

**ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE
2011-12
Technical Report
PLANT PATHOLOGY**

| | |
|---|--|
| Period | : 2011-12 |
| Staff position | : Senior Scientific Officer (Plant pathology) |
| Financial allocation sanctioned | : Yes |
| expenditure- Whether data with past background and correlation with past fluctuation to data obtained | |
| Project No. | : PP 14 |
| Project title | : Identification of pathotypes/ races in red rot pathogen |
| Objective | : To gather information on the major pathotypes of red rot from the different areas/zones. |
| Year of start | : 1983-84 |
| Location | : Shahjahanpur |

Report

Four red rot isolates Viz. R 0401, R 1001, R 1002, R 1003 were tested for their pathogenic variability along with designated pathotypes viz. Cf 01, Cf 02, Cf 03, Cf 07, Cf 08, Cf 09 and Cf 011 on prescribed sugarcane host differentials during the year under report. The observations on disease development were recorded after 60 days of inoculation. The evaluations were done on the basis of symptomatology viz., lesion width laterally restricted, nodal transgression, white spots, rind infection, sporulation over the rind and yellowing/drying of the tops. Host reactions were categorized into three groups i.e. Resistant (R), Susceptible (S) and Intermediate (I) reactions (Table-1). The isolates R 0401 from CoS 8436 variety displayed variable pathogenic reactions on CoS 8436 differentials different from the existing pathotypes. Isolated R 1001 (CoJ 64) and R 1002 (CoS 88230) exhibited similar reactions to that of Cf 08 pathotypes where as isolate R 1003 (CoSe 92423) showed close similarity to Cf 09 pathotype in the reaction. On the basis of pathogenic behaviour of above tested three isolates it is clear that there is emergence of a new pathotype on CoS 8436 variety along with the existence of Cf 08 and Cf 09 pathotypes in Uttar Pradesh.

Project No. : **PP17**
Project title : Evaluation of pre-zonal/ zonal varieties/ genotypes for resistance to red rot and smut.
Objective : To gather information on the relative resistance of the varieties to red rot and smut in pre-zonal/ zonal trials of respective zones.
Year of start : 1986-87
Location : Shahjahanpur

Report

A-Red rot

Under this project 13 varieties of IVT (M), 08 varieties of IVT (E), 05 varieties of AVT (E) I, 11 varieties of AVT (M) I, 09 varieties of AVT (M) II, along with susceptible check i.e. CoJ 64 was evaluated against red rot by plug method, nodal method and cotton swab method by using three types of inoculum Cf 08, Cf 09 and Cf 08 + Cf 09 in each method of inoculation. The inoculum was prepared from 07 days old cultures of Cf 08 and Cf 09 pathotypes individually. Conidial suspension at concentration of one million spore/ml was prepared for inoculation. The inoculation was done in 3rd week of July by nodal method and cotton swab method and 2nd week of August by plug method. The observations were recorded after 60 days of inoculations. The varieties were evaluated on the basis of 0-9 scale and rated as Resistant (R), Moderately resistant (MR), Moderately susceptible (MS), Susceptible (S) and Highly susceptible (HS) (Table-2).

(a) Varieties graded as resistant/moderately resistant by plug method, inoculated with Cf 08.

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, CoPb 08214, COS 08234, CoH 08235, COS 767, Co 1148.

IVT (E): CoPb 08211, CoPb 08213, Co Pant 08222, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I: Co 06032, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I: Co 07028, CoH 07263, COH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT(M)II: Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoS 06247, CoS 767, Co 1148.

(b) Varieties graded as resistant/moderately resistant by plug method, inoculated with Cf 09.

IVT (M): CoH 08262, CoS 08234, CoS 08235.

IVT (E): CoPb 08211, Co Pant 08222, CoS 08231, CoS 08232.

AVT (E)I:Co 06032, Co 07025, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, COH 07264, CoLk 07202, CoLk 07203, CoS 07232, CoS 07234.

AVT(M)II:Co 06034, CoH 06266, CoPb 06219, CoS 06247, Co 1148.

(C) Varieties graded as resistant/moderately resistant by plug method, inoculated with mixed inoculum of (Cf 08 + Cf 09).

IVT (M): CoH 08262, COH 08263, CoLk 08201, CoS 08234, CoS 08235.

IVT (E): CoPb 08211, Co Pant 08222, CoS 08231.

AVT (E)I:Co 06032, Co 07023, Co 07025, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, COH 07264, CoLk 07202, CoLk 07203, CoPb 07213, CoS 07232, CoS 07234.

