

Integrated Pest Management (IPM)

Musk Thistle/Weevil Education and Control

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Musk thistle is an invasive weed that has spread to all corners of Oklahoma. Musk thistle was declared as a noxious weed in all Oklahoma counties in 2000 by the Oklahoma State Legislature. Since the adoption of the noxious weed law, a battle has erupted on many fronts and backs to get a handle on this problem.

In 1999, 2000 and 2001 Tommy Puffinbarger and Scott Price traveled to eastern Oklahoma and collected musk thistle weevils for release in their counties. Each educator returned with 1, 10 and 12 containers per year respectfully to release and start their musk thistle reduction efforts. In 2014 and 2015 Loren Sizelove attended Alfalfa County weevil roundups, collected weevils and released them in Beaver County. From 2010 through 2017, Tommy Puffinbarger and Loren Sizelove have reached more than 500 stakeholders from 18 Oklahoma counties along with individuals from Colorado, Texas and Kansas. These individuals have attended educational programs and collections that have also involved County Conservation Districts, County Commissioners, and State and County road maintenance employees. In November of 2016 Loren and Tommy were part of a cooperative Musk Thistle education program with the Texas Agri-Life Service in Perryton Texas and presented a program with an IPM approach to Musk Thistle control with weevils. Those in attendance were not only producers but the Texas Highway Department, Ochiltree County employees and Santa Fe Railroad staff. Extension Educators from 11 Oklahoma counties have also attended Musk Thistle Weevil educational programs and weevil roundups or received weevils to take back to their counties.



Collected musk thistle weevils are put at a rate of approximately 500 weevils per container. These containers are then taken to infested areas of musk thistle and released. More than 1,000 containers of weevils have been collected and released across central and western Oklahoma since 2010. It has been said that one container of weevils needs at least one acre of musk thistles to be released and this one release *can* treat up to 40 acres. Some areas have had multiple releases, some releases have been in cities or municipalities and some will not cover 40 acres due to location such as stream banks, sewer lagoons or under tree canopies. If the 40-acre maximum was reached by the 1,000 containers, 40,000 acres of musk thistle could be impacted. If the average cost per acre of chemical and application is a conservative \$10/acre, this would equal a savings of over \$400,000 to landowners, county and state governments. This would also be a great reduction in pesticide use across central and western Oklahoma. Figures may be smaller due to weevil numbers per container, weevil death rate, over loading of weevils or fewer infested acres where the release was initiated. These figures could also be conservative since the weevils are a winged insect and can move from the locations where they were released to areas where there are thistles.



Often thistles grow in areas that are not reachable with ground operated spray equipment or are present in a watershed area of ponds, streams or lakes. Educators have previously worked with State staff; Mike Smolen, Tim Propst, NRCS and the Oklahoma Department of Agriculture Food

and Forestry (ODAFF) on a 319 Salt Fork watershed project in 2002. Signs and a Kiosk were developed and used to educate individuals on musk thistle, weevils, Best Management Practices (BMP) and IPM practices. These signs are *still* in use today.



Since 2010, grants have been obtained and used for purchase of sweep nets, collection sticks and weevil transport cups. Dr. Royer continues to support weevil collections and advertises the programs across the state allowing all Oklahomans the opportunity to collect and release weevils to help with this noxious weed problem and to help with pesticide use reduction.

Musk thistle infestations have been reduced in counties across western Oklahoma! The following documents are distributed at each Musk thistle weevil roundup; EPP 7318-Integrated Management of Invasive Thistles in Oklahoma, L-308-Musk Thistle Management Action List, PSS-2776 Thistle Identification, along with a Weevil Care Guide.

