School of Animal Sciences
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March is Women's Month and in that spirit this issue is dedicated to the Women Increasing Skills and Education (WISE) Program. Much like automatic doors were initially developed for one specific group, but have since become commonplace and useful to all, we hope this has a similar effect with the knowledge and techniques learned in WISE spreading to increase safety and proficiency for all.

Empowering women in Virginia through hands-on agricultural educational programs

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An increasing percentage of women are becoming first-time farmers or taking on full responsibility of the family farm. From 2012 - 2017, there was a 115% increase in the number of farms operated principally by women. Based on the 2017 Census of Agriculture, women comprise 36% of all operators and 56% of farms have at least one female producer associated with the operation. While many do go into the enterprise with the necessary skillsets, others are coming into the business as a result of retirement, injury or death of a parent, spouse, or family member and find themselves in need of additional skills and knowledge.

The relationship between these women producers and the cattle industry is significant—and the inspiration for the development of the Women Increasing Skills and Education (WISE) program. The program brought 47 women together in October 2022 to participate in hands-on cattle-based programming. They took part in low-stress cattle handling, beef quality assurance (BQA), breeding and dystocia strategies, tractor and trailer driving, and more. On a cold Friday morning, these women came together eager to learn, sharing the common goal of developing the proficiencies necessary to run their businesses.

Day one was all about equipment, everything from small engines and chainsaws to sprayers and ATVs to tractors and trailers. There are dangers in everything we do, but when working on a farm the risks are increased—so the knowledge of how to work safely is imperative.

Small Engine Repair

Understanding small engine basics can be a huge time saver when on the farm. Every day, farmers are using some type of machinery and there is never enough time to take it to a repair shop. The goal of the small engine portion of the program was to provide women with the confidence to handle small repairs and the information necessary to troubleshoot issues with standard 4-stroke and 2-stroke engines. Mrs. Susan Hilleary, Agriculture Educator and FFA Advisor

at Fauquier High School led participants through a detailed lesson on small engine carburetors and simple troubleshooting. Engines were onsite and each participant was able to "tear down" a carburetor, clean it, and replace commonly broken parts. Each participant was also given notebook filled with information specific to small engine operation and troubleshooting (as well as other helpful topic-specific content). One woman said, "The addition of small engine repair was amazing!"

Chainsaw Safety

Chainsaws are an essential and useful tool on a farm, but they do require a certain level of competence for safety. A beginner should not attempt to cut and remove that newly fallen tree on the farm without proper gear. The chain on a saw is moving at roughly 55 - 60 mph when the trigger is engaged and can quickly become dangerous if not used properly. Chainsaws can kickback, pushback and pull-in clothing. Suiting up with safety chaps, steel toe boots, ear and eye protection, and helmet can be the difference between a few stitches or a loss of a limb. Since most of the work with a chainsaw occurs below the waist, it is important to know the value of chainsaw chaps and how to wear them properly. Chainsaw chaps are made up of a rugged shell of denier polyester typically treated with a water-resistant coating. That shell is covering a core composed of either ballistic nylon, Kevlar, or Tek warp. When the rapidly spinning chain of the saw hits the chaps, the long fibers in the chaps become entangled in the chain causing it to instantly stop rotating thus saving the operator from injury or death. With the development and popularity of lighter weight electric chainsaws, we must remember they are still just as dangerous. Even though the velocity of rotation during a kickback of a gas-powered chainsaw is greater, it is vital for the operator to not take an electric chainsaw for granted. Patricia Nylander, Watershed Steward Specialist with the Virginia Department of Forestry impressed on all the women participating the value of chainsaw chaps, essential safety techniques and proper operation of an electric chainsaw. One program participant yelled, "Fantastic! More!...", with another participant specifically requesting more training on chainsaws.

Sprayer Calibration and Pesticide safety

One of the best ways for agricultural producers to build efficiency into their operation is to improve their soils and forages. Applying pesticides to pasture and hay land can effectively remove unwanted weeds and other plants so that the desired forages can capitalize on available nutrients. However, properly calibrating a sprayer can be difficult and even intimidating for producers. Therefore, the Virginia Tech Pesticide Programs team; Rachel Parsons, Stephanie Wycoff and Kathleen Miller led attendees through an informative hands-on demonstration on how to properly calibrate a boom sprayer. Participants each took a turn adjusting nozzles and calculating pesticide output amounts. Throughout the entire demonstration Parsons, Wycoff and Miller emphasized the importance of pesticide safety and proper Personal Protective Equipment. Calibration information and checklists were distributed to all participants for future reference.

