Quality Requirements and Economic Values in Trading of Oils

D.A. SHAVE, Unilever Ltd., Unilever House, Box 68, Blackfriars, London EC4P 48Q, England

ABSTRACT

In view of the large amount of fats and oils produced, traded and consumed, the number of real quality problems is very low. The most significant quality terms – GMQ (generally merchantable quality) and FAQ (fair average quality) – can define trading terms in most cases. However, there is still a need to develop simple, rapid analyses with simple equipment to aid in the definition of trading terms.

The incidence of real quality problems is extremely small, in view of the fact that 62 million tons of oils and fats are produced in the world, that two-thirds of them are consumed in the countries which produced them, and that the remaining 21 million tons or so are traded directly by some 80 countries in international trade. It is important to keep this perspective in mind because it would be too easy to get the impression that such problems loom larger than they do.

I believe that the quality of edible fats and oils should be as high as it can possibly be made to be, and that the effort to create and maintain this state of affairs should be unending. I am completely in favor of control of quality by comprehensive analysis. I am not an apologist for the status quo in trading oils and fats in terms of quality, but I do nevertheless hope to demonstrate in this short paper that the situation is not as unsatisfactory as some might argue – not an ideal situation in scientific terms, but one which can be continued until the improved scientific solutions become available.

One way of attracting attention early in a presentation, so I am told, is to introduce strong language. Playwrights do it regularly with four-letter words, so we may as well get straight down to the essentials with some three-letter groups which are just as offensive to the scientific mind as the four letter ones – GMQ (good merchantable quality) or, worse still, FAQ (fair average quality).

GMQ has been called the Gentlemen's Meaning of Quality and I leave to your imagination what might be the alternative interpretation of FA quality! But these expressions do have a greater significance than is generally realized.

Quality is not as simple as it seems. There is no doubt that, in the final analysis, it must relate to the end use. There is little merit in a clean, beautifully colored oil to a margarine maker, if he cannot at reasonably low cost make it into a bland, colorless oil of predictable physical behavior and keepability, nor to a salad oil bottler, if it clouds over and tastes foul when bottled, nor to a baking-fat manufacturer, if it will not bleach to make a white fat of the behavior pattern he wants.

I believe that there is an inherent warranty in the expression GMQ that it is basically suitable for the purpose for which it was bought – this is, after all, what makes it merchantable. It is to be noted, however, that NIOP Rule 45 states: "Seller shall not be responsible for adaptability of goods for any specific purpose, unless specifically provided for in the contract."

On the other hand, NIOP rules do refer very little to GMQ or FAQ for oils and fats. There remains some room for argument, but basically a groundnut/peanut oil from a particular origin should reasonably be expected to be bottleable as a salad oil or cooking oil after refining, and a palm oil from a particular origin should bleach up to a more or less known extent. GMQ clearly means that there should be no contamination by other oils or substances, noxious or otherwise – particularly, if it is to remain merchantable as a raw material for edible oils and fats products.

We should never forget that we are talking about primary produce: apart from animal fats and marine oils, edible oils and fats are mainly contained in the seeds of annual crops and of trees. When you make a contract for them, you do it on a form of contract which has been reached in various levels of negotiation between supplier and user often in trade associations such as FOSFA, NOFOTA, AFOA, NIOP, NSPA, NCPA, PORAM and ANEC.

At the one end, you have primary producers or the crushers and extractors of primary produce who do not wish to bear alone the full cost of the tricks which nature might play on them and, on the other end, consumer/processors, who want raw materials which are predictable in their behavior. The one wants a specification which says little more than "as it is grown and produced by me" and the other "of proven suitability for my products."

The degree to which each side succeeds in being the stronger varies from one commodity to another and from one country to another, according to the varying economic and political strength of the two sides. The producer believes that, quite rightly, the produce is wholesome and good like any other fruit of the earth. I like the French equivalent of GMQ – "saine, marchande et loyale," sound and true, to its description that is. GMQ and FAQ – which latter incidentally refers to average crop samples per month of shipment from the origin – both relate to a description, and it is important in any contract to get the description right. This is an essential part of quality determination. You can restrict the origin to selected countries, geographical areas or even producers and your GMQ will refer to that selection – the goods must be good merchantable quality of the description. You can be more selective by introducing more and tighter analytical requirements such as iodine value, peroxide value, anisidine value or Totox. A good example of this is SQ or Lotox crude palm oil.

