

Proceedings of  
Skill Development Training  
For Dairy Farmers on

“ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ”  
“Mechanization in Dairy Farm Management”



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(CAAST), NAHEP, Navsari Agricultural University, Navsari  
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- Design & Art:** Mr. Shivam B. Patel, Dr. Abhijit D. Chaudhary and Mr. Bhavin B. Patel, CAAST Secretariat, Directorate of Research, University Bhavan, NAU, Navsari-396450, Gujarat.



## Acknowledgement

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## Proceedings of Skill Development Training for Dairy Farmers on “Mechanization in Dairy Farm Management”

**Date of Training:** 22-24 March, 2021

**Venue –** ASPEE Agribusiness Management Institute, NAU, Navsari

### **Programme Elucidation :**

A Centre for Advanced Agricultural Science and Technology (CAAST) is a new initiative and student centric sub-component of “National Agricultural Higher Education Project (NAHEP)” implemented by Indian Council of Agricultural Research and funded by Government of India as well as World Bank. The Navsari Agricultural University, Navsari, Gujarat bagged a CAAST project entitled “Establishment of Secondary Agriculture Unit for skill development in Students and Farmers” on competitive basis during 2017-18. Under this Project a Three Days On-Campus Skill Development Training for Dairy Farmer's on “**Mechanization in Dairy Farm Management-ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ**” was organised by Unit-3 (Establishment of Small Scale Climate Resilient Dairy Unit), NAHEP-CAAST sub-project, NAU, Navsari.

### **Introduction :**

The inaugural session was chaired by Dr. Z. P. Patel, Hon'ble, Vice-Chancellor, Navsari Agricultural University. Further, Dr. T. R. Ahlawat, PI & Nodal Officer, NAHEP-CAAST sub-project, NAU, Navsari; Dr. Ruchira Shukla, Principal, AABMI, NAU, Navsari; Dr. N. B. Patel, Research Scientist and Co-PI Unit-3, LRS, NAU, Navsari; Dr. Swati Gupta, Co-PI Unit-3, Dept. of LPT, VCVS & AH, NAU, Navsari and Dr. V. R. Patel, Dept. of Animal Nutrition, VCVS & AH, NAU, Navsari were also present on the dais. The programme was launched with lighting of lamp by dignitaries on the dais followed by floral welcome. Dr. Timur Ahlawat welcomed all the dignitaries, farmers and resource persons to the programme. He briefed the participants about the NAHEP-CAAST project, its activities and achievements. Dr. V. R. Patel emphasized the importance of dairy farming and its potential benefits to farmers. During the inaugural session, a book entitled “**ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ- Mechanization in Dairy Farm Management**” depicting the various aspects of scientific dairy farming was released by the dignitaries. Dr. Z. P. Patel, Hon'ble, Vice Chancellor, NAU, Navsari encouraged the participants to adopt mechanization in dairy farming for improving the consistency and convenience in milking. He emphasized that mechanization would not only make life easier for dairy farmers by reducing drudgery and labour but would also improve the quality of their milk. The inaugural session ended with a Vote of Thanks by Dr. N. B. Patel.

## Glimpses of Inaugural Session in Skill Development Training





## Concept:

Dairying has become an important secondary source of income for millions of rural families and has assumed an important role in providing employment and creating income generating opportunities particularly for marginal farmers. Small, marginal dairy farmers and landless labours are the major milk producers in India. Of the total milk production in India, about 48 % milk is either consumed at the producer level or sold to non-producers in the rural area. The balance 52 % of the milk is marketable surplus available for sale to consumers in urban areas. The yielding capacity of animals is very poor due to poor breeding, feeding and management. Mechanization in dairy farm was introduced in early 80's in India and now well adapted by the dairy farming community all over. Milking machines are visible in remote villages of many states like Punjab, Gujarat *etc.* Mechanization enables the farmers to scale up their farming, reduce costs as well as increase farm income. Improving milk quality and adding value to it would help them increase their market share.

It was therefore felt important to train dairy farmers in the modernization and mechanization of dairy farming so that they can avail the benefits of technological advances made in this regard.

## Objectives:

To improve the knowledge and skills of dairy farmers on below mentioned aspects

- ✦ **Modernization and Mechanization in Dairy Farm Management**
- ✦ **Dairy Waste Management**
- ✦ **Clean Milk Production Practices**
- ✦ **Adding Value to Milk and Dairy Products**

## About the Training:

This three-days skill development training was attended by 42 farmers of South Gujarat particularly from Navsari district and status of participants with regard to Gender and Social Inclusion is given in **Annexure 1**.



