Proceedings of Training Program on Affordable Production of Baked Food on 6-8 November, 2012

The Agricultural Innovation Partnership (AIP) conducted a training program for baked food processors in association with the Department of Agricultural Engineering & Food Technology, Sardar Vallabhbhai Patel University of Agriculture & Technology (SVPUA&T), Meerut. During the training students, housewives, educated unemployed youths, producers of baked food and entrepreneurs, scientists and scholars from Assam Agricultural University (AAU) and Banaras Hindu University (BHU), Varanasi were trained. They were acquainted with theoretical and practical knowledge on various aspects related to the production of baked food items viz. plant and equipment design for baked food, choice of ingredients, baking technology, bread production, cake and pastry production, biscuit and cookie production, pizza production, food safety regulations, sanitation and hygiene, etc. All the lectures were delivered through PowerPoint presentations and live demonstrations in the bakery laboratory, Department of Agricultural Engineering & Food Technology, SVPUA&T. Brochures on several topics viz. wheat flour management and processing, baking technology, sanitation and hygiene were distributed among the participants in order to enhance their knowledge on the subject and give them a detailed overview of the training program.

Day 1: November 06, 2012

Introduction

Dr. Samsher, Professor, Department of Agricultural Engineering & Food Technology, SVPUA&T, Meerut

Dr. Samsher, Professor and Program Coordinator of the training, welcomed all the participants, resource persons from India and abroad, guests and dignitaries from AIP and introduced the US faculty Dr. Poul M. T. Hansen and Ms. Vivian B. Harvey from the Ohio State University, USA. He also briefed the course objectives and day-wise structure of the training. He informed that students, housewives, educated unemployed youths, baked food processors and entrepreneurs from Meerut/the NCR region had come to benefit from the program. The training was inaugurated by the acting Vice-Chancellor and Registrar, Dr. C. S. Prasad, SVPUA&T, in the presence of Dr. Raghubir Singh (Dean, Agriculture, SVPUA&T); Dr. Anil Sirohi (Dean, Biotechnology, SVPUA&T & Nodal Officer, AIP); Dr. Suresh Damodaran; Mr. Ashok Jha and other dignitaries from Sathguru Management Consultants, faculty members from AAU, BHU and SVPUA&T.

Overview of bakery equipment, their function and utilization

Prof. Samsher

Prof. Samsher gave an overview of laboratory equipment, their specifications, function and utilization. He focused on deck oven, convection oven, proofer, spiral mixer, planetary mixer, bread slicer, dough sheeter, sifter, moulds, egg beater, balance, cooling tray, measuring spoon, bowl knife, grater, pastry wheel, pastry blender, etc. He discussed several different equipment and containers used during food storage, preparation, processing, packaging and serving. He highlighted the fact that these equipment should be made of materials which do not impart toxicity to the food items. He explained the process of dough making and how the dough could be prepared using hand as well as machine. If a machine is used in the process then water, salt, sugar, bread improvers, etc., are added to the bowl first and then flour is added and mixed at low

speed. Later, through fermentation, the dough is developed. He also discussed the significance and role of different machines and apparatus for preparing baked products.

Raw materials and recipes for production for different types of bread

Mr. Asif Ali Abidi, Senior Lecturer, Institute of Hotel Management, Meerut

Mr. Abidi focused on different types of raw materials and recipes for producing bread. He discussed wheat and wheat milling process, physical structure of wheat, composition of flour, and other ingredients for bread making viz. yeast, water, salt, sugar, fat, milk, etc. He explained the difference between hard wheat and soft wheat flour for making baked products. Hard wheat are high in good quality protein, have higher water absorption power (WAP), good mixing and fermentation tolerance and good gas retention power and are excellent for bread making. Soft wheat flour have lower amount of proteins and absorb less water. Such flours are good for cakes, soft dough biscuits and cookies but are unsuitable for bread making. He discussed bread making methods and other related topics like quality of bread, bread faults, bread improvers and recipes for white bread, whole wheat bread, Hi-fiber bread, corn-meal bread, onion bread, etc. Once the raw material for bread making is correctly selected, the formula should be appropriately balanced. Strength of flour type of products to be made, fermentation time, etc., are some of the basic factors that should be taken into account while balancing the formula. Then the raw materials should be weighed accurately for further operations.

Recent advances in pizza production

Dr. Poul M. T. Hansen, Professor Emeritus, Food Science and Technology, Ohio State University, Ohio, USA
Mr. Asif Ali Abidi

Dr. Hansen presented on the recent advances made in pizza production technology. He discussed various ingredients used for pizza base. During the presentation, he also played a video on Mozzarella production. Mozzarella is an Italian cheese variety made from the milk of water buffalo. He explained the production method culture to achieve proper acidification and distributed brochures on Mozzarella string cheese. Mozzarella is the preferred cheese for pizza and with a degree of toughness, so that it can be cut, shred or sliced with ease. Pizza shops consider flavor as well as mutability and flexibility important for customer satisfaction. Generally, these attributes cannot be achieved using other cheese verities. The notable feature in pizza manufacturing is the need to establish a final pH of 5.2 ±0.1 and to stabilize this pH over the period of storage. The finished cheese, white in color, can be presented in different shapes and forms, including ball shapes, blocks, braids, sticks or bundles of string.

