Navel Orangeworm Action Committee

Strategic Goals & Objectives

The Naval Orangeworm Action Committee is presently an Ad Hoc Committee of the California Department of Food and Agriculture, (CDFA). In the future, it is the vision to have a Memorandum of Understanding (MOU) with CDFA to provide guidance and direction on a go forward basis.

Goal 1: A successful NOW SIT Program shall necessitate an increase in program acreage.

1.1 Expand Acreage – Using existing participants. (See Exhibit "A")

1.2 New acreage – A continuous plot design.
- North of Avenal Cutoff
- South of Mt Whitney
- West of Kings River Bypass
- East of I-5

1.3 To create an all-inclusive program area within the above-described location noted above to be used as a beta test for an area wide program or in Lost Hills.

1.4 An additional option for expansion of acreage may be found in the Boswell almond and pistachio all-inclusive area at the Buena Vista Ranch in Kern County should they be willing to participate in the future.

Five Year Action plan

2026	2027	2028	2029	2030
Almond ac. Pistachio ac. Total 5,120 ac.	Almond ac. Pistachio ac. Total 10,240 ac.	Almond ac. Pistachio ac. Total 20,480	Almond ac. Pistachio ac. Total 40,960	Almond ac. Pistachio ac. Total 81,920

Key Performance Indicators

- A continuation of seasonal data that proves suppression of NOW and significant damage mitigation within the scope of the sterile moth program fields at levels that are statistically significant.

Goal 2: To provide a Daily Production of Moths that will adequately provide coverage to meet the demands that will be needed for the expansion of acreage.

2.1 Know the maximum rearing capabilities of the NOW SIT facility in Phoenix.
2.2 What does it take to get more moths produced in Phoenix.
2.3 A significant problem seems to exist at the Phoenix Rearing Facility in management's ability to hire and retain staff. This issue needs to be discussed and resolved before the program ramps up.
2.6 Look into the possibility of alternative methods for the distribution of moths.
a) Dispersal by Drone. Can cannister fit and be retrofitted to efficiently distribute moths.
b) Dispersal by motor vehicle.
c) Dispersal using manned or robotic All-Terrain Vehicles.
2.7 The need for additional cannisters in a quantity that is more than one needs to be addressed. A minimum of 2 cannisters a day will be needed for all 2026 applications.

Five Year Action plan

2026	2027	2028	2029	2030
750,000 moths per day. Analyze facility footprint to assure moth rearing demands of the future.	1,500,000 moths per day.	3,000,000 moths per day	3,000,000 moths per day	4,500,000 moths per day

Key Performance Indicators

- The assessment of moths in field traps should help in facilitating the quantity of moths that will be needed in the future as the program grows.
- Application of sterile moths on program should never fall below that which is needed.
- The annual moth production will be guided by the success of the NOW SIT Program.
    - PPQ calculates that the existing lab should be able to produce 7,880,000 – 10,000,000 moths per day.
        - (With engineered modifications to the facility - 11,420,000 moths per day.)
    - Ian calculated the rearing facility potential at 9-10,000,000 moths per day.
    - Earl believed NOW estimated production could be 18 – 20 million a day with new engineered modifications and expansion to other buildings at the facility in Phoenix.
    - *Note: Pink Bollworm reached a maximum production of 32 million PBW moths per day.*

Goal 3: Facility Considerations

The USDA PPQ *staff have compiled a comprehensive list as of December 7, 2025 of Capital Expenditures that will be needed at the Phoenix Rearing Facility. Presented herewith are projects and acquisitions that are planned to make the facility into a "State of the Art" operation that will be able to meet the demands needed for the successful production of Naval Orangeworm sterile moths in the future.* Each item is listed as High Priority and necessary in order of importance.

3.1 Irradiator recharge **(NOWAC 3.2b)**

- *Status:* Acquisition process will begin in Fiscal Year (FY) 2026.
- The irradiator needs to be recharged roughly every five years, depending on the scale of moth production. PPQ estimates the irradiator needs recharged by 2027 or 2028.
- *Estimate:* $650,000 - $880,000 (potentially more). Irradiator recharge is funded through different sources and not tied to the rent agreement.

