

MEMORANDUM

Date: January 17, 2018
To: Citrus Pest & Disease Prevention Committee
From: Nick Condos and Nuffer, Smith, Tucker

The draft strategic plan was presented to the CPDPC on January 10, 2018. While all feedback given by the committee is reflected in the “scenarios” document dated January 16, 2018, below are a few important takeaways.

Overall:

- The committee reviewed and approved the philosophical foundation for the plan, including the principles for decision making, credo for members, mission and roles. It was emphasized these items should be used for all decisions – not just the strategic planning process.
- The committee was reminded at multiple points that the next step is alignment of the program’s budget with the plan.

Scenario 1:

- There was consensus on the goals and strategies, and general agreement on the priority of each strategy. After some discussion, all committee members agreed that quick detection and eradication of diseased trees is the No. 1 priority, followed by stopping movement of psyllids around the state and suppressing psyllid populations. Strategies 4 and 5 may be switched in terms of priority, according to some committee members.
- There was a lot of discussion around the idea that packinghouses should not be the “bad guy” in terms of enforcing grower compliance. Thus, requiring packinghouses to only pack fruit that was treated as part of the compliance agreement was removed from the plan. It was recommended this option continue to be evaluated.
- The issue of verification of treatment via Pesticide Usage Reports was discussed. The committee reiterated the ongoing challenge with access to PURs.
- The committee wanted to ensure that multiple biocontrol agents be explored – not just Tamarixia.

Scenario 2:

- The committee came to agreement on a few important elements. First, it agreed that under this scenario, there would be no regulatory tree removal program. Second, more responsibility is placed onto the grower under this scenario in terms of pest management and detection, and removal of diseased trees.

- There was a lot of discussion around the importance of clean nursery stock. Even so, the committee felt it is the responsibility of the citrus nursery industry to make clean or resistant nursery stock a high priority. Thus, the strategy of “support availability of clean nursery stock” was removed. Instead two tactics were added, putting emphasis on the growers to only plant from clean nursery stock. In addition, this was added as a critical communication point.
- The committee removed the recommendation from the sub-committee that, under an instance where HLB is found throughout the state, growers voluntarily remove any block in which HLB is confirmed to infect 2% of that block. The committee did not feel this is a realistic request. The recommendation was also removed from Scenario 3.
- The committee did not recommend conventional treatments be used by all, including organic growers. Instead, it recommended that all growers (conventional and organic) conduct aggressive psyllid suppression to meet industry standards. The University of California should develop the industry standard. This reflects a change from the sub-group recommendation.
- The committee also felt that homeowner outreach would be lessened, but not eliminated, under this scenario.

Scenario 3:

- The committee discussed whether urban treatment in non-HLB risk areas should be abandoned under this scenario, but it did not come to consensus on this. It did, however, agree that emphasis should be placed on suppressing psyllid populations in residential areas at risk for HLB or near commercial groves, and in commercial groves. The group decided to continue urban removal of HLB positive trees until a cost threshold is met. The committee should establish cost threshold when aligning budget.
- The committee agreed that growers should be responsible for removal of HLB positive trees at their own cost. If CDFA is forced to remove trees due to lack of action from a grower, that cost will be billed to grower.
- The committee agreed to the recommendation from the sub-group to allow movement of citrus outside of an HLB quarantine zone, with certain mitigation steps as outlined under the scenario.

Next steps:

- Align budget behind Scenario 1.
- Explore cost/benefit analysis tool as an addendum to this plan.
- Develop matrix to assign responsibility and track progress against Scenario 1.

SCENARIO 1: BEST CASE SCENARIO

HLB hasn't spread outside of S. Cal and is not in commercial groves. Early detection technologies are in use. Long-term solutions have been identified.

