

Team #: _____

Team Member's ID #s

2016 NC State 4-H Senior Hippology Team Problem (100 points)

You have a total of 15 minutes to prepare and to write your response as a team.

Turn in your written answer and one diagram per team.

You have been asked to help plan a horse farm in central NC. The diagram provided is the land that is available for use. The land is 30 acres, with each square on the diagram representing one acre. This farm will be a small horse breeding operation. There will be 10 horses that are permanently housed at this farm: 9 mares and 1 breeding stallion. Outside mares will occasionally come to the farm for a short stay during the breeding season to be bred to the stallion via artificial insemination who stands at the farm. The foals produced by the mares at the farm are sold after they are weaned.

Part 1: Diagram (51 points)

- A. Draw your layout for the farm on the paper provided. Your drawing **must** include the following:
- i. At least one horse barn
 - ii. At least three paddock areas
 - iii. At least two pasture areas
 - iv. Manure disposal/storage area
 - v. Hay and bedding storage area

Your drawing may include additional structures/features/roads/paths if you feel that they will help accomplish the mission of the farm.

Part 2: Explanations for your diagram (25 points)

- A. **Fill out the chart on the back of this page**, briefly explaining the one or two main reasons why you placed each area where you did. If you added additional areas, include them in the blank spaces on the chart.

<i>Area Description</i>	<i>Reasoning for selected location</i>
Horse Barn	
Paddocks (3)	
Pastures (2)	
Manure Disposal/Storage Area	
Hay/Bedding Storage	

Part 2: Questions (24 points)

B. What type of forage would you recommend planting in the pastures? Explain why.

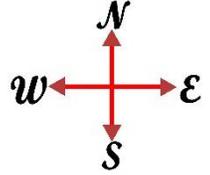
C. Identify two special considerations you should make when housing a stallion on the farm.

D. This farm has a housing subdivision next to it. What are two ways that the farm can establish a positive relationship with their neighbors?

