



# Guernsey County Agriculture News

Summer 2022

Dear Friends,

I hope your summer is progressing well. We are certainly getting rain and that is a mixed blessing for some. In this newsletter are some upcoming trainings and information I hope you will find useful. Stay safe and call if I can do anything for you!

Sincerely,

A handwritten signature in cursive script that reads "Clif Little".

Clif Little



THE OHIO STATE UNIVERSITY  
EXTENSION

OSU Extension Guernsey County, Agriculture and Natural Resources

# Pasture Rent

Clif Little,

OSU Extension Educator, Guernsey County



What is a pasture worth? A pasture is like a house, crop field, or anything else being rented, and is worth what someone is willing to pay. The price we can charge for land rental is directly related to demand. If we do not have competition for land, then we will be unable to get top dollar. Some parcels do not have a great deal of livestock producers living nearby. If a farmer must travel great distances to care for livestock, the property is obviously worth less to them. On the other hand, if we have many neighbors who would benefit from the extra ground, the land becomes more valuable. To coin a real estate phrase, “location, location, location.”

Another factor influencing pasture rental rate is topography. Is the pasture flat and machinery accessible? Pastures which are covered with scrub brush, are steep, rocky, and partially inaccessible to farm machinery are not as desirable. In other words, pastures and land are not all created equal in terms of suitability for livestock production.

Pasture field size makes a difference, as the more acres available, the greater the worth. For example, a ten-acre pasture in southeastern Ohio with an annual production of 2.5 tons per acre of forage dry matter would yield 25 tons annually or 50,000 lbs. of forage. If the pasture is one big square with no cross fencing or rotational grazing system developed, then approximately one half of this annual forage dry matter production would be available, or 25,000 pounds. A 1,300 lb. cow eating 2.5% of her body weight per day in forage dry matter, over the course of a year, would need 11,863 lbs. of forage dry matter. This means that ten acres could not handle very many cows annually without an improved grazing system or supplementation. Therefore, size makes a difference. It is not desirable for most livestock producers to carry two-three cows per farm at several locations. Conversely, a large farm with paddocks developed, good water distribution and livestock working facilities is worth much more.

There are many different types of farm rental agreements. The OSU <https://farmoffice.osu.edu/our-library/farm-leasing-law> web site discusses a variety of important aspects for landowners and tenants to consider when entering into a lease agreement. In addition to the above-mentioned resource, the North Central Farm Management Extension Committee has a web site which contains examples of lease agreements for review, and these can be found at <https://www.mwps.iastate.edu/free-lease-forms>.

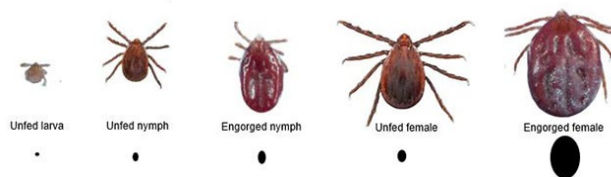
Pasture rental has many factors influencing value. Forage quality, weeds, fencing, water system, shelter, working facilities, size, location, accessibility, and soil productivity to name a few. Besides the factors that relate to the management and economics of animal husbandry there are important legal aspects of a lease agreement. Before entering into an agreement do some research utilizing the resources posted in this article and have your attorney review your lease agreement prior to signing. If you need help obtaining the above-mentioned web base documents, please contact your local OSU Extension office.



# ASIAN LONGHORNED TICKS IN LIVESTOCK & COMPANION ANIMALS

**CFAES**

*Asian longhorned tick life stages and relative actual size.*



## Q: What are Asian longhorned ticks?

A: The Asian longhorned tick (*Haemaphysalis longicornis*; ALHT) has been introduced to the United States and can be found in Ohio. ALHT females can reproduce without mating and lay up to 2,000 eggs, which allows them to quickly establish large populations. They have been reported on more than two dozen species including sheep, goats, horses, cattle, chickens, dogs, cats, and humans. Among wildlife species, ALHT are most commonly reported on deer and raccoons.

## Q: Can they make humans or animals sick?

A: Livestock may become heavily infested with large numbers of ALHT causing distress that can lead to decreased production and growth, aborted or still births, and death. These ticks may also transmit bovine theileriosis causing anemia in cattle, which can be fatal. Few other animal or human pathogens have been reported in ALHT populations in the U.S. and they have not yet been linked with cases of human disease. However, these ticks have demonstrated the capability to acquire and transmit several human and animal pathogens in other countries and in the laboratory.

