LAND JUDGING CONTEST GUIDE

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Consult the regional agricultural education office for current guidelines.

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SPECIAL RECOGNITION

I would like to give special recognition to Mr. W. A. Avery, my high school agriculture teacher. Mr. Avery, retired Teacher of Vocational Agriculture at Swainsboro High School, was a perennial winner in District and State FFA Land Judging Contests. He helped write the previous manual on land judging and assisted with numerous training sessions for agriculture teachers. Many teachers have called on him, even into retirement, to assist them and their students in land judging.

Although he did not assist directly in writing this manual, many of the ideas and methods are his. He was a master at adapting the complex soil classification system used by the SCS to the high school level and teaching it so that his students could understand it and apply it to soil use and conservation. Frank Flanders, author.

LAND JUDGING CONTEST GUIDE

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INTRODUCTION

This guide is an update to the contest section of the *Soil and Water Management Guide* for Secondary Agriculture. It is intended to be used as a supplement to teaching soil and water management and land classification and use. This guide is not intended as a textbook on soil and water management.

The objectives for this publication and the FFA land judging contest are to aid the instructor in:

1. Teaching students the practical application of the ~~Soil~~ Natural Resource Conservation Service soil classification system and related land management practices.

2. Motivating students to learn soil and water management through competition and hands-on application.

3. Teaching team work though local, district, state and national land judging team competitions.

4. Teaching decision making skills through the analysis and synthesis of soil characteristics and the application of land management techniques.

5. Teaching students about the environmental impact of agriculture and the importance of conserving soil and water resources.

CONTEST REVIEW COMMITTEE

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Appreciation is also expressed to the following for their assistance:
Mr. Louie Frost and Talbert Jerald, Soil Conservation Service, Athens
Dr. Larry West, Agronomy Department, The University of Georgia, Athens.

FFA LAND JUDGING

The ~~Soil~~ Natural Resource ~~(SCS)~~(NRCS) uses a soil classification system to describe the capability of soils to produce agricultural crops. The land capability classes are based on the most intensive agricultural application that the particular site may be used for without danger of major soil loss.

Official scoring for the FFA land judging contest is done by an NRCS soil scientist. NRCS personnel prepare the official scorecard based on the modified NRCS classification system described in this guide. The NRCS system is used in modified form because of the complexity of the NRCS system and the need for a more simplified system for high school teaching. Each state FFA Association has adopted modifications that best suit their needs. The International Land Judging contest is held in Oklahoma City and is based on the Oklahoma 4-H Land Judging Guide.

NRCS Land Capability Classes

There are eight NRCS land capability classes. Each class has the same meaning in all parts of the United States. A description of the eight land capability classes and their most intensive use are listed below.

Land Capability Classes

Class I	Soils in Class I have very few limitations which restrict their use. They may be used for the production of cultivated crops.
Class II	These soils may also be used for cultivated crops but they have some limitations that require moderate conservation practices.
Class III	Class III land has severe limitations that require special conservation practices and may reduce the choice of crops.
Class IV	These soils are used for cultivated crops but have very severe limitations that restrict the choice of plants and require special management.
Class V	These soils usually appear in small and nearly level drainageways. They are not subject to erosion but have limitations such as frequent flooding and wetness which make them unfit for cultivation. Class V is used for pasture.
Class VI	These soils have such severe limitations that they are unsuited to cultivated crops and are restricted to pasture, woodland, or wildlife feed and cover.
Class VII	These soils have very severe limitations and their use is restricted to forestry and wildlife.
Class VIII	This soil is so severely limited that its use is devoted entirely to wildlife, water supply, recreation or aesthetic purposes.

FACTORS AFFECTING LAND CLASS

Several characteristics of the site must be examined before determining the land capability class. These characteristics are listed down the left side of the scorecard. Each one must be evaluated individually and collectively to determine the land class. Factors to be considered are:

Slope

Topsoil thickness

Erosion

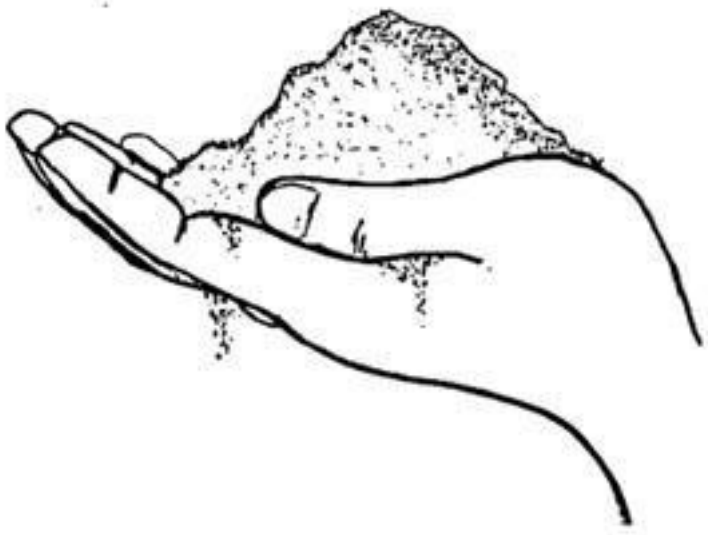
Topsoil texture

Permeability of the subsoil

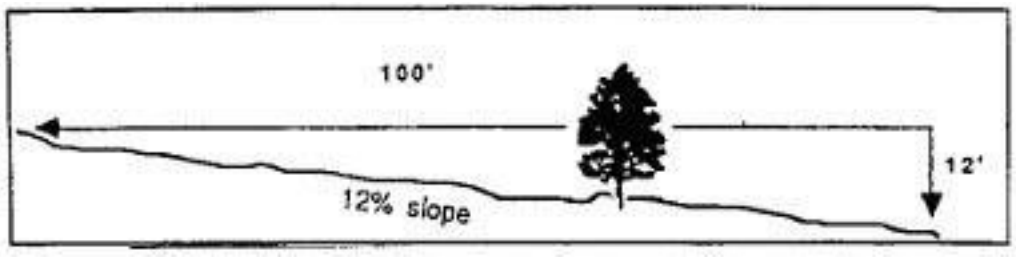
Drainage

Effective depth

Each of these characteristics (except slope) can be determined from the soil profile. In the land judging contest, contestants begin by examining these factors and recording their findings on the scorecard.



A. **Slope** refers to the steepness of the field. It is determined by the amount of fall in feet per 100 feet and is expressed in percent. If measured over a 100 foot distance, it is easy to convert the fall in feet to percent. Example: if the fall is 12 feet over a distance of 100 feet (12 divided by 100) the slope is 12%

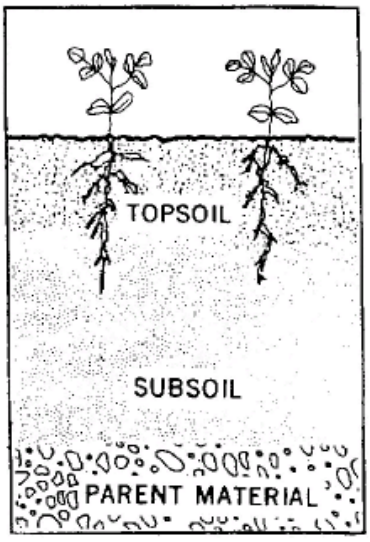


Determining Slope

Categories of Slope	North Georgia	South Georgia
1. **Nearly level**	0-2%	0-2%
2. **Very gentle**	2-6%	2-5%
3. **Gentle**	6-10%	5-8%
4. **Sloping**	10-15%	8-12%
5. **Strongly sloping**	15-25%	12-17%
6. **Steep**	25-60%	Over 17%
7. **Very steep**	Over 60%	Not Applicable

B. **Topsoil Thickness** is the surface layer of the land. It is determined by the depth to texture change or to the point where the subsoil begins. Topsoil is darker than subsoil because it contains more organic matter. Color is usually a good indicator of the dividing line between topsoil and subsoil, but not in all cases. There may be one or more color changes within the topsoil layer. Due to the higher organic matter content, the topsoil is darker in the upper area of the profile and often is lighter further down the profile. Therefore, the point where the subsoil begins should be determined by texture and color only used as a guide. The NRCS classifies each of these sub-layers of topsoil. For the FFA contest, topsoil thickness will be measured from the surface to the beginning of the subsoil layer, which may include sub-layers. Sometimes the topsoil and subsoil are mixed in the plow layer and there is not a distinct change between the layers. In these cases, topsoil thickness should be measured to the point at which the

soil becomes more than 50% clay subsoil.



Some soils in southern Georgia have sandy topsoils that are very thick or extremely thick. These are referred to as shallow sands and deep sands. These soils usually have a darker plow layer with a lower topsoil layer of 10+ inches of a lighter colored sand. In these instances, just as in other soils, topsoil will be measured to texture change -- the subsoil or clay layer. On sands it is not unusual for topsoils to be over 60" deep.

1. **Extremely thick** -- over 40 inches
2. **Very thick** -- 20 to 40 inches
3. **Thick** -- 10 to 20 inches
4. **Moderate** -- 5 to 10 inches

Determining Percent of Topsoil Erosion:

5. **Thin** -- less than 5 inches

Formula:

Topsoil eroded ➭ *Original topsoil = % erosion*

Example 1:

Original topsoil thickness = 12"
Topsoil remaining = 9"
Topsoil eroded = 3"

3 inches ➭ *12 inches = .25 or 25% erosion*

Example 2:

Original topsoil thickness = 15"
Topsoil remaining = 9"

Topsoil eroded = 6"

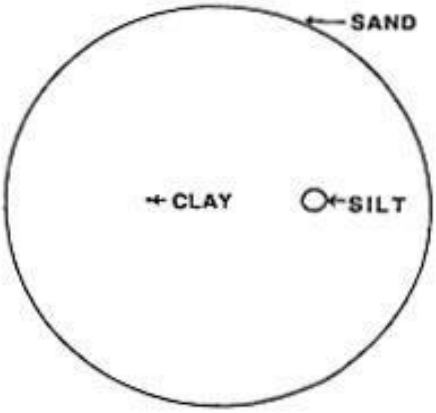
6 inches ➭ 15 inches = .40 or 40% erosion

C. **<u>Erosion</u>** is expressed as the percentage of original topsoil which has eroded. Depth of the original topsoil can be determined by measuring the depth in a nearby virgin forest. At the contest, the original topsoil thickness will be listed on the assumption card. Calculate erosion by dividing the amount of topsoil that has eroded by the original topsoil thickness. Example: if the present topsoil thickness is 9 inches and the original is 12 inches, then 25 percent of the original 12 inches has been eroded.

Erosion Categories:

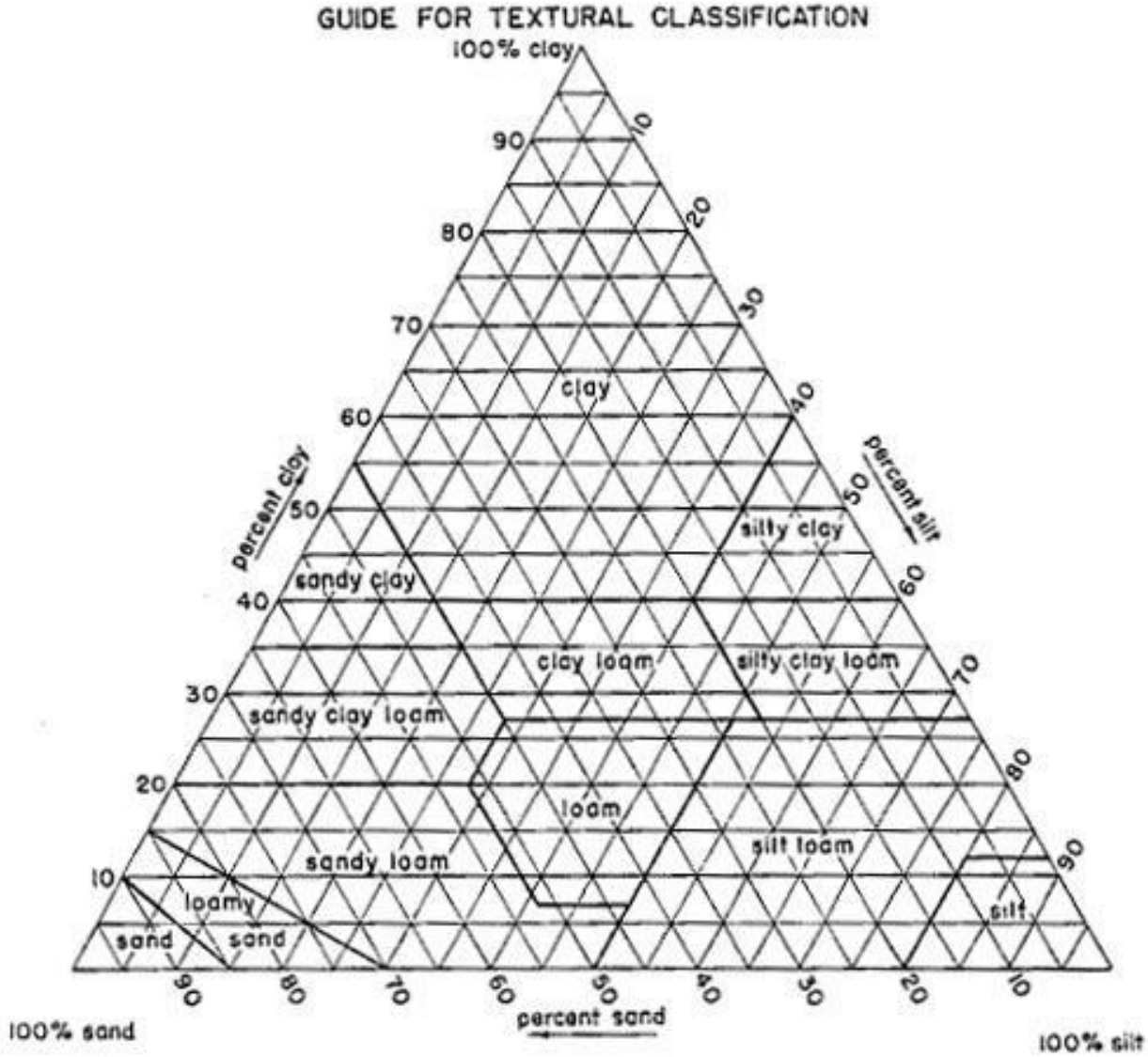
1. **None to slight** - less than 25% eroded
2. **Moderate** - 25 to 75% eroded
3. **Severe** - Over 75% eroded

D. **<u>Topsoil Texture</u>** -- Topsoil texture is determined by the size of soil particles in the topsoil. Sand particles are the largest and clay particles are the smallest. Silt particles are smaller than sand but larger than clay. At the contest, students will determine texture by feeling the topsoil. A sample of topsoil and water will be provided. In setting up the contest, the soil scientist will determine texture.



