NAME: _____ **Agricultural Land Conservation and Preservation**

TEAM NUMBER: _____

California Envirothon

2003 California Envirothon
Agricultural Land Conservation and Preservation Station Test

Total = 100 points
Time to complete test: 35 minutes

Please write team number on top of each page of test. You may unstaple the test and work on questions in any order; however, pages should be returned to correct order when test is turned in. You may choose to split your team up and work on multiple questions at once or work on questions together. READ ALL DIRECTIONS CAREFULLY.

For multiple choice questions, circle the correct answer(s)

1) Identify the following types of soil erosion by filling in letter in blanks below pictures: (**2 points** for each correct answer; **6 points total**) www.photogallery.nrcs.usda.gov

a) Sheet and rill erosion
b) Gully erosion
c) Wind erosion
d) Streambank erosion
e) Mass wasting
f) Geologic erosion

i. _____

ii. _____

iii. _____

2) The Universal Soil Loss Equation is used to predict: (**2 points**)
www.nrcs.ca.gov/abe.www.ecn.purdue.edu/~wepphtml/wepp/wepptut/jhtml/usle.html

   a) gully erosion rates
   b) streambank erosion rates
   c) sheet and rill erosion rates
   d) soil loss from landslides

3) Which of the following is *not* one of the factors used in the Universal Soil Loss Equation? (**2 points**) www.nrcs.ca.gov/abe.www.ecn.purdue.edu/~wepphtml/wepp/wepptut/jhtml/usle.html

   a) Length of slope
   b) Percent slope
   c) Erodibility factor of soil
   d) Depth to water table

4) A dryland grain grower in California was advised by the local soil conservationist from the USDA Natural Resources Conservation Service that he was losing 20 tons per acre per year in sheet and rill erosion rates with his present crop rotation and farming practices. At present, the grower uses a moldboard plow, which creates more erosion, to bury all crop residues. He plants every two years and he grazes the crop residue stubble heavily with cattle. The grower is located within the service area of a Resource Conservation District that owns a specialized grain drill that can plant grain seeds through crop stubble. What best management practices should the grower use to reduce sheet and rill erosion rates and maintain the productivity of his soil? (**3 points** for each correct answer; **6 points total**)
www.nrcs.ca.gov/www.ctic.purdue.edu/Core4/CT/Definitions.html

   a) _____

   b) _____

5) The USDA Natural Resources Conservation Service's requirement for its Residue Management practice is for a farmer to leave what percent of the soil surface covered with plant residue after planting? (**2 points**) www.ctic.purdue.edu/Core4/CT/Definitions.html

   a) 45%
   b) 30%
   c) 5%
   d) 75%

6) Which three entities can a landowner approach for information on how to obtain a conservation easement on his or her farm? (**1 point** for each correct answer; **3 points total**)
www.lta.org/findlandtrust/CA.htm

   a) American Farmland Trust
   b) Integrated Waste Management Board
   c) USDA Natural Resources Conservation Service
   d) California Department of Conservation Division of Land Resource Protection

e) National Park Service
f) Metropolitan Water District of Southern California

7) Match the following Land Conservation Protection Tools and Policies with their proper definition: (**2 points** for each correct answer; **20 points total**)
www.farmlandinfo.org/fic/tas/tafs-gloss

Farmland Protection Tool or Option	**Definition to Match**
a. General Plan Agricultural Element	____ 10-year renewable contracts that reduce landowner's property taxes and restrict their development options
b. Agricultural Zoning	_____ Local ordinances that require new homeowners adjacent to agricultural land to be informed about "nuisances" associated with agriculture
c. Williamson Act Contracts	_____ California regulation that requires the finding of farmland conversion to be considered a "significant" environmental impact
d. Conservation Easements	_____ A quantitative tool to rate the relative value of farmland for purposes of assigning priority for easement funding, land to be kept in farming, land to be converted
e. Right-to-Farm Ordinance	_____ Widely used in California to segregate farms from all other land uses. Features minimum parcel sizes and allowable uses.
f. California Environmental Quality Act	_____ A tool to establish the long-term extent of urban growth in an area, as a means of protecting farmland through compact development.
g. Land Evaluation and Site Assessment	_____ Setbacks that separate farmland from urban uses.
h. Agricultural Buffers	_____ Permanent restrictions on the use of land for urban development.
i. LAFCO Standards	_____ Policies and tools that local government can utilize indicating an emphasis on supporting farming. Is not required by state law.
j. Urban Limit Lines	_____ Establishes sphere of influence amendments and annexations.

