

RP 02446

ICAR - ICRISAT
UNIFORM TRIAL FOR
PIGEONPEA WILT RESISTANCE
(IIUTPWR)

Indian Council of Agricultural Research, New Delhi, India

and

International Crops Research Institute for the Semi-Arid Tropics
ICRISAT Patancheru P.O.
Andhra Pradesh 502 324, India

INTRODUCTION

The National Uniform Trial for Pigeonpea Wilt Resistance was proposed and organized by the participants at the All India Kharif Pulses Workshop held under the auspices of the Indian Council of Agricultural Research (ICAR) at Baroda (Gujarat) in April 1978. The main objective was to test promising cultivars, germplasm accessions, and breeding lines of pigeonpea against the wilt (*Fusarium udum* Butler) which is a major disease in different pigeonpea growing regions of India.

ICAR and ICRISAT were requested to coordinate the exchange of seed materials and compile data. The results obtained in National Uniform Trials are summarized by ICAR (through Kharif Pulses Workshop Reports) and ICRISAT (through Pulse Pathology Progress Reports).

OBJECTIVES

The objectives of the ICAR and ICRISAT Uniform Trial for Pigeonpea Wilt Resistance (IIUTPWR) are to:

1. Identify cultivars, accessions and breeding lines resistant to pigeonpea wilt
2. Determine the stability of different genotypes
3. Detect new races of the wilt fungus

FORMAT OF THE TRIAL

This is the fifth year of operating the IIUTPWR. Thirty-three entries have been included on the recommendation of pathologists

who participated in the All India Kharif Pulses Workshop at Kanpur in May 1984. These were found promising at certain locations in the field screening. It will be interesting to see the performance of all these entries at different locations. Some of the entries found promising in the last season have been included again as 'resistant' checks.

If you have identified promising materials at your location, we would greatly appreciate receiving preferably 1000 seeds of each for inclusion in the nursery next year. If the number of seeds supplied is less, then the entry will be tested only at few locations. This way your material will get tested at several locations.

We are sending you three copies of the record book. Please send one copy directly to:

1. Dr. K.S. Amin
Principal Investigator (Plant Pathology)
Directorate of Pulse Research (ICAR)
Kalyanpur
Kanpur - 208 024
Uttar Pradesh
2. Dr. Y.L. Nene
Principal Plant Pathologist and Leader
Pulses Improvement Program
ICRISAT Center
Patancheru P.O. 502 324
Andhra Pradesh

The third copy is for your own records.

We sincerely appreciate your cooperation in conducting this trial. A report on the results of this nursery will be prepared, as in the past, by Principal Investigator (Pulse Pathology) and presented at the annual workshop.

LIST OF ENTRIES

S.No.	Entry	Pedigree	Origin
1.	ICP-3461	P-953/1-W10-W20-WB0-WB0	U.P.
2.	ICP-3465	P-1073-W10-W10-WB0-WB0	Gujarat
3.	ICP-9134	JM-2381-SW10-WB0-WB0	Kenya
4.	ICP-9174	JM-2467-WB0-WB0	Kenya
5.	ICP-12725	ICP-238-W20-W20-WB0-WB0	ICRISAT
6.	ICP-12726	ICP-673-W20-W20-WB0-WB0	"
7.	ICP-12727	ICP-1522-P50-P10-W20-WB0-WB0-WB0	"
8.	ICP-12729	ICP-2812-W20-WB0-WB0-WB0	"
9.	ICP-12731	ICP-7197-SW10-WB0-WB0	"
10.	ICP-12745	ICP-10517-W30-W10-WB0-WB0	"
11.	ICP-12748	C.No.74342(F ₆) 6997 x NP(WR)-15- SWB0-SW70-SWB0-WB0 (Cream)	"
12.	ICP-12752	C-11 (BDN) SWB0-W10-WB0-WB0 (White)	"
13.	ICP-12758	PI-39454-SW10-W10-WB0-WB0	"
14.	ICP-12759	PI-395272-SW10-W10-WB0-WB0	"
15.	ICPL-84001	C-11-900-50-B0-B-W10-WB0-WB0-B	"
16.	ICPL-84002	78117-W17-WB-WB	"
17.	ICPL-84003	78139-W11-WB-WB	"
18.	ICPL-84004	78120-W11-WB-WB	"
19.	ICPL-84007	78120-W10-WB-WB	"
20.	ICPL-84008	78185-W14-WB-WB	"
21.	ICPL-84010	76101-VI NDT 18-W30-5-WB0-B	"
22.	ICPL-84011	78130-W16-WB-WB	"
23.	ICPL-84013	78130-W9-WB-WB	"
24.	ICPL-84016	78139-W20-WB-WB	"
25.	ICPL-84017	78142-W13-WB-WB	"
26.		BWR-250	Badnapur

LIST OF ENTRIES CONTD.

