MM 1.2 : Develpoment of tetraploid cotton cultivars with high fibre quality and resistance to drought and biotic stresses

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Target & Achievement

Sl. No.	Targets	Achievements
1.	Screening germplasm lines for high ginning and superior quality	Four hundred and seventeen germplasm lines were evaluated. Lines with fibre strength up to 28.0 g/tex and 40.0 per cent ginning out turn have been identified.
2.	Development of breeding materials of *G. hirsutum* with minimum 36 per cent ginning out turn and fibre strength of 25.0 g/tex	From the breeding materials, lines possessing 24 g/tex fibre strength and 38 per cent ginning out turn have been identified for North Zone. In the Central Zone, culture with 30 percent yield increase to local check have been identified. Ginning out turn has also been improved up to 38 per cent. But the improvement in fibre strength was only up to 22 g/tex. In South Zone, cultures possessing 24 to 25 g/tex fibre strength and 36 per cent ginning out turn hold promise.
3.	Multilocation evaluation and superior genotype identification	For North Zone, culture F 2052 with seed cotton yield of 2460 kg/ha with 35 per cent ginning out turn and fibre strength of 21.8 g/tex identified. Cultures CCH 226 recorded 36 per cent ginning out turn and 23.5 g/tex fibre strength. For Central Zone, GISV 97-1016 recorded high yield (1181 kg/ha) and fibre strength of 21.2 g/tex. Cultures with up to 37 per cent ginning out turn identified. CCH 226 recorded highest fibre strength of 21.8g/tex. CCH 226 in South Zone recorded 36.8 per cent ginning out turn and 23.3 g/tex fibre strength.
4.	Identification of *G. hirsutum* genotypes for resistance to jassids	Culture PRT 2-03-17 and PRT 2-03-19 at Hisar, GSHV 126/270 at Surat IS 376-4-3 and NH-IS-2-2 at Nanded and L(RCH x T13) 52-1-1 and 55-1-8 were resistant to jassids.
5.	Identification of *G. hirsutum* genotypes for resistance to bollworms	Five cultures F 2001 at Faridkot, H 1317 at Hisar, GISV 135 at Surat, NH 156 at Nanded, AKH 0309 at Lam, and B (LxB) 355 recorded less locule damage.

6.	Identification of genotypes for resistance to leaf curl virus disease	Cultures resistant to CLCuV disease have been reported from all North Zone centres.
7.	Identification of genotypes for resistance to major diseases	Thirteen genotypes at Faridkot, three at Nagpur were resistant to Alternaria leaf spot. Culture GSHV 01/1241 was resistant to Bacterial blight at Surat. Two strains NC MDR 16 and NH 603 showed multiple resistance to bacterial blight, Alternaria and grey mildew disease at Nanded.
8.	Identification of different genotypes for water stress.	Five lines at Nanded and nine lines at CICR, Coimbatore have been found to be drought tolerant.

- **Screening of germplasm lines and breeding materials of *G.hirsutum* for high ginning outturn and superior fibre quality characteristics.**

North Zone

PAU, Faridkot:

In the first trial, 16 genotypes were evaluated with LH 1556 and F 1861 as checks. Culture F 2036 recorded the highest yield (2799 kg/ha) followed by F 1982 (2668 kg/ha), F 1946 (2667 kg/ha) and F 2077 (2637 kg/ha). The culture F 2036 recorded the highest ginning outturn of 35.50 percent. However, it was moderately susceptible to leaf curl virus. F 1946 and F 2077 were moderately resistant.

In the second trial also 16 genotypes were evaluated. Only two genotypes *viz.,* F 2079 (3196 kg/ha) and F 2112 (3157 kg/ha) had significantly higher seed cotton yield than the best check LH 1556 (2616 kg/ha). F 2079 recorded the highest ginning outturn of 35.3 per cent. F 2112 was moderately resistant to cotton leaf curl virus disease .

In the microvarietal trial, 59 freshly bulked progenies were evaluated. Cultur F 2143 (3144 kg/ha), F 2158 (3080 kg/ha), F 2178 (3455 kg/ha) and F 2177 (3383 kg/ha) were superior to the check variety in terms of yield and quality.

