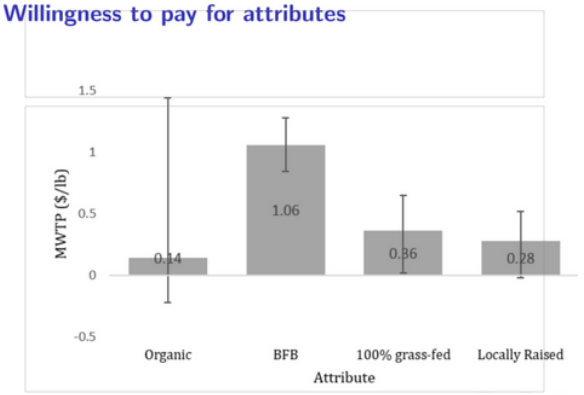
Dr. Ben Tracy - Virginia Tech

Virginia Working Landscapes

Currently, tall fescue makes up 35,000,000 acres in the eastern US, forming a transition zone called the "fescue belt" between warm-season and cold-season grasses. However, these fescue pastures show little vegetative diversity and offer low pollination services. In addition, tall fescue is an extremely competitive and aggressive plant, making it difficult to introduce and establish new species in fescue-dominated pastures. Dr. Ben Tracy, a professor at the School of Plant and Environmental Sciences at Virginia Tech, has been working on a study to document the establishment and persistence of wildflowers in grazing systems, hoping to better understand how to suppress tall fescue in order to introduce new species as well as test different methods for increasing establishment rates for planted species.

As part of this study, tall fescue was suppressed using strip tilling or herbicide treatment before a mix of 20 different wildflower species was broadcasted over the treatment area. The highest plant richness and abundance was achieved in by a treatment that combined herbicide with summer-sowing of wildflower seeds, followed by the plots with fall-sown seeds, likely because of natural breaks in dormancy cues. Tilling was recognized as a promising alternative to herbicide for suppressing tall fescue prior to planting. Dr. Tracy's talk emphasized the importance of diversifying fescue pasturelands and, in doing so, increasing pollination services via introduced flowering plants providing pollinator forage.

In addition to his research on fescue suppression and new plant establishment, Dr. Tracy also presented the recent work of Virginia Tech graduate student, Elizabeth Chishimba-Musonda, who conducted an online survey of 2,162 consumers to answer the question of what consumers would be willing to pay for bee-friendly beef. Consumers were shown images of packages of beef with different combinations of labels like "grassfed," "organic," and "bee-friendly beef." They were then asked how much they would be willing to pay for each product per pound. The survey results showed that consumers who are more informed about pollinator declines and other environmental issues were willing to pay more for bee-friendly beef. This finding suggests that market based voluntary labeling of bee-friendly beef has the potential to increase adoption of wildflower-enhanced pastureland and that continuing to educate the public about pollinator declines could have a positive effect on consumer activity.

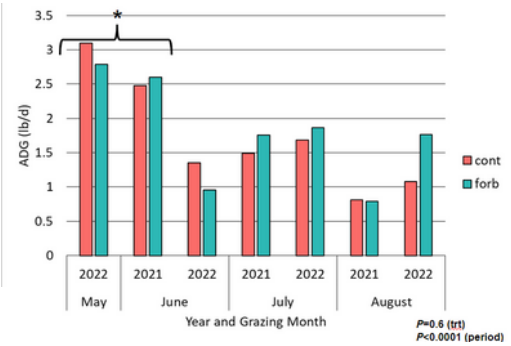


Virginia Tech

Dr. Pat Keyser and Jessica Lynn Prigge - University of Tennessee

Although diverse native grass pastures provide numerous ecological benefits such as grassland bird habitat and pollinator forage, it's important to assess the impacts of wildflower-enhanced pastures on cattle producer livelihoods and to test optimal native grass establishment methodology. Dr. Pat Keyser, a professor at the University of Tennessee, gave an overview of his research consisting of five different projects spanning seven years that assess the establishment success of native grass pastures. These projects have explored topics including the importance of herbivory in maintaining healthy fields and the optimal timing of existing plant suppression, grass planting, and forb planting.

