The basic principles of wheat marketing—part 3

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PART 3—THE AUSTRALIAN WHEAT MARKETING SYSTEM

From the wheat marketing standpoint Australia is the most fortunate of the four great wheat-exporting countries in that the conditions throughout the whole of the Australian wheatbelt are more uniform than in any of the others. In consequence, Australia can have and has had, a very simple, sound wheat marketing system.

Of Australian wheat, Fisher and Jones write (3) “In milling properties it (Australian wheat) is almost without exception the finest wheat that comes to this country (Great Britain). Its bushel weight (millable grain) is high and possibly with one exception it affords a higher yield of commercial flour than any other commercial wheat. Its profitableness in this respect is enhanced by the fact that its moisture content as unloaded is very low, say 10 to 11%, though a figure of 8.5 has been recorded.” In addition to being dry the wheat is easy to mill and has a high yield of bright white flour of excellent bloom. The same authors also point out “Australia is unique in that white wheat is grown over a whole continent. The uniform whiteness of the grain is a distinct commercial advantage—so much so that the growing of red wheat is discouraged.”

A GOODWILL ASSET

The white colour of the wheat throughout the Australian continent is a goodwill asset to be prized and guarded. For pecuniary, as well as for other reasons any attempt to introduce red wheat into Australian wheat fields must not only be discouraged, but resisted and prevented, just as the Canadians have prevented the cultivation of other than red wheats in Western Canada.

On this point Buller writes (11) “Australia is famed in the British markets for its white wheats but Canada for its red wheats. Now the British buyers are conservative men and suspicious of changes in wheat colours, hence it was deemed advisable in Canada to produce wheat for export which was as red as possible and the grading regulations have been framed in such a way as to discourage the raising of white wheats.”

In both countries these assets of goodwill must be safeguarded in any marketing system adopted.

THE F.A.Q. STANDARD

Throughout Australia the milling value of the wheat bought and sold is assessed by what is known as the “F.A.Q. Standard.” The standard was first introduced in South Australia in 1888, a few years after that State had commenced to export wheat and when some milling value standard to meet the needs of overseas buyers became imperative. It was a physical standard, it was fixed annually and represented the fair average quality of the sound marketable crop of the season for which it was fixed. Wheat which was not sound was sold as “Reject” or on “Sample.” Later, as the other States began to export wheat, the same marketing standard was introduced into each of them; in Victoria in 1891, New South Wales in 1899 and Western Australia in 1905.

The standard became known as the F.A.Q. standard because these letters are the initial letters of the words “Fair Average Quality” and by custom have become recognised as the commercial abbreviation of that term. At that
time it was an excellent standard of assessment with the one limitation which was that it could not be fixed until the harvest was practically completed, but this defect was inseparable from the essential requirement that it be representative of the current season's crop.

The same type of wheat was grown in each of the exporting States and because the climatic conditions throughout the Australian wheat belt were similar, the kind of flour produced from it was in consequence also similar. The term “Australian” indicating the region of its origin was, therefore, sufficient to indicate the baking quality class, to which it belonged. In the commercial wheat world it became known generally as “Australian” and later specifically by the name of the particular State in which it was grown. Thus in the first place, the term “South Australian” wheat indicated the baking quality class of Australian wheat grown in South Australia. Later in the same way, the names of the other States served as an indication of the baking quality of the wheats grown therein.

The milling value of Australian wheat was indicated in a very definite manner by the declaration of its bushel weight. During this early period owing to the method of harvesting the commercial wheat was particularly well cleaned; so well cleaned that it was practically all millable and in consequence its bushel weight was a very reliable guide to its flour yield.

THE FIRST AUSTRALIAN WHEAT MARKETING SYSTEM WAS THE SIMPLEST POSSIBLE FORM OF A WHEAT GRADING SYSTEM. IT WAS PERFECTLY SOUND WITH ONE BAKING QUALITY CLASS—AUSTRALIAN—AND TWO MILLING VALUE GRADES, NAMELY, THE F.A.Q. AND REJECT OR SAMPLE GRADES.

As the years passed, changes occurred, the first was that, included in the varieties produced by Farrer, were some like “Bobs,” “Comeback” and “Jonathan” which were definitely superior in baking quality to the main varieties in cultivation. Because of the great need in Australia for this stronger wheat it was not exported. On the local market it was, however, marketed separately from wheat of the main crop varieties as a distinct baking quality class. As the varieties in this class had been produced in New South Wales and were grown and used most largely in that State, it was given—late in 1909—the distinctive name of “New South Wales Strong White” (17).
A NEW CLASS

Later, as these varieties and their special use spread to the other States, the class became known as "Australian Strong White." It thus included those in the wheat trade that Australia was producing "Strong" as well as "White" wheat. The name given to this class was in line with the characteristic description of Canada's wheat "Canadian Hard Red."

As Australian millers paid a premium above the ruling rate for those varieties belonging to the "Strong White" class they became popularly known as "Premium" varieties. The name "Premium" would not, however, be a correct exclusive name for this class for, on occasion, biscuit manufacturers are prepared to pay a premium for wheat which is weaker than the average of the Australian main crop varieties, hence a class for such weak wheat would also be entitled to be called "Premium."

Wheat of the main crop varieties is quite commonly called "The F.A.Q." wheat. This however is incorrect, as with the introduction into cultivation, and the marketing separately of, the "Strong White" wheat it no longer represents the "fair average quality" of the current season's crop. This weaker wheat is the pattern or standard of Australian wheat as understood in the wheat trade, and in consequence a more appropriate name is "Australian Standard Wheat." This name will be used when referring to the weaker wheat. Also where relevant the word "grade" will be used instead of "standard" as applied to the term F.A.Q. standard so as to avoid confusion between the word "standard" when used in connection with the baking quality class and the same word used in connection with the principal milling evaluation value unit of both baking quality classes.

The use of the word "grade" conforms to the practice already introduced in Western Australia and New South Wales; in the former State there is a statutory grade "No. 2" and in the latter there have been two inferior grades called respectively, "B" and "C."

Following the New South Wales practice the grades, in order of superiority, will be called A, B, and C instead of Nos. 1, 2, and 3.

NEW STRONGER VARIETIES

The production of varieties of the original "Australian Strong White" class has declined because of their relatively low yield compared with that of varieties of the "Australian Standard" class. Within the past ten years, however, wheat-breeders have produced varieties which are definitely stronger than those of the "Standard" class and which yield equally as well as they do. Some, like "Gabo" and "Javelin," belong to the "Strong White" class and others like "Kondut" and "Wongoondy" to the "filler" or "Medium Strong" class.

