

## THE GROWTH IN SUPPLY OF DAIRY PROFESSIONALS IN INDIA

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### ABSTRACT

Development of any sector needs the support of government policies and technically strong manpower in the sector. The beginning of formal education in the discipline of dairy science can be traced back to the year 1923 when the “Imperial Institute of Animal Husbandry and Dairying” at Bangalore, which was later re-christened as the “National Dairy Research Institute” and shifted to Karnal, Haryana. Subsequently, several State Agricultural Universities established their constituent “Dairy Science” faculties having the responsibility of imparting Dairy Science education. The present study sought to estimate the growth in supply of dairy professionals in the country. Data were collected using questionnaires as well as from secondary sources. After analyzing the collected data it could be, it can be concluded that It can be concluded that - There are 20 Dairy Science Colleges in the country which offer Graduation, Post-Graduation and Doctorate level courses in the field of dairy science and their total intake capacity for the year 2015-16 for B. Tech (D.T.) course was 754 seats, for Post-Graduation 154 seats and for PhD. It was 21 seats. The intake capacity of the B. Tech. (DT) course for different colleges present in different zones of the country increased from 604 in the year 2011-2012 to 754 in 2015-2016 respectively representing the growth rate of 5.70% p.a. The highest growth rate in intake capacity was for south region (8.92%) and the lowest growth rate in the North region (0.61%). The number of colleges in the East is only 2 but it has 13 states and similarly Number of colleges in North is only 4 but it includes 9 states. The number of colleges is relatively much more in the West and South regions. Further, there is no Dairy Science College in North East states. Also for the next 5 year period, the supply of dairy graduates is expected to grow by 2.13% per annum during the given period. However, there is no growth in the supply of dairy post graduates and PhDs, which has been assumed by taking a conservative approach.

**KEYWORDS:** Dairy colleges, Dairy professionals Supply, growth in supply of dairy technologists.

### INTRODUCTION

#### Indian Dairy Sector

The Indian Dairy cooperative structure has a huge contribution in raising the milk production in the country up to approximately 155.49 million tonnes in the year 2015-16 from a meager milk production of 17 million tonnes in the year 1951. The per capita availability of milk in the country has increased to 337 g /day (NDDB Annual Report 2015-16). Further, milk is the largest agricultural crop in India with market values exceeding Rs 4 lakh crore per annum and the milk group contributes the highest to the total output of our agricultural sector, surpassing the output value of wheat, rice and oilseeds. India's livestock sector is one of the largest in the world.

## Dairy Education in India

Development of any sector needs the support of government policies and technically strong manpower in the sector. An effective education system is one of the essential requirements to meet the manpower requirement of the sector. An effective education system in any field ensures accumulation of knowledge in that field, continuous supply of well qualified manpower, continuous research in important areas and other numerous benefits associated with education. The beginning of formal education in the discipline of dairy science can be traced back to the year 1923 when the “Imperial Institute of Animal Husbandry and Dairying” at Bangalore, which was later re-christened as the “National Dairy Research Institute” and shifted to Karnal, Haryana. Subsequently, several State Agricultural Universities established their constituent “Dairy Science” faculties having the responsibility of imparting Dairy Science education. At present there are 20 Dairy Science colleges in India, which offer various courses ranging from Graduation, Post graduation and Doctorate. National Dairy Research Institute (NDRI), Karnal, NDRI Bangalore and Sheth M.C. College of Dairy Science, Anand have been identified as Centers for Excellence. Colleges at Karnal and Anand have established modern commercial dairy with the financial support of the National Dairy Development Board, to impart hands –on training to their undergraduate students.

## METHODOLOGY

### Objective

To estimate the growth in the supply of Dairy graduates, postgraduates and doctorates in India.

Total 20 Dairy Science Colleges in the country were identified by extensive use of Internet, Secondary Published data from reputed organizations and researchers. Further data was collected using ‘Questionnaire’. Out of total 20 Dairy Science colleges in India around 17 dairy colleges gave responses by filling the Questionnaire. For the other colleges relevant data were obtained from the websites and internet.