But selection costs money – just as in branded goods you pay a premium not just for the advertising, but for the integrity of the brand – the integrity of the origin of an oil or fat is available to the buyer, who knows his market sources, and it can be a major quality control.

But it can put you at a serious disadvantage to your competitors if you restrict yourself too cautiously to too few origins or sources. So you start to expand the description to include restrictions which enforce some integrity.

Instead of just crude oil you say crude, unbleached, untreated, which to a language graduate like myself just has to be a tautology. How much better, if the authenticity of an oil could be proved by analysis! And the authenticity of an oil is not just important for its value in relation to its end use. Oils and fats are commodities and their relative values are determined not just simply by their relative desirabilities to my examples of a margarine maker or a salad oil bot-

tler. Each has its own supply/demand pattern of the moment.

Cocoa butter is normally a premium fat, because of its special and relatively rare melting behavior, but twice in my own personal experience it has gone into such surplus as to become a relatively cheap margarine raw material. Coconut oil, which has premium desirability in certain technical and confectionery uses, has regularly moved between the top and the bottom of the wide spectrum of oils and fats prices. There is considerable variation in the degree to which individual oils can be interchanged which leads to very wide divergences within the overall price spectrum, even though as a general rule prices tend to move in the same direction because of the ability to interchange them. There is a constant temptation to the less scrupulous to adulterate expensive oils with less expensive ones. Although coconut oil and palm kernel oil are similar and valued close to one another in many uses, a buyer wishes to be protected from admixture of palm kernel oil in coconut oil, when in market terms it is worth up to US$ 50/ton less, as it has been recently.

In any case, the mixture does not have the characteristics of the sum of the two and is most likely unsuitable for the purpose for which it was bought.

It has been argued that a palm oil reconstituted from refined, bleached and deodorized (RBD) oleine and crude stearine has similar characteristics to crude palm oil and indeed gives better refining yields, but why should a buyer pay the crude oil price, when the mixture is cheaper due to differential export duties? He can mix his own, if that's what he wants.

I rather like the Rule 9 of the National Cottonseed Products Association in the USA, which states: "Any member of this Association who delivers or attempts to deliver mixed or adulterated commodities, except as such, and with full and explicit statement to this effect, fully and accurately describing the commodities, or who wilfully and deliberately brands or tags any commodity with the intention to defraud, claiming or indicating a quality or grade not warranted by the commodities themselves, shall be guilty of an offense against the *dignity* and *character* of this Association." It then goes on to describe how he can be hauled up before the Board of Directors and dismissed from membership. Perhaps my definition of Gentlemen's Meaning of Quality is not so wide of the mark. There is a large measure of protection against inferior quality in the contracts used in trading oils and fats.

In the case of oils produced from soybeans in the USA and Europe, a large measure of specification of quality by analytical means in the description has been achieved. The American Fats and Oils Association says in its contracts: crude, degummed soybean oil sold for export shall be pure soybean oil. (No definition or specification is given for "pure"). It shall be produced from fair average quality crude soybean oil (FAQ again) from which the major portion of the gums naturally present have been removed by hydration and mechanical or physical separation. It shall be equal in quality to soybean oil produced for domestic consumption. It shall meet the following specifications . . . It then lists limits for unsaponifiable matter, free fatty acid (FFA), moisture and volatile matter and insoluble impurities, flash point, phosphorus (for lecithin) and a negative insoluble bromine test.

The VERNOF specification for Dutch crude extracted degummed soybean oils is GMQ (that dirty word again?), solvent extracted, guaranteed unbleached, produced from sound yellow soybeans. It then lists specifications for FFA, moisture and volatile matter, impurities, lecithin as phosphorus, sediment by Gardner break test and color. The NOFOTA contract states that the buyer shall be entitled to claim an allowance from the seller in the event of inferior quality or if the inferior quality is of an exceptional nature, the buyer may demand cancellation of the contract and claim damages. No definition is given of "exceptional."

The NIOP in the USA says that "Oils and fats shall be sold guaranteed to be unadulterated and free from substances unnatural to same" and later "Oils and fats must contain all their original fluid and solid fatty acids in their original proportions and any modifications must be stated in the contract." This is the nearest we come to a true analytical description, but no indication is given on how to prove the fatty acid make-up anymore than any indication is given in the VERNOF specification of how to prove that the soybeans from which the oil was made were sound and yellow. In the contracts for international trade for oils such as coconut, palm kernel and crude palm oil, the amount of analytical specification becomes much less. In the case of processed palm oil from Malaysia a number of analytical guarantees are given, but they are far from comprehensive. A full review of all the various associations' contracts is not possible in this paper, so you must take my word for it, that they all rely heavily on description and a warranty of good quality to go with the description. The analytical specifications are limited in scope – even in the most comprehensive of them.

