

**Department of Plant Pathology  
College of Agriculture,  
Navsari Agricultural University,  
Bharuch Campus, Bharuch**

### **1. INTRODUCTION:**

The departments of Plant Pathology started functioning since the inception of College of Agriculture in 2012. This department was vested with the primary responsibility of looking after the teaching of under graduate students. The department has been also established linkages with farmers so as to familiarize them with the latest scientific developments in agriculture and also to get a feed back in order to enable scientists to plan their future research programme.

### **2. OBJECTIVES:**

1. To impart teaching to under graduate students
2. To impart guiding to post graduate students
3. To render advisory service to farmers in diagnosis of plant diseases and its management
4. To carry out research related to integrated management of plant diseases

### **3. MAJOR ACTIVITIES:**

#### **1. Teaching:**

##### **(a) Under graduate:**

Total 6 courses with 15 (9+6) credit loads are being taught from first to eight semesters B.Sc. (Hons) in Agriculture.

##### **(b) Post graduate teaching:** Nil.

##### **(c) Other academic activities:**

At present placement cell working under this department and make career based placement of last semester students. A very first batch of polytechnic in agriculture, out of 34 students 28 got good placement.

#### **2. Research:**

This department is also associated with research activities wherein several field experiments are being conducted year round under various research projects working under this department. The following 9(nine) recommendations made by this department (earlier under NARP) for the farmers of south Gujarat as well as for scientific community.

1. For effective control *Fusarium* wilt in Pigeon pea and to get maximum NICBR, the seed should be treated with TMTD (Thirum) @ 3 g/kg seed. If TMTD is not available, farmers are advised to use Captafol.
2. The furrow application of bio-control agent *Trichoderma harzianum* multiplied on FYM @ 200 g/mt row length (2222 kg/ha) followed by sowing

Carbendazim treated seeds (3 g/kg seed) is recommended to the farmers of Agro-climatic south Gujarat zone for the effective control of pigeon pea wilt and getting higher return (Rs. 8173).

3. The pigeon pea growing farmers of south Gujarat zone are advised to adopt the practice application of press mud @ 10 t/ha after solarizing the field through transparent (LLDPE 25 micron) Polyethylene sheet for one month to reduce the wilt incidence by about 50 percent increased the yield by 100 per cent and net return by 50 per cent.
4. Farmers of south Gujarat zone (AES V) are advised to coat pigeon pea seeds with PBA 22 *Torulospora globosa* (ICBR 1:513) or PBA 13 *Bacillus coagulans* (ICBR 1:379) each having  $10^8$  CFU/gm carrier @ 30 gm culture/kg seed before seeding to save 40 kg  $P_2O_5$ /ha and get maximum green pod yield.
5. Pigeon pea growing farmers of south Gujarat Agro climatic zone II are advised to treat seeds with *Rhizobium* culture (ARS-21) 10 CFU/gm @ 30 g/kg seeds to save 20 kg N and to get maximum grain yield (CIBR 1:283).
6. It is recommended for scientific community that lines BPWR-03-1 and BPWR03-2 were found resistant to wilt disease which could be utilizing further breeding programme in future to evolve wilt resistant variety.
7. Line BPWR-04-2 [Selection from PF-3] was found resistant to wilt disease which could be utilized in further breeding programme in future to evolve wilt resistant variety.
8. Seed soaking in the solution of chitinolytic bacterium (*Pentoea dispersa*) @  $10^8$  viable cells/ml for four hours before sowing was found effective for the management of wilt (*Fusarium oxysporum f. sp. udum*) of pigeon pea.

#### **9. Information for Scientific Community:**

The pigeon pea genotypes GAUT-9317 and ICPL 87119 x BP-94-03 were found Moderately Resistant against Sterility Mosaic Disease. (2012).

#### **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 Mahotshav, 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 plant pathological aspects of major crops of this zone.



Dr. D. M. Pathak, Dr R.R.Waghunde and Prof., R.R.Patel diagnosis the disease during the field visit at Nandod Taluka, Dist: Rajpipala.

