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CSIR - NATIONAL BOTANICAL RESEARCH INSTITUTE
Rana Pratap Marg, Lucknow 226 001



'Expression of Interest'

CSIR-National Botanical Research Institute, Lucknow, with the aim of enhancing productivity of cotton by protecting the crop from insect pests, invites Expression of Interest (EOI) from reputed Indian biotech seed companies with expertise in handling GM crops, their deregulation, and commercialization in the territory of India. Expression of interest is sought for assessing the potential of GM cotton lines (called X) developed at CSIR-NBRI to protect cotton crop under field conditions from two important insect pests - *Pectinophora gossypiella* (pink bollworm), and *Spodoptera litura* (leaf armyworm), and to develop varieties/hybrids that can be commercialized.

A brief about technology/knowhow available at NBRI

CSIR-NBRI has developed GM cotton lines that express a novel insecticidal protein designed at the institute. The selected GM events are resistant to pink bollworm and leaf armyworm. Larval mortality >90% has been observed, rendering nearly complete protection against the two target pests under laboratory conditions. The selected events exhibit a high and consistent expression of the transgene (~ 0.1% of total soluble protein) up to 180 days, required for life-long protection (tested up to T4 generation). The two single-copy selected events have been fully characterized for copy number and sites of integration. The site of transgene integration in the genome of the selected events establishes them as clean events. ELISA kit for examining the expression of insecticidal protein is available. The kit does not show cross-reactivity with any other protein in cotton, including the Cry proteins already present in the cotton.

What is CSIR-NBRI looking for?

CSIR-NBRI wants to partner with a biotech seed company (or companies if they have complementary skills) that can take the lab-finished GM events forward and convert the most desirable event into farm-ready product (stacked GM cotton seed). The seed company would stack the CSIR-NBRI event into the currently grown GM cotton lines/hybrids for incorporating broad-spectrum insect resistance in the crop. The company will also get the individual and stacked GM cotton deregulated for commercial cultivation. CSIR-NBRI desires to identify/select a company for deregulation and providing deregulated line(s) to other seed companies for the overall benefit of all the stakeholders and society. CSIR-NBRI will share all the expertise available with the developers with the selected company for the said purpose.

Specific responsibilities of the Company

- CSIR-NBRI has developed GM cotton resistant to pink bollworm and leaf armyworm at its own cost through several years of research. The applicant company would stack CSIR-NBRI gene (“X”) technology in its best-selected cotton hybrids/varieties, with any other existing GM technology within a clearly defined time frame, and get the stacked GM cotton deregulated at the earliest, and at its own cost.
- The company will prepare a joint application with CSIR-NBRI as per the statutory requirements of the Regulatory Bodies of GOI for the deregulation of individual and stacked GM cotton. The company will get the necessary studies conducted and do all that may be required to get the individual and stacked event deregulated for further use. The CSIR-NBRI and the company will jointly own the technology (deregulated X gene containing GM cotton).
- After successful deregulation, the company will demonstrate the technology to other interested Indian Biotech Seed Companies for fanning out the technology.
- CSIR-NBRI and the selected company will jointly license the “X” gene containing deregulated GM cotton to all the interested Indian Biotech Seed Companies on mutually agreed terms.

Requirement from the applicant companies

Companies expressing interest must address the following points explicitly in their proposals reflecting their competence in the subject area.

- Detailed proposal outlining their expertise in GM crop handling, deregulation, and commercialization.
- Time-linked plan for introgressing “X” gene in high yielding cultivars/hybrids/varieties and stacking “X” gene with any existing technology in cultivars/hybrids/varieties, conducting field trials and demonstrations in compliance with regulatory requirements.
- Strategies for spreading the technology like farmer education, capacity building, and market access for pan-India commercialization.
- Plan to ensure commercial success and sustainability of the technology through a joint project or any alternative mode with CSIR-NBRI in future, with mutually agreed terms and conditions.

Eligibility:

- The applicant must be registered with the Department of Scientific and Industrial Research (DSIR).
- The applicant should have at least 10 years of experience in the seed industry and handling GM cotton seed business for the same period.
- The company should have an average annual turnover of not less than INR 250 crores for the preceding 3 years (2021-22, 22-23, and 23-24) from the date of bid

submission. In support of this claim, an audited account of the company from the CA shall be submitted.