AVT(M)II:Co 06033, Co 06034, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(d) Varieties graded as resistant/moderately resistant by plug method, inoculated with Cf 08.

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, Co Pb 08214, CoPb 08215, CoPb 08216, CoPb 08217, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I:Co 06032, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, COH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT(M)II:Co 06033, Co 06034, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(e) Varieties graded as resistant/moderately resistant by plug method, inoculated with Cf 09.

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, CoLk 08201, Co Pb 08214, CoPb 08216, CoPb 08217, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I:Co 06032, Co 07023, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, COH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767.

AVT(M)II:Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(f) Varieties graded as resistant/moderately resistant by nodal method, inoculated with composite inoculum of (Cf 08 + Cf 09) pathotypes.

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, CoLk 08201, Co Pb 08214, CoPb 08215, CoPb 08216, CoPb 08217, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I:Co 06032, Co 07023, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, CoH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT(M)II:Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(g) Varieties graded as resistant/moderately resistant by nodal method, inoculated with composite inoculum of Cf 08 pathotypes.

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, Co Pb 08214, CoPb 08215, CoPb 08216, CoPb 08217, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08231, CoS 08232.

AVT (E)I:Co 06032, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, CoH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767.

AVT(M)II:Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(h) Varieties graded as resistant/moderately resistant by cotton swab method, inoculated with Cf 09 pathotypes.

IVT (M): CoH 08262, CoLk 08201, Co Pb 08214, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I:Co 06032, Co 07023, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, CoH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT(M)II:Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

(i) Varieties graded as resistant/moderately resistant by cotton swab method, inoculated with composite Inoculum of (Cf 08 + Cf 09).

IVT (M): CoH 08261, CoH 08262, CoH 08263, CoH 08264, CoLk 08201, Co Pb 08214, CoPb 08215, CoPb 08216, CoPb 08217, CoS 08234, CoS 08235, CoS 767, Co 1148.

IVT (E): CoPb 08211, Co Pb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08231, CoS 08232, CoS 8436.

AVT (E)I:Co 06032, Co 07023, Co 07025, CoH 07261, CoLk 07201.

AVT (M)I:Co 07028, CoH 07263, CoH 07264, CoLk 07202, CoLk 07203, CoPb 07212, CoPb 07213, CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT(M)II:Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767, Co 1148.

Check (Red rot susceptible): CoJ 64

B- SMUT

All the entries of IVT (M), IVT (S), AVT (E) I, AVT (M) I, AVT (M) II, were tested against smut also, teliospores from commercially cultivated sugarcane varieties were collected and filled in blotting paper bags and stored in dessicator under calcium chloride. Three budded setts were dipped in spore suspension of over 90 per cent viability with a spore load of one million per ml for half an hour before panting. The incidence of the smut was recorded fortnightly on the clump basis of each row on different varieties (Table-2).

Varieties found R/MR to smut.

IVT (M): CoH 08263, CoH 08264, CoLk 08201, CoPb 08214, CoPb 08215, CoPb 08216.

IVT (E): CoPb 08211, CoPb 08212, CoPb 08213, Co Pant 08221, Co Pant 08222, CoS 08232, CoS 8436.

AVT (E) I: Co 06032, Co 07023, Co 07025, CoH 07261.

AVT (M) I: Co 07028, CoH 07263, CoH 07264, CoLk 07203, CoPb 07212, CoPb 07213,

CoS 07232, CoS 07234, CoS 767, Co 1148.

AVT (M) II: Co 06033, Co 06034, CoH 06265, CoH 06266, Co Pant 06224, CoPb 06219, CoS 06247, CoS 767.

Check (smut susceptible): Co 1158 was used as smut susceptible check & found highly susceptible to smut.

Project No. : **PP 22**
Project title : Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties.
Objective : To gather information on the diseases naturally occurring in the area on varieties to compile an All India disease status report yearly.
Year of start : 1989-90
Location : Shahjahanpur

Report

Heavy incidence of red rot was reported on variety CoJ 85 from Shahjahanpur. Its incidence varied from 60 to 75 percent. Red rot incidence was reported from 0.5 to 35 percent in varieties CoJ 64, CoS 802 and in an unknown variety from Bijnor, Budhana (Muzaffarnagar) and Deoband (Saharanpur). Below 02 percent incidence of red rot have been reported on varieties CoSe 92423, CoSe 95422, CoS 8436 and Co 1148 from the districts Shahjahanpur, Saharanpur, Balrampur and Muzaffarnagar (Table-3). Stray to 05 percent incidence of smut have been reported from few pockets of Bijnor, Shahjahanpur, Golagokarannath and Muzaffarnagar.

