



PLANT HEALTH AND PROTECTION WEEDS RESEARCH DIVISION

INSECT MASS REARING IN SUPPORT OF THE WEED BIOLOGICAL CONTROL PROGRAMMES UNDERTAKEN AT THE ARC-PHP WEEDS RESEARCH DIVISION

PURPOSE:

To appoint a/multiple service provider (s) on a two (2) year **contract** from April 2023 to assist the ARC-PHP Weeds Research Division with the regional mass rearing, release and distribution of insect biocontrol agents released for the biological control of multiple target weed species throughout South Africa.

BACKGROUND:

Biological control has proven to be an effective and sustainable means of managing many invasive alien plants (IAPs) in South Africa. The practice entails the use of one or more host-specific natural enemies or biocontrol agents to reduce a target weed's vigour and reproductive potential, thus removing its competitive advantage over indigenous plant species. Whilst some weed biological control programmes require only small numbers of biocontrol agent to be released in order to establish sustainable and effective populations in the field, most programmes benefit from repeated releases of large numbers of insects. In many cases, such mass rearing and augmentative release strategies have been shown to substantially increase the damage caused by a particular agent, as well as reduce the time taken before a significant impact to a target weed population is realised.

The ARC-PHP Weeds Research Division currently undertakes weed biological control programmes targeting a number of IAPs in South Africa. These programmes employ a suite of insect biocontrol agents that require regional mass rearing and distribution from multiple, strategically located rearing facilities.

SCOPE AND EXTENT OF WORK REQUIRED:

1. Mass rearing of insect biocontrol agents:

- Maintenance of cultures and mass rearing of seventeen (17) (or subset of) individual biocontrol agents on ten (10) target weed species – see TABLE 1.
- Production/provision of insects in line with/in excess of the quarterly targets set out in TABLE 1.
- Seasonal and regional prioritisation of insect agents in accordance with a pre-approved release strategy and/or ARC-PHP researcher recommendations.

2. Release of insect biocontrol agents:

- Provision of insect agents in accordance with a pre-approved release strategy and/or on request, so far as is possible, from relevant stakeholders and ARC-PHP staff.
- Collect and prepare consignments of insects agents for release as mandated by a pre-approved release strategy.
- Conduct local augmentative releases (within a radius of no more 120km) as mandated by a pre-approved release strategy or as required.
- Prepare consignments and arrange with courier companies to facilitate shipments of agents beyond the local release radius as required.

TABLE 1: List of the target weed species and insect species to be reared:

	Target weed species	Agent species to be reared:	Est. number of agents per quarter
1	Anredera cordifolia – Madeira vine	<i>Plectoncha correntina</i>	500
2	Biancaea decapetala – Mauritius thorn	<i>Sulcobruchus subsuturalis</i>	100
3	Dolichandra unguis-cati – Cat's claw creeper	<i>Carvalhotingis visenda</i> <i>Hedwigiella jureceki</i>	3750 500
4	Campuloclinium macrocephalum – Pom pom weed	<i>Liothrips tractabilis</i> <i>Cochylis campuloclinium</i>	65 000 100
5	Chromolaena odorata – Triffid weed	<i>Pareuchaetes insulata</i> <i>Lixus aemulus</i>	2 000 500
6	Lantana camara – Lantana	<i>Coelocephalapion camarae</i> <i>Longitarsus bethae</i>	2 500 2 500
7	Parthenium hysterophorus – Parthenium	<i>Listronotus setosipennis</i> <i>Smicronyx lutulentus</i> <i>Zygogramma bicolorata</i>	4 000 3 000 3 000
8	Tecoma stans – Yellow bells	<i>Mada polluta</i>	2 000
9	Tithonia diversifolia – Mexican sunflower	<i>Physonata maculiventris</i>	500
10	Tithonia rotundifolia – Red sunflower	<i>Zygogramma signatipennis</i> <i>Zygogramma piceicollis</i>	2 000 2 000

3. Project management and reporting:

- Appropriate record keeping detailing quantities of all insects produced and released, as well as locality and site-specific data related to each field release.
- Submission of four (4) quarterly reports per year detailing production and release figures.

4. Competency and expertise requirements:

- The service provider is required to demonstrate that they have past and/or ongoing experience and competency in the fields of insect mass rearing.
- The service provider needs to show evidence of previous work/projects successfully completed including track records and deliverables achieved.
- The service provider needs to show evidence of ownership or long-term access (e.g., a lease agreement) to appropriate existing insect and plant rearing laboratories and/or growth tunnels. Such facilities should contain all appropriate environmental and abiotic controls essential for insect rearing.
- The service provider is required to provide evidence that their team has relevant technical experience in insect mass rearing or a similar field. *Additional training will be provided by the relevant ARC-PHP project team on any specialist knowledge or techniques required for the mass rearing of the insects in TABLE 1.*

5. The ARC is committed to poverty alleviation through the provision of employment to the unemployed, by building the skills base of the unskilled, and through support for small, medium and micro enterprises. As such, preference will be given to 'Qualifying Small Enterprises' and 'Exempt Micro Enterprises' which are at least 51% owned by black people, or at least 51% owned by black people who are youth, or at least 51% owned by black people who are women, or at least 51% owned by black people with disabilities.

6. Prospective bidders should provide an expression of interest together with a brief project plan outlining any proposed mass-rearing methodologies that will be used to address the aforementioned requirements. The expression of interest/project plan should also outline their teams experience and describe any existing/planned facilities that will be used for the project. Should you require any further information, please do not hesitate to contact:

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