

Hello EVERYONE,

Included is the Weekly Pile of Information for the week of April 23rd, 2017, Extension's Equine related educational information & announcements for Rockingham & Guilford Counties. To have something included in the Weekly Pile, please follow these simple guidelines.

- Information included needs to be educational in nature &/or directly related to Rockingham or Guilford Counties.**
 - provided information is a resource to the citizens of Rockingham & Guilford Counties.**
 - provided information does not require extra time or effort to be listed.**
 - Listings for Swap Shop will not list pricing details.**
 - Please E-mail information to me by Wednesday each Week.**
 - Please keep ads or events as short as possible – with NO FORMATTING,**
- NO unnecessary Capitalization's and NO ATTACHED DOCUMENTS.**
- (If sent in that way, it may not be included)**
- Please include contact information - Phone, Email and alike.**
 - PLEASE PUT WEEKLY PILE IN SUBJECT LINE when you send into me.**

- The Weekly Pile is not for listings for Commercial type properties or products.

If I forgot to include anything in this email it was probably an oversight on my part, but please let me know!

If you have a question or ideas that you would like covered in the Weekly Pile, please let me know and I will try to include. As Always, I would like to hear your comments about the Weekly Pile or the Extension Horse Program in Rockingham or Guilford Counties!

I NEED YOUR FEEDBACK & IDEAS!

Included in The Pile this Week:

- 1. Managing Grazing of Horses**
- 2. Spring Vaccination Tips**
- 3. *You Asked***
- 4. Cost Share Assistance Programs**
- 5. Renting Agricultural Land**
- 6. Leases - Sample Agricultural/Farm Lease Agreements**
- 7. Equine Behavior**
- 8. 4-H Summer Adventures**
- 9. FREE Pesticide Collection Day Set For May 2nd**
- 10. Passalong Plant Sale and Festival May 12 and 13**

11. Piedmont Saddle Club Open Horse Show 5/13

12. *Our Evolving Landscapes: Editing Your Garden Design to Accommodate Your Lifestyle and Conditions of Your Property* May 18

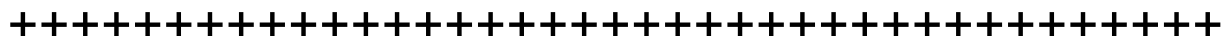
13. *“Bee Friendly to Bees” Day* August 19

14. September 21 *The 16^h Annual Master Gardener Volunteer Association’s Gardening Gala and Seminar*

15. HAY DIRECTORY

16. Swap Shop

17. Take A Load Off



1. Managing Grazing of Horses

Dr. David W. Freeman Extension Equine Specialist, Daren D. Redfearn Extension Forage and Pasture Management Specialist

Oklahoma State University Extension

Few horse owners prioritize grazing and forage management. Money is wasted by feeding more supplemental feed, and the appearance of the grazing area is undesirable. Lack of expertise and prioritizing of forage management may be the most frequently occurring mismanagement practice.

How can horse owners control grazing of horses so they get the “best” out of pastures, and keep them from “tearing up” a pasture?

These are simple questions with not so simple answers. In order to maximize utilization of pasture on the farm, owners need a general understanding of how horses utilize forage, factors affecting animal performance on pastures, and knowledge of grazing behavior of horses. Combining these “animal factors” with agronomic factors will allow owners to set realistic goals and design pasture plans that meet them.

Outlined below are several considerations for management of the “animal factors” that can assist in the success of maximizing forage utilization for horses. Additional information, including recommendations on forage types and agronomic practices to enhance forage production, can be obtained from OSU Extension Facts, ANSI-3980 “Forage for Horses.”

Intake Limits of Horses on Forage Diets

How much forage a horse can eat and how much forage a horse will eat are two entirely different items. Mature horses on complete hay diets can consume up to 2.25 percent to 2.75 percent of their body weight in hay on a daily basis. Therefore, in situations where hay is full fed and highly palatable, a mature 1,200 pound horse can consume about 30 pounds of hay per day. The upper limit of dry matter intake on pasture should be similar or slightly less than the dry matter intake expected on all hay diets. Wet forages such as immature winter grains may have less intake of dry matter because large amounts of water are ingested as part of the plant.

Several factors influence voluntary intake, making it difficult to estimate how much pasture forage a horse will eat. Some pastures and grasses are more palatable than others. Lush, immature, growing forages are more readily consumed than tall, weedy, unpalatable forages. Horses introduced to lush pastures from a dry lot or stall will routinely graze aggressively the first few days as compared to their intakes after they are acclimated to the forage. Initial intake can be large enough to cause founder or colic unless owners restrict grazing.

Extremely cold, wet, windy, or hot weather reduces the amount of time horses graze. Supplemental feeding decreases the amount of time horses graze. In addition to the obvious reduction of appetite from the supplemental feed, horses will quit grazing and stand around feeding areas for several hours in anticipation of receiving grain mixes.

Forage palatability.

Palatability refers to a horse’s preference for different forages. Typically, small grains, annual and perennial ryegrass, bluestems, and bermudagrass are highly palatable for most horses. Ryegrass, wheat, oat, rye and triticale forages are acceptable to horses. Of these, ryegrass, wheat, and oats are the most preferred. Palatability studies on legumes suggest that horses readily accept crimson, berseem and subterranean clovers. Arrowleaf clovers and vetch have significantly lower palatability.

Palatability is relative between different horses and the previous forages they have eaten. Forage types that are the sole source of pasture may show high palatability, whereas the same forage in a multi-forage pasture may go ungrazed. Given time, horses will pick and choose one forage over others in pastures with several forage species. Spot grazing occurs in horse pastures because of forage preference.

The order of palatability of different forages changes as the pasture changes with the seasons that affect growth of different forages in the pasture. Also, horses raised on a particular forage accept forage more than horses without previous exposure to the forage.

Forage Nutrient Utilization

A limited amount of research and a large amount of casual observation indicates forage diets can supply the nutrient needs of several classes of horses. Availability of sufficient amounts of high quality forage is usually the limiting factor.

Compared to cattle, horses have less ability to digest energy of high quality forages. When consuming high quality forage, horses will compensate for slightly lower digestion rates and faster passage rates by higher voluntary intakes of dry matter. Horses digest highly lignified forage (mature, stemmy forage) poorly. Energy digestibility coefficients for forages decrease from more than 50 percent to less than 30 percent as quality of forages decreases. Similar ranges of forage quality may affect energy digestibility in cattle 2 or 3 percent compared with the 10 to 20 percent in horses.