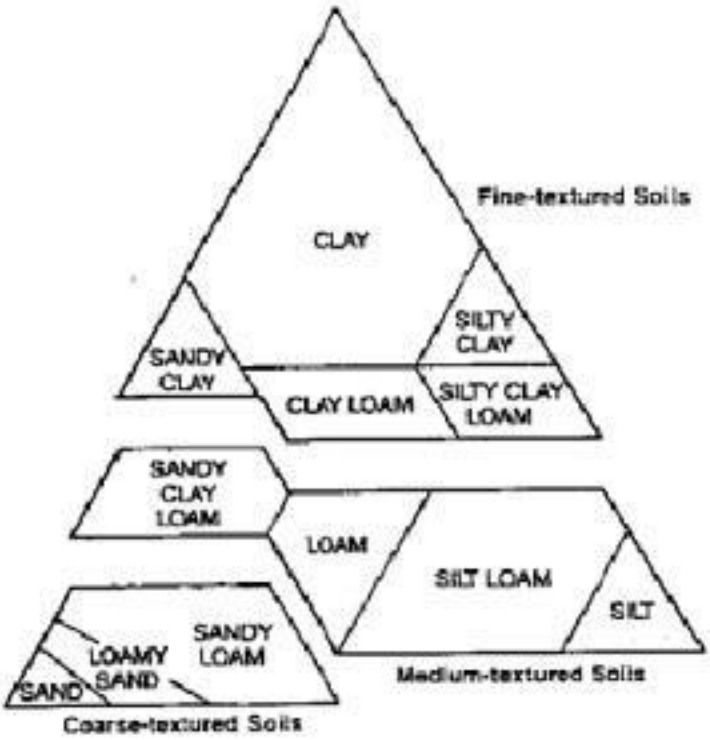
Soil Particle Size - The size of sand, silt and clay particles vary greatly in relation to each other. A grain of sand can be seen easily with the naked eye, while a clay particle can be seen only with a microscope. If a particle of sand were the size of a basketball, then a silt particle would be the size of a golf ball and a clay particle would be the size of a BB.

SSoil Particle Size


GUIDE FOR TEXTURAL CLASSIFICATION
100% clay
percent clay
percent silt
percent sand
100% sand
100% silt
clay
silty clay
sandy clay
clay loam
silty clay loam
sandy clay loam
loam
silt loam
sandy loam
loamy sand
sand
silt

Ranges of sand, silt and clay in the soil texture classes.

Sand %	Silt %	Clay %
	Sand	
	85-100	0-15
	0-10	
	Loamy sand	70-90
	0-20	0-15
	Sandy loam	43-85
	0-50	0-20
	Loam	23-52
	28-50	7-27
	Silt loam	0-50
	50-100	0-27
	Sandy clay loam	45-80
	0-28	20-35
	Clay loam	20-45
	15-53	27-40
	Silty clay loam	0-20
	40-73	27-40
	Silt	0-20
	80-100	0-12
	Sandy clay	45-65
	0-20	35-55
	Silty clay	0-20
40-60	40-60	
	Clay	0-46
0-40	40-100	

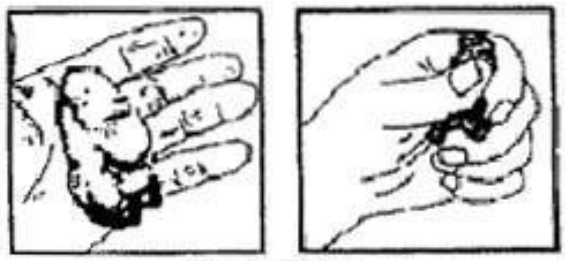

Fine-textured Soils
CLAY
SILTY CLAY
SANDY CLAY
CLAY LOAM
SILTY CLAY LOAM
SANDY CLAY LOAM
LOAM
SILT LOAM
SILT
Medium-textured Soils
SANDY LOAM
LOAMY SAND
SAND
Coarse-textured Soils

Fine Texture

Fine - A fine textured soil is smooth and sticky when wet. The particles feel as fine as flour. When balled in the palm of your hand, it holds its shape and shows finger marks. A long ribbon of soil can be formed by rubbing the soil between the thumb and fore finger.

Medium Texture

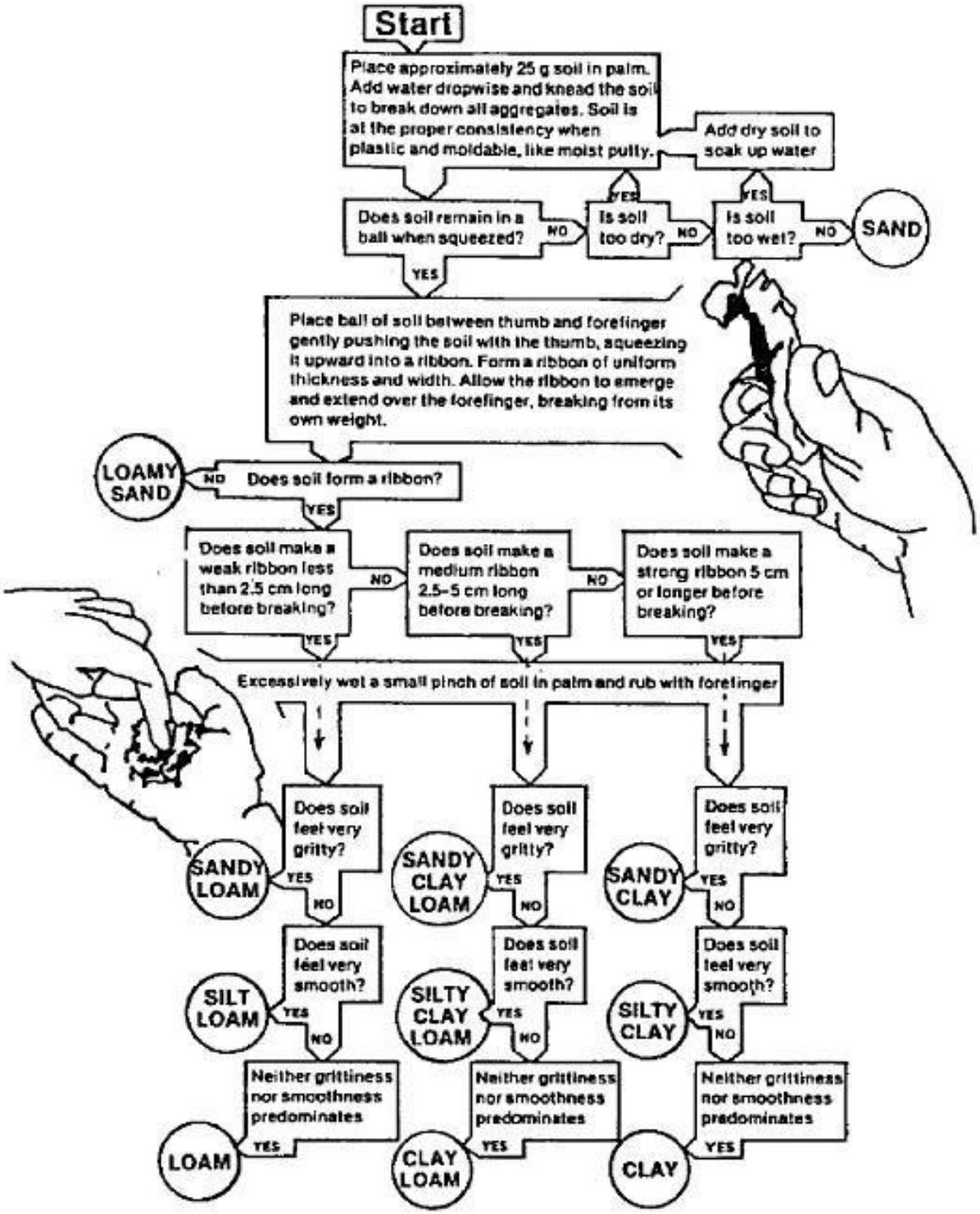
Medium - A medium textured soil is a mixture of sand, silt and clay particles. It is between fine and coarse. The ball will show some finger marks and hold its shape. A short thick ribbon can be formed.



Coarse Texture

Coarse - Coarse textured soils are made up of mostly sand particles. Sand feels gritty and particles are large enough to be easily seen. The ball breaks in your hand and almost no ribbon can be formed.

Flow Diagram for Estimating Soil Texture by Feel



E. <u>Permeability of the Subsoil</u> -- Permeability is the ability of air and water to move through the subsoil. Permeable soils (rapid) are often described as "loose" and impermeable soils (slow) as "tight."

Permeability may vary within layers of the subsoil. A soil may have rapid or moderate permeability near the top but have slow permeability lower in the profile. The degree of permeability is based on the most restrictive layer. To avoid confusion at contests, a container of subsoil will be provided. The judges will determine which is the most restrictive layer and use this as the official sample. Students should estimate permeability based on the subsoil sample provided.

Permeability is based on the texture and structure of the subsoil except when the topsoil exceeds 20 inches. When the subsoil begins at a depth of more than 20 inches, the permeability of the subsoil will play a minor part in the production of crops. In these cases, permeability will be based on the top 20 inches of the profile.
Generally, the smaller the particle size the tighter the soil, so the slower the permeability rate. Fine textured soils would always be slow in permeability **EXCEPT** for the characteristic of structure. Structure refers to the way soil particles clump together in groups (aggregates). The pore spaces between aggregates are large and allow water and air to pass through readily. This means that a fine textured soil may be moderate in permeability.

You can judge the structure of a soil by breaking a lump of subsoil in your hand. Lumps which are easily broken usually have good permeability (moderate). Soils with moderate permeability have many pore spaces. The texture of subsoils may be determined by the ribbon test as described in the section on topsoil texture.

1. **Rapid** -- Due to a coarse texture greater than 20 inches.

2. **Moderate** -- Subsoils of fine or medium texture; well defined nut-like structure; visible pores of varying size.

3. **Slow** -- Subsoils of fine texture; sticky or plastic clay subsoils; few pores visible.

Poorly drained soils are not necessarily slow in permeability. It is possible to have rapid or moderate permeability on a poorly drained site. Permeability is based on the "ability" of water and air to move through the subsoil. In cases where the water table is high, the soil may be poorly drained but have a coarse textured (rapid) or medium textured (moderate) subsoil. Contestants should judge permeability on texture and structure of the subsoil regardless of the drainage.

Special Note: Color is sometimes mistakenly used as an indicator of permeability. Color is a better indicator of drainage. All soil colors are possible with each permeability category.

. **Drainage** refers to surface and internal drainage. As a general rule, the more quickly soil can be tilled safely following a good rainfall, the better the drainage. The best clue to soil drainage is color. The color of most subsoils is determined by iron compounds. When soils are well aerated, the iron compounds are in an oxidized form, giving the subsoil a red or yellow color. (Iron oxide is "rust".) In a poorly aerated soil, the iron compounds will be in a reduced state, giving the soil a gray color. The soil may have a general gray color or be mottled (blotchy, spotted) with gray. Mottled colors of gray, yellow, and brown frequently appear. Soil mottling generally corresponds to the depth of the water table.

1. **Excessively drained** -- Coarse textured, sandy material that continues to depths of more than 40 inches.

2. **Well-drained** -- No gray mottles found in top 30 inches of profile.

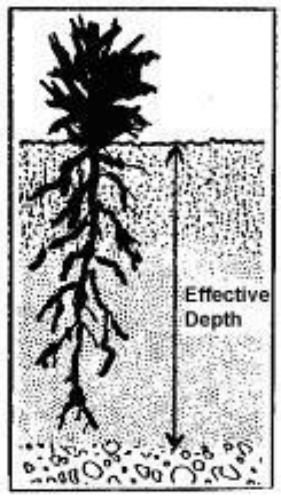
3. **Moderately well-drained** -- No gray mottles found in top 20 inches of profile.

4. **Somewhat poorly drained** -- No gray mottles found in top 10 inches of profile.

5. **Poorly drained** -- Gray matrix or gray mottles found in top 10 inches of profile. Soil may be gray completely to the surface.

6. **Very wet** -- Surface water remains for extended periods.

Gray mottles will be considered a factor only if found in the top 30 inches of the profile. Mottles found in the parent material will not be considered a drainage problem no matter how high they appear in the profile. The contest officials may note on the assumption card if mottling is not due to drainage if the site is a particularly confusing.



G. Effective Depth is that depth to which plant roots can easily penetrate. It is usually the combined thickness of the topsoil and subsoil -- measured to the parent material, although an area of non-restrictive parent material may also be included in

the effective depth. However, root penetration may be restricted by rock layers, hardpans and plow pan layers. A good indication of the effective depth is the presence of roots.

1. **Deep** -- Over 40 inches

2. **Moderate** -- 20 to 40 inches

3. **Shallow** -- 10 to 20 inches

4. **Very Shallow** -- Less than 10 inches

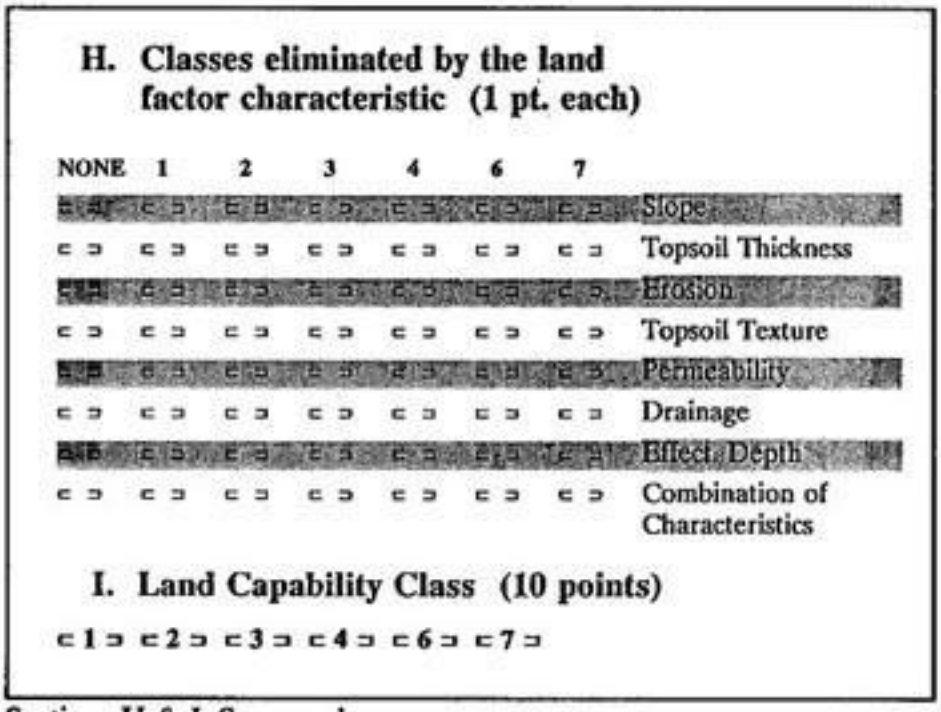
DETERMINING LAND CLASS

After the characteristics of a land judging site have been determined they are recorded on the scorecard and are considered individually and as a whole to determine the land capability class. Each class is based on the degree of erosion hazard or limitation for crop production. The field should be classified according to its most intensive use. Land class I is most suitable for intensive use and VIII is the least suitable.

