yields, reduce farm costs and thereby increase farm incomes. The Government has, therefore, been very supportive of the efforts to develop transgenic crops. Many transgenic crops are currently being developed and tested at various public and private institutions. Indian Council of Agriculture Research (ICAR) is implementing a mega Network Project on Transgenics in Crops (NPTC) to initiate and strengthen the Research and Development (R&D) efforts on functional genomics and transgenic crops.

(c) and (d) Concerns have been expressed regarding the risk to human health and the environment from the use of GM crops. Government of India has, therefore, adopted a case by case approach to assess safety concerns in respect of each transgenic event. All issues relating to bio-safety, environmental safety, etc., have been entrusted to a strict regulatory regime under the provisions of the Environment (Protection) Act, 1986. Genetically modified (GM) crops are already being planted in 25 countries, including 15 developed and 10 industrialised countries as per ISAAA, 2008.

Development of GM seeds

†1699. SHRI RAJ MOHINDER SINGH MAJITHA:
SHRI SHIVANAND TIWARI:
Will the Minister of AGRICULTURE be pleased to state:

(a) whether it is a fact that the Agricultural and Research Institutes of the country have developed seeds for GM crops;

(b) if so, the names of such crops and if not, the reasons therefor;

(c) whether it is also a fact that till now only private sector, particularly foreign companies have succeeded in developing seeds of GM crops; and

(d) if so, the details thereof and names of the inventors of GM crop seeds brought to the country?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (PROF. K.V. THOMAS): (a) Yes, Sir.

(b) Cotton variety, Bt-Bikaneri Narma, has been released for cultivation. Seeds of GM Crops such as brinjal, Castor, groundnut, potato, rice, sorghum, mustard and tomato have also been developed by various institutes and are in various stages of field testing.

(c) Besides private sector, public research organizations, such as Indian Council of Agricultural Research, State Agricultural Universities, Council of Scientific and Industrial Research, International Crops Research Institute for Semi-Arid Tropics - Hyderabad, have also developed Seeds of GM Crops.

(d) GM crops under development and field trials in the public and private sector are detailed in the statement-I and II.

†Original notice of the question was received in Hindi.

Statement-I

GM Crops from Public Sector Under Development and Field Trials in India

Sl.No.	Crop	Organization	Trait	Transgene
1.	Brinjal	NRCPB, IARI, New Delhi	Insect resistance	Cryl Aa and Cryl A abc
2.	Castor	Directorate of Oilseeds Research, Hyderabad	Insect resistance	CrylAa and Cry 1EC
3.	Groundnut	ICRISAT, Hyderabad	Virus resistance	Chitinase from rice
4	Potato	Central Potato Research Institute, Shimla	Fungal disease resistance	RB gene
5.	Rice	IARI, New Delhi	Insect resistance	Cryl B - Cryl Aa fusion gene
6.	Rice	Tamil Nadu Agricultural University	Insect resistance	Rice chitinase (chi 11)
7.	Tomato	IARI, New Delhi	Stress tolerance	Antisense replicase gene of tomato leaf curl virus
8.	Sorghum	Directorate of Sorghum Research, Hyderabad	Insect resistance	Cry 1B gene, NRCSCRY 1B event 4 and NRCSCRY 1B event 19
9.	Mustard	Delhi University	Yield increase	barnase/barstar gene

Statement-II

GM Crops from Private Sector Under Development and Field Trials in India

GM crops approved for field trials by the GEAC during 2007-09 are listed below

Sl.No.	Crop	Company	Trait	Transgene
1	2	3	4	5
1.	Cauliflower	Sungro Seeds Research Ltd.	Insect Resistance	cry 1Ac event CFE 4
		Nunhems India Pvt. Ltd.	Insect Resistance	RST08-30, 15 events

2.	Cotton	Dow Agro Sciences India Pvt. Ltd.	Insect Resistance	cry1 Ac & cry 1F (Wide Strike = Event 3006-2 10-23 and Event 281-24-236)
		JK Agrigenetics Ltd.	Insect Resistance	cry 1Ac (Event-1) and cry 1EC (Event-24)
		MAHYCO	Insect resistance and Herbicide tolerance (Round up Ready Flex)	cry1Ac & cry2Ab (MON 15985) and CP4EPSPS (MON 88913)
3	Rice	Bayer Bioscience Pvt. Ltd.	Insect resistance	cry 1 Ab, cry 1C & bar genes
		Avesthagen Ltd.	Hybrid vigour	Oryza sativa Taipae 309
		Mahyco	Insect resistance	cry 1 Ac gene
		Metahelix Life Science Ltd.	Insect resistance	cry1Ac event (MLS 2902 BT II and MLS 1603 BT I)
4.	Tomato	Avesthagen Ltd.	Increased lycopene content	unedited NAD9
		Mahyco	Insect resistance	Cry 2Ab gene
5.	Cabbage	Nunhems	Insect resistance	cry 1b and cry 1C gene

1	2	3	4	5
6.	Corn	Monsanto India Ltd.	Insect resistance and herbicide tolerance	cry 2Ab2 and cry 1A105 genes, (event MON 89034 and CP4EPSPS genes)
		Pioneer Overseas Corporation	Insect resistance and herbicide tolerance	Cry1F and CP4 EPSPS genes (stacked event of TC 1507 XNK 603)
		Dow Agrosciences	Insect resistance	Cry 1F (event TC 1507)
7.	Okra	Mahyco	Insect resistance.	cry 1Ac gene
8.	Brinjal	Bejo Sheetal Seeds Pvt. Ltd. (technology developed by IARI)	Insect resistance	Cry 1Fal (event 142)

The above list excludes the Bt. brinjal Event EE-I developed by M/s Mahyco, TNAU, Coimbatore and UAS, Dharwad for which moratorium has been imposed.