

**THREE PART ENVIRONMENTAL  
STEWARDSHIP SHORT COURSE  
OFFERED**

**MANURE MANAGEMENT –  
DOESN'T ANYTHING WORK?**

**WHAT ARE DAIRY OPTIONS?  
HOW DO THEY WORK?**

**NEW ENERGY EFFICIENCY  
PROGRAM FROM THE CALIFORNIA  
ENERGY COMMISSION**

**UC DAVIS DAIRY DAY  
MARCH 24TH**

*February, 1999*

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Bill Krueger  
County Director

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To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

## **Three Part Environmental Stewardship Shortcourse Offered**

**March 3, 1999 – 10:00 a.m. – 12:00 Noon**  
**March 17, 1999 – 10:00 a.m. – 12:00 Noon**  
**April 1, 1999, 10:00 a.m. – 12:00 Noon**  
**Cooperative Extension Office**  
**821 E. South Street**  
**Orland, CA**

State and national concerns related to dairy manure management have focused on the potential for manure nutrients to contaminate ground and surface water. The US EPA has set goals to inspect all confined dairy facilities in the state of California during an 18-month period that began in February of 1998. One of the best ways to prepare for upcoming EPA inspections is for dairy producers to learn about current manure and water laws and to assess your operation's compliance. The Environmental Stewardship Shortcourse can help.

Over the last few years, U.C. Dairy Advisors and producers have worked with specialists, producer groups, and regulatory agency staff in manure management issues and research. We know more about manure today than we did five years ago. We also know more about storage needs, problems associated with non-compliance, and concerns of ground and surface water contamination.

**We designed an Environmental Stewardship Short Course to educate producers about manure management and give them an opportunity to communicate with each other. The course has 3 classes. Each class is 2 hours. There is homework between classes. The objective of this course is to provide producers with information so they understand what is required of them.**

In the first class, a discussion of laws occurs. Producers get the chance to ask questions and clarify areas of concern or misunderstanding. Both the State and Federal laws are discussed. Do you need an NPDES storm water permit? What are your requirements with the Regional Water Quality Control Board? What does the Department of Fish and Game enforce? Then, a risk assessment worksheet is introduced. **There are 4 worksheets that should be done outside of class. These allow you to assess the risk of your facility to ground or surface water contamination.** Lastly, you go through an example of calculating storage capacity for liquid storage requirements. A homework assignment allows you to determine if you have sufficient capacity. If you don't, the exercise lets you see what can be done to remedy the situation.

The second class begins with a question and answer session. A discussion of the basics of manure management follows. This is done so producers can rethink how manure is generated and how it is possible to accomplish source reduction. **What can be done to reduce the amount of pond storage capacity needed? What can be done to reduce the amount of water running on the property during a rain storm?** The next task is to develop a Pollution Prevention Plan for your property. This is a requirement for an NPDES permit and is actually quite useful for all producers.

The last class begins with a question and answer session. Then, producers identify the types of problems that can result in an emergency. **Development of an emergency plan follows.** The remainder of the class is devoted to sampling manure sources and interpreting laboratory results and determining how to calculate the amount of nitrogen being applied to crops. The class concludes with a course evaluation. Call the Glenn County Extension Office at 865-107 now to reserve your spot.



## Manure Management - Doesn't Anything Work?

*Submitted by: Deanne Meyer, Livestock Waste Management Specialist, Department of Animal Science, University of California, Davis*

It seems everyone wants to find the silver bullet when it comes to manure management. The bullet is management. However, there are numerous technologies in every manager's portfolio that may be used at one time or another. This discussion will focus on reducing solids in manure retention ponds.

The first question to ask is "What do I want to accomplish?". Once you have established your objective, you can begin to evaluate various technologies and alternatives. If you want to reduce fiber mats on the top of your pond, your goal may be to remove large particles from your flush. Likewise, you may want to make it easier to irrigate with liquid manure. Again, removing large particles is desirable. A mechanical separator can be very effective in removing large particles.

If your objective is to remove total solids, regardless of size, you won't be looking for a mechanical separator. In fresh manure samples evaluated at UC Davis, more than one-half of the dry weight of manure was less than 75 microns. The typical separator screen is 1500 microns. No doubt, the tiny particles will not be caught on the 1500-micron screen.

Settling basins are another method to remove large particles and denser small particles. Research during the summer of 1997 and 1998 was conducted to evaluate the efficiency of settling basins. The data looks more promising than mechanical separators. The key factor is to have basin inlet and outlet the greatest distance from one another. It serves little purpose to have the inlet and outlet the shortest distance. The purpose of a settling basin is to allow the water to reduce flow. Once this is accomplished, denser particles will settle. This can work if the basin is designed appropriately and if it is maintained. It is important to not overfill the basin.