The most intensive use for land classes I, II, III, and IV is cultivated crops. Classes V and VI may be used for pasture and class VII has such severe limitations that its most intensive use is forestry. Land class VIII is suitable only for wildlife or recreational purposes.

SINGLE FACTOR LIMITATIONS

When completing section H, the "none" category is marked only when nothing else on that row is marked -- that is, when the factor being considered does not pose an erosion hazard or a limitation to crop production. When classes are eliminated by a factor, each class eliminated should be marked on the row corresponding to that characteristic. For example if the slope for a site is "sloping", then classes 1, 2, and 3 should be keyed-in on slope in section H. Use the "Best Land Class" chart on the next page as a guide to classes eliminated by single factors.



Sections H & I, Scorecard

SOIL FACTORS	BEST LAND CLASS
SLOPE	
Nearly Level (0-2%)	I
Very Gently (2-6% N. GA, 2-5% S. GA)	II
Gentle (6-10% N. GA, 5-8% S. GA)	III
Sloping (10-15% N. GA, 8-12% S. GA)	IV
Strongly Sloping (15-25% N. GA, 12-17% S. GA)	VI
Steep (25-60% N. GA, over 17% S. GA)	VII
Very Steep (over 60% N. GA)	VII
TOPSOIL THICKNESS	
Extremely Thick (over 40")	III
Very Thick (20-40")	I
Thick (10-20")	I
Moderately Thick (5-10")	I
Thin (less than 5")	II
EROSION	
None to Slight (less than 25%)	I
Moderate (25 to 75%)	II
Severe (Over 75%)	III
TOPSOIL TEXTURE	
Fine (heavy - flour)	I
Medium (mixture flour & salt)	I
Coarse (salt)	I
PERMEABILITY OF SUBSOIL	
Rapid (coarse, sandy texture)	II
Moderate (fine - medium texture, good structure, visible pores)	I
Slow (fine texture, sticky or plastic, few pores)	II
DRAINAGE	
Excessively drained (coarse, sandy materials over 40" deep)	III
Well-drained (no gray mottles in top 30")	I
Moderately well-drained (no gray mottles in top 20")	II
Somewhat poorly-drained (no gray mottles in top 10")	III
Poorly-drained (gray/black mottles or matrix in top 10")	IV
Wet (surface water)	V
EFFECTIVE DEPTH	
Deep (40+")	I
Moderate (20-40")	II
Shallow (10-20")	III
Very shallow (less than 10")	IV

COMBINATION OF CHARACTERISTICS

(Last line in Section H on the scorecard)

The capability class of a field is usually determined by a single limiting characteristic but the combined effect of two or more characteristics may further lower the class. A combination of characteristics comes into play most often with slope, effective depth, erosion, and permeability on sands but other characteristics must be considered.

Grouping soils based on their limiting characteristics is useful in determining if a combination of characteristics will make the field a lower class than any single characteristic. The combination of characteristics is considered by first putting the field into the appropriate group as describe below. Classify the field based on the rules for the group. If the land class is lower than that indicated by single factors, then eliminate the additional class(s) by marking it on the "combination line" of section H of the scorecard.

SOIL TYPE	DESCRIPTION
DEEP & MODERATE SOILS	Clayey and loamy soils with an effective depth over 20 inches.
SHALLOW SOILS	Clayey and loamy soils with an effective depth between 10 and 20 inches.
VERY SHALLOW SOILS	Clayey and loamy soils with an effective depth less than 10 inches.
SHALLOW SANDS	Sandy soils with topsoil 20 to 40 inches deep and rapid permeability.
DEEP SANDS	Sandy soils with topsoil 40 to 80 inches deep and rapid permeability.
(Minor Soil Groups)	
VERY DEEP SANDS	Very Sandy soils found on river sand ridges with topsoil over 80 inches deep and rapid permeability.

WET SOILS	Very poorly drained soils. They are wet most of the year and may be subject to frequent flooding.

DEEP & MODERATE SOILS

Deep & Moderate Soils are our best soils. These are clayey and loamy soils with effective depths over 20". They are classed according to their slopes; A slope is usually Class I; B slope is usually Class II, etc. However, if the erosion is severe, then the class should be dropped one class from the slope. The combination of characteristics, in this case, is slope and erosion. Examples: (factors that do not effect land class by a combination of characteristics are not listed).

Slope - gentle (C)
Erosion - moderate (2)
Effective Depth - moderate = Class III

Slope - sloping (D)
Erosion - severe (3)
Effective Depth - deep = Class VI

SHALLOW SOILS

Shallow Soils - Soils with effective depths between 10 and 20 inches are usually classed according to the slope where there is "none to slight" erosion; however, with moderate erosion, the class should be dropped one class, while severe erosion drops the field two classes from the slope. Examples: (factors that do not effect land class by a combination of characteristics are not listed).

Slope - gentle (C)
Erosion - moderate (2)
Effective Depth - shallow = Class IV

Slope - sloping (D)
Erosion - severe (3)
Effective Depth - shallow = Class VII

Special note on slope designation: The slope categories are often referred to by letter designation to simplify their description. The letters A to G correspond directly to the slope categories.

A = Nearly Level
B = Very Gently Sloping
C = Gently Sloping
D = Sloping
E = Strongly Sloping
F = Steep
G = Very Steep

VERY SHALLOW SOILS

Very Shallow Soils - The most limiting factor in Very Shallow Soils is Effective Depth. Very shallow soils have less than 10 inches of effective depth. These soils are classified according to effective depth on A and B slopes with 1 and 2 erosion (class IV). These soils would be dropped a class from the effective depth for severe (3) erosion. On C and D slopes with 1 or 2 erosion the land class would be VI and dropped to class VII for severe erosion. Examples: (factors that do not effect land class by a combination of characteristics are not listed).

Slope - gentle (B)
Erosion - moderate (2)
Effective Depth - very shallow = Class IV

Slope - sloping (D)
Erosion - severe (3)
Effective Depth - very shallow= Class VII

SHALLOW SANDS

Shallow Sands - Shallow Sands have coarse textured topsoils 20 to 40 inches deep and rapid permeability. The limiting factor is slope combined with rapid permeability and coarse topsoil texture. A Shallow Sand with an A slope is Class II. In all other situations, classify them according to slope. Examples: (factors that do not effect land class by a combination of characteristics are not listed)

Slope - gentle (B)
Permeability - rapid = Class II

Slope - sloping (D)
Permeability - rapid = Class IV

Note: Severe erosion is not a factor on sands since it would be a highly unusual case for it to occur. Consider that the minimum topsoil thickness for shallow sand is 20 inches. The original topsoil would have had to have been over 80 inches for severe erosion.

DEEP SANDS

Deep Sands are coarse textured soils with 40 to 80 inches of topsoil. The most limiting factor is topsoil thickness combined with drainage, and permeability. Classify Deep Sands according to topsoil thickness on A and B slopes (Class III). On other slopes, drop it one class from the slope.

Slope - gentle (C)
Permeability - rapid
Drainage - excessive = Class IV

Slope - sloping (D)
Permeability - rapid
Drainage - excessive = Class VI

(MINOR SOIL GROUPS)

VERY DEEP SANDS

Very Deep Sands are very poor river sand ridges that have over 80 inches of coarse topsoil with very little organic matter. The topsoil is generally bright white, almost beach-like, and is very coarse. The topsoil has less than 5% silt and clay. Very Deep Sands have little agricultural use. They are generally covered with scrub oaks and have very little groundcover vegetation. Very Deep Sands are class VII.

WET SOILS

These are very poorly drained soils. They fall into the "Wet" drainage category. "Crawfishy bottoms" is a graphic descriptor of these type soils. These soils are class V.

Summary of Combination-of-Characteristics Rules

Unless a single factor dictates a lower class, the following rules will determine the land class. Appendix A on page 65 shows the effect of these rules.

SOIL TYPE	DESCRIPTION	RULE FOR CLASSIFICATION
DEEP & MODERATE SOILS	Clayey & loamy soils with an effective depth over 20 inches.	Classify according to slope on 1 & 2 erosion, drop it one class from the slope for 3 erosion.
SHALLOW SOILS	Clayey & loamy soils with an effective depth between 10 & 20 inches.	Classify according to slope on 1 erosion, drop it one class from the slope for 2 erosion & two classes for 3 erosion.
VERY SHALLOW SOILS	Clayey & loamy soils with an effective depth less than 10 inches.	A & B slopes with 1 & 2 erosion are class IV, 3 erosion is class VI. C & D slopes with 1 or 2 erosion are class VI & 3 erosion is class VII.
SHALLOW SANDS	Sandy soils with topsoil 20 to 40 inches deep & rapid permeability.	A slopes are class II. Classify other sites by slope.
DEEP SANDS	Sandy soils with 40 to 80 inches topsoil & rapid permeability.	A and B slopes are III. C slopes are IV; D slopes are class VI and other slopes are class VII.
(Minor Soil Groups)		
VERY DEEP SANDS	Very Sandy soils found on river sand ridges with topsoil over 80" deep & rapid permeability.	Class VII.
WET SOILS	Very poorly drained soils. They are wet most of the year & may	Class V.

	be subject to frequent flooding.	

STEPS IN DETERMINING LAND CLASS

Use the "Combination of Characteristics" line as a summary line for classes eliminated by single factors and for classes eliminated by a combination of factors.

Follow these steps:

STEP 1. On the "combination" line, bubble-in any class eliminated by any single factor.

STEP 2. Determine the land class based on a "combination of characteristics" (see rules listed separately) and bubble-in any additional classes eliminated.

STEP 3. The highest land class not eliminated by a single or combination of characteristics is the land class for the field.

DETERMINING LAND USE

Part II, Section A of The FFA Land Judging Scorecard

After the land capability class is determined, the land use for the field should be marked on the right hand side of the scorecard. Land use is based on the most intensive use without erosion hazards and its capability of producing crops.

There are several types of agricultural use that may be made of a tract of land. The most intensive use that will also allow for protection of the soil should be selected. Land class is used to determine land use.

CAPABILITY CLASS	**LAND USE**
I, II, III & IV	Cultivated crops
V & VI	Pasture
VII	Forestry
VIII	Wildlife and recreation

LAND TREATMENT PRACTICES

The recommended treatment practices are based on the land use category and specific characteristics of the site.

VEGETATIVE

1. Use conserving and improving crops occasionally - Use this practice on class I land.

2. Use conserving and improving crops frequently (about one-half of the years) - Always use this practice on class II land.

3. Use conserving and improving crops very frequently (about two-thirds of the years) - Use this practice on class III sites.

4. Use conserving and improving crops most of the time (about three-fourths of the years) - Use this practice on class IV land.

   Always use one of the above practices, on the field as indicated, when the land is class I, II, III or IV (cultivated crops). Erosion is more likely to occur on cropland than on well establish pasture and forest land. Cultivated crops also take large amounts of nutrients out of the soil. By planting crops that conserve and improve the soil, the effects of soil depletion and erosion can be reduced. For example, cover crops such as rye following corn will greatly reduce soil erosion and add organic matter when it is plowed under. The degree to which conserving and improving crops are needed varies with the hazards of soil erosion and depletion. On Class I land, for example, these crops should be used only occasionally. Class IV land has a high degree of erosion and depletion hazard, and therefore conserving and improving crops are recommended for use about three-fourths of the years.

5. Prevent residue burning - Always use this practice on classes I, II, III, and IV. Plant residues include the materials left after the crops are harvested. Examples: stems, leaves, stalks, etc. Instead of burning these residues they should be used as a mulch and as organic matter.

6. Provide mulching with crop residue - Always use this practice on classes I, II, III, and IV. Mulches are insulating surfaces spread over the surface of the soil. They moderate soil temperature, conserve soil moisture, reduce erosion and help control weeds.

7. Use strip crops - Always use this practice on classes II, III and IV if terraces are not required and on D slopes if terraces are required. Strip crops on cropland refers to planting alternate strips of sod and row crops along the contour. This helps to slow water runoff, thus reducing soil loss.

8. Use crop rotation - Always use crop rotation on classes I, II, III, and IV. Crop rotation refers to planting different crops in a field from year to year or every two or more years. Rotating crops reduces insect and disease build-up and lessens soil depletion of nutrients used by a specific crop.

9. Control weed, bushes and trees - Always use this practice on classes I, II, III, IV and VI. Do not use practices 20 or 21 for this purpose. Practices 20 and 21 are intended for forest sites and are not needed if #9 is used. Weeds, brush and trees compete with desirable pasture grasses and crops for plant nutrients. Pasture and cropland weeds can be controlled by fertilization and by the use of herbicides. On pastures, mowing and controlled grazing are two other ways weeds can be controlled.

10. Establish recommended grass and/or legumes - Use this practice on pasture, if less than 50% of the ground is covered by a desirable grass or legume. Do not use both practices 10 and 11. If more than 50% of the ground is covered by desirable vegetation, then use #11 "Improve present stand of pasture." In practice, it is a judgement call as to when it is more economical to improve the stand or to replant the field. This decision is complex and involves consideration of many factors. For contest purposes, this decision has been simplified. At the contest, it will be assumed that if less than 50% of the ground is covered by a desirable grass or legume that a new stand should be established. It is important that the student be able to identify desirable grasses and legumes.

11. Improve present stand of pasture - Always use this practice on pasture land when practice 10 is not used. Use "Improve the pasture" when more than 50% of the ground area is covered with desirable vegetation. It is important that a complete stand of desirable vegetation be established. Some students are confused when the site is determined to be class VI and an exceptionally good stand of grass/legume is present. In this case, it may seem hard to imagine that the pasture could be improved and the student is tempted not to mark "Improve the pasture." But even the best pastures need or soon will need improvement. An exceptional pasture is the result of the diligent application of this practice. Regular pasture improvement is a required practice to insure continuing forage production.

12. Control grazing - Always use this practice on pastures. Control grazing refers to planning the animal-to-area ratio so that the pasture is not over-grazed. Over-grazing will reduce production due to the constant and close cropping of vegetation. Pasture grasses are damaged by overgrazing and cannot compete with weeds under this condition.