3.2 Steam boiler feed water system repairs and replacement

- *Status:* Not started; required by the end of FY26.
- This system is used to maintain proper water temperature and level in the steam boilers, which prevents the boilers from exploding. The PRF's boiler feed water system needs repairs and upgrades. This project would procure a new tank and associated pumps, lift the system off the ground to aid cleaning, and integrate the feed for each separate boiler into one system.
- *Estimate:* $57,387.80

3.3 Wash tubs replacement

- *Status:* Not started; by the end of FY26.
- The industrial coating on the tubs has worn off. In-house attempts to recoat the tubs were not
  successful. Further, sourcing contractors to recoat the tubs cost roughly the same as purchasing new ones.
- *Estimate:* $7,000 for replacing all eight tubs.

3.4 Preventive maintenance on incoming power disconnects, transformers, and breaker panels **(NOWAC 3.4, 3.5 & 4.2c)**

- *Status:* Not started; required by the end of FY26.
- The incoming electrical power requires service. Lugs need tightening on the incoming power from the electrical company's transformer. Two transformers inside the building need to be checked for tightness, cleaning, and oil levels. Multiple breaker panels and disconnects also need tightening and cleaning. Two motor control centers need to be serviced. PPQ would also like a power quality report for the system.
- *Estimate: Requires a vendor quote*.

3.5 Parking lot light replacement

- *Status:* Not started; required by the end of FY26.
- The parking lot lights are burnt out and need to be replaced. Only four lights are currently working, posing a safety risk for employees coming in the early morning or leaving at night. Contractors
  recommended replacing the entire light fixtures. PPQ will also switch to LED bulbs.
- *Estimate:* $33,230

3.6 Replace swamp coolers with air conditions for diet storage room

- *Status:* Not started, by end of FY 2026
- The swamp coolers raise the humidity in an area that stores materials that should be stored in dry and cool conditions. Flooding from the plumbing of the swamp coolers creates water and mold issues for the diet materials stored in the room.
- *Estimate:* $97,262

Necessary (in order of importance)

3.7 Drainage system repair

- *Status:* Not started; required by the end of FY27.
- Multiple drains are non-functional due to degraded iron components. The PRF requires a thorough assessment of the draining system to create a long-term repair plan. This work may require a multi- year-phased repair plan to fix the entire system. Blueprints/engineering designs are complete and PPQ can move forward on repairing all drain lines, the kitchen pit drains, and bathrooms.
- *Estimate:* $1,907,202

3.8 Steam pot actuators repair

- *Status:* Not started; required by the end of FY26.
- The steam pot, which regulates humidity in the larval development room(s), is not working. The actuator that automatically adjusts to allow the correct amount of steam needs to be repaired.
- *Estimate: $*71,821

3.9 Power factor center repair

- *Status:* Quote received; Required by the end of FY26.
- The power factor center is non-operational and needs to be repaired. When functional, this piece of equipment holds charge and when some machines first start up it prevents spikes in the facilities power usage and helps keep the utility bill at a reasonable rate.

- *Estimate:* $10,913

3.10 Team Viewer group license acquisition & Building Monitoring System

- *Status:* Not started; required by the end of FY26.
- PPQ uses a computer, provided by Climatec, to monitor the fan coils, mechanical room equipment, and dust collectors. Previously, we received text messages alerting us to equipment malfunctions and provided timely repairs. Climatec performed an upgrade, and PPQ need to purchase a program called Team Viewer and a group license. With Team Viewer, PPQ will receive alerts about equipment malfunction and be able to control the system remotely. In addition to the Team Viewer License, the building monitoring system needs to have the sensors checked for functionality. The computer this system runs on, as well as the WiFi, need troubleshooting.
  Estimate: Requires vendor quotes from both Climatec and the internet company.

3.11 Preventative maintenance contract for chillers **(NOWAC 3.8)**

- *Status:* Not started; required by the end of FY26.
- In FY25, contractors repaired chiller leaks. The PRF must establish a preventative maintenance contract in FY 2026 to keep the chillers functional.
- *Estimate:* $20,000 - $25,000 per year estimated from previous contract.

