Organizational Structure

Director, NDRI, Karnal

Joint Director (Academics)

BPD Unit

Joint Director (Research)

Dr. Ashish Kumar Singh (CPI)
- Dr. S. K. Tomar
- Dr. Sumit Arora
- Dr. P. N. Raju
- Mr. Sanket Borad

Consultancy
- Dr. P. N. Raju
- Dr. Shaik Abdul

Training and Capacity Building
- Dr. S. K. Tomar
- Dr. Sumit Arora
- Dr. Yogesh Khetra

Business Incubation
- Dr. Gopal Sankhala
- Mr. Sanket Borad
About ICAR-National Dairy Research Institute, Karnal, Haryana

The National Dairy Research Institute as country’s premier Dairy Research institution has developed considerable expertise over the last five decades in different areas of Dairy Production, Processing, Management and Human Resource Development. Information generated at the Institute and the services offered have contributed to the growth of Dairy Industry as a whole and well-being of millions of milk producers and consumers of milk and milk products. Realizing the challenging need of global Dairy Trade, the Institute is continuously working to develop its R&D and HRD programmes to better serve the nation in terms of food security, employment generation, poverty alleviation and economic prosperity.

The National Dairy Research Institute as a Dairy Research Institution undertakes research, teaching and extension activities towards dairy development in the country. Being the National Institute, it conducts basic and applied research with the objective to enhance animal productivity and also to develop cost effective technologies for the benefit of the teeming millions. Further, the Institute provides high quality manpower to meet the human resource requirements for the overall dairy development in the country. The Institute also undertakes extension programmes for transferring the know-how from the laboratory to the farmers’ fields.

GENESIS AND MOTIVE

Agriculture along with animal husbandry has been and will continue to be the lifeline of Indian economy. India is top most producer of milk with an estimated production of 142 MT with an impressive level of processing i.e. 22% in organized sector (2015-16). At an annual growth rate of about 4%, the dairy sector contributes to more than Rs. 1, 00,000 Crores to the GDP of the nation. However, despite significant achievement still adoption of scientific dairy farming and processing have not been able to made inroads especially among small holders. It resulted in quite low milk productivity. Scientific information and technologies generated in the field of animal health & housing management, breeding & feeding practices, by various research organizations have not yet been reached to dairy farmers. This is one of the major missing links, which hinders the milk productivity as well as quality of milk. Importance of Milk and milk products in Indian economy, food safety and nutritional relevance are well known. Milk production is increasing and the scope of dairying as an enterprise has found scientific and economic base. Despite all impressive figures the presence of Indian dairy products in international market is quite negligible, mainly due to their poor quality. Therefore, food safety issues associated with milk and milk products has become a matter of great concern to the industry, regulatory bodies and the consumers. It could only be possible through dissemination of scientific dairy processing technologies, creating awareness among stakeholders regarding the technological developments and food safety measures required to deliver safe foods to consumers.
BPD UNIT, NDRI

Business Planning and Development (BPD) Unit in ICAR-National Dairy Research Institute is established under the aegis of National Agricultural Innovation Project (NAIP) to harness the scientific knowledge and innovation available at the institute for the benefit of farming community, entrepreneurs, students and industry. BPD Unit acts as “nodal point” for stakeholders willing to work with NDRI for the growth and development of Indian dairy sector. We are committed to commercialization of existing technologies and products, evaluation and development of business potential of existing technologies and products, promotion of entrepreneurship in the field of dairying, capacity building of stakeholders and development of linkages among beneficiaries. The unit supports industry as well as entrepreneurs with existing technologies, consultancy and business planning for dairy and food sector.

MISSION

To provide a platform for new entrepreneurs and maximize the potential of untapped NDRI’s research experience and technologies.

To assist the stakeholders in milk value-chain through technological interventions and capacity building.

OBJECTIVES

- Promote dairy & food agribusiness through commercialization of dairy & food technologies to industry and entrepreneurs.
- Provide services on R&D, quality evaluation and marketing for business development and assistance entrepreneurs in setting up dairy farms, food and dairy processing units.
- Impart consultancy and organise capacity building programmes to prospective entrepreneurs and stakeholders.