13. Fence the pasture - Always mark this practice on pasture sites. Current land practices should be ignored for contest purposes. This means that you should mark "Fence the pasture" whether or not a fence is present or the condition of the fence.

14. Use artificial reforestation - This practice may apply when there is a current need to reforest the site. Use this practice on class VII land when the stand is poor, non-existent or undesirable and a seed tree(s) of a desirable species is absent. Artificial reforestation refers to planting pine seedlings by hand or mechanically to establish a stand. If an undesirable or poor stand exists but seed trees of a desirable species are present use "Natural reforestation" instead of "Artificial reforestation." See the definition of "seed tree" in the definitions section.

    An adequate stand of pines is considered to be an average spacing of DBH+4 feet apart or 8' X 8' apart for trees less than 4" DBH. If the spacing of trees is a borderline situation, as to whether or not the stand is adequate, the judges should note the average DBH and average spacing on the assumption card. The judges may provide this information regardless of land class to avoid giving away the land class.

15. Use natural reforestation - Always mark "Use natural reforestation" on class VII land. This practice applies to the current or future regeneration of the forest and is the recommended reforestation practice. If the stand is not adequate and seed trees are not present then practice number 14 "Artificial reforestation" should be marked in addition to this practice. Artificial reforestation will take care of the immediate need to establish a stand and natural reforestation will continuously add new seedlings to maintain a complete stand.

    Natural reforestation is the process by which a forest continuously reseeds itself from the seed of mature, established trees. When seed trees are present it is more economical to use natural reforestation rather than artificial reforestation.

16. Use prescribed burn occasionally - Always use this practice on Class VII sites. Prescribed burning is used to reduce the risk of uncontrolled wildfire, to improve food and habitat for wildlife, to improve grazing conditions, and to kill undesirable vegetative or tree species. Prescribed burning is also useful in the coastal plain to reduce infection from needle disease of longleaf pine. Prescribed burn is often avoided on steep slopes but used carefully (burn down the slope, etc.), it is a valuable practice. This practice will always be marked on class VII land in the contest.

17. Protect trees from wildfires - This practice is always used on Class VII land. Constructing firebreaks and using prescribed burns are highly recommended as ways of protecting trees from wildfires. The most effective and least expensive way of protecting woodlands from wildfire damage is to keep the fire from starting.

Therefore, take care when burning debris -- a common cause of wildfires.

18. Control forest insects and diseases - Always use this practice on Class VII. Forest trees are subject to many kinds of insects and diseases. Many of these develop rapidly and may cause great loss. Forest sites should be monitored for signs of insect or disease infestation and proper control methods should be applied if they occur.

19. Protect trees from animal damage - Always use this practice on Class VII. Livestock are generally considered an enemy to forests, especially young seedlings. Grazing in forests, except in well-established and mature stands, should be prevented. Most forests have trees at all stages of growth and animal damage may be severe to the younger trees.

20. Control undesirable species - Always control undesirable species on Class VII land. Hardwoods are generally undesirable and more vigorous than pines. Pines cannot compete with the faster growing hardwoods. Certain species of pines are also undesirable. Shortleaf pine, for example, should be replaced after harvesting with more vigorous and valuable pine species. Loblolly pine is recommended north of Macon and loblolly, slash or longleaf south of Macon.

21. Harvest trees by clear cutting - For contest purposes, this practice applies in only two situations. "Clear cutting" is marked in addition to "Selective cutting" if either of the situations described below exist.

    Use clear cutting on class VII sites:

    (1) which have one or more merchantable trees of an undesirable species and no merchantable trees of a desirable species. (A "merchantable tree" is one from which at least one 5-foot stick of pulpwood can be cut -- see definitions).

    (2) when the stand is mature or over-mature and growing very slowly. In these cases, a complete new stand is the best alternative and clear cutting with artificial reforestation is the best route to establishing a profitable forest.

    It is true that a mature stand could be selectively cut leaving seed trees, but most landowners opt to clear cut and replant rather than have such radical differences in the size of trees in the stand. This would also create the need for a second cutting operation to remove the seed trees. For contest purposes, follow the rules above.

    Mature trees are indicated by an even-aged stand and large sawtimber-size trees which are growing very slow. Mature, slow growing trees are indicated by visual signs including large size, limbs more horizontal, contorted main trunk at top of the tree, thinning crown, a general unthrifty appearance and smooth bark.

Concern is often raised about clear cutting steep slopes. Slope will not deter the use of clear cutting on class VII sites in the contest. The ground cover, vegetation, stumps and roots on a clear cut site should prevent erosion long enough for a new stand to be established provided reforestation is done as soon as possible.

22. Harvest trees by selective cutting - Always mark "Harvest trees by selective cutting" on class VII land. This practice applies to current or future growth and is the recommended method of harvesting timber for small landowners. Practices 21 and 22 may be used together in certain instances. See the detailed explanation under Practice 21. Selective cutting should also be marked for class VII sites that are currently not in forest. In this case a stand would be established by artificial reforestation and selective cutting would be desirable as the stand matures. Selective cutting is a more desirable practice than clear cutting and should be put into practice when possible. Most forests have an uneven age stand and selective cutting is a logical practice. Also, selective harvesting is a method of removing diseased, deformed, and otherwise unwanted trees. Thick stands, such as found on mechanically planted sites, should be harvested selectively for pulpwood while leaving a stand for sawtimber production.

MECHANICAL

23. Terrace the field - Use terraces on class II, III and IV land when the slope is greater than 2% and the topsoil is less than 20 inches. Slopes less than 2% generally have little erosion hazard and 20 inches or more of topsoil allow water to penetrate fast enough to reduce erosion from runoff. Terraces are used to slow down water runoff, thus conserving water and reducing soil erosion. A terrace is an embankment constructed across a slope to divert or store surface runoff water.

24. Maintain field terraces - Always use this practice when terraces are used. Poor terraces will cause gullies and increase erosion by collecting the runoff water and concentrating it for flowing down slopes in an even greater volume and velocity than when there are no terraces. Terrace maintenance and repair, therefore, are a must. A little maintenance can prevent costly terrace breaks later. Always watch for terraces that need repair -- low spots, areas that have filled in with soil, etc.

25. Establish vegetative waterways - Always establish vegetative waterways when terraces are used. Vegetative waterways, either grass or legume, are used to prevent excess water runoff from creating gullies. They spread and slow the flow of water from rain storms. In some cases, vegetative waterways are used by themselves or with contouring, strip farming, or terraces. For the land judging contest this practice will be used only when terraces are used.

26. Construct diversion terraces - This practice is used on classes I, II, III, IV and VI if an up-slope water problem exists. An up-slope water problem is generally caused by a

long slope that funnels an abnormal amount of water onto the field. This may be too much water for the field to receive without causing erosion and gullies. In this case the water must be carried (diverted) away from the field before it causes damage. Diversion terraces may be installed at the top of the slope of the field to keep the water from entering the field. When an up-slope water problem exists, it will be noted on the assumption and contestants should mark "Construct diversion terraces."

27. Plow and cultivate on the contour - Always use "Plow and cultivate on the contour" on classes I, II, III, IV and VI. This is the practice of conducting field operations (plowing, planting, cultivating, and harvesting) on the contour instead of up and down the slope. Contour farming reduces operating costs and results in reduced soil loss, and higher yields and profit. It is an easy, effective way of saving soil and water.

28. Control existing gullies by special methods - Always control gullies by special means on crop and pasture land when they are present. Gullies can be controlled by proper land use, filling them with rocks or soil, planting trees, shrubs, or vines in them, and by installing concrete dams. See the definition section for the definition of a gully. Sometimes gullies are present but are under control with vegetation -- they are not currently eroding. This situation is often found on sites used for pasture with old gullies from past use for row crops. These gullies may begin to erode at any time so Practice 29 should be marked in these cases also.

PLANT NUTRIENTS

29. Apply lime - Apply lime on classes I, II, III, and IV if the pH is less than 6.0 and on pasture if the pH is less than 6.5. Lime works with fertilizers to produce higher yields of better quality crops. Fertilization without the proper pH is not sufficient for high crop yields. Liming acid soils is a desirable practice because it (1) corrects soil acidity; (2) supplies calcium and magnesium; (3) speeds the decay of organic matter and the liberation of plant foods; (4) increases the availability of applied and residual phosphate; (5) improves crop yields; and (6) improves the physical properties of soils. The pH of the soil will be marked on the assumption card.

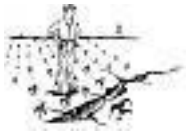
30. Apply manure - Manure should be applied on classes I, II, III, IV and VI when it is available. One of the best ways to prevent erosion and water runoff is to maintain a high level of plant growth. When available, manure is one of the cheapest and best fertilizers. This practice should always be marked when the assumption card indicated that manure is available. If the availability of manure is not listed it will be assumed that it is not available.

31. Apply nitrogen - Always apply nitrogen on classes I, II, III, IV and VI. Nitrogen is not tested for in standard soil tests because it is stored in the soil for only a short period. Most soils are nitrogen deficient and recommendations are made based on the crop grown instead of the nitrogen content of the soil. Nitrogen gets a quick response in vegetative growth of plants and increases the yield of most crops. The

level of nitrogen may be marked on the assumption card but this practice should always be marked for crops and pasture regardless of the current level of nitrogen since nitrogen levels change very rapidly.

32. Apply phosphorus - Apply phosphorus to classes I, II, III, IV and VI land when the soil test indicates that phosphorus is less than very high. Phosphorus is stored in most soils but it varies in amount and availability. A soil test will show whether the soil is low, medium, high or very high in phosphorus. The level of phosphorus will be marked on the assumption card.

33. Apply potash - Apply potash to land classes I, II, III, IV and VI when potash is less than very high. Potassium (elemental form of potash) is stored in most soils but it varies in amount and availability. A soil test will show whether the soil is low, medium, high or very high in potash. The level of potash in the soil will be marked on the assumption card.



LAND TREATMENT PRACTICES

VEGETATIVE	WHEN USED
1. Use conserving & improving crops occasionally	Always on class I
2. Use conserving & improving crops 2 of time	Always on class II
3. Use conserving & improving crops b of time	Always on class III
4. Use conserving & improving crops : of time	Always on class IV
5. Prevent residue burning	Always on classes I, II, III, & IV
6. Provide mulching with crop residue	Always on classes I, II, III, & IV
7. Use strip crops	On II, III & IV if terraces are not used & D slopes if terraces are used
8. Use crop rotation	Always on classes I, II, III, & IV
9. Control weeds, bushes & trees	Always on classes I, II, III, IV, & VI
10. Establish recommended grass and/or legumes	On pasture if < 50% of the plot is covered by a desirable species
11. Improve present stand of pasture	Always on class VI when practice #10 is not used
12. Control grazing	Always on class VI
13. Fence the pasture	Always on class VI
14. Use artificial reforestation	On class VII with no trees or if stand is poor & seed trees are absent
15. Use natural reforestation	Always on class VII; applies to current & future growth
16. Use prescribed burn occasionally	Always on class VII
17. Protect trees from wildfires	Always on class VII
18. Control forest insects & diseases	Always on class VII
19. Protect trees from animal damage	Always on class VII
20. Control undesirable species	Always on class VII
21. Harvest trees by clear cutting	On VII with a mature stand or if it has merchantable trees of an undesirable species & no merchantable trees of a desirable species
22. Harvest trees by selective cutting	Always on class VII; applies to current or future growth
MECHANICAL	
23. Terrace the field	On II, III & IV when slope > 2% & topsoil < 20 inches
24. Maintain field terraces	Always when #23 is used

25. Establish vegetative waterways	**Always when #23 is used**
26. Construct diversion terraces	**On I, II, III, IV & VI if an up-slope water problem exists**
27. Plow & cultivate on the contour	**Always on cropland & pasture**
28. Control existing gullies by special methods	**Always on cropland and on pasture when present**
PLANT NUTRIENTS	
29. Apply lime	**On I, II, III, IV if pH < 6.0 & on pasture if pH < 6.5**
30. Apply manure	**On I, II, III, IV & pasture when available**
31. Apply nitrogen	**Always on classes I, II, III, IV & pasture**
32. Apply phosphorus	**On I, II, III, IV & VI if phosphorus is less than very high**
33. Apply potash	**On I, II, III, IV & VI when potash is less than very high**

CONTEST ORGANIZATION

1. Soil sites should be chosen to show practical field conditions. Modification of conditions, such as not following the natural slope, should be avoided although sometimes this is necessary to avoid borderline situations. The pits should be located in a uniform and representative soil area. Care should be taken to select sites where clear-cut decisions can be made relative to the correct marking of all sections on the scorecard. Borderline conditions will be avoided.

2. Pits will be dug at least 40 inches deep or to a shallower depth if effective depth has been reached. The pit should be of sufficient length to accommodate several contestants. A gradual slope should be cut at one end of the pit to facilitate access. One side of the pit should be located so that the vertical wall receives direct sunlight as much as possible during the contest.

3. Contestants should take measurements on the official profile of the pit, designated by two ribbons. Contestants are not to disturb the official profile but they are encouraged to investigate as necessary the soil profile outside the official designated profile.

4. A separate answer sheet must be used for each site. This sheet should be clearly marked with the pit number as well as the contestant's name and his or her school. Use a #2 pencil only.

5. Contestants will be divided into groups with one person from each team in each group. In this manner, the team members are separated from each other and each will judge the soil sites independently. Groups will be numbered 1-4.

6. At the signal to start the contest, the previously designated group leaders will each take a group to one of the sites for judging. Groups should begin at the pit number that corresponds to their group number (1-4).

7. The pit monitor or group leader will allow ~~20~~ 25 minutes (unless otherwise stated) for judging each site. Instructions will be given at each pit by the group leader or pit monitor. Each student must turn in his/her completed answer sheet before leaving the pit.

8. When a group has completed judging at a pit, the group will rotate to the next highest numbered pit in a 1-to-2-to-3-to-4 fashion (with group 4 rotating to pit 1). For example, when Group 2 has completed judging pit 3, the group will rotate to pit 4.

9. Sufficient time should be allotted at the end of the contest for the judges to discuss the correct marking of each site with the contestants and advisors.

10. The land area surrounding each pit, considered in the judging, will be designated by stakes or flags. If practical, a site approximately 100' X 100' will be used.

11. The area to be used in determining slope should be marked with stakes. Unless otherwise noted on the assumption card or specifically stated by the pit monitor, the slope stakes will be 100' apart (measured by tape).

