Colorado Carbon Project

1. What is the Colorado Carbon Survey all about?

The results of this survey will support research to develop a better understanding of the roles carbon sequestration and carbon emissions play in the management of golf courses and what impact golf course operational activities have on the environment. Critical benchmarks identified during the project will provide information that will inform the golf course management community regarding greater resource use efficiencies and improved environmental performance. Once completed, this project will allow the golf community to answer questions about the its role in the many aspects of the emerging carbon discussion.

Partners and supporters of the project include Colorado State University, the USDA-Agricultural Research Service, Rocky Mountain Golf Course Superintendent's Association, Golf Foundation of Colorado, United States Golf Association, Golf Course Superintendents Association of America, Audubon International, National Turfgrass Federation, the Governor's Office/State of Colorado, and the International Sustainability Council. The research will be conducted by Drs. Yaling Qian and Tony Koski, Colorado State University and Dr. Ron Follett, USDA-ARS.

The Colorado Golf Carbon Project will be conducted in 3 research phases. Phase one will use survey data collected from Colorado golf courses to quantify scope one and scope two carbon emissions associated with golf course operations in Colorado including, for example, fuel combustion, fertilizer applications, and purchased electricity.

Colorado Carbon Project

2. Instructions for Completing this Survey.

Due to the length of this survey and that fact that information will likely need to be gathered from a number of individuals within your organization, the survey has been designed to allow partial completion, saving of data, and reentry until all questions have been answered.

In order to retain the ability to do this, DO NOT delete the email message with the URL link to the survey. This original email and its link will be your "key" to reentering the survey - which can be done from any computer, as long as you can access the original email that was sent to you. The URL link will NOT be functional if the original email is forwarded to anyone (including yourself).

Any information entered into the form will be remembered, as long as you have clicked a "Next" or "Done" button (at the bottom of each page). Upon reentering the survey, you will be taken to the last completed page. You will also be able to go back and edit previously entered data. If you do edit data in a previously completed section, you MUST click on the "Done" or "Next" button at the end of the section to save the edited information.

Colorado Carbon Project

3. Contact Information

* 1. Golf Course Name

* 2. Golf Course Owner

* 3. Contact Name and Title

* 4. Contact Phone

5. Contact Email

Colorado Carbon Project

4. Facility Information

* 6. Year Course Constructed

5
6

7. Golf Course Type

- Military
- Private- Corporate Owned
- Private- Member Owned
- Public, Daily Fee - County Government
- Public, Daily Fee - Municipal Government
- Public, Daily Fee - Privately-Owned
- Public, Daily Fee - Recreation District
- Resort
- Semi-Private

* 8. Number of Holes (if other, see question 9)

	9	18	27	Other
Regulation				
Executive				
Par 3				

9. If "Other" (question #8, above), how many holes?

* 10. 18 Hole Equivalent Rounds (enter whole number; example: 119531)

2008
2009

* 11. Average Revenue per Round: total green fee plus cart fee revenues/ total number of rounds (enter in decimal form; example: 55.45)

2008
2009

Colorado Carbon Project

5. Golf Course Information

12. Total Golf Course Property Acreage (Enter number in decimal form. For example, 2.0, not just 2)

Total Number of Acres (golf course "footprint")	
Green Acreage	
Tee Acreage	
Fairway Acreage	
Bunker/ Waste Bunker Acreage	
Rough Acreage	
Clubhouse Lawn Acreage	
Non-Golf Acreage (parking lots, landscaping, tennis courts, etc.)	
Acreage of unmaintained and/or habitat areas (equals Question 13, below)	

13. Acreage of Unmaintained/Habitat/Native Areas (Enter acreage in decimal form: 2.0 for example, not just 2)

Pond/Surface Water Acreage (ponds, lakes)	
Waterway Acreage (canals, streams, rivers, etc.)	
Wetland Acreage	
Native/ Revegatation Grassland/Shrubland Acreage	
Forest/ Woodland Acreage	
Other Acreage (Number of acres and a description of these areas)	

14. Description of "Other Acreage", from #13 (above), if necessary.

* 15. Total area of irrigated turf (in acres)

2008	
2009	

* 16. Turfgrass Species (GREENS)

	Creeping Bentgrass	Annual Bluegrass (Poa)	Bentgrass/Poa Mix	Other Grass Species
Greens				

If "Other Grass Species", please describe

* 17. Turfgrass Species (TEES)

	Creeping Bentgrass	Annual Bluegrass (Poa)	Kentucky Bluegrass	Perennial Ryegrass	Mixture of Grasses	Other Grass Species
Tees						

If "Other Grass Species", please describe

* 18. Turfgrass Species (FAIRWAYS)

	Creeping Bentgrass	Annual Bluegrass (Poa)	Kentucky Bluegrass	Perennial Ryegrass	Fine Fescue	Mixture of Grasses	Other Grass Species
Fairways							

If "Other Grass Species", please describe

* 19. Turfgrass Species (ROUGHS)

	Kentucky Bluegrass	Perennial Ryegrass	Fine Fescue	Tall Fescue	Buffalograss	Mixture of Grasses	Other Grass Species
Roughs							