ATV safety

The purchase of all-terrain vehicles on farms has greatly increased over the last several years. They are not just for pleasure, but have become farm work-horses. ATVs and side-by-sides (UTV) have reduced the need for actual horses to gather cows or drive a giant tractor out to repair fencing. Add-on equipment such as a winch, plows, sprayer mounts, dump beds, trailer hitches and fencing building rigs can be purchased or made to fit on any size ATV or UTV. This type of equipment can go almost anywhere, fly across open fields, climb mountains and cross streams, but not without potential hazards. With any equipment gas, diesel, or true horse power proper safety equipment should be used. ATVs and

UTVs can roll over very easily if the rider makes quick, fast turns and are the number one reason why helmets and proper footwear should always be worn. Putting the ATV or UTV in park and applying the foot and hand breaks is extremely important just like on any piece of equipment. According to a 2021 report from the United States Consumer Product Safety Commission 2018 was the deadliest year reported to date for off-highway vehicle accidents. During the 3-year period from 2016-2018, 2,211 deaths were reported occurring from off highway vehicles (ATV, UTV, and recreational off-highway vehicles). Twenty-nine percent of the 2,211 fatalities were adults ages 55+, making up a large percent of the farming population age grouping. Children under 12 represent about half (48%) of the fatalities among the combined under-16 age group. Do not underestimate this equipment—even though compact, they can crush limbs and cause serious injury and death. When in doubt apply all the brakes and flip the kill switch when you get off to protect youngsters from turning it on and getting seriously hurt. They have watched mom, dad, grandpa, grandma, and/or the older sibling turn on the key and push that one button enough to know how to start that equipment...**all before they turn 2 years old.**

Tractors

Tractors are an everyday, essential part of farming and they can be dangerous. There are many essential parts on a tractor that every operator must know. These include the engine, clutch, brakes, throttle, power take off (PTO) and PTO shaft, rear wheels, front wheels, and the hydraulic controls. Beyond an understanding of the main tractor parts, each operator must understand the safe operation of each. Once the operator has learned the basic tractor parts and how they function, they can easily move between different brands of equipment with the ability to properly and safely operate them. During the course at Kentland, farm ladies were given the opportunity

Figure 1. Mandy Fletcher, Small Farm Outreach, VSU, with a WISE participant on an open-air tractor.

to drive a John Deere, Kubota, and/or a Massey Ferguson tractor. The differences between open and closed cabs and the importance of roll bars on an open cab tractor were discussed. PTO safety and hooking up PTO shafts was covered and participants were shown how to hook and unhook a 3-point hitch rotary tiller. Tractor servicing, including checking the fluid levels and easier methods for adding hydraulic fluid, was discussed and demonstrated. Attendees were very complimentary and excited to operate the different brands of tractors and learn in a safe and supportive environment.

Trailer Driving and Securing the Load

Whether you are hauling cattle, horses, hay, or heavy equipment safety is of the utmost importance. User error is an accident waiting to happen. Securing the load properly—even if you are only going a mile down the road--can save your life, the animals, or the person traveling behind you. Proper loading, positioning, and securing of the cargo in a truck bed or trailer with the proper straps is key. It is also very important that you have a good handle on hooking up, maneuvering, and driving large trucks and trailers. Tie-down equipment comes in many types: chains, web straps, wire ropes, or netting with each having

their own working load limits. The first step in identifying the proper tie-downs to use is knowing the type of cargo, size, weight, mode of transport, and distance traveling. For instance, you would never use a single web strap with a working load limit of 1000 lbs. to secure a 20,000 lb. piece of equipment on a flatbed trailer. When choosing tie-down equipment, purchase straps in varying types and weight limits. It is also very important to do frequent maintenance checks before and after hauling. Once a chain or web strap becomes damaged it can no longer safely function to the stated limit. Course materials included a weight guide for different tie-downs to post where they are stored. Participants also learned that practice makes perfect. Take the time to drive that truck and trailer around an open parking lot or field. Back up into tight spaces using cones, don't be afraid to use your mirror, and position your hands on the steering wheel to maneuver that trailer where you want it to go, all while remembering to breathe.

