CCA ADVANTAGE

View points pondered

by Greg Vincent

proving THE VALUE of the price

BY GREG VINCENT
Associate Publisher/Editor
AgProfessional

Price sensitivity is a sensitive topic among agricultural service providers. It seems as farm businesses grow, the producers expect much more for far less. From the coveted mega-producer farming thousands of acres to the small farmer with an off-farm job and fewer than a thousand acres, farmers want value for whatever price they pay. As a result, farmers are really more value sensitive than they are price sensitive.

The tricky part is determining what each individual farmer perceives as value—a task about as easy as finding a specific needle in a stack of needles. But when you determine what the farmer wants, regardless of the farm size, a mutually beneficial relationship can be developed that will lead to satisfaction for both businesses.

Some generalizations can be used to help determine where sales efforts should be focused and how you approach your relationship with each producer. At the recent National Conference for Agribusiness, hosted by the Purdue University Center for Food and Agricultural Business (CFAB), a panel of large mega-producers provided insight into their business and their decision-making process. A couple of major themes emerged from the discussion. First, and this is a no-brainer, they want as much value from their service providers for as cheap a price as possible. Second, they all value their relationship with their service providers, an increasingly important value determinant. These producers seem to be on par with the industry trends determined by Purdue.

However, each farmer on the panel had a different perspective on what they want that relationship to be. A 4,000-acre grain farmer from western Indiana hires an independent agronomist for scouting and making crop input recommendations. He sees the value in this service because his primary business is grain production. While a large farmer from Delphi, Ind., who is primarily a pork producer, sees little-to-no value in those types of services. In both cases, the farmers are loyal to their providers, whether it is for product or service, because of the relationship that has been established between the two businesses. It's about getting to know the needs and desires of those producers, and understanding when they see value and when they see cost. If the farmer sees no value in services, as is the case with the pork producer, then there is little value in you trying to cultivate that business relationship. Efforts will be better spent elsewhere.

Alan Gray, a CAFB professor, says "at best 19 percent of the market is price sensitive," when determining who they will do business with. However, 35 percent of the producers in the survey are "balanced" producers who base their business decisions on performance, price, convenience and service combined.

Gray says the research studies he has conducted are showing a return to the value of the farmer-supplier relationship. "The biggest take away I've seen is that relationships still matter," he says. "Margins are tighter, but margins are tighter for everybody, so it seems that we're always more price focused. I think there was a time when we thought the relationship wasn't as important anymore, and I mean the farmer and service provider.

"I think the farmer decided that the Internet and delivery over the Internet wasn't all they were looking for, and you need service providers as part of your business. The other thing is maybe the service providers have gotten better at what they were doing at the same time. The scare that the relationship matters less made us more creative in the industry, and service providers began to show the value they create."

Establishing that value with the mega-producers can be a valuable exercise for you, if the mega-producer sees the value in your services. However, you may have better luck pushing a rope uphill with some of these producers, which brings us to a new and emerging group of producers who represent a significant market, and more importantly find value in expertise they don't have time to provide themselves.

CCA ADVANTAGE

Chairman's corner

FRED VOCASEK,
CCA Agri/
Environmental
Consulting Servi-
Tech Laboratories
Dodge City, Kansas
(620) 227-7123 x1209

Building it

"If you build it, they will come." A sentence made famous in the movie, Field of Dreams. We all wished they would come when we built the CCA program. Imagine 330 million US and Canadian citizens being exposed daily to the title, "Certified Crop Adviser". Imagine all of them instantly recognizing our achievement, demanding we work for them, and willing to pay a premium price for that work.

Didn't happen. Won't happen. The CCA is like any other brand or product. Like the brands of the manufacturers and retail businesses that employ about three-fourths of the CCAs. Consumers must not only become aware, but must also be educated to the value so they make a conscious decision to use or purchase the particular brand or product. That takes time and effort. Ask anyone that has started a business or launched a service.

