

INDIANA 4-H & INDIANA FFA

Career Development Events





Soil Judging

Purpose

The purpose of the Soil Judging CDE is designed to teach youth skills necessary in soil science and make land use recommendations for production agriculture and home site development.

Objectives

Students will be able to:

- 1. To identify and evaluate key soil characteristics like texture, slope, drainage, and structure.
- 2. Based on these properties, indicating its suitability for various uses (e.g., agriculture, urban development).
- 3. Use the knowledge to make informed decisions about land management, including appropriate agricultural practices, conservation strategies, and even home site selection.
- 4. By understanding the limitations and potential of different soils, students develop a sense of stewardship towards natural resources and learn how to manage them sustainably.

Event Format

• Area/Regional Contest Components (All Individual Activities)

- o Homesite- 2 Pits Evaluated
- o Agriculture Use- 2 Pits Evaluated
- o All pits evaluated using scorecards provided by Purdue Extension

Regional Contest Scoring/Advancement

- o Ag Site Pits-114 points per pit
- o Home Site Pits-117 points per pit
- o Total Individual Points Possible- 462 Points
- o Total Team Points Possible- 1,386 Points
- o Team Score is composed of top three scores per team
- o Advancement to State
 - Top 6 Senior Teams
 - Top 2 Junior Teams
 - The top 6 "Non-Masters" teams from each area contest, plus any "Master" teams who place in the top 6 overall at the area contest. An additional team may be added to the number advancing for each team from that regional that qualified for the national event the prior year. No entity (FFA Chapter or 4-H group) shall advance more than 2 senior FFA teams and 2 senior 4-H teams from the regional to the state contest.

State Contest Components

- o Homesite- 2 Pits Evaluated
- o Agriculture Use- 2 Pits Evaluated
- o All pits evaluated using scorecards provided by Purdue Extension

Tiebreakers

- o 1- Highest team score including fourth score
- 2- Total score for team without fourth score for Pit #1
- o 3- Total score for team without fourth score for Pit #2, 3, etc until tie is broken

• Contest Prep/Equipment Needed

- o Each student needs the following items
 - Clipboard with Slope Finder attached
 - Pencils
 - Spray Bottle
 - Knife, Nail, Small Spade, etc.
- o Appropriate Attire for soil pits (Plan for rainy, muddy weather)
- Soil Texturing/Soil Horizons Identifying
 - Starting in 2025 students will be required to obtain and identify the proper soil layers to determine soil textures.
 - Exceptions to this rule:
 - Soil profiles which are identified by the soil scientists to close to make an obvious decision
 - Timing issues for efficient running of the contest
 - Soil scientists believe putting soil in buckets would allow for a better learning experience for the students

Registration

- o FFA teams must complete their registration on the Indiana FFA portal. All team members must be on the FFA roster and have their online waivers completed.
- o 4-H teams must complete their registration on the Indiana 4-H online website. All members must meet all 4-H membership requirements.
- o All registration must be completed by the deadline set by 4-H and FFA staff.
- Teams that advance to the state contest may make one substitution per team from the area/region contest to the state contest.

Ag Judging Handbook

o This CDE is a joint effort of both Indiana 4-H and Indiana FFA Association. It is governed by the Ag Judging Committee and all rules and guidelines in the Ag Judging Committee handbook apply to the Soils CDE.

References

- o Scorecards:
 - HOME SITE CARD
 - AG SITE CARD

Resources

- Indiana Soil Evaluation Field Book- Summary of Rules
- https://extension.purdue.edu/4-H/_docs/get-involved/stateprograms/CDE/soils-Clarification-of-Rule-3631324.pdf
- https://edustore.purdue.edu/id-72-w.html
- https://extension.purdue.edu/4-H/_docs/av-362-w-coaches-letter-2019.pdf
- SITE CARD EXAMPLE
- SLOPE FINDER



Scantron Example-Front Side

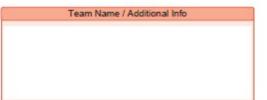
Indiana Soil Evaluation Form #601IN-1





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PARENT MATERIAL	1	2	3	4	-5
Weathered bedrock	1	(2)	(3)	4	(5)
TH	1	(2)	(3)	4	(5)
Outwash/Lacustrine depor	sts 1	2	(3)	4	(5)
Eollan sand	1	(2)	(3)	(4)	(E)
Loess	(1)	(2)	(3)	4	(5)
Alluvium	1	2	3	4	(E)
Local overwash	1	(2)	(3)	4	(5)
SLOPE	4	2	3	4	5
0-2%	(1)	2	(3)	4	(5)
3-6%	1	2	3	4	(5)
7-12%	1	2	(3)	4	(5)
13-18%	1	(2)	(3)	4	(E)
19-25%	1	(2)	(3)	4	(5)
26-35%	1	(2)	(3)	4	(5)
>35%	(T)	(2)	(3)	(4)	(5)