Priority Goals

1. No HLB in commercial groves
2. Limit ACP moving around the state
3. Fine tune the program

CPDPP Strategies

1. Quickly detect and eradicate diseased trees
2. Control movement of psyllids around the state; enforce regulations
3. Suppress psyllid populations
4. Improve data technology, analysis and sharing
5. Outreach and collaboration

CPDPP Activities by Strategy

1. Quickly detect and eradicate diseased trees

- A. Continue/improve surveying and sampling
 - Increase speed and diagnostic capacity
 - Increase surveying staff and surveys
 - Collaborate with the scientific community on EDT efforts by providing access to suspect trees or when collaboration is a natural extension of existing program efforts. In times when collaboration requires use of CPDPP funds, CDFA to inform the committee prior to such collaboration.
- B. Sub-Group 1A: Continue with Gottwald survey and – at the same time – make the process more efficient and seek more information to inform decisions. CDFA will evaluate the survey for process improvements that may include:
 - Contracting directly with Gottwald.
 - Entering data from previous surveys into spreadsheets that are sent to APHIS.
 - Flagging data corrected by PDEP.
 - Recalibrating risk model using updated data.
- C. CDFA and Dr. Gottwald will calculate the cost and resources needed to complete a state wide risk based survey with a 95% confidence level, and will present results to CPDPC for consideration on how to adjust survey if needed.
 - CDFA and Dr. Gottwald will review the state wide risk based survey and cluster survey processes and results to determine the right combination of surveying. Note: This may be affected by the outcomes of note above.
- D. Continue quick mandatory tree removal

NOTE: CDFA will continue using non-regulatory labs, University of Arizona and CRB to run screening tests on psyllid and plant samples.

2. Control movement of psyllids around the state; enforce regulations

- A. Enforce bulk citrus nursery regulations and quarantines
 - Emphasis in HLB quarantine area
 - Increase enforcement staff at state and local levels
 - Report at meetings on enforcement citations
 - Continually review and implement performance standards
- B. Move forward with regional quarantine approval/implementation with performance standards

3. Suppress Asian citrus psyllid populations

- A. Promote grower participation in area wide and coordinated treatment programs
 - Explore new technology to improve notifications, reporting and timeliness
- B. Sub-Group 1B: Continue – in the short term – with current treatment protocol. However, CDFA advises that the current treatment protocol is not financially sustainable and is taking away from diagnostics to find HLB.
- C. Conduct research on how effective current mandatory treatment is and how long it prevents the return of psyllids. Beth Grafton-Cardwell is currently working on this research, which once it is started can be evaluated at the 30-, 60- and 90-day intervals.
 - An alternative to current treatment protocol is the application of 1 Merit-Tempo application per year in all HLB areas.
 - The sub-group recommends research from above be evaluated by the committee at 30 and 60 days (at minimum). At time of the evaluation, the committee should determine whether to continue with current protocol or to enact CDFA's alternative recommendation of 1 Merit-Tempo application per year in all HLB areas (approx. 50% savings at the current rate of infestation).
- D. Sub-Group 2A: Continue buffer treatments in areas where grower participation in area wide occurs at 90% or higher.
 - Continue to encourage grower participation in area-wide.
 - In areas undergoing area-wide and buffer treatments, evaluate opportunities for improvement of both efforts with aim on how we can make these strategies more effective. Beth Grafton-Cardwell will help with these recommendations.
- E. Conduct short-term research on efficacy of buffer treatments. The sub-group believes such research can be done within a one-month timeframe in conjunction with winter treatments. Beth Grafton-Cardwell to help.
- F. As post harvest treatments become more available (i.e., fogging), consider requiring packinghouses to only pack fruit that has been treated as part of their compliance agreements. NOTE: CDFA has confirmed this is possible to do under

current authority. In addition, the issue of verification of treatment via Pesticide Usage Reports was discussed. The committee reiterated the ongoing challenge with access to PURs.