Though the "Strong" and "Medium Strong" varieties are stronger and more suitable for making bread than those of the "Standard" class it is incorrect to regard or describe them as BETTER than the latter. They are "stronger" and therefore less suitable for some purposes, such as making biscuits, pastry or self-raising flour, for which there is a special demand.

Though one baking quality class is sufficient for the export wheat trade and the name "Australian," qualified by the name of the State in which it is grown, adequately describes it, one baking quality class is now quite inadequate for the requirements of the Australian milling industry. This is because Australian bakers require, and some export markets also require, stronger flour of at least "filler" or "Medium Strong" quality.

The area cropped in Australia with the stronger varieties has increased in recent years and the needs of Australian mills are such that it is desirable that these stronger varieties be segregated from those of the "Standard" class and marketed separately. They should be included in the "Strong White" class and sold in accordance with their intrinsic value. This is also essential in the financial interests of the growers.

The present F.A.Q. system, with one baking quality class is quite inadequate for the purpose. If the Australian wheat marketing system is to be made adequate so that growers will receive equitable prices for the wheat they grow, then Australians must be prepared to abandon the old system of mixing all classes of wheat together and selling it as an average lot. This can be done without injury to the export trade and with justice to the growers.

EXPORT TRADE REQUIREMENTS

The international trade does not require Australian wheat to be strong. It is classed as weak; it has always been so classed, and overseas purchasers of Australian wheat expect to, and do, obtain their requirements of stronger wheat elsewhere. In the export trade Australian wheat is valued, not for its strength, but for other characteristics in which it is unexcelled. These are its dryness, its whiteness, ease of milling and high flour yield.

As the newer, stronger wheats have been brought into cultivation during the past decade, their absence from the exported wheat will not alter the strength which exporters have been accustomed to in the past. These purchasers are more interested in the QUANTITY of flour which can be obtained from Australian wheat than in its strength.

It has been pointed out by Mr. Ralph Tadman, vice-president of the London Corn Trade Association (14) that as far as export wheat to Europe is concerned the larger flour mills are perfectly satisfied with the quality of the Australian wheat they receive under the F.A.Q. system, because of its dryness, white colour, high flour yield and the bloom it gives to the flour. Mills in the United Kingdom, without exception, said that they did not purchase Australian wheat for its protein content which they knew was comparatively low. For wheats of a higher protein content, the European mills looked largely to Canada. Further, Mr. Tadman stated that if Australia embarked upon the growing of high protein wheats for export he felt sure that this would lead to reactions which would be detrimental to the growers' interests. The stronger wheats would not be welcomed by certain mills and breakfast food manufacturers.
who preferred the present standard wheat. Rather than purchase stronger Australian wheats they would look to the Pacific coast or elsewhere for the weaker wheats they desired.

It is evident therefore, that the segregation of the stronger wheats from the standard class would in no way jeopardise or injure the Australian export wheat trade. Indeed, as the stronger wheat is being grown, its segregation is essential to retain the goodwill of those purchasers who are now buying Australian wheat.

The segregation of the stronger wheats cannot however be made without some difficulty, but until it is made the Australian wheat marketing system will remain in the “knitting needle wege.” This was the age in the dairy industry, when prior to the discovery of the Babcock test, the quality of milk was, in some cases, judged by dipping a knitting needle in the milk, looking wisely at the film left on it and then assessing its value by the appearance of that film.

It was sometimes right as is also the case when the utility value of wheat is judged by looking at it. As with milk and cream it must be determined by test.

**TESTING FOR STRENGTH IS ESSENTIAL**

The result of both British and Australian experience is to show that the colour of the grain is no guide whatever to its strength. On this point Fisher and Jones are emphatic when they write (3) “Our analysis has shown the complexity of what is commonly known as colour in wheat, and it is not surprising that, although some commercial red wheats are stronger and harder than any commercial white wheats, colour, hardness and strength are in no way necessarily connected. White wheats are known which are as strong as any red.”

Both British and Australian experience have also shown that segregation for strength cannot be carried out as the result of a visual examination for the general appearance of the grain or its contents is not a guide to its quality.

Admittedly, if a grain of a normal Australian standard wheat, like “Bencubbin,” and also of a strong wheat like normal “Comeback,” be cut across, characteristic differences will be seen, but these differences are not always an indication of strength.

The appearance of the cut surface of the “Standard” wheat (Bencubbin) will be white, opaque and starchy, that of the “Strong” wheat (Comeback) will be translucent or citreous or as it is sometimes called “glassy.” The berry of the normal standard wheat is called “soft;” that of the “strong” wheat “hard” or “flinty.” As Fisher and Jones point out (3):—

“In a general way strong varieties look harder than weak. Hardness is intimately associated with protein of the endosperm and is varietal in so far that a given variety will always give harder looking kernels than another when both are grown under similar conditions ... The story is not yet told however. Not only will different lots of the same type vary greatly in hardness, but it is possible for a “weak” soft variety to look hard under certain conditions ... There can, in fact, be no more misleading character of wheat than texture ... One of the poorest of English wheats “Ideal” sometimes has, curiously a translucent, hard and strong appearance. Such a wheat is sometimes called, on the markets, “A flat catcher” (or in more modern slang “a trap for young players”).

A particular Australian offender in this connection was a variety known as “Boomey.” This had a remarkably flinty-looking grain typical of the strongest wheat, but its strength was only that of the standard class.

“It may be taken definitely that it is impossible to form any reliable judgment from the appearance of samples of any given type of wheat, as to their relative baking quality” (3).

**INFLUENCE OF CLIMATE AND SOIL**

Nor can segregation be made on a varietal classification, because it is rarely possible and sometimes quite impossible, to distinguish the stronger varieties by visual examination. Then, even if this were easy, it is now known that the strength of a variety is influenced enormously by climatic conditions, by the soil, and by the farming practice under which it is grown (15). Thus a variety under some conditions may be very strong whilst the same variety under other conditions may be weak.

For instance, at the Chapman Research Station in 1947, “Eureka,” an inherently very strong variety, had a Farinograph strength time of 12.5 minutes when grown under one rotation and under another rotation its strength figure was only 4.5 minutes, which is no greater than that of the baking quality of the “Standard” class (16).