(A) Sheep's ear infested with ALHT larvae, nymphs, and adults. Photo by T. Rainey, Hunterdon County Health Services, N.J. (B) ALHT females and nymphs clustered on vegetation. Photo by Jim Occi, Rutgers, Center for Vector Biology. (C) Unfed ALHT nymph on fingernail. Photo by M. Greenwood, Yale.



Lint roller shows many tick larvae, nymphs and two adults that were found on a person's clothing while moving through an infested site.



## Q: What should I do if I see ticks?

A: If you see ticks that resemble ALHT or experience any suspicious tick encounters, please submit ticks to The Ohio State University for identification. Send an email to [ticks@osu.edu](mailto:ticks@osu.edu) for instructions. Immediately report large numbers of ticks on livestock to ODA's Division of Animal Health by calling 614-728-6220.

An integrated pest management strategy is needed to manage ALHT that includes biosecurity, scouting, animal treatment, and pasture management. Learn more at <https://ohioline.osu.edu/factsheet/vme-1035>

# Ohio's Pasture Invader

Clif Little, OSU Extension Educator,  
Ag Natural Resources, Guernsey County

Spotted knapweed, a noxious weed in most areas of the United States where it impacts grazing land, and it is now prolific in our area. This noxious weed is expanding its range rapidly. In July the purple blue blooms are obvious along roadways. Heavy infestations of this weed can now be found in the area. The plant seed is easily distributed with the movements of equipment and hay. Observations along the roadways confirm pockets of these weeds extending into Noble, Guernsey, Belmont, Monroe, Morgan, and Muskingum counties.

Spotted knapweed is one of the most aggressive perennial weed to impact hay and pasture fields in Ohio. This plant can produce thousands of seeds per plant. The Western United States has struggled with the weed for many years, and it is quickly becoming our primary weed of concern for Eastern Ohio. The plant is attractive and resembles the bloom of red clover. The problem with this weed is that it can completely take over hay fields and pastureland as indicated by the Guernsey county pictures below. Livestock avoid eating the plant while it crowds out desirable grasses and legumes.

Plant seeds are inadvertently spread through the actions of hay hauling and mowing. Vehicles and machinery venturing into infested areas have contributed to plant distribution as well.



The blooms are 1-2 inches across and at the base of the bloom is a thistle like seed bulb. The plant is wiry, with relatively few narrow leaves located in the lower portion of the plant. There is a program to help control this weed and is available for landowners in Noble, Guernsey, Muskingum, and Morgan counties. The program is called the Regional Conservation Partnership Program (RCPP) and is available at the local USDA/NRCS office. Find out more by calling the local USDA/NRCS office.

The best knapweed control program is early detection and eradication. Avoid spreading this weed seed on farm machinery. Don't purchase hay containing knapweeds and utilize only certified seed when planting. Manage hayfields and pastures to promote dense grass growth and this will help to reduce knapweed invasion. The most effective chemical treatments are applied herbicides to knapweed plants before or during flower formation and stem elongation. Additional application rates, spray additives etc., can be found on individual product labels.

For more information contact your local OSU Extension office, SWCD or NRCS office.





# Useful Spray Conversion Charts

Compiled By: Clif Little, OSU Extension

1 tsp = 5cc  
 1 milliliter = 1 cubic centimeter  
 teaspoon = .1667 fluid ounces  
 Tablespoon = 3 teaspoons = .5 fluid ounces = 14.8 milliliters  
 Fluid ounce = 2 tablespoons = 29.58 milliliters  
 Cup = 8 fluid ounces = 16 tablespoons  
 Pint = 2 cups = 16 fluid ounces  
 Quart = 4 cups = 2 pints = 32 fluid ounces  
 Gallon = 4 quarts = 8 pints = 128 fluid ounces  
 1 ounce = 30 cubic centimeters (cc)  
 Acre = 43,560 square feet  
 128<sup>th</sup> of an acre is approximately 340 square feet  
 An area, 18.5 x 18.5 = approximately 128<sup>th</sup> of an acre = ~ 340 sq.ft.

