The efficacy of ContraPest®, a contraceptive bait, for the management of wild rats (Rattus norvegicus and Rattus rattus)

[1]Brandy Pyzyna, [2]Gary Witmer, [3]Shane Siers, [4]Ashley DeDecker, [1]Nicholas Trulove, [1]Cheryl A. Dyer, and [1]Loretta P. Mayer
[1]SenesTech, Inc. Flagstaff, AZ; [2]USDA APHIS National Wildlife Research Center, Fort Collins, CO; [3]USDA APHIS National Wildlife Research Center Hilo, HI; [4]Smithfield Warsaw, NC

CONTACT: Brandy Pyzyna, *brandy.pyzyna@senestech.com*

Traditional techniques for managing commensal rodents do not control populations long-term. Rodenticides and other lethal means are not sustainable due to population rebounds and increasing resistance to anticoagulant compounds. Rodent population management requires a new approach targeting the biological source of overabundance: reproduction. In response, SenesTech, Inc. (NASDAQ:SNES, Flagstaff, AZ USA) developed ContraPest®: a liquid bait that blocks the reproductive capacity of both male and female wild rats (Rattus norvegicus and Rattus rattus). The two active ingredients, 4-vinylcyclohexene diepoxide and triptolide, deplete primordial and growing follicles and disrupt spermatogenesis. Laboratory and field studies reveal that ContraPest is palatable and repetitively consumed when provided with ad libitum food and water. Laboratory rats produced zero pups after consuming ContraPest for 15 days. In two captive studies, wild-caught Norway rats were housed and provided ContraPest for 50 days. Litter sizes were reduced by 95% in the treatment group compared to controls. A follow-up study conducted with wild-caught black rats resulted in a 93% reduction in pups born to the ContraPest group compared to the controls. ContraPest was tested on free ranging rat populations in agricultural and urban settings. Rat populations on protein production farms decreased by an average of 30% following 100 days of treatment with ContraPest. In a complex urban environment, where property boundaries limit access to populations and foraging areas, ContraPest reduced the seasonal population peak by 67% after 133 days of baiting. This suppression was achieved the absence of additional integrated pest management (IPM) techniques. ContraPest is the first rodent contraceptive bait that is easily dispensed, readily consumed, and effective at reducing breeding success and population levels of wild rats. Our studies suggest that including fertility management in IPM programs will enhance rodent population control in rural, urban and agricultural environments.