3.12 Fan coil unit hot/cold supply and return cutoff valve replacement

- *Status:* Quote obtained; FY26 for priority valves, Staggered over additional FYs for other valves.
- Each fan coil in the building has a chilled water supply and return lines with brass ball shut off values (a total of 272 values). These valves rust due to the building's high humidity requirements, making them difficult to shut off for repairs. All actuator valves need inspection and replacement as needed. PPQ obtained an estimate ($21,000) to replace 72 high priority valves. This quote does not include the other 200 valves or other repairs, maintenance, or upgrades to the system.
- *Estimate:* $21,000 for the 72 high priority valves

3.13 Fan coil unit repairs **(NOWAC 3.9)**

- *Status:* In progress, Staggered over FYs for others.
- The PRF has 110 fan coil units throughout the building. Some are leaking or are significantly corroded. These coils are replaced on an as-required basis. PPQ ordered some coils from the manufacturer, but more are needed. During the coming year, it is estimated that between five to 15 of these coils will require replacement, as well as inspection and maintenance of all 110 units.
- *Estimate:* Cost of four coils that are on order: $9,000; cost of 15 coils: $33,750

3.14 Roof preventative maintenance **(NOWAC 3.3)**

- *Status:* Not started; needed by the end of FY27.
- The roof warranty expired; it shows signs of wear and deterioration and leaks when it rains. The roof requires patching, a new acrylic base coat and a new elastomeric topcoat.
- *Estimate:* $172,000

3.15 Small dust collector bag replacement

- *Status:* Not started; needed by the end of FY27
- Industrial dust collector towers are integrated into the facility to collect moth scales. PPQ needs six new dust collector bags, and new filter bags in most dust collectors. Additionally, PPQ needs to service the pulsing solenoids and diaphragms. Staffing shortages prevented regular service and maintenance of the dust collectors. Until staff can be hired, PPQ will use a service contract to maintain these dust collectors.
- *Estimate:* Requires vendor quote.

3.16 Small autoclave replacement.

- *Status:* Not started; by FY27 sooner if it breaks before then.
- The small autoclave is old and has an area that is deteriorating due to age and normal wear and tear. If the area impacted the most. deteriorates through into the chamber there will be no repairing it. It will need to be decommissioned and replaced. This equipment is essential in controlling pathogens that can significantly impact the survival rate of the insects.
- *Estimate:* *$115,383

3.17 Steam line(s) repair

- *Status:* Valves have already been purchased, and this work will be done in house.
- *Estimate:* Requires maintenance staff time.

3.18 Public Address (PA) system repair (**NOWAC 4.2b)**

- *Status:* Not started; needed by the end of FY27.
- The PA system is not functional. A faulty PA system poses a potential safety issue. PPQ Information Technology is unable to assist with this issue; PPQ will need a contractor to diagnose/repair.
- *Estimate:* Requires vendor quote.

3.19 Pavement repair

- *Status:* Not started; needed by the end of FY28.
- Large cracks in the pavement of the westside courtyard/loading dock require repair. The cracks are a safety hazard for staff and could cause equipment (such as racks containing glass jars) to break when moved.
- *Estimate:* Requires vendor quote.

3.20 Valve installation to isolate individual areas **(NOWAC 3.6)**

- *Status:* Not started; needed by the end of FY28.
- The entire building's temperature control system must be shut down to repair production areas. The PRF generally deferred major repairs until the off-season to minimize impacts on moth production, but delaying repairs can cause additional issues. PPQ proposes installing temperature control valves for each major section, so that individual rooms can be turned off without disrupting temperature control in the rest of the facility. These valves will allow for timely repairs without posing a threat to the colony.
- *Estimate: Requires vendor quote*.

3.21 Facility doors repair **(NOWAC 4.2d)**

- *Status:* Not started; needed by FY30.
- The doors throughout the facility are old and require repair or replacement. Some doors no longer lock or close properly. A contractor needs to inspect all the doors, hinges, frames, and closers and determine necessary repairs and/or replacements.
- *Estimate:* *All doors are approximately $522,093.
- 30 Interior hollow double leaf metal doors at approximately $8712.57 each ($261,377.48 total).
- Interior hollow single leaf metal doors at approximately $4,883.84 each ($234,424 total).
- Interior wood doors single leaf at approximately $4,382 each ($26,292 total).

