DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL CHEMISTRY
COLLEGE OF AGRICULTURE
NAVSARI AGRICULTURAL UNIVERSITY
BHARUCH CAMPUS, BHARUCH

1. INTRODUCTION:

Department of Soil Science and Agricultural Chemistry is one of the components of College of Agriculture and actively engaged with teaching, research and extension. The discipline has major share with the problems regarding nutrient management particularly in Pigeon pea, cotton and other pulse crops as well as problems related to soil health. The credit load at U. G. Level as well as polytechnic in Agriculture is started from 1st semester.

2. OBJECTIVES:

1. To upgrade the knowledge, skill and different principles regarding the nutrient management and soil testing.
2. To impart the education at U.G. level.
3. To conduct the various research experiments of state government and other agencies.
4. To develop the site specific nutrient management technologies for farmers and scientific communities.
5. To transfer the recommended technologies to farmers through literature distribution, popular articles in news paper and training etc.

3. MAJOR ACTIVITIES:

1. Teaching:

(a) Polytechnic in Agriculture:

Total 3 courses with 9 (6+3) credit loads are being taught from first to six semesters Polytechnic in Agriculture

(b) Under graduate:

Total 5 courses with 14 (8+6) credit loads are being taught from first to eight semesters B.Sc. (Hons.) in Agriculture.

(c) Post graduate teaching: NIL

2. Research:

This department is also associated with research activities wherein field experiments and survey regarding the burning issues with respect to soil health and nutrient deficiency in major crops of Bharuch district are being conducted under this department.

3. Extension:

- Department is imparting training to the extension workers / officers of department of agriculture Gujarat state, Sugar factories officers / field staff; Gujarat Land Development Corporation officers / field staff and farmers brings by various NGOs to develop their skill for improving crop production.

- Department staff is also actively participating in Krushi Mahotsav, Krushi Mela, Khedut Din, Khedut Shibir, Seminar, Radio and television programme time to time.
- Department is also imparting training to the students of various rural academic institutes.

- This department is also guiding farmers through publishing press notes in daily news paper on the agronomic aspects of major crops of this zone.

4. MAJOR ACHIVEMENTS

1. Teaching:

(a) Polytechnic in Agriculture

To teach following subjects to the students of Polytechnic in Agriculture from first to sixth semester.

Courses offered during odd semester:

S. No.	Semester	Course Number	Title of course	Credits
1	1st	Ag.Chem.1.1	Introduction to Soil Science	2+1
2	3rd	Ag.Chem.3.3	Manures, Fertilizers and Agrochemicals	2+1

Courses offered during even semester:

S. No.	Semester	Course Number	Title of course	Credits
1	2nd	Ag.Chem.2.2	Soil Chemistry, Soil Fertility and Nutrient Management	2+1

(b) Under graduate [B.Sc. (Hons.) in Agriculture]

To make the theory and practical note books for U.G. courses are being taught from first to eight semesters B.Sc. (Hons.) in Agriculture.

Undergraduate courses offered during odd semester:

S. No.	Semester	Course Number	Title of course	Credits
1	1st	Ag.Chem.1.1	Introduction to Soil Science	2+1
2	7th	Ag. Chem.7.4	RAWE	0+2

Undergraduate courses offered during even semester:

S. No.	Semester	Course Number	Title of course	Credits
1	2nd	Ag.Chem.2.2	Soil Chemistry, Soil Fertility and Nutrient Management	2+1
2	4th	Biochem.4.1	Biochemistry	2+1
3	6th	Ag.Chem.6.3	Manures, Fertilizers and Agrochemicals	2+1

List of M.Sc. (Agri.) students who are doing M.Sc.

Sr. No.	Name of student	Name of Advisor	Subject	Admitted in Year
1	Patel Rajesh Jashubhai	Dr. K. H. Patel	Soil Sci. and Agril.Chem.	2014
2	Patel DharmikKumar Jitendrabhai	Dr. K. H. Patel	Soil Sci. and Agril.Chem.	2015

3	Gohil Dipakkumar Jagdishbhai	Dr. K. H. Patel	Soil Sci. and Agril.Chem.	2015
4	Barvaliya Mittal M	Dr. A. P. Italiya	Soil Sci. and Agril.Chem.	2015

6. FACILITIES:

Following facilities are to be developed-

i)	Laboratory
ii)	Store room
iii)	Departmental library

7. RESEARCH ACTIVITY:

(i) Projects: **Nil**

(ii) Ongoing experiments

Sr. No.	Title of experiment	Agresco No. & Year
1	Screening of pigeonpea varieties for salinity tolerance.	9th Agresco-2013
2	Survey and assessment of nutrient responsible for leaf reddening in cotton.	9th Agresco-2013