CCS HAU, Hisar

Eighteen advanced cultures were evaluated along with H 1098 and H 1117 as checvarieties. Culture H 1324 (1806 kg/ha) and H 1226 (1743 kg/ha) recorded higher yield than the check varieties. Both the cultures were resistant to CLCuV disease. H 1324 recorded a mean ginning outturn of 35.6 percent. Forty five genotypes were evaluated in two trials (FYT 1 and FYT 2). The best of the cultures tested were only marginally superior to the check varieties. H 1258 (2188 kg/ha) and H 1259 (2141 kg/ha) were marginally superior to H 1117. H 1259 also recorded a high ginning outturn of 36.8 per cent. Both the cultures were resistant to leaf curl virus. In the second trial, H 1226 (2130 kg/ha) and H 1316 (2037 kg/ha) were marginally superior to the check H 1117 (2014 kg/ha). Both the cultures were resistant to CLCuV disease. Eighteen cultures were tested in the initial evaluation trial. The entry PRT 1-03-19 recorded the highest seed cotton yield (1562 kg/ha) against the check H 1117 (1473 kg/ha). Quality wise also it was on par with H 1117 (C). Cultures PRT 2-03-6 (23.7 g/tex) and PRT 2-03-9 (25.4 g/tex) recorded highest fibre strength.

RAU, Sriganganagar

Forty genotypes were evaluated in two trials with RS 2013 as the check. None of the cultures tested were significantly superior to check variety. However, two cultures RS 2420 (2428 kg/ha) and RS 2425 (2510 kg/ha) were on par with the check variety in yield with resistance to leaf curl virus and better fibre quality. Culture L 755 (23.8 g/tex) and RS 2423 (27.4 g/tex) recorded very high fibre strength and are being used in the breeding programme.

CICR, Sirsa

Two hundred and fifty germplasm lines were evaluated for two years. Ten lines with Ginning Out turn ranging from 37 to 40 per cent have been isolated. Thirty-nine genotypes were evaluated for superior fibre qualities. Based on two years screening seven genotypes with fibre strength ranging from 23 to 27 g/tex and with CLCuV resistance have been isolated. Genotypes CSH 3118 and CSH 3167 have been entered in AICCIP trials.

IARI, New Delhi

Seven cultures were evaluated along with check variety Pusa 8-6. Four cultures recorded significantly higher yield as compared to the local check. Quality wise P 816-1 and P 72-9-37 were significantly superior to the check variety Pusa 8-6. Even though culture P 218-1 recorded the highest fibre strength of 28.3 g/tex, the Micronaire was low (2.6). Sixty nine single plant progenies were evaluated in progeny row plots. Lines combining high strength and Ginning Out turn of 35 to 37 per cent have been selected for further evaluation.

Central Zone

NAU, Surat

Eighteen promising genotypes were screened for their yield and quality. Five entries were significantly superior to the local check G.Cot 10. GSHV 02/870 recorded the highest yield of 1535 kg/ha followed by entries GSHV-02/12 (1526kg/ha) and GISV 147 (1523kg/ha) respectively. GSHV-02/870 recorded a 2.5 % span length of 35.1mm and fibre strength of 22.2 g/tex. However the Ginning Out turn was lower than the check variety in most of the cases.

MAU, Nanded

Seventeen cultures were evaluated in a replicated trial. NH 615 (572 kg/ha) significantly out yielded the check PH 348 (373 kg/ha) by over 50 per cent and also recorded the highest Ginning Out turn of 40 per cent. It also recorded a 2.5 % span length of 29.1 mm with a fibre strength of 21.2 g/tex.. On the basis of performance over two seasons, NH 619 and NH 618 were superior to the local check by over 20 per cent and recorded high Ginning Out turn

PDKV, Akola

Ninety seven germplasm lines were screened for ginning out turn. Nine lines recorded more than 40 per cent ginning out turn. BGP SEL SPS 35 recorded the highest GOT of 43.4 per cent.

