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Keywords

Graze 300 VA; pasture, grazing management; Sociology; Technology; Virginia Tech

Abstract

With 2.1 million acres of pastureland and 1.25 million acres of hay land in Virginia, the rural Virginia landscape is predominately grassland. These lands form the base of the \$3.96 billion-dollar livestock and dairy industry in Virginia. Managing these livestock in a profitable manner for farmers and beneficial to the environment is important. A cultural tradition with roots in colonial times has been to run animals in large fields year-round throughout Virginia. Livestock often graze from spring until fall (about 220 days), and farmers feed hay the remainder of the year. Spikes in the cost of fuel, fertilizer, and equipment are making traditional grazing/haying systems less profitable. The Virginia Cooperative Extension Farm Enterprise budgets show that the cost of hay accounts for over 50% of the cost of sustaining livestock annually. University of Kentucky shows that most cow-calf producers maximize their profitability by shifting from grazing 220 days to grazing 275 to 300 days. Extension agents working with livestock producers found that they could improve their profitability by at least \$75 per cow by extending their grazing season. The same phenomenon applies to other types of grazing livestock. If ten percent of the livestock producers in the state adopted better grazing management to extend their grazing season by 60 days, profitability is expected for Virginia grazing livestock producers by over \$5 million per year. Practices such as rotational grazing and stream exclusion are directly tied to National and State goals to improve water quality in the Chesapeake Bay. Virginia's Phase III WIP (Chesapeake Bay Watershed Improvement Plan) seeks the exclusion of livestock from all perennial streams and achieving good rotational grazing practices on 347,000 acres of pasture. A number of agencies and private sector groups have been providing cost share and technical guidance to incentivize livestock stream exclusion and the installation of pasture management infrastructure. Installation is only part of the challenge. Farmers also need to be taught how to manage the system in a profitable manner and have been slow to adopt good pasture management practices. Preliminary data show that 87% of Virginia's cow-calf

producers manage their grasslands using traditional methods. Only six percent have extended their grazing season beyond 265 days.

Introduction, Action Plan, Methods and Results

Objective #1/ Action Taken: Determine the Social factors that influence farmer change, particularly in the context of forage-based livestock systems.

A Survey Developed: Social Science Research on Factors Influencing Farmers' Attitudes Toward the Adoption of Rotational Grazing in Virginia

From this we evaluated various factors that influence farmers' attitudes toward the adoption of rotational grazing. Qualitative and quantitative data gathered from a convenience sample of Virginia farmers. 535 completed surveys received from farmers practicing continuous grazing (n=206) from farmers practicing rotational grazing (n=329). Three barriers were found for both types of producers identified as a significant or moderate challenge: amount of work required to start rotational grazing, shade, and water source constraints. A majority of these 206 continuous grazers said they get more done with machinery, prefer to drive than walk, and like using hay machinery as reasons for not adopting rotational grazing.

Objective #2/Action Taken: Improve the competency of all partner agencies and agribusiness by providing in-depth grazing management training.

A four-month long training series delivered via Canvas was designed to teach professionals (Extension Agents, Agency Representatives, and Agribusiness Employees) about grazing management. There were 118 participants in 2021, and a second cohort of 52 participants were enrolled in this course in 2022. There were 23 different presentations that provided over 8 hours of technical training offered in the online course. This training program is being offered again at the request of Virginia State University and other organizations.

Thirty-six professionals participated in hands-on workshops held at three Virginia AREC's. The six-hour training provided participants with hands-on, in the field training in grazing management contributing to CALS strategic plan with other universities and stakeholders.

Objective #3/Action Taken: Expand the Graze 300 VA technical resource base.

Develop and assimilate technical resources filling gaps with new videos, new publications and tools professionals and producers can use in addressing needs.

Publications Written

Managing the Spring Pasture Flush, author Matt Booher, under review, pending publication.

Adding Legumes to Pasture, author John Fike, used in training agricultural retailers.

Videos Produced

Six educational videos were produced highlighting key aspects of extended grazing practice for livestock. Interviews conducted with cattle and small ruminant producers were used to discuss issues like: drought, spring flush, intensive rotational grazing, electric fencing, and more. Two videos focused on fence chargers and temporary fence options with discussions on accommodations made due to age/type of animal, or predator, terrain and weather issues. These new videos will be posted to the Graze 300 website referenced below.

Poster Developed - "Building Partnerships to Address Social and Technological Challenges to Enhance Farm Profitability and Improve Water Quality Through Better Grassland Management." Presented at the

annual meeting of the Center for Advanced Innovation in Agriculture, Virginia Tech University, March 28, 2022.

Website Improved - Graze 300 VA Web site <https://ext.vt.edu/agriculture/graze-300.html> experienced 1,986 pageviews over the past year, 8 existing videos were viewed 22,000 times and new videos are slated for this site.

Instruments Built- 75 falling plate meters built following the Ed Rayburn, WVU design. These were distributed to professionals for their use in training farmers how to measure stockpiled forage inventory.

Objective #4: Broaden the use of technology to further advance the Graze 300 VA Initiative.

Theory Developed

Recordkeeping is identified as important to grazing livestock production and as VCE budgets put harvested feed at some 60% of total expense, an economic opportunity is found. The use of digital is thought to improve convenience and ease of use by producers.

A review of current smartphone and tablet applications and computer programs was conducted. PastureMap® was selected as the program that would be the best fit to pilot with Virginia farmers beginning April 2022. Eleven pilot farms were identified. Use of the PastureMap™ software allows the user to specify cow and calf weights. By using known weights and animal number in each paddock, average stock density is estimated for the grazing system (Gross Animal Weight / acreage in a paddock), and can be averaged across all paddocks.

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