

Production Guide Book

Union County 4-H

Things to Remember:

330 Days \pm 10 Days	Gestation Length
21 days	Estrus Cycle length
48 hours before end of Estrus	Time of Ovulation
18-24 months	Age when filly reaches puberty
12-18 months	Age when colt reaches puberty
4-5 years	Suggested age for first breeding for filly
2 years	Suggested minimum age to breed a stallion

Foal – a young equine offspring
Colt - male equine under a year old
Filly - female equine under two years old
Mare – female equine
Madden Mare – female equine that has never been bred
Stallion – male equine used for breeding
Gelding - castrated male equine
Calendar Year – from January 1 until December 31

Dates:

May 1 – 2004
June 20 –2004
June 19 – 2004

Horse Picture Cards must be turned in
State Fair Entries Do to Dr. Kline
Union County PAS show

Production Division: production is the area of 4-H horse projects that allow the 4-H'er to select and breed a mare then train and show the offspring.

Notes to Consider:

Test to be given Wednesday, following show classes, if this is not possible due to the versatility contest, test will be given following versatility.

Test to be multiple-choice.

Class order for showing:

Halter
Longe Line
Ground Driving
2 yr old Riding
3 yr old Riding

Each class and the test will be worth 100 pt for a total of 300 points possible.

Longe Line will be scored according to scorecard (attached).

Halter classes will be scored with a 70 denoting an average horse.

Ground Driving will be scored according to pattern.

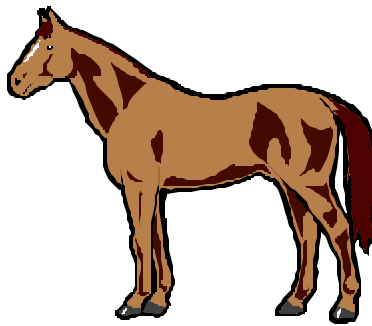
All riding classes will be scored with a 70 denoting an average score.

Scores to be returned to exhibitor following the Awards Banquet at the Pot Luck.

2 and 3 yr olds may show in Longe Line.

This handout is to provide the needed knowledge for the 4-H'er to complete the test portion of the Production Division, provide information on how to conduct the project, and also outlines deadlines and general state and county rules.

In this handbook we will discuss several aspects of the production project from selection of the mare and stallion, management of the breeding process, foal development, and even training of the foal.



Why Breed

Breeding horses can be a fun and exciting endeavor. Nothing is more exciting than walking out to the barn and finding a new addition to herd, especially after all the hard work, time, and money that goes into producing the young addition to your herd. The ultimate goal of any breeding program is to have offspring. As we explore the question why breed, we must answer several questions that point and direct our breeding program. The answers to these questions will ultimately determine what mare we use in our program as well as what stallion that mare is bred to. We then will use our breeding goals to determine if the offspring is the answer to our questions and does the offspring meet our breeding goals.

When deciding to breed we must first determine what we want our offspring to do. Will the offspring be a Western Pleasure prospect, go Hunter Under Saddle, be a Halter horse, or even a Driving or Hitch horse. When breeding and developing a breeding program we must begin with the end in mind and then work from what we want to set our goals and to select the sire and dam of our offspring.

Following the setting of our breeding goal and determining the use of the offspring we must then look at where we are in relation to reaching that goal. The closer the parents are to meeting the goal, the better the chance that the offspring will meet the goal we have set for our breeding program.

Example: Goal – Produce a Cutting Horse

With this goal of producing a cutting horse we need to start with parents that have “cow sense”. We would not expect to have a good cutting horse by breeding a hunter mare to a halter stallion. However, we could expect to make headway and get close to a cutting horse by breeding a mare with cutting bloodlines, though she had never been worked on cows with a stallion that has good “cow sense”.

Defining our breeding goals helps us select and produce offspring that meet the breeding goals set for our program, when breeding starting with the end in mind helps to get the produce we want.

The Mare

Most generally when putting together a breeding program the mare is usually overlooked, we generally pull a mare out of the pasture and then find the stallion that will give us the perfect offspring. However, if given the choice we should look for several attributes to a good quality broodmare.

First we should select a mare that is in line with our breeding goals. If the choice of the mare is limited, then define your breeding program to fit her.

Example: the mare is a hunter type, then trying to produce a cutting horse most generally wouldn't be an option, however we could try breeding to a western pleasure type stallion or even to a hunter type stallion.