## RESULTS AND FINDINGS

The analysis of data and results drawn are presented below.

### Intake Capacity of Dairy Science Colleges in India in Year 2015 -16

There are 20 Dairy Science Colleges in the country which offer Graduation, Post-Graduation and Doctorate level courses in the field of dairy science. The list of colleges along with their intake capacity for the year 2015-16 is mentioned in the table below. (In a few cases the number of students admitted have been taken as a proxy for intake capacity)

**Table 1**

Sr. No.	State	Colleges	Intake Capacity/Actual students admitted			Total
			UG	PG	Ph.D.	
<b>North Zone</b>						
1	Haryana	National Dairy Research Institute, Karnal, Haryana - 132 001	40	65	12	117
2	Punjab	College Of Dairy Science and Technology GADVASU.	36	10	NE	46
3	Rajasthan	College of Dairy and Food Science Technology, MPUAT, Udaipur - 313001	30	NE	NE	30

Table 1:Contd.,						
4	Uttar Pradesh	Warner College of Dairy Technology, Shuats, Rewa Road, Naini-211007 Uttar Pradesh	60	17	2	79
Total North			166	92	14	272
South Zone						
5	Andhra Pradesh	College of Dairy Technology, Sri venkateswara Veterinary University Tirupati.	30	2	NE	32
6	Karnataka	Dairy Science College, Humanabad Road, Mahagaon cross, Kalaburagi - 585 316	25	NE	NE	25
7		Dairy Science College, KVAFSU Hebbal, Bangaluru - 560024	42	15	2	59
8	Kerala	College of Dairy Science Mannuthy, thrissur, Kerala-680651	40	4	NE	44
9		College of Dairy Science and Technology constituent college of KVASU, Keltron equipment complex, Karakulam P.O, Trivandrum, Kerala - 695 564	35	NE	NE	35
10	Tamil Nadu	College of Food and Dairy Technology, Koduvalli, Alamathi Post, Chennai – 600052	20	NE	NE	20
11	Telangana	College of Dairy Technology PVNR TVU, Kamareddy - 503 111 Nizamabad	36	NE	NE	36
Total South			228	21	2	251
West Zone						
12	Chhattisgarh	College of Dairy Science & Food Technology Chhattisgarh Kamdhenu University, GE Road, Raipur - 492006 (C.G)	39	NE	NE	39
13	Gujarat	SMC College of Dairy Science Anand Agricultural University, Anand – 388 110	62	21	3	86
14		Shri G.N.Patel Dairy Science & Food Technology College Dantiwada Agricultural University, SKnagar, Dantiwada– 385506.	40	NE	NE	40
15		College of Dairy Science Constituent College of Kamdhenu University, Near Ramji Mandir, Opp. Bal Bhavan, library road, Amreli - 365 601	44	No	NE	44
16		MIDFT Kamdhenu University, C/o Dudhsagar Dairy Campus Highway Road, Mehsana - 384 002	40	No	NE	40
17	Maharashtra	College of Dairy Technology constituent college of MAFSU, Warud (Pusad), Post-Moha, The.-Pusad, Dist.-Yavatmal - 445204.	36	8	NE	44
18		College of Dairy Technology constituent college of MAFSU, Kavalkhed road, Veterinary Sub campus, Udgir, Dist.-Latur - 413517	36	No	NE	36
Total West			297	29	3	329

East Zone						
19	West Bengal	Faculty of Dairy Technology W.B. Uni. of Animal & Fishery Science, P.O. Krishiviswavidyalaya, Dist. Nadia	38	12	2	52
20	Bihar	Sanjay Gandhi Institute of Dairy Technology Bihar Agricultural University, Jagdeopath, P.O. B.V.C.C., Patna, Bihar - 800014	25	NE	NE	25
Total East			63	12	2	77
Total Intake Capacity of Dairy Science College in the India			754	154	21	929

**Note:** 'NE' indicates 'Course Not existing in the college'. (Please refer Annexure 1 for college details). "No" indicates data not provided. In few cases secondary data was taken from websites of respective colleges/organization.