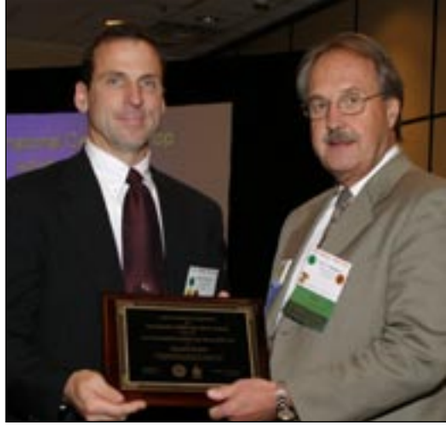
"Marketing" isn't some obscure benefit that rains down from on high. It has to be a conscious effort by everyone, from bottom to top. I'm told marketing is 90 percent doing a good job and 10 percent telling about it.

CCAs tend to be a reticent group, so "telling about it" comes harder. We don't like to brag on ourselves, but each one of us has accomplished something special by acquiring and maintaining our CCA certification.

We can let our customers know about our accomplishment, in a subtle way such as the CCA logo on the business card or in the ad slick, the "CCA" designation in the email signature, or the CCA window sticker placed in the business or vehicle. These efforts and others help customers build a solid link with the CCA logo and each of us doing a good job. That's marketing.

Your CCA Boards are trying to hit a home run with the CCA program. We will hit some strikes and balls, but remember also that games can be won with bunts and singles. Each one of us is up to bat every day with our customers. We need to keep swinging. Remember, as a CCA you're not necessarily better, but you are in a better position to score a home run.

ICCA of the year



Howard Brown (left) accepts the award for the 2005 International Certified Crop Adviser of the year from Lee Sommers, President of the American Society of Agronomy (right).

HOWARD BROWN SELECTED AS INTERNATIONAL CERTIFIED CROP ADVISER OF THE YEAR

Howard Brown, an Illinois CCA, has been selected as the 2005 International Certified Crop Adviser of the Year. He was nominated by the Illinois Certified Crop Adviser Board of Directors and was presented with a plaque and $500 check at the American Society of Agronomy Annual Meeting in Salt Lake City on Wednesday, November 9.

Brown is a trainer for crop specialists within the Growmark system. His specialty is soil fertility with an emphasis on plant growth and development. He is responsible for working on the adaptation of new technology and for field troubleshooting grower cropping challenges.

He has served as Illinois Exam Committee Chair and was instrumental in the creation of the tri-state exam partnership between Illinois, Indiana and Ohio. He was also Chair of the Illinois CCA Board of Directors in 2000-2001 and has chaired the Illinois CCA convention for four years. Currently Howard is on the International CCA Board.

In addition to a strong involvement in the CCA Program, Brown serves on the Illinois Fertilizer Research and Education Council, the Illinois Nutrient Task Force, and the Illinois Fertilizer and Chemical Association Agronomy Committee.

He is active with his local NRCS office and serves on the Salt Fork (East Central IL) Watershed Advisory Committee and Water Quality Committee.

As ICCA of the Year, Brown is recognized as a certified crop adviser who delivers exceptional customer service, is highly innovative, is a leader in his field, and has contributed substantially to the exchange of ideas and the transfer of agronomic knowledge within the agriculture industry.

Applications for the 2006 CCA of the Year should be submitted by local CCA Boards before August 1, 2006. For application materials contact Betsy Ahner at bahner@agronomy.org.

CCA Update

RENEWALS MAILED

2006 CCA renewal invoices were mailed the week of November 14, 2005. If you have not received yours, please contact your CCA service representative. Contact information can be found online at: www.certifiedcropadviser.org and scroll down to the lower half of the page or call (608) 273-8085.

FIND CEUS

The new monthly email CCA News Brief will carry announcements of CEU programs of regional interest. For a complete list of CEUs offered in your area, go to http://www.agronomy.org/cca/edu.html and search on CEU Calendar. If you have not received the emailed CCA News Brief contact your CCA service representative to update your email address.

METHYL BROMIDE RULE WITHDRAWN

The Aug. 30 final rule, "Protection of Stratospheric Ozone: Process for Exempting Critical Uses of Methyl Bromide for the 2005 Supplemental Request," was withdrawn by EPA because of adverse comment on the action. The rule authorized use of 610,665 kilograms of methyl bromide for supplemental critical uses in 2005 beyond the scheduled phase-out.

