WHO WILL DO ENTOMOLOGICAL RESEARCH FOR THE CANNABIS INDUSTRY

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Washington has a long history of Cannabis production. While Cannabis production is not legal at the Federal level, the Department of Justice has agreed to not take enforcement action against legal production of the crop in Washington and Colorado, if the states have a strong and effective regulatory system. Washington has a 15 year history of legal medicinal cannabis cultivation, and as of 2014, Cannabis will be legal to grow in the state for recreational and medicinal use. Cannabis growers have the same issues as any other crops grown in greenhouses or indoors including insects, diseases and weeds; of particular importance are two spotted spider mites, thrips and assorted aphids.

Cannabis growers have a number of unique challenges when it comes to pest control including
1) there are no pesticides registered for use on it,
2) nor can pesticides be registered on Cannabis at the state or federal level,
3) Washington State University cannot conduct research or extension activities on it,
4) USDA is not permitted to conduct research on Cannabis,
5) IR-4 cannot conduct projects on Cannabis,
6) It cannot be certified organic and,
7) the new state requirements state that growers must use pesticides according to the label.

WAC 314-55-084 makes the following statement: Only the following specified soil amendments, fertilizers, other crop production aids and pesticides may be used in the production of marijuana:

(*1) Materials listed or registered by the Washington state department of agriculture (WSDA) or Organic Materials Review Institute (OMRI) as allowable for use in organic production, processing, and handling under the U.S. Department of Agriculture's national organics standards, also called the National Organic Program (NOP), consistent with requirements at 7 C.F.R Part 205.*

(2) Pesticides registered by WSDA under chapter 15.58 RCW as allowed for use in the production, processing, and handling of marijuana. Pesticides must be used consistent with the label requirements.

The lack of known, legal means of controlling insect pests of Cannabis has left growers in the dark as to how they will be able to have a viable pest management programs.

The value of the future crop is unknown, but the legal Cannabis crop of Washington is expected to quickly surpass $1 billion. The Washington State Liquor Control Board (WSLCB) estimates that production could surpass $2 billion within five years making it the most valuable crop in the Pacific Northwest. The farmgate value of the product is estimated to be $3 per gram and the average price of retail product is $12 a gram. Considering how many pounds can be produced on an acre, it will easily be the highest value crop produced in the state on a per acre basis. I have seen the economic calculation of a proposed cannabis grower and he estimates a gross of well over $100,000 per acre.

Product quality is considered critical, especially with the expected glut of product coming on to the market. Mites, thrips or aphids easily render a crop unmarketable due to quality issues.

Aggregate impact to the industry, including aggregate value of the site or crop in the state. The value of the Washington Cannabis crop is expected to surpass $1 billion and the impact of these pests is easily expected to be in the tens of millions of dollars.

Effect of the problem on the industry. In the past, growers have no recognized legal means to control these pests, and as a result, products have been commonly and widely used inappropriately. The scale of this off label use is of a dimension never seen before in domestic agriculture. The wrong products are used or appropriate products are used incorrectly. The products are used at the wrong rate. Preharvest intervals are not followed. Retreatment intervals are not observed. There are no rotations between modes of action. There is tremendous use of inappropriate products. Anecdotal information suggests horrific misuse of pesticides on cannabis as adherence to the label was the least of growers concerns and absence any kind of enforcement of proper and safe use of pesticides and led to misuse. Public sector pesticide applicator training programs did not target this sector of pesticide use.

Effect of the problem on consumers, society, environment, non-target species or human health. The misuse of products poses a threat to human health, and to a lesser degree, the environment. I would suggest that perhaps the greatest risk is to the pesticide applicators, farm workers and handlers of Cannabis.

There seems to be little to no precedent for a crop to suddenly become legal to grow but having no means to registered pesticides that are required for its production. This conundrum is likely to create a tremendous need for research and development work in pest management. Can one imagine any comparable crop, such as the tree fruit industry (apples plus pears, plus cherries and the rest of the soft fruits) having no WSU, USDA, agchem or IR-4 support. One can make an argument that there is a huge moral and ethical imperative to provide Cannabis growers, and ultimately Cannabis users, of Washington State with safe pest management tools. Regardless of one's opinion of the appropriateness of the Cannabis legalization it is the law in Washington that it can be grown. If one supports the position that pesticides should be used safely and legally, then providing Cannabis growers with the tools/information on how to control pests is imperative in order to protect growers, farmworkers, handlers and the end users.

The Washington State Department of Agriculture has developed a list of 216 products that it believes can legally be used on Cannabis. These products are exempt from tolerance and have a

label written in such a fashion that their use on Cannabis is not prohibited. The efficacy of many of these products for insect control on Cannabis is unknown; however, the WSCPR has funded multiple projects that included pyrethrin and azadiractin products for control of aphids, SWD and other pests on crops such as asparagus and blueberries. Organic asparagus production now successfully relies on these products for control of aphid control successfully.

Additionally, based on personal communication with a crop advisor in California who consults with growers of medicinal Cannabis, some greenhouse growers have been able to control aphids and mites with innudative releases of biocontrol agents.