Data Analysis and Tactical Operations Center
Briefing paper

Assessing the value of CPDPD activities in Southern California: proposed approach based on facilitated discussion

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Summary

Since 2018, the Science Subcommittee has wrestled with how to determine whether Citrus Pest and Disease Prevention Division's (CPDPD) regulatory activities are, or are not, supported by data, and how to judge if, when, or how activities should be restructured. Although DATOC has explored these questions via modeling projects, application of the results has been obfuscated by a lack of real-life control scenarios and the daunting complexity of both the model used and reality. We present here an alternative process that could be utilized to move the discussion forward.

BACKGROUND

The Science Subcommittee is faced with a difficult question: how to measure the effectiveness of California's Huanglongbing (HLB) and Asian citrus psyllid (ACP) control program when there is no control treatment with which to compare the program. DATOC has attempted to answer this question by simulating control scenarios using a complex mathematical model. This multi-year effort has yielded results which indicate that a residential control program similar to the one currently practiced is likely to slow disease spread. Importantly, this effect occurs not only within residential areas, but also from residential areas into commercial groves.

Unfortunately, the complexity of both the model and the question has prevented the project from reaching a satisfactory conclusion. Myriad realistic scenarios can be simulated, all with different outcomes, but the probability of each scenario occurring is unknowable. Without probabilities, the expected financial benefits of control cannot be quantified.

A NEW WAY FORWARD

A two-step approach to capturing the benefits of action is possible, which could be constructed via a moderated discussion between industry professionals, regulatory personnel, and knowledgeable researchers. The first step involves action-benefit mapping and the second bounds the space in which the likely benefits will exist.

1. *Action-benefit mapping*

This looks at the connections between actions and their likely beneficial effects. Program benefits are not *quantified*, but rather are identified for each program activity. For example, the benefit of residential buffer treatments is reduced ACP populations on

treated properties. This exercise can be executed two ways: identify the benefits, then determine which actions cause the benefits, and/or identify the actions, then determine the benefits of those actions. This should include identifying the pathways within which the actions matter, what part of the industry they benefit, and what synergies may exist between the actions and resulting benefits. It would also be useful to note which activities, if any, are prerequisites for aspects of the program to occur. For example, is there a minimum set of actions that is needed for the program to continue to operate under an emergency designation? If surveillance to detect infected trees in private properties is stopped or curtailed, would the quarantine status of the state as a whole change, and if so what would the implications be for trade? The economic consequences of wider questions such as these could be included in the suggested approach.

2. Bound the space

This approach identifies best-case and worst-case scenarios of ceasing or continuing the control actions mapped in step 1. For example, after eliminating buffer treatments, but continuing other activities, the worst-case scenario might be greater incursion of ACP into commercial groves; the best-case scenario might be no change in ACP pressure.

APPLICATION

The suggested solution has several benefits which ideally will help the committee move forward.

Identifying the range of benefits is unlikely to generate much controversy, but it is likely to determine where there is consensus on the fundamental benefits of the program. Understanding the connection between actions and benefits will provide some clarity on the consequences of changing the program, which should help in choosing the best course of action.

This type of approach would not be a completely new departure for Citrus Pest and Disease Prevention Committee (CPDPC). When a working group was created in 2018 - 2019 to study the risk of HLB spread arising from transport of bulk fruit, the process of deliberation and building a consensus model of risks allowed a variety of issues to be highlighted and discussed in a structured way. Ultimately, the proposal voted on by CPDPC benefitted from the preceding facilitated deliberation, even though complete agreement about the best option was not reached. A similar process, with the aims of mapping actions to benefits and bounding the space for the future of real-life California and imagined California with no HLB program, would allow the CPDPC to communicate the value of the program more clearly to the industry and to state and federal legislatures.

By generating discussion about what is unknown, this approach has the additional benefit of illuminating knowledge gaps for which research could be prioritized. Depending on the type of research need indicated by the discussion, the priorities could be passed to the Citrus Research Board, to HLB Multi-Agency Coordination, or to the citrus subcommittee at the National Agricultural Research, Extension, Education, and Economics Advisory Board to feed into the priority setting process of the USDA National Institute of Food and Agriculture program. In that way, not only would the evaluation highlight actions the CPDPC could take in the short term, the process would help prioritize research needed to solve problems that require new information.