12. Each pit site will be supplied with water, a yard stick, an assumption card and samples of topsoil and subsoil.

13. Slope will be measured by the judges with a farm level or a level of similar accuracy. Slopes will be no closer than 6" to the breaking point between categories. All attempts will be made to have the slope no closer than 1' to the breaking point if the slope determines the land use.

14. A smoothed-off road bank and adjacent field may be used instead of a pit.

ASSUMPTION CARD

FIELD NO. 4

Original Topsoil Thickness - 12"

Manure is Not Available

pH - 5.8

Nitrogen - High

Phosphorus - High

Potash - Very High

DBH of Trees - None Present

Average Tree Spacing - N/A

INSTRUCTIONS FOR PIT MONITORS

The following guidelines are to be used by the pit monitors in giving directions to contestants.

1. Time limit per pit is ~~20~~ 25minutes (unless otherwise stated). The pit monitor is responsible for keeping time and should begin time after instructions for judging the pit have been given.

2. Point out the following items to the contestants and make sure the items can be easily seen.

Field boundary flags	Slope stakes
Assumption card	Topsoil sample
Subsoil sample	Water bottle
Official soil profile	Yardstick

3. Direct the students to take measurements between the ribbons on the official profile but not to disturb the profile in any way. Students may probe/examine as necessary the profile outside the ribbons designating the official profile.

4. The monitor should remind contestants to use the column corresponding with the field number.

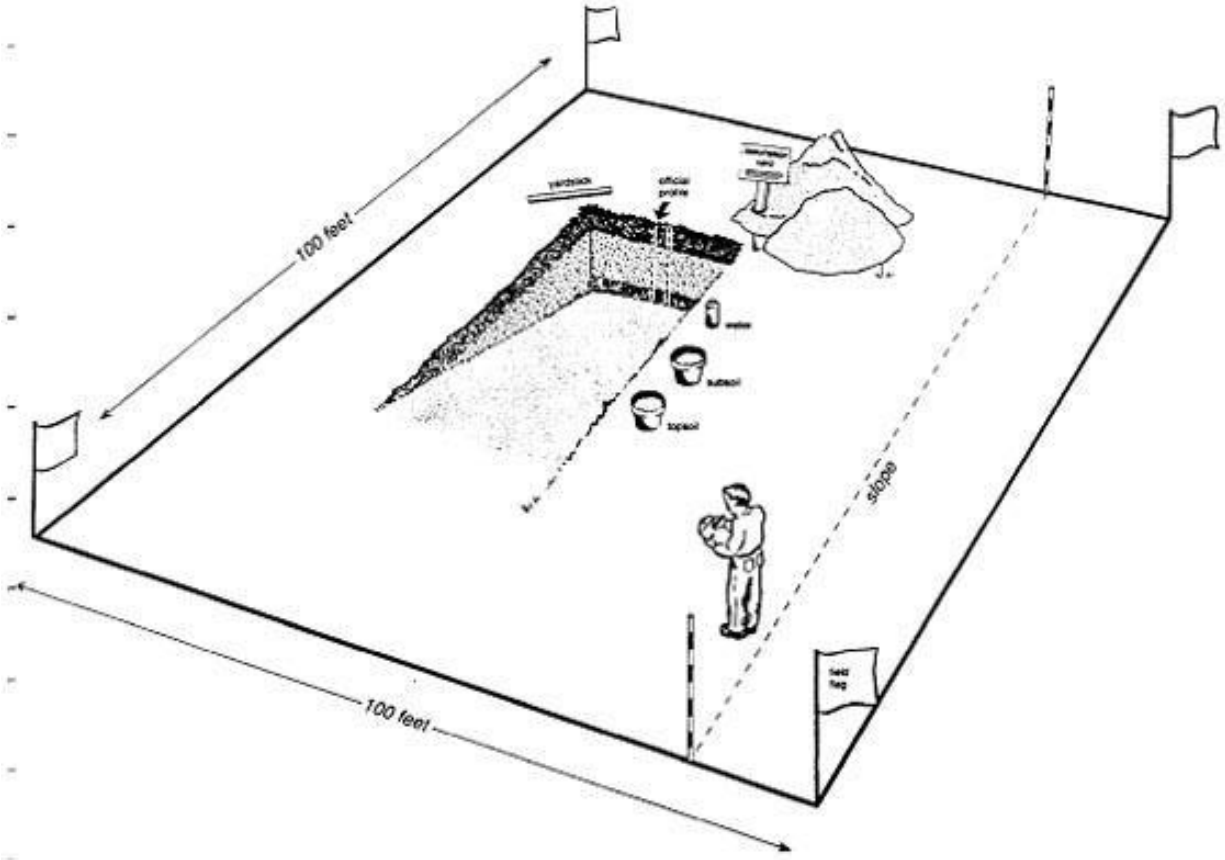
5. Students should line up and wait their turn to enter the pit. The monitor must see that each contestant has enough time to take measurements in the pit.

6. The group leader should take up all papers after the group finishes at the last pit. The monitor should look over the papers as they are being turned in to check for missing information -- especially name, school, and field number.

7. The monitor will assist the group leaders in keeping groups and students from the same school separated during the contest -- especially as they rotate between sites.

8. No talking is allowed until all papers have been turned in.

9. Groups will begin the contest at the field that corresponds to their group number. The rotation sequence will be 1-to-2-to-3-to-4 (groups will rotate from field 4 to field 1).


100 feet
100 feet
slope

ASSUMPTIONS

as sump tion n. 1. The act of assuming. 2. An idea or statement assumed to be true without proof: suppose.

For uniformity in the land judging contest, the following assumptions will be made by the judges and should be followed by the contestants. It is assumed that:

1. Pine forests of longleaf, slash or loblolly are always desirable to hardwoods or other pine species. If the site is class VII and one of these species is not present, then the desirable species should be established. North of Macon, loblolly should be used and south of Macon, slash, loblolly or longleaf may be used.

2. Practices for forest management are based on practices generally best for private land owners. Large forest companies often manage woodlands quite differently.

3. Selective cutting of forests is more desirable than clear cutting and should be used when practical.

4. Natural reforestation is more desirable than artificial reforestation and should be used when possible. This practice is marked even if seed trees are not present. It applies to current and future growth. If seed trees are not currently present it is assumed there will be trees suitable for natural reforestation in the future.

5. Anything outside the site boundaries, including seed trees, gullies, etc, will be ignored unless specific directions to consider them are given by the judges.

6. On pastures, mark "improve the stand" or "establish a new stand" but never both. If 50% or more of the ground is bare of the desired grass, use "establish." If less than 50% of the ground is bare of the desired species, use "improve the stand."

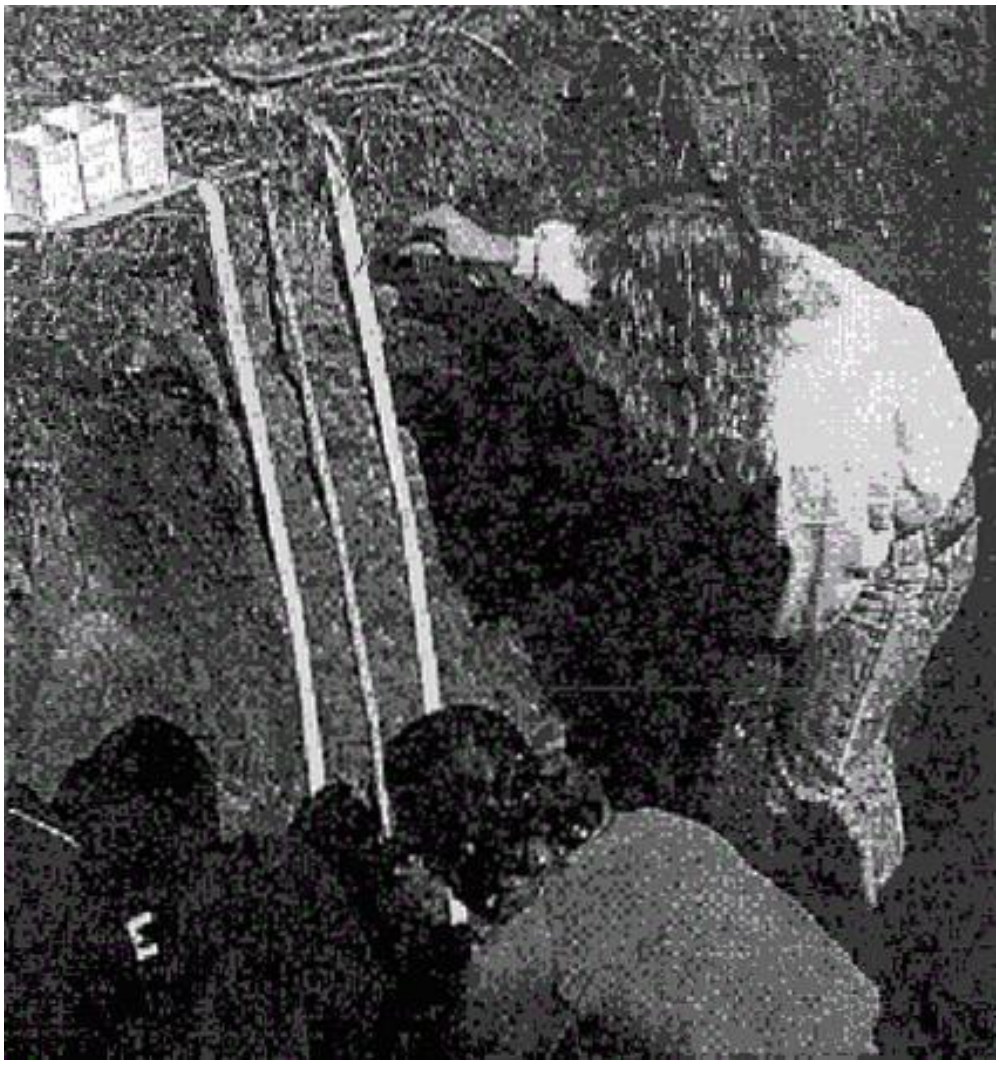
7. If the pit is less than 40" deep, the effective depth has been reached.

8. If an up-slope water problem exists it will be noted on the assumption card.

9. When completing section H on the scorecard, the "none" category is marked only when nothing else on that row is marked. Also, when classes are eliminated by one or more factors, each class eliminated should be marked. For example, if a slope is "Sloping" then class 1, 2, and 3 should be keyed-in on slope in section H but in this case the "none" category would not be marked.

10. Current land practices except for trees and pasture cover will be disregarded. For example, if terraces are needed, practice number 23 (establish terraces) should be used whether or not terraces already exist on the site.

11. The judges may make any notes on the assumption card concerning any characteristic of the site to clarify borderline situations. This practice is recommended when situations exist which may cause confusion to the contestants.



DEFINITIONS

For contest purposes only. See the Glossary for a more universal definition.

1. Adequate Stand of Pines - When the desired trees have an average spacing of diameter-breast-high plus 4 (DBH+4) or closer. For example, if the trees are 10 inches in diameter, they should be spaced no more than 14 feet apart. Trees less than 4 inches DBH should be spaced about 8 X 8 feet.

2. Clear Cutting - cutting every merchantable tree on the site whether it is a desirable or undesirable species. See the definition of "merchantable tree."

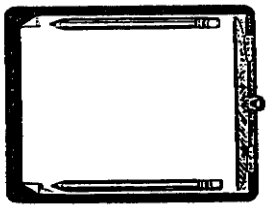
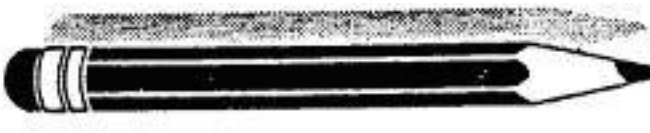
3. Gully - a gully is a washed out area at least 1 ft. wide, 6" deep, and 1 yard long (it must meet all three measurements). One or more gullies of this size are not likely to disappear with normal cultivation. They indicate a problem that will only get worse without the application of control methods. A gully as large or larger than that defined above should be controlled by special means - practice #29. Washed areas smaller than a gully are called rills. If the washed area is especially close to the borderline for the measurements of a gully, the contest officials may elect to lay a pole of other straight object across the gully to make measurement easier.

4. Merchantable Tree - any tree as large or larger than the minimum size for pulpwood. The tree should be at least 4 inches in diameter breast high (DBH). At least one 5-foot length of pulpwood, 4" diameter at the small end, should be able to be cut from the tree. A 4" DBH tree is considered merchantable.

5. Seed Tree - a seed tree is a cone-bearing pine of a desirable species (slash, loblolly or longleaf south of Macon and loblolly north of Macon). The presence of one or more cones on or underneath the tree shall indicate that the tree is of conebearing age and adequate for natural reforestation.

6. Topsoil - is the combination of surface and subsurface layers above the subsoil. There has often been confusion in contests concerning the depth of topsoil on sandy soils. Sandy soils often have a surface layer over a thicker layer of lighter colored sandy material before the clayey subsoil (B horizon) is reached. The NRCS technically defines this lighter colored part of the topsoil as the "E" horizon. For contest purposes the E horizon will be considered as part of the topsoil. The contestant should measure from the surface to the subsoil layer (clay) to determine topsoil thickness. At a contest, the topsoil and subsoil samples provided by the judges for determining texture may assist students in determining where to take their measurements for topsoil thickness.

Equipment and Materials For The Contest

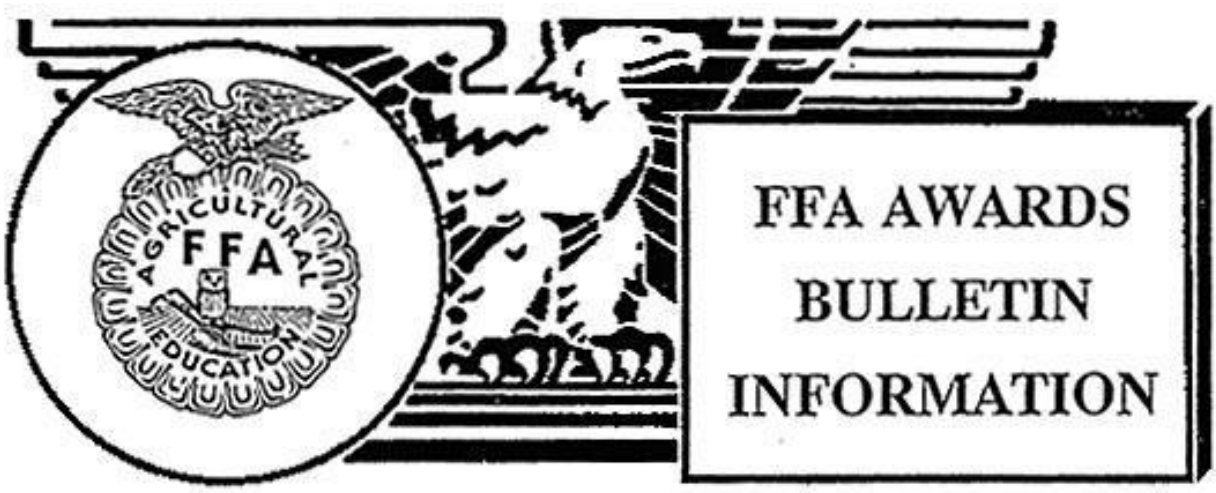
Clipboard	
#2 pencils	
Soil probe a pocket knife or putty knife are ideal	
Scorecards supplied at registration	

Optional Equipment

The following items are optional but are allowed for the contest:

Calculator	
Extra scorecards **- for personal use**	
Hand towel	

Raincoat **or umbrella**	



(These guidelines were taken from the 1999 Georgia FFA Awards Bulletin. Check the current revision of the bulletin for changes.)