CICR, Nagpur

Forty one germplasm lines were evaluated for high Ginning Out turn and fibre quality. The genotype CAT 566 recorded the highest Ginning Out turn of 40.3 percent**.**

OUAT, Bhawanipatna

Forty cultures were evaluated along with MCU 5VT and LRA 5166 as checks. Entries H 1250 (2472 kg/ha), BS 33 (2398 kg/ha), HSC 1-521 (2264 kg/ha), CSH 2545 (2184 kg/ha) were significantly superior to MCU 5VT (1809 kg/ha). RS 2361 recorded the highest Ginning Out turn of 36.9 %. Highest fibre strength of 25.8 g/tex was recorded in the culture HSC 1-431. By over all performance, HSC 1-521 was the best, with improvement in both yield and quality over MCU 5VT (c).

South Zone

UAS, Dharwad

Fourteen genotypes were evaluated along with MCU 5 and Sahana as checks. None of the entries was superior to MCU 5(C). However, most of the lines tested were superior to MCU 5 (C) in fibre strength. Culture DC 58-1-1 recorded high fibre strength of 23.2 g/tex with a Micronaire of 3.5 . In the second trial, 25 genotypes were evaluated with MCU 5 and Sahana as checks. Culture DC 56-1 was significantly superior to MCU 5 in yield. Culture DC 59-15-1 recorded the highest fibre strength of 24.4 g/tex. But the Micronaire was low.

ANGRAU, Lam, Guntur

Ten extra long staple cultures were evaluated in a replicated trial. The seed cotton yield ranged from 1427 kg/ha (AVT 5) to 2445 kg/ha (AVT 10). Culture AVT 6 and AVT 8 recorded very high fibre strength of 26 g/tex with very good Micronaire (3.9) .

Twenty five germplasm lines were evaluated for fibre strength and Ginning Out turn. Entry BU 75 and TMC 03-9 recorded a fibre strength of 23.5 g/tex. Entry 615 recorded the highest ginning outturn of 42.0 per cent.

TNAU, Coimbatore

Six cultures were evaluated along with four checks. Culture TCH 1699 recorded the highest yield of 2386 kg/ha followed by H 99 (2286 kg/ha). H 99 also recorded the highest ginning outturn of 37.3 per cent. Culture TCH 1699 recorded very good fibre strength combined with good Micronaire

CICR, Coimbatore

Twelve high strength cultures were evaluated along with MCU 5 VT and Surabhi as checks. Two cultures (M5 X Z2) 1335 and 72 (M5 X Z2) 7132 recorded significantly high seed cotton yield than the check variety MCU 5 VT. The ginning outturn ranged

from 35.0 to 36.0. Quality wise 72 (M5 X Z2) 712216 recorded the highest fibre strength of 25.1 g/tex with a mean seed cotton yield increase of 16 per cent over the check In a second, trial, 13 cultures were evaluated. Culture L (RCH X T13) 52-1-1-6 recorded the highest yield of 2230 Kg/ha with a mean ginning outturn of 36.3 and fibre strength of 22.9 g/tex. A perusal of two years data showed that L (RCH X T13) 52-1-1-6 with a mean seed cotton yield of 2033 kg/ha, ginning outturn of 36.7 per cent and fibre strength of 23.3 g/tex was the best .

❖ **Multilocation evaluation and superior genotypes identification**

North Zone

Fourteen cultures were evaluated at five locations in north zone. Two cultures *viz.*, F 2052 and F 1242 recorded higher seed cotton yield over local check. Quality wise also they recorded better fibre strength. Cultures KH (HS) 153 and CCH 226 recorded high fibre strength of 23.0 to 23.5 g/tex, but were not adaptable to north zone conditions. Culture CCH 226 recorded higher ginning out turn of 36.2 per cent followed by F 2086 with 35.4 per cent .

Central Zone

Twenty eight cultures were evaluated with local checks at six locations. Culture H 1250, GISV 97/1016, KH (HS) 153, CSH 2563 and NH 594 recorded more than 1000 kg/ha of seed cotton yield as against 870 kg/ha in the local check. Of these, H 1250 and NH 594 recorded high ginning out turn (37.0 per cent) also. These cultures recorded a mean fibre length of 25.9 to 28.6 mm. Strength wise, KHHS 153 was the best with 21.3 g/tex. CCH 226 and TCH 1706 also recorded high fibre strength (21.7 g/tex).