3.22 Landscaping **(NOWAC 4.2a)**

- *Status:* Not started; needed by FY30.
- The PRF needs a landscaping service contract to prune trees, remove overgrown shrubs and weeds, and maintain the facilities landscape.
- *Estimate:* $17,000

3.23 Chilled/heating water piping replacement

- *Status:* Not started; Staggered over FYs.
- The chilled water lines have pitting corrosion, and PPQ often find metal shavings in the pipes. The hot water lines also have pitting corrosion, which causes leaks around the boilers. This project may require a multi-year phased repair plan.

- *Estimate:* Requires vendor quote.

3.24 Domestic hot and cold-water piping replacement **(NOWAC 4.0)**

- *Status:* In planning stage; Staggered over FYs.
- The domestic water lines throughout the building require replacement. The PRF will complete this project in phases, starting with the middle connecting area (kitchen, egg prep, infest, and south
  restrooms) where the main incoming water line is located. The second phase will focus on the mechanical room and west side of the South building. The third phase will focus on the east side of the South building, including exterior wash stations. The fourth phase will focus on the east side of the North building. The last phase will focus on the west side of the North building, including the front offices.
- *Estimate:* Requires vendor quote.

3.25 Flooring repair

- *Status:* Not started; needed by FY30.
- The PRF needs to repair flooring cracks and chipped epoxy. Exposed concrete areas need to be
  treated to reduce potential staining and damage. Some spaces need the old linoleum removed and the concrete underneath treated to match the other areas in the building.
- *Estimate: Requires vendor quote.*

3.26 Window blinds replacement

- *Status:* Not started; needed by FY30
- Some of the window blinds are old, bent, broken, or not properly sized, and need to be replaced. The broken blinds are one of the first things staff and visitors see when they enter the facility.
- *Estimate: $4,000 for materials only.*

Improvements Projected Beyond the Next Five Years

3.27 Large walk-in autoclave procurement and installation **(NOWAC 4.4)**

- *Status:* Not started
- The autoclave is used to clean/kill pathogens on materials for rearing the insects. The existing autoclave is too small and not able to sterilize all production rearing equipment for NOW; a bigger walk-in autoclave is required. A large autoclave of this size will also require installing a pit to route and place new plumbing for the steam supply and condensate drain lines. PPQ must also build a new room to house the walk-in autoclave. PPQ will complete this project in phases. The first phase is preparing the site to house the autoclave and the pit.
- *Estimate: Custom Project; Requires vendor quote.*

Items deemed relevant by NOWAC Committee members for future consideration

A.) Upgrades at Shafter Facility

B.) Drone as an alternative, or as a compliment to planes.

C.) There is a great need for coordination between growers and CDFA activities. Growers need to know when moths are to be dropped and CDFA needs to know when grower may be applying insecticides. Coordination could be achieved with an application yet to be developed that would provide alerts by both parties. Better communication is needed.

- *An app. that could fulfill this needed functionality.*
- *Semios has an app. As well.*
- *CDFA has an app. That is believed may work.*
- Areawide Navel Orangeworm project – Hughson and Joe Coelho

D.) A Text or Verbally transmitted message is highly important as many growers, and program staff are not at their computers all the time checking on the status of application. From a PR standpoint it may be a good idea to text growers participants who are receiving SIT moths when planes with cannisters depart the shafter airfield.

Non-Budgeted Five-Year Action Plan

2026	2027	2028	2029	2030
3.1 Irradiator Recharge $650,000 - $880,00	3.6 Drainage System $1,907,202			3.23 Chilled Heat

Annual Expenditures Five-Year Action Plan-*Yellow shade indicates cost was not provided by APHIS*

2026	2027	2028	2029	2030
3.2 Steam Boiler $57,388 3.3 Wash Tub $7,000 3.4 Power Repair TBD *3.5 Parking Lighting* *$33,230* *3.6 Replace Swamp Cooler* *$97,262* 3.8 Steam Pot $71,821 3.9 Power CTR. $10,913 3.10 Team Viewer. TBD. 3.11 Prev Main Chillers contract for chillers $20,000 - $25,000 3.12 Fan Coil $21,000 3.13 Coil Repair $33,750	3.14 Roof Preventative Maint. $172,000 3.16 Autoclave Replacement. $115,383 3.17 Steam Line Repair. TBD 3.18 Public Address System. TBD 3.23 Chilled Heat Water Piping. TBD. 3.24 Hot Cold Replace. TBD	3.15 Dust Collector. TBD. 3.19 Pavement repair. TBD 3.20 Valve Installation. TBD 3.23 Chilled Heat Water Piping. TBD 3.24 Hot Cold Replacement. TBD.	3.23 Chilled Heat Water Piping. TBD 3.24 Hot Cold Replacement. TBD	3.21 Facility Doors. $522,093 3.22 Landscaping. $17,000 3.23 Chilled Heat Water Piping. TBD 3.24 Hot Cold Replacement. TBD 3.25 Flooring Repairs. TBD. 3.26 Window Blinds $4,000 3.27 Walkin Autoclave. TBD.
$357,364	$287,383	Unknown	Unknown	$543,093