AWARDS

(Senior Division)

Minimum Awards

State Winning Team	Plaque and $1,200 travel award for national competition
State 2nd Place Team	Plaque
Sate High Individual	Plaque
State 2nd High Individual	Plaque
State 3rd High Individual	Plaque

Sponsored Awards

State Winning Team	Plaque, $1,400 travel award for national competition and Individual team member plaques
Ag Teacher(s) of State Winner	Certificate and $100

State 2nd Place Team	Plaque
State 3rd Place Team	Plaque
State High Individual	Plaque and $100
State 2nd High Individual	Plaque and $50
State 3rd High Individual	Plaque and $25
Area Winning Teams	Plaque
Area 2nd Place Teams	Plaque
Area High Individuals	Plaque and $50
Area 2nd High Individuals	Plaque
Area 3rd High Individuals	Plaque

(Junior Division)

Minimum Awards

State Winning Team	Plaque
State High Individual	Plaque
State 2nd Individual	Plaque

Sponsored Awards

State Winning Team	Plaque and individual tam member plaques
Ag Teacher(s) of State Winner	Certificate and $100
State 2nd Place Team	Plaque
State 3rd Place Team	Plaque
State High Individual	Plaque and $100
State 2nd High Individual	Plaque and $50
State 3rd High Individual	Plaque and $25
Area Winning Teams	Plaque
Area 2nd Place Teams	Plaque
Area High Individuals	Plaque and $50
Area 2nd High Individual	Plaque
Area 3rd High Individuals	Plaque

BASIS FOR DETERMINING WINNERS

Land Classification and use on selected plots (stations) which involves: (The scorecard to be used will not have a description for the land factors.)

1. Land judging of topsoil texture, top soil thickness, effective depth of top soil and subsoil, permeability of subsoil, slope, erosion, drainage, factors that prevent the area from being Class I land, and land capability.

2. Proper land treatment practices needed for different classes vegetative, mechanical, and lime and fertilizer.

3. Four contestants will comprise a land judging team. (The three highest scores will be used in determining the team score.)

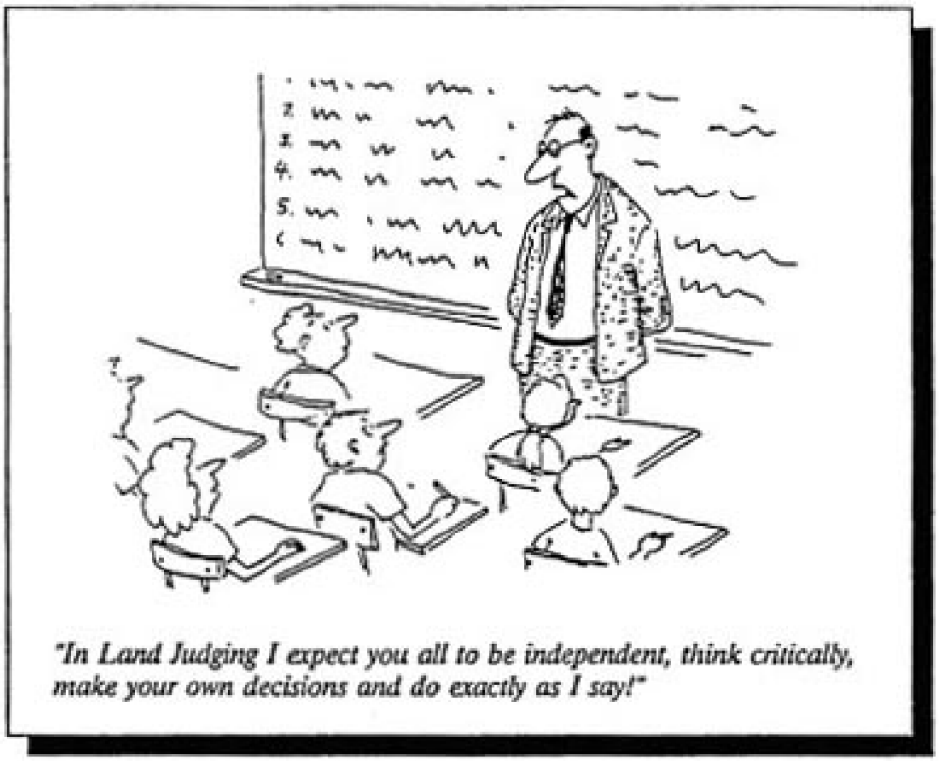
4. The boundaries of the land area to be considered at each station (pit) will be clearly marked with stakes.

5. In addition, the judges will place two stakes or markers 100 feet apart (measured) indicating points for determining the slope of the area. Any variation from this will be clearly indicated on the assumption card.

6. Any individual who is a member of a state winning team (land judging) cannot compete in

this event again.

7. Measuring devices (yard sticks) and water will be furnished at each pit. The contestant will need a clip board, pencil, and soil probe. Calculators, extra score cards, rain coats/umbrellas, and hand towels are also allowed. No devices, either homemade or otherwise, may be used to measure slope. Any contestant using any such illegal device will disqualify the entire team.

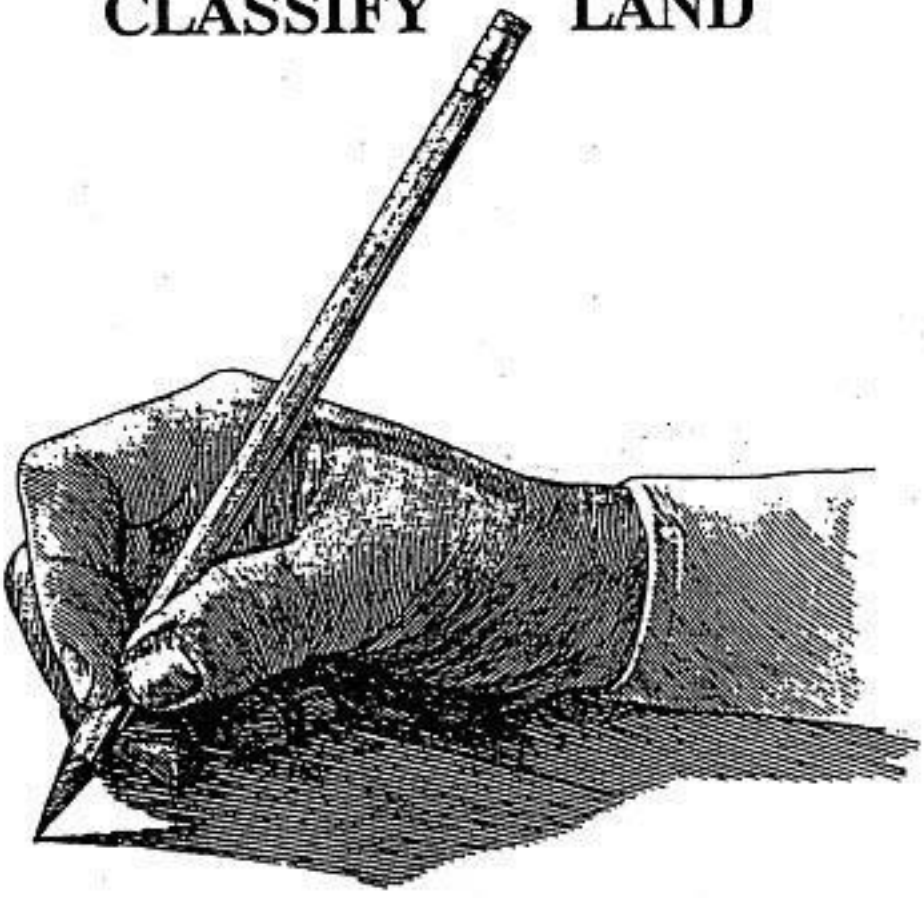


"In Land Judging I expect you all to be independent, think critically, make your own decisions and do exactly as I say!"

LAND CLASS WORKSHEETS AND KEYS

The following pages contain charts which list characteristics of sites used in District and State FFA contests over several years. Use these characteristics and the guides contained in this book to determine the land class. Mark your answers in the last column and check them with the answer key in the next section.

CHECK YOUR ABILITY TO CLASSIFY LAND



I. Land Capability Class (10 points)

[1] [2] [3] [4] [6] [7]

LAND CLASS WORKSHEET

FIELD NUMBER	SLOPE	TOPSOIL THICKNESS	EROSION	TOPSOIL TEXTURE	PERMEABILITY	DRAINAGE	DEPTH	LAND CLASS
1	C	moderate	2	M	moderate	well	deep	
2	D	thin	3	M	moderate	well	moderate	
3	D	moderate	2	M	moderate	well	deep	
4	B	thin	3	M	moderate	well	deep	
5	A	thick	1	M	moderate	well	deep	
6	B	thick	1	M	moderate	well	deep	
7	F	thick	1	M	moderate	well	deep	
8	C	thin	3	M	moderate	well	deep	
9	B	mod. deep	2	M	moderate	well	deep	
10	B	moderate	2	M	moderate	well	shallow	
11	C	thin	3	M	moderate	well	moderate	
12	B	thin	2	M	moderate	well	moderate	
13	B	moderate	1	M	moderate	well	deep	
14	C	thin	3	C	moderate	well	V. Shallow	
15	E	moderate	2	M	moderate	well	deep	
16	C	thin	3	M	moderate	well	deep	
17	B	moderate	2	M	moderate	well	moderate	
18	B	moderate	1	M	moderate	well	deep	
19	E	moderate	2	M	moderate	well	moderate	

20	F	thick	1	M	moderate	well	moderate	

LAND CLASS WORKSHEET

FIELD NUMBER	SLOPE	TOPSOIL THICKNESS	EROSION	TOPSOIL TEXTURE	PERMEABILITY	DRAINAGE	DEPTH	LAND CLASS
21	C	thin	3	M	moderate	well	moderate	
22	B	thick	1	M	moderate	well	deep	
23	D	very thick	1	M	moderate	well	deep	
24	C	moderate	2	M	moderate	well	deep	
25	B	thick	1	C	slow	S poor	deep	
26	D	moderate	2	C	moderate	well	moderate	
27	B	moderate	1	C	moderate	Mod. Well	moderate	
28	E	thin	2	M	moderate	well	moderate	
29	C	thick	1	C	moderate	well	deep	
30	C	thin	2	M	moderate	well	shallow	
31	C	moderate	2	C	moderate	well	deep	
32	D	thin	3	M	moderate	well	moderate	
33	E	thin	2	M	moderate	well	moderate	
34	C	moderate	1	M	moderate	well	deep	
35	D	moderate	2	M	moderate	well	deep	
36	A	very thick	1	M	moderate	well	deep	
37	B	moderate	1	M	moderate	well	deep	
38	C	thin	3	M	moderate	well	deep	
39	B	moderate	2	M	moderate	well	moderate	
40	D	thin	3	M	moderate	well	deep	

LAND CLASS WORKSHEET

FIELD NUMBER	SLOPE	TOPSOIL THICKNESS	EROSION	TOPSOIL TEXTURE	PERMEABILITY	DRAINAGE	DEPTH	LAND CLASS
41	B	thin	3	M	moderate	well	moderate	
42	C	moderate	2	M	moderate	well	deep	
43	D	moderate	2	M	moderate	well	deep	
44	A	very thick	1	C	rapid	well	deep	
45	A	thin	2	F	moderate	well	deep	
46	B	moderate	2	M	moderate	well	deep	
47	B	very thick	1	C	Rapid	well	deep	
48	B	thin	3	M	moderate	well	V. shallow	
49	A	moderate	1	M	moderate	well	deep	
50	B	thin	3	M	moderate	well	deep	
51	B	thick	1	C	moderate	well	deep	
52	F	moderate	2	M	moderate	well	moderate	
53	A	moderate	2	F	moderate	well	deep	
54	A	moderate	1	M	moderate	well	deep	
55	C	thick	1	M	moderate	well	deep	
56	B	moderate	2	M	moderate	well	deep	
57	A	thick	1	M	moderate	well	deep	
58	C	thin	2	M	moderate	well	deep	
59	A	moderate	1	M	moderate	well	deep	
60	B	thin	3	F	moderate	well	deep	

LAND CLASS WORKSHEET

FIELD NUMBER	SLOPE	TOPSOIL THICKNESS	EROSION	TOPSOIL TEXTURE	PERMEABILITY	DRAINAGE	DEPTH	LAND CLASS
61	B	thin	2	M	moderate	well	deep	
62	E	thin	3	F	moderate	well	deep	
63	C	moderate	2	M	moderate	well	deep	
64	D	moderate	1	M	moderate	well	deep	
65	B	thin	2	M	moderate	well	V. shallow	
66	A	moderate	2	M	moderate	well	deep	
67	C	thin	2	M	moderate	well	deep	
68	B	thin	3	F	moderate	well	deep	
69	B	thick	1	M	moderate	well	deep	
70	C	moderate	2	M	moderate	well	deep	
71	B	moderate	2	M	moderate	well	deep	
72	A	moderate	2	M	moderate	well	shallow	
73	C	thin	3	M	moderate	well	deep	
74	B	over 80"	1	C	rapid	excessive	deep	
75	A	62"	1	C	rapid	excessive	deep	
76	B	42"	1	C	rapid	excessive	deep	
77	A	V. thick	1	C	rapid	well	deep	
78	C	V. thick	1	C	rapid	well	deep	
79	C	47"	1	C	rapid	excessive	deep	
80	D	V. thick	1	C	rapid	well	deep	

LAND CLASS WORKSHEET KEY

FIELD NUMBER	LAND CLASS
1	3
2	6
3	4
4	3
5	1
6	2
7	7
8	4
9	2
10	3
11	4
12	2
13	2
14	7
15	6
16	4
17	2
18	2
19	6
20	7

FIELD NUMBER	LAND CLASS
21	4
22	2
23	4
24	3
25	3
26	4
27	2
28	6
29	3
30	4
31	3
32	6
33	6
34	3
35	4
36	1
37	2
38	4
39	2
40	6

FIELD NUMBER	LAND CLASS
41	3
42	3
43	4
44	2
45	2
46	2
47	2
48	6
49	1
50	3
51	2
52	7
53	2
54	1
55	3
56	2
57	1
58	3
59	1
60	3

FIELD NUMBER	LAND CLASS
61	2
62	7
63	3
64	4
65	4
66	2
67	3
68	3
69	2
70	3
71	2
72	3
73	4
74	7
75	3
76	3
77	2
78	3
79	4
80	4

FOREST PRACTICES WORKSHEET AND KEYS

Examples of forest sites to help clarify the use of clear cut, selective cut, artificial reforestation, and natural reforestation as they apply to the Georgia FFA Land Judging Contest. These four practices are more subject to judgmental factors than any other practices on the scorecard. This is an attempt to standardize their use for the FFA contest, although their use varies widely in actual forest management.

