Q. 1. What are breeder, foundation and certified seeds?

Answer 1: Breeder seed: Breeder seed is seed or vegetative propagating material directly controlled by the originating or sponsoring plant breeder of the breeding programme or institution and/ or seed whose production is personally supervised by a qualified plant breeder and which provides the source for the initial and recurring increase of foundation seed. Breeder seed shall be genetically so pure as to guarantee that in the subsequent generation i.e. certified foundation seed class shall confirm to the prescribed standards of genetic purity. The other quality factors of breeder seed such as physical purity, inert matter, germination etc. shall be indicated on the label on actual basis.

Foundation seed: Foundation seed shall be the progeny of Breeder seed or be produced from foundation seed, which can be clearly traced to Breeder seed. Thus foundation seed can even be produced from foundation seed during the production of Foundation Seed the minimum seed certification standard shall be the same for both foundation seed stage-I and II. The certification tag shall be white colour for both foundation seed stage-I and II. The production of foundation seed stage I and II shall be supervised and approved by the certification agency and be so handled as to maintain specific genetic identity and genetic purity and shall be required to confirm to certification standards specified for the crop / variety being certified.

Certified Seed: Certified seed shall be the progeny of foundation seed and its production shall be so handled as to maintain specific genetic identity and purity according to the standards prescribed for the crop being certified. Certified seed may be the progeny of certified seed provided this reproduction does not exceed three generations beyond foundation seed stage-I.

Q.2 What is hybrid seed?

Answer 2 : The first generation resulting from crossing of two varieties or parents. Hybrid(certified) seed is the first generation resulting from the cross of two approved inbred lines or parents , one of which is male sterile.

Q. 3 What is Labeled Seed?

Answer 3: The seed notified under Section 5 of the Seeds Act, 1966, such seed sold in the market has to be labeled as prescribed under Section 6(a) and (b) of the Seeds Act Such seed is called Labeled Seed.

Q. 4 What is process and procedure of certification of seeds?

Answer 4:

- receipt and scrutiny of application;
- verification of seed source, class and other requirements of the seed used for raising the seed crop;
- field inspections to verify conformity to the prescribed field standards;
- Supervision of post-harvest stages including processing and packaging;
- Seed sampling and analysis, including genetic purity test and/or seed health test, if any, in order to verify conformity to the prescribed standards; and
- Grant of certificate and certification tags, tagging and sealing.

Q. 5 Which are the agencies authorised for certification of seeds?

Answer 5 : Agencies (State Governments or Autonomous Bodies), which are notified under Section 8 of the Seeds Act are authorized for certification of seeds. At present there are 21 state Seed Certification Agencies in the country.

Q. 6 Which are the agencies that can produce certified seeds?

Answer 6 : Anybody willing to come forward to produce certified seed can produce certified seed. At present State Seeds Corporations, National Seeds Corporation, State Farm Corporation of India, State Departments of Agriculture, Private Companies, Cooperatives and individual farmers are producing certified seed.

Q. 7 What is Seed Replacement Rate?

Answer 7: Seed Replacement Rate is the percentage of area sown out of total area of crop planted in the season by using certified/quality seeds other than the farm saved seed.

Q.8 What are Genetically Modified, transgenic crop/ seed?

Answer 8: Genetically Modified seed is developed by application of biotechnology wherein a specific gene from other genus is inserted by genetic manipulation to make it resistant against certain characteristics like insect pest resistance, for example in the Bt. cotton, Cry1 AC gene has been incorporated in the cotton seed from a soil bacteria i.e. Bacillus thirugenesis which make it resistant against the attack of boll worm.

Q 9. How are the IPR issues being dealt in India with respect to Seeds Sector?

Answer 9: The department has enacted legislation known as **Protection of Plant Varieties and Farmers' Rights Act, 2001 to protect plant breeder's rights**. The main objectives of the legislation are to (a) stimulate investments for research and development both in the public and the private sectors for the development of new plant varieties by ensuring appropriate returns on such investments; and (b) facilitate the growth of seed industry in the country through domestic and foreign investment which

will ensure the availability of high quality seeds and planting material to Indian farmers. PVP & Farmer's authority is being set up.

