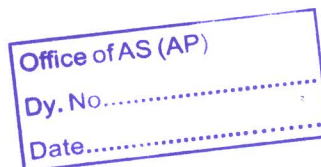


Dr. Kalyan B. Goswami
Executive Director



Ref. NSAI/2017/076



Date: 19.07.2017

Shri Bijay Kumar
Principal Secretary (Agriculture)
Dept. of Agriculture & Animal Husbandry,
Dairy Development & Fisheries Mantralaya
Mumbai – 400 032

Saw
19/7.
(Dr. B. Rajender)

Dear Sir,

Sub: Action proposed by National Seed Association of India for managing the Pink Bollworm problem to help farmers in getting a good cotton crop this year and in future - reg

Ref: Times of India Article titled "Bt cotton falling to pest, Maharashtra tensed" dated 05.07.2017.

The National Seed Association of India (NSAI) has been proactively involved in taking up measures to manage the Pink Bollworm (PBW) problem that has been noticed in Bt cotton since 2015. The recent article in Times of India (which is attached as Annexure-1) highlighted the concerns of the Govt. of Maharashtra and we felt it's our duty to submit our suggestions and measures to tackle this problem.

It is pertinent to note that the insect resistance in crops like cotton is a natural phenomenon and insects have ability to develop resistance to the toxins, that are used to control them. Several pesticide molecules, launched over the years, have lost their efficacy within 5-10 years due to this phenomenon. Similarly, the Bt trait which produces a protein, inherently in the cotton plant, which acts like an insecticide also loses its efficacy over a period of 5-10 years. It can be noticed that the first generation Bt traits, which are mostly conferred by Cry1Ac gene lost their efficacy against Pink Bollworm (PBW) between 2008-2010. The second generation Bt trait (this is the combination of Cry1Ac with Cry2Ab2 genes) also lost its efficacy to PBW from 2015, as per the report of CICR which is attached as Annexure-2.

The seed companies have to introgress the Bt trait into their hybrids and offer the farmers a combination of superior hybrid with the Bt trait. Though all the cotton seeds are nowadays loosely referred to as Bt cotton seeds, there is a clear difference among the hybrids marketed by different companies with reference to several other agronomic features like crop maturity period, tolerance to other sucking pests like jassids, thrips etc, fibre quality, boll weight, tolerance to drought, adaptability in saline soil, suitability for High Density Planting (HDP) etc. Since the bollworm resistance is a desirable trait, all the hybrids are incorporated with the Bt trait which is the only common feature among various hybrids. It is also pertinent to note that each of the hybrids is tested for its novelty, distinctiveness, uniformity and stability and are granted intellectual property rights (IPR) under the PPVFR Act by the Authority. The licensing authority of the Agriculture Department also grants license for marketing of a particular cotton hybrid in the state after testing by the State Agriculture Universities for its agronomic performance and utility to farmers.

The seed quality parameters like germination, genetic purity, gene/ trait purity etc., are the responsibility of the seed company, which markets the seeds, whereas the efficacy of the trait that is marketed along with the seeds is the responsibility of the trait developer, who collects trait value of Rs. 49/- per packet, as fixed by the Central Government under the Cotton Seeds Price (Control) Order, 2015 (CSPCO). The trait value is collected by seed companies as part of MSP and paid on behalf of farmers to the trait developer companies. The CSPCO, 2015 clarifies all the above through definitions and operational procedures. The problem of PBW damage noticed by farmers is due to loss of efficacy of the trait due to PBW developing resistance and not due to any quality attributes of seeds or the performance of the hybrid, which is positively reflected by all other agronomic traits.

As such, NSAI upon noticing the development of resistance by PBW to Bt2 trait has recommended for development and implementation of suitable steps to the Ministry of Agriculture way back in 2015 through letter no. NSAI/DoAC/033/2015 dated 02.09.2015, a copy of which is attached as Annexure-3. Subsequently, Ministry of Agriculture, Govt. of India held several meetings and notified Refuge-in-Bag (RIB) procedure which is already implemented by the members of the Association to the extent feasible. In any case, it is mandatory to all seed companies to switch over to RIB in the next 2-3 years. Copy of notification is attached as Annexure-4.

It is also important for the regulators and seed companies to make the farmers understand the problem and take up integrated pest management as recommended by the State Agriculture Universities and ICAR. The standard package of practices recommended by Acharya N G Ranga Agricultural University and CICR are attached as Annexure-5. Some of the members of our Association are educating farmers by putting this information on leaflets kept inside the seed packets and also spreading awareness by putting up posters in the market place carrying the recommendations of CICR / State Agricultural Universities. We shall continue to do so along with the State Agriculture Departments across the country.

In view of the above clarification, the seed companies cannot be blamed for any problem of PBW in Bt cotton crop in Maharashtra or any other State.

As such, the Bt trait is still providing sufficient protection to cotton crop from American bollworms and spotted bollworms which are also important bollworms of cotton. If the Govt. of Maharashtra deems appropriate they may consider recommending to the Committee fixing the trait value under CSPCO 2015 to reduce the trait value in the future due to the problem of PBW resistance noticed in the field indicating drop in efficacy of trait. It is also pertinent to note that even if a new trait is released, PBW has got the ability to develop resistance being a monophagous pest in the next 4-5 years. Therefore, it is important for the farmers to adopt RIB Bt cotton seeds and also continue with monitoring the PBW infestation by using pheromone traps and spraying appropriate pesticides when the pest population goes above Economic Threshold Levels (ETLs).

It is also pertinent to note the recent Research article (May 2017) published in Proceedings of National Academy of Sciences (USA). This article describes research outcomes of a eleven year old study, led by renowned scientist Dr. Bruce Tabashnik, on resistance development in Pink bollworm. The study was

undertaken in six provinces of China by a joint research team of Chinese Academy of Agricultural Sciences, Chinese Universities and University of Arizona. The findings of the study recommend a resistance management strategy for PBW, which shall counter resistance development and reverse the resistance developed by the pests. Based on Indian conditions, a similar strategy may be adopted with scientifically acceptable modification of the present RIB strategy to manage resistance of PBW more effectively. Copy of Research article is attached as Annexure-5

We are prepared to visit you and hold discussion along with the officials of the Agriculture Universities and the Department of Agriculture to make a strategy to help the farmers in managing the problem and growing cotton profitably by minimizing the crop losses. We request you to kindly indicate a suitable time for holding such meeting at Mumbai or any other place of your choice for which we shall be grateful.

Thanking you,

Yours sincerely,



Kalyan B Goswami

Copy:

1. Dr. B Rajender, JS, Seeds, Dept. of Agriculture, Cooperation and Farmers Welfare, Govt. of India, New Delhi
2. Dr. M S Ladaniya, Director (Acting), Central Institute for Cotton Research, Nagpur
3. Dr. Amita Prasad, Chairperson, Genetic Engineering Appraisal Committee (GEAC), Ministry of Environment & Forests, Government of India, New Delhi