- G. CCM will explore a statewide solution to encouraging area-wide, e.g. mandated treatment legislation.
- H. Sub-Group 3: Continue biological control as is until more research is available to answer questions about effectiveness.
- I. The biocontrol task force to review existing research from CRB and other entities about biological control agents to address the following questions:
 - What is the impact to ACP populations of augmentation releases of *Tamarixia*?
 - How many *Tamarixia* agents are needed to achieve establishment in an area with new ACP infestation?
 - Is releasing further biocontrol agents where the agent is already established the best use of those agents?
NOTE: This is open to any type of biocontrol agent, not just agents the program is currently using.
 - If this research does not exist, the task force and CRB should consider what a study would cost and how long a study would take.
 - Consider recommendations about biocontrol release strategies from the biocontrol task force on an ongoing basis.
- J. Remove uncared for host plants and abandoned groves
 - Coordinate with local government on abatement
 - Support outside efforts to remove residential trees and explore options to expand and fund program

4. Improve data technology, analysis and sharing

- A. Analyze available data to determine ways to improve program efficacy/efficiency
- B. Share data with trusted researchers
- C. Explore new solutions for data capture and digitization of existing paper records, e.g. Pesticide Usage Reports (PURs)

5. Outreach and collaboration

- A. Foster support for program activities from local government and elected officials
 - Expand current communication to cities about citrus tree management/removal on city-owned land
- B. Encourage homeowner participation in program efforts
 - Tree removal, voluntary and regulatory
 - Cooperation with CDFA crews
 - Regulatory adherence
 - Self-treat for ACP (lower priority)
- C. Encourage industry participation in program efforts
 - Comply with regulations
 - Biological control is not a replacement
 - Areawide and coordinated treatments
 - Field cleaning, spray and move, tarping and other mitigation strategies
 - Removal of abandoned/uncared for groves

SCENARIO 2: WORST CASE SCENARIO

HLB is established in commercial groves throughout the state

Priority Goals:

1. Slow spread of HLB in commercial groves.
2. Support long-term solutions: (resistant rootstock, tolerant varieties, prolonged productivity of the groves)

CPDPP Strategies

1. Quickly detect and remove diseased trees
2. Control movement of psyllids in groves
3. Industry outreach

What's Different?

- No residential control activity
- No regulatory tree removal
- More responsibility placed upon grower for grove management
- Less emphasis on homeowner outreach
- Less emphasis on regulatory compliance given that as quarantines expand, regulations lessen
- No CPDPP biocontrol efforts (at this juncture, private insectaries should be leading the way)
- Aim to find HLB trees is only in commercial settings
- Activate tools to help growers live with the disease: sampling, detection, rootstock
- Increasing speed capacity at labs for grower-submitted samples

CPDPP Activities by Strategy

1. Detect and remove diseased COMMERCIAL trees

- A. Stop regulatory tree removal; growers remove visually symptomatic trees
- B. Support increase availability of EDTs for non-regulatory detection
- C. Enforce removal of abandoned groves
- D. Increase speed and capacity for grower-submitted samples at labs
- E. Sub-Group 2B: Encourage voluntary actions among growers if HLB is found in their commercial grove. Those actions to include:
 - All growers (conventional and organic) should conduct aggressive psyllid suppression to meet industry standards. The University of California should develop the industry standard.
 - Explore use of EDTs, using current recommendations stemming from CRB or other credible science-based organization.
 - Trees found to be positive using an EDT, should then be tested with PCR.
 - If two or more EDTs, done in sequence, show a tree is HLB positive, then that tree should be voluntarily removed, even if that tree is not determined to be positive using PCR.
 - Support of CDFA efforts (including allowing access to CDFA) and cooperation with sampling/surveying. See below.
 - Only plant trees from clean nursery stock.
- F. Evaluate current recommendations outlined in CDFA's Action Plan for ACP and HLB in California.
 - Review notes from sub-group meeting on specific areas to be considered.
 - Evaluate Action Plan from an epidemiological perspective.

2. Control movement of psyllids in commercial groves

- A. Promote grower participation in area-wide and coordinated treatment programs
 - Explore new technology to improve notifications, reporting and timeliness

3. Outreach and collaboration

- A. Encourage industry participation in program efforts
 - Education on how to identify HLB
 - Area-wide and coordinated treatments
 - Removal of abandoned/uncared for groves
 - Removal of infected or suspected-infected trees in commercial groves
 - Plant only clean nursery stock
- B. Foster support for program activities from local government and elected officials
- C. Collaborate with local pest control districts on area-wide treatments
- D. Communicate with homeowners about voluntary tree removal

SCENARIO 3: PARTIAL INFESTATION

HLB is affecting some commercial citrus production regions, but not others.

