

the product may or may not have merit for our corporate goals.

In what direction should flavor research be directed? I would say improve your flavors where you have the expertise. This response is given because while we have seen a great improvement in many flavors, we are still forced to answer our flavor needs by blending two or more flavors to achieve the desired effect. A few specific flavors or flavor areas which, to my view, need attention are: peanuts and other nuts, peach, mushroom, coffee, cream, milk, cheese—w.s. and o.s., and natural tomato flavor.

Flavor Applications in Wine

Saul Spector, Mogen David Wine Corp.

By the authority of section 5386 of the Federal Laws—Internal Revenue Code and Part 27 of the Code of Federal Regulations section 240.440, it is possible to produce and market wines which have unique characteristics and which are subjected to the standard wine tax rates as special natural wines.

Since the Regulations require any flavors used to be natural and impart to the base wine characteristics distinguishable from wines not so treated, it is necessary for the flavor producer to keep those guide lines in mind when development is commenced.

Preferably, a sample of the wine should be obtained from the winery desiring the flavor. Avoid, however, submitting to the winery a formulation which requires major adjustments in its base unless advance consent is obtained. This precludes the trauma of an initial acceptance and subsequent rejection because the wine formula does not fall within the Regulations.

Since special natural wines may have alcoholic concentration by volume from 7% to 24%, the stability of the flavors at the particular alcohol levels of the wine becomes an important factor.

The color, if any, which may be imparted to the wine base by the flavor may also be an element of concern since an important aspect of product acceptance is product appearance. The beverage in the glass (or goblet) should be appealing to the eye as well as to the palate.

Just as the winery should be aware of taste trends, so should the flavor producer. Imparting this knowledge in a prudent manner to a potential or current customer can often lead to a mutually beneficial relationship. We all remember the general acceptance of the citrus flavored aperitifs about twenty years ago and the success of the fruit and berry flavored low alcohol wines of just a few years back.

The wine industry is continuing to explore new material combinations for the making of wine as well as instituting technological improvements in the fining and bottling of the product.

In view of the recent FDA termination of a past memorandum of understanding with the BATF regarding the labeling of alcoholic beverages, the consumer's right to know what he is purchasing and the manufacturer's formula integrity must be kept in balance. In this respect, through the coordination of the efforts by the winemaker and the flavorist alike, attainment of these common goals should be possible.

What happened to the sample I sent?

John E. Bujake, PhD, The Quaker Oats Co.

What does the food scientist or technologist expect from the flavor chemist? He desires a flavor or flavor system that is quite unique. Like his marketing counterpart, he wants instant service and not have to wait weeks for a sample. He wants these flavors to be very reasonable in cost to keep his total cost of ingredients down to a level marketing people can live with. He needs a flavor that will be stable under all processing and formulating conditions.

On the other side of the fence, the flavor house and the flavor chemist wants more requests that are easy to fill off the shelf. The flavor chemist desires the product development process to be completed in a few months and using his first submission. He wants large orders for his particular flavor to follow almost immediately. The flavorist would like to be the sole supplier and have the product with his flavor to grow in sales over the next 20 years.

Now what happens in reality to this situation that I have just described? The product developer and the flavor chemist must get together and reach an understanding as to what each can expect from the other. *Better communication is the key.* As in our entire life, be it at work, home or in the community, most problems arise because of poor, faulty or ineffective communications.

What can we do about this? I think the answer is obvious and simply involves shortening the path of communications. On major projects with key accounts, the flavor chemist should get the product developer into his laboratory when working on complex problems. Let him spend a few days or even a week with your chemists. This will not only facilitate greater communication by reducing the path between the two key individuals involved, but it will also give the developer an understanding of some of the problems that the flavor chemist faces. It will also give the flavorist direct experience with some of the reactive formulations and processing conditions that the developer has to work with.

You should also send out your technical people to visit the developer's laboratory on a frequent basis. Technically trained salesmen also facilitate interaction. These approaches are not the complete answer to better

communication, but they are a big step in the right direction. They are the key to successful flavor development, particularly in many of the complex food systems the food technologist is faced with today.

Another significant point is that the flavor house should not assume that they always know exactly what the customer wants and that they have the right to interpret what he says and to give him solely what they feel his particular project needs. In many cases, the flavor chemist's information for security reasons, is restricted and, therefore, he certainly should strive to give the product developer as closely as possible the flavor profile he wants even if it requires additional customizing work at the bench. There have been several instances of flavor salesmen who attempted to force their concept of a flavor on the developer. This was unsuccessful and ultimately resulted in a loss in business for the flavor house.

The flavor chemist thinks his creative flavor is just what the product needs. The product developer is looking for a technical success. He wants a unique product that is a technical innovation. The marketing man is looking for a product that will be a marketing success. He wants a product that will achieve a large market share and that will grow and remain in the marketplace for a long period of time. But most importantly, the President of the company does not care if the new product is a technical success or even if it is a marketing success. His only criteria is financial success. Without this, no one in the corporate life can be considered successful.

Like with most things, your reaction to a given situation or to a particular flavor depends on what you are used to. When the developer does not get too excited about your new artificial mango flavor, please bear with him and don't be too disappointed. *He is looking for flavors and products that sell by filling a particular consumer need.* Unfortunately in the flavor area, these often are the chocolates and vanillas and the strawberries. However, the flavor chemist can help the developer by making them more chocolatey or giving them a slightly different character, or making the strawberry with a greater degree of freshness.

