Statement of Work
Spongy Moth lure (*Lymantria dispar*), (+) disparlure

Background and General Information

Pheromones are sensitive detectors of specific moths and non-indigenous forest insect pests which allow for monitoring insect populations and aid a variety of control strategies. *Lymantria dispar* (spongy moth) are one of the most serious exotic plant pests threatening United States (U.S.) agriculture. Living with spongy moth infestations, if not detected, monitored, and managed, would be damaging to U.S. agriculture and the forest industry. Further, the cost of eradication could be in the millions of dollars.

The spongy moth pheromone is used to detect previously unknown infestations of spongy moth. Pheromone lure usage rates will vary from year to year, but the importance of this program is well established.

Specifications

(+) disparlure = (cis-7,8-Epoxy-2-methyloctadecane)

Disparlure required purity:

1. Colorless clear liquid (slight straw discoloration may be tolerated)
2. Completely distillable at 110 degrees C < 0.5 mm (0.5% residue)
3. Refractive index n 1.4435 +/- 0.001
4. IR and NMR (match standard)
5. Contains > 95% cis-7,8-epoxy-2-methyloctadecane as measured by gas chromatography analysis on a 60 m X 0.25 mm i.d. capillary column coated with DB-1 (non-polar), and programmed as follows:
Two (2) min. isothermal at 100 degrees Celsius, then 10 degrees/min, to 250 degrees Celsius, where it is held for 10 minutes. A flame ionization detector is used for analysis. The retention times of disparlure on the DB-1 column with hydrogen carrier gas is given below. Other capillary columns of equivalent or better resolution may also give acceptable results.

Compound	Retention Time (Min.)
• cis-7,8-epoxy-2-methyloctadecane	+17.34
• trans-7,8-epoxy-2-methyloctadecane	+17.21

The overall purity should be > 99% if the minor peaks whose area is less than 1% that of disparlure are ignored.
6. Optical rotation: a 25 +0.8/-. 0.2 (1 0% CC 1)

Standards

(+) Disparlure material shall meet the enantiomer purity and biological activity standards as described below to be accepted by the government.

Enantiomer purity:

- Based on measurements of intermediates; >99 (+) disparlure (cis-7,8-Epoxy-2-methyloctadecane)
- Based on measurements using USDA analysis (Oliver & Waters, J. Chem. Ecology 21 (2), 199-211 [1995]; Oliver [2004], unpublished addendum to 1995 paper)
- Based on USDA analysis contains less than 0.3% of the (-) isomer
- The offeror shall submit with their offer the proposed method of synthesis along with the intended procedure for predicting the optical purity of the final product based on measured purity of the intermediates in the synthesis or the final product. Note – any confidential business information must be marked as such.

a. Known published syntheses are:

Iwaki, et al., J. Amer. Chem. Soc., 96, 7842 (1974)
Mori, et al., Tetrahedron Letters, 17 (44) 3955 (1976)
Farnum, et al., Tetrahedron Letters 18 (46), 4009 (1977)
Mori et al., Tetrahedron 35 (7), 833 (1986)
Mori, & Ebata, Tetrahedron Letter 42 (3), 313 (1988s)
Satoh, et al., Tetrahedron Letter 29 (3), 313 (1988)
Brevet & Mori, Synthesis 1992 (10), 1007 (1992)
Keinan, et al., Tetrahedron Letters 33 (43), 6411 (1992)
Mori, pp. 1-151 in: Total Synthesis Reference of Natural Products, Vol. 9 J. Ap Simon (ed.), John Wiley & Sons (1992; published online 2007).

Product Evaluations

The purity of the compound (pass or fail). The disparlure must be of the purity specified and the submitted sample must contain <0.3% (-)-disparlure. The contractor is required to submit samples of each production lot to the Government for chemical analysis and bioassay.

After contract award, the contractor shall submit the following for each production lot prior to acceptance:

- At least 250-mg sample of net (+) disparlure to the government from a previously untested lot*
- Certificate of analysis
- Safety Data Sheet
- Description of the delivery lead time
- Description of past performance
- Written method of synthesis
- Written information regarding the testing used to check quality and purity

If the contractor is delivering more than one lot to meet contract requirements, then a 250-mg sample must be submitted from each lot for testing.

*Lots are to be defined as: a product produced by continuous process; it is a specific identified amount produced in a unit of time or quantity in a manner that assures its having uniform character and quality.

Product samples shall be shipped to:

USDA-APHIS-PPQ-FPML
ATTN: Allard Cosse
1398 W. Truck Rd.
Buzzards Bay, MA 02542-1329
Phone: (508) 563-0985

All other information should be submitted to the Contracting Officer or their designated specialist.

Upon award all product shipments must include:

- Certificate of Analysis
- Safety Data Sheet
- Description of the delivery lead time
- Written method of synthesis
- Written information regarding product testing, quality, and purity:
  - Testing methods
  - Results of testing

This information should be provided electronically to the individual placing the order.