South Zone

Twenty nine cultures were evaluated against their local checks at four locations. Three cultures *viz.*, KHHS 153, GISV 97-1016 and CCH 226 were found to be promising for yield. As many as five cultures recorded more than 37.0 per cent ginning out turn. However, quality wise CCH 226 with a fibre strength of 23.3 g/tex was the best culture. CCH 226 though recorded high strength in all the three zones, was found to be more adaptable in south zone. On the other hand KHHS 153 and GISV 97/1016 were found to be more adaptable to both central and south zones. All the three cultures have been included in the AICCIP trial.

- **Utilization of suitable genotypes in crosses with good agronomic base**

North Zone

PAU, Faridkot

Seventy two freshly bulked progenies were evaluated for ginning out turn and fibre properties. The ginning out turn ranged from 32.5 per cent to 37.5 per cent. 2.5 % span length from 23.4 to 30.9 mm, micronaire from 3.7 to 5.5 and fibre strength from 18.2 to 22.9 g/tex. One thousand four hundred and thirty eight single plants from F_2 to F_6 generation were evaluated for various morphological and technological properties for further evaluation.

RAU, Sriganganagar

Several single plants in segregating populations selected for yield, ginning percent and CLCuV resistance were also evaluated for fibre properties. There was high variation for 2.5 % span length (22.6 to 30.0 mm), micronaire (2.8 to 6.0) and fibre strength (16.5 to 24.2 g/tex)

CICR, Sirsa

Seventeen hybrids with fibre strength of more than 24.0 g/tex were selected for advancing the generation. More than 250 crosses were attempted during 2004-05 crop season using genotypes of high fibre strength, high ginning out turn, resistance to jassids and CLCuV disease.

IARI, New Delhi

Twenty five F_2 populations were evaluated for yield, jassid reaction and CLCuV disease. The selected progenies would be advanced to F_3 generation.

Central Zone

OUAT, Bhawanipatna

Seventy six single plants were selected from the F_3 progeny rows of promising crosses based on yield and Ginning Out turn. Final selection will be made on fibre properties.

South Zone

UAS, Dharwad

Individual plants selected for high ginning outturn and superior fibre properties were multiplied in different sets. Based on fibre quality attributes they would be further evaluated.

ANGRAU, Lam, Guntur

Single plants selected in various F_2 generations showed good variability for fibre length. Fibre strength up to 23.4 g/tex coupled with very good Micronaire (4.2) have been isolated.

TNAU, Coimbatore

Eight F_3 progenies were evaluated for various agronomic quality parameters. Single plants combing high ginning outturn and fibre strength up to 24.0 g/tex have been isolated for further evaluation.

CICR, Coimbatore

More than fifteen crosses involving high fibre strength parents were analysed. Cultures with up to 26.4 g/tex have been selected for further evaluation

- **Screening of germplasm lines of *G.barbadense* and superior genotypes identification and utilization in crosses with Suvin**

This activity was taken up at Dharwad and Coimbatore. Due to unfavourable weather condition crops in Dharwad centre was affected. Even at Coimbatore the crop growth was very much affected. Germplasm lines were screened and the lines selected for ginning out turn and various quality parameters were grown and crosses were made with Suvin at CICR, Coimbatore.

- **Screening of *G.hirsutum* genotypes for resistance to jassids**.

North Zone

PAU, Faridkot

Thirty genotypes were screened against jassids and whitefly. Only two genotypes F 1968 and F 1985 recorded moderate resistance (Grade II) and was on par with control.

CCS HAU, Hisar

Eighty-two genotypes were screened against jassids and white fly under field conditions. Cultures *viz.*, H 1265, H 1274, H 1312, H 1317, PRT 1-03-23, PRT 2-

03-17 and PRT 2-03-19 recorded resistance reaction to jassids (less than 1.0) and were superior to the check variety. White fly population varied from 2.0 to 4.2 in various trials while in the check it varied form 2.6 to 3.0

CICR, Sirsa

Jassid population was less during the year. Twenty four genotypes which were identified during last year continued to show jassid resistance

Central Zone

NAU, Surat

Eighteen cultures were screened for jassids. Four cultures were promising with less number of jassids than the check varieties.