#### 4. MAJOR ACHIVEMENTS:

##### 1. Teaching:

##### (a) Under graduate

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:

Sr. No.	Semester	Course Number	Title of course	Credits
1	First	Pl.Path.1.1	Introductory Plant Pathology	2(1+1)
2	Third	Pl.Path.3.2	Principles of Plant Pathology	2(1+1)
3	Fifth	Pl.Path.5.3	Diseases of Field Crops and their Management	3(2+1)
4	Seven	Pl.Path.7.6	RAWE	2(0+2)

##### Undergraduate courses offered during even semester:

Sr. No.	Semester	Course Number	Title of course	Credits
1	Second	Ag.Micro.2.1	Agricultural Microbiology	3(2+1)
2	Six	Pl.Path.6.5	Diseases of Horticultural Crops and their Management	3(2+1)
3	Six	Pl. Path. 6.4	Introductory Nematology	2(1+1)
4	Eight	-----	Elective (Crop Protection)	-----

**List of M.Sc. (Agri.) students who have completed their degree successfully:**

Sr. No.	Name of student	Title of Thesis	Name of M.Sc. Supervisor	Faculty	Subject	Year of Award of Degree
1	Jehani M.D	Epidemiology and Management of Pigeon pea Stem Canker	----	Agriculture	Plant Pathology	June-2015

**List of Ph.D. (Agri.) students who have completed their degree successfully: ---- Nil-----**

Sr. No.	Name of student	Title of Thesis	Name of Ph.D. Supervisor	Faculty	Subject	Year of Award of Degree

**5. Faculty Information:**

1.	Dr. D. M. Pathak	Associate Professor & Head
2.	Prof. R. R. Patel	Assistant Professor
3.	Dr. Rajesh R. Waghunde	Assistant Professor
4.	Dr. Sanjay G. Patel	Assistant Professor
5.	Mrs. Rekha M. Patel	Lab Technician

**6. Facilities:**

1. Laminar Air Flow
2. B.O.D. Incubator
3. Autoclave
4. Hot Air Oven
5. Colony counter
6. Monocular Microscope
7. Binocular Microscope
8. Trinocular Microscope
9. Spectrophotometer
10. Desiccator





## 7. Research Activity:

### (i) Projects:

Sr. No.	Title of experiment	Year	Funding agency
	----	---	---

### (ii) Ongoing experiments (NARP)

Sr. No.	Title of experiment	Agresco No. & Year
1	Evaluation of different bio-agents against wilt of pigeon pea.	AICRP (11 <sup>th</sup> AGRESCO)
2	Management of Sterility mosaic Disease of Pigeon pea	AICRP (11 <sup>th</sup> AGRESCO)
3	Screening of Pigeon pea entries against phytophthora disease.	AICRP (11 <sup>th</sup> AGRESCO)
4	Screening of Pigeon pea entries against wilt and SMD.	AICRP (11 <sup>th</sup> AGRESCO)
5	Pigeon pea wilt and sterility Mosaic Disease Nursery (PWSMDN).	AICRP (11 <sup>th</sup> AGRESCO)
6	Screening against diseases in wilt sick plot material received from research scientist pulses Dantiwada and Junagadh	(11 <sup>th</sup> AGRESCO)
7	Selection and development of wilt resistant pigeon pea Lines.	(11 <sup>th</sup> AGRESCO)
8	Screening of sterility mosaic disease resistant line from segregating materials of Pigeon pea.	(11 <sup>th</sup> AGRESCO)
9	Evaluation of segregating materials (F4 to F7) of pigeon pea against wilt and sterility mosaic disease in wilt sick plot.	(11 <sup>th</sup> AGRESCO)
10	Evaluation of segregating material of pigeon pea against sterility mosaic disease in nursery.	(11 <sup>th</sup> AGRESCO)

### Departmental Research

11	Epidemiology of rainfed cotton diseases under Bharuch Condition.	(11 <sup>th</sup> AGRESCO)
12	Survey of major cotton diseases under Bharuch and Narmada districts.	(11 <sup>th</sup> AGRESCO)
13	Isolation and evaluation of multifaceted microbes.	(11 <sup>th</sup> AGRESCO)
14	Isolation and <i>in-vitro</i> testing of bio-inoculants against Anthracnose of Banana.	(11 <sup>th</sup> AGRESCO)

## 8. Publication

### (i) Research Paper Published in International Journal:

- 1) **D. M. Pathak**, A. M. Parakhia and L. F. Akbari (2013) Prevalence, yield loss and epidemiology of phyllody in sesame in Gujarat in relation to its vector, leaf hopper (*Orosius albicinctus* Dist). *Journal of Mycology and Plant Pathology*, **43**(3):291-296.
- 2) **D. M. Pathak** A. M. Parakhia and L. F. Akbari (2013) Chemical and histopathological changes in sesame phyllody caused by PLO's. *Journal of Mycology Plant Pathology*, **43** (3):353-359.
- 3) N. S. Joshi, D. K. Varu, A. V. Barad and **D. M. Pathak** (2013) Performance of varieties and chemical fertilizers on growth and flowering in chrysanthemum. *International Journal of Agriculture Science*, **9**(1):182-188.
- 4) H.J. Kapadiya, **D. M. Pathak** and D. R. Patel (2013) Effect of artificial injuries and fresh neck cutting against black mould (*Aspergillus niger*) on onion bulb. *International Journal of Agriculture Science*, **6**(2):422-424.