Programme Schedule (કાર્યક્રમની સમય સારણી)		
Three Days Skill Development Training for Dairy Farmers on “Mechanization in Dairy Farm Management” (ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ અંગેનું ત્રણ દિવસીય કૌશલ્ય વિકાસ તાલીમ કાર્યક્રમ)		
Time (hrs.)	Session	Speaker
22/03/2021 (Day-1)		
09:00 to 09:30	Registration of Farmers (જેઠૂત રજિસ્ટ્રેશન)	-
09:30 to 10:15	Inauguration of Training Programme (તાલીમ વર્ગનું ઉદ્ઘાટન)	-
10:15 to 10:30	Pre-Evaluation Test for Training (પુર્વ તાલીમ મુલ્યાંકન)	-
10:30 to 11:30	Modernization in Animal Housing and Its Importance (પશુ રહેઠાણમાં આધુનિકતા અને તેનું મહત્વ)	Dr. Rakesh Modi
11:30 to 11:40	Break-Fast	
11:40 to 12:40	Use of Latest Technology in Animal Feed Management (પશુઆહાર વ્યવસ્થામાં નવિનતમ તાંત્રિકતાનો ઉપયોગ)	Dr. V. R. Patel
12:40 to 02:00	Lunch Break	
02:00 to 04:00	Scientific Technique Involved in Calf Rearing (વાછરડીઓ/પાડીઓનો વૈજ્ઞાનિક ઉછેર)	Dr. K. N. Wadhwani
23/03/2021 (Day-2)		
09:30 to 10:30	Estrous Detection Techniques in Dairy Animals (દૂધાળા પશુઓમાં ઋતુકાળ નિદાન પદ્ધતિઓ)	Dr. Tarun Sutariya
10:30 to 11:30	Latest Techniques for Clean Milk Production (સ્વચ્છ દૂધ ઉત્પાદન માટેની નવીનતમ તકનીકીઓ)	Dr. G. P. Sabapara
11:30 to 11:45	Break-Fast	
11:45 to 12:45	Modern Methods for Solid Waste Management in Dairy Farms (ડેરી ફાર્મના ઘન કચરાના નિકાલ માટેની આધુનિક પદ્ધતિઓ)	Dr. L. M. Sorathiya
12:45 to 02:00	Lunch Break	
02:00 to 04:00	<b>Practical :</b> Methods for Silage Preparation from Green Fodder (લીલા ઘાસચારાનું સાચલેજ બનાવવાની રીત)	Dr. N. B. Patel
24/03/2021 (Day-3)		
09:30 to 10:30	Mechanization in Milk Byproduct Preparation (દૂધની બનાવટો બનાવવાનું યાંત્રિકીકરણ)	Dr. Suneeta Pinto
10:30 to 10:40	Break-Fast	
10:40 to 11:40	Value addition in Milk (દૂધનું મુલ્યવર્ધન)	Dr. Swati Gupta
11:40 to 12:00	Post Evaluation Test (તાલીમ પૂર્ણ થયેલી મૂલ્યાંકન)	-
12:00 to 01:00	Lunch Break	
01:00 to 05:00	Exposure Visit(શૈક્ષણિક પ્રવાસ): Bhestan Dairy Farm	-

**Core Session 1 (Virtual) :** Following the Vote of Thanks, Technical Sessions Started with a Lecture on:

**Title : Modernization in Animal Housing and Its Importance**  
(પશુ રહેઠાણમાં આધુનિકતા અને તેનું મહત્વ)

**Expert : Dr. Rakesh Modi,** Assistant Professor, Dept. of LPM, Veterinary College, AAU, Anand

Dr. Rakesh Modi explained the importance of mechanization in dairy farms and its advantages. He also explained in detail about the advantages of milking parlour, chaff cutters, ripper, scraper etc. in farms. He provided proper guidelines on farm management for profitable dairy business.



### **Core Session 2:**

**Title : Use of Latest Technology in Animal Feed Management**  
(પશુઆહાર વ્યવસ્થામાં નવિનતમ તાંત્રિકતાનો ઉપયોગ)

**Expert : Dr. V. R. Patel,** Assistant Professor, Dept. of AN, Veterinary College, NAU, Navsari

Dr. V. R. Patel provided valuable information on by-pass protein, by pass fat, by pass starch, total mixed ration, complete feed block, fodder block chelated mineral mixture, silage, precision feeding technology, nano- technology involved in animal nutrition, balanced and mixed ration. He explained various techniques



used for making different types of ration in animal nutrition. He also imparted guidelines on animal feeding management, importance of nutrition in production and reproduction to dairy farmers.

### Core Session 3 (Virtual):

**Title : Scientific Technique Involved in Calf Rearing**  
(વાછરડીઓ/પાડીઓનો વૈજ્ઞાનિક ઉછેર)

**Expert : Dr. K. N. Wadhwani**, Research Scientist and Head, LRS, AAU, Anand

Dr. Wadhwani emphasized the scientific rearing of calves. He also discussed the improper practices followed by dairy farmers, their economic losses, its adverse impact on growth of calves and future production. He sensitized participants about feeding management on scientific basis for profitable dairy farming.