Protein digestibility in hays typically range from 50 to 70 percent. Protein digestibility of forages in pastures would be expected to be similar to hays of similar maturities. As with energy, digestibility of protein in forages can be expected to vary between forage species and within species at different stages of growth. One research trial comparing different hays calculated the protein digestibility of high quality bermudagrass at 57 percent, low quality alfalfa at 66 percent, and high quality alfalfa at 73 percent.

Protein digestion within the horse's digestive tract is also significant. Feed not absorbed in the small intestine travels to the hind gut. Protein in forage is better utilized when digested in the small intestine rather than the hind gut. Horses digest protein in low quality forage (stemmy, mature) mainly in the hind gut. Protein in low quality alfalfa is digested mainly in the hindgut, whereas almost 1 / 3 of the protein in high quality is digested in the small intestine. Maximizing protein digestion in the small intestine is especially important when meeting needs of growing horses and broodmares

Forages are also a good source of minerals and vitamins. Mineral content of forages vary between different forage species and in similar forages at different stages of growth and pasture locations. Agronomic practices such as fertilization alter mineral profiles of forages. As a general rule, balance calcium to phosphorus in forages for all classes of horses. However, the amounts of the two minerals may be deficient, especially for growth, exercise, and broodmare production. Additional minerals should be fed as a supplement at regulated intakes. Mineral supplement with equal parts of calcium and phosphorus can be supplied free choice, however, large variations of intake will occur nonrespective of a horse's nutrient needs. Forages also are an important source of many vitamins, especially vitamin A containing compounds.

Estimating Correct Stocking Rates

Proper stocking rates, or the number of horses per unit of land area, are affected by several factors such as size of horses, forage species, soil type, season of the year, environmental moisture, fertilization, and length of time horses have access to a pasture. These factors make it difficult to provide stocking rate recommendations at rates of number of head per land area. To avoid variability, research trials quantify stocking rates as amounts of forage per amounts of animal weight, e.g. pounds of forage dry matter per 100 pounds of live animal weight.

In one study of yearling horses grazing high quality, well-managed bermudagrass pasture, forage allowance of 60 pounds of forage dry matter per 100 pounds of live weight provided the maximum average of daily gain. Denser stocking rates greatly reduce average daily gain. At proper stocking rates, thick stands of bermudagrass of 4 to 6 inches in height are grazed to a minimum of 2 to 3 inches, and managed so the grass does not become in short supply or too mature. Under optimal conditions, non-supplemented yearlings on well-managed, high quality bermudagrass can gain 1 to 1.2 pounds of body weight per day. Yearling gains on well managed cool season, small grain pastures (rye, wheat) may be slightly less (.8 to 1 pound per day), probably due to the intake of large amounts of water in small grains. Water fill may not allow for enough dry matter intake to facilitate moderate growth rate.

The availability of supplemental grain has been shown to affect yearling growth both positively and negatively in several grazing trials. Yearling gains on properly stocked, well- managed bermudagrass pasture have been improved by supplementing grain at 1 percent (6 to 8 pounds grain per day) of body weight per day. However, yearling gain was decreased in another group in which half this amount of grain was fed daily. The probable cause was the grazing behavior was altered by them spending more time waiting around feed troughs. Apparently, the benefit of the supplemented grain did not offset the lower forage intake from less time spent grazing.

Supplemental feeding of yearlings on small grain pastures appears to be of more value for increasing performance compared with bermudagrass pastures. One trial reported yearling gains on small grain pastures increased from 0.8 pounds per day to over 1.5 pounds per day when grain was fed at 1 percent of body weight per day.

Considerable management accompanied the previously mentioned research to manage forage quantity and quality. Bermudagrass was managed so horses grazed thick stands that were 4 to 6 inches in height. Small grains should be managed so forage growth is 6 to 8 inches tall. This will result in maximum quantity and quality of forage. Animal performance will be extremely limited at high stocking densities, seasons of the year when grasses are dormant, and in pastures with poor quality forage.

Usually, forage heights are too short on horse farms because of overgrazing. Overgrazing severely limits forage production and forage intake. When the herbage height of bermudagrass decreases below 3 inches in height, it severely reduces the average daily gain of yearlings. This relates to the increased nutrient availability in leaves, compared to the stem portions of the plant. The top layer of pastures have a higher leaf content. It is important for horse performance as well as forage growth to allow a pasture to develop adequate leaf area before grazing, and provide periodic rest from grazing to allow forages to recuperate and maintain productivity.

As previously noted, nutrient content and digestibility can be expected to decrease as forage becomes mature. Some species of forages, such as bermudagrass, grow rapidly in optimal environmental conditions. During these times, grazing might need intensified to maintain acceptable maximum plant heights and maturity. Bermudagrass should be managed to remain 3 to 6 inches tall during grazing periods.

Differences in forage growth during different times of the year, the available forage per land area, and horse weight make general recommendations for stocking rates of number of head per land area inaccurate. Under controlled grazing systems which allow optimal quantity and quality of forage, stocking rates as intense as one mature, nonproducing horse to 1 to 1.5 acres of thick, productive bermudagrass at 4 to 6 inches of growth have been successful. The same stocking rates on small grains would require 6 to 7 inches of plant growth. Pastures that have less dense forage, shorter forage heights, or not intensely managed will require more acreage per horse. Unimproved, productive, native grass pastures can take considerable more acres per horse.

Grazing Behavior of Horses

Horses tend to be the hardest type of livestock on pastures. Pastures with cattle are usually more uniformly grazed, weeds are not as large a problem, and overgrazing is not ANSI-3981-3 as immediate. Many of these observations are true because horse pastures tend to be overstocked.

These observations are also true because of the grazing differences between horses and cattle. Horses' biting style allows them to clip plants off close to the ground causing severe problems for plant regrowth. Also, horses tend to group around certain areas, killing the forage in this area and exposing the bare ground to erosion and propagation of weeds. Some horses tend to defecate in localized areas which causes manure buildup and reduced palatability of forage in these areas. The most difficult behavioral trait to overcome in horses is their selective grazing instinct.

Horses selectively graze pasture because of palatability of different types of forages and different stages of maturity of a specific forage. Horses selectively graze immature and less stemmy varieties of

forage. This selectivity continues so small areas with short, new growth are continually overgrazed while surrounding areas grow past the point of desired maturity and palatability.