- The company must have its presence in multiple cotton-growing states/ regions of India with an annual sale of not less than 20 lakh packets of existing GM cotton seeds.
- The company must possess
 - Speed breeding and molecular-assisted breeding expertise and facility.
 - Dedicated and experienced team for the deregulation of GM crops.
 - Entomology facility to handle cotton insect pests.
 - Facilities for multi-location GM crop field trials as per requirements of the national regulators.

Interested parties may study this EOI document carefully, and submit their proposals. For this, companies need to provide the following details-

A. Information to be furnished by the company

1. Name of the company:
2. Registered Address:
3. Act under registered:
4. Address for correspondence:
5. Name of Officer/ Director with address for the project under discussion:
6. Annual turnover (gross revenue from products & services) of the company for the preceding three financial years through audited accounts, certified by a CA:
7. GST registration no:
8. PAN/TAN no:
9. EPF/ESIC registration no:
10. Registration letter of the company with DSIR:
11. Experience in seed business:
12. Experience in handling GM cotton in the last 10 years:
13. Number of GM cotton seed packets sold in different states in India in the last 3 years:
14. Locations of company-owned/leased field stations for multi-location trials with GM crops:
15. Names of person-in-charge with expertise in cotton embryo rescue culture/ backcrossing/ speed breeding/ marker-assisted selection:
16. Names of person-in-charge with expertise in obtaining GM crop regulatory approvals and multi-location trials as per the requirements of regulatory agencies:
17. Names of person-in-charge with expertise in handling and field evaluation of cotton pests:
18. Facilities available at the company for the technical areas as listed above:

B. Work Plan with time milestones:

1. Introgression of “X” gene into elite cultivars/hybrids/varieties of the company, criteria for selection of the event-containing lines, and approach for speed breeding with timelines.
2. Work plan for biosafety and environmental safety trials on individual and stacked varieties and “X” protein as per requirements of regulator (RCGM).
3. Work plan for agronomic and performance evaluation field trials as per requirements of regulator (GEAC).
4. Work plan for taking government approvals for charging Trait Fees and commercial release of the “X” gene stacked GM cotton in different states.
5. Work plan for seed multiplication and commercialization of the GM varieties/hybrids.
6. Work plan for sharing the CSIR-NBRI technology with any other company interested in adopting the same.

C. Financial proposal

1. Financial proposal to CSIR-NBRI in the form of Technology Access Fee (at the time of signing the agreement) and Royalty (after commercialization).
2. Financial Proposal for sharing benefits with CSIR-NBRI when licensing out the technology to other parties.

Interested companies may write to (manish.bs@nbri.res.in) for clarification, if any.

Selection criteria:

The proposal will be evaluated based on the following criteria:

A. Technical criteria:

- Competence of the company in the area for which EOI is sought.
- Suitability of proposed GM cotton hybrid/variety as per market need.
- Credibility of the proposed work plan, timelines, field trials, and demonstration plans.
- Commitment to biosafety, biosecurity, and environmental sustainability.
- The proposed approach to farmer engagement and market development.
- The proposed realistic model with timelines for taking the technology to the field.

B. Financial criteria:

- Financial proposal to CSIR-NBRI as Technology Access Fee and Royalty.
- Financial Proposal for sharing benefits with CSIR-NBRI while fanning out the technology to other parties.

Decision making:

Companies will be shortlisted based on technical details in the submitted proposal. Shortlisted companies will be invited for discussion and requested to make a presentation to an **Expert Committee constituted by the D.G., CSIR**. The company complying with all the technical criteria and offering the most favorable financial terms will finally be selected for developing “X” gene containing GM cotton cultivars/hybrids/varieties and its deregulation and for developing commercialisable “X” gene stacked GM cotton cultivars/hybrids/varieties and their deregulation, in partnership with CSIR-NBRI. The EC reserves the right to select a company based on the evaluation criteria mentioned above. CSIR-NBRI will develop a Material Transfer Agreement (MTA) and Commercial Use Agreement (CUA) with the selected company to advance lab-finished technology to farm-ready products.

Disclaimer:

This Expression of Interest constitutes a binding commitment from CSIR-CSIR-NBRI to proceed with the deregulation of the “X” stacked GM cotton. However, the continuation of the process with the company will be a comprehensive assessment of the competence of the applicant company, submitted evidence, regulatory requirements, and stakeholder feedback. In case of incompetence, CSIR-CSIR-NBRI reserves the right to terminate the process.

Contact Us

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