- 5) **Waghunde, R. R.;** Sabalpara, A. N.; Deshmukh, A. J. and Pandya, J. R. (2013)  
Characterization and evaluation of native *Pseudomonas* spp. of south Gujarat against leaf blast in finger millet. *Journal of Biological Control*. **27**(4): 312–318.
- 6) **Waghunde, R. R.;** Patil, R. K. and Shinde, M. S. (2014) Occurrence and fungicidal management of Alternaria fruit rot (*Alternaria alternata* (Fr.) Keissler) of Aonla. *Journal of Mycopathological Research*. **52**(2):311-316.
- 7) Shinde, M. S.; Sabalpara, A. N. and **Waghunde, R. R.** (2014) Efficacy of coconut water liquid formulation of *Pseudomonas aeruginosa* Migula. *Journal of Mycopathological Research*, **52**(2): 317-321.
- 8) **Patel, S. G.** and Bhatt, S. A. (2013) Isolation, Characterization of protease producing Haloalkalophilic bacteria from hyper saline soil of Lakhtar, Western India. *Life Science Leaflet*, **8**:1-7
- 9) **Patel, S. G.** and Bhatt, S. A. (2015) Studies on microbial diversity of Polygalacturonase producing bacteria from the soil of vegetables market of Patan, *Life Science Leaflet*, **58**:16-21

**(ii) Popular article published:**

- ૧) જામકળ, બોર, સીતાકળ અને દાડમના રોગો – ડો. ડી.એમ. પાઠક, ડો. આર. આર. વાઘુંડે, આર. આર. પટેલ અને રેખા એમ.પટેલ કષિ જીવન માસિક, જાન્યુઆરી ૧૫, પેજ નં ૨૦–૨૨ (ISSN 0971-6440)
- ૨) મરી મસાલાના પાકોમાં રોગ નિયંત્રણ – ડો. ડી.એમ. પાઠક, ડો. આર. આર. વાઘુંડે, શ્રીમતી રેખા એમ. પટેલ કષિ જીવન માસિક, નવેમ્બર ૧૪, પેજ નં ૨૧–૨૩ (ISSN 0971-6440)
- ૩) ખેતી પાકોમાં રોગોનું જૈવિક નિયંત્રણ (ટ્રાઈકોડેમા – એક રામબાણ ઈલાજ) – ડો. ડી.એમ. પાઠક, ડો.આર. આર. વાઘુંડે, શ્રીમતી રેખા એમ. પટેલ એક પ્રયાસ માસિક, નવેમ્બર ૧૪, પેજ નં ૪૪– ૪૫
- ૪) વેલાવાળા શાકભાજી ના રોગોનું નિયંત્રણ – ડો. ડી.એમ. પાઠક, ડો. આર. આર. વાઘુંડે, આર. આર. પટેલ અને રેખા એમ.પટેલ એક પ્રયાસ માસિક, જાન્યુઆરી ૧૫, પેજ નં ૪૩– ૪૪

**(iii)List of published books: Nil**

Sr. No.	Name of Author	Name of Department	Name of Faculty	Title of Book	Name of Publisher	Year of Publication	ISBN
1	--	--	--	--	--	--	--
2	--	--	--	--	--	--	--

**List of practical records/ Lecture note prepared**

Sr. No.	Semester	Course Number	Title of course
1	1 <sup>st</sup>	Pl.Path. 1.1	Introductory Plant Pathology
2	2 <sup>nd</sup>	Ag. Micro. 2.1	Agricultural Microbiology
3	5 <sup>th</sup>	Pl.Path.5.3	Diseases of field crops and their management
4	5 <sup>th</sup> (Polytechnic)	Ag. Micro. 5.1	Agricultural Microbiology
5	6 <sup>th</sup> (Polytechnic)	Pl. Path. 325	Mushroom production technology

## **9. Transfer of technologies:**

1. Department staff is also actively participating in 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 plant protection aspects of major crops.