Stray to mild cases of wilt have been reported from few pockets of Sitapur, Shahjahanpur and Pilibhit districts. GSD have been reported in almost all the sugarcane cultivars and its incidence varied from 02 to 80 percent. It was noticed from all the districts surveyed, the disease was present up to some extent (Table-3).

Stray cases of Pokkah Boeng were reported on variety CoS 05452, CoSe 01424, CoSe 06455, CoSe 06456, CoSe 01434, CoS 8436, CoS 07250, CoSe 96436, CoS 96275, CoSe 98231, CoSe 01235, CoS 99259, CoSe 92423 from Golagokarannath, Shahjahanpur, Sitapur, Gazipur, Sultanpur and Balrampur districts (Table-3). Stray cases of leaf binding and Banded sclerotial disease have been observed from Golagokarannath and Balrampur.

Project No. : **PP 23**
Project title : Assessment of elite and ISH genotypes for resistance to red rot.
Objective : To gather information on *Saccharum* sp. and elite genotypes for resistance to red rot so that the resistant genotypes could be used in breeding programme as possible donor for resistance.
Year of start : 1996-97
Location : Shahjahanpur

Report

Of nineteen ISH genotypes four ISH genotypes namely ISH 338, ISH 280, ISH 298 and ISH 291 were found moderately resistant by plug method of inoculation against Cf 08 and Cf 09 pathotypes. (Table-4).

Project No. : **PP 31**
Project title : Screening, epidemiology and management of Pokkah boeng in sugarcane.
Objective :
Year of start : 2011-12
Location : Shahjahanpur

Report

A total of number of 17 varieties were screened out during the crop season 2011-12 with mild infection from different sugarcane growing areas (Table-5). All the infected varieties have chlorotic streaks, curling and twisting on leaves at various intensities. No symptoms of top rot and wilting of stalks have been observed during the survey in any cultivars.

It has been observed that the incidence of pokkah boeng disease appears after the starting of rain fall with high humidity and low temperature. The maximum intensity of symptoms was observed at temperature 33.2 (Max.), 25.2 (Min.), relative humidity 78% and 572.0 mm rainfall in the month of September (Table-6). Rainfall and high humid condition plays a major role in incidence of disease however; symptoms were also noticed in different locations after monsoon period with stray condition.

Table-1: PP-14. Pathogenic behaviour of *C. falcatum* pathotypes/ isolates on host differentials (2011-12).

| S. N. | Isolates | Source | Reaction on host differentials | | | | | | | | | | | | | | Tailed with pathotype |
|-------|----------|------------|--------------------------------|--------|--------|---------|---------|----------|---------|--------|---------|----------|-------|---------|--------|---------|-----------------------|
| | | | CO 419 | CO 975 | CO 997 | CO 1148 | Co 7717 | CO 62399 | CO 0671 | CoJ 64 | CoS 767 | CoS 8436 | BO 91 | Baragua | Khakai | SES 594 | |
| 1 | Cf 01 | Co 1148 | R | S | S | S | R | S | S | S | R | R | R | R | S | R | |
| 2 | Cf 02 | Co 7717 | I | R | S | R | S | I | S | I | R | R | R | R | S | R | |
| 3 | Cf 03 | CoJ 64 | R | R | S | R | R | R | I | S | R | R | R | R | S | R | |
| 4 | Cf 07 | CoJ 64 | I | R | S | S | R | R | I | S | R | R | R | R | S | R | |
| 5 | Cf 08 | CoJ 64 | I | S | S | S | S | S | S | S | I | R | R | R | S | R | |
| 6 | Cf 09 | CoS 767 | I | I | S | S | R | R | I | S | S | R | R | R | S | R | |
| 7 | Cf 11 | CoJ 64 | S | I | S | I | I | I | I | S | I | R | I | I | I | R | |
| 8 | R 0401 | CoS 8436 | S | S | S | I | R | S | S | S | R | S | R | R | S | R | New |
| 9 | R 1001 | CoJ 64 | I | S | S | S | S | S | S | S | I | R | R | R | S | R | Cf 08 |
| 10 | R 1002 | CoS 88230 | I | S | S | S | S | S | S | S | I | R | R | R | S | R | Cf 08 |
| 11 | R 1003 | CoSe 92423 | I | I | S | S | R | R | I | S | S | R | R | R | S | R | Cf 09 |