S.No.	Entry	Pedigree	Origin
27.	-	BWR-217	Badnapur
28.	-	BWR-370	"
29.	-	BWR-369	"
30.	-	BWR- 245	"
31.	-	BWR-67	"
32.	-	AWR 74/15	Kanpur
33.	-	Banda Palera	Kanpur
34.	ICP-2376*	P-3888	ICRISAT

*Wilt susceptible check

NOTES

1. There are two packets for each entry and each packet will contain about 40 seeds.
2. Two 5 m rows will be a plot and each row will have 40 seeds. The pattern of sowing to be followed is given on a separate sheet (see under "Design of Nursery").
3. For planting these entries a "sick plot" would be most desirable.
4. Please follow all recommended agronomic practices and report them under "General Information".
5. Count number of wilted plants every month for your own records. Only final data (total number of plants killed due to wilt) collected 15 days before harvest should be reported in this data book (it would vary with early, medium and late maturity groups).
6. If other disease/diseases (other than wilt) are conspicuous, please use the spare sheet for reporting its/their incidence. We will appreciate receiving details.
7. We suggest a row spacing of 75 cm and plant spacing of 20 cm.
8. Please note that seedling emergence is to be recorded 20 days after sowing under the column 'Emergence'.
9. Since it is difficult to supply large quantities of pure seeds of resistant lines, we suggest that you self (with muslin bags) sufficient number of disease-free plants of selected lines and collect pure seeds (selfed seeds) for your own use.

NOTES CONTD.

10. If your research station breeder is interested in breeding for disease resistance in pigeonpea, ask him to do crossing work in your disease nursery itself to save time and materials

GENERAL INFORMATION

1. STATION NAME & LOCATION _____
2. COOPERATOR(S) _____
3. DATE OF PLANTING _____
4. WAS PLANTING EARLY/NORMAL/LATE? _____

	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
5. SEASON'S RAINFALL ^a (mm)												
TEMP. MAX.												
MIN.												

6. IRRIGATION (if given)
State quantity & dates _____
7. FERTILIZER USED
(Source & amount) _____
8. INSECT PROBLEMS _____
9. INSECTICIDES USED
(Which & when) _____
10. OTHER NOTES _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

^aData required from the month of sowing to the month of harvesting only.

WILT INCIDENCE DATA¹
(Only final counts are to be given)

LOCATION:

OBSERVATIONS RECORDED BY:

Entry	Rep. I			Rep. II			Average % wilt (from both reps.)
	Emer-gence ²	Number wilted	Percent wilt	Emer-gence ²	Number wilted	Percent wilt	
ICP-2376							
ICP-3461							
ICP-3465							
ICP-2376							
ICP-9134							
ICP-9174							
ICP-2376							
ICP-12725							
ICP-12726							
ICP-2376							
ICP-12727							
ICP-12729							
ICP-2376							
ICP-12731							
ICP-12745							
ICP-2376							
ICP-12478							
ICP-12752							
ICP-2376							
ICP-12758							
ICP-12759							

WILT INCIDENCE DATA¹ Contd.
(Only final counts are to be given)

LOCATION:

OBSERVATIONS RECORDED BY:

Entry	Rep. I			Rep. II			Average % wilt (from both reps.)
	Number of plants diseased ²	Number of plants wilted	Percent wilt	Number of plants diseased ²	Number of plants wilted	Percent wilt	
ICP-2376							
ICPL-84001							
ICPL-84002							
ICP-2376							
ICPL-84003							
ICPL-84004							
ICP-2376							
ICPL-84007							
ICPL-84008							
ICP-2376							
ICPL-84010							
ICPL-84011							
ICP-2376							
ICPL-84013							
ICPL-84016							
ICP-2376							
ICPL-84017							
BWR-250							
ICP-2376							
BWR-217							
BWR-370							
ICP-2376							

WILT INCIDENCE DATA¹ Contd.
(Only final counts are to be given)

LOCATION:

OBSERVATIONS RECORDED BY:

Entry	Rep. I			Rep. II			Average % wilt (from both reps.)
	Emergence ²	Number wilted	Percent wilt	Emergence ²	Number wilted	Percent wilt	
BWR-369							
BWR-245							
ICP-2376							
BWR-67							
AWR-74/15							
ICP-2376							
Banda-Palera							
ICP-2376							

¹ Give the actual number of plants wilted. Only final counts (15 days before harvest) are to be recorded on these sheets. It would vary with early, medium and late maturity groups.