Second look for soundness in the mare; remember this mare has to be able to carry her weight, the added weight of the fetus, not to mention the time she will need to nurse the foal. If the mare becomes lame, sick, or dies that will only complicate the breeding process. A healthy, sound mare should be chosen over a typey unhealthy animal.

Next, will the mare breed. Is she reproductively able to become bred and then carry a pregnancy to term. When purchasing a broodmare have a trusted veterinarian perform a breeding soundness exam (BSE) on the intended broodmare. The BSE will give you the prospective buyer a heads up to any problems and could prevent costly breeding difficulties in the future. Age is a consideration in a breeding program and most generally I would recommend a mare to be 4-13 years old when breeding, this does not mean that mares outside this window will not breed, however complications can arise more readily when breeding younger or older mares. Consult a trusted equine reproductive technician, or your veterinarian for help in making decisions on these mares.

Lastly one area that is often overlooked in the selection of a mare for a breeding program is her attitude. A calm, pleasant, well-mannered mare should be selected over a flighty, aggressive mare. Mare attitude is pivotal in the foal's attitude. Most generally aggressive, dominant mares have aggressive, dominate foals. The mare will be raising the foal, teaching the survival instincts, and most generally passing her attitude on to the foal. The mare has more impact on foal attitude than the stallion simply due to the fact that during the first 4-5 months the mare will nurse the foal causing the attitude of the mare to rub off on the foal. Remember also the attitude of the mare determines how easy it will be for you to work with the foal early on in the foal's life. A nasty attitude in a broodmare could really jeopardize your safety when working with the young foal.

The Stallion

Most generally this is the area with the largest area of selection in the breeding process. Stallions are a dime a dozen or at least it seems that way at times in the horse industry. Open any breed journal, Association newsletter, or even general Equine publications and we most generally see advertisements for stallions. With so many choices how do we choose who will be the right sire to our offspring.

First we must go back to our breeding goal, why consider a Hunter Under Saddle breed stallion when in our goal we decided we wanted to produce a cutting prospect.

Most generally once we have narrowed the search to a specific discipline next we need to examine more closely the possibilities. I personally would set a budget. I have "x" amount of money to spend on the stud fee for this breeding. There is no since in falling in love with a stallion who's stud fee is \$2500.00 if I only have \$800.00 to spend on the stud fee. Granted that the \$2500.00 would more than likely put us closer to our goal faster there are still a lot of good stallions out there in our budget, we just have to find him.

Following the budgeting of the stud fee next we need to look for a stallion the complements our mare. The stallion needs to improve on areas that the mare is lacking in.

Example: If the mare were splay footed, then we would pay special attention to the stallion's legs and feet and select for a stallion with correct legs and feet.

I normally put together a list of what can be improved upon in the mare I am breeding, and then I list the positive things about the stallions I am considering. The stallion that has the most improvements wins and goes on to the next round of selection. If the stallion won't get me closer to my goal, then he has no place in my breeding program, that doesn't mean he is bad or that he won't fit very well into your program, he just doesn't work for me.

A NOTE IN SELECTION:

When looking for the "right" stallion, look for a "correct" stallion. What is "correct"? A well-balanced, structural correct (straight legs, more sloping shoulder (45 - 50°), etc.), adequate muscling, sex characteristics, and breed type. Don't, however, try to over compensate for a problem hoping to meet in the middle and have the ideal horse. Genetics just don't work that way! We can't mix bad genetics together and hope good will come out, it won't work, if you want the ideal to come out you must first put the ideal or as close to the ideal as we can into the mating.

Example: Don't breed a splayfooted mare to a pigeon toed stallion and expect a straight legged off spring.... Breed for correctness.

Mare Management for Breeding

The estrus cycle length of the mare is 21 days and the mare is in standing estrus 2 – 6 days with ovulation 48 hours before the end of estrus. Heat detection is the essential in having a successful breeding season. When the mare is in standing estrus she should show several external signs letting the manager know she is in heat.