If "Other Grass Species", please describe

Colorado Carbon Project

6. Golf Course Maintenance (fertilization and cultivation practices)

20. Fertilizers Specifically Nitrogen 2008 (pounds applied per acre)

Greens
Tees
Fairways
Rough

21. Fertilizers Specifically Nitrogen in 2009 (pounds applied per acre)

Greens
Tees
Fairways
Rough

22. Fertilizers Specifically Phosphorous in 2008 (pounds applied per acre)

Greens
Tees
Fairways
Rough

23. Fertilizers Specifically Phosphorous in 2009 (pounds applied per acre)

Greens
Tees
Fairways
Rough

24. Fertilizers Specifically Potassium in 2008 (pounds applied per acre)

Greens
Tees
Fairways
Rough

25. Fertilizers Specifically Potassium in 2009 (pounds applied per acre)

Greens
Tees
Fairways
Rough

26. Turfgrass Core Cultivation (hollow and solid tine) for 2008 (# of times per year for each area)

Greens	
Tees	
Fairways	
Rough	

27. Turfgrass Core Cultivation (hollow and solid tine) for 2009 (# of times per year for each area)

Greens	
Tees	
Fairways	
Rough	

7. Golf Course Irrigation: Amount of Water Used and Water Costs (2008 and 2009...

28. Water used for irrigation, by source in 2008

Potable (gallons)

Wells (gallons)

Surface (gallons)

Re Use/ Effluent (gallons)

29. Water used for irrigation, by source in 2009

Potable (gallons)

Wells (gallons)

Surface (gallons)

Re Use/ Effluent (gallons)

30. Irrigation Water Cost (per 1,000 gallons) in 2008 (enter in decimal form: 1.21, for example)

Potable ($ per 1,000 gallons)

Wells ($ per 1,000 gallons)

Surface ($ per 1,000 gallons)

Re Use/ Effluent ($ per 1,000 gallons)

31. Irrigation Water Cost (per 1,000 gallons) in 2009 (enter in decimal form: 1.21, for example)

Potable ($ per 1,000 gallons)

Wells ($ per 1,000 gallons)

Surface ($ per 1,000 gallons)

Re Use/ Effluent ($ per 1,000 gallons)

Colorado Carbon Project

8. Golf Course Fuel Consumption (vehicles, golf carts)

32. Golf Cars (# of cars in fleet)

Electric

Gas

33. Golf Car Rounds for 2008 (= annual golf car revenue / 18 hole golf car fee)

34. Golf Car Rounds for 2009 (= annual golf car revenue / 18 hole golf car fee)

35. Fuel Purchased in 2008

Diesel (gallons)

Unleaded (gallons)

Bio Diesel (gallons)

Propane (lbs)

36. Fuel Purchased in 2009

Diesel (gallons)

Unleaded (gallons)

Bio Diesel (gallons)

Propane (lbs)

Colorado Carbon Project

9. Utility/Energy Consumption (buildings and irrigation)

For the purposes of this survey, it is important that utility consumption for irrigation purposes be separated from other golf course consumption. All energy consumption related to irrigation (well pumping, water transfers, irrigation pumping) should be accumulated under "Golf Course Irrigation". Consumption for multiple pump houses should be added together to provide a single number for irrigation consumption for each year (2008 and 2009).

37. Utility Provider Name

Natural Gas	
Electric	

38. Maintenance Facility (2008)

Electric (Kwh)	
Natural Gas (Therms; to convert CCF to therms, multiply CCF by 1.025)	
Propane (lbs.; to convert gallons of propane to lbs, multiply gallons times 4.22)	
Water (gallons; to convert cubic feet of water to gallons, multiply by 7.48)	

39. Maintenance Facility (2009)

Electric (Kwh)	
Natural Gas (Therms; to convert CCF to therms, multiply CCF by 1.025)	
Propane (lbs.; to convert gallons of propane to lbs, multiply gallons times 4.22)	
Water (gallons; to convert cubic feet of water to gallons, multiply by 7.48)	

40. Golf Course Irrigation 2008 (to include pump house, pumping from wells, transferring between holding ponds, other irrigation-related energy consumption)

Electric (Kwh)	
Diesel (gallons)	
Other means of supplying power to pump station (please include units)	

41. Golf Course Irrigation 2009 (to include pump house, pumping from wells, transferring between holding ponds, other irrigation-related energy consumption)

Electric (Kwh)	
Diesel (gallons)	
Other means of supplying power to station (please include units)	

42. Clubhouse (2008)

Electric (Kwh)	
Natural Gas (Therms; to convert CCF to therms, multiply CCF by 1.025)	
Propane (lbs.; to convert gallons of propane to lbs, multiply gallons times 4.22)	
Water (gallons)	

43. Clubhouse (2009)

Electric (Kwh)	
Natural Gas (Therms; to convert CCF to therms, multiply CCF by 1.025)	
Propane (lbs.; to convert gallons of propane to lbs, multiply gallons times 4.22)	
Water (gallons)	

44. Other Building #1 2008 (include pump house(s) in Questions 40 and 41, above)

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

45. Other Building #1 2009 (include pump house(s) in Questions 40 and 41, above)

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

46. Other Building #2 2008 (include pump house(s) in Questions 40 and 41, above)

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

47. Other Building #2 2009 (include pump house(s) in Questions 40 and 41, above)

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

48. Other Building #3 2008

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

49. Other Building #3 2009

Describe Building	
Electric (Kwh)	
Natural Gas (Therms)	
Propane (lbs.)	
Water (gallons)	

Colorado Carbon Project

10. Thank you

Thank you for completing the Colorado Carbon Project survey. Please click the 'done' button to submit your survey data.