Hands-on-training on production of different types of bread

Mr. Asif Ali Abidi
Dr. Poul M. T. Hansen
Ms. Vivian Harvey, Former Assistant Dean, Ohio State University, USA

Mr. Asif Ali Abidi, Dr. Poul Hansen and Ms. Vivian Harvey demonstrated the production of various types of bread viz. hard bread, soft bread, whole wheat bread, maida bread, buns, etc. During hands-on-training, the participants prepared these products.

Day 2: November 07, 2012

Safe and hygienic processes of producing cakes and pastries

Mr. Asif Ali Abidi, **Dr. Poul M. T. Hansen** and **Ms. Vivian Harvey**

Mr. Asif Ali Abidi discussed the ingredients as well as methods for preparing nutritious cakes, their characteristics, balancing formula, faults and their remedies, etc. He also explained various

techniques for preparing different types of pastries viz. short crust pastry, puff pastry, flaky pastry and choux pastry, etc. in the bakery laboratory. He also briefed the participants on the recipes used for producing cheese cake, yeast raised fruit cake, French coffee cake, fruit bar cake, chocolate (bar) cake, date and walnut cake, dessert cake, charismas cake, egg-less cake, etc. He also focused on preparing fillings and toppings for cakes and pastries and briefed the participants on making pies viz. all purpose pie crust, apple crumb pie, walnut pie filling, raisin pie filling etc.

Hands-on-training to prepare pizza
Dr. Poul M.T. Hansen, Ms. Vivian Harvey, Mr. Asif Ali Abidi

Dr. Poul, Ms. Harvey and Mr. Abidi demonstrated the processes involved in manufacturing pizza in the laboratory. The participants received hands-on training on pizza production techniques.

Day 3: November 08, 2012

Biscuit and cookie production
Dr. Poul M. T. Hansen, **Ms. Vivian Harvey**, **Mr. Asif Ali Abidi**

Mr. Asif Ali Abidi made a presentation on how the participants could produce low-cost but hygienic biscuits and cookies. He discussed several recipes used in preparing various types of biscuits and cookies viz. nut square, vanilla buttons, kaju-pista biscuit, orange biscuit, jeera biscuit, pineapple biscuit, coconut biscuit, sweet and salty biscuit, cinnamon biscuit, peanut macaroons, cashew nut macaroons, basic scone mix, tri-color biscuit, nut rings, ice box cookies, sweet apple cookies, peanut cookies, nankhatai coconut cookies, chocolate walnut cookies, chocochip cookies, hi-fibre cookies, almond cookies, chocolate chip biscotti, etc.

Food Safety Regulations
Mr. Chandan Pandey, Designated Officer, Food Safety and Drug Administration Collectorate, Aligarh, Uttar Pradesh, India

Mr. Chandan Pandey discussed the Food Safety and Standards Act. He emphasized the responsibilities of entrepreneurs towards adhering to the food production rules and ensuring food security. He also discussed the procedures for getting a license and registering an industry, ensuring plant sanitation, safety of raw materials and ingredients. He also highlighted packaging/labeling issues and how modern technology could help us manage food security through physical, biological, chemical, Hazard Analysis for Critical Control Point (HACCP) and ISO 22000.

Promoting entrepreneurship and preparing project report
Prof. Samsher

Prof. Samsher delivered a lecture on nurturing entrepreneurship among the participants and preparing project report for a new bakery. He emphasized on various aspects related to market survey required to ascertain the size and scope of the project. For starting a new venture like a bakery unit, some important aspects like population, food habits, purchasing capacity of the people, availability of raw materials, transport and communication facilities, availability of power and fuel, availability of labor force,

number of existing bakeries and their performance, the location of the bakery unit, etc. need to be considered. He also discussed the significant role played by statutory procedures, finance, plant layout, selection of equipment, space requirement of a unit and working capital. He presented a project report for a small retail bakery which included realistic projections for installed capacity of bread and other fermented products, pastry products, cake products and biscuits/cookies.

Hands-on-training on producing scones

Ms. Vivian Harvey

Ms. Harvey discussed the ingredients and methods used for producing scones and conducted a demonstration session on scones production. Some important ingredients that were flour, sugar, baking powder, baking soda, salt, butter frozen, raisins, sour cream and egg. During the hands-on-training, the participants eagerly took part during the entire procedure and mastered the processes.

Certificate distribution

The valedictory function was organized on November 08, 2012 under the chairmanship of Dr. A. K. Bakshi, Vice-Chancellor, SVPUA&T, Meerut. Prof. Samsher presented the summary report of the three days of training program and thanked the Hon'ble Vice-Chancellor for providing the required help and support to organize the training program for baked food producers. He also thanked the speakers, guests, faculty members and participants. The certificates were distributed by the Hon'ble Vice-Chancellor.

Major Outcome of the training program

The training program offered several new insights and opportunities to the participants, who showed keen interest in knowing more on bakery equipment, raw materials and recipes for producing baked products such as bread, cake, pastry, pizza, biscuits, cookies, etc. In addition these, they showed keen interest in several aspects concerning food product management, food safety regulations and entrepreneurship development. During the training program, the participants shared their views and issues freely with the experts and got professional advice on their query. The participants appreciated the mode of delivering lectures through PowerPoint presentations and video display. The laboratory exercises and demonstrations proved quite useful in showing them ways of developing and promoting their own baked food unit. The participants expressed a lot of interest in learning innovative, hygienic and cost-effective ways of producing bread, cake, pastry, pizza, biscuits, cookies, etc., and were also interested in setting-up their own plants to produce baked food items. The training promoted new ideas and knowledge shared by experts from US, which were beneficial to all entrepreneurs and processors for establishing new businesses and producing quality products.