Priority Goals

1. Contain HLB
2. Limit ACP moving around the state

CPDPP Strategies

1. Quickly detect and remove diseased trees
2. Control movement of psyllids around the state; enforce regulations
3. Suppress psyllids in areas at risk for HLB or near commercial groves
4. Outreach and collaboration

What's Different?

- Require reasonable mitigation steps to move citrus outside of an HLB quarantine zone.
- Further encourage growers' tools to sample and detect

Big Questions to Consider:

- TO BE COMPLETED ASSIGNMENT: Evaluate whether or not to continue to focus on urban areas, or shift resources to commercial protection? At Jan. 10, 2018 meeting, the CPDPC discussed establishing a cost threshold for urban treatments.

CPDPP Activities by Strategy

1. Quickly detect and remove diseased trees

- A. Continue/improve surveying and sampling
 - Increase surveying staff
 - Increase speed and capacity at CDFA labs
 - Collaborate with the scientific community on EDT efforts by providing access to suspect trees or when collaboration is a natural extension of existing program efforts. In times when collaboration requires use of CPDPP funds, CDFA to inform the committee prior to such collaboration.
 - Increase speed and capacity for grower-submitted samples at labs.
- B. Sub-Group 1A Assignment: Evaluate survey methodologies. NOTE: This is a duplicative sub-group assignment. Implement survey methodology as determined from the outcome of CDFA/Gottwald research and evaluation as conducted under Scenario 1.
- C. Continue quick mandatory tree removal
 - Continue urban removal of HLB positive trees until a cost threshold is met. The committee should establish cost threshold when aligning budget.
 - Growers should remove a HLB positive tree at their own cost and in a quick manner. If CDFA is forced to remove the tree due to lack of action from a grower, the grower will incur the cost of CDFA removal.
 - Growers must conduct mandatory 800-meter treatment. If the grower does not conduct treatment, CDFA will conduct the treatment and the grower will incur the cost from CDFA. CDFA will employ conventional methods.
- D. Evaluate current recommendations outlined in CDFA's Action Plan for ACP and HLB in California.
 - a. Review notes from sub-group meeting on specific areas to be considered.
 - b. Evaluate Action Plan from an epidemiological perspective.
- E. Remove uncared for host plants and abandoned groves
 - a. Coordinate with local government on abatement
 - b. Support private efforts to remove residential trees
- F. Investigate more efficient methods of tree removal

2. Control movement of psyllids around the state; enforce regulations

- A. Enforce bulk citrus regulations and quarantines
- B. Move forward with regional quarantine approval/implementation
- C. Encourage local/regional packing in areas at risk for HLB
- D. Sub-Group #2C Assignment: Allow bulk citrus movement outside of an HLB quarantine area if it follows certain performance standards that result in no live ACP in the load:
 - A wet wash process (i.e. completely wetted by spraying/dunking/drenching, and brushed, and cleaned) that removes stem and leaf greenwaste, or
 - Two of the following:
 - Pre-harvest treatment of fruit
 - Field cleaning
 - Fogging
 - Bulk citrus must be transported in an enclosed conveyance or completely tarped.
 - Bulk citrus may only be moved to a packer/processor under compliance to receive fruit from the HLB quarantine area.

3. Suppress psyllids in areas at risk for HLB or near commercial groves

- A. Continue/improve ACP treatments in HLB quarantine areas until a designated trigger point is reached.
 - Committee will establish a cost threshold when aligning budget.
- B. Sub-Group 2B: Encourage voluntary actions among growers if HLB is found in their commercial grove. Those actions to include:
 - All growers (conventional and organic) should conduct aggressive psyllid suppression to meet industry standards. The University of California should develop industry standard.
 - Explore use of EDTs, using current recommendations stemming from CRB or other credible science-based organization.
 - Trees found to be positive using an EDT should then be tested with PCR.