Read the description of each forest site to get a clear mental image of the site characteristics. Mark each reforestation and harvesting practice that applies. Check your answers by using the keys in the next section. Assume that all sites have been determined to be class VII and the sites to be evaluated are 100 foot square.

Site 1: The site is covered with 12" DBH oaks but has three 5 foot high loblolly pines.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 2: This site has several 4" DBH slash pines. It is difficult to determine if the stand is adequate because the trees are spaced too close on one part of the site and too far apart on another. The assumption card states that the average spacing of the trees is 8 feet.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 3: This site was a pasture but it has been neglected and is currently grown up in brush with seven loblolly pines, all of which are less than 4" diameter-breast-high (DBH).

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 4: The site has a stand of even-aged, mature, slow growing pine sawtimber.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 5: The site has only shortleaf pines and many of them are over 4 inches DBH.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 6: This site has a very good stand (crown-to-crown cover) of uneven-aged slash pines. The assumption card states that the average DBH is 12" and the average spacing is 12'.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 7: The site has about one-half the trees needed for an adequate stand (DBH+4). It has loblolly pines from seedlings to mature, conebearing trees.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 8: The site has about one-half the number of trees for an adequate stand (DBH+4). It has loblolly pines ranging up to 10 feet tall but all are less than 4" DBH. None of the trees are of conebearing age. A few 6" DBH hardwoods are on the site.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 9: The pines on this site have recently been clear cut of sawtimber. Four slash pines, about 4 inches DBH and 30 feet tall, remain. They are very poor specimens and none of them has cones. Six hardwoods up to 10 inches DBH are present.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 10: This site is being used for pasture and has one 3 foot high loblolly pine within the site. The site has a good stand of bermudagrass.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 11: The slope of this site is 35%. It has a complete cover of very large oaks but no pines.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 12: This site has recently been clear cut. Four Virginia pines, 3 inches DBH and 20 feet tall remain. They have a very large crop of cones.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

Site 13: This site has longleaf pines about 3 feet tall and 5 feet apart. It also has two large oaks.

__ Use artificial reforestation
__ Use natural reforestation
__ Harvest trees by clear cutting
__ Harvest trees by selective cutting

FOREST PRACTICES WORKSHEET KEY

Examples of forest sites to help clarify the use of clear cut, selective cut, artificial reforestation, and natural reforestation as they apply to the Georgia FFA Land Judging Contest. The sites are approximately 100 feet square.

Site 1: The site is covered with 12" DBH oaks but has three 5 foot high loblolly pines.

- X Use artificial reforestation
- X Use natural reforestation
- X Harvest trees by clear cutting
- X Harvest trees by selective cutting

Site 2: This site has several 4" DBH slash pines. It is difficult to determine if the stand is adequate because the trees are spaced too close on one part of the site and too far apart on another. The assumption card states that the average spacing of the trees is 8 feet.

- __ Use artificial reforestation
- X Use natural reforestation
- __ Harvest trees by clear cutting
- X Harvest trees by selective cutting

Site 3: This site was a pasture but it has been neglected and is currently grown up in brush with seven loblolly pines, all of which are less than 4" diameter-breast-high (DBH).

- X Use artificial reforestation
- X Use natural reforestation
- __ Harvest trees by clear cutting
- X Harvest trees by selective cutting

Site 4: The site has a stand of even-aged, mature, slow growing pine sawtimber.

- X Use artificial reforestation
- X Use natural reforestation
- X Harvest trees by clear cutting
- X Harvest trees by selective cutting

Site 5: The site has only shortleaf pines and many of them are over 4 inches DBH.

X Use artificial reforestation
X Use natural reforestation
X Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 6: This site has a very good stand (crown-to-crown cover) of uneven-aged slash pines. The assumption card states that the average DBH is 12" and the average spacing is 12'.

__ Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 7: The site has about one-half the trees needed for an adequate stand (DBH+4). It has loblolly pines from seedlings to mature, conebearing trees.

__ Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 8: The site has about one-half the number of trees for an adequate stand (DBH+4). It has loblolly pines ranging up to 10 feet tall but all are less than 4" DBH. None of the trees are of conebearing age. A few 6" DBH hardwoods are on the site.

X Use artificial reforestation
X Use natural reforestation
X Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 9: The pines on this site have recently been clear cut of sawtimber. Four slash pines, about 4 inches DBH and 30 feet tall, remain. They are very poor specimens and none of them has cones. Six hardwoods up to 10 inches DBH are present.

X Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 10: This site is being used for pasture and has one 3 foot high loblolly pine within the site. The site has a good stand of bermudagrass.

X Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 11: The slope of this site is 35%. It has a complete cover of very large oaks but no pines.

X Use artificial reforestation
X Use natural reforestation
X Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 12: This site has recently been clear cut. Four Virginia pines, 3 inches DBH and 20 feet tall remain. They have a very large crop of cones.

X Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

Site 13: This site has longleaf pines about 3 feet tall and 5 feet apart. It also has two large oaks.

__ Use artificial reforestation
X Use natural reforestation
__ Harvest trees by clear cutting
X Harvest trees by selective cutting

SAMPLES OF COMPLETED SCORECARDS

GEORGIA FFA LAND JUDGING CONTEST

CONTESTANTS NUMBER
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9

Pit #1
CONTESTANTS NAME
State Contest
SCHOOL

FIELD NUMBER
1 2 3 4

- ERASE COMPLETELY TO CHANGE
- FILL BUBBLE COMPLETELY

Part I-CLASS FACTORS & LAND CLASS

A. Slope of land (3 points)
- 1. Nearly level
- **2. Very gentle**
- 3. Gentle
- 4. Sloping
- 5. Strongly sloping
- 6. Steep
- 7. Very steep

B. Topsoil Thickness (3 points)
- 1. Extremely thick
- 2. Very thick
- 3. Thick 8"
- **4. Moderate**
- 5. Thin

C. Erosion (3 points)
- 1. None to slight Orig. 12" 0
- **2. Moderate**
- 3. Severe

D. Topsoil Texture (3 points)
- 1. Fine
- 2. Medium
- **3. Coarse**

E. Permeability of Subsoil (3 points)
- 1. Rapid
- **2. Moderate**
- 3. Slow

F. Drainage (3 points)
- 1. Excessively drained
- **2. Well-drained**
- 3. Moderate
- 4. Somewhat poor
- 5. Poor
- 6. Very wet

G. Effective Depth of Soil (3 points)
- 1. Deep
- **2. Moderate** 34"
- 3. Shallow
- 4. Very Shallow

H. Classes eliminated by the land factor characteristic (1 pt. each)

	NONE	1	2	3	4	6	7
Slope		●					
Topsoil Thickness							
Erosion		●					
Topsoil Texture							
Permeability							
Drainage							
Effect. Depth		●					
Combination of Characteristics							

I. Land Capability Class (10 points)
1 ● 3 4 6 7

Part II-RECOMMENDED LAND USE & TREATMENT

A. Land use for the field (5 points)
- **1. Cultivated crops**
- 2. Pasture
- 3. Forest
- 4. Wildlife and Recreation

B. Land Treatment Practices (3 points)

VEGETATIVE
- 1. Use conserving & improving crops occasionally
- **2. Use conserving & improving crops frequently (about one-half of years)**
- 3. Use conserving & improving crops very frequently (about two-thirds of years)
- 4. Use conserving & improving crops most of the time (about 3/4 of years)
- **5. Prevent residue burning**
- **6. Provide mulching with crop residue**
- 7. Use strip crops
- **8. Use crop rotation**
- **9. Control weeds, brush and trees**
- 10. Establish recommended grass and/or legumes
- 11. Improve present stand of pasture
- 12. Control grazing
- 13. Fence the pasture
- 14. Use artificial reforestation
- 15. Use natural reforestation
- 16. Use prescribed burn occasionally
- 17. Protect trees from wildfires
- 18. Control forest insects & diseases
- 19. Protect trees from animal damage
- 20. Control undesirable species
- 21. Harvest trees by clear cutting
- 22. Harvest trees by selective cutting

MECHANICAL
- **23. Terrace the field**
- **24. Maintain field terraces**
- **25. Establish vegetative waterways**
- 26. Construct diversion terraces
- 27. Install drainage system
- **28. Plow and cultivate on the contour**
- 29. Control existing gullies by special methods

PLANT NUTRIENTS
- **30. Apply lime**
- **31. Apply manure**
- **32. Apply nitrogen**
- 33. Apply phosphorous
- 34. Apply potash

GEORGIA FFA LAND JUDGING CONTEST

CONTESTANTS NUMBER
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9

Pit # 2
CONTESTANTS NAME
State Contest
SCHOOL

FIELD NUMBER
1 2 3 4

- ERASE COMPLETELY TO CHANGE
- FILL BUBBLE COMPLETELY

Part I-CLASS FACTORS & LAND CLASS

A. Slope of land (3 points)
- 1. Nearly level
- 2. Very gentle
- 3. Gentle
- 4. Sloping
- 5. Strongly sloping
- 6. Steep
- 7. Very steep

B. Topsoil Thickness (3 points)
- 1. Extremely thick
- 2. Very thick
- 3. Thick
- 4. Moderate
- 5. Thin

33"

C. Erosion (3 points)
- 1. None to slight
- 2. Moderate
- 3. Severe

Orig. 36"

D. Topsoil Texture (3 points)
- 1. Fine
- 2. Medium
- 3. Coarse

E. Permeability of Subsoil (3 points)
- 1. Rapid
- 2. Moderate
- 3. Slow

F. Drainage (3 points)
- 1. Excessively drained
- 2. Well-drained
- 3. Moderate
- 4. Somewhat poor
- 5. Poor
- 6. Very wet

G. Effective Depth of Soil (3 points)
- 1. Deep
- 2. Moderate
- 3. Shallow
- 4. Very Shallow

H. Classes eliminated by the land factor characteristic (1 pt. each)

	NONE	1	2	3	4	6	7
Slope		●					
Topsoil Thickness							
Erosion							
Topsoil Texture							
Permeability		●					
Drainage							
Effect. Depth							
Combination of Characteristics		●					

I. Land Capability Class (10 points)
1 ● 3 4 6 7

Part II-RECOMMENDED LAND USE & TREATMENT

A. Land use for the field (5 points)
- ● 1. Cultivated crops
- 2. Pasture
- 3. Forest
- 4. Wildlife and Recreation

B. Land Treatment Practices (3 points)

VEGETATIVE
- 1. Use conserving & improving crops occasionally
- ● 2. Use conserving & improving crops frequently (about one-half of years)
- 3. Use conserving & improving crops very frequently (about two-thirds of years)
- 4. Use conserving & improving crops most of the time (about 3/4 of years)
- ● 5. Prevent residue burning
- ● 6. Provide mulching with crop residue
- ● 7. Use strip crops
- ● 8. Use crop rotation
- ● 9. Control weeds, brush and trees
- 10. Establish recommended grass and/or legumes
- 11. Improve present stand of pasture
- 12. Control grazing
- 13. Fence the pasture
- 14. Use artificial reforestation
- 15. Use natural reforestation
- 16. Use prescribed burn occasionally
- 17. Protect trees from wildfires
- 18. Control forest insects & diseases
- 19. Protect trees from animal damage
- 20. Control undesirable species
- 21. Harvest trees by clear cutting
- 22. Harvest trees by selective cutting

MECHANICAL
- 23. Terrace the field
- 24. Maintain field terraces
- 25. Establish vegetative waterways
- 26. Construct diversion terraces
- 27. Install drainage system
- ● 28. Plow and cultivate on the contour
- 29. Control existing gullies by special methods

PLANT NUTRIENTS
- 30. Apply lime
- 31. Apply manure
- ● 32. Apply nitrogen
- 33. Apply phosphorous
- 34. Apply potash

GEORGIA FFA LAND JUDGING CONTEST

CONTESTANTS NUMBER

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

Pit # 3

CONTESTANTS NAME

State Contest

SCHOOL

FIELD NUMBER

1 2 ● 4

- ERASE COMPLETELY TO CHANGE
- FILL BUBBLE COMPLETELY ●

Part I-CLASS FACTORS & LAND CLASS

A. Slope of land (3 points)

1. Nearly level
2. ● Very gentle
3. Gentle
4. Sloping
5. Strongly sloping
6. Steep
7. Very steep

B. Topsoil Thickness (3 points)

1. Extremely thick
2. Very thick
3. Thick — 2"
4. Moderate
5. ● Thin

C. Erosion (3 points)

1. None to slight — Orig. 6"
2. ● Moderate
3. Severe

D. Topsoil Texture (3 points)

1. Fine
2. ● Medium
3. Coarse

E. Permeability of Subsoil (3 points)

1. Rapid
2. ● Moderate
3. Slow

F. Drainage (3 points)

1. Excessively drained
2. ● Well-drained
3. Moderate
4. Somewhat poor
5. Poor
6. Very wet

G. Effective Depth of Soil (3 points)

1. Deep
2. Moderate — 9½"
3. Shallow
4. ● Very Shallow

H. Classes eliminated by the land factor characteristic (1 pt. each)

	NONE	1	2	3	4	6	7
Slope		●					
Topsoil Thickness		●					
Erosion		●					
Topsoil Texture		●					
Permeability		●					
Drainage		●					
Effect. Depth			●	●	●		
Combination of Characteristics			●	●	●		

