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# NRCS This Week

Your Report for Conservation on Private Lands

## Conservation Reserve Enhancement Program (CREP) Maryland Style



*an experimental soybean plot designed to simulate insect populations in fields buffered by different flower species or combinations of species (click to enlarge)*

Considering that erosion-prone areas are less productive for farming, and Maryland's Conservation Reserve Enhancement Program (CREP) assists landowners who want to protect the Chesapeake Bay watershed, installation of buffers should be a win-win situation. Yet, Galen Dively,

Cooperative State Research, Education, and Extension Service specialist and entomologist at the University of Maryland, and his co-researchers are discovering that designing the perfect riparian grass buffer is much more complex than previously thought.

Funded by a USDA-Sustainable Agriculture Research and Education (SARE) grant, Dively set out to build a grass buffer that would simultaneously attract the fewest pests and the most natural enemies. Along with a team of graduate students and other researchers, Dively is investigating different species of forbs and grasses and plans to

- Centers and Institutes

publish a series of recommendations for the ideal buffer — one that will harbor a vast array of wildlife and beneficial insects while still improving water quality.

Through his research, Dively has found that many commonly held assumptions about buffers in the Chesapeake Bay region may not be true. For example, while Dively first believed that warm-season grasses would promote greater insect diversity since they are native, structurally diverse, and able to weather Maryland's scorching summers, his findings showed the opposite.

"Research indicates that insect diversity is often greater in non-native, cool-season grasses," says Dively, who has been studying buffers on twenty farms within Maryland's Eastern Shore. "These grasses have been bred for many years and have lost a lot of their natural defenses against herbivorous insects." Thus, they may serve as reservoirs for some harmful insects yet simultaneously enhance populations of beneficial insects that could migrate into the field to feed. Dively's work is providing insights into the pest management consequences of these two conflicting effects.

Warm-season grasses still have their benefits though — they harbor fewer aphids and other cold-adapted pests than cool-season grasses. In late summer, insect diversity evens out between the two types of grasses as hot, dry conditions stress cool-season grasses, causing insects and mites to disperse.

Careful management of cool-season grasses in buffers is key. "Cool-season grasses get an undeserved bad reputation in terms of pest control because of the way they are managed," Dively says. Under CREP contracts, landowners are not allowed to mow from April 15,

through August 15, to protect nesting birds. Many farmers mow their cool-season grass buffers in late August, which could inadvertently force pests to move onto crops.

Meanwhile, the work of graduate student Peter Blank — whose research is funded by the NRCS Agricultural Wildlife Conservation Center through the Chesapeake Watershed Cooperative Ecosystem Studies Unit — is also challenging conventional wisdom on buffers. While most birds were thought to prefer native, warm-season grasses over introduced plant species, Blank's work suggests that during the breeding season, most birds prefer to nest in a vegetative structure that is vertically dense and provides good cover, rather than favoring a particular grass type.

Blank also found that in the winter, cool-season grass buffers had lower bird species density and richness than warm-season buffers, largely due to late summer mowing, which leaves the buffer short and exposed throughout the winter. He recommends mowing in March or April, just before breeding season, as fall mowing may reduce cover from predators and availability of food.

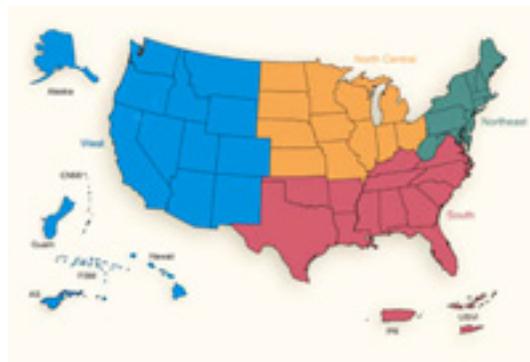
Finally, Dively supports more incentives for landowners to plant flowering perennials in buffers. Although more expensive, flowers produce pollen and nectar which attract beneficial insects. Even planting flowers, however, must be done with great care.

"At first we thought that the more attractive a flower is to insects, the better that flower is suited to planting in buffers," he says. However, too many flowers or the wrong types may draw beneficial insects away from the crop fields. Case in point is the partridge pea; when abundantly growing along the edge of a field, it can be too effective,

acting more as a beneficial insect sink rather than a source.”

### **About SARE**

Since 1988, [SARE](#) has helped advance farming systems that are profitable, environmentally sound and good for communities through a nationwide grants program. The program, administered by [CSREES](#) and [USDA](#), funds projects and conducts outreach designed to improve agricultural systems and natural resources.



NRCS field office professionals frequently collaborate on SARE-funded projects and are valuable partners to the SARE program. NRCS staff serve on SARE’s national Operations Committee, on regional Administrative Councils, on State committees and are actively engaged as technical advisers and collaborators on SARE-funded research grants around the U.S.

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Your contact is [Diana Friedman](#), SARE research associate, at 301-504-6422.