

Why is Fertility so Important?

- Nitrogen-promotes rapid cell division, protein production and vigorous growth
- Phosphorus promotes strong plant roots
- Potassium promotes forage persistence
- N-P-K on fertilizer bags, expressed as a percentage

DETERMINE pH & FERTILITY



Retest every
3 to 5 years

When and How Much?

- Soil Test Results
- Most productive method split applications, early spring, early summer, early fall
- One time application-mid June
- Don't apply more than 75 lbs./acre Nitrogen at one time
- Be careful if you want to overseed
- Apply no more than 1.5 tons per acre lime in one application



Weed Management In Horse Pastures



Doug Tregoning—Extension Agent
Montgomery County

Traditional Pastures are often “Continuously Grazed”

This usually means:

- Lower yields
- Serious weed pressure
- Erosion problems
- General “poor” management

Controlling Weeds

- **Why Control Weeds?**
 - Reduce crop yield by removing water and nutrients
 - May Shade out desirable plants
 - Take up space of productive plants
 - Some plants are poisonous

Weed Control Depends on

- Regular mowing
- Regular dragging
- Smart Stocking Rates
- Good grazing management
- Rotational grazing
- Proper pH and fertility management
- Occasional chemical applications

Horses & Pasture

A Pennsylvania study showed horses preferred:

- Grasses over legumes
- Bluegrass over taller grasses
- Clovers over alfalfa and birdsfoot trefoil

The study also showed that horses' made satisfactory progress on **all** pasture mixtures

Diet Selection of Livestock

Type	Horses	Cattle	Sheep	Goats
----- % of diet -----				
Forage ^a	90	70	60	20
Weeds	4	20	30	20
Browse ^b	6	10	10	60

^a A mixture of grass and legumes

^b Woody material







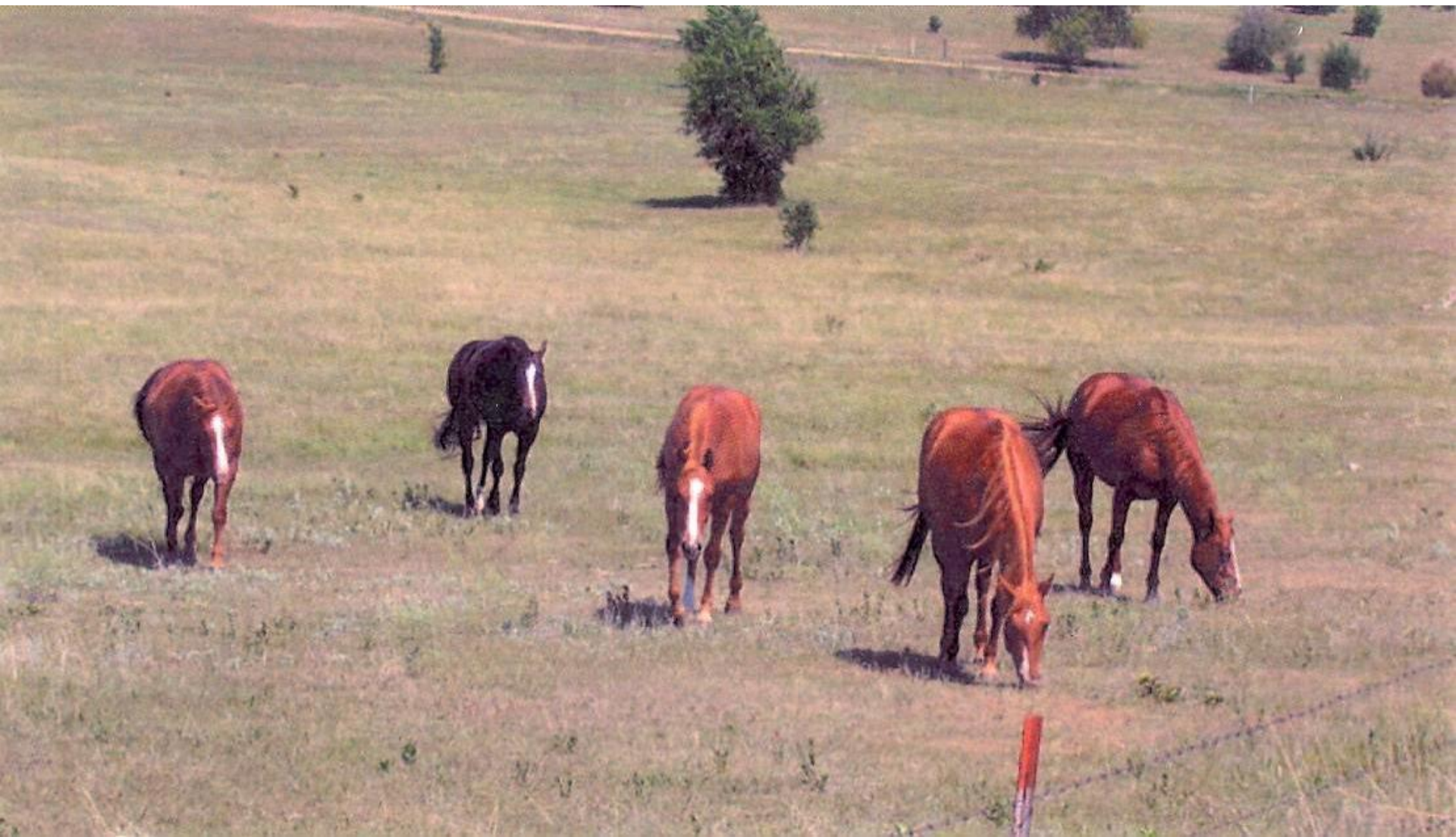
Horses bite off pasture grasses with their front teeth, which means they can graze the pasture at ground level. Forage species that store food above ground can be eliminated if grazing pressure is high.