## Weights

1 ounce = 28.35 grams  
 1 gram = 1000 milligrams  
 1 pound = 16 ounces = 454 grams

## Total Spray Volume Mixing Guide (Spot Treatments)

	<b>½ % herbicide</b>	<b>1 %</b>	<b>2 %</b>	<b>.25 % Surfactant</b>
<b>1 Gallon = 128 oz.</b>	2/3 fl. oz. or 20 cc	1-1/3 fl. oz. or 40 cc.	2-2/3 fl. oz. or 80 cc.	1/3 fl. oz. or 10 cc.
<b>3 Gallons</b>	2 fl. oz. or 60 cc.	4 fl. oz. or 120 cc.	8 fl. oz. or 240 cc.	1 fl. oz. or 30 cc.
<b>10 Gallons</b>	6.5 fl. oz. or 195 cc.	13 fl. oz. or 390 cc.	26 fl. oz. or 780 cc.	3-1/3 fl. oz. or 100 cc.

1 oz. = 2 Tablespoons (tbls.) = 6 teaspoons (tsp) = ~30 cubic centimeters (cc)

## Making a 2 % Spray Solution, ( a 1% solution is ½ that of a 2% solution )

<b>Volume</b>	<b>1 gal</b>	<b>3 gal</b>	<b>5 gal</b>	<b>10 gal</b>	<b>25 gal</b>
<b>Amount of additive for a 2 % Solution</b>	16 tsp. or 2.6 fl. oz.	8 fl. oz.	12.8 fl. oz.	25.6 fl. oz.	4 pt.

**Surfactant usually added at a rate of: volume (surfactant) to volume total (spray) ratio but amount of surfactant can vary based on herbicide (chemical), target, and surfactant:**

1 pt. - 4 qt./100 gal. is typical depending on the herbicide, surfactant, and application site.

This is equal to 16 oz.-128 oz. / 100 gal. if adding a 1% v/v, surfactant ratio then,

100 gal. is (128 x 100) = 12,800 oz.

12,800 oz x (1 % surfactant, decimal form is .01) = 128 oz. or 1 gal. to add to form a 100 gal of spray solution (1 gal surfactant/100 gals spray solution = 1%)

**Ex: Crossbow** calls for a (1-4% solution based on weeds)

1-1/3 – 5-1/3 oz. per gallon of water

1-4 gallons per 100 gallons of water

Size of Sprayer Gal	Amount of Crossbow		
	1%	1.5%	4%
1	1-1/3 fl. oz.	2 fl. oz.	5-1/3 fl. oz.
3	4 fl. oz.	6 fl. oz.	16 fl. oz.
5	6-2/3 fl. oz.	10 fl. oz.	28 fl. oz. or (1-2/3 pt.) 16 + 12 oz. = 28 oz.

**Application rate for brand x herbicide is:**

2 pt./A or = 1 qt./A = 32 oz./A

My backpack is applying 50 gal. per acre.

To mix up 1 gal. of spray solution then:

Recommended rate 32 oz./A/50 gal per acre = .64 oz. ~or 3-3/4 tsp/gal.

.64/ (.1667 oz. per tsp.) = 3.83 tsp.

Or .64 x 30cc/oz. = 19.2 cc

### Small Volume Sprayers

**Amount of Herbicide to Add to 1 gallon of water**

	Gallons per acre applied with small sprayer	Recommended Application Rate per Acre (A)				
		5 oz./A	7 oz./A	1 pt./A	1 qt./A	2 qt./A
	20	7.5 cc/gal	10.5 cc/gal	5 tsp/gal	10 tsp/gal	3-1/4 fl. oz./gal
	30	5 cc/gal	7 cc/gal	3 tsp/gal	6 tsp/gal	2 fl. oz./gal
	40	3.8 cc/gal	5.3 cc/gal	2-1/3 tsp/gal	4-3/4 tsp/gal	1-2/3 fl. oz./gal
Common Range for backpacks	50	3 cc/gal	4.2 cc/gal	2 tsp/gal	3-3/4 tsp/gal	1-1/4 fl. oz./gal
	60	2.5 cc/gal	3.5 cc/gal	1-2/3 tsp/gal	3-1/4 tsp/gal	6-1/3 tsp/gal
	70	2.1 cc/gal	3.0 cc/gal	1-1/3 tsp/gal	2-3/4 tsp/gal	5-1/2 tsp/gal
	80	1.9 cc/gal	2.6 cc/gal	1-1/4 tsp/gal	2-1/3 tsp/gal	4-3/4 tsp/gal
	90	1.7 cc/gal	2.3 cc/gal	1 tsp/gal	2 tsp/gal	4-1/4 tsp/gal
	100	1.5 cc/gal	2.1 cc/gal	1 tsp/gal	2 tsp/gal	3-3/4 tsp/gal