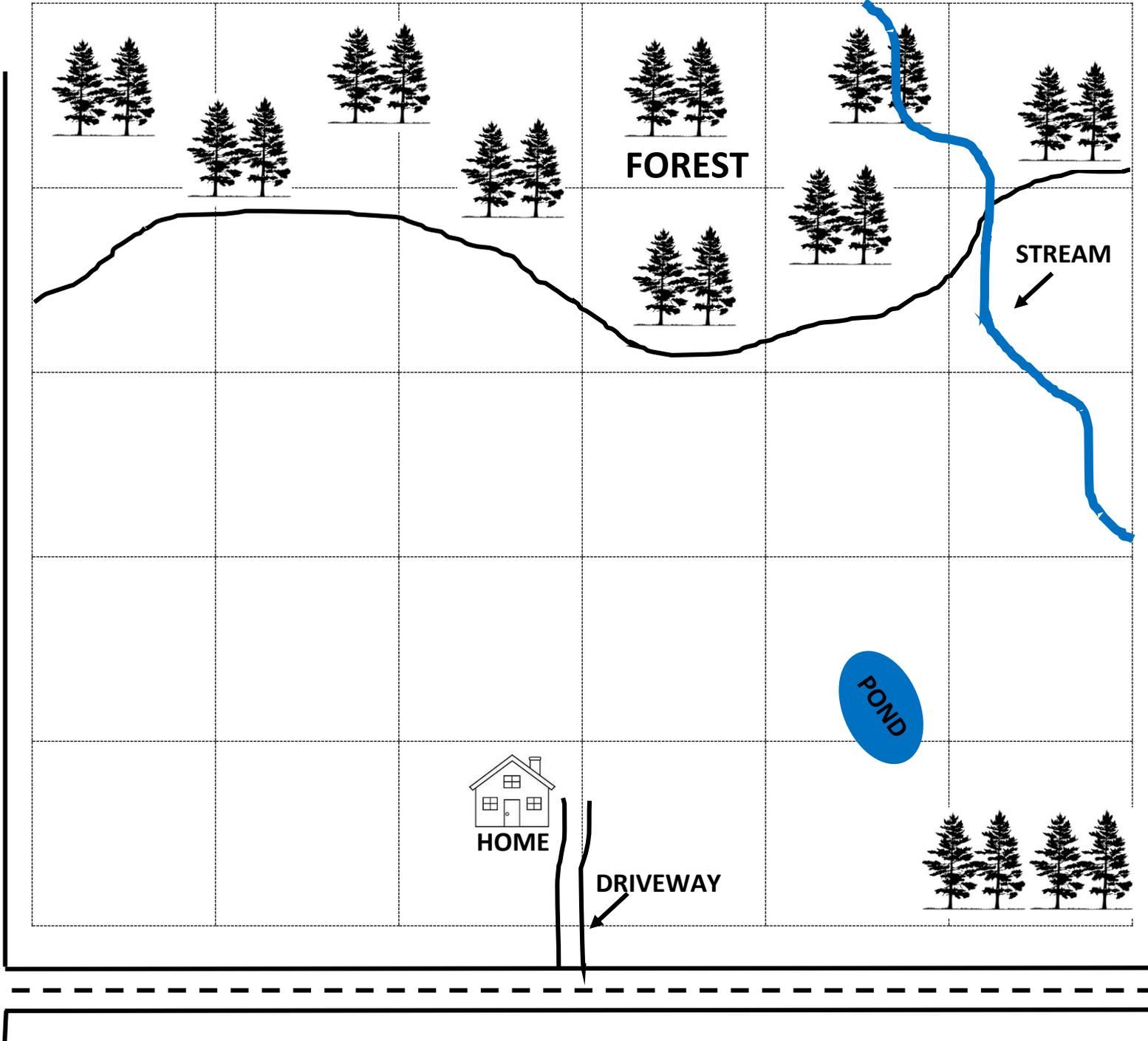
 = 1 acre

FARM LAND

30 Total Acres



HOUSING SUBDIVISION



HIGHWAY

2016 NC Senior Hippology Team Problem Scoring Rubric

Team Number: _____

Total Score: _____

Part 1: 51 Points Diagram	Needs Improvement 0-5	Good 6-11	Excellent 12-17
Overall Suitability to Purpose			
Placement of Areas			
Acreage is Appropriate			
PART 1 TOTAL			
Part 2: 25 Points Explanation	Incomplete 0-1	Partial Response 2-3	Well Covered 4-5
Horse Barn			
Paddocks			
Pastures			
Manure Disposal/Storage			
Hay/Bedding Storage			
PART 2 TOTAL			
Part 3: 24 Points Questions	Incomplete 0-2	Partial Response 3-5	Well Covered 6-8
Forage Type and Explanation			
Stallion Consideration			
Neighbor Relationship			
PART 3 TOTAL			
GRAND TOTAL			

Evaluation of response is based on understanding of the problem, completeness of logic and covering key points.

Part 1: Diagram

- A. Suitability for purpose: Does this diagram meet the needs of a breeding facility?
- Needs Improvement: Basic structures exist, but may not meet the needs of a breeding farm (may have arenas, hot walkers, etc. that are not essential for a breeding farm) or may have structures selected/placed in a way that would not be feasible for a breeding farm.
 - Good: Design meets breeding farm needs, individual paddock space (at least 3 paddocks) for mares and foals, pastures to house mares during the non-breeding season, functional overall layout of the areas required. Shelters for the pastures/paddocks may be added.
 - Excellent: Design specifically meets multiple needs of a breeding farm; specific areas designated for mares/foals, pregnant mares, stallion, visiting mares (possible separate stallion barn, outside mare barn, breeding shed, or foaling barn). Paddocks are close to the barn and in view of the house for easy monitoring and handling of mares/foals. Possible teasing system shown, possible breeding stocks/lab area shown. Traffic patterns may be shown to restrict traffic flow to the barn, etc.

B. Placement of areas:

- a. Needs Improvement: Pastures, paddocks, or manure storage/disposal are placed right along the property lines (immediately adjacent), highway, or have contact with the stream or pond. Paddocks, manure storage/disposal, and/or hay/bedding storage are located in an area that would be inconvenient from the barn or so close that it would be a fire hazard to the barn. Structures either very close to the house or too far away from the house to view from the home. Pasture land uses significant amount of the forested area.
- b. Good: Structures, pastures, and paddocks are not placed on property lines and are at least 100 feet away from the highway, pond, and stream and are in logical locations. Manure storage/disposal is not situated in contact with pond or stream and is not placed in an area that would be an odor issue (immediately next to barn/house, etc.)
- c. Excellent: Placement of structures meets criteria in (b), but shows good methodical thought as to the layout of the land, allow for logical traffic flow, and potential future expansion. Placement situates structures so that they can be viewed unobstructed from the living area (this location controls the amount of traffic entering and exiting the property to monitor theft and biosecurity, allows for observation for fire safety, etc., and is pleasing to the eye), they are 100 ft away from the stream and pond, pastures are large and/or set up to be able to be rotated.