Signs of Estrus:

- Winking of the vulva
- Frequent urination, strong urine smell
- Nickering for stallion
- Standing when being teased
- Large follicles on the ovaries (only known with use of palpation)

Once the mare is found in heat the recommendation to breed is approximately six hours before ovulation of the egg. The norm when mating using hand mating, or natural cover is to breed the mare 12 hours after the onset of standing estrus and then every 48 hours until the mare is out of heat. The breeding only needs to be done every 48 hours because sperm live for 48 – 72 hours in the mare's reproductive track. As well as the least number of times the mare is bred the lower the chance that we could cause an infection in the mare's reproductive track. The recommendation if using AI is to breed once a follicle on the ovary is equal to or greater than 5 cm in diameter. At the same time give a shot of Prostaglandin to cause ovulation. (AI should only be done by a Repro. Technician or an experienced Vet.)

Following breeding pregnancy checks are recommended this can be done as early as 18 days after the last breeding by palpation or ultrasound. Other wise heat checking is recommended to start about three weeks following the time when mare was bred. If mare comes into heat then rebreed, but if mare doesn't come into heat she should be breed.

The mare also needs to be in good flesh during the breeding time, a body condition score of 5-6 is desirable (see appendix for a definition of body condition scoring). If the mare is extremely thin or obese at the time of breeding this will generally negatively effect her ability to breed, and is know as a negative energy balance. In the physiological necessities of the equine body, reproduction is considered a plus, if the mare's needs are not being met nutritionally, then her body is going to try and prevent more nutritional stress and will generally shut down the reproductive cycle until a more positive energy balance is reached.

It is also important to maintain a healthy parasite and disease free mare during the breeding time. If the mare is fighting infection then she is less likely to conceive and carry a pregnancy to term. A healthy mare is the first step in a healthy foal.

Mare Management during Gestation

The gestation length of the mare is 330 days \pm 7 days. Managing of the mare during early gestation is the same as for an open mare. It is recommended that mares receive a rhino and flu vaccine at 5, 7, and 9 months of pregnancy. The mare should be on a normal worming program; make sure that the wormer used is safe for pregnant or gestating mares. Nutritional requirements increase during the last 1/3 of pregnancy because of the increase growth in the fetus.

Mares should receive normal exercise during the first 2/3 of the pregnancy (same exercise as an open mare = walk, trot, lope, etc.), but during the last 1/3 of the pregnancy the recommendations are to allow exercise free choice to the mare. Exercise is important in preparing the mare's body for foaling and should be allowed daily.

When the due date is about 3 weeks off place the mare in the foaling stall to allow the mare to become acquainted with her new home. The foaling stall should be adequate size for that of the mare. A miniature will not need the same amount of room as a draft horse (typically for a normal 1000 lb. horse foaling stalls should be 12 \times 24 feet). When bedding the foaling stall use straw, saw dust has a microorganism in it that can cause umbilical infections in the foal.

When a mare is ready to foal, she should be slightly fat (body condition score 6-7(see appendix for a definition of body condition scoring)) if you want to have the best success getting her in foal again. Producing milk for her foal is a large drain on the mare's nutrient stores, and if she is a little fat at foaling she can better handle the stress of lactation, as well as start to feed the next foal inside her. (Mares, unlike cows, do not have difficulty giving birth if they are overweight.)

Mare Management during Foaling

During foaling the mare will normally deliver herself without any problems, but occasionally foaling problems occur at this time a red light needs to go off inside your head and the Vet needs to be called. Describe the problem to the vet and let him or her tell you what to do. Don't pull the foal unless instructed to do so by the vet.

After the foal is born several things need to happen. The foal needs to be dried off this will aid in the suckling reflex of the foal. The mare will normally aid in doing this by licking the foal clean. Then we need to make sure that the mare passes the afterbirth, this can take up to 3 hours after the foal is born. It is important that the mare pass the afterbirth because if the afterbirth is retained it could cause founder in the mare and increased time before the mare is able to maintain a new pregnancy.

The foal following foaling will normally stand and nurse within a few hours following birth. It is extremely important that the foal receive an adequate amount of colostrum to aid in the immune process during the first several weeks and months of the young foals life. The immune system of the foal is under developed when the foal is first born and takes several months to develop and function correctly.