As shown in the above table, there are around 20 dairy science colleges in the country and their total intake capacity for the year 2015-16 for B.Tech (D.T.) course was 754 seats, for Post-Graduation 154 seats and for PhD. it was 21 seats.

### Geographically Uneven Supply of Dairy Professionals

The number of colleges in East is only 2 but it has 13 states and similarly Number of colleges in North is only 4 but it includes 9 states. The number of colleges is relatively much more in West and South regions. Gujarat has 4 Dairy Science Colleges while "Madhya Pradesh" has milk production nearly equal to Gujarat has no Dairy Science College.

Further, there is no Dairy Science College in North eastern states. Although milk production in this states is less but if one Dairy Science College is established with intake capacity of upto 40 students possibly under Central Agricultural University then it will definitely help to cater to the needs of dairy professionals of the region and will also help to boost the milk production through its extension activity

### Growth in Supply of Dairy Professionals

The growth in the supply of dairy professionals in the country was evaluated by considering the intake capacity of Dairy science Colleges during the past 5 year's i.e. years 2012 to 2016. The degree wise information of intake capacity is given in the tables below.

### Growth in Intake Capacity of Dairy Professional (Graduates)

Growth in Intake capacity of Graduates (B. Tech (DT) during the period 2011-12 to 2015-16 is mentioned in the table below.

**Table: 2**

Region	Intake Capacity/Actual Students Admitted					% Growth Rate (P.A)
	Year 2011-12	Year 2012-13	Year 2013-14	Year 2014-15	Year 2015-16	
East	55	55	55	57	63	3.45%
West	225	266	288	295	297	7.19%
North	162	163	166	167	166	0.61%
South	162	182	184	186	228	8.92%
<b>INDIA</b>	<b>604</b>	<b>666</b>	<b>693</b>	<b>705</b>	<b>754</b>	<b>5.70%</b>

It can be seen from above table that the intake capacity for the B. Tech. (DT) course for different colleges present in different zones of country increased from 604 in the year 2011-2012 to 754 in 2015-2016 respectively representing the growth rate of 5.70% p.a. The highest growth rate in intake capacity was for south region (8.92%) where the seats increased from 162 to 228. The lowest growth rate in intake capacity was for North region (0.61%) where the seats increased from 162 to 166 during the period.

### Growth in Intake Capacity of Dairy Professional (Post Graduates)

Growth in Intake capacity of Post Graduates in dairy science during the period 2011-12 to 2015-16 is mentioned in the table below.

Table 3

Region	Intake Capacity/Actual Students Admitted					% Growth Rate (P.A)
	Year 2011-12	Year 2012-13	Year 2013-14	Year 2014-15	Year 2015-16	
East	14	14	16	14	12	-3.78%
West	29	29	29	29	29	0.00%
North	70	76	80	84	92	7.07%
South	15	12	15	16	21	8.78%
<b>INDIA</b>	128	131	140	143	154	4.73%

As seen in the above table the intake capacity for PG Students in dairy science increased from 128 in 2011-2012 to 154 in 2015-2016 with growth rate of 4.73% p.a. The growth rate for increase in PG intake For East, West, North and South region was -3.78%, 0.00%, 7.07%, and 8.78 % respectively.

### Growth in Intake Capacity of Dairy Professional (PhDs)

Growth in Intake capacity of Post Graduates in dairy science during the period 2011-12 to 2015-16 is mentioned in the table below.

Table 4

Region	Intake Capacity/Actual Students Admitted					% Growth Rate (P.A)
	Year 2011-12	Year 2012-13	Year 2013-14	Year 2014-15	Year 2015-16	
East	8	8	6	3	2	-29.29%
West	2	3	2	3	3	10.67%
North	14	12	15	14	14	0.00%
South	5	3	2	1	2	-20.47%
<b>INDIA</b>	29	26	25	21	21	-7.75%

It can be seen from above table that intake capacity for the PhD students in the various colleges of country decreased from 29 in year 2011-2012 to 21 in year 2015-2016 with the average rate of -7.75% p.a. The variations in intake capacities may be due to availability of guides in various fields.