PDKV, Akola

Twenty eight genotypes were evaluated for their jassid reaction. As many as 15 genotypes were resistant to jassids.

MAU, Nanded

Twenty three genotypes were screened for jassids along with resistant and susceptible checks. The jassid population among the lines ranged from 0.8 to 8.8. Six genotypes *viz.*, NH IS-2-2, IS1-41, NHIS 6, NHIS 3, IS 28-64 and IS 376-4-3 were resistant to jassids with jassid population ranging from 0.8 to 2.0 per 3 leaves.

CICR, Nagpur

Twenty one promising lines and forty one germplasm lines were screened for jassids. None of the lines tested was resistant to jassids. However, screened lines were moderately resistant

South Zone

UAS, Dharwad

Sixty two lines were screened for jassids. None of the lines was resistant. Thirteen lines recorded moderately resistant reaction

ANGRAU, Lam, Guntur

Thirty genotypes were screened for jassids. The entries GSHV 01/27, F 2052 and CSH 2554 scored lower mean of 1.09, 1.12, and 1.14 jassids/plant. However, under heavy incidence in October none of them was found resistant

TNAU, Coimbatore

Thirty four cultures were screed against sucking pests. Only four cultures *viz.*, CSH 2554, CSH 2563, GSHV 97/1016 and LAS 03-23 were found to be tolerant with less than 2 jassids/plant.

CICR, Coimbatore

About 107 advanced cultures were screened for their reaction to jassids under field conditions during 2004-05. Population of jassids was recorded on 30 and 45 days after sowing. Among test cultures, L(RCH X T13) 52-1-1, L(RCH X T13) 510-4, L(RCH X T13) 55-1-8, (VRS X V 115)6-3-4 and CCH 4-1-7 recorded less jassid population (less than 1.1/3 leaves) and gave resistant reaction. A maximum population of 5.8/3 leaves was recorded in LS –4.

❖ **Screening of American genotypes for resistance to bollworms.**

North Zone

PAU, Faridkot

Thirty two genotypes were evaluated for boll worm damage under field conditions. Three cultures *viz.*, F 1977, F 2001 and F 2009 recorded significantly less locule damage than the check variety LH 1556.

CCS HAU, Hisar

Eighty two genotypes were screened against boll worms under field conditions. The boll worm damage under natural conditions was very low on the locule damage basis and the maximum damage was only 13.2 per cent. The boll worm damage in the control variety H 1117 varied from 7.0 to 10.7 per cent. Culture H 1317 recorded the locule damage of 1.4 per cent

CICR, Sirsa

Twenty two genotypes with less than 5.0 per cent boll damage were identified for further studies.

Central Zone

NAU, Surat

Sixteen genotypes were evaluated for bollworm damage. Only two cultures *viz.*, GISV-135 and GSHV-02/12 recorded less than 20 per cent bollworm damage on locule basis. In another trial, H 1236 and NH 594 recorded the least bollworm damage on locule basis .

PDKV, Akola

Twenty nine genotypes were evaluated for bollworm incidence. Three genotypes AKH 0308 (5.85), CCH 226 (7.30) and CSH 2554 (8.94) recorded the least bollworm damage.

MAU, Nanded

Twenty three genotypes were evaluated along with MCU 5 (Susceptible check) and PA 402 (Resistant check) for bollworm damage. Based on two year performance, two strains *viz*., IS 30/68 and NHIS 4 which recorded minimum green boll damage and locule damage holds promise

CICR, Nagpur

Forty one lines were screened for bollworm damage. Bollworm incidence ranged from 20.9 per cent to 79.6 percent. The lowest boll damage was seen in CAT 3645 (20.9 %). On locule basis, the bollworm infestation ranged from 17.2 to 55.6 per cent. The lowest locule damage was seen in CAT 374 (17.2 % followed by CAT 566 (17.6 %)), CAT 521 (18.5 %), CAT 946 (18.5 %) and CAT 3768 (19.4 %)

OUAT, Bhawanipatna

One hundred selections from F_3 and F_4 populations were screened for bollworm tolerance. Thirty nine selections with high per se performance and least bollworm damage were selected for further evaluation

South Zone

ANGRAU, Lam, Guntur

Thirty genotypes were screed for *Heliothis* damage. The maximum boll damage observed was 20.1 per cent in the experiment. Eight cultures recorded less than 10.0 per cent boll damage. Culture AKH 0309 recorded nil damage.