² Emergence of seedlings to be recorded 20 days after sowing. If it is recorded later than 20 days, the days may be indicated in the data sheet.

RECORD OF DISEASE/DISEASES OTHER THAN WILT

LOCATION:

NAME OF DISEASE:

Entry	Rep. I	Rep. II
ICP-2376		
ICP-3461		
ICP-3465		
ICP-2376		
ICP-9134		
ICP-9174		
ICP-2376		
ICP-12725		
ICP-12726		
ICP-2376		
ICP-12727		
ICP-12729		
ICP-2376		
ICP-12731		
ICP-12745		
ICP-2376		
ICP-12748		
ICP-12752		
ICP-2376		
ICP-12758		
ICP-12759		
ICP-2376		

RECORD OF DISEASE/DISEASES OTHER THAN WILT Contd.

LOCATION:

NAME OF DISEASE:

Entry	Rep. I	Rep. II
ICPL-84001		
ICPL-84002		
ICP-2376		
ICPL-84003		
ICPL-84004		
ICP-2376		
ICPL-84007		
ICPL-84008		
ICP-2376		
ICPL-84010		
ICPL-84011		
ICP-2376		
ICPL-84013		
ICPL-84016		
ICP-2376		
ICPL-84017		
BWR-250		
ICP-2376		
BWR-217		
BWR-370		
ICP-2376		

RECORD OF DISEASE/DISEASES OTHER THAN WILT Contd.

LOCATION:

NAME OF DISEASE:

Entry	Rep. I	Rep. II
BWR-369		
BWR-245		
ICP-2376		
BWR-67		
AWR-74/15		
ICP-2376		
Banda- patera		
ICP-2376		

DESIGN OF NURSERY

Follow the sequence of entry number as detailed below. Each entry will be one row in each replication. One row of the susceptible check ICP-2376 has been repeated after every two test rows (2 entries) for proper comparison. Thus there will be 1 row in each replication.

REPLICATION - I

ICP-2376, BWR-370, ICPL-84003, ICP-2376, ICPL-84002, ICPL-84007, ICP-2376, ICPL-84017, ICP-12752, ICP-2376, ICPL-84004, ICP-12731, ICP-2376, ICP-12727, ICP-12759, ICP-2376, ICPL-84011, ICP-12758, ICP-2376, BWR-67, ICP-3465, ICP-2376, BWR-217, ICPL-84010, ICP-2376, ICP-3461, ICP-12748, ICP-2376, BWR-250, ICP-9134, ICP-2376, ICP-12729, ICPL-84001, ICP-2376, BWR-245, Bandapalera, ICP-2376, BWR-369, ICP-12726, ICP-2376, ICP-12725, ICP-12745, ICP-2376, ICPL-84013, ICP-9174, ICP-2376, ICPL-84008, AMR-74/15, ICP-2376, ICPL-84016, ICP-2376.

REPLICATION - II

ICP-2376, ICP-3461, Bandapalera, ICP-2376, ICPL-84002, ICP-12727, ICP-2376, ICP-9134, ICPL-84004, ICP-2376, ICP-12729, ICP-12748, ICP-2376, BWR-367, ICPL-84007, ICP-2376, ICP-12759, BWR-250, ICP-2376, ICP-12745, ICPL-84001, ICP-2376, ICPL-84010, AMR-74/15, ICP-2376, ICPL-84013, BWR-369, ICP-2376, BWR-217, ICPL-84008, ICP-2376, ICP-3465, BWR-245, ICP-2376, ICP-12725, ICP-12758, ICP-2376, ICP-12726, ICP-9174, ICP-2376, ICPL-84017, ICP-12731, ICP-2376, ICPL-84011, ICP-12752, ICP-2376, ICPL-84016, ICPL-84003, ICP-2376, BWR-370, ICP-2376.