BLACK STEM RUST CONTROL

The USDA Animal and Plant Health Inspection Service seeks public comments by Dec. 12, 2005, on a proposed rule to amend black stem rust quarantine and regulations by changing movement restrictions in order to allow clonally propagated offspring of rust-resistant Berberis cultivars to move into or through protected areas without completing the currently required 2-year growth period.

PESTICIDES GRANTED PROTECTION

On Nov. 2, EPA published its approach to implement the Endangered Species Protection Program for pesticides. If EPA determines a pesticide poses risk to listed species or designated critical habitat, the label will refer the user to the Endangered Species Protection Bulletins. The bulletins contain the enforceable, geographically specific use limitations for the pesticide. These bulletins, available by Web or phone, will generally include a map of the county to which it applies, a description of the protected species, a list of the pesticides of concern and use limitations. This is intended to ensure use of the pesticide will not jeopardize the species or adversely modify critical habitat, while at the same time not placing unnecessary burden on agriculture and other pesticide users. Additional information is on EPA's Web site at: www.epa.gov/espp or by calling (800) 447-3813.

RUST RISK MANAGEMENT NETWORK

The USDA risk management network is an online, real-time data system that allows growers and their advisors to access the latest information of where there are confirmed disease and/or pest outbreaks. The mapping tool will include frequently updated commentaries from state Extension specialists and national specialists discussing immediate and projected risks and control options. USDA's Risk Management Agency (RMA) funded this $2.4 million component. Find the soybean rust information site at: www.sbrusa.net.

Farm Bill Forums

The USDA has posted transcripts on the Web for the 2005 Farm Bill Forums held this past summer and fall. A link to the USDA Farm Bill Forum Web site can be found at: www.usda.gov.

BY KARL
GLASENER,
Director of
Science Policy
ASA-CCSA-SSSA
(202) 408-5382
karlglasener
@cs.com

CCA ADVANTAGE

Continuing Education

Self-Study Course

using vegetated buffer strips for CONTAINING PARASITES

BY KENNETH W. TATE, MARIA DAS GRACAS C. PEREIRA AND EDWARD R. ATWILL*

Researchers study Cryptosporidium parvum containment

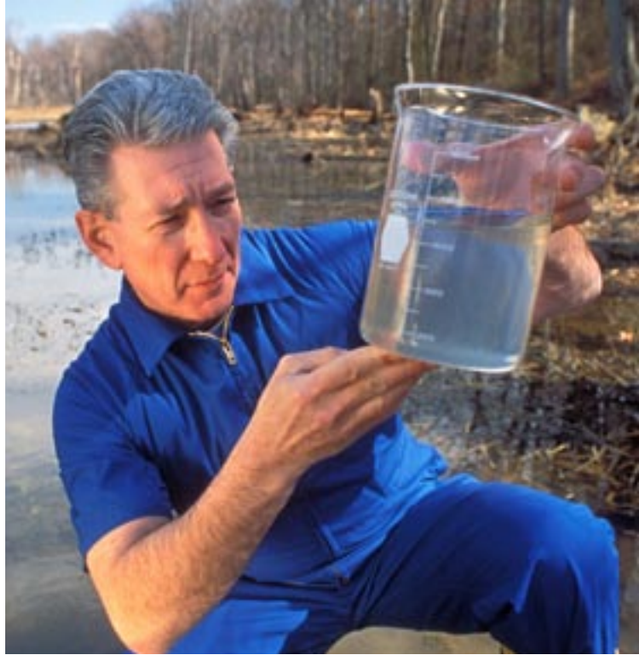


Photo courtesy of USDA

Parasitologist Ronald Fayer leads a project to determine the sources of cryptosporidium in surface waters and develop techniques for accurate detection of these organisms that infect humans, livestock, and wild animals. Photo by Keith Weller.

