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**MEMORANDUM**

SUBJECT: Response to SRRD Questions Concerning Golfer Risk Assessment Contained in February 8, 2000 [DP Barcode 260678] Occupational and Residential Risk Assessment for Vinclozolin [PC Code 113201, Case #816411, DP Barcode D267081]

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The purpose of this document is to address the comments received from the Special Review and Reregistration Division on the golfer risk assessment aspects of the February 8, 2000 Occupational and Residential Exposure/Risk Assessment completed by the Agency (DP Barcode 260678). This memo addresses specific issues related to how the Agency completed the post-application golf course assessment for vinclozolin including the differences in risk values for uses limited to just tees and greens or uses across an entire golf course.

The Agency considered the exposure of golfers in its February 8, 2000 risk assessment. The following Curalan label language was interpreted to mean that vinclozolin is used primarily on greens and tees instead of across an entire course:

> "This product is not intended for residential use. This product may only be used as follows:
>
> **Commercial:** lawn and landscape areas at business and office complex sites, and turf at professional sport complexes or arenas; ornamental bedding plants.
>
> **Industrial:** lawn and landscape areas at manufacturing sites; ornamental/bedding plants.
>
> **Golf Course:** tee boxes, greens and turf mowed at 1" or less.
>
> **Greenhouse and Nursery:** greenhouses and nurseries associated with the production of plants for commercial purposes.
>
> **Sod Farms:** mechanically harvested turf only."

Additionally, the decision to calculate golfer risks only after application to tees and greens was also based on a June 30, 1998 letter from Abraham Tobia (then Manager of Toxicology and Risk Assessment for BASF) to Jim Jones, Division Director of OPP's Registration Division that indicated the following:

> "For golf course use, our major turf use we have restricted the use pattern to read 'tee boxes, greens, and turf mowed at 1 inch or less.' This revised use pattern constitutes less than 4% of the total area of a standard golf course which is ~180 acres. We estimate that our golf course market share will be ~3% under the conditions of this new use pattern."

The factor that was of the most interest in this letter is the estimate that 4% of the total golf course area or less would be treated which infers uses on greens and tees and not in other areas of a golf course (e.g., fairways).

However, it is clear from the labeling and correspondence that there is no specific label restriction to limit applications to just greens and tees. In the residential risk aspects of the February 8, 2000 Agency risk assessment, the Agency used a 1 hour duration value to calculate the risks for golfers after vinclozolin application limited to tees and greens (Appendix H, Table 3 of Agency risk assessment). The Agency also calculated post-application risks to golf course mowers using the same transfer coefficient as golfers (i.e., 500 $cm^2$/hour) and duration (4 hours) that would typically be used to calculate exposures for playing a round of golf on a course that had greens, tees, fairways, and other areas treated. Therefore, the same numerical risk values calculated for golf course mowers are also representative of those anticipated for golfers if a round of golf is played on a course that has been completely treated (see Appendix G, Table 8 in the February 8, 2000 Agency assessment). Please refer to those values for specific estimates of golfer risks associated with treatments over an entire course.

It should also be noted that the Agency is developing a policy to standardize its golf course risk assessment procedures and that this policy will address children of various ages who play golf. The current risk assessment for adult golfers is thought to be protective of children who are 12 years of age and older because their surface area to body weight ratio is relatively constant from that age through adulthood and the predominant exposures are thought to be from the dermal route. The Agency is also concerned about children who are younger and is currently developing a policy to calculate and characterize exposures to this population. At this point, the Agency has not completed this policy so the quantitative risk values for vinclozolin have not been calculated at this point for younger children.