TNAU, Coimbatore

Incidence of bollworm was very low in the experiment. Susceptible check themselves recorded less than 10 percent bollworm damage.

CICR, Coimbatore

One hundred and ten genotypes were screened against tolerance to all the three bollworms. Only one genotype *viz* B (L x B) 355 was found to be tolerant to all the three bollworms. In the previous year's studies also the cross B (L x B) 33 has recorded lower boll worm damage than the susceptible check.

Of the one hundred and ten genotypes tested in the field, four genotypes were found to be resistant to pink bollworm. Culture 5 (1x2) 724-2, recorded low locule damage consecutively for the second year.

- **Screening of genotypes for leaf curl virus disease.**

North Zone

PAU, Faridkot

Eighty one cultures were evaluated for leaf curl virus disease under field conditions in four trials. Five cultures *viz.*, F 2079, F 2089, F 2096, F 2160 and F 2170 were found to be highly resistant to CLCuV disease

CCS HAU, Hisar

Eighty one cultures were evaluated under field conditions for their reaction to CLCuV disease. Most of the cultures tested were found to be resistant both under early and late sown conditions

RAU, Sriganganagar

Thirty six genotypes were evaluated for their reaction to CLCuV disease. Eight cultures *Viz.*, RS 992,RS 2221, RS 2419, RS 2420, RS 2423, RS 2425, RS 2426 and RS 2427 were found to be resistant to CLCuV disease.

CICR, Sirsa

Sixty seven lines found to resistant to be CLCuV disease during 2003-04 season were further evaluated during the current season. Twenty one lines were found to be promising.

IARI, New Delhi

Thirty five lines were screened for CLCuV resistance. The field incidence was very high during the year. Nine genotypes were found to be resistant. But of 108 germplasm lines screened, as many as 64 were resistant.

- **Identification of genotypes with resistance to major diseases**

North Zone

PAU, Faridkot

Eighty one genotypes were screened for bacterial blight, myrothecium leaf spot and alternaria leaf blight under field conditions. All the genotypes tested were

either moderately resistant or moderately susceptible for bacterial blight and Myrothecium leaf spot. As many as 13 cultures were found to be resistant to Alternaria leaf spot.

Central Zone

NAU, Surat

Eighteen cultures were tested for bacterial blight reaction. Only one culture GSHV-01/1241 was found to be resistant

MAU, Nanded

Twenty eight lines were evaluated for bacterial blight, *Alternaria* and Grey mildew. Nine cultures were found to be disease free for bacterial blight and Alternaria leaf spot. Most of the lines tested were susceptible to grey mildew. Two strains NCMDR 16 and NH 603 showed multiple resistances to all three diseases. The stain NH 603 was consistent for its resistance during the last two years trial .

CICR, Nagpur

Forty one germplasm lines were screened for disease reaction. Of these, four lines were resistant to bacterial blight and three were disease free for Alternaria leaf spot.

SOUTH ZONE

UAS, Dharwad

Sixty lines were screened for Alternaria leaf spot disease. None of the lines was found to be resistant. Six cultures recorded moderate resistance. All the lines tested were moderately susceptible to grey mildew. Only one line *viz.*, AKH 0309 found to be moderately resistant to bacterial blight.

ANGRAU, Lam, Guntur

Moderate incidence of *Helminthosporium* and *Alternaria* leaf spot disease were noticed during the season. Cultures LAS 023, KH (HS) 153 and GISV 155 recorded significantly less incidence for both the diseases

CICR, Coimbatore

One hundred and twelve lines were screened for Grey mildew resistance under artificial epiphytotic conditions. Only one line *Viz.*, **LS 6** recorded Moderate resistance (Grade 2).