Cryptosporidium parvum is a ubiquitous protozoal parasite, with specific genotypes able to be transmitted between domestic animals and humans. Vegetated buffers are widely advocated as a management practice to minimize the likelihood that animal agricultural operations contaminate surface water with enteric microorganisms prevalent in fecal matter, such as generic E. coli. Considerably less work has been conducted on the ability of vegetated buffers to remove pathogenic microorganisms from overland and shallow subsurface flow, such as the protozoa *C. parvum*. Larger-diameter pathogens such as *C. parvum* are likely to be more susceptible to filtration compared to the smaller enteric bacteria. The situation is less clear for adsorption given the physicochemical processes governing attachment of a biological colloid onto a solid substrate and the ability of *C. parvum* to desorb from sediments in a time-dependent manner.

When enteric pathogens are excreted by a host in a matrix of fecal material onto the terrestrial component of a watershed, at least three events need to occur for *C. parvum* to reach surface water to become a waterborne hazard. First, *C. parvum* oocysts need to be released from the fecal matrix; second, the entrained oocysts need to avoid such processes as filtration, adsorption and settling while being transported in overland and subsurface flow to a receiving body of water; and third, oocysts need to remain infective during the first two processes.

We have determined previously that a meter of vegetated buffer can function to remove 1 to 3 $\log_{10}$ of waterborne *C. parvum* oocysts entrained in overland flow. The objective of this project was to assess the $\log_{10}$ reduction per meter of vegetated buffer when *C. parvum* oocysts are instead placed into a fecal matrix, as occurs naturally on watersheds with vertebrate hosts, and to determine if land slope (percent) influences the ability of a buffer to retain oocysts. For this experiment, we simulated the vegetation, soil, land slope and rainfall conditions of annual grasslands found in California's central and southern Sierra Nevada foothills. These grasslands occupy more than 1.8 million ha in California and are a critical source of the state's surface drinking water supply. Approximately two-thirds of the state's drinking water reservoirs are located within annual grassland landscapes.

Materials and methods

Overall Study Design The experimental unit was a soil box designed to allow collection of overland and subsurface flow. Twelve soil boxes were filled with soil and planted with annual grass typical of south Sierra Nevada foothill rangelands. Three land slope treatments (5 percent, 12 percent and 20 percent) were tested across four trials (reps). Bovine feces spiked with *C. parvum* oocysts was placed 1.0 m up-slope from the bottom of the soil box and rainfall were applied via one of three stationary nozzle rainfall simulators for 120 minutes. Thus, during each trial three rainfall simulators (A, B and C) individually and simultaneously applied rainfall to three soil boxes, each box set to one of the land slope treatments. Overland and subsurface flow volume from each box was measured and subsampled for oocyst concentration throughout the 120-minute rainfall-runoff trial.

Soil box dimensions were 0.5 m wide × 1.1 m long × 0.3 m deep, allowing us to determine the filtration or retention efficiency of a meter of vegetated buffer while allowing for reasonable root development of planted vegetation.

Simulated Watershed Scenario

Landscape. Herbaceous vegetation in southern Sierra Nevada foothills is composed of annual grasses and forbs found either as open grasslands or as understory for scattered blue oak, interior live oak or foothill pine. Soils are sandy loams derived from decomposing granite with soil depths typically ≤70 cm. Topography is rolling to steep uplands with significant swale areas formed from alluvial deposits. Swales are intermittent wetlands that become saturated with lateral subsurface and saturated overland flow from surrounding uplands, serving as variable source areas for stream flow generation. Precipitation falls almost entirely as rainfall from October through April.

Vegetation Type. Annual ryegrass was selected for use in this experiment to simulate soil surface cover typical of open grasslands and understory in these rangelands. We used 150 to 200 g of seed per box, which resulted in ≥95 percent soil surface cover. Soil boxes were planted with annual ryegrass in October and allowed to mature over the winter growing season, with the experiment conducted the following May. To simulate moderately grazed conditions, the annual ryegrass was clipped to 10 cm one day before the application of feces and simulated rainfall. Grass roots extended the entire 0.3-m depth of the soil boxes. Herbaceous vegetation root zone depth on annual rangelands is approximately 0.2 to 0.4 m.

Soil Type. The Ahwahnee coarse sandy loam soil series was selected for use as a rangeland soil found extensively throughout this region. Soil in the boxes was compacted to a mean bulk density of 1.40 g/cm^3 to simulate compaction typical of heavy grazing in the region.