The only conclusion to be drawn from these results is that segregation for strength according to variety is not satisfactory even if it were practical. It is known however, that varieties possessing inherent strength retain that strength when grown under suitable conditions of available soil fertility. This can form the basis of one limited method of segregation whereby the miller or merchant ascertains where an approved variety is grown under satisfactory conditions, then purchases it by private treaty and has it binned separately or loaded directly into trucks for rail to him. The bonus to be paid for such wheat to be in accordance with its strength as determined by test.

**BUSHEL WEIGHT**

Nor can segregation for baking quality be made according to the bushel weight; this was discovered very early in the history of the Australian wheat industry.

Early in the century William J. Farrer introduced a variety of wheat, which I believe he called “Pung”; he described this as having the heaviest bushel weight and the poorest baking quality of any variety he had tried. Another comparison can be made with “Comeback” and “Allora Spring” grown at Lambrigg in 1897–98. “Comeback” is at the highest end of the scale for baking quality and “Allora Spring” at the lowest. The bushel weight of “Comeback” was 62 lb. and that of “Allora Spring” 63.7 lb.
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The Superintendent of Wheat Farming of the Department of Agriculture, Western Australia (Mr. I. Thomas) has courteously made available information regarding the baking quality (strength) as determined by the Pelshenke test for 10 of the past 11 years, and also the bushel weights of the millable grain in the F.A.Q. standard for the same period. Placed in descending order of the bushel weights these are as hereunder:

<table>
<thead>
<tr>
<th>Season</th>
<th>Bushel Weight</th>
<th>Pelshenke Time</th>
<th>Strength—Minutes</th>
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</thead>
<tbody>
<tr>
<td>1947-48</td>
<td>64½</td>
<td>31</td>
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<tr>
<td>1949-50</td>
<td>64½</td>
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<td>1950-51</td>
<td>64½</td>
<td>36</td>
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<tr>
<td>1945-46</td>
<td>63⅓</td>
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<tr>
<td>1944-45</td>
<td>63</td>
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<td>1946-47</td>
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<td>1948-49</td>
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<tr>
<td>1951-52</td>
<td>62¼</td>
<td>44</td>
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<tr>
<td>1941-42</td>
<td>62¼</td>
<td>34</td>
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<tr>
<td>1942-43</td>
<td>61⅔</td>
<td>37</td>
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It is very apparent that baking quality and bushel weight do not run in parallel lines.

Additional evidence is furnished in connection with this lack of association between bushel weight and strength by information obtained from competing crops in the Millers' Crop Competition, also made available by the Superintendent of Wheat Farming. It will be sufficient to give the details relating to varieties for the season 1949/50. In these cases the "strength" is that obtained in the Farinograph. These are hereunder:

**KONDUT**

<table>
<thead>
<tr>
<th>Bushel Weight</th>
<th>Strength Figure</th>
<th>Minutes</th>
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<tbody>
<tr>
<td>65½</td>
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**BUNGULLA**

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<th>Bushel Weight</th>
<th>Strength Figure</th>
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**WONGOONDY**

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**GABO**

<table>
<thead>
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<th>Bushel Weight</th>
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<td>65</td>
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<td>60¼</td>
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**BENCUBBIN**

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**OBVIOUSLY BUSHEL WEIGHT IS NO GUIDE TO BAKING QUALITY.**

**SIZE OF GRAIN**

Nor is the size of the grain any guide to baking quality or strength. Comparison with the grain of two varieties of wheat grown in 1948 will illustrate this. The grain of one of these was relatively smaller than the other. When grown in the Eastern wheatbelt, the smaller grain had a Farinograph strength figure of 16 minutes, that of the larger grain was 8 minutes. In this case the smaller grain was the stronger.

**KONDUT**

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**WONGOONDY**

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</tbody>
</table>

Fig. 30.—This photograph was taken to show that the bushel weight of commercial wheat does not necessarily indicate the quantity of millable grain it contains. In the two samples of wheat shown on the left, there are different quantities of unmillable material (1½% and 6%) which are shown above the black lines. The bushel weight (62½ lb.) is the same for both samples.

In the right-hand pair of samples, the percentage of millable grain (shown below the black lines) is the same in each sample. The bushel weights vary however and are 62½ lb. and 58 lb. respectively.
When grown in another part of the wheatbelt, the strength of the smaller grain was 5 minutes as was also that of the larger grain. In this instance the strength of the smaller grain was no greater than that of the larger one.

Messrs. Farquhar, Fisher and O'Brien, cereal chemists, respectively in South Australia, New South Wales and Victoria, have found that investigations spread over some 14 years, have shown that in certain areas of their States stronger wheat is produced than in other parts. Segregation of the wheat from these areas would be definitely better than no segregation as is the case at present, but this method is found wanting in two respects.

In these areas there are growers who do not produce stronger wheat and under this method these growers would benefit equally with those who do, and at their expense. It is also unfair to those growers who produce stronger wheat in other areas where the average strength is no greater than that of the “Standard” class. In these areas such growers would fare unjustly because of the average low baking quality of the area wheat.

In Western Australia it has been found that, in some years, wheat from certain centres has a strength above that of the average of the “Standard” wheat. The results are however not consistent and so segregation in Western Australia by bin or siding cannot be regarded as satisfactory.

With our present knowledge, the really satisfactory way of segregating the “Strong” from the “Standard” baking quality wheat is by ascertaining its strength as the result of a test by some recognised method.

To be satisfactory however, the method used must be such that it will not slow up receivals at the bin or silo. As testing the wheat by any of the recognised techniques will take some time, testing at the time of receival cannot be contemplated.

SUGGESTED PLAN OUTLINED

To overcome the known difficulties and bring about the segregation of the stronger wheat necessary to protect our export markets and to be just to its growers, the following plan is outlined:—

1. Wheat from growers who claim they are growing approved varieties under suitable conditions to be received in the usual way but bulked separately as “bonus” wheat.

2. On receipt the usual docket is to be issued but endorsed “Bonus Wheat Subject to Testing for Strength.”

(This is in line with the practice prevailing under the Canadian system when a farmer who delivers his wheat to a country elevator desires its value to be assessed at the head office at Winnipeg. The Canadian farmer's docket is then endorsed “Subject to inspector’s grade and dockage.”)

3. The holder of the “bonus” docket to receive payment at the same time and in the same way at the rates for standard wheat, but retaining the right to a bonus payment according to the tested strength of the wheat.