Plants must have a chance to recover!

It helps if you can...



Group Horses



Managed Grazing/Traffic/Stocking Rates

Rules of Thumb
To maintain 70% cover



- **One horse can be maintained on one-half acre of pasture, if turnout time is limited to fewer than three hours per day.**
- **One horse can be maintained on one acre of pasture, if turnout time is limited to three to eight hours per day.**
- **One horse can be maintained on one and one-half acre of pasture, if turnout time is limited to eight to twelve hours per day.**
- **One horse can be maintained on two or more acres of pasture with unlimited turnout time.**

When Can I Get On the Pasture?



- The ground should be firm and fairly dry.
- The grass should be actively growing.
- Bluegrass, 4 to 6 inches tall.
- Orchardgrass, 8 to 10 inches tall.
- Move horses when grass is grazed down to 3 inches

Grazing Management Tips

- For rotational grazing to be successful you must be flexible
- If you don't want to make hay during periods of rapid forage growth, move animals faster
- Provide free choice salt & minerals



More likely, something like this

Spray To Graze Interval

- Roundup/Glyphosate materials—
spot treatment wait 7 days.
Complete renovation – remove
animals for 8 weeks.
- Most products you might use have
no grazing restrictions
- Wait 7 days or we receive .25” to
.50” rain.

Table 6-10. Relative effectiveness of grass pasture, hay, and CRP grassland herbicides.

This table compares the relative effectiveness of herbicides on individual weeds. Ratings are based on labeled application rates and weed size or growth stage. Results may differ with variations in weed size, temperature, rainfall, soil moisture, soil type, and soil pH. Spike 20P also is available for control of problem woody perennials as well as some herbaceous perennials. See a Spike label for additional information. Some products show for which states they are registered under the rate. These should be used only in the listed states.

