative sample of the line being offered and there was no question that the wheat being

delivered was in fact from that line, the need for an instant check at point of delivery would become less important.

It is in this area that I believe wheatgrowers have the greatest contribution to make in improving wheat and flour quality.

PAYMENT FOR WHEAT BY VARIETY

As I see it, wheat quality is influenced mainly by the inherent characteristics of the wheat variety, the area in which the wheat is grown and the seasonal conditions in that area. I do not believe that growers, in growing wheat, can do much to influence quality other than by following good farming practice, particularly crop rotation, and growing the right variety for their area.

I therefore regard the further development of the present method of payment by variety on a standard/premium/discount basis as the best way to encourage the production of the wheat qualities required by the market in about the quantities the market needs. Broadly, I see our present system developing towards -

- * a standard payment for preferred varieties by districts - preferred varieties would be bred for districts and a list of preferred varieties would be issued for each wheatgrowing district based on the characteristics displayed by the variety in that district over a period of time.
- * a premium above the standard for a wheat variety - grown in particular districts - with characteristics for which market demand exceeds supply.

- * a discount on the standard for a wheat variety which
 - * is being grown in excess of market demand.
 - * is not a "preferred" variety for a district.
 - * has unsatisfactory milling or other characteristics.

- * contract growing of a wheat variety for which the premium and discount system is not appropriate e.g. only very limited market demand.

However, until considerably more information is available on the characteristics shown by different varieties in different districts and the Board and grower representatives are satisfied from this information that a wheat variety does in fact perform differently in different districts, I would have reservations on moving too far towards different prices for the same wheat in different districts.

Nevertheless, the Board and growers have already agreed that there could be this price differentiation between North Island and South Island Karamu and it may be a district differential should also apply to Hilgendorf.

However, as far as our standard wheat varieties are concerned, I would think that a move in this direction must be some time ahead.

TEN TONNES PER HECTARE

A most attractive thought to both growers and the Board, though I doubt we would both see it in quite the same way.

For the Board it could mean self-sufficiency from less than half the present area at about half the present price but I do not think this is what growers would have in mind.

However, if we are talking seriously about quality is it really a practical possibility? As I understand it the general rule as far as wheat quality is concerned - and in this context I mean category A wheat quality - is that the quality level varies inversely with the yield. At present average yields are under four tonnes per hectare and quality for category A purposes is not all that high.

If yield is to rise to 10 tonnes per hectare what happens to quality? On that point I suggest you should hear from those who are much better qualified than I to provide an answer. For my part, I would prefer the emphasis in wheat breeding placed on the development of a superior quality wheat with a yield sufficiently attractive to growers to ensure adequate quantities are grown without the need for a premium payment.

As I understand it, however, this would present breeders with a much more difficult problem than the production of a category B wheat which is what I believe a 10 tonne per hectare wheat would be.

So unless you can assure me that a 10 tonne per hectare wheat can also mean a ninety plus percent category A quality wheat, I am afraid you can not get me at all enthusiastic.

In concluding I would like to commend to you the words of a previous speaker who referred to farming - including wheatgrowing - as no longer merely a way of life but a business venture and to the reported remarks of Lincoln College's Principal when he said "It is important that the arts of agriculture be maintained at a high level and that quality as well as production be kept very much in mind".

May I leave you with the thought that a business venture which does not produce a product of the quality the market requires cannot expect to have a profitable future.