4. As each load is delivered a representative sample to be taken and retained to form part of a composite sample of all such wheat delivered by the same farmer.

5. When delivery is completed, or at an earlier suitable time, the composite sample is to be sent to the laboratory of the bulk handling authority for testing, according to the Peishenkne method and for which a charge will be made.

(This is in accordance with Canadian practice where all wheat is tested at the Chief Inspector's office to determine its value.)

6. When the bonus wheat is delivered to a miller or merchant, a representative sample of each consignment is to be tested in a manner mutually satisfactory to the bulk handling authority and the purchaser. The results of this test to determine the bonus to be paid for it.

7. The bonuses received to be pooled and after deducting the actual costs of the tests to be shared on a proportionate basis according to the quantity of bonus wheat delivered, among those who supplied the stronger wheat.

Unless provision is made to combat it there is a weakness in the plan suggested. It is that some growers may inadvertently, or deliberately, submit wheat which is no stronger than “Standard” so as to obtain a share of the money in the “bonus” pool. It is suggested that such action be discouraged, in an indirect manner, by making the charge for testing a substantial one and much greater than the actual cost which should be almost negligible on a bushel basis.

If the charges for testing are credited to the “bonus” pool and the actual costs debited to it, then the grower who delivers wheat which is not stronger than “standard” will lose the substantial amount of the testing fee without receiving any bonus. This will discourage misrepresentation, while the difference between the substantial testing fee and the actual low cost will benefit those growers who supplied the stronger wheat.

UNJUST TO THE GROWER

The segregation plan outlined is undoubtedly just to the grower, but it is equally true that the lack of it is grossly UNJUST to the growers of the stronger wheat. Two instances from the current season will serve to illustrate this. The first is that of the “Medium Strong” wheat, Wongooondy, grown by Mr. D. Maisey of Dowerin. When tested at the Bread Research Institute of Australia, this had strength rating as found on the alveograph of 34. The strength rating of the average standard Western Australian wheat over a number of years, as found in the same laboratory is 16, yet the grower received no more for the stronger wheat. (See Fig. 31.)

The other instance is of Gabo wheat grown by Mr. T. Morcombe of Coorow. This wheat on being delivered to the bulk bins was “docked” one penny per bushel for inferiority. A sample of this wheat was very attractive looking and was found to contain four per cent. of unmillable material, this may explain the reason for the penalty of one penny. Its alveograph strength rating was 64. According to all reasonable standards this wheat was entitled to a substantial premium over “standard” wheat because of...
its better baking quality. This and similar ones are glaring cases clamoring for remedy.

As explained earlier, there are several tests by which the “strength” can be determined. For this purpose it is believed the Pelshenke Fermentation Test has most to recommend it. It is a test which has regard to both the quantity and quality of the protein, where the protein test supplies information regarding quantity only and those obtained with the dough-testing instruments supply more than the general characteristic of “strength” which is all that is required to determine the “utility value” of wheat for marketing purposes. The Pelshenke test can be carried out with relatively inexpensive equipment, it is the cheapest of all the approved tests, it is common to all States and it is quick.

It is a test used by plant breeders to classify new crossbreds into their respective baking quality groups. Wheat with a Pelshenke time of less than 45 minutes is classified as “standard,” from 45 to 80 minutes as “Medium Strong” and over 80 minutes as “Strong.” With a term working on a division of labour system, as many as 300 tests per day have been carried out in the wheat improvement laboratory of the Roseworthy Agricultural College.

The not so satisfactory protein test, and that on the farinograph are much slower and more expensive. A chemist can on a busy day carry out up to 50 protein tests, with an assistant to make the records, and on the farinograph up to 12 tests per day can be made.

THE “F.A.Q.” WHEAT MARKETING SYSTEM DOES NOT MEET MODERN NEEDS

A modern Australian wheat marketing system now requires that there shall be not only one official baking quality class, but two. These may be defined as hereunder:

Class 1. AUSTRALIAN STRONG WHITE, which shall have a Pelshenke Fermentation Time Test of 45 minutes or more.

Class 2. AUSTRALIAN STANDARD WHITE, the Pelshenke Fermentation Time Test of which is less than 45 minutes.

The measures proposed to increase the number of baking quality classes from one to two present no more difficulty than did the introduction of the Babcock Test when it replaced the unsound locatometer and other unsatisfactory tests for determining milk and cream quality. The great difficulty in the way of this necessary reform is the traditional, but unsound belief amounting almost to reverence, in the F.A.Q. system which requires that all wheat, whether “Strong,” “Medium Strong,” or “Weak” shall be mixed together and sold as an average lot. Such a practice is definitely out-of-date, especially when the emphasis today is on payment for quality.

The F.A.Q. standard, by which the milling value of Australian wheat is supposed to be assessed also requires to be modernised. Simple amendments to the F.A.Q. standard are necessary for many reasons, not the least of which are the misconceptions concerning the value of the bushel weight of commercial wheats.

The F.A.Q. standard was primarily an export standard and was adopted specially to meet the requirements of the export trade to Britain. Because of the emphasis placed upon the official declaration of its bushel weight, it is obvious that it was, and still is, intended that in Australia its bushel weight shall play a very important, if not vital part in the settlement of British disputes when they arise regarding its milling value. The irony of this however, is that despite the scrupulous care taken to determine and declare the bushel weight, there is evidence that it is considered of little importance by British arbitrators called in to settle disputes, and it is ignored by them.

To them, the official sample is the all important feature of the standard and the relative value of a commercial parcel of wheat is determined by comparison or matching with the physical F.A.Q. standard as the result of a visual examination only.

"MATCHING" IS UNSATISFACTORY

It follows, therefore, that Australian wheat is really sold on sample and in cases of disputes the decision is made upon the personal judgment of the arbitrator who compares or "matches" the samples. This is the cause of considerable dissatisfaction which will always exist whilst disputes as to value rest solely upon the personal opinion of any individual, however skilled and experienced he may be. This is especially the case when the seller has no definite information, as at present, regarding the basis on which the arbitrator forms his opinion.
Though it is admitted that, as the result of many years of experience some men become remarkably skilful in assessing the relative values of two parcels of wheat, yet such a method is no longer in accordance with the progress which has been made in connection with our knowledge of wheat and its value for milling. Reliance upon personal opinion as the result of “matching” should be tolerated only when the factors in dispute cannot be measured.