The onus to prove that the goods fail to match up to the contractual quality rests largely on the buyer. Fortunately, edible oil processors are well provided with both expertise and equipment to protect the quality of their products, and with the warranty of good merchantable or fair average quality, they are able to have contractual recourse to their sellers.

One cannot, however, make products with contractual allowances; nor do damages, even when fully obtainable, normally compensate for disruption of factory planning or loss of consumer goodwill through interrupted deliveries.

If you can establish "the inferior quality of an exceptional nature," as the Dutch contract puts it, quickly enough, you can reject a delivery of a tank or rail car at your factory gate and save yourself the trouble of its taking up valuable storage space or worse still being unloaded on top of and contaminating some good oil in a big tank. It is practically impossible to reject a parcel contractually when it has lost its identity. It is much more difficult to be in a position to reject a bulk shipment in a large tanker under a CIF contract! In such a contract you effectively buy documents, included in which is a shipping analysis certificate which unfortunately is often far from wide in the scope of its analysis – FFA, moisture and impurities (M & I) is mainly what you get.

FOSFA International is a contact-making body of worldwide importance and its most commonly used No. 54 contract for vegetable and marine oils CIF in bulk states: "The oil is warranted to be of good merchantable quality" and then "Should the quality and/or *condition* of the oil not prove equal to the above, this contract is not to be void, but the oil is to be taken with an allowance to be agreed upon or fixed by arbitration, *provided always that the oil shipped shall conform to the contract description and analytical specifications.*"

Risks to quality and/or condition during transportation are for the buyer and would normally be covered by insurance or disputed with the carrier. The quality requirements of the contract in the first place are that the oil should be what it is traded to be – the description which justifies its price.

Quality is made up of the characteristics inherent in an oil or fat, whereas condition is the effect of external influ-

ences on it such as climatic circumstances and transport and storage conditions. General experience shows that more than 80% of oil arriving off-quality is a matter of the oil being out of condition rather than essentially lacking in quality.

Quality and condition are obviously interrelated and clearly an oil of poor quality will go out of condition more quickly than an oil of good quality, if mistreated during transportation and storage. This is why you need a maximum FFA and M&I to ensure good quality on shipment and a basis FFA and basis M&I to establish value both in terms of refining cost and actual weight of good quality oil on arrival.

Trade Association Contracts aim to protect quality by stipulating quality on shipment, standards of transportation and storage and of handling in terms of maximum temperatures and rates and methods of heating, in order to ensure good condition. The IASC has been very active in creating standards which are widely used in international trading contracts.

But the onus is still on the buyer to prove that the oil or fat is lacking in quality and/or condition, sufficient to lessen the value of what he has bought, or even that it was indeed the type of oil he bought. What we need is quick, accurate methods of analysis – tests which are simple, using inexpensive equipment, capable of use by relatively unskilled personnel in remote parts of the world, so that full analysis can be made at the shipment end. We want chemical definitions providing irrefutable proof of identity of oils and fats and ability to test them quickly and cheaply before we can embark on full analytical specifications. A lot of work has been done on palm oil in Malaysia on a definition of crude palm oil.

I am very pleased that FOSFA is deeply involved with the Food Research Laboratory of Leatherhead in the UK in basic research into authenticity of oils and fats.

We want to be able to reject shipments which fall short of contractual requirements for quality and/or condition, before they incur costs which are often out of proportion to the value of the contracts and which are not always fully recoverable under the terms of the contracts. Once you get beyond the point of rejection, it is an argument about allowances and damages and you cannot make your products from these.

Many people are working on these problems of analytical identity. However, until better methods are available, we shall have to continue to rely on the expertise of buyers in selecting good quality sources and insisting on suitable transport and storage conditions to preserve the condition and the good merchantable quality of the oils they buy and the use of trade association contracts which support the buyer to this end. As stated at the beginning, we do have a very large volume trade in oils and fats in the world with only a relatively small amount of quality problems. But these problems, however infrequent and rare, can lead to heavy costs and the ability to eliminate them by analytical methods would save us all a lot of trouble.