Selectivity results in spot grazing which reduces forage production and intake of high quality forage. As desirable species of forages are grazed out in the spots of overgrazing, less desirable, weedy species tend to increase. Surrounding areas become overly mature, and less digestible and palatable. Horses can quickly turn a pasture into a weed patch or dry lot unless both grazing and agronomic practices are employed.

Use of controlled grazing. Many horse farms, especially those with small acreages, can benefit from some type of controlled grazing system. Controlled grazing can be practiced by limiting the time per day horses have access to a pasture and/or by dividing pastures into smaller areas or "cells" and practicing rotational grazing. These practices will increase total forage production, increase the days that forage is available, and will help sustain higher stocking rates.

Access to pastures can be implemented around other farm routines such as morning and evening feedings. In that plan, horses could graze for 8 to 10 hours between feedings. However, shorter grazing periods, such as 4 hours per day, may provide better results, especially when forage supply or land area is limited.

Rotational grazing plans require the use of more than one pasture, or larger pastures can be subdivided into two or more grazing cells by the use of temporary fencing. Horses are moved as a group from one cell to the next as forage growth and consumption dictate. The time for grazing one cell may vary from one or two days to several weeks depending on stocking rates and forage growth. Although stocking rates are increased because of the reduction of land area, the grazing relief periods that the nongrazed cells receive help to prolong the forage growing season. Also, spot grazing typically will be reduced and horses can have access to forage maturities that are most efficiently digested.

A rotational system for bermudagrass pastures should maintain a minimum of 2 inches of grass in each cell. The pasture should be subdivided so it takes 3 to 4 weeks to move horses through all the cells. Cool season heights should be grazed to maintain a 3- to 4-inch minimum. Small grain cool season forages are especially susceptible to trampling, so restricting animal traffic during wet weather will help maintain forage growth.

Typical fencing alternatives include the use of multi-wire electric fencing or electrified poly-tape. Horses placed behind temporary fencing must be adapted to it. Using temporary fencing in large areas will allow horses to become accustomed to it before confinement in smaller grazing cells. Providing visibility of temporary fencing by using ribbons on wire fencing or by using products such as poly-

tape will assist the success of confinement. Also, horse behavior must be understood. Horses cannot be stocked as densely as other species of livestock because of their high level of aggressive behavior. So, use of small cell grazing for large numbers of horses has limitations.

Considerations for Small Acreages

Small acreage horse farms are difficult to manage so that forage is optimized for both esthetic and nutritional value. Horse owners must be realistic about the limitations of land area and stocking rates.

Some areas are too small to grow forage and are better defined as dry lots rather than pastures. Nonetheless, some forage species are better at recovering from overgrazing and trampling in smaller areas. Bermudagrass is an example of a tolerant grass species that will stand significant abuse while maintaining significant regrowth. The best recommendation for small areas is to restrict grazing by limiting grazing time. When areas are large enough, divide the pasture into cells and rotate horses around areas during times that forage is productive.

Small acreage horse owners must aggressively practice agronomic measures to promote forage growth. Introducing improved varieties of forage, dragging manure piles, and fertilization are common practices that need implemented. Areas that are subject to erosion and near flowing watersheds may need protected by fencing to prevent overgrazing, loss of soil, and silting of waterways

Some Recommendations to Manage Grazing in Horses

The scope of this article is confined more to grazing considerations than forage management practices such a forage specie selection, fertilization, weed control, and mowing. Cooperative Extension offices provide additional resources on these subjects. Several recommendations for managing grazing of horses are provided below.

- The goal of forage management is to maintain the desired supply of digestible forage to grazing horses. Mature forage and weedy forage types are not efficiently digested.
- Establishing forage depends largely on what plant species are best adapted to the soil type and geographical area, and the types and levels of agronomic inputs owners are willing to employ.
- The length of forage grazing season will depend on use of warm and cool season forages, rainfall, grazing management, and agronomic practices employed.
- Don't overestimate the available forage for stocking rate determination. Trees, sacrifice areas, overgrazed areas, and brush must be considered.

- If pastures are of adequate size, decrease sacrifice areas by practices such as frequently relocating feed troughs in pastures.

- Consider time limit grazing and rotational grazing programs, especially when housing horses on small acreages.

- Rotational grazing, companion grazing with other types of livestock, spreading of manure piles, and other management practices will reduce spot grazing.

- Pasture forage should be maintained at minimum optimal heights. Although complete removal of horses from pastures is not possible on many farms, rotational grazing or limited turnout time will help establish initial growth, and allow for regrowth during the active season of forage growth.

- Horses should be gradually introduced to forage types that are high in nutrients such as winter annuals. For example, start turn outs for 30 minutes once or twice per day for a couple of days, followed by a couple of days with access of 4 to 6 hours before continual turnout. Watch the horse's health and behavior to determine how quickly to advance this introductory period. Allowing horses free choice hay while not on pastures during the introductory period will help decrease their appetite when they are turned out.

- Selection of forages to establish needs to be based on desired forage production times and amounts, forage compatibility to the geographical area, the expected grazing and trampling pressure, and the expected grazing and agronomic practices to be followed. In Oklahoma, the most common warm season perennials are bermudagrass and native prairie grasses.

More forage information is found in [Managing Pastures to Feed Your Horse](https://content.ces.ncsu.edu/managing-pastures-to-feed-your-horse)
<https://content.ces.ncsu.edu/managing-pastures-to-feed-your-horse> or at

NC Cooperative Extension Office in each county.

+++++

2. Spring Vaccination Tips

Posted by Eileen A. Coite, County Livestock Agent & Extension Director, Sampson County

Have you remembered to vaccinate your horse this spring? Some of us may have remembered that it's time, but still not checked the task off our list! Everyone has their own system and situation, but we all should have a list of "must dos" on our vaccine list. First and foremost, make sure you consult your horse's veterinarian for their recommendations. Variations in a vaccination plan may be due to your horse's age and exposure to other horses, and travel plans.

The "core* diseases (vaccines)":

According to the UC Davis Veterinary Medical Teaching Hospital, the following are diseases we ALL should make sure our horses are protected from. The following recommendations are if the horse has been previously vaccinated, and is greater than one year of age.

