

A Technical Visit to Nutrima Kitchen, MARDI

AGRICULTURAL AND FOOD ENGINEERING TECHNICAL DIVISION



by Engr. Mohd. Fazly bin Mail

THE Agricultural and Food Engineering Technical Division (AFETD) of The Institution of Engineers, Malaysia (IEM) organised a technical visit to Nutrima Kitchen of Malaysian Agricultural Research and Development Institute (MARDI), located in Serdang, Selangor. The visit was held on 23 June 2012. The purpose of the visit was to have an overview on the research and development of the 'cook chill' concept and food production facilities at Nutrima Kitchen as well as to facilitate the sharing of experiences and transfer of technology between the two institutions. A total of 16 participants joined in the technical visit.

The participants arrived at Nutrima Kitchen, MARDI Headquarters, Serdang, at approximately 10.00 a.m. for registration and were welcomed by the representatives of MARDI. A technical briefing was given by the 'cook chill' project leader Mr. Mohd. Zainal Ismail, the Director of Mechanisation and Automation Research Centre. He described the concept of 'cook chill' and the research which is conducted at MARDI.

A centralised kitchen is a commissary food service system where food is prepared in mass and distributed to a receiving kitchen or satellite kitchen. Food is either cooked conventionally, stored frozen or chilled before being transported to the satellite kitchen. In MARDI, a central kitchen has been developed to undertake research on 'cook chill' products.

The central kitchen, famously known as Nutrima Kitchen, is a well-equipped state-of-the-art kitchen facility complete with chilling and regeneration capabilities. The building has been set up in accordance with Good Manufacturing Practice (GMP) and Hazard Analysis and Critical Control



Meat processing area

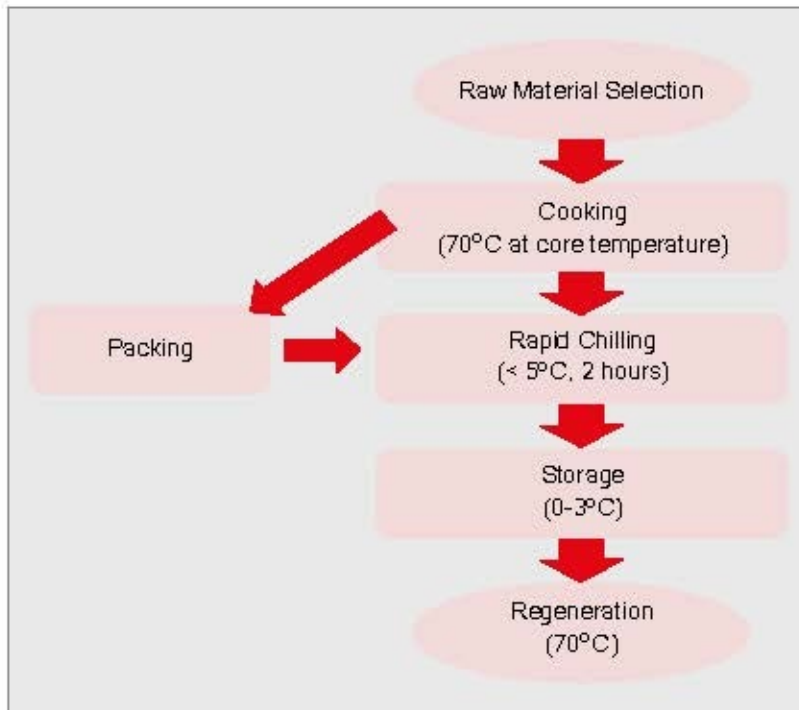
Points (HACCP) in order to assure food safety. Selected traditional dishes such as *Nasi Briyani*, *Nasi Dagang*, *Nasi Lemak* and *rendang* are formulated and prepared using the 'cook chill' method.

The 'cook chill' central kitchen centralises food production and transfers food to satellites (receiving kitchens) where it is regenerated and served to customers. Regeneration or reheating can be done using microwave or conventional ovens, steamers or pressure steamers, or even hot water. This type of food service system is getting more popular in Malaysia as compared to other developed countries, due to the increase in franchised food outlets. Hence, a larger volume of food with consistent qualities is required.

Besides, the variety of food which can be prepared using modern equipment and technology, has led to the recent rise in the numbers of such establishments. This food service system is practised by airlines, institutional caterers, hospitals and healthcare food service providers. For instance, the food preparation for the airline industry takes place in a central kitchen near the airport. The preparation begins when the food is cooked, pre-plated, sealed and either chilled or frozen at the central kitchen. The prepared meals are placed in closed carts and the carts are then transported by truck to the airplane (the receiving kitchens or satellites). Before serving these foods to the customers, the hot items will be reheated to the appropriate temperatures. The following presentation describes the 'cook chill' concept and food production facilities at the Nutrima Kitchen, MARDI.



Vegetable and spice preparation area



Flowchart of 'Cook Chill' Processing Method

The advantages of the 'cook chill' processing method include

- Lower food and supply cost – purchasing food and supplies in large quantities
- Flexibility in scheduling of food preparation – flexible in production plan and labour
- Mechanisation of preparation – less operator handling, increased efficiency
- Consistency – foods from central kitchen and outlets, from the same source
- Convenience of franchised outlets
- Minimal wastage.

After the presentation, the participants were brought to the Nutrima Kitchen processing area for a site visit. They had the opportunity to observe the process flow in which 'cook chill' food is made. The processes involve processing works which are quite challenging, both technically and environmentally.



Cooking by using the Salsam at machine



Packing by using a tray sealer



Nasi briyani kam bing being prepared



Sam ple product: Sam bal sotong



Sam ple product: Opor ayam

The technical visit was successfully carried out according to the scheduled programme. During the visit, IEM members and the other participants were treated to some delicious *Nasi Briyani* which was cooked using the cook-freeze method. The participants were only informed about the cooking method after they had finished their lunch. Many were surprised as the taste was just as good as a freshly prepared meal.

The members who had participated in the technical visit expressed that they had learned many practical tips from 'cook chill' food production, and wished to express their gratitude to the staff of Nutrima Kitchen for the technical briefing. ■

Engr. Mohd. Fazly bin Mail earned his BSc. in Biological and Agricultural Engineering from the Universiti Putra Malaysia (2006). He is currently a research officer at the Mechanization and Automation Research Centre, MARDI. His research interests focus on agriculture machinery, which includes machine design and development, and mechanization studies.