R- Resistant, I- Intermediate, S- Susceptible

Table-2: PP-17. Evaluation of prezonal/zonal/ genotypes/ varieties to red rot and smut (2011-12) at Shahjahanpur.

| S. N. | Genotypes/ varieties | Reaction against Red rot | | | | | | | | | Reaction to smut |
|------------------|----------------------|--------------------------|-------|--------------|--------------|-------|--------------|--------------------|-------|--------------|------------------|
| | | Plug method | | | Nodal method | | | Cotton swab method | | | |
| | | Cf 08 | Cf 09 | Cf 08+ Cf 09 | Cf 08 | Cf 09 | Cf 08+ Cf 09 | Cf 08 | Cf 09 | Cf 08+ Cf 09 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| IVT (M) | | | | | | | | | | | |
| 1 | CoH 08261 | MR | S | S | R | R | R | R | MS | MR | MS |
| 2 | CoH 08262 | MR | MR | MR | R | R | R | R | R | R | S |
| 3 | CoH 08263 | MR | S | MR | R | R | R | R | MS | R | R |
| 4 | CoH 08264 | MR | S | MS | R | R | R | R | MS | MR | R |
| 5 | CoLk 08201 | NG | NG | MR | NG | R | R | NG | R | R | R |
| 6 | CoPb 08214 | MR | MS | S | R | R | R | R | R | MR | R |
| 7 | CoPb 08215 | MS | HS | HS | R | MS | R | R | MS | MR | R |
| 8 | CoPb 08216 | NG | S | S | R | MR | R | R | MS | R | R |
| 9 | CoPb 08217 | MS | S | S | R | R | R | R | MS | MR | S |
| 10 | CoS 08234 | MR | MR | MR | R | R | R | R | R | R | MS |
| 11 | CoS 08235 | MR | MR | MR | R | R | R | R | R | R | MS |
| 12 | CoS 767 | MR | MS | MS | R | R | R | R | R | R | MS |
| 13 | Co 1148 | MR | MS | MS | R | R | R | R | R | R | MS |
| IVT (E) | | | | | | | | | | | |
| 1 | CoPb 08211 | MR | MR | MR | R | R | R | R | R | R | R |
| 2 | CoPb 08212 | MS | S | MS | R | R | R | MR | R | R | R |
| 3 | CoPb 08213 | MR | MS | MS | R | R | R | R | R | R | R |
| 4 | Co Pant 08221 | NG | S | NG | R | R | R | R | MR | MR | R |
| 5 | Co Pant 08222 | MR | MR | MR | R | R | R | MR | R | R | MR |
| 6 | CoS 08231 | MR | MR | MR | R | R | R | R | R | R | R |
| 7 | CoS 08232 | MR | MR | MS | R | R | R | R | R | R | MS |
| 8 | CoS 8436 | MR | MS | MS | R | R | R | NG | MR | R | R |
| AVT (E) I | | | | | | | | | | | |
| 1 | Co 06032 | MR | MR | MR | R | R | R | R | R | R | R |
| 2 | Co 07023 | NG | MS | MR | NG | R | R | NG | R | R | R |
| 3 | Co 07025 | MR | MR | MR | R | R | R | R | R | R | MR |
| 4 | CoH 07261 | MR | MS | MS | R | R | R | R | R | R | R |
| 5 | CoLk 07201 | MR | MR | MR | R | R | R | R | R | R | S |

Table-3: 22. Situation of different sugarcane diseases in central and western U.P. (2011-12)