### Estimation of Total Dairy Professionals Passing out (Supply) in Period 2016-17 to 2020-21

The estimated supply of Dairy professionals during the future period covering years 2016-17 to 2021 was determined in the following manner. The B.Tech (D.T.) is a 4 year course, Post gradation in dairy science is a 2 year course and PhD. in dairy science is 4 year course, hence student admitted in year 2013-14 will pass out in year 2016-17,

similarly students admitted in year 2014-15 will finish their B.Tech (D.T.) in year 2017-18, and so on. Further, it was assumed that the intake capacity of colleges during the given period will be more or less constant.

The supply of dairy professional as estimated by this method is given in the table below.

**Table 5**

Degree	Year 2016-17	Year 2017-18	Year 2018-19	Year 2019-20	Year 2020-21	% Growth Rate (P.A)
<b>Graduates</b>	693	705	754	754	754	2.13%
<b>Post graduates</b>	152	152	152	152	152	0.00%
<b>Ph.D</b>	25	21	21	25	25	0.00%
<b>Total</b>	870	878	927	931	931	1.71%

It can be seen that the supply of dairy graduates is expected to grow by 2.13% per annum during the given period. However there is no growth in the supply of dairy post graduates and PhDs which has been assumed by taking a conservative approach.

## CONCLUSIONS

It can be concluded that - There are 20 Dairy Science Colleges in the country which offer Graduation, Post-Graduation and Doctorate level courses in the field of dairy science and their total intake capacity for the year 2015-16 for B.Tech (D.T.) course was 754 seats, for Post-Graduation 154 seats and for PhD. it was 21 seats. The intake capacity for the B. Tech. (DT) course for different colleges present in different zones of country increased from 604 in the year 2011-2012 to 754 in 2015-2016 respectively representing the growth rate of 5.70% p.a. The highest growth rate in intake capacity was for south region (8.92%) where the seats increased from 162 to 228. The lowest growth rate in intake capacity was for North region (0.61%) where the seats increased from 162 to 166 during the period.

Further, the intake capacity for PG Students in dairy science increased from 128 in 2011-2012 to 154 in 2015-2016 with growth rate of 4.73% p.a. The growth rate for increase in PG intake For East, West, North and South region was -3.78%, 0.00%, 7.07%, and 8.78 % respectively. The Intake capacity for the PhD students in the various colleges of country decreased from 29 in year 2011-2012 to 21 in year 2015-2016 with the average rate of -7.75% p.a. The variations in intake capacities may be due to availability of guides in various fields.

Also for the next 5 year period, the supply of dairy graduates is expected to grow by 2.13% per annum during the given period. However there is no growth in the supply of dairy post graduates and PhDs which has been assumed by taking a conservative approach.

The number of colleges in East is only 2 but it has 13 states and similarly Number of colleges in North is only 4 but it includes 9 states. The number of colleges is relatively much more in West and South regions. Gujarat has 4 Dairy Science Colleges while "Madhya Pradesh" has milk production nearly equal to Gujarat has no Dairy Science College. Further, there is no Dairy Science College in North eastern states. Although milk production in this states is less but if one Dairy Science College is established with intake capacity of upto 40 students possibly under Central Agricultural University then it will definitely help to cater to the needs of dairy professionals of the region and will also help to boost the milk production through its extension activity

## REFERENCES

1. NDDB Annual Report 2015-16.
2. Website of GCMMF.
3. <http://www.SVVU.edu.in>
4. [www.cgkv.ac.in](http://www.cgkv.ac.in)
5. [www.aau.in](http://www.aau.in)
6. [www.sdau.edu.in](http://www.sdau.edu.in)
7. [www.ku-guj.com](http://www.ku-guj.com)
8. [www.midft.com](http://www.midft.com)
9. [www.ndri.res.in](http://www.ndri.res.in)
10. [www.kvafsu.kar.nic.in](http://www.kvafsu.kar.nic.in)
11. [www.kvasu.ac.in](http://www.kvasu.ac.in)

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