SINED

Society for Innovation & Entrepreneurship in Dairying (SINED) is registered under society regulation act 1860, hosted by National Dairy Research Institute, Karnal for promotion of entrepreneurship in dairying. The major activity of the society is to administer a Technology Business Incubator which provides support for technology based entrepreneurship in Dairying. Thus, SINED extends the role of NDRI, Karnal by facilitating the conversion of research activity into entrepreneurial ventures.

The SINED gets management support from the Governing Board, which is represented by the NDRI, Karnal faculty members and reputed industrialists, who bring in technological and industrial expertise in directing the activities of Society.

Kindly visit http://www.ndritbi.com/ for any further information regarding SINED and Upcoming training program.
INTRODUCTION TO TRAINING PROGRAMMES

Considering the needs of new entrepreneurs, the vast knowledge and field experiences of the eminent scientists of ICAR-NDRI have been utilized and transformed them into systematic structure in form of various training programmes to percolate the ideas and motivation in the field of Animal Husbandry and Dairy Processing. The training programs are well defined in order to address the queries and requirements in particular fields.

Commercial Dairy Farming

Rationale

There is an increasing concern about the food quality and nutrition. Gone are the days when the food market used to govern by cost and availability. Over last decade, the food consumption pattern is changing and role of milk and milk products in human nutrition has been given great attention in India. The demand for the pure and fresh milk is increasing in the urban area and hence it is attracting the small to medium entrepreneurs to Dairying. Ex-service men, students, IT and other non-agriculture professionals, food processors, farmers, non-agriculture businessmen, etc. have already switched over to Dairying as their main business. The highly qualified scientists from Dairy Production and Animal Husbandry share their scientific knowledge as well as field experience to bring out the Dairy Farming as a successful and profitable venture.

Objectives

- To provide the very basic knowledge about dairy animals and their Breeding, Feeding and Management
- To provide the knowledge about the economic aspects of animal rearing, fodder management and milk production
- Interaction and on-farm visit for the better clarity of the commercial dairy farming

Content

- Important Breeds of dairy suitable for commercial dairy farming
- Economic parameter and project proposal development of commercial dairy farm for sustainability
- Fodder production, preservation and feeding requirements of dairy animals, feed formulations and role of feed additives and supplements
- Utilization of farm waste
- Animal Health Management: Common disease of dairy animals, symptoms, prevention and vaccination
- Housing & shelter management of dairy animals: Designing and construction of shed, milking parlour and layout of dairy farms
- Quality milk production: Aspects of clean milk production handling and transportation of raw milk
• Value addition in milk for enhancement of farm income
• Interaction with dairy equipment industries, commercial dairy farmers and financial institution representatives

**Target Participants:**
This programme is specifically and carefully designed for the personnel who want to start their venture in the field of Dairying based on scientific principles.

**Duration:** 6 days

**Programme Fee:**

**Selection:**
For this training, 20-25 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next training.

**Milk and Milk Products Processing**

**Rationale:**
The processing of raw milk into market milk and other milk products is the latest trend among the farmers and new entrepreneurs. The conversion of milk into milk products increase the profit margin as well as keeping quality. There are number of dairy products available in Indian market, which are very important from nutrition to tradition point of view. The growth of milk products is highest among any other food products. The probiotic and functional foods are the revolutionary in the field of food sector. The highly qualified scientists from Dairy Processing divisions of ICAR-NDRI share their scientific knowledge as well as processing plant experience to bring out the Dairy Processing as a successful and profitable venture.

**Objective:**
• To provide the basic knowledge and hands-on-experience about the milk testing and processing it to manufacture of most common dairy products

**Content:**
• Chemical quality analysis of milk
• Detection of adulterants and preservatives in milk and brief about Food Safety and Regulation Act
• Microbiological quality analysis of milk and milk products
• Market Milk
• Technologies of Fat Rich Dairy Products
• Technology of Mozzarella cheese
• Technologies of Khoa and Khoa based sweets
• Technologies of Fermented milks
• Maintenance and propagation of starter culture
• Technology of Paneer and Chhana
• Technologies of Ice Cream and Frozen Desserts
• Technologies of Dairy By-Products
• Technology of Whey Based Beverages and Soups
• Packaging and Labelling of Dairy Products
• Cleaning, Sanitation and Hygiene Maintenance of Dairy Processing Equipment
• Entrepreneurship opportunities in Milk Processing
• Utility Management at Dairy Plant

**Target Participants:**

This programme is specifically and carefully designed for the personnel who want to start their venture in the field of processing of milk and manufacturing of milk products based on scientific principles.