This is not the case now, for, as the result of trial and practice, a technique has been developed in Australia whereby the parcels in dispute can be dissected into their component parts and the exact quantity of each determined by measurement. This is the case with the evaluation units or grades of the American exporting countries and of the “W.A. Standard White.”

The practice of settling a disputed case of wheat value by “matching” is obsolete. Over 300 years ago when Francis Bacon laid the foundations of modern science, he told the world to “weigh and consider” rather than to rely upon deductions or personal opinions. It is now recognised as an axiom of science that accurate measurement is one of the essentials to complete knowledge of a subject.

**UTILITY VALUE AND BUSHEL WEIGHT**

It is significant that the only feature in the official declaration of F.A.Q. Standard to indicate its utility value is that relating to its bushel weight.

The emphasis placed upon this feature is due to a very general belief in the adequacy of the bushel weight of commercial wheat to supply accurate information regarding the general quality and value of the parcel to which it refers. This belief is based upon the fact that the bushel weight of commercial wheat is influenced by the quantity and character of the unmillable material it contains, and the bushel weight increases when the unmillable material is removed. For instance, the declared weight of the 1952-53 F.A.Q. standard for Western Australia was 63 lb.; when the unmillable material was removed from it the bushel weight rose to 64 lb.

It is, therefore, not surprising that the superficial realisation that such increases take place should lead to the inference that the bushel weight of the F.A.Q. standard is a reliable guide for assessing the relative values of different parcels of commercial wheat.

This is a fallacy inherited from the time when Australian commercial wheat had little or no unmillable material mixed with it, and the bushel weight was consequently a fairly reliable guide to its milling value. This is not the case now and is partly due to a change in Australian harvesting methods. When the F.A.Q. standard was first adopted, the crop was harvested with a stripper and cleaned or dressed with a winnower, or harvested with a reaper and cleaned with a dresser. In either case a very clean sample of nearly 100% millable grain was obtained. As has been shown, the bushel weight of this clean wheat was definitely associated with its flour yield. The higher the bushel weight, the greater the flour yield.

The stripper has given place to the combined harvester and header and with these implements it is rather more difficult to obtain quite as clean a sample as with the “stripper” and winnower. This has resulted in a slightly increased quantity of unmillable material found in the commercial wheat. But a more potent influence has been that wheat growers have found it possible to include unmillable material in their commercial wheat and, under the F.A.Q. system, be paid for it as wheat.

Commonsense points out that this is possible only by a reduction in the price which, otherwise, would be paid for the commercial wheat. This fact is seldom realised by the grower and because of this practice, Australian marketable wheat is no longer almost free from unmillable material; over a number of years the average percentage as reflected by the F.A.Q. standards—has ranged from 3.3 to 6.1 per cent. Some wheat received has contained over 10 per cent. of unmillable material.

**UNMILLABLE MATERIAL**

The presence of excessive unmillable material in the Australian wheat crop is also due to some extent to the inherent defect in the F.A.Q. marketing standard which prescribes no limit to the amount of unmillable material the commercial wheat may contain without penalty.

This encourages rather than deters the presence of unmillable material in commercial wheat. Because of this some growers cover up or remove the “seconds” screen from their harvesters, thus deliberately lowering the value of the main Australian crop.

An extreme case in this connection was told by a witness to the Royal Commission on the Wheat, Flour and Bread Industries in 1934-38, who stated that some farmers adopt the practice of grading their seed wheat and then mixing the screenings with other wheat and selling the mixture as F.A.Q. wheat.

This inclusion of a much larger percentage of unmillable material in it than is warranted by Australian methods of harvesting, is unfair to those who do not take advantage of this inherent defect in the system. It is an economic waste in rail and sea freights, etc., and inferentially also in the price paid for the wheat.

It is quite an easy and simple matter to end this wasteful practice by adopting the very much more equitable system of Argentina, Canada and the U.S.A. under which payment is made on a “docking free” basis, that is, payment for the millable wheat only with a margin of 0.9%. If this change were made, then those wheat growers who are now light-heartedly allowing screenings, cracked grain and other unmillable material to remain in their saleable wheat because they are paid for this as good grain, would then be concentrating upon keeping it out so that they could use it for stock feed. By the use of the “dockage tester” illustrated in Fig. 32, the percentage of unmillable material in a sample of commercial wheat can be determined in a few minutes, even by an unskilled operator.

**BECAUSE OF THE UNMILLABLE MATERIAL IN THE SAMPLE, THE BUSHEL WEIGHT OF AUSTRALIAN COMMERCIAL WHEAT IS NO LONGER A GUIDE TO ITS MILLING VALUE.**
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Fig. 32.—The Australian-made dockage-tester shown here provides a rapid and simple method of ascertaining the percentage of unmillable material such as cracked grain, weed seeds, etc., in a sample of wheat. The metal grid-bottomed tray (left) fits inside the wooded case (right). Two spindles, carrying a series of washers corresponding with the spaces of the grid, terminate in four metal bosses which drop into the slots seen at the sides of the wooden case. The knobbled handle of the tray protrudes through the small groove seen at the top of the case in the photograph.

With the tray in position inside the case, a quantity of wheat weighed with a token representing 500 grammes is poured into the tray. The lid of the case is closed and the handle pushed in and out an agreed number of times (say 25 times for each sample). The tray moves backward and forward while the washers remain stationary to keep the grid spaces cleared, causing the small unmillable material to drop through the spaces into a draw or at the bottom of the case. Any portions of unmillable material too large to pass through the grid spaces (such as straw or backbone) are then picked out of the wheat by hand and added to the material in the drawer.

This material is then weighed with metal tokens representing 5, 10, 15 and 20 grammes and marked respectively 1, 2, 3 and 4. The percentage of unmillable material is the total of the numbers on the tokens used. For example, if a Number 1 token (5 grammes) and a Number 3 token (15 grammes) are needed to balance the quantity of unmillable material, the percentage of this material in the original sample would be 4%.

Instead of scales, a chondrometer could be used in the following manner. Sufficient grain is placed in the bucket to balance with the indicator at the 50 lb. mark on the bar. After being treated in the dockage tester the unmillable material is placed in the empty bucket and the balancing counter-poise added. Every ½ lb. registered on the bar then represents 1% of unmillable material in the sample.

