SARDI Food Sciences
Food Statistical Services

Introduction

The SARDI Food Sciences Research Program provides specialist risk assessment and research capability applicable to all commodities and industry sectors. The Food Statistical Services (FSS) form an integral part of the capabilities within the research program by providing expert statistical knowledge and skills for food related industries.

Experimental design

Experiments are often used to identify and quantify variables that are important for product quality and integrity. Experiments that look at only one variable at a time can be highly inefficient and can lead to misleading results. FSS can design experiments to investigate many variables at a time, while still maintaining the required level of accuracy.

Experiments can also be designed to:
- validate Hazard Analysis Critical Control Points
- validate the effectiveness of process interventions and process control procedures
- validate performance criteria

Analysis of results

Skills include analysing and interpreting microbiological data, sensory scores and the results of surveys in order to draw accurate conclusions from the data. FSS has extensive experience dealing with data arising from many types of experiments and can succinctly and visually depict the results for effective communication to clients, customers and company management.

Sampling plans

Sampling plans and frameworks to detect unacceptable levels of contaminants or non-conformities. Examples of sampling plans include the presence or unacceptable levels of micro-organisms or the presence of disease in food (import/export certification).

Surveillance programs and surveys

Surveillance programs are used by Government agencies to investigate compliance with the Food Standards Code or other legislation. In addition, regulatory authorities use surveys to benchmark industry sectors and products with respect to levels of microbiological and chemical contamination.

It is important to understand the variables of interest and incorporate product pathways and potential sources of variability. Statistical design of such surveys can help achieve aims while minimising costs.

Statistical process control

Statistical process control deals with monitoring processes and using statistics to determine when processes are in control. FSS can design a Statistical Process Control program which identifies process problems, whether physical, chemical or microbiological.
Process and predictive modelling

FSS has experience in modelling and simulating processes/flows in manufacturing and food industry companies, as well as mathematically modelling different inputs and the effect on the output when inputs are varied, informing risk management decisions and cost-benefit analysis.