- Tetanus - Annual vaccination with tetanus toxoid, with a booster if a penetrating (puncture) injury occurs
 - Rabies - Annual vaccination
- Encephalomyelitis (Eastern and Western) - EEE and WEE should be vaccinated for each spring and fall. With the mild winters we generally have (especially this year) this is critical to protection from the virus carried often by mosquitos
- West Nile Virus - Similar to Encephalomyelitis, West Nile vaccination is also needed each spring and fall

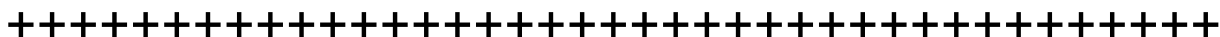
**Core vaccines are named such because they protect against diseases that are endemic to a region, virulent or highly contagious, pose a risk of severe or fatal disease, have potential public health significance, and/or are required by law.*

The next vaccines are "non-core" but risk based vaccines, meaning that they are selected based on assessment of risk performed by, or in consultation with, a licensed veterinarian, and may vary between individuals, populations, and/or geographic regions.

- Equine Herpesvirus (EHV)
 - Equine Influenza
- Potomac Horse Fever
 - Strangles

There are many factors which influence the right vaccination protocol for your horse. Stages of life, such as age, reproductive status, activity and exposure to other horses are all considerations. Always make sure to consult your veterinarian for the best vaccination protocol to ensure the well-being of your horse.

Information source: UC Davis Veterinary Medical Teaching Hospital for Updated Vaccination Guidelines for Horses in North America (March 2015)



3. *You Asked:* What are the advantages and disadvantages of pelleted feeds for horses?

When you speak of pelleted feeds for horses, you have to be specific as to what type of pellet feed you mean. There are at least four basic types of pellets. One type is the pelleted single ingredient such as dehydrated alfalfa meal. Another is the pellet grain mixture. The third is the pellet supplement which may contain high levels of protein, minerals, and vitamins. The fourth type is the complete pelleted ration. The complete pellet contains roughage and grain and is designed to meet all the nutrient requirements of the horse. The advantages and disadvantages as they relate to two of the four types -- the pelleted grain mixture and the complete pelleted feed -- follow:

Advantages of pellet feeds

- 1. Reduce dust
- 2. Reduce waste
- 3. Require less storage area
- 4. Reduce the appearance of hay belly
- 5. Prevent horses from sorting feed

Disadvantages of pellet feeds

- 1. Decrease eating time, creating more boredom
- 2. Decrease the amount of fiber a horse receives
- 3. Increase the cost of the feed due to the pelleting process
- 4. Poor-quality feed ingredients can be hidden in a pellet
- 5. Excessive heat during the pelleting process may decrease the availability of amino acids such as lysine and may destroy some vitamins
- 6. Greedy eaters may be more prone to choke, colic, or other digestive disorders



4. Cost Share Assistance Programs

Jamie D. Warner - Extension Livestock Agent, Montgomery County

Many Cooperative Extension offices get phone calls every year about help with funding farm projects such as well drilling, pasture renovation, watering device installation and more. While Extension can provide valuable technical assistance, it does not have a pool of funds to aid in the installation of any on-farm practices. For monetary cost share programs, farmers should contact their local **Soil and Water Conservation District** to see if they qualify for the programs available. There are three programs that horse owners could potentially be eligible for: NC Agricultural Cost Share Program (NCACSP), Agricultural Water Resources Assistance Program (AgWRAP) and the Environmental Quality Incentives Program (EQIP) administered by the Natural Resources Conservation Service (NRCS). Below are a few bulleted points on each program.

NC Agricultural Cost Share Program (NCACSP):

- The NCACSP helps address nonpoint pollution to improve or protect water **QUALITY** on Agriculture lands.
- **Eligibility:** Landowners or renters of existing agricultural operations that have been operating for **MORE THAN** three years.
 - Applicants should work with their local Soil and Water Office to develop and approve individual conservation plans that identify the best management practices (BMPs) for their particular operations. Plan designs should include how to ensure the longevity of the specified BMPs.
 - Applicants could be reimbursed up to **75%** of the cost of a predetermined average for each BMP installed.
- Some projects that could be covered under this program include: stream exclusion fencing, drinkers with piping or grassed waterways.
- Depending on the practice you are installing, some specific rules may apply so please consult with your local office before making any decisions.

Agricultural Water Resources Assistance Program (AgWRAP):

- The AgWRAP is for help installing practices that increase the water capacity or **QUANTITY** on Agricultural lands.
- **Eligibility:** Landowners or renters of an existing agricultural operations that have been operating for **MORE THAN** three years.
 - Applicants should identify opportunities to increase water use efficiency, availability and storage; implement BMPs to conserve and protect water resources; increase water use efficiency and increase water storage and availability.
 - The Soil and Water Conservation Commission allocated 45% of available BMP funding for district allocations for all approved AgWRAP BMP's. The remaining 55% will be allocated for new ponds and pond repair/retrofits applications through a competitive **regional application** process. Standard reimbursement rates differ by county/district.
 - Projects could include an agricultural pond, agricultural pond cleanout or well installation.

Environmental Quality Incentives Program (EQIP):

- The EQIP program is enacted by the **Natural Resources Conservation Service (NRCS)** which uses federal dollars to complete projects. They typically get much greater amounts of funds to disperse and use an application ranking process that is slightly different than Soil and Water.

- **EQIP is a voluntary conservation program that helps producers promote agricultural production and environmental quality by implementing structural and management conservation practices to optimize environmental benefits on working agricultural land.**
- **Eligibility: Agricultural producers and owners of cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands. Socially disadvantaged, beginning and limited resource farmers and veterans could be eligible for an increased payment rate and may receive advance.**
- **Practices that could be covered by this program include: prescribed grazing, grazing management plans, controlled livestock lounging areas, exclusion fencing and more.**

If you have any more questions about these programs or any others that you may have heard about, please contact your local Cooperative Extension Agent so that they can get you in contact with the appropriate person.



5. Renting Agricultural Land in Rockingham & Guilford Counties

Ben Chase, NC Cooperative Extension Livestock Agent

In Rockingham & Guilford Counties rental rates have a range from \$0-\$50/Acre/Year for traditional Agricultural crops (may possibly be higher depending on situation)

- Typical grain rental rates are about \$25/Acre/Year and vary depending on productivity of land.

- Pasture rates can range from \$0-\$50/acre/Year with most falling in the **\$10-\$30/Acre/Year** range

This spread is due to many factors such as:

- why is land being leased (to generate income, to keep the land from growing up or to keep in agricultural use)

- land use

- how much land is available

- Term of Lease - how long can the land be leased

- How productive is the land for crops

- What the current status of the land (ie. fertility, condition of pasture, how much improvement is needed for the intended use)

- Available barns/buildings/working facilities or equipment on property for use

- Is a water source or system in place for irrigation purposes or watering livestock?

- Is land fenced for livestock use?

