



**GOAT PARASITE MANAGEMENT  
APPLICATION OF  
FARM GASTROINTESTINAL PARASITE  
ASSESSMENT  
(FARM-GPA)**

Terry Hutchens, Extension Goat Specialist,  
University of Kentucky,  
Animal & Food Sciences Dept (G10107)

The major problem with goat parasite control in Kentucky is not directly related to drug effectiveness but to continuous re-infection occurring at the pasture interface. This problem is intensified by common saturations such as overstocked pastures, poor grazing practices, and no pasture improvement program. Because 90 percent of the parasites on the farm reside on pastures; this should be the primary focus of management. In general, grazing height management can have a major impact on reducing gastrointestinal parasite infections in goats. It is imperative that farmers become familiar with pasture density and height assessment procedures.

Before beginning the grazing season conduct an on-farm evaluation of pasture resources. The Farm Gastrointestinal Parasite Assessment (FARM-GPA) is a tool to assist farmers in making an estimate of the degree of parasitic infections that can be expected in the commencing grazing season. It is not too late to make productive changes within the present year and even greater changes in future.

**FARM-GPA Farm Questionnaire**

1. Where are the worms, the gastrointestinal nematodes, residing on your farm?
  - a. Worms reside in a dormant state within the small intestine of the goats
    - i. Were goats dewormed at kidding and prior to grazing?  
\_\_\_\_\_
  - b. Greater than 90 percent of the parasites reside in manure pellets on the farm and slowly move from manure to green grass foliage as the weather warms.
    - i. Were goats given access to all the pasture areas during the winter?  
\_\_\_\_\_
  - c. Intestinal parasites, nematodes, must remain out of sunlight and within a film of moisture and generally reside in an area from the soil line upward to within 4 to 6 inches of pasture height.
    - i. Do your goats often graze below the 4- to 6-inch "*infection zone*" during the grazing season?  
\_\_\_\_\_

2. If you answered yes to any of the previous question, conduct a *Seasonal Carrying Capacity* analysis of your farm.
3. What is the *Seasonal Carrying Capacity* of your farm or how many pounds of livestock should be grazing your farm?
4. The *Seasonal Carrying Capacity* is the point in which the economical and environmental sustainable stocking rate is reached.
  - a. Begin your farm evaluation by considering the following statements dealing with economic and environmental factors:
    - i. We are feeding concentrates all year long to maintain expectable body condition \_\_\_\_\_
    - ii. We are feeding hay in late summer or early winter three out of five years We have greater than 3 percent death loss due to parasites infection  
\_\_\_\_\_
    - iii. We must dewormer three or more times during the grazing season  
\_\_\_\_\_
    - iv. We have poor pasture cover soil exposure due to low forage density  
\_\_\_\_\_
    - v. We are experiencing soil erosion in one or more locations on the farm as a result of overgrazing \_\_\_\_\_
5. If you agree with any of the previous statements, continue the **FARM-GPA** evaluation procedure.
6. Determine the the *Seasonal Carrying Capacity* for your farm.
  - a. Use the *Seasonal Carrying Capacity* formula (Formula 1.) below to determine the estimated number of animals that can be sustained on your farm while maintaining economic and environmental integrity. Use Tables 1, 2, 3, and 4 to fill in each variable of the *Seasonal Carrying Capacity*

	Annual Forage Production	X	Seasonal Utilization Rate
<b>Season Carrying Capacity Formula =</b>	_____		
	Average Daily Intake	X	Length of Grazing Season

**Table 1.**

**Annual Forage Production:** is your best estimate of the total amount of forage dry matter (DM) produced per acre annually.