Land Slope Treatment. Land slope treatment of 5 percent was chosen to simulate swale or variable source area conditions for the southern Sierra Nevada and a 12 percent and 20 percent land slope treatment was chosen to simulate upland or hill-slope conditions for this region of California. A further justification for choosing these land slope treatments was that these slope classes receive significantly different amounts of beef cattle fecal deposition and thus potential oocyst loading rates for grazed rangeland in the southern Sierra Nevada.

Rainfall Simulation Trial

For each trial (n = 4), rainfall was emitted from three stationary nozzle emitters (A, B, C). Each emitter was positioned 2 m above the surface of the soil box, inside a small shed to minimize lateral drift. In this configuration, the emitters generated a circular rainfall pattern with a diameter of approximately 1.1 m at the soil box surface. Thus, the rate of water emission did not equal the rate of water application to the surface of each soil box. Soil boxes were consistently placed so that the box center was exactly under the rainfall emitter. Variable amounts of simulated rainfall were actually received by each soil box due to variability in the pattern of water emission between rainfall emitters and some drift of small water drops. Each emitter was calibrated to produce approximately 53 mm/hour of rainfall, measured directly underneath the emitter as the total volume produced in a 5-minute period at the start and finish of each rainfall simulation. We applied water to the soil boxes at this rate for 2 hours, simulating a storm event for the south Sierra Nevada foothills with a significantly greater than a 100-year return interval, a worst-case precipitation runoff event. Our previous work on this soil type indicates that due to inherently high infiltration capacity, extreme rainfall events and saturated antecedent soil moisture conditions are required to exceed infiltration capacity and generate overland flow.

Each land slope treatment was present in each trial, and the position of each land slope treatment was rotated among simulators (A, B and C) between trials. For each trial, all three soil boxes were irrigated for 2 hours immediately prior to fecal deposit application to create saturated soil conditions, and thus simulate worst-case antecedent soil moisture conditions for oocyst transport during storm events. After the simulators were calibrated and boxes saturated, a 200-g deposit of bovine fecal material spiked

with 1×10^6 *C. parvum* oocysts/g was placed 1.0 m up from the bottom of the box and on top of the 10 cm annual ryegrass stubble and rainfall simulation continued for 2 hours. Thus, the total oocyst spike per soil box was 2×10^8. This concentration of oocysts represents a highly infected calf or a very worst-case scenario for fecal shedding by California beef cattle. Overland and subsurface flow was collected separately as 5-minute composite samples, with the total volume measured for each sample.

Source of *Cryptosporidium parvum* Oocysts

Naturally infected dairy calves from two local commercial dairies were the source of wild-type *C. parvum* oocysts. Approximately 2.4×10^9 oocysts were added to 2,400 g of fresh beef cattle fecal material negative for *C. parvum*.

Total Oocyst Discharge Calculation and Statistical Analysis

The total number of oocysts that discharged from each soil box during each trial and adjusted for the percent recovery of the assay (outcome variable) was calculated from our set of 26, 5-minute composite samples collected from each soil box for overland (n = 13 composite samples) and subsurface flow (n = 13 composite samples). An equation was used to calculate overland and subsurface oocyst discharge in each composite sample.

Results and discussion

A total of 2×10^8 oocysts were applied to each plot. The total number of oocysts discharged from each soil box (combined overland and subsurface flow) during the 120-minute simulation ranged from 1.5×10^6 to 23.9×10^6 oocysts. Examination of the mean breakthrough curves of each land slope treatment demonstrated that although mean concentration of oocysts/L in overland flow was not substantially different for buffers set at different land slopes, mean rates of overland flow were positively correlated with land slope. This resulted in distinct breakthrough curves for the flux (flow × concentration) of discharged oocysts for buffers set at 5 percent compared to buffers set at 12 percent and 20 percent.