- Species of Livestock

+++++

6. Leases - Sample Agricultural/Farm Lease Agreements

AGRICULTURAL LEASES

Leases - NC Department of Agriculture

<http://www.ncagr.gov/aglaw/leases.htm>

North Carolina Farm Land Prices

<https://tobacco.ces.ncsu.edu/wp-content/uploads/2013/06/Farm-Land-Prices.pdf? fwd=no>

Factors Affecting Farm Rental Rates and Agreements

<https://craven.ces.ncsu.edu/factors-affecting-farm-rental-rates-and-agreements/>

Southern Region News Release Land Values and Cash Rents

[https://www.nass.usda.gov/Statistics_by_State/Regional_Office/Southern/includes/Publications/Economic_and_Demographic_Releases/Land_Value/Land_Values\(Aug\)2015.pdf](https://www.nass.usda.gov/Statistics_by_State/Regional_Office/Southern/includes/Publications/Economic_and_Demographic_Releases/Land_Value/Land_Values(Aug)2015.pdf)

Farmland rental rates and land economics

<https://www.extension.umn.edu/agriculture/business/land-economics/>

2016 AGRICULTURAL LAND Land Values and Cash Rents

https://www.nass.usda.gov/Publications/Highlights/2016_LandValues_CashRents/2016LandValuesCashRents_Highlights.pdf

North Carolina Farms & Ranches

http://www.landwatch.com/North_Carolina_farms_ranches_for_sale

NC Quick Stats USDA -

<https://quickstats.nass.usda.gov/results/E0F5EB36-3313-3D7B-9E7F-E56A3365CF2B#9A9F55D7-E267-38C6-ACB9-DF106291B5A7>

2015 GUIDE TO PRICING FARMLAND FOR RENT: WHAT SHOULD I CHARGE?

<https://peoplescompany.com/blog/2014/2015-farmland-rental-rates-what-should-i-charge>

Agricultural Land Values National Agricultural Statistics Service

<http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1446>

Pasture Lease NCFMEC-03A - Ag Lease 101 - <http://aglease101.org/DocLib/docs/NCFMEC-03A.pdf>

NCFMEC Rental Agreement Lease Forms - http://www.mwps.org/index.cfm?fuseaction=c_content.view&pageID=257&catList=239,254,257

These forms are included in the NCFMEC Rental Agreement Series http://www.mwps.org/index.cfm?fuseaction=c_Categories.viewCategory&catID=779.

Sample Pasture Lease Agreement (Not a legal document.)
http://ohioline.osu.edu/fr-fact/pdf/0008_Lease.pdf

Leases, Marketing, Financial Management
<http://www.tein.net/~msufergus/Ag/Forms/forms.htm>

PASTURE LEASE--FORM 1 (CASH RENT PER HEAD PER MONTH)
<http://www.ces.purdue.edu/extmedia/EC/EC-624.html>

Pasture Lease - Form 2 (Cash Rent Based On Acres)
<<http://www.ces.purdue.edu/extmedia/EC/EC-625.html>>

<http://www.ces.purdue.edu/extmedia/EC/EC-625.html>

PASTURE LEASE--FORM 3 (RENT TO BE PAID BY SHARE OF GAIN)
<http://www.ces.purdue.edu/extmedia/EC/EC-626.html>

Pasture Leases
<http://www.ces.purdue.edu/extmedia/EC/EC-623.html>

Breeding Livestock Lease Agreements
<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1768/F-571web.pdf>

Livestock Leases
<http://www.agmanager.info/farmmgmt/land/lease/papers/Livestockleases.pdf>

What Makes a Good Pasture Lease Agreement?
<http://beefmagazine.com/cowcalfweekly/0918-what-makes-good-pasture-lease-agreement>

Pasture Lease Agreement

http://nacogdoches.agrilife.org/files/2011/06/pasturelease99_1.pdf

Pasture Lease – Contract Grazing Agreement

<http://stcroix.uwex.edu/files/2010/05/Pasture-Lease.pdf>

Key points for pasture lease agreements

http://www.progressivecattle.com/index.php?option=com_content&id=4657:key-points-for-pasture-lease-agreements&Itemid=176

Pasture rental rate: No cookie-cutter answer

http://www.agriview.com/news/crop/pasture-rental-rate-no-cookie-cutter-answer/article_8ed6a624-73a1-11e1-a96b-0019bb2963f4.html



7. Equine Behavior

Carey A. Williams, Ph.D., Extension Specialist in Equine Management, Rutgers University

One of the keys to safely working with your horse is understanding natural horse behavior. If you can predict when a horse is about to be aggressive or spook at something, you are better able to respond and either avoid a dangerous situation, or prevent that behavior. The article below explains some of the horse's natural behaviors.

Ten Natural Survival Traits

1. The horse, a prey animal, depends on flight as its primary means of survival. Its natural predators are large animals such as cougars, wolves, or bears, so its ability to outrun these predators is critical. As humans, we need to understand their natural flightiness in order to fully understand horses.
2. Horses are one of the most perceptive of all domestic animals. Since they are a prey species, they must be able to detect predators. A stimulus unnoticed by humans is often cause for alarm for horses; as riders and trainers we commonly mistake this reaction for “spookiness” or bad behavior.
3. The horse has a very fast response time. A prey animal must react instantly to a perceived predator to be able to survive.

4. Horses can be desensitized from frightening stimuli. They need to learn quickly what is harmful (e.g., lion, cougar, etc.) and what is harmless (e.g., tumbleweeds, birds, a discolored rock, etc.), so they do not spend their whole lives running away.
5. Horses forgive, but do not forget. They especially remember bad situations! This is why it is critical to make the horse's first training experience a positive one.
6. Horses categorize most experiences in one of two ways: a) something not to fear, so ignore or explore it, and b) something to fear, so flee. Therefore, when presenting anything new, the horse needs to be shown that 'a' is the case. Again, it is important to make all training experiences positive.
7. Horses are easily dominated. The horse is a herd animal where a dominance hierarchy is always established. If done correctly, human dominance can easily be established during training without causing the horse to become excessively fearful.
8. Horses exert dominance by controlling the movement of their peers. Horses accept dominance when: a) we or another animal cause them to move when they prefer not to, and b) we or another animal inhibit movement when they want to flee. Examples include using a round pen, longe line, or hobbles; or the more dominant horse in the field chasing the less dominant one away.
9. The body language of a horse is unique to the equine species. As a highly social animal, the horse communicates its emotions and intentions to its herd mates through both vocalization and body language. A person handling horses needs to be able to read the horse's body language to be an effective trainer.
10. The horse is a precocial species, meaning that the newborn foals are neurologically mature at birth. They are most vulnerable immediately after birth so they must be able to identify danger and flee if necessary.