I. Land Capability Class (10 points)

1 2 3 ● 6 7

Part II-RECOMMENDED LAND USE & TREATMENT

A. Land use for the field (5 points)

1. ● Cultivated crops
2. Pasture
3. Forest
4. Wildlife and Recreation

B. Land Treatment Practices (3 points)

VEGETATIVE

1. Use conserving & improving crops occasionally
2. Use conserving & improving crops frequently (about one-half of years)
3. Use conserving & improving crops very frequently (about two-thirds of years)
4. ● Use conserving & improving crops most of the time (about 3/4 of years)
5. ● Prevent residue burning
6. ● Provide mulching with crop residue
7. Use strip crops
8. ● Use crop rotation
9. ● Control weeds, brush and trees
10. Establish recommended grass and/or legumes
11. Improve present stand of pasture
12. Control grazing
13. Fence the pasture
14. Use artificial reforestation
15. Use natural reforestation
16. Use prescribed burn occasionally
17. Protect trees from wildfires
18. Control forest insects & diseases
19. Protect trees from animal damage
20. Control undesirable species
21. Harvest trees by clear cutting
22. Harvest trees by selective cutting

MECHANICAL

23. ● Terrace the field
24. ● Maintain field terraces
25. ● Establish vegetative waterways
26. Construct diversion terraces
27. Install drainage system
28. ● Plow and cultivate on the contour
29. Control existing gullies by special methods

PLANT NUTRIENTS

30. Apply lime
31. Apply manure
32. ● Apply nitrogen
33. Apply phosphorous
34. Apply potash

GEORGIA FFA LAND JUDGING CONTEST

CONTESTANTS NUMBER

0	1	2	3	4	5	6	7	8	9	
0	1	2	3	4	5	6	7	8	9	
0	1	2	3	4	5	6	7	8	9	

Pit #4

CONTESTANTS NAME

State Contest

SCHOOL

FIELD NUMBER

1 2 3

- ERASE COMPLETELY TO CHANGE
- FILL BUBBLE COMPLETELY

Part I-CLASS FACTORS & LAND CLASS

A. Slope of land (3 points)

- 1. Nearly level
- 2. Very gentle
- **3. Gentle**
- 4. Sloping
- 5. Strongly sloping
- 6. Steep
- 7. Very steep

B. Topsoil Thickness (3 points)

- 1. Extremely thick
- 2. Very thick
- 3. Thick — 2"
- 4. Moderate
- **5. Thin**

C. Erosion (3 points)

- 1. None to slight — Orig. 9"
- 2. Moderate
- **3. Severe**

D. Topsoil Texture (3 points)

- **1. Fine**
- 2. Medium
- 3. Coarse

E. Permeability of Subsoil (3 points)

- 1. Rapid
- 2. Moderate
- **3. Slow**

F. Drainage (3 points)

- 1. Excessively drained
- **2. Well-drained**
- 3. Moderate
- 4. Somewhat poor
- 5. Poor
- 6. Very wet

G. Effective Depth of Soil (3 points)

- 1. Deep
- 2. Moderate — 19"
- **3. Shallow**
- 4. Very Shallow

H. Classes eliminated by the land factor characteristic (1 pt. each)

	NONE	1	2	3	4	6	7
Slope		■	■				
Topsoil Thickness		■					
Erosion		■	■				
Topsoil Texture	■						
Permeability		■					
Drainage	■						
Effect. Depth		■	■				
Combination of Characteristics		■	■	■	■		

I. Land Capability Class (10 points)

1 2 3 4 ■ 7

Part II-RECOMMENDED LAND USE & TREATMENT

A. Land use for the field (5 points)

- 1. Cultivated crops
- **2. Pasture**
- 3. Forest
- 4. Wildlife and Recreation

B. Land Treatment Practices (3 points)

VEGETATIVE

- 1. Use conserving & improving crops occasionally
- 2. Use conserving & improving crops frequently (about one-half of years)
- 3. Use conserving & improving crops very frequently (about two-thirds of years)
- 4. Use conserving & improving crops most of the time (about 3/4 of years)
- 5. Prevent residue burning
- 6. Provide mulching with crop residue
- 7. Use strip crops
- 8. Use crop rotation
- **9. Control weeds, brush and trees**
- **10. Establish recommended grass and/or legumes** — Site is located in a Forest
- 11. Improve present stand of pasture
- **12. Control grazing**
- **13. Fence the pasture**
- 14. Use artificial reforestation
- 15. Use natural reforestation
- 16. Use prescribed burn occasionally
- 17. Protect trees from wildfires
- 18. Control forest insects & diseases
- 19. Protect trees from animal damage
- 20. Control undesirable species
- 21. Harvest trees by clear cutting
- 22. Harvest trees by selective cutting

MECHANICAL

- 23. Terrace the field
- 24. Maintain field terraces
- 25. Establish vegetative waterways
- 26. Construct diversion terraces
- 27. Install drainage system
- **28. Plow and cultivate on the contour**
- 29. Control existing gullies by special methods

PLANT NUTRIENTS

- **30. Apply lime** — pH = 6.3
- 31. Apply manure
- **32. Apply nitrogen**
- 33. Apply phosphorous
- 34. Apply potash

GLOSSARY

Acid soil. A soil that contains more hydrogen ions than hydroxyl ions; soil pH is less than 7.0.

Aeration, soil. Process by which air in the soil is replaced by air from the atmosphere. Related to number, size, and continuity of soil pores and to internal drainage.

Alkaline soil. A soil that contains more hydroxyl ions than hydrogen ions; pH greater than 7.0.

Amendment, soil. A substance mixed into the soil to improve its properties. Usually applied to materials used to improve physical conditions.

Bedrock. Solid, or consolidated, rock lying under the soil. It may be, but is usually not, the parent material of the soil lying above it.

Clay. (1) The class of smallest soil particles, smaller than 0.002 millimeter in diameter. (2) The textural class highest in clay.

Coarse texture. A soil texture whose traits are largely set by the presence of sand. Includes sands, loamy sands, and most sandy loams.

Compaction, soil. The squeezing together of soil particles by the weight of farm and construction equipment, vehicles, and animal and foot traffic. Compaction reduces average pore size and total air space in the soil.

Contour tillage. Tillage following the contours of a slope, rather than up and down a slope. Helps prevent erosion and runoff.

Cover crop. A crop planted to prevent erosion on a soil. Cover crops can be planted on soils not currently being farmed or between rows of trees in orchards or nurseries.

Crop rotation. Planting a repeating sequence of different crops on the same piece of land.

Cultivation. Tillage to control weeds and loosen soil.

Drainage, soil. (1) The speed and amount of water removal from soil by runoff or downward flow through soil. (2) Amount of time when soil is free of saturation.

Fine texture. Soil with a large amount of clay. Usually includes clay, sandy clay, clay loam, silty clay, and silty clay loam.

Friable. A consistency term, expressing how easily a moist soil can be crumbled.

Green manure. A crop grown to be turned under while still green to improve the soil.

Gully. A large channel in the soil, caused by erosion, that is deep and wide enough that it would not be obliterated by normal soil tillage. For contest purposes a gully is defined as a washed out area larger than 1 ft. wide, 6" deep, and 1 yard long.

Hardpan. A dense, compacted layer of soil under the surface that may interfere with the downward penetration of both roots and water.

Horizon, soil. A layer of soil, created by soil-forming processes, that differs in physical or chemical properties from adjacent layers.

Humus. Decay-resistant residue of organic matter decomposition. Humus is dark-colored and highly colloidal.

Land capability classes. Eight soil classes ranked for their suitability for agriculture according to risk of erosion and other factors.

Leaching. Removal of soluble material in solution from the soil by percolating water.

Legume. A member of the legume family of plants, such as soybeans, peas, clover, alfalfa, locust trees, and many other economically important plants. Legumes host the *Rhizobia* bacteria that fix nitrogen.

Lime. Materials used to neutralize acidity, containing calcium or magnesium.

Loam. A medium soil texture class, in which sand, silt, and clay contribute almost equally to soil properties.

Medium-textured soil. Soils intermediate between fine- and coarse-textured soils. Includes loam, fine sandy loams, silt loam, and silt.

Mottling. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage.

Mulch. A material spread on the soil surface, like straw, leaves, plastic, or stones to protect soil from freezing, raindrop impact, evaporation, and heaving.

Organic matter. Material of plant or animal origin that decays in the soil to form humus.

Parent material. The horizon of weathered or partly weathered soil material from which the soil is formed. The C horizon of a soil profile.

Permeability. Ease with which gases, liquids, and plant roots pass through a specific mass of soil.

pH, soil. Measure of the acidity or alkalinity of a soil. Technically, reciprocal of the logarithm of the hydrogen ion concentration in the soil solution.

Pore space. Portion of soil not occupied by solid material but which is filled with air or water.

Profile, soil. The vertical section of a soil through all its horizons, ending in the parent material.

Rill. A channel in the soil caused by water erosion that is small enough to be erased by tillage.

Runoff. Water that falls on the soil but fails to be absorbed; flows on the soil surface.

Sand. (1) Largest of the soil separates, between 0.05 and 2.00 millimeters in diameter. (2) Coarsest textural class.

Shrink-swell. The shrinking of a soil when dry and the swelling when wet. Shrinking and swelling can damage roads and building foundations as well as plant roots.

Silt. Medium-sized soil separate, particles between 0.05 and 0.002 millimeter in diameter.

Soil. Loose mineral and organic material on the earth's surface that serves as a medium for the growth of land plants.

Soil air. Gas phase of soil; space of soil not filled with solid or liquid.

Soil amendment. Any material added to soil, including organic materials such as compost or inorganic materials such as gypsum, to improve plant growth. While many amendments include nutrients, the term excludes those materials added primarily as fertilizers.

Soil classification. The arrangement of soils into classes of several levels.

Soil conservation. Protection of soil from erosion.

Soil sampling. The systematic gathering of soil samples for use in soil testing.

Soil survey. The examination, description, and mapping of soils of an area according to the soil classification system.

Soil testing. Using various tests to measure properties that affect how well soil will support plant growth.

Splash erosion. The movement of soil particles by splashing from the impact of a drop of water.

Strip-cropping. Planting different types of crops in alternate strips to prevent wind or water erosion. Strips are usually planted on a slope contour or across the direction of the prevailing wind.

Structure, soil. The arrangement of soil particles into aggregates or peds.

Subsoil. The B horizon of a soil profile. Generally a clay layer beneath the topsoil and below plow depth.

Subsoiling. Breaking up compact subsoils or pans by the use of a chisel plow or other implement.

Terracing. Construction of a raised or level strip of earth on a slope to control runoff and erosion.

Texture. The relative proportion of the soil separates in a soil.

Tillage. Mechanically working the soil to change soil conditions for crop growth or to kill weeds.

Topsoil. The A horizon of a soil profile. The surface soils and subsurface soils which are generally fertile, rich in organic matter and humus debris.

Virgin soil. Soil that has not been disturbed by humans.

Weathering. Natural process that breaks down rock into parent materials.

APPENDIX A

Unless single characteristics dictate a lower land class, the following table, based on the Combination of Characteristics rules, will determine the land class. While this table is useful in teaching and learning land judging, a student should not try to memorize the information. It is much easier to remember the rules as shown on page 23. This table or other references may not be used in the Land Judging Contest.

SLOPE & EROSION	DEEP & MODERATE SOILS	SHALLOW SOILS	VERY SHALLOW SOILS	SHALLOW SAND	DEEP SAND
A-1	I	III	IV	II	III
A-2	II	III	IV		
B-1	II	III	IV	II	III
B-2	II	III	IV		
B-3	III	IV	VI		
C-1	III	III	VI	III	IV
C-2	III	IV	VI		
C-3	IV	VI	VII		
D-1	IV	IV	VI	IV	VI
D-2	IV	VI	VI		
D-3	VI	VII	VII		

E-1	VI	VI	VII	VI	VII
E-2	VI	VII	VII		
E-3	VII	VII	VII		

PART 4 - RECOMMENDED LAND TREATMENTS

VEGETATIVE	1	2	3	4
1. Use conserving/improving crops occasionally	①	②	③	④
2. Use conserving/improving crops frequently (1/2 yrs)	①	②	③	④
3. Use conserving/improving crops very frequently (2/3 yrs)	①	②	③	④
4. Use conserving/improving crops most of the time (3/4 yrs)	①	②	③	④
5. Prevent residue burning	①	②	③	④
6. Mulch with crop residue	①	②	③	④
7. Use strip crops	①	②	③	④
8. Use crop rotation	①	②	③	④
9. Control weeds, brush and trees	①	②	③	④
10. Established recommended grass/legumes	①	②	③	④
11. Improve present stand of pasture	①	②	③	④
12. Control grazing	①	②	③	④
13. Fence the pasture	①	②	③	④
14. Use artificial reforestation	①	②	③	④
15. Use natural reforestation	①	②	③	④
16. Use prescribed burn occasionally	①	②	③	④
17. Protect trees from wildfires	①	②	③	④
18. Control forest insects & diseases	①	②	③	④
19. Protect trees from animal damage	①	②	③	④
20. Control undesirable species	①	②	③	④
21. Harvest trees by clear cutting	①	②	③	④
22. Harvest trees by selective cutting	①	②	③	④

MECHANICAL	1	2	3	4
23. Terrace the field	①	②	③	④
24. Maintain field terraces	①	②	③	④
25. Establish vegetative waterways	①	②	③	④
26. Construct diversion terraces	①	②	③	④
27. Plow and cultivate on the contour	①	②	③	④
28. Control existing gullies	①	②	③	④
PLANT NUTRIENTS				
29. Apply lime	①	②	③	④
30. Apply manure	①	②	③	④
31. Apply nitrogen	①	②	③	④
32. Apply phosphorous	①	②	③	④
33. Apply potash	①	②	③	④

PART 5 - LIMITATIONS FOR HOME SITES

S = Slight M = Moderate Sv = Severe

	SEPTIC SYSTEMS				LAWNS AND LANDSCAPES				FOUNDATIONS FOR BUILDINGS			
	1	2	3	4	1	2	3	4	1	2	3	4
Slope	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Topsoil Thinkness	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Erosion	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Topsoil Texture	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Permeability of Subsoil	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Drainage (Internal)	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Effective Depth	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Surface Runoff	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Flooding	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv
Final Evaluation	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv	S M Sv

PART 6 - TEAM ACTIVITY

Team answers must be recorded on Contestant #1's paper

Section A

1	2	3	4	5	6	7	8	9	10
0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9

Section B

1. A B C D E	16. A B C D E		
2. A B C D E	17. A B C D E		
3. A B C D E	18. A B C D E		
4. A B C D E	19. A B C D E		
5. A B C D E	20. A B C D E		
6. A B C D E	21. A B C D E		
7. A B C D E	22. A B C D E		
8. A B C D E	23. A B C D E		
9. A B C D E	24. A B C D E		
10. A B C D E	25. A B C D E		
11. A B C D E	26. A B C D E		
12. A B C D E	27. A B C D E		
13. A B C D E	28. A B C D E		
14. A B C D E	29. A B C D E		
15. A B C D E	30. A B C D E		

Land Judging Contestants complete parts 1, 2, 4 and 6 if directed.