Cattle Performance on Native Pastures Over the Grazing Season



University of Tennessee

University of Tennessee graduate student Jessica Lynn Prigge shared project insight on the nutritive value, persistence, and effect on cattle gains for a number of focal species commonly planted in wildflower-enhanced pastures such as Lanceleaf Coreopsis, Maximilian Sunflower, and Purple Coneflower. In terms of nutritive value, the forb species included in the study met protein requirements while fiber levels remained low, making them a promising food source for cattle. Wildflower-enhanced pastures also had comparable grazing days and cattle gains per acre to traditional fields. These findings suggest that the focal native wildflower species show suitability for cattle pasture while also providing pollinator forage.

Forb	Benefits
Purple coneflower	Consistent blooms for pollinators and birds
Lanceleaf coreopsis	Early season blooms
Black-eyed susan	Quick-establishing biennial
Maximillian sunflower	Late season blooms
Oxeye sunflower	Moderate forage mass and persistent in pastures
Desmodium	Readily consumed legume

University of Tennessee

Dr. Parry Kietzman - Virginia Tech


Virginia Working Landscapes

When selecting plants to use in wildflower-enhanced pastures, it's important to know which species will be the most effective in attracting pollinators and providing forage. Dr. Parry Kietzman, a pollinator specialist at Virginia Tech, assessed pollinator preference among numerous common native wildflowers for different types of pollinators. For this study, existing vegetation within the pasture test plots was suppressed before plots were overseeded with a mix of native warm season grasses and wildflowers. Once the seeded plants were established, pollinator surveys were conducted using a modified form of the "snapshot" method, where flowering plants of each species are surveyed and all pollinators present on a flower of a given plant at the time of observation are recorded.

Significant positive correlation was found between number of pollinators present and number of flower species in bloom. Early Goldenrod, Lanceleaf Coreopsis, and Blue Flax received the greatest proportion of visits, but different plants attracted different types of pollinators.

Dr. Amy Johnson - Smithsonian's Virginia Working Landscapes


Virginia Working Landscapes

Virginia Working Landscapes (VWL) is collaborating with Virginia Tech and University of Tennessee to study the benefits of wildflower-enhanced pastures on working farms to address the issue of pollinator declines. VWL partnered with six local cattle producers to assess the effects of wildflower-enhanced pastures on vegetation communities and subsequent pollinator response.


Bean Hollow Grassfed

Participating producers converted a portion of a traditionally grazed cattle pasture to a native wildflower meadow. After a native wildflower seed mix was established, cattle were reintroduced to the study fields, and VWL research teams consisting of staff and community scientist volunteers conducted vegetation and pollinator surveys. These surveys assessed vegetation cover, ground cover, bloom availability, livestock browse, and soil composition. Additionally, pollinator surveys compared the differences in pollinator response between wildflower-enhanced pastures and control pastures. Preliminary findings showed greater pollinator abundance in wildflower-enhanced treatments. Further data collection will hopefully provide greater insight on the benefits of wildflower-enhanced pasture as well as the continued viability of native grassland plant species integrated on working farms.

Learn more about the ongoing Bee-Friendly Beef research and project updates here: https://beesandbeef.spes.vt.edu/

Field Trip - Bean Hollow Grassfed


Virginia Working Landscapes

After a morning of research presentations, workshop attendees were invited to visit Bean Hollow Grassfed, one of the sites participating in the on-farm trials, to see an example of wildflower-enhanced pasture. Attendees explored a field full of Lanceleaf Coreopsis, Black-Eyed Susan, Grayhead Coneflower, and many more species while learning more from the research team about the management of wildflower-enhanced pastures. Another highlight of the field visit included hearing a Bobwhite Quail from one of the fields, with a few lucky visitors spotting it perched on a fencepost with binoculars!