These results suggest that each additional meter of grass vegetated buffer with ≥95 percent surface cover and under conditions of 5 to 20 percent land slope, sandy loam soil and precipitation rates of 30 to 47.5 mm/h for a 2-h duration could generate an additional 0.9 to 2.0 $\log_{10}$ mean reduction in *C. parvum* oocysts relative to the total oocyst spike applied in a fecal matrix. These values are consistent with our previous estimate of 1.0 to 1.9 $\log_{10}$ mean reduction in waterborne *C. parvum* oocysts using a meter long soil box with 85 percent to 99 percent grass cover and under conditions of 5 percent to 20 percent land slope, sandy soil, and rainfall rates of 1.5 or 4.0 mL/cm2/h, and similar to the range of values observed by researchers in 2004 for their vegetated buffers. The substantial release of oocysts from fresh fecal deposits and the association between land slope and overland transport of oocysts during storm events is also consistent with previous findings in the field under natural rainfall events for annual grasslands in the southern Sierra Nevada foothills, as well as under laboratory conditions. The higher retention of oocysts at 5 percent land slope is likely due to a higher volume of rainfall infiltrating the soil surface and becoming subsurface flow, resulting in a substantial portion of the *C. parvum* load being removed via filtration and absorption within the soil matrix.

Conclusions

We found that a meter of grass vegetated buffer with ≥95 percent surface cover and under experimental conditions of 5 percent to 20 percent land slope, sandy loam soil, and 2-hour precipitation rates of 30 to 47.5 mm/h produced a 0.9 to 2.0 $\log_{10}$ mean reduction in *C. parvum* oocyst flux relative to the total oocyst load applied in a fecal matrix. The observed overall mean $\log_{10}$ reduction of total *C. parvum* flux per meter of grass vegetated buffer was 1.44, 1.19 and 1.18 for buffers at 5-, 12- and 20-percent land slope, respectively. These levels of $\log_{10}$ reduction per meter of vegetated buffer can be matched to a mammal's specific rate of *C. parvum* loading to guide buffer width recommendations. For example, we calculated that adult beef cattle on California rangeland shed on average between 3,800 and 9,200 oocysts per cow per day, or approximately 6.5×10^5 oocysts per day for a herd of 100 beef cattle with no calves or yearlings. Based on an estimated range of 1.2 to 1.4 $\log_{10}$ reduction per meter of grass buffer, ≥5 m of equivalent buffer would be needed to adequately reduce the translocation potential of this herd's 24-hour cumulative load of freshly deposited oocysts. Such estimates remain crude approximations at this time, but these results in combination with previous research on vegetated buffer filtration for this protozoal pathogen provide insight into the inherent capacity of grasslands with sufficient infiltration rates to attenuate *C. parvum* oocysts deposited by cattle and other mammals. Moreover, these studies illustrate the potential for vegetated buffers to function as one of a suite of beneficial management practices that can minimize the risk of waterborne cryptosporidiosis in humans from livestock production systems.

Editor's Note: Content was adapted from the paper "Efficacy of Vegetated Buffer Strips for Retaining Cryptosporidium parvum," which was published in the Journal Environmental Quality, Vol. 33, November-December 2004, and is courtesy of the authors Kenneth W. Tate, Maria Das Gracas C. Pereira, and Edward R. Atwill.

DETACH HERE

CERTIFIED CROP ADVISER

Using vegetated buffer strips for containing parasites

December Self-Study Examination

1. A reason for this research study was to

[ ] a. assess the health risks from bacteria in the environment and to livestock.
[ ] b. determine the best grass species to use in California pastures.
[ ] c. make an appraisal of the ideal grazing frequency to minimize the environmental impact.
[ ] d. guide buffer width recommendations for livestock operations.

2. The grass species used to simulate native grasses in this trial was

[ ] a. goatgrass.
[ ] b. annual rye.
[ ] c. red fescue.
[ ] d. Indiangrass.

3. A characteristic of California grasslands is that they

[ ] a. are often heavily wooded with dense undergrowth.
[ ] b. mostly grow on heavy clay soils.
[ ] c. experience dry conditions during the winter months.
[ ] d. are the source for most of California's drinking water reservoirs.

4. The study measured the total number of *C. parvum* oocysts that discharged from each soil box traveling a distance of

[ ] a. 1 m.
[ ] b. 3 m.
[ ] c. 5 m.
[ ] d. 7 m.