- If two or more EDTs, done in sequence, show a tree is HLB positive, then that tree should be voluntarily removed, even if that tree is not determined to be positive using PCR.
 - Support of CDFA efforts (including allowing access to CDFA) and cooperation with sampling/surveying. See below.
- C. Sub-Group 2A Assignment: Evaluate buffer treatments. This is a duplicative sub-group assignment. Determine whether or not to implement buffer treatments upon evaluation of research as outlined under Scenario 1.
- D. As post harvest treatments become more available (i.e. fogging), discuss requiring packinghouses to only pack fruit that has been treated as part of their compliance agreements. NOTE: CDFA has confirmed this is possible to do under current authority.
- E. Promote grower participation in area-wide and coordinated treatment programs
- Increase/improve education to the industry
 - Explore new technology to improve notifications, reporting and timeliness
- F. Sub-Group #3 Assignment: Evaluate beneficials. NOTE: This is a duplicative sub-group assignment. Implement beneficial program as determined by the outcome of evaluation as determined under Scenario 1.

4. Outreach and collaboration

- A. Encourage homeowner participation in program efforts
- Tree removal, voluntary and regulatory
 - Self-treat for ACP
 - Cooperation with CDFA crews
 - Regulatory adherence
- B. Encourage industry participation in program efforts
- Areawide and coordinated treatments
 - Field cleaning, spray and move, tarping and other mitigation strategies
 - Removal of abandoned/uncared for groves
 - Removal of infected trees in commercial groves
- C. Educate industry on disease detection and sampling strategies
- Provide guidance on EDT availability
 - Provide guidance on unconfirmed, non-regulatory thresholds or indicators of disease growers can use to guide voluntary tree removal
 - Collaborate with local pest control districts on areawide treatments

GUIDANCE TO OTHERS:

CRB

- Increase funding/support of early detection technology research
- Increase support for research on new biocontrol agents
- Seek high throughput solutions
- Focus EDT efforts in areas surrounding HLB find
- Increase funding/support of long-term solutions, such as resistant rootstock
- Analyze available data to look for new solutions
- Investigate consumer perceptions of GMO solutions
- Increase diagnostic capacity ... aim for 100K plant samples per year
- Long term research should be conducted to develop a stand alone Probit 9 post-harvest treatment to allow bulk citrus to move between regions or out of an HLB quarantine.
 - If a research entity does not pursue this research, then the CPDPC should determine whether or not the committee should support the effort. Regardless of where the research originates from, the sub-group here believes it is an important research area.

CCM

- Seek additional funding sources to support CPDPP efforts
- Explore and prepare industry for trade implications of HLB
- Explore regulatory/trade impact of sourcing resistant rootstock or other long-term solutions

Counties

- Enforce bulk citrus regulations, including local packing
- Support area-wide and coordinated treatment implementation
- Support homeowner and industry outreach
- Consider cost-sharing strategies with the program

Coordinated treatment programs

- All coordinated treatment programs — including formalized PCDs, task force groups and others organizing area-wide programs — should work cooperatively with the CPDPC, county ag commissioners, CCM, Sunkist and others with a shared interest in fighting HLB. Communication and information sharing between these groups is critical to maximizing reach and effectiveness.
 - All coordinated treatment programs should attend CPDPC meetings to report on activities.
- Coordinated treatment programs are an effective and critical strategy. The sub-group recommends the following tiered approach for coordinated treatment programs:
 - Tier I (ideal): A formalized PCD with authority to require treatment (e.g. Coachella model) should be pursued. This model has enforcement authority.
 - Tier II: A formalized PCD with focus on survey and diagnostic programs (e.g. San Joaquin Valley model).
 - Tier III: Task force and/or other group be developed with a focus on encouraging voluntary treatments in a particular region (e.g. Ventura model). This model should only be pursued when local regions lack the political and grower support to establish a formal PCD. In this instance, it is critical that the task force or group have a coordinated local body, such as the farm bureau.

Industry/Others

- In areas in which a local packing facility does not exist, industry to explore the options of developing a local packing solution.