| S. N. | Name of disease | Varieties affected | Percent of incidence | Crop age when observed | Factory zone/ District |
|-------|-----------------|--------------------------|----------------------|------------------------|----------------------------|
| 1. | Red rot | Co 1148 | 2.0 | 7 months | Mansoorpur (Muzaffarnagar) |
| | | CoJ 64 | 0.5-2.0 | 6 months | Khatauli (Muzaffarnagar) |
| | | CoJ 64 | 0.5-35.0 | 7 months | Bijnor/ Bijnor |
| | | CoJ 85 | 60-75 | 7 months | Shahjahanpur near Banthara |
| | | Co Pant 84212 | 2.0-12.0 | 6 months | Mansoorpur (Muzaffarnagar) |
| | | Co Pant 84212 | Stray 5.0 | 6 months | Saharanpur/ Saharanpur |
| | | CoS 8436 | 0.5 | 8 months | Balrampur |
| | | CoS 802 | 2.0-30.0 | 7 months | Burhana/ (Muzaffarnagar) |
| | | CoSe 92423 | 1.0 | 6 months | Golagokarannath (kheri) |
| | | CoSe 95422 | 1.0 | 7 months | Banthara (Shahjahanpur) |
| | | Unknown | 5.0-25.0 | 6 months | Deoband (Saharanpur) |
| 2. | Smut | CoS 95285 | Stray-0.5 | 4 & 10 months | Seohara (Bijnor) |
| | | CoSe 01424 | Stray-0.5 | | Shahjahanpur |
| | | CoSe 01424 | Stray-0.5 | | Golagokarannath (Kheri) |
| | | CoSe 01424 | 2.0 | | Dhampur (Bijnor) |
| | | CoSe 01424 | 4.0 | | Nazibabad (Bijnor) |
| | | CoSe 01424, 01434, 03234 | Stray-5.0 | | Mansoorpur (Muzaffarnagar) |
| 3. | Wilt | CoSe 01424 | Stray-1.0 | 9 months | Biswan (Sitapur) |
| | | CoSe 92423 | Stray | | Powayan (Shahjahanpur) |
| | | UP 0097, CoS 97264 | Mild | | Puranpur (Pilibhit) |

Table-3: 22. Situation of different sugarcane diseases in central and western U.P. (2011-12)

| S. N. | Name of disease | Varieties affected | Percent of incidence | Crop age when observed | Factory zone/ District |
|-----------------------------|-----------------|------------------------------|----------------------|------------------------|----------------------------|
| 4. | GSD | Co 0238, CoJ 64, CoS 767 | 2.0-35.0 | 4 to 7 months | Khatauli (Muzaffarnagar) |
| | | CoS 767 | 5.0-75.0 | | Shamli (Muzaffarnagar) |
| | | CoS 767 | 5.0-60.0 | | Morna (Muzaffarnagar) |
| | | CoS 767, CoS 8432 | Stray | | Puranpur (Pilibhit) |
| | | Co 1148, CoS 767 | 2.0-80.0 | | Una (Muzaffarnagar) |
| | | CoS 8432, CoSe 01434 | Stray | | Balrampur |
| | | UP 49 | Stray | | Balrampur |
| | | CoS 767, CoS 88230 | 5.0-65.0 | | Deoband (Saharanpur) |
| | | CoS 767, 8436, 97261, 98259 | Stray-3.0 | | Afzalgarh (Bijnor) |
| | | CoS 97264, UP 0097 | Stray | | Puranpur (Pilibhit) |
| | | CoSe 01434 | Stray | | Sultanpur |
| | | CoS 95255, 07250 | Stray | | Sultanpur farm |
| | | CoS 96268, CoSe 98231 | Stray | | Powayan |
| | | CoS 97261, CoSe 01424 | Stray | | Gola Research farm |
| | | CoS 96275, CoSe 01424, 01434 | Stray-2.0 | | Mansoorpur (Muzaffarnagar) |
| | | CoS 8436, 88230, 767 | Stray | | Saharanpur |
| | | Co Pant 84212 | 0.5-40.0 | | Saharanpur |
| CoS 767, 8436, 97261, 98259 | Stray-5.0 | Dhampur (Bijnor) | | | |
| CoS 98259, CoSe 98231 | Stray-2.0 | Nazibabad (Bijnor) | | | |

Table-3: 22. Situation of different sugarcane diseases in central and western U.P. (2011-12)

| S. N. | Name of disease | Varieties affected | Percent of incidence | Crop age when observed | Factory zone/ District |
|----------|-------------------|-----------------------------|----------------------|------------------------|-------------------------|
| 5. | Pokkah boeng | CoS 05452, CoSe 01424 | Stray | 5-7 months | Golagokarannath (Kheri) |
| | | CoSe 06455, 06456 | Stray | | Golagokarannath (Kheri) |
| | | CoSe 01434, CoS 8436 | Stray | | Shahjahanpur |
| | | CoS 07250 | Stray | | Shahjahanpur |
| | | CoSe 01434, CoS 8436, 07250 | Stray | | Hargaon (Sitapur) |
| | | CoSe 96436, CoS 96275 | Stray | | Ghazipur |
| | | CoSe 98231, 01424, 01434 | | | |
| | | CoS 07250, CoSe 01235 | | | |
| | | CoS 99259, CoSe 92423 | | | |
| | | CoSe 01434, 92423 | Stray | | Sultanpur |
| | | CoS 07250 | Stray | | Balrampur |
| CoS 8436 | Stray | Balrampur | | | |
| 6. | Leaf binding | CoS 07250, CoSe 98231 | Stray | 4 months | Balrampur |
| 7. | Banded sclerotial | CoS 96268 | Stray | 5-6 months | Golagokarannath- Kheri |