### Technical Session (DAY-2):

**Date : 23/03/2021**

### Core Session 4 (Virtual):

**Title : Estrous Detection Techniques in Dairy animals**  
(દૂધાળા પશુઓમાં ઋતુકાળ નિદાન પ્રદ્ધતિઓ)

**Expert : Dr. Tarun Sutariya**, Assistant Professor, Dept. of Gynecology, SDAU, Sardarkrushinagar

Dr. Tarun Sutariya explained the estrous cycle, methods to identify estrous animals including sign of estrous behavior and different technologies involved in identification of estrous animals. He explained the importance of record keeping and various methods that help in scientific management of breeding farm animals.

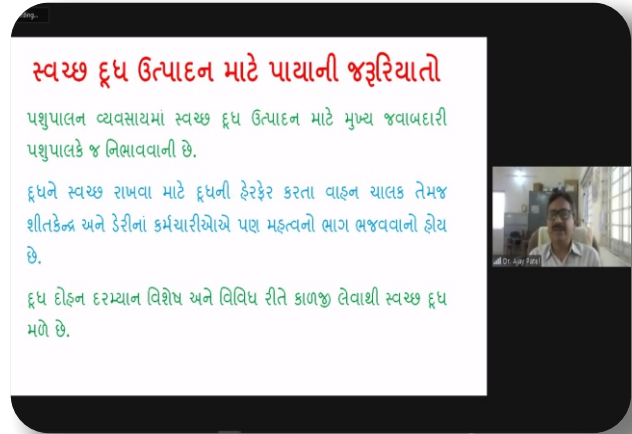


### Core Session 5 (Virtual) :

**Title : Latest Techniques for Clean Milk Production**  
(સ્વચ્છ દૂધ ઉત્પાદન માટેની નવીનતમ તકનીકીઓ)

**Expert : Dr. G. P. Sabapara**, Associate Professor and Head, Dept. of LPM, JAU, Junagadh

Dr. G. B. Sabapara elaborated about the latest technology used for clean milk production. In addition, he also described the maintenance of parlour, animal shed, milk equipment and milker's for proper hygiene of milk. He also covered the uses of antiseptic liquid.



### Core Session 6 (Virtual) :

**Title : Modern Methods for Solid Waste Management in Dairy Farms**  
(ડેરી ફાર્મના ઘન કચરાના નિકાલ માટે આધુનિક પ્રદ્યતિઓ)

**Expert : Dr. L. M. Sorathiya**, Associate Professor and Head, Dept. of LPM, Kamdhenu University, Rajpur

Dr. L. M. Sorathiya spoke about the importance of cleanliness in animal sheds and latest methods for removing excreta from animal shed. He also explained different techniques for value addition of farm wastes.





## Core Session 7:

**Title : Methods for Silage Preparation from Green Fodder**  
(લીલા ઘાસચારાનું સાયલેજ બનાવવાની રીત)

**Expert: Dr. N. B. Patel**, Research Scientist, LRS, NAU, Navsari

Dr. N. B. Patel provided and demonstrated the importance and making of silage for smallholder animal owners with limited production capacity. He further informed farmers that during fodder scarcity period, farmers are forced to buy hay, concentrates or silage just to keep their animals alive and are unable to benefit due to the higher prices paid for animal feed in the winter months. So during such period, silage can be a good option as animal feed.



**Technical Session (DAY-3):**

**Date : 24/03/2021**

## Core Session 8 (Virtual):

**Title : Mechanization in Milk Byproduct Preparation**  
(દૂધની બનાવટો બનાવવાનું યાંત્રિકીકરણ)

**Expert : Dr. Suneeta Pinto**, Professor and Head, Dept. of Dairy Technology, Dairy Science College AAU, Anand, Gujarat

Dr. Suneeta Pinto provided detailed information on methods and latest technology involved in making value added products such as cream, ghee, paneer and cheese *etc.* She also explained the importance of value added milk products and current scenario of its demand in India.



## Core Session 9:

**Title : Value Addition in Milk (દૂધનું મૂલ્યવર્ધન)**

**Expert : Dr. Swati Gupta**, Assistant Professor, Dept. of LPT, V.C.V.Sc. & A.H., NAU, Navsari

Dr. Swati Gupta provided detailed information on value addition of milk and milk products and its importance to dairy farmers. She also demonstrated the cream separation process .