Orphan Foals

If at all possible, get at least two pints of colostrums (the milk secreted by the mare for the first 24 hours after foaling) into the foal within the first two (ideally) to 18 hours of life. If no colostrums is available, a veterinarian should be consulted. There are milk replacers available for horses, but they may be hard to find on the spur of the moment. Therefore, to feed the foal until one can be found, you can use a calf milk replacer as long as it contains iron (do not use veal-calf milk replacer). If unable to get calf milk replacer, you can mix four teaspoons of jelly pectin (dextrose) to one quart of 2% milk to use until a replacer can be found. Once the foal is drinking the milk, put the pail in a location in the stall that will allow the foal easy access. Using a bucket with bright color that contrast to the stall wall will help the foal find it. Change the milk twice a day. Each time put into the bucket what the foal will drink until it is time to change the bucket again. Try and make sure the bucket is clean to prevent bacteria growth that could harm the foal. You should expect orphan foals to develop diarrhea at about two weeks of age, which can be treated (if it persists) by giving 60cc of Kaopectate twice a day until the diarrhea stops, but for no longer than three days. **Do not give Kaopectate after the diarrhea stops**. If this treatment does not work, have a veterinarian evaluate the foal for other problems. Creep feeding can begin as early as one week of age.

Imprint Training

The keys to imprint training are closely related to the behavior of newly born goslings, which identify with and follow the first large moving object they see. This survival instinct helps them stay close to the mother goose. Other animals possess this instinct to varying degrees. In foals it is a matter of identifying one or more beings (and body shapes) as acceptable, familiar, and “generally not to be feared.”

If the foal is exposed only to the dam in the first few days of life the foal recognizes the dam and her body shape as familiar and not yours. The key to imprinting is to familiarize the foal at birth with you, and other stimuli the foal will encounter during its life. Without imprinting your foal will not willingly trust humans, and will have a fear of humans due to the prey nature of horses. Imprinting causes the foal to trust humans and normally shortens the learning curve later in life.

First key to imprinting is habituation- that is, getting your foal used to specific experiences. These experiences (or stimuli) can range from being approached, handled, and restrained, to the sound of an ATV, and even gunfire. Whatever you expose him to during a short, critical window of opportunity, during which he’s a virtual learning sponge. These stimuli will then be tucked into the foal’s “okay” section of his brain for life.

Ideally imprinting should start as soon after the foal is born as possible. The mare should be restrained in a way that allows her to touch the foal with her nose during the imprinting lesson with the foal; having an assistant hold your mare can easily do this.

Make sure the mare is calm and can have contact with the foal before starting the session, keep the sessions short and complete the session before allowing the foal away from you. During the sessions handle all parts of the foal. Handle the muzzle, ears, face, and legs, rub the entire body and work around the foal completely. Continue rubbing or lifting a leg ect... until the foal tolerates the stimuli completely. It may even be beneficial to use clippers on the foal, touch the sole of the hoof as well as rubbing the head, body, and legs.

However, remember this is a very impressionable time in the foals life and can be very positive on the training the foal will later receive when it is time to teach the foal to tie, lead, lounge, ground drive, and even ride. At the same time if done too harsh, of improperly it could also leave ill effects on the foal that are for seen in future training sessions. These first few lessons will impact the attitude and behaviors of the foal the rest of its life.

For more information on imprinting dos and don’ts:

Book: Imprinting, by Dr. Robert Miller DVM

Video: Imprinting, By Dr. Robert Miller DVM

Video available at the Union County Extension Office.

Mare and Foal Management

Feeding of the mare is critical during lactation, or when the mare is nursing the foal. At this time we need to remember that the mare needs to recover from the pregnancy, feed the foal, and feed herself. Recommendations include a high protein and carbohydrate diet. By feeding a high protein diet we provide the needed amino acids to rebuild and repair tissue from the pregnancy. Carbohydrates on the other hand are high in energy and provide the “fuel” to allow the mare to produce milk, make the repairs, and maintain her own body, as well as prepare herself for rebreeding. If the mare isn’t feed properly then she will have a negative energy balance causing her to loose body flesh, and devote all of her energy to the milk, robbing herself of the needed nutrients, causing an increased open time, as well as risking her own health. Keeping up on the vaccination and worming program is critical for the new foal and the mare so that illness doesn’t occur.

Lactation in the mare peaks by two months after foaling and by four months will only provide about 50% of the energy and protein and about 30% of the calcium and phosphorous needed by the foal. Therefore, creep feeding (providing feed for the foal where the mare can’t eat it) should begin early in the foal’s life.

The first solid food a foal will eat is the mother’s manure (a good worming program is essential and the mare should be free of shedding worms before foaling). This is thought to be important in inoculating the gut of the foal with microorganisms that are necessary for normal digestion.