**Duration:** 6 days

**Programme Fee:**

**Selection:**

For this training, 12-15 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next training.

**Technology of Cheese Making**

**Rationale:**

With changing the food habits and introduction of western foods as well as fast foods in Indian market, Cheese market is enjoying the greatest growth rate (roughly 15 % annually) among all dairy products. Most cheeses are consumed as a part of fast foods like pizza, cheese burger. Cheese being high valued dairy product, processing of milk for cheese making has the potential to be a profitable business opportunity for dairy entrepreneurs in India. With liberalization, consumer acceptance has also been increased in India, with accelerated growth of Cheeses that suit to Indian palate. The Indian organized cheese market is presently valued at around Rs. 4.5 billion. The dairy industry has propelled for the commercial production of cheeses, however, there exists a great scope for the production of high value exotic fresh/green/raw cheeses.

**Objective:**

• To sensitize the entrepreneur for production of high valued cheeses and exploring the Indian Cheese Market
Content:
- Basic aspects of Cheese making
- Cheddar Cheese making
- Ricotta Cheese making
- Mozzarella Cheese making
- Gouda Cheese making
- Feta Cheese making
- Cottage Cheese making
- Processed Cheese making
- Processed Cheese Spread making
- Mascarpone cheese making

Target Participants:
This programme is specifically and carefully designed for those entrepreneurs, who have availability of fresh and good quality raw cow, buffalo, goat or any of them; and want to target the higher income group people.

Duration: 6 days

Programme Fee:

Selection:
For this training, maximum 15 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next training.

Starter cultures and Fermented Milk Products

Rationale:
Dairy starter cultures are carefully selected groups of microorganisms intentionally added to milk and milk products to bring about desirable fermentations. In other word, they are said to be the heart of fermentation. Starter cultures are widely used in the manufacture of various fermented milk products like Dahi, Lassi, yoghurt, cultured buttermilk etc. The successful manufacture of these fermented milk products relies upon careful and judicious selection of starter cultures, propagation and maintenance. In order to produce superior quality fermented milk products, it is inevitable to use high quality starter cultures. At the same time handling, maintenance and preservation of these microbes are also important. Over the decades, the demand for fermented milk product in India is increased remarkably. Several small dairy industries and entrepreneurs have started manufacturing indigenous fermented milk product as a profitable venture. Thus, course content is designed in such a way for imparting the knowledge of proper handling of starter cultures for preparation good quality fermented dairy products.
Considering the needs of new entrepreneurs, the vast knowledge and field experiences of the eminent scientists of ICAR-NDRI have been utilized and transformed them into systematic structure in the form of various training programmes to percolate the ideas and motivation in the field of Animal Husbandry and Dairy Processing. The training program is well defined in order to address the queries and requirements in particular fields.

**Objective:**

To provide basic knowledge and hands on training about dairy starter cultures (preparation, propagation, preservation and quality evaluation) and manufacture of fresh fermented milk products.

**Target Participants:**

This programme is mainly designed for the personnel who are engaged in manufacture of fermented milk products like Dahi, yoghurt, Shrikhand, Lassi, cultured butter milk etc. It is also suitable for small dairy manufacturers and entrepreneurs, those who are interested to develop their expertise in handling of dairy starters.

**Duration: 6 Days (10-15 July 2017)**

**Programme Fee:**

**Selection:***

12-15 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next batch of training depending on the number of participants.

**Practical Training on Commercial Dairy Farming**

**Rationale:**

The personnel associated with dairy farming lack scientific knowledge as well as skill in this particular field. There are plenty of commercial farms across the country but there is a huge gap between theoretical aspects and practical skills for management of dairy animals. This programme is complimentary to the Training Programme of Commercial Dairy Farming, where participants are exposed to the diverse Livestock Research Centre of ICAR-NDRI for all the practical purposes.

**Objective:**

- To impart the hands-on-practical experience on the scientific dairy farming to entrepreneurs already in the business of dairy farming.

