



Sugar Research
Australia

REQUEST FOR TENDER

Alternatives to imidacloprid for canegrub control in sugarcane

Proposals must be received by 12 December 2020

SRA Reference SRA-RFU-2020-IC006

This document has been prepared to assist prospective tenderers in the preparation and submission of proposals to progress development of insecticide alternatives to imidacloprid for canegrub control.

Summary

Sugar Research Australia (SRA) invests in and manages a portfolio of Research Development & Adoption (RD&A) projects that drive productivity, profitability and sustainability for the Australian sugarcane industry. As an industry-owned company, SRA is committed to setting optimal targets, managing research investments to maximise the likelihood of success, and ensuring the delivery and adoption of project outcomes and impacts across the Australian sugarcane industry.

SRA has identified that development of alternative insecticides to the soil-applied insecticide imidacloprid is a priority for the Australian sugarcane industry.

In this context, SRA is seeking tenders from suitably qualified and experienced individuals or consortia to undertake a program of R&D to progress development of insecticides that may complement or replace the use of imidacloprid with other efficacious chemicals that have a lesser environmental footprint. It will achieve this by:

- Collaborating with one or more chemical companies
- Targeted efficacy testing of alternative active ingredients
- Comparing run off losses from imidacloprid and selected alternatives
- Working with companies to bring products to market

Issue

Canegrubs (whitegrubs; Coleoptera: Scarabaeidae) are the most serious insect pests of sugarcane in Australia, with one or more species present in all canegrowing regions. The soil-living larvae eat the roots of sugarcane plants leading to poor growth, loss of cane stools at harvest and, in severe cases, plant death. Grower losses in 2001 at the peak of canegrub

damage were costed (in 2001 dollars) at about \$19M, not including costs to mills in reduced supply and poorer cane quality.

Losses are currently low, with the effective neonicotinoid insecticide imidacloprid widely applied by growers. Imidacloprid was first introduced to the industry as Confidor under an Emergency Use Permit in 2001, with numerous products now available. Imidacloprid is one of only two chemicals that are available for canegrub control, the other, clothianidin (another neonicotinoid), is rarely used.

There is a risk of regulatory restrictions on use of neonicotinoids, with regular exceedances of imidacloprid guideline values in waterways in sugarcane-growing regions and an environmental focus on use of imidacloprid overseas; registration of neonicotinoids including imidacloprid is currently being reviewed by the APVMA. Regardless of that outcome, there is a risk of market rejection of sugar produced using a system judged 'unsustainable'. In addition to environmental impacts, reliance on a single group of insecticides for canegrub control brings the risk of development of pesticide resistance with no opportunity to rotate chemicals as a mitigating strategy.

A recently completed SRA-funded project has evidenced that there are active ingredients that may be as effective as imidacloprid. What is needed now are:

- Efficacy data that will satisfy product registration requirements for promising actives.
- Evidence that alternative products are less environmentally harmful than existing controls.
- Commercial collaborators and a path to market.

Expected project outputs

The purpose of this investment is to progress development of insecticide alternatives to imidacloprid for canegrub control. The project will develop:

- An efficacy package for one or more non-neonicotinoid insecticides, verifying formulations and application timing, method and rates over multiple sites and multiple years.
- Evidence of any effects on relevant off-target species
- A summary of their environmental risk in terms of off-site movement (from this trial work) and subsequent ecotoxicology (from existing literature).

Although an effective insecticide would eventually require registration against multiple canegrub species, research in this project will be targeted against the greyback canegrub *Dermolepida albohirtum* in Central and Northern Queensland.

Expected project outcomes

By project completion it is expected there will be:

- One or more insecticides with demonstrated ability to be sustainable alternatives to existing products.
- Ongoing collaboration with one or more chemical companies to bring products to market.

Project duration and budget

Expected project duration is up to 5 years, with a budget in the 2020/21 financial year capped at \$200,000 (excl. GST) and the total budget is expected not to exceed \$1.15M (excl GST) over 5 years.

Tender submission

Tenders must be submitted through the online Portal SugarNet

<https://grants.sugarresearch.com.au> .

All applicants should consult the Submission Guidelines available on the SRA website

<https://sugarresearch.com.au/research-investment/2020-21-research-project-investments/>

and also provided in SugarNet.

Tender proposals must include a detailed and fully costed budget and a formal payment schedule with milestones (up to two per year) and appropriate achievement criteria that match expected project progress.

Also, Activity and Milestone Timeline and Milestone Budget Calculator spreadsheets must be completed and uploaded as attachments through SugarNet using the templates supplied on the SRA website and in also in SugarNet.

An IP disclosure must also be completed and submitted through the online IP Record Portal; access to the portal and instructions including an instructional video can be found at

<https://sugarresearch.com.au/research-investment/intellectual-property/> . The completed

IP Register, generated as a pdf file from the IP Portal, should be uploaded as an attachment to the SugarNet application.

More detail on each of these is provided in the Submission Guidelines.

Selection criteria and process

Selection of the successful proposal(s) will be based on the following criteria:

- The applicant or project team having:
 - A logical research plan and path-to-market
 - Knowledge of requirements for insecticide registration (prior experience with the APVMA would be an advantage)
 - Access to likely candidate insecticides and supplementary data
 - Demonstrated ability to conduct the necessary research activities, including appropriate experimental design and statistical analysis
 - Experience with handling insecticides and conducting insecticide trials
 - Experience with research on soil insects
 - Ability to implement, maintain, monitor and service field trials on commercial sugarcane farms in Central and Northern Queensland
 - A plan for collaboration with appropriate chemical companies to assist with supply of products and product development to take viable options to market.
- The proposed project budget and in-kind or other contributions from the research organisation and any other participants in the research.

- The tenderer being a legal entity with which SRA can contract. The tender submission must describe and provide evidence of the legal status of the tenderer, including an Australian Business Number (ABN) if appropriate.

Tenderers must declare to SRA any matter or issue which may be perceived to be, or may lead to, a conflict of interest regarding their proposal or participation in supply of the services described. Tenderers must outline a strategy so that any actual conflict of interest will be avoided.

Project agreement and reporting requirements

The successful applicant(s) will be required to enter SRA's standard project agreement.

Milestone and final reports will be prepared in line with SRA report guidelines (see <https://sugarresearch.com.au/research-investment/forms/>).

The successful applicant(s) may also be required to prepare and/or contribute to short articles for dissemination in SRA and industry publications.

Negotiation

After short-listing, SRA may engage in detailed discussions and negotiations with one or more tenderers to maximise the benefits of the tender proposals submitted.

Useful background

General information on canegrubs can be found on the SRA website at <https://sugarresearch.com.au/pest/canegrubs/>. Specific information on greyback canegrub is available in the *Greyback canegrub management manual (2020 update)* at <https://sugarresearch.com.au/sra-information/publications/>. Numerous publications on canegrubs including greyback canegrub can be accessed from the SRA e-library at <https://elibrary.sugarresearch.com.au/> and the website of the Australian Society of Sugar Cane Technologists <https://www.assct.com.au/>.

Further information

For further information regarding this tender, please contact Dr Peter Samson (Research Funding Unit Program Manager).

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Submissions

Proposals must be lodged in SugarNet **by 12 December 2020**.