Part I - Soil Properties		oints e	ach, 45	total p	er site
LANDFORM	1	2	3	4	5
Upland hillslope	1	(2)	3	4	(5)
2 Upland swell	1	(2)	(3)	4	(5)
Upland flat	1	(2)	(3)	(4)	(5)
Upland depression	1	(2)	(3)	4	(5)
Outwash/Lacustrine hillslope	1	2	3	4	(5)
Outwash/Lacustrine swe	1	(2)	3	4	(5)
Outwash/Lacustrine flat	1	(2)	(3)	4	(5)
Outwash/Lacustrine depression	n(1)	2	3	4	(3)
Dune	1	(2)	3	4	(5)
Flood plain	1	(2)	(3)	4	(5)
Filled depression	1	(2)	(3)	4	(5)
SURFACE SOIL COLOR	4	2	3	4	5
Gray	1	(2)	3	4	(5)
2 Brown	1	(2)	(3)	4	(5)
Black	1	(2)	(3)	(4)	(5)
PREVIOUS EROSION	4	2	3	4	5
None to slight	1	(2)	3	4	(5)
2 Moderate	1	(2)	(3)	(4)	(5)
3 Severe	(1)	(2)	(3)	(4)	(5)
SURFACE TEXTURE	1	2	3	4	5
Sandy	1	(2)	3	4	(5)
2 Moderately sandy	1	(2)	(3)	(4)	(5)
Medium	1	(2)	(3)	(4)	(5)
Moderately clayey	1	(2)	(3)	(4)	(5)
Clayey	1	(2)	(3)	4	(5)
SUBSOIL TEXTURE	1	2	3	4	5
Sandy	1	(2)	(3)	(4)	(5)
Moderately sandy	0	(2)	(3)	(4)	(5)
Medium	0	(2)	(3)	(4)	(3)
	1	(2)	(3)	(4)	
Moderately clayey	(I)	(2)	(3)	(4)	(5)
Clayey	-	*****	-		-
NATURAL SOIL DRAINAGE	-	2	3	4	5
Poorly	1		3		(5)
2 Somewhat poorly	① ①	(2)	(3)	(4) (4)	(5)
Moderately well	0	1777	-	-	100
4 Well		2	3	4	<u>(5)</u>
LIMITING LAYER	1	2	3	4	5
Bedrock, 0-20 in	0	(2)	3	4	(3)
Bedrock, 21-40 In	1	(2)	3	4	(3)
Dense till, 0-20 in	1	2	3	4	(5)
Dense till, 21-40 in	1	(2)	3	(4)	(5)
Fragipan, 0-20 in	0	(2)	3	4	(5)
Fragipan, 21-40 in	1	(2)	3	4	(3)
Coarse sand & gravel, 0-20 in		(2)	3	4	(5)
Coarse sand & gravel, 21-40 I		(2)	(3)	4	(5)
None within 40 in	1	(2)	(3)	(4)	(5)

Scantron Example-Back Side

YN NO. mark remaining practices as NO or NWA

(2) (2)

SPOSAL - SUITABILITY

A - 6 months; B - 1 year; C - N/A

000

A B C

ABC ABC

(A) (B) (C)

080

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A B C

080

ELD PRACTICES

8888888

sure distrib. system

A-Aptyline; B-N

A B C

Plant other species

Apply suffur; C-

No application; B.

(A) (B) (C)

acid-loving shrubs

NN. G No spelate

4 2

Y N mark remai

Part II - Homesite Practices (3 points each, 72 total per site)