Packaging

Must meet requirement to be reach the end destination intact and without damage. Also, the container shall be packaged in suitable cartons for shipment by common carriers.
All shipping containers must be marked with:

- Spongy Moth, *Lymantria dispar* lure
- Quantity contained
- Manufacture date
- Expiration date
- Contract #
- Lot number

The disparlure shall be packaged in quantities of 50 grams or less in each container. Each container must be labeled with the following information:

- Company's name
- Spongy Moth, *Lymantria dispar* lure
- Contract #
- Manufacture date

- Expiration date
- Lot number

Acceptance

Received product will be tested chemically and biologically by the USDA Forest Pest Methods Laboratory in Buzzards Bay, MA. Chemical testing will allow conditional acceptance and final acceptance may happen after a field bioassay where the sample is compared to a USDA (+) disparlure standard for its ability to attract male spongy moths at four pheromone loading rates (10, 100, 1000, and 5000 ug) using standard milk carton traps for all testing. A randomized complete block design will be used for the field bioassay in a moderate density spongy moth infestation. The sample shall be part of the production quantity.

Deliveries

Shipping is FOB to destination to:

USDA-APHIS-PPQ-FPML
ATTN: Allard Cosse
1398 W. Truck Rd.
Buzzards Bay, MA 02542-1329
Phone: (508) 563-0985

ADMINISTRATIVE

Invoicing

Payments will be made according to the firm-fixed unit price established in the contract Pricing Schedule. Invoices will be submitted in arrears and prepared in accordance with FAR 52.212-4(g). USDA uses the Invoice Processing Platform (IPP) for electronic submission and tracking of purchase orders, invoices, and payment information to its suppliers of goods and services: Enroll at https://ipp.gov. The IPP is a government-wide secure web-based invoice processing service offered free of charge to government agencies and their suppliers by the U.S. Department of Treasury's Financial Management Service (FMS).

Contractors must submit invoices and attach all supporting documentation as required. Supporting documentation includes, number of kits delivered, Delivery Oder number, and company information. The IPP Approver will review the supporting documents before approving invoices in IPP, if supporting documentation is not provided the invoice will be rejected. IPP will issue a notification to contractor that they must submit supporting documentation and resubmit the invoice. See FAR 52.232-3

Contracting officers' representative
The Contracting Officer will designate a Contracting Officer's Representative (COR) at the time of award. The COR will be the contractor's local Government contact for contracts awarded against this requirement.

The COR is responsible for monitoring the performance of work under contracts awarded as written in the contract. In no event, however, will any understanding, agreement, modification, change order, or other matter deviating from the terms of the contract be effective or binding upon the Government unless advance authorization is received from the Contracting Officer, and proper contractual documents executed by the Contracting Officer prior to performing the work.

The COR shall inform the Contracting Officer as soon as possible of any recommended modifications, and actions or inactions of the contractor or the Government which could affect the contractor's ability to comply with the contract performance requirements or completion times.

Whenever, in the opinion of the contractor, the COR requests effort outside the scope of the contract, the contractor shall so advise the COR. If the COR persists and there still exists a disagreement as to proper contractual coverage, the Contracting Officer shall be notified immediately.

PROCEEDING WITH WORK WITHOUT PROPER CONTRACTUAL COVERAGE AND APPROVAL OF THE CO COULD RESULT IN A BREACH OF CONTRACT AND NONPAYMENT.

The designation (delegation of authority) shall be provided in writing to the COR and the contractor. The delegation of authority shall clearly explain the COR's role and responsibility on the contract, and limitations of authority.

Questions regarding contractual issues shall be directed to:

Contracting specialist
Margaux Nenichka
USDA/APHIS/MRPBS/AAMD
Ph# 301-957-4321
Email: margaux.g.nenichka@usda.gov

Contracting Officers Representative (COR)
Gabriel Lopez
USDA/APHIS/PPQ/MRP/Supervisory Facility Operations Specialist
MRP-APHIS-Field Operations
Ph# 956-207-9594
Email: gabriel.lopez@usda.gov

Delivery

Unless otherwise specified, all items are FOB destination to:

USDA-APHIS-PPQ-FPML

ATTN: Allard Cosse
1398 W. Truck Rd.
Buzzards Bay, MA 02542-1329
Phone: (508) 563-0985

Delivery order set up

USDA/APHIS/MRPBS will issue the minimum required under this contract in the first delivery order upon award of the contract. Additional delivery orders may be issued throughout the life of the contract. They will be numbered with a 126395YYFNNNN. Upon delivery and acceptance of the products for any Delivery Orders, the contractor will be responsible for submitting the invoice for payment against the IDIQ Contract number, referencing the individual order number in the IPP system at https://www.ipp.gov.

Delivery orders will be issued in accordance with the Ordering clause (52.216-18, Ordering).

Delivery orders will be issued against this contract on a firm fixed unit prices established in the pricing schedule.

Delivery Timeline

From the moment the vendor receives the order, delivery will occur in 60 days, or less.

Placement of orders

The contractor shall provide the products under this contract only as directed in the delivery orders. In accordance with FAR 16.505, each order will include:

1. Date of order
2. Contract number and order number
3. Item number and description, quantity, and unit price
4. Delivery date/schedule
5. Place of delivery or performance (including consignee)
6. Packaging, packing, and shipping instructions
7. Accounting and appropriation data
8. Method of payment and payment office, if not specified in the contract
9. Any other pertinent information

Ordering authority

USDA APHIS Contracting Officers may place orders up to their warrant and within the limits of the contract Min/Max as established in the contract clauses.

Orders may be placed by a warranted USDA contracting officer through email.

Contract Minimum and Maximum Amounts

During the period specified in FAR clause 52.216-18, ORDERING, the Government

shall place orders totaling a minimum of $1,000.00 but not in excess of $1,200,000.00.