Creep feeding can begin as early as one week of age. Foals learn to eat grain more quickly when they eat with their mothers first. You can also help start them by putting some grain in their mouths. Be sure the creep feeder is near where the mare likes to loaf so the foal will be encouraged to enter the creep and eat. The creep feed should contain at least 16% protein, be of high quality, and very palatable.

Foals usually eat about a pound of feed a day during the first month, but consumption will gradually increase to as much as 10 pounds a day by weaning.

Weaning

The best way to wean is different at each farm and in each animal. Recommendations are to wean at about 4 – 5 months of age for the foal. But remember foals go through a “rough” stage about 30 days following weaning. The “rough” stage lasts for about 30 days. So if you plan on showing the weanling incorporate this into your breeding program and weaning date. Also weaning is a critical time for the foal and feeding a good balanced diet is essential. But be careful when creep feeding weanlings at this time foals normally go off feed from stress and it is better to feed “cold feeds” and roughage and then slowly change to a higher concentrate ration.

A common problem with weanlings as well as yearlings is that they often look pot bellied. If this is the case, they are either wormy, in which case they should be dewormed. Or the quality of their feed is not sufficient to meet their needs without stuffing themselves, in which case supplying a better quality feed will take care of the problem.

When weaning the foal the foal may become stressed and go off feed, if possible weaning several foals together will ease the stress. When weaning more than one foal is not a possibility, then weaning the foal away from the dam, yet allowing the foal to buddy with an older horse may be the answer. When putting the foal with an older horse pay close attention to insure the safety of the foal.

The foal should be separated from the mare for at least 30 days; most experts say that the mare and foal should be separated for 60 days to insure the mare has stopped producing milk. If the foal is allowed with the mare too soon the foal could try and suckle and the mare may be stimulated enough to start producing milk again.

Following weaning the mare’s udder will become enlarged and firm as well as tender to the touch. It is the pressure of the milk in the udder from threw cessation of milk removal that will cause milk production to cease, so milking the mare only slows the process. It takes 30 days for the udder to stop producing milk and regress to a non-producing state.

Training

Initially, trainers allow simple and slow responses to cues. Advanced training results from the use of step-wise training procedures that allow the horse to add intricacy and speed to previously learned responses.

Perception and Reaction to Stimuli

In the wild, horses rely on early recognition of danger and quick response for survival. This poses both advantages and disadvantages when training. Horses are very perceptive and can react suddenly to sounds, sights, movement, touch, and smell. Trainers capitalize on a horse's sensitivity to voice when teaching a horse to respond to cues. Training programs desensitize horses to unfamiliar stimuli. Through the use of slow, step-wise training methods, most horses readily accept unfamiliar areas or objects such as trailers, indoor arenas, traffic, or people. With experience and a trust of humans, horses learn to ignore many of these. However, loud noises or unfamiliar sights may frighten any horse, so handlers must be prepared at all times.

Submission to Dominance

Dominance is part of the social order of a herd. Horses are trainable because they can be taught to recognize the dominance of humans. Trust is developed when a horse feels secure about the actions of humans.

Training Principles Based on Expected Horse Behavior

Several training principles are used based on expected horse behavior. These behaviors allow us to somewhat predict how a horse will respond to a stimulus.

Stimulus -> Response -> Reinforcement

Stimulus

The "stimulus, response, and reinforcement" principle is used to train horses. We apply a cue (stimulus), the horse reacts (response), and we reinforce the response based on its acceptability. The response to most cues must be learned by the horse because the desired action often does not come naturally.

Horses possess many attributes which make them a species of choice for human companionship and service. Relating to horses requires knowledge of their behavior. Without this knowledge, involvement with them can be dangerous.

Response

A horse will respond to a cue by fighting or moving to escape from pressure. When a handler pulls a lead rope to cue the horse to move, an acceptable response would be for the horse to move in the direction of the pull. Reinforcement allows release from pressure on the halter. An unacceptable response, such as moving against the direction of pull, results in negative reinforcement.

Reinforcements

Reinforcements may be positive or negative. Most positive reinforcements are learned. For example, a horse learns that a pat on the neck is a reward because it associates it with a release from pressure or exercise. Negative reinforcements encourage the horse to respond and avoid another cue. Negative reinforcements use the principles of escape and avoidance. The escape principle uses behavioral traits inherent in horses. An example is the direct rein. Pressure is applied by a direct pull; the horse escapes the pressure by moving in the direction of the pull.