Senses

A horse's vision is its primary detector of danger. Even though they have poor color vision, they can differentiate blue and red from gray hues. However, they have more trouble differentiating yellow and green from gray. Horses also have poor depth perception when only using one eye. They can't tell a trailer from an endless tunnel, or a mud puddle from a bottomless lagoon. Their perception is improved by about 5 times when using both eyes (binocular vision). They can instantly change their focus from near to far objects. This is why horses cock their head in different ways to see close vs. distant objects. Horses have an acute ability to detect movement. This is why a horse is much flightier on windy days; things that are normally stationary are now moving and perceived as a potential threat. Horses are able to see fairly well at night; however, the contrast sensitivity is less than that of a cat.

The mechanics of a horse's vision is different from our own. They can see almost panoramically, with a small spot directly in front and directly behind as their blind area. Never approach a horse without talking to them in these areas; if frightened they will use one of their defense mechanisms, e.g., kick or run. A horse can see two things at once, one from each eye. That allows each side of its brain to work separately. Like humans, horses have a dominant side (right-handed or left-handed); however, unlike humans, horses need to be taught things twice: on the right side and on the left side. The expression in a horse's eye is often thought to be a good indicator of their behavior, e.g., wide open with white showing (and not an Appaloosa), scared; half closed, sleepy, etc.

A horse's hearing is much keener than ours. They use their hearing for three primary functions: to detect sounds, to determine the location of the sound, and to provide sensory information that allows the horse to recognize the identity of these sources. Horses can hear low to very high frequency sound, in the range of 14 Hz to 25 kHz (human range = 20 Hz to 20 kHz). Horses' ears can move 180 degrees using 10 different muscles (vs. 3 for the human ear) and are able to single out a specific area to listen to. This allows the horse to orient itself toward the sounds to be able to determine what is making the noise.

Horses' *tactile* sensation or touch is extremely sensitive. Their entire body is as sensitive as our fingertips. They can feel a fly on one single hair and any movement of the rider.

Body Signals

Horses are good at letting us know exactly how they are feeling; the only problem is most people don't know how to speak "horse." So here are some tips on reading a horse's body language.

If a horse's tail is:

- High: they are alert or excited
 - Low: it is a sign of exhaustion, fear, pain or submission
- Held high over its back: (as seen in most foals) they are playful or are very alarmed
 - Swishing: they are irritated.

If a horse's legs are:

- Pawing: they are frustrated
- One front-leg lifted: can be a mild threat (or a normal stance sometimes when eating)
 - A back-leg lifted: is often a more defensive threat
- Stamping: indicates a mild threat or protest (or they may be getting rid of insects or flies biting their legs).

Some horses' facial expressions include:

- Snapping: This is seen in foals showing submission to an older horse. They will open their mouths and draw back the corners, then open and shut their jaws.
 - Jaws open with teeth exposed: this shows aggression or possible attack.
- The Flehmen response: This is caused by an intense or unusual smell, usually in stallions when they sense a mare in heat. They stick their nose in the air and curl the upper lip over their nose.
 - Flared nostrils: usually means they are excited or alert.
- Showing white around the eyes: usually means they are angry or scared. (White around the eyes is also a normal characteristic of the Appaloosa breed.)
- Neutral: is when the ears are held loosely upward, openings facing forward or outward.

- Pricked: ears held stiff with openings pointed directly forward means the horse is alert.
- Airplane ears: the ears flop out laterally with openings facing down, usually meaning the horse is tired or depressed.
- Drooped ears: hang down loosely to the side, usually meaning tiredness or pain.
- Ears angled backward (with openings directed back towards a rider): usually mean attentiveness to the rider or listening to commands.
- Ears pinned flat against the neck: (see picture below) the means watch out! The horse is angry and aggressive

Communication

Horses have a variety of methods of vocal and non-vocal communication. Vocal noises include a squeal or scream which usually denotes a threat by a stallion or mare. Nickers are low-pitched and quiet. A stallion will nicker when courting a mare; a mare and foal nicker to each other; and domestic horses nicker for food. Neighs or whinnies are the most familiar: high pitched, drawn out sounds that can carry over distances. Horses whinny to let others know where they are and to try to locate a herd mate. They also respond to each other's whinnies even when out of sight.

Blowing is a strong, rapid expulsion of air resulting in a high pitched whooshing" sound, which usually is a sign of alarm used to warn others. Snorting is a more passive, shorter lower pitched version of blowing and is usually just a result of objects entering the nasal passage.

In contrast to signals of aggression within a herd, there are also signs of friendship. Mares and foals nudge and nuzzle each other during nursing or for comfort, and mutual grooming, when two horses nibble at each other, is often seen.

Social Structure

A herd of wild horses consists of one or two stallions, a group of mares, and their foals. The leader of the herd is usually an older mare (the "alpha mare"), even though one stallion owns the herd. She maintains her dominant role even though she may be physically weaker than the others. The older mare has had more experiences, more close encounters, and survived more threats than any other horse in the herd. The requirement of the lead horse is not strength or size; if this were so, then humans could never dominate a horse. Dominance is established not only through aggression but also through attitudes that let the other horses know she expects to be obeyed.

The stallion's job is to be the herd's guardian and protector, while maintaining reproductive viability. The stallion's harem usually consists of 2 to 21 horses, with up to 8 of those being mares and the rest their offspring. When the colts are old enough to be on their own they will form a bachelor herd. The fillies will either remain in their natural herd or more commonly disperse into other herds or form a new herd with a bachelor stallion. As soon as a stallion becomes too old to maintain his status as herd owner he is replaced by a younger stallion from a bachelor herd. The average time for a stallion to remain leader is about 2 years, but some can last more than 10 years.

Horses are most vulnerable when they are eating or drinking. So, when a horse is being submissive, it will simulate eating by lowering its head, chewing, and licking its lips (similar to snapping mentioned above). Dominance occurs when a horse forces the other to move against its will. One horse will move its body in the

direction of or in contact with the other forcing it to move. Fighting usually occurs when the dominant horse is challenged by the other horse not moving, or responding aggressively.

Vices

Vices are negative activities that occur due to various causes, including stress, boredom, fear, excess energy, and nervousness. Horses naturally graze for 12 to 16 hours a day. When kept in stalls we prevent them from engaging in many natural activities such as grazing, walking, or playing with other horses. Not enough natural stimuli will cause a horse to invent its own stimuli. Once these habits start they are difficult to eliminate.