Key Performance Indicators

- Have we been Proactive instead Reactive in meeting the future demands for each years successive growth?

Goal 4: Funding: A Public – Private Partnership with a goal of reducing applications of pesticides to control NOW in California and preserve existing chemistries and thereby decrease the chance of insect resistance.

4.1 Federal Appropriations $8,340,000
($6,830,300,000 – The program receives of the $8,340,000)

4.2 California Department of Food and Agriculture 1,350,000 CDFA. (of $8,340,000)

4.3 Funding for the program at the grower level. (These are suggestions only.)

Option 1 - Grower contributions for program funding - Voluntary assessment to start the program to be paid for by program participants that are receiving SIT NOW moths each year.

Option 2 - Establish a statewide mandatory assessment program. First Handler shall pay the assessment on a per pound basis. It will be important if a mandatory assessment is implemented that a reserve is built into the program to make sure that there are adequate funds in low production years that often affect the tree nut industry.

Other options: A Marketing Order has provided rebates to members that helps to modestly defray the amount assessed by the MO to achieve a desired outcome by a grower, such as field sanitation, etc.

a. A Grower pays an assessment of 1 cent per meat pound to the Marketing Order.
b. A ½ cent credit shall be rebated to a grower participant in the NOW SIT Program To reward a grower for their participation in approved post season field sanitation guidelines.
   - Grower receives a certificate of participation from CDFA.
   - Upon receipt of certificate a handler rebates ½ cent to the grower in recognition of their participation.
c. Benefits to Growers – Lower Tree Nut Assessment.
   - Lower NOW Infestation in grower participant fields.
   - Cleaner (less damage) product to be delivered to packer.
d. *Create a matrix based on cost per acre as an assessment for a future grower contribution to fund program*.

4.4 Federal Grants
4.5 National Resource Conservation Service – Funding for field sanitation.
4.6 Department of Pesticide Regulation grants for funding research.

Five Year Action plan

2026	2027	2028	2029	2030
Presentation to made to CDFA BOD's when 2025 data is known.	Press releases to be sent out to media.	Press releases to be sent out to media.	Press releases to be sent out to media.	Press releases to be sent out to media.

Key Performance Indicators

- How do growers perceive the overall program - Positive or negative.

Goal 5: Outreach – Informing Stakeholders about the NOW SIT Program

5.1 Presentation to the CDFA Board of directors.

5.2 Presentation to be made to DPR Karen Morrison and staff emphasizing Sustainable Pest Management.

(*Potential grant funding opportunity – grant writer)*

5.3 Focus on media exposure to explain program merits.

- Not to be researcher oriented that focuses on data.
- NOWAC vision with successes with testimonials of the program to be touted.
- NOWAC member perspective.
  What is in the future for the NOW SIT Program.

5.4 Identify Media Sources to author stories about NOW SIT.

- West Coast Nut Magazine – Jason Scott.
- Western Farm Press Magazine – Todd Fitchette.
- Western Grower Magazine.
- Pacific Nut Producer – Michael Wanzel.
- National Nut Grower Magazine.
- Farm Bureau Podcast – Ag Alert.
- National Public Radio.

5.5 To use NOW SIT as a method for future innovation and eradication of other evasive species in the future.

Five Year Action plan

2026	2027	2028	2029	2030
Presentation to made to CDFA BOD's when 2025 data is known.	Press releases to be sent out to media.	Press releases to be sent out to media.	Press releases to be sent out to media.	Press releases to be sent out to media.

Key Performance Indicators

- How do growers perceive the overall program - Positive or negative.