Avoidance is also used in negative reinforcement. The horse learns to avoid an additional reinforcement by responding acceptably to initial cues. For example, a horse is cued to move away from leg pressure. If the response is acceptable, it is reinforced by the release of leg pressure. If the horse ignores the cue, reinforcement is a similar but more intense cue (i.e., a kick reinforces a leg squeeze). Through repetition, the horse associates the unacceptable response with more intense reinforcement and learns to submit to the initial, less intense cue.

Horse Behavior and Trainability

Behavior is a product of both instinct and experience. To some degree, all horses behave in a similar fashion. Successful training depends on the trainer's understanding of these traits and how stimuli (cues) can be applied to modify behavior. Behavioral traits important to training include the fight or flight response, memory, perception of and reaction to stimuli, and the response to dominance.

The Fight or Flight Response

Horses are a prey species and they survive by fleeing from danger. This could be something that has invoked fear in the past or something new or different. Trainers build on the flight response by allowing escape to be an acceptable response to training cues, especially in early training. An example is the use of a hip rope on foals when teaching them to lead. A horse's natural response to pressure is to fight it; thus, we teach them to give in or move away from pressure by releasing the pressure when they respond acceptably. The instinct to flee can cause safety problems when a horse is handled or confined. If a horse panics, it may run over handlers, fences, or other obstacles. Proper training lessens the instinct to escape.

Wild horses interact in herds where fighting is a frequent part of social order. Domesticated horses can also become aggressive and strike, kick, bite, or run over objects, people, or other horses. Building security and respect at early ages decreases this response toward humans. Any horse can become aggressive toward a handler, especially stallions, mares with foals, older horses with little training, and young horses in the initial phases of training.

Memory and Repetition in Training

Horses have good memories, but they do not have an appreciable reasoning ability. They learn through repetition.

Punishment is used to eliminate bad habits and aggressive behavior initiated by the horse, such as bucking, rearing, and kicking. Punishment reinforces the dominance of humans and eliminates dangerous actions. To be effective, punishment requires intense, timely, and short-termed actions. Application should be reserved for responses initiated by the horse. Punishment applied inappropriately causes fear and insecurity in a horse. A loss of security produces an untrainable horse.

Some undesired actions of horses go away without reinforcement. For example, the introduction of a bit causes a horse to bite and chew on the mouthpiece. This response will usually go away without any reinforcement when the horse learns to tolerate the mouthpiece. Cues require reinforcement throughout the horse's performance career. Young horses need reinforcements continually in training. Older well-trained horses should respond with less negative reinforcement. The goal of training is for the horse to respond to all cues in an acceptable manner without obvious reinforcements. However, even a highly trained horse requires reinforcements to maintain its level of training.

Repetition and Consistency of Cues and Reinforcements

Horses learn through repetition. Repetition increases a horse's ability to master a task. It also serves as a review before new or more intricate movements are performed. Too much repetition allows a horse to learn to avoid the physical or mental output of a maneuver. This can happen when a barrel horse runs a pattern too often, for example. The ability to learn cues quickly and accurately depends on the consistency of reinforcements. Horses are very perceptive. They are able to recognize slight differences in cue application. This allows for more intricate stimuli and more advanced maneuvers.

Contingency

Horses respond quickly to stimuli. To be effective, reinforcement must occur immediately after the horse's response so that the horse learns to associate the reinforcement with the preceding cue.

Fatigue

Some horses learn to ignore constant stimulus by building physical and mental barriers. Horses fatigue easily so cues must be short in duration (i.e., a pull and release of the reins or a squeeze and release with the legs). When the stimulus is constant and prolonged, most horses will either ignore it or try to escape by fighting the pressure (i.e., running away while the rider is pulling back on the reins). Fatigue also limits the length of single training sessions. Young horses, mentally and physically unconditioned to training, must be worked in short training sessions. The session length and number of cues can be increased as the horse matures and learns. Varying the type of work and intermittently allowing the horse to relax during a training session prevent fatigue.

Shaping Behavior with Step-wise Training Programs

Advanced training requires mental and physical maturity. In advance training programs, coordinated maneuvers are divided into a series of simple tasks. Movements are added as the horse masters each task. For example, when stopping, a horse must shift its weight to the hindquarters and flex its head. The horse must first learn to carry its body in a collected frame. It must respond to voice commands, body movement of the rider, and mouth pressure from the bridle. Learning is enhanced when movements are first taught at slower speeds, such as a trot rather than a lope or gallop. The slower speed allows for small delays in response time. The horse is able to position its body as it learns the desired response.