**Content:**

- Identification of breeds
- Characteristics of good quality dairy animals
• Management of calves heifers and latching animals
• Exposure to AI technique
• Clean milk production practices
• Preparation of silage
• Familiarization with symptoms of animal diseases
• Preventive measures to minimize the outbreak of contagious diseases

**Target Participants:**

This programme is exclusively for the personnel, who have already their operating venture in dairy farming based on scientific principles.

**Duration:** 10 Days

**Program Fee:** Rs. 15,000/-

**Selection:**

For this training, maximum 15 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next training.

**Laboratory Techniques for a Frozen Semen Lab**

**Rationale:**

With increasing scientific commercial dairy farming in the country, there is a huge demand for the high quality frozen semen from every corner of the country. This field has generated urgent need for the highly skilled lab technician that can handle the semen throughout processing, storage and distribution. The vast experience of scientists of ICAR-NDRI has been employed to train lab technician for handling of semen at various stages and ultimately to provide quality product to the dairy farmers.

**Objective:**

• To train the lab technician for the management of frozen semen

**Target Participants:**

This programme is exclusively for the lab technician, who deal with semen from dairy animals.

**Duration:** 6 Days

**Program Fee:** Rs. 15,000/-

**Selection:**

For this training, maximum 15 participants will be selected at a time, based on date of registration. First Come First Serve will be the selection criteria. However, remaining persons will be invited for the next training.
Packaging and Labelling of Dairy and Food Products

Rationale:
Food products contain are highly perishable commodities and hence, there is an obvious need to preserve them. Food packaging like any other packaging is an external means of preservation of food during storage, transportation and distribution. Hence, it forms an integral part of the product manufacturing process. Food packaging performs four major disparate functions namely containment, protection, communication and convenience. In pursuit of achieving these functions, many materials have been discovered by man for use as food packaging materials. However, the physical, biochemical and techno-functional properties of different dairy and food products vary and as such require different packaging interventions to preserve and extend their shelf life. Hence, a packaging material or its form has to be judiciously chosen depending upon the nature of the product, availability, machinability, cost, etc. Further, as our food supply stems from diverse sources from across the world, there is a need for safe and secure management system(s) along the entire food supply chain. This is especially true and becomes dire necessity for perishable food products. Packaging has a significant role in the food supply chain and is an integral part both of the food processes and the whole food supply chain. In order to improve the performance of food packaging in meeting varied demands of stake holders in the entire supply chain, many new “extra” functions have been introduced in packaging technologies to make it active. In this direction new and innovative packaging technologies such as modified and controlled atmosphere packaging, active, intelligent, antimicrobial and biodegradable packaging technologies are being developed, tested and optimized around the world.

Objective:
To provide hands-on-training in testing and characterization of different packaging materials and applying emerging packaging technologies to extend the shelf life of dairy and food products.

Target Participants:
This programme is mainly designed for the B.Sc. / B.Tech. / M.Sc. / M.Tech. / Ph.D. students of different Indian universities preferably with Dairy Technology / Food Science / Food Technology or allied disciplines who are interested in understanding the concepts of packaging of dairy and food products and get exposed to hands-on training on modified atmosphere packaging, edible films and coatings, intelligent packaging systems and biodegradable packaging.

Duration: 5 Days

Selection:
About 15-25 participants will be selected at a time, based on date of registration. First come first serve will be the selection criteria. However, remaining persons will be invited for the next batch of training depending on the number of participants.
Entrepreneurship Awareness Camp

Rationale:
With a view to expose students of academic institutions, offering degree/diploma courses in Science and Technology, to entrepreneurship as an alternative career, Entrepreneurship Awareness Camps (EACs) are conducted. Camp, of 3 days duration, is conducted in the premises of ICAR_NDRI, Karnal and aims at creating awareness among students about various facets of entrepreneurship while highlighting the merits of pursuing such a career option. In EAC, students are exposed to different aspects of entrepreneurship, including opportunity guidance, services offered by agencies of support system etc. The first generation entrepreneur is invited to interact with students and share his/her valuable experience.

Objective:
To create awareness among students of Engineering and Science courses about various facets of entrepreneurship as an alternative career option.

Target Participants:
Science and Technology graduates/diploma holders or those who are doing their final year diploma/degree in engineering/technology/science/agriculture & allied sciences. The ID card of the college is must for registration. Training fee of Rs. 500/- will be charged per student in form of demand draft.