Weed control rating

10 = 95–100%

9 = 85–95%

8 = 75–85%

7 = 65–75%

6 = 55–65%

L = weed is listed as control on herbicide label, but local data is limited

N = less than 55% or no control

— = unknown; consult the label for use rates and precautions

Species	2,4-D' (2–3 pt)	2,4-D + Clarity/ Banvel' (1 qt + 1 pt)	Aim (1–2 oz)	Chaparral (2–3 oz) (PA,VA,WV)	Clarity/Banvel' (1 pt)	Crossbow (2–4 qt)	GrazonNext HL (1.5–2.6 pt) (PA,VA,WV)	Grazon P+D (3–4 pt) (VA,WV)	Metsulfuron 60DF (0.1–0.3 oz)	Milestone (5–7 oz) (PA,VA,WV)	Overdrive (4–6 oz)	PastureGuard HL (1–1.5 pt)	Remedy Ultra (2–4 pt)	Roundup/glyphosate (1–2 qt) (spot treatment)	Stinger (0.66–1.33 pt)	Surmount (1.5–3 pt) (VA, WV)
Winter Annuals																
Chamomile, Mayweed	7	10	6	L	8+	8	7+	—	10	—	8+	—	—	9	9	—
Chickweed, Common	7	8	8+	10	7	9	9	8	10	7	8	8	7+	10	6	9
Cockle, Corn	8	10	9	L	10	8+	—	—	L	—	10	—	—	10	N	—
Cockle, Cow	8	10	9	9+	10	8+	—	—	9	—	10	—	—	10	N	—
Fleabane spp.	9	10	7	9	8	9+	8	9	9	L	8	—	—	8+	9	—
Henbit/Deadnettle	6	8+	N	9	7+	9+	8	9+	9	8+	7+	8+	7+	9+	—	9
Horseweed (Marestail)	9	9	N	9	9	10	9	10	9	9+	9	6	6	9+	9+	9
Mustard, Garlic	N	8	7	8	7	8	—	—	8	—	7	—	—	8	N	—
Mustard spp.	9	10	8+	8	8	10	7+	7	8+	N	8	8	8	10	N	—
Pennycress, Field	9	10	8+	10	8	9+	8	10	9	—	8+	L	—	10	N	9+
Pepper Weed spp.	9	10	8+	8	8	9+	8	7	10	N	8+	8	8	10	N	—
Shepherdspurse	8+	10	9	10	8	9	8	—	10	—	8	—	—	10	N	—
Yellow Rocket	9	10	9	8+	9	10	8	—	9	—	9	—	—	9	6	—
Summer Annuals																
Amaranth, Spiny	9	10	9	8+	9	9	8	7+	8	8	9	N	N	9	6	9
Cocklebur, Common	9	10	8	10	10	10	9	10	8+	L	10	8+	8+	9	9	9
Groundsel, Common	7	7	8	9	6	8	7	—	9+	—	7	—	—	9	9	L
Jimsonweed	8	10	9	8+	10	9	9	7	9	8+	10	—	—	9	8	7+
Lambsquarters, Common	10	10	9	9+	10	10	9	9+	9	9+	10	9	9	9	6	10
Lettuce, Wild/Prickly	9+	10	9	10	8+	9	9	10	9	9+	8+	9	—	9	9	9
Nightshade, Black	7+	8+	9	8+	8+	8+	7	6	8	9	8+	6	—	9	8	L
Pigweed spp.	9	10	9	9	9	9	8	7	10	9	9	9	8	9	6	9+
Ragweed, Common	9	10	7	9	9	10	9	9+	N	9	9	9	8+	10	9+	9
Ragweed, Giant	8+	10	N	9	9	10	9	9+	N	9	9	9	8+	10	9+	9
Smartweed ssp.	7	9	N	9	8	9	9	9	7	8+	8	N	—	9	8+	9+
Velvetleaf	8+	10	9	—	10	9	8	8+	8	—	10	9	—	9	6	9