AND USE Overview	Part II - Agrico	ulture Practice	Part II - Agriculture Practices (3 points each, 69 total per site)	ch, 69 total pe	r site)		Part II - Homesii
A.Wedand B-Parie; Calest freet	LAND USE OVERVIEW	+	2	8	4	4	SITE SELECTION
ABC ABC ABC ABC ABC ABC VR			A-Welland		lesic forest		& CONSTRUCTION PRACTICES
Vin Vi	Restore original vegetation to:	(A) (B) (C)	A B C	(A) (B) (C)	A B C	(A) (B) (C)	i is the soil suitable for a homesite?
ON POTENTIALS VIN.	2 Prime farmland	(S)	S)	(S)	N S	(S)	
マル マル マル マル マル マル マル マル	EROSION AND COMPACTION F	OTENTIALS					2 Preserve trees & plant new ones
マ 田 日 日 日 日 日 日 日 日 日	3 High for erosion by water	(3)(S)	(S)	(S)	(S)	(S)	3 Maintain soil cover during construction
マ ロ ロ ロ ロ ロ ロ ロ ロ ロ	4 High for erosion by wind	(S)	N (S)	(S)	N (S)	(S)	4 Improve surface drainage
OPS CYR CYR CYR CYR CYR	6 High for soil compaction	(S)	3	3	3	(Z)	s is the soil suitable for a basement?
	BUFFERS AND COVER CROPS						Design for high-clay subsolls
	6 Grassed waterways	_	2	2	2	B	7 Potential construction hazards on slopes
The The	7 Windbreaks	(N)	N (A)	N N	N (S)	(S)	a Install diversion structures and drains
A-Scaringe N; B-Ne need; C-Erosion cortion	8 Filter strips	(S)	(N)	(A) (N)	N D	(S)	9 Provide foundation drainage
10 10 10 10 10 10 10 10	9 Most significant benefit		A-Scavenge N;	B-No need; C	Erosion control		"High risk for cave-in during construction
THE	of cover crops:	000	000	000	000	000	LANDSCAPE AND LAWN PRACTICES
COR COR <th>CROPPING PRACTICES</th> <td>8</td> <td>(N)</td> <td>8</td> <td>8</td> <td>8</td> <td>Memora and machine for sold louder alm</td>	CROPPING PRACTICES	8	(N)	8	8	8	Memora and machine for sold louder alm
YN YN YN YN YN YN YN<	Thermanent pashura	3 (2	3 (2	3 (2	36	36	Riscorping Street, and Sharper
TYN TYN TYN TYN TYN THON THON TYN TYN TYN THON THON TYN TYN TYN THON THON THON TYN TYN THON THON THON THON THON THAIGH, ground white; BHigh surface water; CANOL THON THON THON THAIGH, B-Alledium; CLOW THON THON THON THON THON THON THON THON THON </td <th>©Crop rotation</th> <td>(S)</td> <td>(S)</td> <td>(S)</td> <td>(S)</td> <td>(S)</td> <td>"Manage soil reaction for lawns</td>	©Crop rotation	(S)	(S)	(S)	(S)	(S)	"Manage soil reaction for lawns
TYR TYR TYR TYR TYR THON THON TYR TYR TYR THON TY	TILLAGE PRACTICES						Apply phosphorus (P) to lawn
TH TH<	ISNo 6II	(N)	N D	(N)	(N)	(S)	MApply potassium (K) to lawn
TH TH<	*Moldboard or chisel plowing	(S)	B	(S)	B	B	ON-SITE SEWAGE DISPOSAL - SUIT
TH TH<	WATER MANAGEMENT						wis soil suitable for an absorption field?
TOR TOR <th>** Chainage</th> <td>(S)</td> <td>N N</td> <td>N N</td> <td>(S)</td> <td>2</td> <td></td>	** Chainage	(S)	N N	N N	(S)	2	
TOW TOW <th>** Irrigation</th> <td>(S)</td> <td>N S</td> <td>S S</td> <td>(S)</td> <td>(S)</td> <td>SEPTIC TANK PRACTICES</td>	** Irrigation	(S)	N S	S S	(S)	(S)	SEPTIC TANK PRACTICES
## ABC	IT Terraces	(S)	B	(a)	3	3	*Septic tank outlet filter cleaning interval
## ABC	PLANT NUTRIENT APPLICATION	2					"Septic tank pumping interval (Pl, years)
ele A B C A	** A-Low; B-Medium; C-High		A B C	(A) (B) (C)	BB0	000	
A		(A)	A B C	(A) (B) (C)	(A) (B) (C)	A B C	
ABC ABC <th></th> <td>000</td> <td>000</td> <td>000</td> <td>000</td> <td>000</td> <td>SOIL ABSORPTION FIELD PRACTICE</td>		000	000	000	000	000	SOIL ABSORPTION FIELD PRACTICE
AHigh, ground wider; BHigh surface water; CAlded. ABC ABC ABC ABC ABC ABC A-High: B-Medium; C-Low A-High: B-Medium; C-Low	2: Ume: A-Add; B-None	@ @	@ @	@ ©	(B)	@ @	"Subsurface trench, gravity flow system
Aftight, ground wider; B-High surface water; C-Med. Aftight. B-High: B-Medium; C-Low A-High: B-Medium; C-Low A	NUTRIENT POLLUTION POTEN	TIAL					"Subsurface trench, flood dose system
ABC ABC ABC ABC ABC ABC ABC ABC AHIGH B-Medium: C-Low AHIGH B-Medium: C-Low ABC		ď	High, ground wa	der; B-High sunt	sce water; C-Med	-	aSubsurface french, pressure distrib. syster
A-High: B-Medium: C-Low A-High: B-Medium: C-Low A-High: B-Medium: C-Low	2 Ntrogen pollution potential:	0000	O O O	0000	O O O	OBY	21Elevated sand mound system
(ABC ABC ABC ABC ABC				: B-Medium;	>Low		ZEev, sand mound & subsurface drain
	Phosphorus pollution potential:	(A)		(a)	(a)	(a)	*Drip distribution & secondary treatment

D x G) / 1,000