Duration: 3 days

Selection: Maximum 100 participants will be selected at a time, based on date of registration. First come first serve will be the selection criteria. However, remaining persons will be invited for the next batch of training depending on the number of participants.

Training Calendar from April 2017 to March 2018

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Training Programme</th>
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<tbody>
<tr>
<td>January</td>
<td>30-01-17 to 08-02-17</td>
<td>Advanced Commercial Dairy Farming</td>
</tr>
<tr>
<td>February</td>
<td>20-00-17 to 01-03-17</td>
<td>Milk and Milk Products Processing</td>
</tr>
<tr>
<td>March</td>
<td>14-03-17 to 23-03-17</td>
<td>Cheese</td>
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<td>20-03-17 to 25-03-17</td>
<td>Commercial Dairy Farming</td>
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<tr>
<td>April</td>
<td>05-04-17 to 07-04-17</td>
<td>Entrepreneurship Awareness Camp for students</td>
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<td></td>
<td>17-04-17 to 22-04-17</td>
<td>Commercial Dairy Farming</td>
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<tr>
<td></td>
<td>24-04-17 to 29-04-17</td>
<td>Quality Assurance in Dairy Industry</td>
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<tr>
<td>May</td>
<td>01-05-17 to 06-05-17</td>
<td>Ice cream, Frozen Dessert and Beverages</td>
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<td></td>
<td>22-05-17 to 27-05-17</td>
<td>Commercial Dairy Farming</td>
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<tr>
<td>June</td>
<td>26-06-17 to 25-07-17</td>
<td>Student training for dairy and food processing</td>
</tr>
<tr>
<td>Month</td>
<td>Date Range</td>
<td>Programme Details</td>
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<tr>
<td>July</td>
<td>03-07-17 to 07-07-17</td>
<td>Packaging of Dairy and Food Products</td>
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<td>03-07-17 to 12-07-17</td>
<td>Advanced Commercial Dairy Farming</td>
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<tr>
<td></td>
<td>10-07-17 to 15-07-17</td>
<td>Starter cultures and fermented milks</td>
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<td>17-07-17 to 22-07-17</td>
<td>Commercial Dairy Farming</td>
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<td>October</td>
<td>03-10-17 to 12-10-17</td>
<td>Milk and Milk Products Processing</td>
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<td>November</td>
<td>13-11-17 to 18-11-17</td>
<td>Commercial Dairy Farming</td>
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<td></td>
<td>20-11-17 to 25-11-17</td>
<td>Advances in Animal Reproduction for Govt. official</td>
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<tr>
<td>December</td>
<td>18-12-17 to 23-12-17</td>
<td>Commercial Dairy Farming</td>
</tr>
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</table>

**Customized Training Programme Available as per the Need of Stakeholders**
- Technology of Milk Products
- Chemical and Microbiological Quality Assurance in Dairy and Food Industry
- Technology of Bakery Products

**EDPs Conducted during Jan. 2010- Jan. 2017**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Nature of EDP</th>
<th>No. of batches</th>
<th>No. of Participants</th>
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<td>Commercial Dairy Farming</td>
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<td>913</td>
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<td>2</td>
<td>Milk and Milk Products Processing</td>
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<td>3</td>
<td>Specialized Training for State Govt. Officials</td>
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<td>4</td>
<td>Other</td>
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<td><strong>Total</strong></td>
<td></td>
<td><strong>90</strong></td>
<td><strong>1591</strong></td>
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</tbody>
</table>
SUCCESS STORIES

Agati Healthcare Pvt. Ltd.

Agati Healthcare Pvt Ltd, is an emerging global Nutraceutical company with an objective of providing effective high quality and innovative Nutraceutical products. The Company is headquartered at Mumbai. It provides babies with a potent dose of the mother’s antibodies through “first milk” or colostrum. Immunoglobulin G (IgG). The immune-stimulating component in colostrum stimulates the immune system against potentially harmful bacteria and provides immune benefits at any age. They use, proprietary process to produce Colostrum with a concentration of IgG more than 35%.