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Biennials																
Burdock, Common	9	10	N	8+	8	9	8	9+	7	9	8	9	9	9	9	8
Carrot, Wild	9	10	N	10	8	9+	8	9+	9	N	8+	7	7	9	6	8+
Evening Primrose, Common	9	10	7+	9	8	9+	9	-	-	9	8+	-	-	10	-	-
Evening Primrose, Cutleaf	9	10	N	8+	7	8	9	9	7+	9	7	8	8	6	-	-
Hemlock, Poison	7+	9	7+	-	8	9	8	8+	N	N	8	N	N	9	N	8
Mullein, Common	N	6	N	9+	N	N	-	7+	8	-	N	N	N	-	N	7+
Parsnip, Wild	9	10	N	9	9	10	8+	8+	7	7	9	-	-	9	N	-
Teasel	7+	10	8	9	9	8+	8+	8+	6	9	9	-	-	9	9	-
Thistle, Bull	9+	10	N	9+	9	9+	9	9	6	9	9	6	7	9	9+	9
Thistle, Musk	8+	10	N	9+	9	9+	9	9	8	9+	9	6	7	9	9+	8+
Thistle, Plumeless	8+	10	N	9+	9	9+	9	9	8	9+	9	6	7	9	9+	8+
Herbaceous Perennials																
Aster spp.	9	10	N	9	8+	9	7	8	7	-	8+	-	-	9	9+	-
Bedstraw spp.	7	7	6	9	N	8	9	7	N	9	N	L	-	9	7	L
Bindweed, Field	8	8+	6	-	8+	8	7	6	N	-	8+	7	7	8	N	8
Bindweed, Hedge	9	10	N	-	9	9	8	8+	N	-	9	7+	8	8	N	8+
Brackenfern	7	7	N	7	N	7+	7	-	7	-	N	-	-	6	-	-
Buttercup spp.	8+	9	7	8+	8	10	9	10	9	8+	8	8	8	9	8	8+
Catsear, Common	7	9	N	9	7+	-	9	-	-	9	7+	-	-	8+	-	-
Chickweed, Mouseear	6	8	6	10	7+	8+	7	9	10	8	7+	8	8+	9	6	9
Chicory	9	10	7	9	8	9	9	9+	7+	9	8	9	8+	9	9	8+
Clover spp.	7	8+	N	10	8+	8+	9+	10	8+	9+	8+	8+	9	10	9	10
Cockle, White	7	9	6	-	8+	9	N	-	8	-	8+	L	-	9+	9	L
Daisy spp.	9	10	N	9	8+	9+	9	8	6	9	8+	-	-	8+	8+	-
Dandelion	9+	10	6	8+	7	9+	9	9	7+	9	9	8	7+	7	7	9
Dock spp.	8	10	7	9	8	9	9	9	8+	9	8+	8	8	9	7+	9
Dogbane, Hemp	6	7	N	N	7	8	6	7	N	N	7	7	7	8	6	8+
Dogfennel	7	7+	N	N	7	7	7	7+	6	N	7	9	8	8	6	9
Garlic or Onion, Wild	8	8+	N	-	7	8	6	N	9+	N	7	N	N	9	N	N
Goldenrod spp.	8	8+	N	8	7	8	8	9	8	6	7	7	7+	9	6	9
Groundcherry spp.	7	7+	7	9	7	8+	7	-	-	9	8	-	-	8	N	-
Hawkweed spp.	8	9	6	L	7+	9	8	6	7	L	7+	-	-	9	8	-
Horsenettle	6	7+	N	9	7	8	8+	9	7	9	7	6	6	8	N	8+
Ironweed, Tall	8	9	N	8+	8+	9	9	9+	N	8	8+	7	6	9	6	8+
Knapweed, Spotted	7	8	N	8+	7	7	9	9	6	8+	7	6	6	9	9	8+
Knotweed, Japanese	7	7+	6	7+	7+	7	7	N	-	7+	7+	N	-	8	8	L