Insider Science 2019, stated that cows are the fourth most dangerous animal in the United States. Therefore, day two of WISE training focused on the safe handling of cattle. Also covered, were topics such as proper vaccination placement to how to deliver and pull a calf when you're the only one on the farm.

Low-stress Cattle Handling

Low-stress Cattle Handling has numerous benefits for both producers and for cattle. The biggest benefit is the safety of both the cattle and the producer. When cattle are confined and being coerced into a controlled environment, their stress level rises and they are more likely to become aggressive and agitated. Participants received hands-on pen training moving one cow or a group of cows from one location to another. Understanding an animal's flight or fight zone is key in low-stress handling. Pressure is a key concept with low-stress handling, knowing when, where, and how much pressure controls movement. Low-stress handling goes hand-in-hand with Beef Quality Assurance and chuteside skills, because profits increase for both dairy and beef producers when cows are introduced to less stressful environments with reduced risk of injury.

Beef Quality Assurance and Chuteside Skills

BQA is a consumer facing program designed to educate cattle producers on the need for superior herd health management with high quality beef as its goal. Participants of the Cattle WISE program were provided with the opportunity to attain BQA with Chuteside Certification. During the pre-conference web-based training, Becky Roberts, Pittsylvania County ANR Agent led participants through curriculum that covered herd health management, transportation factors affecting cattle, nutritional requirements and key principles of reproduction in beef cattle. Participants would put this new-found knowledge into practice at the Chuteside instructional session. Rachel Henley, Powhatan County ANR Agent along with the aforementioned Roberts taught participants how to give subcutaneous shots in the triangle of the neck of cattle, how to properly administer implants into cow ears (donated by a processing facility) and emphasized the importance of chuteside safety. Every participant gave a shot, practiced administering implants and were all encouraged to participate in needle selection and working the head chute. One participant wrote in her survey, "As a new producer I have the opportunity to implement these skills and herd health strategies intentionally from the beginning." Intentional, quality- focused practice is the goal of BQA and the ability to empower women in the process is a huge bonus for the cattle industry. All women in attendance were given vaccine coolers, ear-tag removers, and paint markers to assist with their cattle working needs.

Reproduction and Dystocia

Reproduction is a huge part of any cattle farm, because if you are not getting cows pregnant you

can't turn a profit. The goal of every farm should be to have a healthy calf on the ground every year, but that can come with challenges. The reproduction session focused on basics of artificial insemination (AI) and techniques to use when you are alone during a difficult calving (dystocia). Knowing the 3 stages of labor is critical; cervical dilation, fetal expulsion, and placenta expulsion knowledge is important because jumping in too quickly can do more harm than good. Understanding the signs of dystocia and when you should step in and assist is key. Typically, heifers are allowed 2-3 hours in labor before assistance is needed, unless you recognize some of the tell-tale signs that the calf is positioned wrong, cows are given 3 hours. No legs showing or back legs first you must step in, it is critical that a calf is positioned to exit head and 2 front feet first. Participants gloved-up and practiced their newly learned skills to pull a calf out of a dystocia training model. They learned the importance of proper chain placement for pulling a calf and reducing the risk of injury to calf and cow. AI allows producers to pick the best bull to meet farm needs, while eliminating the danger of having a bull on the farm. Participants learned the basics of AI during the hands-on session where they were able to better understand the anatomy and technique involved while practicing AI.

WISE aims to encourage and empower women who find themselves in need of basic training or who need to brush-up their skills in a supportive environment. Cattle and Equipment WISE was made possible due partnership with the Virginia State Dairymen's Association and a grant from the Virginia Cattle Industry Board.

Upcoming Events

March 7, 2023
Manure Management Program

Science of Dairy Foods Workshop (Youth)
March 18, 2023 (with Dr. Bob Horton)

4-H Dairy Quiz Bowl Contest (Youth)
March 25, 2023

North American Intercollegiate Dairy Challenge
March 30 – April 1

VA Dairy Skillathon (Youth)
April 28, 2023

Little All-American
April 29, 2023

Virginia Spring Holstein Show
April 29, 2023

20th Hokie Cow Class
May 15, 2023

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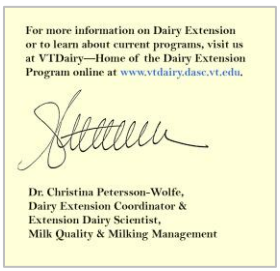

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