Cribbing occurs when the horse bites onto a fixed surface (e.g., stall door edge, grain bin, fence rail), arches his neck and sucks in air, making a grunting noise. This causes a release of endorphins which relieves the unpleasant situation. Cribbing becomes addictive; even when removed from the unpleasant situation the horse may still crib. Some horses even prefer cribbing to eating! Cribbing can lead to weight loss, poor performance, gastric colic, and excessive tooth wear.

Weaving occurs when the horse stands by the stall door and rhythmically shifts its weight back and forth on its front legs while swinging its head. This is also caused by boredom or excess energy, and can lead to weight loss, poor performance and weakened tendons.

Stall kicking, stall walking, pawing, or digging, and biting over the stall door are also vices that are caused by boredom from being kept in a stall. To decrease the frequency of this behavior, you might try adding another mealtime, placing toys in the stall, or providing more roughage or turn out time.

Wood chewing, eating bedding, or dirt, and self-mutilation are caused by lack of exercise or boredom. However, nutritional deficiencies could also cause these vices. To eliminate this as a cause, provide more roughage in the diet, and free choice salt or minerals. This may decrease the frequency of the vice.

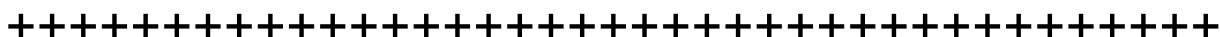
References

Keiper, R.R. 1986. Social Structure. Veterinary Clinics of North America-Equine Practice. 2: 465-484.

McDonnell, S. Equine Behavior Lab, University of Pennsylvania, School of Veterinary Medicine. www2.vet.upenn.edu/labs/equinebehavior/

Miller, R.M. 1995 to 1997. Behavior of the Horse. Journal Equine Veterinary Science. Volume 15(1) to Volume 17(4).

Timney, B., and T. Macuda. 2001. Vision and Hearing in Horses. Journal of American Veterinary Medical Association. 218:1567-1574.



8. 4-H Summer Adventures

Believe it or not it is time to start thinking about what your child is going to be doing this summer. Summer is just around the corner and Rockingham County 4-H has some great programs planned! What is your youth doing this summer? Would you like for your youth to have a safe and productive place to spend their summer days? If so, check out the Rockingham County 4-H Summer Adventures programs.

Your youth can have fun while learning important life skills! Rockingham County 4-H along with the NC Cooperative Extension and United Way of Rockingham County is sponsoring the 4-H Summer

Adventures Program. The programs vary in length and cost, but all programs are very reasonable with some being free! We are offering programs for youth ages five to eighteen and you do not have to be in 4-H to come, but we bet you will want to join after you see what all 4-H offers. Each program does have a limited number of spots available so be sure to contact us as soon as possible!

Here is a summary of some of the programs we are offering this year. 4-H Investigates is back – this is one of the most popular programs where youth will become detectives to solve a “murder” mystery. They will learn techniques such as DNA extraction, forensic anthropology, fingerprinting and much more. At 4-H Robotics, youth will gain an understanding in the basic science concepts related to robotics. Youth will learn how to program a robot using the WeDo and EV3 kits. Magic of Electricity will help youth learn about electricity and the careers in the field by doing hands on activities. 4-H University is a very popular program that will give youth insight to many areas that 4-H offers to youth. From science, ag to animals; youth will get to experience it all.

Some of the other workshops include woodworking, cooking, hunter safety and so much more! Registration is now open - you can find full details in the 4-H Summer Adventures program packet. You can find the registration packet online at: <http://rockingham.ces.ncsu.edu/> or you can contact the 4-H office at 336-342-8230.



9. FREE Pesticide Collection Day Set For May 2nd

The NC Department of Agriculture and Consumer Services' (NCDA&CS) Pesticide Disposal Assistance Program, a non-regulatory and cost-free program, in cooperation with the Rockingham County Cooperative Extension Service, will be sponsoring a Pesticide Collection Day on Tuesday, May 2, 2017 from 10 a.m. to 2 p.m. at the Rockingham County Agricultural Center 525 NC 65 Reidsville, NC 27320.

Kathryn Holmes, Rockingham County Cooperative Extension's Pesticide Coordinator is coordinating the collection with NCDA&CS.

Nearly all pesticide products will be accepted, including banned and out-dated pesticides. For pesticides with unreadable or missing labels, contact the Cooperative Extension office at (336) 342-8230 for instructions. Participants are asked to save any portion of the label to help identify the material to be disposed of.

For gas cylinders or containers greater than five gallons in size and for tips on transporting pesticides safely to the collection event, contact the extension office at (336) 342-8230 before the collection day for special instructions and information.

For more information, contact the Rockingham County Office of the North Carolina Cooperative Extension at (336) 342- 8230 or email Kathryn Holmes at Kathryn_holmes@ncsu.edu.



10. *Passalong Plant Sale and Festival* May 12 and 13, Guilford County Ag Center

The 15th Annual Passalong Plant Sale and Festival is just in time for Mother's Day. The Guilford County Extension Master Gardener Volunteers grew many of the plants for sale. Plants include annuals, perennials, native, herbs, succulents, trees, shrubs, and more. The event is Friday, May 12 from 9:00-3:00 p.m. and Saturday, May 13 from 9:00-1:00 p.m. For more information, contact the N. C. Cooperative Extension at (336) 641-2400 or visit our website Guilford.ces.ncsu.edu.



11. Piedmont Saddle Club Open Horse Show 5/13

Open Fun Show changes: Free Admission to Riders & Spectators - Horses \$15 each - No class entry fees. May 13, 2017 @ 9:00am Piedmont Saddle Club; Negative Coggins Required; Concessions on grounds. Colfax, NC.

www.piedmontsaddleclub.org for more info and class list.

Show Contact: Jenny Taylor: 919-323-9910



12. *Our Evolving Landscapes: Editing Your Garden Design to Accommodate Your Lifestyle and Conditions of Your Property* May 18 Cooperative Extension Greensboro, N.C.