Generalizations can cause problems. A flavor for a peach cereal base obviously has to be quite different from that for a peach beverage base. Customizing flavors must be carried out for most applications. Flavors must be made compatible not only with the particular

formulation, but also with the processing, storage and use conditions that the product will experience.

All flavor combinations, such as spice and fruit blends, are not the same. Many product developers would much prefer to get a separate apple flavor along with a separate cinnamon flavor to make his apple-cinnamon cereal rather than receiving the flavors already combined. By letting the food technologist determine the ratio of the two, the chances of developing a product for his particular manufacturing system is greatly improved.

The product developer would like to see an expiration date or some form of open code dating on all samples received. Such stability information while costly to the flavor house and at times difficult to achieve technically, certainly would help the developer in his formulating work and ultimately benefit the flavor compounder. Another thing that would be most helpful is the identification of the solvents used. It would save a considerable effort if these particular factors were made known so that any compatibility problems could be addressed without getting too far into the product development process.

Flavor technology groups have been organized in many large development laboratories to coordinate in-house flavor activities. At Quaker Oats, it is a small group of four professionals. They serve as our internal flavor experts, not as compounders or formulators, but as a group whose mission it is to try to understand flavors and their interactions. They look at the chemical structures of various flavor systems to facilitate application to our new product activities.

Our flavor technology group cannot handle all flavor problems in the laboratory. They concentrate on our major projects. They also get involved in off-flavor and flavor pick-up problems from and by packaging materials. They do not keep an extensive flavor library as such, but do have a fresh supply of flavors that are compatible with our existing product lines. This is supplemented by the submissions from flavor houses on an as-needed basis. They do prefer to have or supply specific targets for the flavor chemist. Any samples that are accepted are examined and screened in basic media. In our case the basic media consists of sweetened milk, salty water, and other similar systems.

The flavor technology group always will attempt to communicate directly with the flavorist in the flavor house. As previously mentioned, they feel this is paramount to successful flavor development. This type of communication must also be a two-way communication. The developer prefers to supply the flavor house with our base material and information on its characteristics. They like to work with individual flavor components (e.g., honey and maple) and establish the ratios themselves. The flavor technology group will fingerprint incoming samples using gas chromatography to allow a comparison with subsequent samples of the same flavor that will be used in large scale plant trials and consumer testing.

As all our major projects are approached from the team basis, we encourage an early involvement of flavor technology with the product development team. One of the important roles of flavor technology at the laboratory is to educate the product developers in the basic aspects of flavors and flavor application. Since much of the developer's knowledge is learned empirically, any inputs from the flavor technology group that can shorten this process benefits everyone concerned.

The flavor technology group follows a set procedure in evaluating and recommending flavors. This involves

first of all establishing a target flavor by developing a mental profile of what the flavor technologist feels the product developer needs for his particular application. Preliminary selections are usually made based on previous experience. If nothing suitable is on hand, a survey of various flavor houses will be made. Submissions will then be evaluated and optimization will then occur, as the prototypes are made. The first evaluation is usually done using an in-house expert panel. This is followed by in-house taste panels, central location testing, and home use testing by outside consumers. Quantitative descriptive analysis profiles are also used. Modifications on the product are made as needed. Cost reduction attempts are made not only from a flavor standpoint, but also from the total formulaion.

Now the process of large scale consumer testing begins in the form of a mini-market or test market. There is the complex involvement of many factors, such as, product concept and positioning, price/value relationships, product quality, packaging, and timing in the marketplace. All of these things have an influence on whether or not a consumer product is successful.

In a test market or even large home-use tests, there are so many variables that can affect the success of a given product making is often hard to determine reasons for failure. From the standpoint of the flavor house, it is often difficult for them to understand why their flavor has not succeeded. Just remember, we can have a technical success from the standpoint of a good flavor and unique product, we can even have a marketing success where we do generate sufficient sales volume and market share, but as far as the longevity of the new product is concerned, it must be a financial success. If it is not, then nobody benefits.

Some of the questions the flavor technologists and

product developers often ask are: What is the solvent system in this particular flavor? How stable is the sample? As indicated previously, open code dating would benefit both sides. They are interested in knowing whether any special use or storage conditions are involved and also what are the recommended usage levels. And it doesn't do the product developer any good to be given a usage level in pounds per thousand gallons when he is still on the bench. A weight percent or ppm would be more appropriate.

All people change, and likewise situations also change. We are seeing many changes in the interaction of the flavor house and its customers. These changes involve not only a greater degree of technical sophistication on both sides, but also a never-ending complexity in the marketplace. New price value/relationships, ecology, consumerism issues, health food fads, and new government regulations are an everyday occurrence. All of these factors affect our products and ultimately our response to the question originally proposed, *What Happened To The Samples I Sent?* Both the developer and the flavor chemist are keenly interested in the question, for the flavors do indeed play a very key role in making our new product a success. However, they are only one factor and keep this in mind when the product developer comes back and says that the project direction has been changed by marketing, or that it has been dropped, or that the test market wasn't successful.

In conclusion, the key to effective flavor utilization is better understanding and improved communication between the flavor chemist and the product developer. While some of the points are rather straightforward, they will help to further and strengthen this interaction to the mutual benefit of both the flavor house and the consumer products companies.