Vikrant Pawa Enterprises

Vikrant Pawa Enterprises is an organisation powered by its proprietor Mr. Vikrant Pawa. This organisation is based in Bijna village, Karnal, Haryana. The organisation is into the business of dairy farming and marketing Mozzarella Cheese under the brand “Annora Mozzarella Cheese”. This cheese is being used in restaurants in Delhi NCR in pizzas, Panini, sandwich, salads, garlic breads and so on.

Shri Shivani Agro Pvt Ltd

Mr. Gupta completed his BBA from Amity University, Lucknow in 2008 and he decided there and then, seeing the growing scope of Food Industry that he was going to set up a food business. It was through words of mouth that he got to know about Food Technology Laboratory in NDRI, Karnal. He then contacted Dr. A.K. Singh, his mentor and the journey began therein. He started his work in biscuits and extruded snacks and thereby expanded his knowledge horizon. On knowing about commercialization of institute technology, he learnt about Iron fortified biscuit technology and how minor cereal could be utilized. He purchased the technology and worked various successful pilot scale studies on Iron-Fortified Bajra-based biscuits, at Karnal and Indore. Currently, he is aiming at starting his food venture in the first quarter of the calendar year 2014.

Veerdeepika Pvt Ltd.

Veerdeepika is a South Delhi Based Company powered by two female entrepreneurs Mrs. Veerpal Kaur & Mrs. Deepika Paudiyal. Company is into the technical collaboration with TBI, BPD Unit, NDRI, Karnal & is in the business of Pure Milk. This packed milk is being sold in the societies of South Delhi. Their idea is to supply pure milk in Delhi and then after expand their business and enter into the market with their dairy products.

Anmol Mahila Dudh Samiti, Amritpur Kalan (Self-Help Group)

A dairy processing unit has been established at Amritpur Kalan village of Karnal District. The unit is run by a Self-Help Group (SHG) consisting of 14 women mainly from resource poor families and earned Rs. 14000/ per month as profit per person by selling their
products. Another unit also run by women self-help-group members is also initiated in Taprana village and each member is earning Rs. 6500/- per month. With the efforts of BPD unit and Arpana Trust and Charities, madhuban, an NGO the group were provided small scale state-of-the-art processing and packaging machinery.

Mishti Farmers Producer Co. Ltd, Nagla Rodan, Karnal

**Description**: BPD Unit, NDRI licensed BajraLassi, Whey Jaljeera Drink and Whey Mango technologies to Mishti Farmers Producer Co. Ltd. BPD Unit, NDRI has supported farmers by transferring latest available dairy technologies & achieved intended solutions for social impact. BPD Unit, NDRI has also extended its support to continuously educate them with series of interactions with mentors & developing business acumen in order to compete with intangible market forces. Company has generated asserts amounting to Rs. 25 Lakh and reached a monthly turnover of Rs. 20.00 Lakh within a span of 2 years. Unit has also assisted company in mobilizing the funds worth Rs. 40.00 Lakh from bank.
Somras Nutrifoods Pvt. Ltd. Rajkot (Gujarat)

Description:

Through Business Planning and Development Unit of ICAR-NDRI, Technology Business Incubation facilities and guidance by mentors, an enthusiastic entrepreneur Mr. Mohak Kabaria (Mechanical engineer by education) from Gujarat started his venture in the RTS beverages containing whey proteins. The whey protein fortified natural fruit based beverages were developed with 3 different flavours namely Lemon, Imli (Tamarind) and Jaljeera (spices mixture used to address digestion problems – very much acceptable traditional drink by Indians). The product is available in the PET bottle having 250 mL volume and packaging material explaining the health benefits. Project proposal submitted by Mohak amounting Rs. 10.00 Lakh to Guajarat Technology Business Incubator is granted.

