Cassava (Manihot esculenta Crantz) is an important tuber crop grown in India as an efficient source of food, feed and industrial raw material. The role of triploid breeding for the genetic improvement of tuber crops especially cassava has been well established and several triploid hybrids that combine higher tuber yield with several secondary traits such as high starch content, early maturity and good culinary quality were produced. The in vivo induction of triploids has been standardized and a tetraploid clone (Tr 2-15) with high frequency of triploid production was identified. Two triploid cassava hybrids from ICAR - CTCRI viz. Sree Athulya and Sree Apoorva with high yield (40 t ha⁻¹) and starch (32-40%) were released in India in 2013. Introgression of CMD resistance into elite inbreds and tetraploids was initiated in 2004. CMD resistant clones received from CIAT (CR43-11, CR54A3, CR21-10, TMS30001) and the landrace CI273 were used as the resistance source. Significant differences were revealed among clones for fresh root yield, number of roots per plant and harvest index. The CMD resistant clones were tested in cassava growing states of India during 2011-2015 and TCMS-1 recorded the highest tuber yield (45.6 t ha⁻¹) followed by TCMS-7 and TCMS-2. Also clones (8S501, 8S1284, 11S4) with early bulking (6 months), CMD resistance, high yield (>30 t ha⁻¹) and harvest index were selected for on-farm trials. In addition, three triploids with resistance (Tr228, Tr236 and Tr240) were also developed. Evaluation of these high starch CMD resistant clones under Indo-Swiss Network project will improve crop productivity and ultimately livelihoods of farmers in cassava growing regions of India.