Audit checks palm oil refining skills

To ensure quality assurance, the Palm Oil Research Institute of Malaysia (PORIM) conducts independent technical audits of Malaysian palm oil refineries on a voluntary basis. The following article, prepared by K.G. Berger, M. MacLellan and T. Thiagarajan of PORIM, presents the results of such an audit over the past five years.

The Malaysian palm oil industry has developed rapidly over the past 25 years. Currently, approximately 4.5 million metric tons (MT) of palm oil are exported annually. The country has 40 refineries, the largest of which handles up to 2,800 MT a day.

The palm oil produced must satisfy the normal quality criteria of international trade. In addition, various governmental agencies monitor and supervise quality. Standards for crude palm oil and the various processed products are formulated and published by the Malaysian Standards Institute (SIRIM). The Palm Oil Registration and Licensing Authority (PORLA) is responsible for overseeing trading practices and for ensuring the competence of commercial analytical laboratories and ship surveyors. Export consignments are sampled by the Customs Department and analyzed by the government's chemistry department for defined quality characteristics.

PORIM, meanwhile, provides two services directly related to quality to the industry. First, annual analytical cross-checks are run between laboratories. Currently, more than 50 participate. In addition, it offers a technical audit service for refineries. This has been in operation for five years.

Aim of audit program

The objective of the technical audit is to determine whether a refinery has the skills and equipment required to manufacture product to meet a consistent, high quality standard. The audit, which is voluntary, must not only be objective but also be seen to be objective. Therefore, it is based on defined criteria, itemized in a detailed marking sheet. Each evaluation is carried out during a visit by two senior technical staff, at least one of whom has had practical experience in refinery management. The results are monitored by a PORIM committee, chaired by PORIM's director general, and decisions to award or withhold a certificate of competency are made by the committee. Certificates are valid for only one year.

The program's introduction and implementation into an established industry were done carefully and in stages. The first stage was preparation of a draft scheme and discussion with PORIM's Technical Advisory Committee. Step two was formal approval by PORIM's Board. The next step was preliminary discussion with the refinery trade association, followed by a trial run in one refinery and discussion and modification of the scheme. The final stage has been gradual acceptance by refiners.

Marking scheme

The marking scheme is divided into five main sections, as shown in Table 1. Section One covers general cleanliness and hygiene on the premises and within the factory, as well as staff efficiency. Section Two covers quality control in the laboratory and interaction between the laboratory and factory. Section Three addresses such factory operations as instrumentation, plant and process conditions, and quality assurance. Section Four, focusing on storage and disposal of products, includes assessment of the tank yard and the packaging plant. Section Five includes safety and maintenance throughout the facility.

Based on experience and discussion, the weight given to the various sections has been adjusted. Certificates of competency are awarded to those obtaining 65% or more of the maximum applicable. The standards applied gradually have been tightened by requiring a minimum mark in each section and requiring the refinery laboratory to participate and perform well in the annual analytical cross-check program. Each refinery is given a confidential report on any shortcomings found during the visit. Neither this nor the actual marks received are made public.

TABLE 1

Main Sections of Marking Scheme

	Maximum marks	
	1983–87	1988
General	60	80
Quality control	90	95
Factory operations	31	80
Storage and disposal of products	55	70
Safety and maintenance	40	35
Total	276	360

TABLE 2

Average Score—Certificate of Competency

Year	1984	1985	1986	1987	1988
Numbers	19.0	21.0	25.0	25.0	25.0
Average %	78.9	79.9	80.4	82.2	82.7
Number failed	—	—	—	1.0	—

Table 2 shows the number of participants and the average scores reached during the five years. The results indicate a steady improvement in the average mark. A frequency diagram of the scores (Fig. 1) clearly shows the increased number of participants reaching the highest group of marks.

Conclusions

The technical audit scheme has been accepted by the majority of Malaysian refiners as a useful advisory function for management. This segment represents about 90% of the company's palm oil refining capacity. Currently, a similar scheme is being implemented for the 260 oil mills which produce crude palm oil from fresh palm fruits.

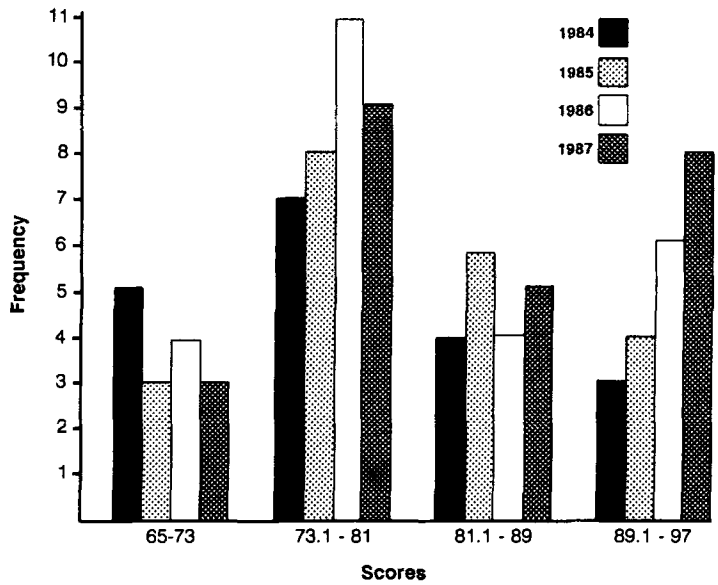

FIG. 1. Certificate of Competency—frequency of scores.

The detailed marking schemes used in the technical audits are available by contacting T. Thiagarajan, Palm Oil Research Institute of Malaysia, 6 Persiaran Institusi, B.B. Bangi, 43000 Kajang, Selangor, Malaysia.