### Small Volume Sprayers

**Dry Herbicide**

Gallons per acre applied with Small Sprayer	Teaspoons (tsp) of dry herbicide to mix in 2 gallon of water			
	Recommended Application rate per Acre (A)			
	1 oz./A	2 oz./A	2.5 oz./A	3.3 oz./A
40	.5 tsp	1 tsp	1.25 tsp	1.65 tsp/A
50	.4 tsp	.8 tsp	1.0 tsp	1.32 tsp/A
60	.3 tsp	.67 tsp	.83 tsp	1.10 tsp/A

### **Nonionic Surfactants** (no charge)

- Composed of alcohols and/or fatty acids and are compatible with most pesticides
- Pesticide activity can be quite different from that of anionic or cationic surfactants
- Helps pesticide sprays penetrate/cover and stick to plant cuticles and may increase spray droplet size.
- Often used with systemic pesticides
- Most often allowed type of surfactant recommended with a pesticide

**If the label says you can add a nonionic surfactant (NIS), add it.** Surfactants (nonionic surfactants = NIS) are used at a wide range based on the herbicide it is used with and may vary as much as 1 pt to 4 qt./100 gals of spray solution. or a rate of (1 pt./800 pt. = 0.25 %) to (8 pt./800 pt. = 1% v/v). The main function of an NIS is to increase spray droplet retention, but it may, to a lesser degree, enhance herbicide absorption. Too much spreading of the droplets on the leaf surface can actually result in faster drying times which may impede herbicide uptake. Surfactant products must contain at least 70 percent, constituents effective as spray additives and are usually 80-90 percent. Dish washing liquid does not equal a commercial spray surfactant.

**If you need to convert a small handheld sprayer or backpack to a per acre basis to calculate spray volumes it is a simple process. First measure out an area 128<sup>th</sup> of an acre.**

Length x width in feet = 340 sq. ft. (~43560 sq. ft. per Acre/128 sq. ft.)

**18.5 x 18.5 area is approximately 340 sq. ft.**

(You can use any dimensions you like, just so the area is 340 sq. ft.)

**Next, utilizing a clean sprayer filled with water spray the area, time yourself,** repeat three times. Record the time, and average. Be sure to keep pressure up and operate as if covering target area.

**Collect water from the sprayer for the length of time it took to cover the 128<sup>th</sup> of an acre** and record volume in ounces. Repeat this process 3 times and record and average output. The ounces sprayed = the number of gallons per acre being applied.

**For backpack sprayer applying roughly 50 gal./acre, & when per acre recommendations are:**

2 qt./A = 1.28 oz. x \_\_\_\_\_ # gallons of spray mixture = \_\_\_\_\_ fl. oz. of herbicide

Ex: (1.28 oz. x 3 gal backpack = 3.84 fl. oz. of herbicide)

Example calculation: 2 qt = 64 oz. (64 oz./50 gal

= 1.28 oz./gal X 3 gal = 3.84 fl. oz.)

1 qt./A = .64 oz. x \_\_\_\_\_ # gallons of spray mixture = \_\_\_\_\_ fl. oz. of herbicide

Ex: (.64 oz. x 3 gal. = 1.92 or 2 oz. of herbicide)

1 pt./A = .32 oz. x \_\_\_\_\_ # gallons of spray mixture = \_\_\_\_\_ fl. oz. of herbicide

Ex: (.32 oz. x 3 gal = .96 or 1 oz. herbicide)

Information on calibrating a boom sprayer may be found at:

<https://ohioline.osu.edu/factsheet/fabe-520>

## 1/128 Acre Method

This easy calibration method requires few calculations. Use the nozzle spacing on the boom to select a travel distance from the following table:

<u>Nozzle Spacing in</u> Inches	<u>Course Length in</u> Feet	<u>Nozzle Spacing in</u> Inches	<u>Course Length in</u> Feet
10	408	28	146
12	340	30	136
14	292	32	127
16	255	34	120
18	226	36	113
20	204	38	107
22	185	40	102
24	170	60	68
26	157	80	51

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit [cfaesdiversity.osu.edu](http://cfaesdiversity.osu.edu). For an accessible format of this publication, visit [cfaes.osu.edu/accessibility](http://cfaes.osu.edu/accessibility).

Guernsey County Extension  
PO Box 300  
Old Washington, Ohio 43768