

Immediate Press Release

GM mustard to bolster honey bees population, increase honey production and beekeepers' income

New Delhi (Sept 26, 2016) – Contrary to the unsubstantiated evidences, myths and rumors on the ill-effects of barnase-barstar GM mustard technology on honey bees, the South Asia Biotechnology Centre reconfirms that the health and foraging ability of honey bee (*Apis mellifera* L.) populations will not be affected by the pollen of GM mustard. GM mustard is likely to have beneficial effects on honey bees population based on their relatively enhanced foraging behavior resulting in increasing honey production and income of beekeepers in mustard growing areas.

The Assessment of Environment and Food Safety (AFES) report and accompanying empirical data, available for public review at MOEF&CC, indicate no-ill effects of GM mustard on honey bees and honey production. The AFES and GM mustard studies reassuringly establish that no significant difference was observed for honey bees foraging on the GM and non-GM mustard based on the scientific data generated during nine regulated field trials conducted by ICAR institutions and SAUs from 2010-11 to 2014-15. **“Expression of the introduced proteins, encoded by the barnase and barstar genes, is controlled by a tapetum specific promoter and no expression is detected in the pollen. As a consequence, the exposure of the pollinating insects to these protein is likely to be negligible”**, revealed in the AFES report.

Notably, farmers in Australia, Canada and USA have been benefiting from growing GM canola (Canadian mustard) since 1996. The barnase-barstar GM technology has transformed canola production in Canada, Australia and USA and now constitutes a major export farm produce including honey. These countries have approved multiple trait GM canola allowing their farmers to harness the yield potential through hybridization and deploying an efficient weed control system by adopting multiple mode of action weed control systems. More than 90% of their farmers grow multiple trait GM canola and reap a bountiful harvest season after season. **“No significant adverse effects of GM canola on pollinators, honey bees and honey production have ever been reported by these countries in the last 20 years”**, stated Dr. CD Mayee, a renowned pathologist and the President of the South Asia Biotechnology Centre.

Dr. Vibha Gupta, Principal Scientist of Delhi University South Campus who is directly involved in the GM mustard project informed that **“In GM mustard, hybrid DMH-11 is fully fertile with pollen viability similar to the parental line Varuna and has fully developed nectaries. In the BRL-I and BRL-II trials honey bees were observed to visit transgenic lines and hybrid DMH-11 as well as their visit to their non- GM comparators”**.

The press conference called by the so called Confederation of Bee Keeping Industry located in the nondescript village Hafizpur in the Yamuna Nagar district of Haryana to appraise the media of the concerns and objections of the honey industry with regards to GM mustard in the afternoon of 26th Sept, 2016 appears to be politically motivated, non-scientific reaction to

deliberately create fears amongst the general public and misled the beekeepers in particular. **“GM mustard does not contain any insecticide that will kill honeybees visiting its flowers, nor enhances use of sprayable insecticides. On the contrary, GM mustard with its hybrid vigor will help in increasing more visits of honey bees and consequently of their population. It is this simple logic that we all know and this Confederation needs to learn”**, said Dr. Govind Gujar, Ex-Head, Division of Entomology, Indian Agricultural Research Institute (IARI), New Delhi.

None of the GM plants either insect resistant (Bt), herbicide tolerant (HT) and pollination control system (barnase-barstar) currently grown over 179.7 million hectares have had any impact on honey bee health, reported by Dr. Louise Malone in journal *Bee World* (2004) and subsequently, reconfirmed by Drs. Jian J. Duan *et al.* in “A Meta-Analysis of Effects of Bt Crops on Honey Bees (Hymenoptera: Apidae)’ published by PlosOne in 2008.

For more information about GM mustard technology and GM mustard hybrid DHM-11, visit www.sabc.asia

About SABC:

The South Asia Biotechnology Centre (SABC) is a not-for-profit scientific organization that aims at serving as a knowledge hub and helps in bridging the knowledge gap between science and society about biotechnology and its vitally important contribution to food, feed and fibre security, and growth prospects for the bioeconomy of India. The objectives of SABC are two folds; share credible information on biotechnology with the society to improve public understanding, and to facilitate the transfer of biotechnology applications from the lab to land. More about SABC at: www.sabc.asia