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8) The American Farmland Trust, in its 1997 report "Farming on the Edge," identified the most threatened agricultural regions in the country from urbanization. Out of the top 20 nationwide,

a) Central Valley
b) Bay-Delta
c) Central Coastal Valleys
d) Klamath Basin

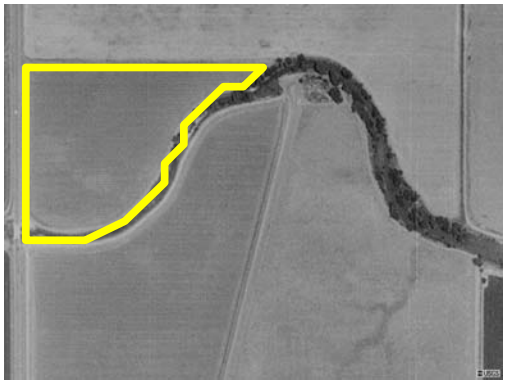
f) Central Valley
g) Bay-Delta
h) Central Coastal Valleys
i) Klamath Basin

k) Central Valley
l) Bay-Delta
m) Central Coastal Valleys
n) Klamath Basin

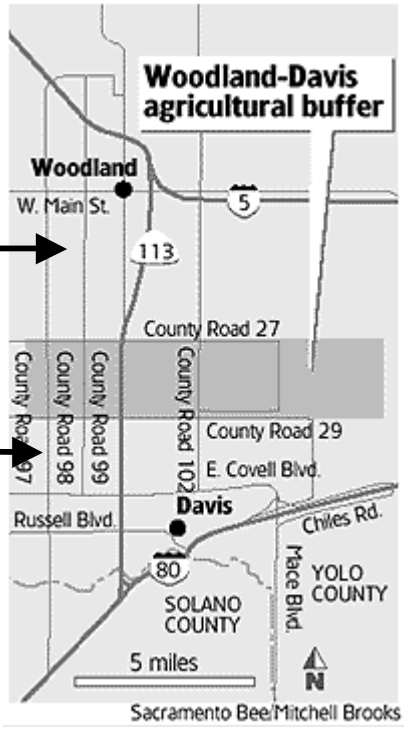
three are found here in California. Identify the following regions by circling the correct answer below: (**3 points total**) www.farmland.org/farmingontheedge

9) Scenario: two separate owners of agricultural land are proposing to sell agricultural conservation easements to a local land trust. (**2 points** for each correct answer; **10 points total**) www.yolocounty.org/org/bos

PARCEL 1



PARCEL 2



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a) Which parcel has the highest probability of being within a city's sphere of influence:
   i) Parcel 1 ____
   ii) Parcel 2 _____
b) Which parcel is most likely to have higher speculative land value:
   i) Parcel 1 ____
   ii) Parcel 2 _____
c) Which parcel is more subject to flooding:
   i) Parcel 1 _____
   ii) Parcel 2 ____
d) What is the estimated per-acre conservation easement value for Parcel 1?_____
e) What is the estimated per-acre conservation easement value for Parcel 2?_____

NOTE:
Parcel 1's fair market value is $7,000/acre. It's restricted value with an easement is $3,500/acre.
Parcel 2's fair market value is $4,500/acre. It's restricted value with an easement is $3,000/acre.

10) All but one of the following are true about agricultural conservation easements (place an X by each correct answer): (**1 point** for each correct answer; **5 points total**)
www.consrv.ca.gov/dlrp/cfcp/FAQ/aboutACE

a) _____ Protect agricultural land from development
b) _____ Enhance farming operations
c) _____ Can never be modified or terminated by a court of law
d) _____ Help protect the rural character of a community
e) _____ Lands subject to an easement remain on the local tax rolls
f) _____ Land under an easement are usually taxed at a lower rate.

11) You have just been named to chair a local farmland protection committee. The committee has been charged by the local Board of Supervisors to identify some factors to establish local priorities for the protection of agricultural land, with priority placed on the protection of prime agricultural land. Match the technical information that you will need to the source of that information. (**2 points** for each correct answer; **10 points total**)
www.ceres.ca.gov/planning/counties/Yolo

Technical Information	**Source**
a. Important Farmland Maps	_____ California Department of Water Resources
b. Land Capability Classification	_____ Federal Emergency Management Agency/ Department of Housing and Urban Development Maps
c. Flood Zones	_____ Local county and city planning departments
d. Zoning Map Designations	_____ USDA Natural Resources Conservation Service

e. Land use maps based on crops grown

_____ California Department of Conservation, Division of Land Resource Protection

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12) Please match the important farmland category to each of the following defintions: (**2 points** for each correct answer; **14 points total**) www.conservation.ca.gov/dlrp/fmmp/mccu/map_categories

a) Farmland of Local Importance	_____ Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres; vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres.
b) Farmland of Statewide Importance	_____ Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
c) Grazing Land	_____ Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
d) Other Land	_____ Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groiups interested in the extent of grazing activities. The minimum mapping unit is 40 acres.
e) Prime Farmland	_____ Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
f) Unique Farmland	_____ Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
g) Urban and Built-up Land	_____ Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