Name: Milky Joy, Yamunanagar

Incubatee: In-house

Mr. Ishan Ahuja, with a doctorate in Computer Science started the company after serving in Software Sector to launch his own range of frozen desserts and started working in ABI unit through training. Under the technical guidance of mentors, he has developed number of formulations related to milk-fruit, milk-nut and milk-bakery based natural kulfi in 20 variants. Launched his product in April, 2015 and at present having presence in 4 cities of Haryana.
PRODUCT TECHNOLOGIES AVAILABLE FOR COMMERCIALIZATION

1. Nutrimix
2. Whey Jaljeera Drink
3. Bajra Lassi
4. Milk Protein-Enriched Bajra Snacks
5. Whey-Skim Milk-Millet Based Complementary Food
6. Technology for Preparation of Improved Textured Dahi
7. Milk Protein-Enriched Iron Fortified Bajra Biscuit
8. Technology for Preparation of Shelf Stable, Nutritionally Rich Smoothies using Dairy and Non-Dairy Ingredients
9. Low-Calorie and Fiber Fortified Misti Dahi
10. Technology for the Manufacture of Aloe Vera Supplemented Probiotic Lassi
11. Ready-To-Reconstitute Kheer Mix
12. Ready-To-Reconstitute Rasmalai Mix
13. Ready-To-Reconstitute Basundi Mix
14. Long-Life Milk-Cake
15. Extended Shelf Life Functional Paneer
16. Low Fat Oven Baked Gulabjamun
17. Arjuna Herbal Ghee
18. Functional Quarg Cheese
19. Technology for Manufacture of Feta Cheese from Cow/ Buffalo Milk
20. Technology of a Functional Milk Drink
21. Technology of Reduced Fat Channa Based Dairy Spread
22. Technology of Bhapra Dahi
23. Technology of Low Sodium Processed Mozzarella Cheese
25. A New Strip Based Tests for Detection of Neutralizers in Milk
26. A New Strip Based Tests for Detection of Urea in Milk
27. Strip Based Test for Detection of Glucose in Milk
28. Strip Based Test for Detection of Hydrogen Peroxide in Milk
29. Strip Based Test for Detection of Maltodextrin in Milk
30. A Strip Based Test for Detection of Sucrose in Milk
31. A New Rapid Test for Detection of Detergent in Milk
32. Two Stage Enzyme Based Assay For Detection of L. Monocytogenes in Milk
33. Two Stage Enzyme Assay for Detection of Enterococci in Milk and Milk Products
34. Spore Based Kit for Detection of Antibiotic Residues in Milk at Dairy Farm
35. Rapid Test for Detection of E. Coli in Milk
36. Rapid Test for Detection of Coliforms in Milk
37. Paper Strip Assay for Rapid Detection of Pesticide Residues
38. Technology of Preparation of a Reduced Calorie Naturally Carbonated Sweetened Fermented Dairy Beverage
39. Strawberry Whey Drink
40. Health Promoting Soy Yoghurt
41. Lactose Free Soy Dahi
42. Probiotic Whey Drink with Anti-Diarrhoeal Activity
43. Curcumin Soy Whey Drink
44. Biofunctional Fruit Yoghurt
45. Misti Doi with Fast Acidifying High Sugar Tolerating Lactic Culture(S)
46. Cost Effective Food Grade Medium for Lactobacillus Sp.
47. Direct Product Probiotic (Dpp) Formulation of Lactobacillus Culture
48. Whey Based Medium for Lactic Acid Bacteria
49. Bioprocess for Direct Vat Set (Dvs) Misti Dahi Culture
50. Exopolysaccharides Producing Lactic Cultures for Preparation of Low-Fat Lassi
51. Exopolysaccharides Producing Lactic Culture for Preparation of Low-Fat Dahi
52. Total Mixed Rations
53. Manufacturing Process for Feed Blocks
54. Area Specific Mineral Mixture for Dairy Animals
55. Degure Mixture for the Treatment of Degnala Disease
56. DNA Based Method for Differentiation of Cow & Buffalo Butter / Ghee
57. DNA Based Method for Differentiation of Cow, Buffalo, Sheep, Goat and Camel Milk
58. DNA Based Method for Differentiation of Cow, Buffalo, Sheep, Goat and Pig Meat
59. Buffalo Mammary Epithelial Cell Line (BUMEC_ND1)

Contact: Chairman, Consultancy cell, ICAR-National Dairy Research Institute, Karnal
### Dairy Farming