## Afternoon Session : Exposure Visit

On the third day, in the afternoon session, a visit was arranged for farmers to *Shree Surat Panjarapore farm*, Bhestan, Surat. Mr. Sachinbhai V. Patel, Branch Manager, *Shree Surat Panjarapore*, Bhestan, Surat, explained the working and benefits of Automatic Milking parlour and different activities of the farm. About 1109 animals are maintained at this farm including 530 Cow, 18 Bullock, 21 Bull, 444 Cow Calves, 68 Buffalo and 28 Buffalo Calves. These animals are maintained and managed in 12 separate sheds *viz.*, 1. Cattle shed 2. Milking shed 3. Delivery shed 4. Advance Pregnant shed 5. Pregnant shed 6. Cattle feed storage shed 7. Dry Cow shed 8. Bull shed 9. Gir milking shed 10. HF Cow shed and 11&12. Buffalo and HF Cows. All sheds were maintained in very good hygienic condition. Automatic milking machine is used for milking in morning and evening session and the collected milk is sold to local customers in Surat. The dung and urine is also sold in local markets as “Panchgavya” and “Jivamrut”.





## Evaluation Report:

The participants were evaluated before and after training. There was a marked improvement in the knowledge and performance of participants due to the training. During pre-training evaluation, the participants scored on an average 40 percent which improved to 70 percent in the post-training evaluation.

The event ended with a felicitation of participants, distribution of participation certificates and vote of thanks to all the dignitaries, farmers as well as faculty members from agricultural fraternity who were associated with this three days on-campus skill development training for Dairy Farmer's on "Mechanization in Dairy Farm Management-ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ" organized by Unit-3 of NAHEP-CAAST sub-project, NAU, Navsari.



## Annexure : 1

Status of participants by Gender and Social Inclusion in three day on-campus skill development training for Dairy Farmer's on “Mechanization in Dairy Farm Management-ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ” held from March 22-24, 2021

Participants	General	SC	ST	OBC/SEBC	Total
Male	-	-	-	40	40
Female	-	-	-	02	02
Total					42



Group photo of Dairy Farmer's participants in three day on-campus skill development training





# NOTES



# Brochure of Training Programme



## બ્રિદ્વિસીય તાલીમ “ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ”

૨૨/૦૩/૨૦૨૧ થી ૨૪/૦૩/૨૦૨૧



અધ્યક્ષ

ડૉ. જે. પી. પટેલ

માનનીય કુલપતિશ્રી,  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી



સહ અધ્યક્ષ

ડૉ. એસ. આર. ચૌધરી

સંશોધન નિયામકશ્રી,  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી



અતિથિ વિશેષ

ડૉ. સી. કે. ટીંબકિયા

વિસ્તરણ શિક્ષણ નિયામકશ્રી,  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી



અતિથિ

ડૉ. વી. બી. ખરાદી

આચાર્ય અને વડા,  
પશુચિકિત્સા અને પશુપાલન મહાવિદ્યાલય,  
ન. કૃ. યુ., નવસારી



આયોજક

ડૉ. ટી. આર. અહલાવત

પ્રોજેક્ટ ઈન્ચાર્જ,  
NAHEP-CAAST પ્રોજેક્ટ,  
ન. કૃ. યુ., નવસારી



સહ આયોજક

ડૉ. એન. બી. પટેલ

સંશોધન વૈજ્ઞાનિક,  
પશુ સંશોધન કેન્દ્ર,  
ન. કૃ. યુ., નવસારી

તાલીમ સ્થળ :

અસ્પી એગ્રીબીસનેસ મેનેજમેન્ટ ઇન્સ્ટિટ્યૂટ,  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી

સહ સયોજક

ડૉ. રાણા રણજીતસિંઘ

ડૉ. સ્વાતિ ગુપ્તા

## Publication of Training Programme

# “ડેરી ફાર્મ વ્યવસ્થાપનમાં આધુનિકરણ”



**NHEP**



**NAVSARI AGRICULTURAL UNIVERSITY**

### -: સંકલન :-

ડૉ. એન. બી. પટેલ  
ડૉ. ટી. આર. અહલાવત      ડૉ. આર.આર. સીંઘ      ડૉ. સ્વાતિ ગુપ્તા

### -: તાલીમ સંયોજક :-

પશુ સંશોધન કેન્દ્ર,  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી-૩૮૬૪૫૦ (ગુજરાત)

### -: આયોજક :-

સેન્ટ્રલ ફોર એડવાન્સ એગ્રીકલ્ચર સાયન્સ એન્ડ ટેકનોલોજી (CAAST)  
નવસારી કૃષિ યુનિવર્સિટી, નવસારી-૩૮૬૪૫૦ (ગુજરાત)



# Value Added Innovative Products of Secondary Agriculture Available for Sale



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કેશિકુલા ઋદ્ધિઃ

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