❖ **Screening of different genotypes for water stress.**

CENTRAL ZONE

MAU, Nanded

Thirty four genotypes were evaluated for drought tolerance based on chlorophyll stability index and relative water content. On the basis of low chlorophyll reduction (CSI below 20 %), high RWC (above 80 %) and better yield. Genotypes F 2025-04 , DC 911, CSH 2563, LAS 6-2-1 and IS 376-2-84 were drought tolerant.

SOUTH ZONE

CICR, COIMBATORE

Ten physiological indices *viz.*, Hysterisis curve, Relative water content, water use efficiency, wilting per cent, Ion leakage, photosynthetic rate, NRase activity and dry matter production were used to screen 42 genotypes for tolerance to moisture stress. By using a scoring technique the genotypes were finally grouped into five groups. The susceptible and tolerant genotypes were grown in separate block and subjected to water stress. While the tolerant genotypes were not significantly differs from control plot yields, the yield of susceptible genotypes reduced significantly from the control plot. The resistant genotypes were crossed with the agronomically desired genotypes to evaluate the segregating populations.

❖ **Identification of suitable cultures with wide adaptability and superior fibre properties.**

Based on the initial performance six cultures were tested under AICCIP to study their adaptability.

North Zone

Culture CSH 2572 was tested under AICCIP in north zone in six locations. With yield and ginning out turn on par with the zonal check CSH 2572 was distinctly superior to the zonal check in quality (Table 1.2.1).

Table 1.2.1 Performance of cultures under AICCIP – North Zone

Sl.No.	Trial	Culture	Seed cotton yield (kg/ha)	Ginning outturn (%)	2.5% SL (mm)	Micro naire	Strength (g/tex)
1.	2a	CSH 2572	2072	33.2	29.0	4.2	23.2
		RS 2013 ©	2057	33.3	24.3	4.2	20.7

Central Zone

Culture CCH 4 was tested under rainfed situations in central zone at six locations in the coordinated varietal trial. The culture CCH 4 recorded the second highest yield of 1494 kg/ha and was superior to both the zonal checks in yield and quality. The culture was also resistant to Alternaria leaf spot. However, the fibre strength was found to be low (Table 1.2.2).

Similarly cultures NH 611, NH 615 and NH 594 recorded significantly higher yield over LRA 5166. Cultures NH 615 and NH 594 recorded high ginning out turn than LRA 5166 (ZC). The fibre strength ranged from 20.2 to 21.1 g/tex (Table 1.2.2).

Table 1.2.2 Performance of cultures under AICCIP – Central Zone

Sl.No.	Trial	Culture	Seed cotton yield (kg/ha)	Ginning outturn (%)	2.5% SL (mm)	Micro naire	Strength (g/tex)
1.	2b	NH 611	1130	34.7	27.4	4.3	**21.1**
		LRA 5166 (c)	942	34.1			
2.	3b	NH 615	1012	36.6	27.0	4.2	20.8
		LRA 5166 (c)	777	34.8			
3.	4b	NH 594	1262	36.4	25.1	4.4	**20.2**
		LRA 5166 (c)	845	34.4	28.1	3.9	22.5
4.	4a	CCH 4	**1494**	38.9	27.9	4.9	19.0
		LRA 5166 (c)	1147	35.4	28.9	4.5	22.2

South Zone

Culture CCH 510 was tested in the preliminary varietal trial under irrigated condition in the south zone under AICCIP at six locations. Culture CCH 510 recorded superiority in yield, ginning out turn and quality over the zonal check Surabhi (Table 1.2.3).

Culture CCH 1386 was tested in the preliminary varietal trial. Culture CCH 1386 was on par with Surabhi (c) in yield and ginning out turn. Culture CCH 1386 recorded a fibre strength on 24.2 g/tex (Table 1.2.3)

Table 1.2.3 Performance of cultures under AICCIP – South Zone

Sl.No.	Trial	Culture	Seed cotton yield (kg/ha)	Ginning outturn (%)	2.5% SL (mm)	Micro naire	Strength (g/tex)
1.	2a	CCH 1386	1229	35.1	32.5	3.3	24.2
		Surabhi ©	1219	35.7	31.8	3.4	22.6
2.	3a	CCH 510	1479	36.8	30.0	4.2	**24.2**
		Surabhi ©	1342	33.8	32.6	3.8	24.0