Table-4: Screening of ISH genotypes against red rot during 2011-12 (Shahjahanpur)

| S.N. | Genotypes | Plug method | |
|------|-----------|-------------|-------|
| | | Cf 08 | Cf 09 |
| 1 | ISH 270 | NG | NG |
| 2 | ISH 338 | MR | MR |
| 3 | ISH 305 | HS | S |
| 4 | ISH 285 | HS | HS |
| 5 | ISH 280 | MR | MR |
| 6 | ISH 287 | S | S |
| 7 | ISH 263 | MS | MS |
| 8 | ISH 266 | HS | S |
| 9 | ISH 274 | MS | MS |
| 10 | ISH 301 | HS | S |
| 11 | ISH 307 | NG | NG |
| 12 | ISH 975 | S | S |
| 13 | ISH 293 | HS | HS |
| 14 | ISH 208 | MR | MR |
| 15 | ISH 265 | NG | NG |
| 16 | ISH 291 | MR | MR |
| 17 | ISH 298 | MS | MS |
| 18 | ISH 207 | HS | HS |
| 19 | ISH 268 | HS | HS |

Table-5: Reaction of different sugarcane varieties against Pokka Boeng disease under natural condition.

| S.N. | Varieties | Percent infected plants | | | | Disease reaction |
|------|------------|-------------------------|----------|--------|-----------------|------------------|
| | | Mild | Moderate | Severe | Total incidence | |
| 01 | S. 546/06 | 1 | - | - | 1 | Resistant |
| 02 | S. 1899/04 | 1 | - | - | 1 | R |
| 03 | CoS 09240 | 1 | - | - | 1 | R |
| 04 | CoS 06456 | 1 | - | - | 1 | R |
| 05 | CoS 8436 | 3 | - | - | 3 | R |
| 06 | CoS 767 | 1 | - | - | 1 | R |
| 07 | CoSe 05452 | 1 | - | - | 1 | R |
| 08 | CoSe 06455 | 1 | - | - | 1 | R |
| 09 | CoSe 05457 | 2 | - | - | 2 | R |
| 10 | CoSe 01434 | 2 | - | - | 2 | R |
| 11 | CoS 07250 | 2 | - | - | 2 | R |
| 12 | CoSe 96436 | 2 | - | - | 2 | R |
| 13 | CoS 96275 | 2 | - | - | 2 | R |
| 14 | CoSe 98231 | 1 | - | - | 1 | R |
| 15 | CoSe 01424 | 2 | - | - | 2 | R |
| 16 | CoSe 01235 | 1 | - | - | 1 | R |
| 17 | CoSe 92423 | 2 | - | - | 2 | R |
| 18 | CoS 8432 | 3 | - | - | 3 | R |

Table-6: Meteriological data at Sugarcane Research Institute, Shahjahanpur during April, 2011 to March, 2012

| S.N. | Month | Rain fall (mm) | Temperature °C | | Relative humidity |
|------|-----------------|----------------|----------------|---------|-------------------|
| | | | Maximum | Minimum | |
| 01 | April, 2011 | 8.8 | 36.6 | 18.6 | 40 |
| 02 | May, 2011 | 69.8 | 38.5 | 24.4 | 49 |
| 03 | June, 2011 | 147.2 | 35.8 | 25.9 | 64 |
| 04 | July, 2011 | 279.8 | 36.9 | 26.0 | 81 |
| 05 | August, 2011 | 280.2 | 32.7 | 26.0 | 83 |
| 06 | September, 2011 | 572 | 33.2 | 25.2 | 78 |
| 07 | October, 2011 | - | 32.7 | 18.7 | 62 |
| 08 | November, 2011 | - | 27.6 | 13.7 | 71 |
| 09 | December, 2011 | - | 21.2 | 7.2 | 75 |
| 10 | January, 2012 | 36.8 | 17.5 | 6.2 | 76 |
| 11 | February, 2012 | - | 23.1 | 9.4 | 63 |
| 12 | March, 2012 | - | 30.4 | 13.7 | 52 |