THE TIME LAG

Time has emphasised that original defect of the F.A.Q. standard which prevents it being fixed before the end of the harvest, and in consequence from the beginning of the harvest until nearly its completion, there is no F.A.Q. standard for trading in Australian wheat. Such a state of affairs is ludicrous for without evaluation standards there can be no sound commercial trading. During this period, trading in wheat would be impossible, but for the fact that the defect is remedied by those handling the wheat, each of whom has adopted on his own initiative an unofficial “de facto” standard. This position has been recognised by the London Corn Trade Association and in consequence have inserted in their contracts for Australian wheat a clause which reads:

"In the event of no F.A.Q. being established by the Association the arbitrators shall, in their discretion, decide what is the fair average quality." This is but a stop-gap way out of an awkward and absurd situation. The real easy and practical remedy, which dispenses with the granting of such discretionary power to any person, however fair and competent, is the adoption of a permanent standard.

In Western Australia, during this period, a permanent official and prescribed standard known as the “W.A. Standard White” takes the places of the non-existent F.A.Q. standard. This is preferable to the “de facto” standard of the Eastern States, but creates the anomaly of the selling organisations receiving wheat according to one standard and delivering it by another.

Because of the unavoidable delay in fixing the F.A.Q. standard each year, much of the crop is exported in a normal year before the standard is fixed and this was the cause of unfavourable comment by the President of the Liverpool Corn Trade Association. In March, 1923, he pointed out to a delegation of Australian editors then
visiting Great Britain that one of the troubles of the Liverpool grain trade was the delay which occurred in connection with the receipt of standards of the new Australian crop. It was then March and the standard had not been received though cargoes which should be assessed by those standards had already arrived.

This unsatisfactory phase of the Australian Marketing System, is well illustrated by the quantity of wheat exported from Western Australia prior to fixing the F.A.Q. standard in 1926 for which details are available. In that year the standard could not be fixed until nearly the middle of February. At that date nearly five million bushels, or 41 per cent. of the total exported to the end of July had been stripped and by the time samples of the standard were received in Britain this had increased to 63 per cent.

Even when the marketing is on a Government to Government basis or through a marketing organisation the defects due to the unavoidable delay in fixing the F.A.Q. evaluation standard are still to the disadvantage of the wheat grower.

**NOT A RELIABLE GUIDE**

The declared bushel weight of the F.A.Q. standard which is that of a mixture of millable and unmillable material cannot be a reliable guide to its milling value or flour yield because it is not even a reliable guide to the percentage of millable grain it contains and millable grain is the basis of flour yield.

Investigations carried out by Mr. F. L. Shier, B.Sc. (Agric.), (now Assistant Superintendent of Wheat Farming, W.A. Department of Agriculture) and his colleagues (14), found that there were too many factors operating to make the bushel weight of commercial wheat a reliable guide to its millable grain content. Another officer of the West Australian Department of Agriculture, the Rural Economic Adviser, Mr. R. P. Roberts, M.Sc. (Agric.), confirmed this, and at a later date he found experimentally that a parcel of wheat—call it parcel A—containing the same quantity of unmillable material as that of F.A.Q. wheat, namely 4.2 per cent., had a bushel weight of 58 lb. compared with that of 62½ lb. of the F.A.Q. wheat. (See Fig. 30.)

This was due to the difference in the character of the unmillable material. In the case of the F.A.Q. wheat, screenings predominated and constituted 80 per cent. of the unmillable material. In the light-weight sample about 70 per cent. of the unmillable material was "cocky chaff" (empty glumes).

This instance also shows that the F.A.Q. standard as a basis for evaluation may provide misleading information regarding the monetary value of a parcel of wheat. If the trade practice, then existent, of deducting ½d. per lb. for
fair, but it no longer meets the requirements of a modern wheat marketing system. In other words, it is obsolete.

To use the bushel weight for assessing the milling value of commercial wheat is like using a faulty rule to measure lengths of timber or like using the obsolete lactometer test, which was SOMETIMES right for determining the value of milk for buttermaking.

CHANGES ARE NECESSARY

The remedy for the many defects of the F.A.Q. standard is not difficult. It is extremely simple once it is possible to dissociate it from the traditional importance, amounting almost to reverence, which has developed around it during the sixty odd years since it was first adopted. The necessary changes are:

1. To make the standard permanent as are the individual "de facto" standards of New South Wales, Victoria and South Australia and the permanent "Standard White" of Western Australia.

2. To make the declaration of the bushel weight that of the acceptable minimum bushel weight of the "dockage free" or "millable wheat" instead of that of the "commercial wheat."

3. To assess the value of the "commercial wheat" upon a definite percentage of millable grain or preferably upon the "dockage free" grain content as in Argentina, Canada and the U.S.A.

4. To describe the permanent standard in simple language as are the Standards (grades) of the U.S.A., Canada, Argentina and the official Western Australian "Standard White." It will be found that the description of this last is almost if not quite identical with those of the individual unofficial "de facto" standards of the other exporting States.

With these amendments the obsolete F.A.Q. standard would be brought up to date and in line with the milling value standards of the other exporting countries.

This desirable reform is one that can be considered quite separately from that which provides for the equitable payment for stronger wheat according to its baking quality. There can be no logical objection to such a reform, for while it provides for the declaration of the bushel weight of millable, instead of commercial, wheat, and a permanent instead of an annual standard —with the consequent abolition of that fantastic period of several months when the official standard is non-existent—it involves no change in existing marketing methods. Furthermore, it will not increase costs.

PERMANENT STANDARDS ARE ESSENTIAL

It can be said with confidence that the adoption of a permanent standard instead of an annual standard will meet with the approval of those engaged in the grain trade. Evidence of this was provided when a permanent West Australian oat standard was established by statute in 1949. The representative of a leading international firm of grain merchants informed the writer that the fixing of a permanent oat
A DIAGRAMMATIC HISTORY OF WHEAT MARKETING IN AUSTRALIA

FIRST PERIOD

In this period there was one baking quality CLASS with two milling value GRADES. The F.A.Q. grade was introduced in South Australia in 1888; Victoria in 1891; New South Wales in 1899; and Western Australia in 1905.

AUSTRALIAN WHEAT (Mixed Red and White).

STANDARD CLASS.

F.A.Q. (an Annual Official Grade). Reject or Stock Feed Grade.

SECOND PERIOD

About 1920 a "Strong White" or "Premium" baking quality CLASS was introduced and the red wheats were eliminated. Thus we had two baking quality CLASSES and two milling value GRADES.

AUSTRALIAN WHITE WHEAT.

STRONG WHITE CLASS.

F.A.Q. (an Annual Official Grade).