8. RESEARCH RECOMMENDATION:

Sr. No.	Title and Recommendation	AGRESCO No. & Year
Within NAU		
	-NIL-	
Other then NAU (GAU)		
1	Use of different quality irrigation water along with amendments under Bhal condition	1994
2	Effect of raised and sunken bed system of cultivation on crop growth under cotton-wheat and cotton -gram system	1995
3	Effect of raised and sunken bed system of cultivation on crop growth under pegionpea-wheat and pegionpea-gram system	1995
4	Use of saline irrigation water in the production of grasses	1995
5	Effect of different levels of N and P with seed rate on the yield of gram variety"chaffa"	1995
6	Effect of N application as foliar spray and basal on yield and nutrient uptake by wheat "GW-1"	1995
7	Effect of growth regulator on growth and yield of chickpea var. "chaffa"	
8	Effect of growth regulator on growth and yield of mustard var. "varuna"	
9	Effect of organic manures, gypsum, phosphorus and zinc levels on yield of wheat "GW-1"in Bhal	2001
10	Long term studies on effect of irrigation in different rabi crops on the yield and change in physical and physic-chemical properties of Bhal	2003

9. PUBLICATION

(i) Research Paper Published in International Journal:

1.	**K. H. Patel**; N. K. Kalyanasundaram; B. T. Sheta; D. B. Panchal and J. C. Patel (2010). Effect of FYM and Fe-Zn-S supplementation on yield and quality of multicut forage sorghum. An Asian Journal of Soil Science 5(1):70-74
2.	B. T. Sheta; N. K. Kalyanasundaram; D. B. Panchal; **K. H. Patel** and J. C. Patel (2010). Influence of nitrogen, potassium and sulphur levels on growth, yield attributes and yield of forage pearl millet [Pennisetum glaucum (L.) R. Br.] Res. On Crops 11(2):302-307
3.	K. K. Patel; Vijay Anand; A. R. Kaswala; A. Italiya; S. L. Pawar; J. M. Patel; B. N. Kolambe and R. G. Patil. (2012).Comparative performance of FYM, biocompost and banana pseudostem based vermi compost on productivity of banana. The Asian Journal of Horticulture. 7(1): 140
4.	S. K. Desai; A. G. Naik; A. P. Italiya; G. B. Desai and Chirag Desai.(2015). Screening of tomato varieties for ketchup. Eco.Env.&Cons.21(1):1
5.	S. K. Desai; A. G. Naik; A. P. Italiya; V. S. Mehta and H. B. Vaidya.(2015). Study of quality characteristics of some varieties of tomato (*Lycopersicon esculentum* Mill) in relation to processing. Eco.Env.&Cons.21(1):1
6.	**N.H. Garaniya &** A.H. Bapodra. 2014. Ethno botanical and Phytopharmacological potential of *Abrus precatorius* L.: A review. ***Asian Pacific Journal of Tropical Biomedicine.*** 4 (Suppl. 1): S27-S34.
7.	**N.H. Garaniya,** A.H. Bapodra & K.D. Ladva. 2014. Phytopharmacological study of Red, White and Black variety of *Abrus precatorius* L. ***International Letters of Natural Sciences*** 9:1-11.
8.	**Narendra Singh**, Sonal Tripathi, Ampee Tsuang, Patel G.G and Rajkishore Kumar 2014. Dynamics of Potassium in Representative Soil Series of Navsari District of South Gujarat. *Eco.Env & Cons.* 20 (**3**):1269-1272.
9.	Roshan kumar, **Narendra Singh**, Rajkishore Kumar and N. K. Yadav 2014. Lysimeter study on growth attributes, yield and water use efficiency in vegetable pea under different water table conditions. *Eco. Env & Cons.* 20 (**2**):303-306.
10.	Ampee Tsuang**,** Sonal Tripathi, **Narendra Singh**, Pathik Baldev Patel, Rattan Govind Patil and Ajeet Mulchand Bafna. (2015). Aquaculture effluent: Effect on yield, nutrient content and uptake in Salicornia brachiata roxb. *Green Farming* 6(**4**): 753-763.

