Introduction:
Picking of cotton manually is becoming labour and time intensive in India. Due to increase in labour cost, their non-availability when required and paucity of time available for land preparation for the next crop, it is desirable to develop cultivars amenable to machine picking with other desirable characters. Intermediate and monopodial nature of prevailing varieties and hybrids have made them unfit for mechanical picking. The need for dwarf, compact, early & synchronously maturing varieties is both appropriate and urgent to cater the prevailing cotton cultivation in India. The genotypes identified under this project may serve as the example of ideal plant type suitable for machine picking.

Objectives:
1. Identification of G. hirsutum genotypes suitable for machine picking
2. Development of compact and synchronous flowering in G. hirsutum
3. Introgression of useful genes from wild species for development of plant type suitable for machine picking
4. Development of agronomic practices for cultivation of genotypes suitable for machine picking
5. Promotion of superior genotypes suitable for machine picking

Salient findings:
Activity 1: Evaluation of released/pre-released genotypes for machine picking.
In North Zone, eight genotypes along with local varietal check and Bt hybrid check were evaluated. None of the entry showed superiority over the Bt hybrid check for seed cotton yield. However, among these genotypes two entries P 1752 and RS 2553 were found promising at 100 x 10 cm spacing during 2008-09. These genotypes also have suitable characters for machine picking.

In the Central and South Zone, seventeen entries contributed by ten centres along with local varietal check and Bt hybrid check were evaluated. In central zone, on the basis of seed cotton yield, six genotypes AKH 8828, CCH 281, KH 134, KH 139, NH 615 and NH 635 were found promising at 100 x 10 cm spacing. These genotypes also have suitable characters for machine picking.

Activity 2: Identification of compact and synchronous flowering and boll bursting plant type in G. hirsutum
Station trials were conducted at all the five centres of North Zone, comprising various genotypes at three different spacing (100 x 10, 100 x 20 and 100 x 30 cm) with
local varietal and RCH 134 Bt checks. The entries, CSH 3029, CSH 3178 at Sirsa; P 23-1, P 13-2 at New Delhi; PRT 2/07-18, PRT 2/07-17, PRT 2/07-10, PRT 3/07-10, PRT 3/07-11 at Hisar; RSA 2565, RSA 2542, RSA 2554, RSA 2528 at Siganganagar and F 2380, F 2383, F 2381, F 2367 from Faridkot centres were found promising in the station trials.

In central zone, preliminary testing identified genotype CSH 818, NISC 50, CSH 3088 (Nag pur), GSHV 97/59, GSHV 97/612, GSH 7 (Surat), NH 627, NH 637, PH 1057 (Nanded), DR 7R, KH 138, KH 117, SPS 132 (Khandwa), GJHV 398, GJHV 500 and GJHV 374 (Junagarh) suitable for further testing in common trial. Likewise, in south zone, genotype TCH 1715 and TCH 1705 (TNAU Coimbatore), WGCV 56 and WGCV 53 (RARS Guntur), and G 9 and RACH 115 (RARS Siruguppa) were found promising for machine picking in preliminary testing.

Activity 3: Evaluation of introgressed material for improvement of G. hirsutum
Among the evaluated introgressed lines none of the genotypes was promising in the North zone whereas five genotypes (AKH 10, AKH 9916, NISC 35, TCH 1648 and TCH 1649) in Central zone and two (TCH 1648 and TCH 1649) in South zone gave promising results.

Activity 4: Identification of agronomic practices. use of defoliants suitable for genotypes amenable for machine picking.
Under North zone conditions, 5000 ppm dose at 150 DAS of defoliants ethereal was found suitable for achieving desired level of leaf shedding (more than 95%) and boll opening (more than 95%) whereas in central and south zones a dose of 5000 ppm was found effective at 135 to more than 150 DAS for complete defoliation and needs further evaluation.

Effective use of defoliants Etherel (5000 ppm) on G. Hirsutum genotype CSH-3114 at 150 days after sowing (within seven days of treatment) at Sirsa