Q. 10 What are the areas of application of Biotechnology in Agriculture?

Answer 10: Biotechnology is a tool that has been widely accepted worldwide for improvement of cultivars with regard to

a) Insect pest resistance
b) Tolerance to drought, cold and salinity condition
c) Nutrition enhancement
d) Post harvest quality
e) Value addition.

Apart from the above, the Task Force appointed by the Department of Agriculture & Cooperation under the Chairmanship of Dr. M.S. Swaminathan have recommended the following:

"Biotechnological applications should be viewed comprehensively. Both r-DNA and non-r-DNA applications such as fermentation, bio-processing, bio-pesticides, bio-fertilizers, tissue-culture, micro-propagation and related technological components which are important for Indian agriculture including animal husbandry and fisheries should be viewed as integral components of the planning and promotion of biotechnological applications in agriculture."

Q 11. What are the GM crops approved in India?

Answer 11: So far, four Bt. cotton hybrids have been approved for commercial cultivation by GEAC, MOEF. Out of four hybrids approved so far, Bt. MECH-12, Bt. MECH-162 and Bt. MECH-184 are of M/s. Mahyco – Monsanto and RCH 2 Bt of M/s. Rasi Seeds Pvt. Ltd. These hybrids are being cultivated in six states, namely Gujarat, MP, Maharashtra, AP, Karnataka and Tamil Nadu. North India likely to be released during 2005 However, transgenic mustard, corn, brinjal, tomato are also under various stages of testing and trials.

Q. 12 . What are the penalty provisions for sale of spurious seed?

Answer 12: If any person contravenes any provisions of the Seeds Act/Rules, on conviction be punishable:

a) for the first offence with fine which may extend to five hundred rupees, and

b) in the event of such person having been previously convicted of an offence under this section, with imprisonment for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

Q 13. What are the rules for export and import of seeds?

Answer 13 : Export/import are governed by EXIM Policy of 2002-07 issued by Ministry of Commerce. Under EXIM Policy, provision is made to import which governed by the New Policy on Seed Development, 1988 read with Plant Quarantine Order, 2003 and amendments made thereon. For restricted items the EXIM committee of DAC is empowered to take decision of import/export.

Q 14. What is NSC?

Answer 14: The National Seeds Corporation Ltd.(NSC), a Public Sector Undertaking under the administrative control of the Department of Agriculture and Cooperation, was established in the year 1963 under the Companies Act, 1956 with the objective of producing and distributing Seeds of high quality to the farmers. The Corporation undertakes the production of seeds through Contract Growers. NSC is dealing with about 560 varieties in 79 crops.

Q 15. Does Government of India have its own farm to produce seeds?

Answer 15: Government of India does not have its own farm for production of seed, however, State Farm Corporation of India, Government of India Undertaking operates Central State Farms in different states. SFCI was set up in 1969 under Companies Act to take quality seed production in Central State Farms. Over the passage of time keeping in view the economic viability of these farms only 6 farms have been retained and others were returned to State Governments since land was taken on lease for a prescribed period of time.

Q 16. To whom the farmers have to approach when the seed fail to perform?

Answer 16: Director of Agriculture/Joint Director of Agriculture/Seed Inspector of the areas concerned.

Q 17. Is there any facility for the farmer to get the seed tested before sowing?

Answer 17: Seed users and seed producers could get the seed sample tested in the State Seed Testing Laboratories with the minimum fee prescribed to obtain the result to be used as information for seeding, selling or labeling purposes.

Q 18. What is DUS Testing ?

Answer 18: DUS stands for Distinctness, Uniformity and Stability. This is a criteria on the basis of which the Plant Breeders' Rights will be granted to a variety by the Authority. DUS test will be used as main criteria for deciding the novelty of a variety. The formulation of National test guidelines for DUS testing has been entrusted to ICAR. Out

of 35 crops **DUS test guidelines** for 30 crops are already prepared. Balance 5 is under finalization.