5. A characteristic of this study is that it included

[ ] a. four land slope treatments.
[ ] b. natural rainfall.
[ ] c. measurement of subsurface flow.
[ ] d. the use of manure from different animal species.

6. To become a waterborne hazard in the environment, a pathogen from manure must do all of the following EXCEPT

[ ] a. develop a viral ring sheath.
[ ] b. release from the fecal matrix.
[ ] c. avoid filtration and settling during movement.
[ ] d. remain infective.

7. The rainfall amounts used in the trial were designed to mimic

[ ] a. a typical summer rainfall episode.
[ ] b. a worst-case rainfall event for the Sierra foothills.
[ ] c. the season total precipitation that occurs in the area.
[ ] d. a month-long series of rainfall events followed by leaching and evaporation.

8. The concentration of oocysts applied to the soil boxes in this study represented

[ ] a. a typical beef cattle herd in California.
[ ] b. the infection level of week-old, partially decomposed feces.
[ ] c. cattle fed a diet high in grains and protein.
[ ] d. a highly infected calf or a worst-case scenario for cattle in California.

9. Higher retention of *C. parvum* oocysts at 5 percent land slope was due to

[ ] a. oocysts not releasing from the fecal matrix.
[ ] b. lower volumes of subsurface flow, resulting in less filtration and absorption by the soil.
[ ] c. higher volumes of subsurface flow.
[ ] d. less soil erosion in the soil box.

10. Under the conditions of this study and relative to total *C. parvum* oocysts applied, each additional meter of grass vegetated buffer strip resulted in a

[ ] a. 0.1 to 0.3 $\log_{10}$ mean reduction in *C. parvum* oocysts.
[ ] b. 0.4 to 0.8 $\log_{10}$ mean reduction in *C. parvum* oocysts.
[ ] c. 0.9 to 2.0 $\log_{10}$ mean reduction in *C. parvum* oocysts.
[ ] d. 2.1 to 2.5 $\log_{10}$ mean reduction in *C. parvum* oocysts.

GET A CEU!

This exam is worth 1 CEU in **Crop Management**. An exam score of 70% or higher will earn CEU credit. The International CCA program has approved self-study CEUs for 20 of the 40 CEUs required in the two-year cycle.

DIRECTIONS

1. Read the self-study article on pages 18-20 carefully.
2. Answer the questions by clearly marking an "X" in the box next to the best answer for each question.
3. Complete the self-study exam registration form on the back of this page.
4. Clip out this self-study examination page, fold and place in envelope.
5. Enclose a check for $10.00 made payable to the American Society of Agronomy, for processing fees. Payment in U.S. funds only.
6. **Mail your self-study exam and fee to:** ASA c/o CCA Self-Study Exam, 677 S. Segoe Road, Madison, WI 53711. *Please allow 60 days for processing.*
7. An electronic version of this test is also available at *www.AgProfessional.com*. Go to the Certified Crop Advisers section (lefthand column) and access the "CCA Advantage" link.

SELF-STUDY EXAM REGISTRATION FORM

Name: _____

Address: _____

City: _____ State/Province: _____ Zip: _____

CCA Certification #: _____

Credit Card #: _____ Type of Card: Visa ❑ Mastercard ❑ Discovery ❑ Am Express ❑

Expiration Date _____ Name on Card: _____

Enclose a $10 check payable to American Society of Agronomy.

X _____

Signature of Registrant as it appears on Code of Ethics

I certify that I alone completed this self-study course and recognize that an ethics violation may revoke my CCA status.

This exam issued November 2005 expires October 2008.

DETACH HERE

SELF-STUDY EXAM EVALUATION FORM

Rating Scale: 1=Poor 5=Excellent

Information presented will be useful in my daily crop advising activities: 1 2 3 4 5

Information was organized and logical: 1 2 3 4 5

Graphics/tables were appropriate and enhanced my learning: 1 2 3 4 5

I was stimulated to think how to use and apply the information presented: 1 2 3 4 5

This article addressed the stated competency area and performance objective(s): 1 2 3 4 5

Briefly explain any "1" ratings: _____

Topics you would like to see addressed in future self-study materials: _____