Aggregation and Foraging Behavior of Imported Cabbageworm (Lepidoptera: Pieridae) Adults on Blue Vervain Flowers

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The imported cabbageworm \textit{Pieris rapae} (L.) (Lepidoptera: Pieridae), also known as the cabbage white butterfly, is an important specialized pest on cruciferous plants (Brassicales: Brassicaceae) worldwide. In 2006 and 2014, aggregations of cabbage white butterflies were observed on a patch of flowering blue vervain \textit{Verbena hastate} (L.) (Lamiales: Verbenaceae) plants on Zion Hope Road, near the Belflower Research Farm in Tift Co., GA. Blue vervain is a native wildflower commonly found along the roadside throughout the United States and blooms in mid- to late summer (Kirk and Belt 2010, Plant fact sheet for blue vervain \textit{Verbena hastata}. USDA-Natural Resources Conservation Service, Norman A. Berg National Plant Materials Center, Beltsville, MD, 2 pp.). Blue vervain is not a known host plant for the cabbage white butterfly.

Because blue vervain is a native plant species, and cabbage white butterfly is an invasive pest species, the unique attractiveness between this invasive lepidopteran pest and the nonhost native plant has potential broad ramification for insect pest management. This phenomenon could be exploited and utilized in effective management tactic for invasive pests that use native plants or other natural resources. If the key visual and chemical attracting factors (e.g., color and shape of flowers, volatiles, or nectar) that attract the butterflies are identified and deployed to trap and kill the butterflies, the future populations of the cabbageworm infestation on \textit{Brassica} vegetable crops could be significantly reduced in a given growing cycle of the cruciferous vegetable crop production.

The map coordinates for the location where the aggregation has been observed are N 31°30.063′, W 83°33.596′. When aggregation occurred, foraging behavior of butterflies was also observed on blue vervain flowers in late mornings (around