Safety Principles Related to Training and Behavior

1. Recognize the horse's natural defense mechanisms.

- Frightened or aggressive horses may panic, escape, or fight. They may have little regard for human dominance or safety. Learn to recognize the differences between fear and aggressive behavior. A frightened horse will need slow, consistently applied reinforcement to build security. Horses that initiate dangerous, aggressive behavior must be punished to eliminate the response.
- Understand horse behavior as it relates to herd social order, stallion sexual behavior, and mare and foal relationships.
- Watch for the visual signs of behavior and attitude. Recognize the signs of a frightened, confused, or aggressive horse. Expect some horses to be more aggressive than others.
- Don't try to herd or lead a horse when standing directly behind or in front of it. These are blind areas in a horse's visual field. A horse may bolt forward or kick when frightened or aggressive.
- Approach a horse at its shoulder. This allows you to use your body to impede movement while positioning yourself in a safe location.
- Make a horse stand when turning it loose until you are safely positioned to avoid being run over or kicked. Position the horse so that its head is facing a wall or fence before removing the halter. This will keep the horse from bolting.
- Don't allow yourself to be trapped between a frightened or mad horse and a stall wall or other barrier.
- Do not chase horses when trying to catch them. This action reinforces the horse's desire to escape.

2. Recognize the reactivity of horses.

- Be cautious in new environments. Recognize small changes in the environment that may frighten a horse.
- Move slowly and deliberately around horses. Avoid sudden movements that may confuse the horse or be perceived as a prelude to punishment. Punishment usually involves quick movements.
- Introduce clippers, blankets, and saddles in a safe, familiar place. With experience, most horses learn to ignore the sound, sight, smell, or movement associated with routine procedures.

- Always be prepared for an unexpected stimuli that may frighten the horse, especially in new environments.

3. Understand the need for reinforcements.

- Stay alert to cues and reinforcements at all times. Be consistent in your cues and acceptance of responses. Recognize that cues are applied to horses constantly while you are handling them.
- To develop and maintain trust and acceptance of human dominance, apply appropriate and consistent reinforcement and punishment.
- Punish bad behavior to eliminate undesirable responses. Apply punishment discriminately. Make punishments intense, short termed, and contingent upon the action.
- Allow for escape and avoidance options when applying negative reinforcement. Give the horse an identifiable reward by applying simple, consistent cues with quick release.
- Train the horse to respond to a rider's hand, voice, leg, and body cues through the use step-wise training programs.
- Apply contingent reinforcements so the horse will associate them with the intended cue.

4. Use proper equipment and facilities to encourage acceptable responses.

- Use stocks when treating, washing, or performing activities the horse may perceive as threatening.
- Tie horses with quick release knots.
- Evaluate enclosed areas for horse and rider safety.
- Use round pens and other enclosed areas when teaching horses to respond to training aids.
- Understand the function of different bits and training aids and use them in a safe manner.
- Maintain equipment in good repair. Perform routine equipment checks and replace questionable parts that could fail under stress.
- Use properly fitting equipment to allow for consistency of cues, release of pressure, and safety.
- Wear protective clothing and safety gear, such as boots, pants, and headgear or helmet. Make sure clothing and safety gear fit properly and securely.

5. Learn the procedures of horse handling and use.

- Obtain advice and instruction from qualified, experienced individuals.
- Become familiar with the activities in which you intend to participate before introducing them to your horse.
- Initiate newly learned techniques under the direction of experienced individuals.

Extra Help

This handout is a reference only and doesn't even begin to touch the tip of the ice when it comes to breeding horses. Breeding horses is not only a science, but also art and is something that can't be covered in such a short handout. But if you want to learn more I encourage you to check out one of these books on Equine Reproduction.

Extension Booklet "Equine Reproduction and Genetics"

"Horse Industry Handbook"

"Blessed are the Broodmares"

"Blessed are the Foals"

"Breeding Management and Foal Development"

Or Contact Production Committee in the Union County 4-H Horse Rulebook.

Acknowledgments

This production handbook was put together from several Ohio State University extension publications including bulletins 762, 797. Class notes from Animal Science 541, Ohio State University. Oklahoma Cooperative Extension Services, Extension Fact sheet F-3915.