Sample Method: Walk across each pasture field and look at your feet in three locations/pasture, look down at your feet and estimate a 12-inch by 12-inch area and determine the percent of soil cover within the area estimate

<b>Excellent</b>	<b>At least 90% of the soil is covered</b>	<b>7500 lb DM/a</b>
<b>Good</b>	<b>75% - 90% covered</b>	<b>5500 lb DM/a</b>
<b>Fair</b>	<b>Less than 75% covered</b>	<b>3500 lb DM/a</b>

**Table 2.**

**Seasonal Utilization Rate:** is an estimate of the percentage of the annual forage production that will actually be harvested by the grazing livestock.

<b>Extent of Rotational Grazing*</b>			
<b>3-5 Day Rotation</b>	<b>7-10 Day Rotation</b>	<b>15-20 Day Rotation</b>	<b>25-30 Day Rotation</b>
<b>70% utilization (0.70)</b>	<b>65% utilization (0.65)</b>	<b>55% utilization (0.55)</b>	<b>45% utilization (0.45)</b>

\* Frequent rotations utilized forage more efficiently.

\*\* For no rotation use (0.25) or 25% utilization.

**Table 3.**

**Average Daily Intake:** is the amount in lb dry matter consumed by a given class of livestock daily. High intake (greater than 3.5% of live body weight) requires high quality forage.

<b>Gaining kids, yearlings, and lactation =</b>	<b>(0.05) of live body weight</b>
<b>Breeding buck/doe, late pregnancy =</b>	<b>(0.035) of live body weight</b>
<b>Dry and non-pregnant does</b>	<b>(0.025) of live body weight</b>

7. An example of the correct procedure to make an informed estimate of the *Seasonal Carrying Capacity* for your farm begins with a pasture inspection and by selecting formula variables from Tables 1 to 4.
  - a. Annual Forage Production is determined to be Good = 5500 lbs DM
  - b. A 25-30 day rotation is used = 0.45 utilization rate
  - c. Average daily Intake for late pregnancy does = 0.035
  - d. Length of the grazing season is estimated to be = 150 days

	<b>Annual Forage Production</b>	<b>X</b>	<b>Seasonal Utilization Rate</b>
<b>Season Carrying</b>	<b>5500 lb DM</b>		<b>0.45</b>
<b>Capacity Formula =</b>	$\frac{\text{Annual Forage Production}}{\text{Average Daily Intake} \times \text{Length of Grazing Season}}$		
	<b>0.035 lb DM</b>	<b>X</b>	<b>Length of Grazing Season</b> <b>150 Day</b>

8. The primary step in determining the estimated *annual carrying capacity* of your farm is to use the **FARM-GPA** format. If stocking rates are reasonably close to the estimate, overgrazing is reduced, pasture height can be managed well enough to avoid grazing below the 4-inch "infection zone" (section 1c). However, younger animals should not be grazed below 6 inches of pasture height. When a very limited degree of rotation is interjected into the grazing program, pasture regrowth and recovery will improve pasture density, which increases pasture carrying capacity.

**Answer:**

$$(5500 \times .45 = 2475)$$

$$(0.035 \times 150 = 5.25)$$

$$2475/5.25 = 471 \text{ lb goat/acre}$$

$$471 \text{ lb goat}/100 \text{ lb doe} = 4.7 \text{ does/acre}$$

$$471 \text{ lb goat}/150 \text{ lb doe} = 3.14 \text{ does/acre}$$

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10. Below are other sources of pasture management information.

AGR-59	Tall Fescue
AGR-85	Efficient Pasture Systems
AGR-108	Tall Fescue in Kentucky
AGR-119	Alternatives for Fungus Infected Tall Fescue
AGR-162	Stockpiling for Fall & Winter Pasture
AGR-175	Forage Identification and Use Guide
ID-74	Planning Fencing Systems for Intensive Grazing Management
ID-97	Grazing Alfalfa
ID-143	Rotational Grazing
AE 2005-04	The Economics of Renovating Pastures with Clover
AE 2005-05	The Economics of Using Improved Red Clover Varieties
AE 2005-06	The Economics of Pasture Fertilization

<http://www.uky.edu/Aq/Forage/ForagePublications.htm>