Landscape conditions change over time, so how do you go about renovating your garden to solve problem areas? Does your lawn just not perform like it once did? Do you have overgrown plants? Does it just take too much time and money to maintain? One of the most requests I have from clients, when designing their landscape is for it to be "Low Maintenance". That brings up the idea of designing more sustainable landscapes, but plants die, people change, kids grow up: so let's look at working with what you have and how to create the garden area you dream about. We will look at several examples of renovating a tired challenging yard and creating a fun outdoor living area that I to call a Garden. Speaker is Steve Windham, Landscape Designer and Project Manager, New Garden Nursery. The lecture begins at 10:00 a.m. to noon. Registration is required. For more information, contact Lauren Taubert at [336-641-2400](tel:336-641-2400).



13. August 19, Greensboro, N.C. "Bee Friendly to Bees" Day

Cooperative Extension, Demonstration Garden

National Honey Bee Day (formerly National Honey Bee Awareness Day) was started by beekeepers in the United States to build community awareness of the bee industry, through education and promotion. We are celebrating our 4th Annual "Bee Friendly to Bees Day." Grab your antennae and buzz on over! Learn about pollination and beekeeping with a live bee hive display, build a bee hotel, and tour the pollinator garden. This family-oriented event is free and will be held on Saturday, August 19 from 9:00 -1:00 pm. For more information, contact the N. C. Cooperative Extension at (336) 641-2400 or visit our website Guilford.ces.ncsu.edu.



14. September 21, Greensboro, N.C.

The 16th Annual Guilford County Extension Master Gardener Volunteer Association's Gardening Gala and Seminar

Greensboro Realtors Association's Oak Branch Conference and Event Center

Registration opens July 1!

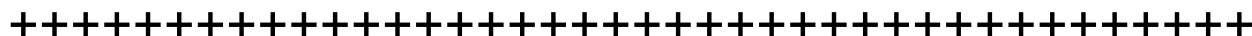
The Guilford County Extension Master Gardener Volunteer Association and the N. C. Cooperative Extension will host the 16th Annual Gardening Gala and Seminar on Thursday, September 21, 2017, from 8:30 am to 4:00 pm. Registrants should note that the seminar will be held at a different venue this year, the Greensboro Realtors Association's Oak Branch Conference and Event Center, 23 Oak Branch Drive, Greensboro, NC 27407. This year's timely theme, "**Pollination Celebration!**" will feature 3 keynote speakers: Jessica Walliser, renowned horticulturist, freelance writer, radio host, and author of bestseller *Good Bug, Bad Bug: Who's Who, What They Do, and How to Manage Them Organically*; Mike Dunn, caterpillar enthusiast, nature photographer, and natural science educator at the NC Botanical Garden in Chapel Hill; and Angel Hjarding, Director of Pollinator and Wildlife Habitat Programs for the North Carolina Wildlife Federation, and creator of the Butterfly Highway.

Registration for the public begins on July 1 and closes on September 1. Early registration is always recommended as seating is limited. The \$45 Gala fee includes breakfast, all three keynote addresses, one breakout session of choice, catered lunch, shopping with vendors for plants and garden-related art, door prizes, and gift bags. Registration forms are available at the Cooperative Extension Center (3309 Burlington Road, Greensboro, NC 27405), select garden centers, some public libraries, or online at www.guilfordextension.com/events.



15. HAY DIRECTORY

A Hay Directory is maintained by the North Carolina Cooperative Extension Service for the Rockingham County & Guilford County area. This directory is intended as a service to both hay producers and buyers in the area. If you are in need of hay or would like to be added (or removed) from this list please call me at 1-800-666-3625 or 342-8235 and let me know your name, address & phone #, type of hay, number of bales, (square or round bales) and weight per bale. **MANAGE YOUR PASTURES & If you have hay to sell**, hay is in short supply, especially quality hay, so please let me know & I will put you on the list!



16. Swap Shop

Shooting Star Horse Farm

Open House. Tour the facility and meet manager/trainer Cheryl Terrio Bell.-Date-T.B.D.

Open PHA Show-Aug 5

Hay available for sale.

Summer Camp-July 17th-21st

Western and English horses available for lease.

Boarding spots available.

Full board \$500

Indoor Arena

Outdoor Arena

Trails

Corporate leadership and team building workshops with horses:

<http://livelyheels.com/>

Top Quality Western Alfalfa from Colorado. Blister Beetle free. 70lb bales full of leaf. Pick up or delivery available of 50 bales or more. Located in Greensboro. Call [336-937-3738](tel:336-937-3738) for more information

Hay for sale from "pasture mix" seeds
100 bales, weight 45 to 47 lb, last cut, dry, horse quality.
please call Flor @ [336 817 2144](tel:336-817-2144)

FIORE FARMS
Premiere Equestrian Facility
is FOR SALE

~117 Ac total. Min available purchase ~92 Ac.

Private treaty

Please contact: seahorseriders7719@yahoo.com

- FOR SALE- three 275 gallons plastic Totes, used only once.

features: large opening on top, spigot with valve at bottom, a galvanized protective cage with lift fork set up in good shape. Great for water storage. Email Ms. White @ fwhite2@triad.rr.com or call

+++++

17. Take A Load Off

One night at about 3am my wife was getting up from the toilet to return to bed when she heard a little noise. It was a suspiciously rodent like sound that seemed to be right in the bathroom with her.

She, of course, froze and listened attentively for any further sign of invaders. After a moment, satisfied that she was alone, she took a step for the door. Rodent scratchy sounds again! She froze, not breathing. Silence. Her heart beat fast as she once again tried to retreat from the bathroom.

This time the noise was accompanied by something touching the back of her leg! That was too much to bear. She literally flew the 8 feet to the bed, clearing the foot board by a couple feet, to land screaming by my side.

The culprit was right there in plain sight, a trail of toilet paper neatly marked the path from bed to the bathroom.

I *always* need more "Help" with Clean jokes!

++++
++++
++++
++++

I always want to know what you think of the Weekly Pile, good or bad,

Especially if it has had ANY IMPACT on you. Let me hear from you!

PLEASE SEND TO ME YOUR IDEAS FOR ARTICLES IN FUTURE NEWSLETTERS!

I WANT TO HEAR FROM YOU!!!!

Please remember our Troops who are serving our Country (and their families), those who have come home with wounds, and for the families that paid the ultimate sacrifice.

Have A GREAT SAFE Weekend!

--

Ben Chase

Rockingham and Guilford County Extension Agent

Agriculture & Livestock

North Carolina State University

North Carolina Cooperative Extension,

525 NC 65, Suite 200, Reidsville, NC 27320

(336) 342-8235 800-666-3625 Fax: 336-342-8242

Email : ben_chase@ncsu.edu

<http://rockingham.ces.ncsu.edu/index.php?page=animalagriculture>