STANDARD WHITE CLASS.

F.A.Q. (an Annual Official Grade). Reject or Stock Feed Grade.

THIRD PERIOD

In the period 1935–37, Western Australia introduced two permanent official GRADES in "W.A. Standard White" and "No. 2 Grade," so there were two baking quality CLASSES with three milling value GRADES.

AUSTRALIAN WHITE WHEAT.

STRONG WHITE CLASS.

F.A.Q. (an Annual Official Grade).

STANDARD WHITE CLASS.

F.A.Q. (an Annual Official Grade). W.A. No. 2 Grade (a Permanent Statutory Grade introduced January, 1937). Reject or Stock Feed Grade.

FOURTH PERIOD

In 1948, New South Wales introduced two inferior grades, "B" and "C," so at this period there were two baking quality CLASSES with four milling value GRADES.

AUSTRALIAN WHITE WHEAT.

STRONG WHITE CLASS.

F.A.Q. (an Annual Official Grade).

STANDARD WHITE CLASS.

F.A.Q. (an Annual Official Grade). N.S.W. Grade B (an Annual Grade). W.A. No. 2 (a Permanent Statutory Grade). N.S.W. Grade C (an Annual Grade). Reject or Stock Feed Grade.

SUGGESTED FIFTH PERIOD

This provides for two baking quality CLASSES and four milling value GRADES, as in the Fourth Period, but the "Medium Strong" wheats are included in the "Strong White" class and permanent, instead of annual, milling value grades are used.

AUSTRALIAN WHITE WHEAT.

STRONG AND MEDIUM STRONG WHITE CLASS.

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standard had proved so advantageous that he hoped that a similar standard would be established in the Eastern States. He said this would greatly facilitate trade and reduce expenses. A suggested definition of the principal standard or "A Grade" is:

"A Grade" wheat shall be dry and undamaged by moisture. It shall be free from weevils or other insects and from smutty, musty or other commercially objectionable smells.

Of the millable wheat there shall not be less than 98.5% of bright sound grain.

The bushel weight of the millable wheat shall not be less than 63 lb.

Experience in New South Wales during the past few years has shown the need for two inferior grades called respectively "B" and "C." The definitions of these would be those of these grades in the season 1951-52, the last season they were used.

Continuing the practice followed since 1888 there would also be a "reject" grade. This would be sold on sample and no definition required.

For the Australian "Standard" baking quality class, four milling value grades would be required. These would be:

1. A Grade.
2. B Grade.
3. C Grade.
4. Reject Grade.

The "Australian Strong White" class will include "Medium Strong" varieties. As in the case of Canada's best wheat "Manitoba No. 1 Hard" only the "A" Grade wheat will be included in this class. Any wheat which did not reach this grade would automatically be placed in the "Standard" class and conform to the grades of that class.

A PROGRESSIVE STEP

The change from the existing unsound wheat marketing system to the proposed sound modern one is simply a progressive step to meet the present marketing requirements of the Australian wheat marketing industry due to the advances made in Agricultural science, to improvements in harvesting machinery and in farming practice. As may be seen from the diagram it is a continuation of the evolution which has taken place in the Australian wheat marketing system since the introduction of the F.A.Q. standard in 1888.

The comparison between the fourth stage and the proposed fifth stage shows how slight are the changes involved in connection with the desirable reform. There is no increase in the number of baking quality classes of which there are two, nor in the number of milling value grades, of which there are four.

The "Strong White" class is in line with the present practice in that inherently strong varieties are included in the "Strong" class even though, owing to various causes their general strength has been reduced to that of "Medium Strong" or "Filler." It also provides for the inclusion of the now high-yielding varieties the strength of which is greater than that of the "Standard White" class.

Though the number of grades is unaltered the character of the principal ones is modernised so that:

1. The grades shall be permanent instead of annual.
2. The permissible amount of unmillable material or dockage is prescribed. (Preferably less than 1%.)
3. The declared bushel weight shall be that of the MILLABLE or "dockage free" wheat instead of that of the COMMERCIAL wheat.

The proposed amendments do not involve any change in Australian marketing methods, nor the slightest increase in costs nor do they sacrifice any of the simplicity of the "F.A.Q. System." Rather do they increase the simplicity, for they obviate the necessity for a "de facto" standard during the first quarter of the season and do away with the practice in Western Australia of buying according to one evaluation standard and selling by another.

MODERNISATION IS NECESSARY

Obviously the time has arrived when the unsound system of marketing a wheat crop of some 180,000,000 bushels, worth, at say 14s. per bushel, £126,000,000, should be modernised so that Australians may obtain its real worth. If precedents for such a change are required we have them in the action taken on the Pacific coast of the U.S.A. in 1923, when the "F.A.Q. Standard" for mixed Walla wheat was abandoned and replaced in 1924 with two milling value units called respectively, "No. 2 Western Red" and "No. 2 Western White." Further precedents are found in the changes in the U.S.A., Canada and Argentina.

In the U.S.A.—"For many years confusion resulted from the multiplicity of grading systems in use. Not only did each market both in the interior and at the ports have its own particular system of grades administered through the local Chamber of Commerce, but many of the systems were non-uniform as they were inadequately framed. Prices inevitably re-acted, through such conditions, to the disadvantage of the grower (3)."

To remedy this unsatisfactory position, the first change was made when the grades were fixed by State Legislative action, but the great change was made by the passing of the Federal Grain Standards Act in 1916, under which Federal supervision of grades superseded that of the individual State.

The change was made in Canada in 1900 by the passing of the Manitoba Grading Act; expanded to the Canada Grain Act in 1912; radically amended in 1925 and again revised in 1930.

In Argentina, legislation establishing a modern wheat grading system was passed as recently as 1948.

There can be no logical argument against providing for the needs of the Australian milling industry by replacing an unsound declaration of bushel weight with one that is sound, nor for remedying the situation which obtains in three States for three months during which there is no official standard for assessing the value of Australian wheat.
One can imagine the consternation and indignation which would occur in the community and particularly in the timber trade, if the foot of 12 inches, the legal unit of length measurement, were suspended for three months each year and each trader were allowed to fix his own unit for the measurement of length.

If the standard of evaluation be one based upon the millable grain content of the commercial wheat, the Australian system of evaluating wheat for marketing purposes will not then be out of step with those of the three other great wheat-exporting countries, Argentina, Canada and the U.S.A.