<table>
<thead>
<tr>
<th>Field of Specialization</th>
<th>Mentors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal selection and Genetic Improvement</td>
<td>Dr. A.K. Chakravarty, Dr. Avtar Singh, Dr. P. K. Singh</td>
</tr>
<tr>
<td>Promotion of Indigenous Breed</td>
<td>Dr. D. K. Sadana</td>
</tr>
<tr>
<td>Set up of Commercial Dairy Farm Nutritional Management of animals</td>
<td>Dr. P. S. Oberoi, Dr. M.L. Kamboj, Dr. S.S. Lathwal</td>
</tr>
<tr>
<td>Semen Processing, Artificial Insemination Goat Farming</td>
<td>Dr. Pawan Singh, Dr. Mukesh Bhakat</td>
</tr>
<tr>
<td>Farm, Animal and Waste Management</td>
<td>Dr. T.K. Mohanty, Dr. S.S. Lathwal</td>
</tr>
<tr>
<td>Reproductive Disorder, Animal Health Management</td>
<td>Dr. A.Kumaresan, Dr. T.K.Mohanty, Dr. Nishant Kumar, Dr. Rubina</td>
</tr>
<tr>
<td>Climate Change</td>
<td>Dr. Sohanvir Singh</td>
</tr>
<tr>
<td>Nutritional Management</td>
<td>Dr. S.S. Kundu, Dr. Chander Dutt, Dr. (Smt.) Veena Mani</td>
</tr>
<tr>
<td>Balancing of Animal Ration</td>
<td>Dr. A. K. Tyagi, Dr. Nitin Tyagi</td>
</tr>
<tr>
<td>Fodder Management, Silage and Fodder Preservation</td>
<td>Dr. Rakesh Kumar, Dr. Magan Singh</td>
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</table>

### Dairy Processing

<table>
<thead>
<tr>
<th>Field of Specialization</th>
<th>Mentors</th>
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<tbody>
<tr>
<td>Market Milk and Fermented Milks</td>
<td>Dr. Latha Sabikhi</td>
</tr>
<tr>
<td>Cheese</td>
<td>Dr. S. K. Kanawjia, Dr. Yogesh Khetra</td>
</tr>
<tr>
<td>Ice cream</td>
<td>Dr. Yogesh Khetra, Dr. Shaik Abdul</td>
</tr>
<tr>
<td>Khoa and Khoa based sweets</td>
<td>Mr. Writdhama Prasad</td>
</tr>
<tr>
<td>Fat Rich Dairy Products</td>
<td>Dr. Neelam Upadhyay</td>
</tr>
<tr>
<td>Chhana based sweets and other Indian Dairy Product</td>
<td>Dr. Kaushik Khamrui</td>
</tr>
<tr>
<td>Packaging of Dairy and Food Products</td>
<td>Dr. P. N. Raju</td>
</tr>
<tr>
<td>Whey utilization, Health Foods, Formulated Foods</td>
<td>Dr. A. K. Singh</td>
</tr>
<tr>
<td>Cleaning and Sanitization in Dairy</td>
<td>Dr. G. S. Meena</td>
</tr>
<tr>
<td>Starter Cultures and Fermentation</td>
<td>Dr. S. K. Tomar</td>
</tr>
<tr>
<td>Quality Assurance in Dairy</td>
<td>Dr. Rajan Sharma, Dr. Raghu H.V.</td>
</tr>
<tr>
<td>Dairy Engineering Services</td>
<td>Dr. S. P. Agrawala, Dr. P. S. Minz, Dr. I. K. Sawhney</td>
</tr>
</tbody>
</table>
Reading materials specifically prepared for the training will be provided in hard copy to all the participants.

On successful completion of training, participants will be awarded with the Certificate.

Since the scientific staff of ICAR-NDRI, Karnal are involved in multiple activities, training programs may be rescheduled as per the availability of all the required resources. Therefore, interested participants are requested to receive confirmation call from the organizing committee of BPD Unit & SINED before participating any training. BPD Unit & SINED are not liable for arrival of trainee without prior permission.

The training program will start from 9:30 AM and will end at 5:00 PM. All trainee are requested to plan their journey accordingly.

We accept payment of Fee only by Demand Draft in favour of Society for Innovations and Entrepreneurship in Dairying (SINED), NDRI, Karnal. The participants are request to generate the Demand Draft for the Fee of particular training only after confirmation from the Training Co-ordinator.

In case of Specialized/Tailored training as per the wish of industry/entrepreneurs, kindly contact the In-charge, BPD Unit & SINED, ICAR-NDRI, Karnal.