



February 11, 2020

The Senate Education, Health and Environmental Affairs Committee
In support of SB 300: Pesticides – Use of Chlorpyrifos – Prohibition

Mr. Chair and Members of the Committee,

I am Charles E. “Chip” Osborne, Jr., President of Osborne Organics, Inc., and Founder of the Organic Landscape Association, Inc. I have over forty-five years of experience as a professional horticulturist. As initially a conventional wholesale and retail nurseryman and greenhouse grower for thirty-seven years, I have had significant first-hand experience with the pesticides, herbicides, and fungicides routinely used in the landscape and horticultural industry. Twenty years ago, I broadened my horticultural specialty to include turf and landscape management. My professional experience led me to become an expert on growing sustainable, natural turf.

I am also Chairman of the Marblehead, Massachusetts Recreation and Parks Commission, an elected position. I have been working with the National Park Service, as well as with clients in Maryland and mid-Atlantic region. I consult nationally with a diverse group of clients on turf and landscapes when there is a desire to move to a more natural approach. I also speak nationwide on the topic of turf management, which is why I was unable to attend this hearing in person.

I provide the above background to underscore I am well-versed on addressing pest and lawn care challenges utilizing both conventional methods and products, as well as organic strategies, products, and protocols.

During the mid 1990’s, I began to experience limited efficacy with many of the products I was using. At that same time, I became concerned about low dose exposures to many of these products, chlorpyrifos being one of them. It was a mainline product for me and was one of the first that I sought to replace. I completely understand and can sympathize with a golf course superintendent or turf manager’s reluctance to move away from traditional chemistries even though they can often lead to insect resistance. There can be a “fear of failure”. **The bio-rational side of the product industry has come a long way in the past ten years and offers viable cost-friendly solutions that will not lead to resistance.**

I began taking a more sustainable approach to my management and sought out alternative strategies and products to accomplish my goals. Insect resistance to insecticides was a problem then, and continues to be now. Just like resistance to pyrethroids is a problem in turf management, so is chlorpyrifos becoming.

According to GCSAA/ Golf Course Superintendents Association of America’s March 2017 issue of *GCM Magazine*: “A Survey of Annual Bluegrass Weevil Management,” ... bluegrass weevil is spreading to new regions at the same time that more populations are becoming resistant to currently available insecticides. “Each superintendent surveyed identified at least one product that was used in managing the weevil... The pyrethroids and chlorpyrifos used by 79% and 65% of respondents, respectively, were the most popular means of controlling annual bluegrass weevil adults, despite development of pyrethroid resistance and indications that chlorpyrifos efficacy may also be reduced.

(Clavet, C.D., E.D. Requistina Jr., D. Ramoutar and S.R. Alm. 2010. Susceptibility of Listronotus maculicollis (Coleoptera: Curculionidae) adults from southern New England golf courses to chlorpyrifos. Florida Entomologist 93:630-632.)

The GCSAA/ Golf Course Superintendents Association of America’s March 2017 issue of *GCM Magazine* article goes on to state, “If more courses move away from primary reliance on adulticides, monitoring of larvae will become more important, which could, in turn, reduce total insecticide use.

Because highly resistant weevil populations are also more tolerant of — if not resistant to — most of the currently available larvicides, superintendents will also have to start relying more on bio-rational insecticides and cultural means to manage weevil populations.” (<https://www.gcsaa.org/gcm/2017/march/a-survey-of-annual-bluegrass-weevil-management>)

Given the clear and unquestionable science-based EPA risk assessments on chlorpyrifos and impacts on children’s developing brains resulting in its recommendation to ban its use—and that **cost-friendly, effective, safer, alternative products are widely available**—there is simply no rational reason to continue its use in landscape and turf management and put children and others at continued risk for life-long neuro-developmental impacts.

Using the annual bluegrass weevil (AWB) as an example, there are indeed cultural, biological and chemical safer management and product options: =

Cultural management for annual bluegrass weevil:

- The ABW over-winters in adjacent tree litter and leaves and removing this litter may help to reduce populations.
- One of the most effective cultural control methods is to convert from a susceptible turfgrass species to one that is tolerant or resistant (i.e. perennial ryegrass *Lolium perenne*) and/or reduce the population of susceptible turfgrass species.
- “Because creeping bentgrass is more tolerant and requires greater larval densities before damage becomes visible (McGraw, B.A., and A.M. Koppenhöfer. 2009. *Development of binomial sequential sampling plans for forecasting Listronotus maculicollis* (Coleoptera: Curculionidae) larvae based on the relationship to adult counts and turfgrass damage. *Journal of Economic Entomology* 102:1325-1335.), promoting creeping bentgrass in mixed stands should help reduce damage and the need for insecticide applications” (<https://www.gcsaa.org/gcm/2017/march/a-survey-of-annual-bluegrass-weevil-management>)

Biological management for annual bluegrass weevil:

- Biological control has been achieved with late spring applications of a parasitic nematode (*Steinernema carpocapsae*). Successful control has been a challenge due to environmental factors, but fair (70%) control has been achieved.
- *Beauveria bassiana* is another bio-rational that provides adequate control.
- Marrone Bio-Innovations Grandevo and others are providing control to reduce populations below threshold levels.
- It is important to remember that one of the key elements of any IPM plan is the adoption of threshold levels. This means that we do not need to always reduce populations of an insect to zero, but just to below levels that produce serious economic injury.

Biological management growth industry:

- Industry reporting groups forecast “US biorational product market shift from synthetic pesticides to biopesticides” with continued expanding growth —over 20% over the next five years.
- On a 2018 visit to the US EPA office of bio-rational pesticides, we were told that sixty-five new registration applications are being submitted every couple of months.
- This gives a clear indication of the direction of the industry. Natural organisms (bacteria and fungi) have been developed and more are being proposed to address a wide variety of turf and landscape issues.
- It is important to note here that a sound and gold standard IPM protocol should include these products before reaching for chlorpyrifos.

I urge this committee for a favorable report on SB 300 in order to protect Maryland’s children

Thank you for your time.

Respectfully,
Chip Osborne, President, Osborne Organics, Inc.