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13) Select the item below that is NOT a feature of the Williamson Act program: (**3 points**)
www.conservation.ca.gov/dlrp/lca/FAQ

a) agricultural land assessed for property tax purposes based on the land's agricultural value
b) annually-renewing, "evergreen" contracts such that propertry is always restricted for ten years into the future
c) available for both cropland and ranchland
d) landowners sign contracts with the state Department of Conservation
e) non-agricultural development and non-agricultural uses of land prohibited

14) Select the two actions below that a local government can employ to help minimize problems between farmers and adjacent residential housing development on the "rural-urban interface": (**2 points** for each correct answer; **4 points total**)
www.farmlandinfo.org/fic/tas/tafs-rtfl

a) right-to-farm ordinance
b) development density bonuses
c) agricultural buffers
d) irrigation water subsidies
e) Land Evaluation and Site Assessment

15) Indicate the top three predominate land uses for this map of the Hanford area (please circle 3 answers): (**2 points** for each correct answer; **6 points total**)
www.conservation.ca.gov/DLRP/fmmp/mccu/map_categories.htm

a) Prime Farmland b) Farmland of Statewide Importance c) Unique Farmland
d) Grazing Land e) Urban and Built-Up Land f) Other Land

Prime Farmland (P)

Farmland of Statewide Importance (S)

Unique Farmland (U)

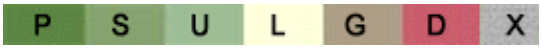
Farmland of Local Importance (L)

Grazing Land (G)

Urban and Built-Up Land (D)

Other Land (X)

Water (W)



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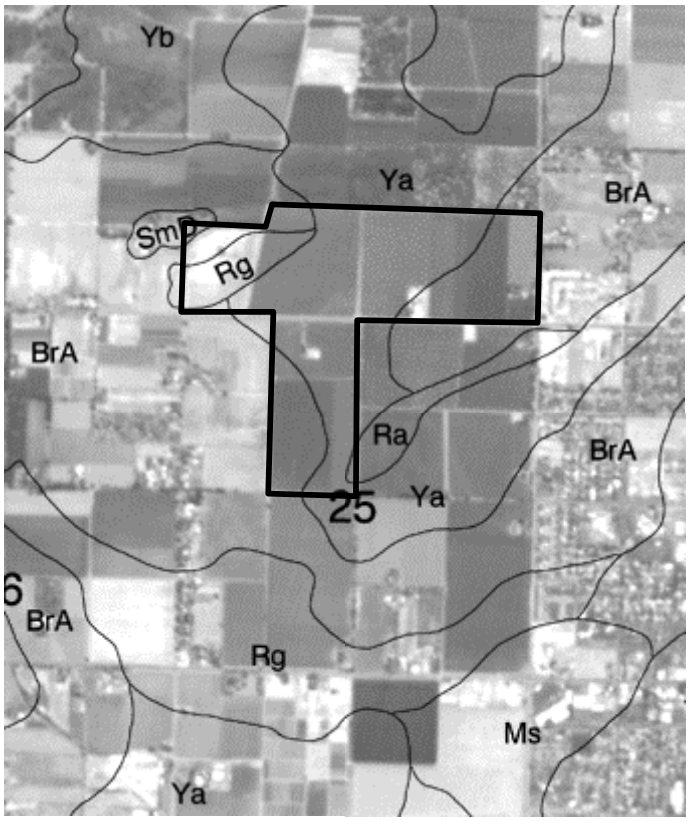
16) The Storie Index is a numerical expression of the relative suitability of a soil for general intensive agricultural use. The rating is based on soil characteristics only; soils with a rating of 80-100 are generally considered excellent. What is the approximate weighted average Storie Index for the soils found on this farm? (**4 points** – show work below for partial credit) www.ca.nrcs.usda.gov/mlra/yolo/yolofrm.html

a) 55 b)75 c) 90 d) 99



Soil Symbol	Soil Name	Classification	Acres	Storie Index	Product
BrA	Brentwood silty clay loam	PRIME	97.0	81	
Ra	Reiff very fine sandy loam	PRIME	3.0	100	
Rg	Rincon silty clay loam	PRIME	22.0	73	
SmD	Sehorn-Balcom complex, 2-15% slopes (see table below for S.I. calculation)	LOCAL IMPORTANT	2.0	37*	
Ya	Yolo silt loam	PRIME	138.0	100	
		TOTALS	262.0		