(ii) Research Paper Published in National Journal:

1.	D. B. Panchal; R. D. Siyolkar; K. H. Patel and B. T. Sheta (2011). Effect of nitrogen and sulphur application on yield and nutrient uptake by mustard. GAU Research Journal 36(1):31-33
2.	A. Das; M. S. Jakasaniya; K. H. Patel and B. t. Sheta (2000). Effect of graded levels of nitrogen and phosphorus on yield and nutrient uptake by hybrid fodder sorghum under rainfed condition. Annals of Arid Zone 39(2): 163-168
3.	G. L. Maliwal; A. Das; K. H. Patel; M. S. Jakasaniya and P. T. Patel (1998). Effect of saline water irrigation on the performance of grasses under Bhal condition. Forage Research 24(2): 61-66
4.	A. Das; K. H. Patel; G. L. Maliwal; M. S. Jakasaniya and P. T. Patel (1998). Effect of separate and mixed drilling of seeds and fertilizers on growth and yield of gram. Annals of Arid Zone 37(2): 197-198
5.	A. J. Patel; K. H. Patel; P. D. Ghoghari and I. P. Sharma (2005). Management of Helicoverpa armigera based on economic threshold and phonological stage of gram crop raised on conserved soil moisture. Indian J. Appl. Ent. 19(2): 126-128
6.	D. K. Patel; K. P. Patel; T. U. Patel; A. P. Italiya and R. B. Patel. (2012). Weed management in aerobic rice (*Oryza sativa L*) under South Gujarat conditions. The Andhra Agric. J. 59(1): 10
7.	T. U. Patel; J. D. Thanki; D. D. Patel; L. K. Arvadiya and A. P. Italiya. (2013). Weed management, fertilizer application and productivity of onion (*Alium cepa*) bulbs. Bioinfolet.

	10(2A): 379
8.	P. S. Patel; B. N. Kolambe; T. U. Patel; A. P. Italiya and H. H. Patel.(2013).Effect of various organic and manures on yield, quality and economic of banana (*Musa paradisica*) cv. Grand nain under vertisols.Bioinfolet. 10(2A): 390
9.	**N.H. Garaniya** and A.H. Bapodra. (2015). Cow urine potential to remove seed dormancy of *Abrus precatorius* L. ***The Indian Forester.*** **141(3):342-343.**
10.	**N.H. Garaniya,** H.R. Ramani and B.A. Golakiya. (2013). Nutrient profile of Jaffarabadi buffalo milk at different stages of lactation. ***Asian Journal of Dairy & Food Research.*** 32 (2): 168-170**.**
11.	**N.H. Garaniya,** H.R. Ramani and B.A. Golakiya. (2012). Comparative Study of Nutrients Profile of Cow Milk at Different Lactation: A Case Study of *Gir Cow* Milk. ***Research & Reviews: Journal of Dairy Science & Technology.*** 1(1):19-27.
12.	H. R. Ramani, **N. H. Garaniya,** B. A. Golakiya. (2012). Biochemical Constitutes of Calf, Pregnant and Milking Gir Cow Urine's at Weekly Interval. ***Research & Reviews: A Journal of Dairy Science and Technology.*** 1 (2):1-6.
13.	H. R. Ramani, **N. H. Garaniya,** B. A. Golakiya. (2012). Comparative Study of Minerals Content of Calf, Pregnant Cows and Milking Cows' Urine at Week Interval. ***Research & Reviews: Journal of Dairy Science & Technology.*** 1(1):8-18.
14	S. Tripathi, **Narendra Singh,** Srinivasa, A. Bafna and S. Raghothama (2014). An Nuclear Magnetic Resonance Spectroscopic Study of Organic Components Extracted from Manures and Soils under Different Land Uses in Gujarat". *Journal of the Indian Society of Soil Science.* 62 (**4**): 326-334.

List of published books:

Details of Books	ISBN
1. N.H. Garaniya, H.R. Ramani and B.A. Golakiya. 2014. Biochemistry of Gir cow and Jaffrabadi buffalo milk. *LAP LAMBAERT Academic Publishing Germany.*	**978-3-659-15538-3**
2. H.R. Ramani**, N.H. Garaniya** and B.A. Golakiya. 2014. Biochemistry of Gir cow urine at different development stage. - Cow Urine An Ancient Medicine for Human and Plants. *LAP LAMBAERT Academic Publishing Germany.*	**978-3-8473-4521-3**

List of practical records prepared

Sr. No.	Semester	Course Number	Title of course
1	1st	Ag.Chem.1.1	Introduction to Soil Science
2	2nd	Ag.Chem.2.2	Soil Chemistry, Soil Fertility and Nutrient Management

3	4th	Biochem.4.1	Biochemistry
3	6th	Ag.Chem.6.6	Manures, Fertilizers and Agrochemicals

10. TRANSFER OF TECHNOLOGIES:

1. Department staff is also actively participating in Krushimahotsav, Krushi mela, Khedut Din, Khedut Shibir, Seminar, Radio and television programme time to time.
2. This department is also guiding farmers through publishing press notes in daily news paper and weekly/monthly periodicals on the site specific nutrient management aspects of major crops.