The basis of 100% millable grain is preferable to that of 97% prescribed for "The W.A. Standard White" which was introduced as an alternative to the F.A.Q. standard and which for the previous 10 years had had an average of about 97% millable grain.

An objection has been raised to a standard with a basis of 100% millable grain on the ground that bin attendants were accustomed to deal with commercial wheat on a basis of about 97% millable grain and that to alter the basis to 100% millable wheat would slow down receipts. Proof is wanting that such a contention is justified.

A standard of 97% millable grain, whilst it has the advantage that growers delivering wheat with less than 97% millable wheat are penalised, is unfair to those who deliver commercial wheat containing more than 97% millable wheat. Further, the lower percentage does not induce growers to take full advantage of the designing and engineering skill used in the construction of Australian harvesting machinery.

Because of the excellence of this machinery it is believed, after allowing for difficulties inseparable from field work, that most of the wheat could be so "dressed" or cleaned that little more—and in some cases probably less—than 1% of unmillable material need be found in the commercial wheat. Support for this view is found in the fact that the bulk of the export wheat inspected for certification during the early part of the 1928-29 season and up to the middle of December, 1928, contained less than 2% of unmillable material.

The adoption of the "dockage-free" standards of Argentina, Canada and the U.S.A., does not mean that the wheat delivered must reach that standard, but that when delivered it shall be valued according to it. If, for instance, a grower submitted wheat containing 2% of unmillable material, there would be a penalty imposed of 2% of the bushel price of the dockage-free grain.

Nor does it mean that the practice of collecting samples of the wheat crops of each State and the annual function at which they are mixed should be abandoned. Quite the reverse, for it will always be interesting and informative for millers and others interested in wheat to obtain and examine a physical sample representative of the current crop.

OUT-DATED

The present system does not meet the requirements of today. It is more reminiscent of discarded varieties such as Purple Straw and Steinwedel rather than the modern Gabo, Eureka and Kondut. It is the system typical of 1898, when Sir William Crookes, speaking to the British Association on wheat-growing in Southern Australia, said "In most districts the yield falls to such an extent as to cause Europeans to wonder why the pursuit of wheat growing is continued."

The British tenacity and perseverance, and the initiative of Australians have changed that view of Europeans and now, instead of wondering why Australia continues to grow wheat, they and the wheat-hungry world are clamouring for us to grow more and more.

Fig. 35.—One of the early types of stump-jump disk cultivators invented and manufactured in Australia.

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The present system is not worthy of the men who invented the stripper, nor of those who devised the cheap unconventional “mullensising” methods of clearing land and then invented the “stump-jump” plough to cultivate that land, and as the result have converted a wilderness into an Empire wheat-field of 11,000,000 acres.

Nor is the present system worthy of the pioneer wheat breeders, Farrer, Pye and Marshall, nor of the efforts of our present day wheat breeders who have combined high yields with greater strength. It certainly does not reflect the spirit of the farm boy, Hugh Victor McKay who was always looking for a better way of doing things and in consequence replaced the stripper with the harvester.

The present system is no longer satisfactory for an Australia with an average crop of some 180,000,000 bushels, with an exportable surplus of 120,000,000 bushels.

It is unworthy of the splendid properties of Australian wheat, and its retention is not in keeping with the Australian tradition of progress. This merits a modern system of wheat marketing soundly based upon the utility values of Australian wheat.

It is time that the Australian wheat marketing system was brought up to the high level of that of its older sister, the wool industry. It is recognised that Australian Merino wool is unexcelled and its marketing system the best in the world. Australian wheat, in its class, is also unexcelled in the world, but its marketing system is obsolete.

Our wheat marketing system can be made to equal the world’s best—if our wheat-growers have the will to make it so.

SUMMARY

Sound commercial marketing is based upon the utility values of commodities. As with other commodities this applies to wheat.

The utility value of wheat depends upon the kind and quantity of flour which can be produced from it.

The kind of flour is determined by the BAKING QUALITY of the wheat and the quantity by its MILLING VALUE.

Sound commercial valuation of wheat requires therefore its division into “Baking Quality” classes and these into “Milling Value” units.

The “Baking Quality” of wheat is measured by its STRENGTH.

Its strength is governed by the QUANTITY and QUALITY of the gluten in the wheat.

Neither the quantity of gluten nor of its equivalent protein is a satisfactory measure of its strength. Nor is the appearance of the grain, variety of the wheat, nor the district in which it is grown.

The only reliable and satisfactory measurements of strength are baking and laboratory tests.

For marketing purposes the Pelshenke test for general strength is regarded as the most suitable.

The marketing systems of Argentina, Canada and the U.S.A. are based upon assessments of the kind and quantity of the flour produced by the wheat and in consequence their commercial wheat is divided into baking quality CLASSES and these into milling value units called GRADES.

The Australian wheat marketing system was based originally upon these principles. It was the simplest form of grading system known with one baking quality class with two sound and reliable milling quality grades.

It still has ONE satisfactory baking quality class for the export trade. For Australian and some export milling requirements TWO baking quality classes are now needed. A practical method for meeting this need is outlined.

Its principal milling value unit, the F.A.Q. standard is no longer satisfactory.

The declared bushel weight of the F.A.Q. standard is a confidence trickster. For 25 years it has deceived Australians by masquerading as the bushel weight of MILLABLE wheat.

The F.A.Q. standard is also defective in that it fails to describe the wheat so that, without examining it overseas merchants can carry through sales with confidence.

Another defect is that it is an annual standard varying from year to year, thus involving the provision for contingency risk by the buyer and consequent monetary loss to the wheat-grower.

The F.A.Q. standard is non-existent for at least three months during a most important period of the marketing season. This is ludicrous and quite unnecessary.

The F.A.Q. standard encourages the addition of screenings and other unmillable material in the commercial wheat. These defects and disadvantages of the F.A.Q. standard can be easily remedied by:

(1) Replacing the present unsatisfactory annual F.A.Q. standard with a permanent one.

(2) Providing that the permanent standard shall contain a minimum percentage of millable grain, and a minimum bushel weight of that grain.

Such a change would NOT alter existing marketing methods, or add to their cost, nor in any way lessen the simplicity now associated with the F.A.Q. standard.

The principal change would be the substitution of a PERMANENT F.A.Q. grade for an ANNUAL one.

The time is ripe for the change. It can be introduced when Australian wheat-growers realise that it is in their financial interest and WHEN THEY HAVE THE WILL TO MAKE THE CHANGE.
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