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Milkweed, Common	6	7	N	N	6	7	6	7	N	N	6	6	6+	7+	N	8+
Mugwort	6	7	6	8	7	8	8	7	7	8	7	-	-	7	8+	-
Nettle, Stinging	8	9	6	8	8	9	9	9	6	9	8	9	9	9	7	9
Nightshade, Bitter	7	8+	6	-	7	-	7	7	-	-	7	-	-	9	8	-
Plantain spp.	9	10	7	9	8	9	7+	9	9	N	8+	9	8	9	N	8+
Pokeweed, Common	7	7	N	6	7	9	8	7+	N	7+	8	N	N	8	N	8+
Snakeroot, White	8	9	7	-	9	9	8	8	N	-	9	-	-	8	N	-
Sorrel, Red	6	10	8+	8	8+	-	-	9	8+	-	8+	6	-	9	8	-
Sowthistle, Perennial	7	9	N	8+	8	8	9	9+	7	9	8	8	8	9	8	-
Star-of-Bethlehem	N	N	8+	-	N	-	-	-	-	-	N	-	-	8	-	-
Thistle, Canada	7	7+	N	9+	7	8	9	9	7	9	7+	N	6	8	9	7
Toadflax, Yellow	7	8	8+	-	7+	-	7	-	-	-	7+	-	-	8	N	-
Waterhemlock, Spotted	7+	9	N	-	8	9	7	-	N	-	8	-	-	9	N	-
Wingstem	8+	8+	N	9	6	7+	9	9	N	9	6	6	7+	-	6	8+
Woodsorrel, Yellow	7	7+	7	L	7	8	8+	-	9	-	7	-	-	9	8	-
Yarrow, Common	7	9	N	L	9	8+	7	-	8	L	9	L	L	9	7	L
Woody Perennials ¹																
Blackberry spp.	6	6+	N	L	6	8	N	7+	7	N	6	L	7+	8	7	8
Dewberry spp.	6	7	N	L	6	7+	N	-	8+	-	6	-	-	7	7	7
Grape, Wild	8	9	N	-	8	9	8	-	-	-	8	L	-	8	N	L
Honeysuckle spp.	7	7+	N	L	N	8+	7	8	10	-	N	L	-	8	N	L
Kudzu	N	6	N	8	6	-	8	9	N	8	6	-	7	-	-	-
Locust, Black	7	8+	N	L	8	8	L	-	7	L	8	L	L	8	N	9+
Olive, Autumn	7	8	N	-	7+	8	7	-	-	-	7+	-	-	8	N	-
Poison-ivy, Oak	7	8+	N	-	7+	8+	7	8+	6	-	7+	L	L	8	N	7
Rose, Multiflora	6	7+	N	-	6	8+	-	8+	8+	-	6	6	8+	8	N	7
Sumac spp.	6	7+	N	-	7	8+	L	7	N	-	7+	L	L	8	7	8
Trumpet-creeper	6	7+	N	-	6	8	-	7	N	-	7	-	L	7+	N	7
Virginia-creeper	7	9	N	-	8	8+	7	-	-	-	8	L	L	8	N	-

Pasture Resources

University of MD - <https://extension.umd.edu/horses/our-programs/pasture-management>

Virginia Tech - <http://oak.ppws.vt.edu/~flessner/weedguide>

N.C.State

<http://richmond.ces.ncsu.edu/files/library/77/Weed%20Id%20Handout%20Final.pdf>

Penn State

<http://extension.psu.edu/pests/weeds/control/weed-management-in-pasture-systems>

West Virginia - <https://www.wvu.edu/~agexten/forglvst/>

2016 Mid Atlantic Weed Management Guide

<https://cdn.extension.udel.edu/wp-content/uploads/2012/08/31094941/Weed-Mgmt-Guide-AGRS-136-low-res.pdf>

CONTROL COMPETITION





Pasture Aeration



WEB SITES-Toxic Plants

- <http://www.ansci.cornell.edu/plants/index.html>
- <http://www.vet.purdue.edu/toxic/cover1.htm>
- <http://www.library.illinois.edu/vex/toxic/comlist.htm>
- <http://www.ces.ncsu.edu/depts/hort/consumer/poison/poison.htm>
- <http://cal.vet.upenn.edu/projects/poison/index.html>

Toxic Plants-Other Resources

Horse Owner's Field Guide to Toxic Plants

Breakthrough Publications, Inc

Ossining, New York 10562

Good Management Pays Off