C. Acreage is appropriate:

- a. Needs improvement: Not drawn well to scale (most likely buildings are drawn too large, etc.), pasture areas are too small (less than 2-4 acres), paddocks are very small or very large, etc.
- b. Good: Utilize 2-4 acres of pasture per horse (or the ability to rotate pasture space so that this criteria is met), paddocks are larger than $\frac{1}{4}$ acre each, sizes are realistic and relevant for buildings/structures (i.e. the barn does not take up an entire acre) etc.
- c. Excellent: Same criteria as (b), but may also show unmanaged pastures that should provide 5-10 acres per horse; Rotational grazing should be 1 acre per horse minimum. Very minimal or minor errors with the scale of the drawing.

Part 2: Explanation

- A. Horse Barn – convenient to house location to allow for easy checking on of horses, credit for discussing stallion housing within the barn or separate stallion barn or collection shed, visible from road (to add eye appeal to property), not next to housing development, credit for discussing biosecurity concerns with outside horses coming onto property, discussion of labor saving strategy
- B. Paddocks – ease of moving mares to and from paddocks, credit for discussing biosecurity concerns with outside horses coming onto property, credit for shelters added to the paddocks, adequate size, credit for more than 3 paddocks with appropriate reasons regarding number of horses housed on property, shelters are constructed, water access discussed, easy access, labor
- C. Pastures – discussion of location (not in forest, not near water or highway), discussion of rotational grazing, appropriate acreage, credit for shelters in the pasture, shelters are discussed, water access is discussed, easy access
- D. Manure disposal – discussion of location selection (not contaminating waterways, odor pollution for house/barn/housing development), credit for discussing removal (composting, hauling away, etc.), local zoning discussed, surface runoff, groundwater pollution, have a plan, controlling odor and flies/parasites, removing manure from paddocks, composting, away from stable walls, facilitates easy movement of manure from stable or paddock. At least 100 feet away from water, Removal at least every 7 days (if not composting), land application (spreading, etc.)
- E. Hay/bedding storage – discussion of ease of access for unloading materials, proximity to barn is discussed, potential fire hazard and locating it appropriately discussed, convenience and labor potential, separate from vehicle storage, discussion of size appropriate to needs, haylofts, fireproofing, ground level storage is better for labor.

Part 3: Questions

- A. Since the farm is in central NC, a cool season grass would likely be the best option for pasture. Tall fescue should be avoided, as endophyte infected fescues cause reproductive problems in mares and stallions (acceptable to address this issue and suggest planting the endophyte-free varieties of fescue). Viable options include orchardgrass, timothy, ryegrass, bromegrass. Rye, oats, and wheat are not acceptable answers. Bermudagrass is not the best choice (although it will grow well in NC) because it does not offer nutritional value for horses at peak production classes. Alfalfa and clover are also not the best options (they will grow, but our climate is not ideal for production and the horses will likely be over conditioned), soil type evaluation discussed.
- B. Possible answers include: a stall size of 12'x14' minimum is recommended, fencing should be visible and sturdy, height of the top fence in a paddock (should be 5' minimum, and top of fence eye level with horse's head in a natural position and should be several inches above the withers), double fenced paddock, lane between the stallion paddock and other paddocks, should be housed away from the mares to reduce stress on the stallion, artificial lighting to accommodate the breeding season, ensuring personnel are trained to handle a stallion appropriately, establishing a consistent routine for the stallion (very important for behavior), provide stimuli (toys, possibly a companion gelding, etc.) to prevent boredom as these horses are housed alone.
- C. HHH section 380. Good communication, education about the operation, environmental stewardship, community activities, good fencing, traffic control, farm appearance, cleaning up after your horse if you are off of your property, respect.

Judge's Signature: _____