Using a commercial product to reduce retention pond solids may be an option. You should ask questions to determine if the product is something for you. The questions are similar to those you would ask before trying a feed additive. Rank the results on the product report card.

What response should I expect from this product? Will it reduce odor, solids, floatage, etc.? Is there any data to substantiate the product claims? Does the data indicate that research was accomplished by an unbiased source and that the results were positive? It is quite possible to conduct research and have negative results. How does the product work? Are special conditions needed (anaerobic [without oxygen] or aerobic [with oxygen])? Does the product require a particular temperature range? Can it work in the fog? Where does it work (in the pond, flush lanes, etc.) How much does it cost and how often do you need to use it? What is the end fate of the nitrogen in the manure when this product is used?

### Commercial Product Report Card

Subject	Grade
Response (product claims)	
Research (proof)	
Repeatability (consistency)	
Returns (cost: benefit)	

If you decide you will try a product, do your own research. Monitor the retention pond activity prior to production introduction. Evaluate the pond on different days at different times. Indicate how big bubbles are and what percent of the surface of the pond is covered. Note if there is foaming of the pond or if there are eruptions in the pond. What is the odor (how strong, what does it smell like)? Does the product claim to affect any other component of the operation? If so, monitor that area also.

Once you have sufficient information, introduce the product and continue to monitor. Test during the time of year you have the greatest problem. If YOU don't see results, stop using the product. Some products only work under certain conditions. Just because a product did or didn't work for a neighbor, doesn't mean it will or won't work for you.

## What are Dairy Options? How Do Options work?



Milk price volatility has become a fact of life for dairy producers. Both futures and options are available as tools to help you manage risk in the milk price marketplace. Learning to use these tools will require the same

effort that most new skills demand: time and patience to become familiar with the vocabulary and comfortable with the concepts.

**What are options?** An option is the right, but *not the obligation*, to buy or sell a futures contract at a given price on or before the expiration date. It may be helpful to think of options as a type of insurance. For dairy producers, options can provide insurance against a drop in milk prices. The purchase price of the option is similar to the premium on the insurance policy.

**Puts and Calls?** There are two types of options: puts and calls. A **put option** gives the producer the right to sell a futures contract at a given price on or before the expiration date. A **call option** gives the producer the right to buy a futures contract at a given price on or before the expiration date.

**Sound Confusing?** If so, it may help to remember that as a dairy producer, you will be in the futures market because you want to protect against a decline in milk prices. You will want to offset the drop in cash price with a profit in the futures market. There are two ways to be successful in the futures market: a) buy low and sell high, or b) sell high and buy low. If you expect milk prices to drop, you will choose the second scenario and sell futures high and buy back lower later. So, you

want the option to sell a futures contract some time in the future, therefore, you purchase a put option.

Remember that when you buy an option, you are buying a choice. If milk price does not drop as you expect, you simply let the option expire. Your only cost is the purchase price (premium) of the option. If the milk price does drop as predicted, you exercise your option to sell a futures contract at the price you set when you bought the option. You

then buy back the futures contract at the current lower price and use the profit in the futures market to offset your lower cash milk price.

**Where can I find option premiums?** Option premiums are available in major newspapers, from your broker and from electronic news systems. **The following illustration can help you understand what you're looking at in newspapers such as *The Wall Street Journal*.**

MTH/ STRIKE	3	OPEN	HIGH	LOW	LAST	SETT	PT CHG
OA FEB99		BFP MILK OPTIONS PUT					
1125		.17	.20	.17	.20	.20	+6
1150		---	.288B	---	.30	.30	+7
1175		---	.40B	---	.50	.50	+14
1200		.50	.71	.50	.71	.71	+21
1225		---	.90B	---	.96	.96	+25
1250		1.10	1.20	1.10	1.20	1.20	+26
1275		---	1.35B	---	1.40	1.40	+23
1300		1.50	1.70	1.50	1.70	1.70	+29

1. Strike price - Price at which the option holder may sell the underlying futures contract. If you choose to exercise your option, the strike price is the price at which you would sell a futures contract.
2. Closing price or purchase price of that option. It will be given in dollars per cwt so .35 means \$.35/cwt. Think of this number as the premium on the insurance you will be buying. You must now consider this a business expense, part of your cost of production. You also need to know the size of the option contract you are dealing with. Dairy contracts are 50,000 lbs. or 200,000 lbs. If you bought the option on the 200,000 lb. contract, your premium would be \$700.00.
3. Expiration month - The latest date that an option may be exercised. If you bought a put option for March futures, you may exercise that option to sell March futures at the specified price until this date. It is important that you know exactly when the options you purchase expire so that you are able to determine your strategy accordingly.

**Work through the following example:** Imagine the date is January 1. March BFP futures are

trading at \$13.50. You have calculated your costs of production (on cwt. basis) and think this price is profitable. You also have reason to believe that milk prices will fall before March since you read that California production is up 4% and commercial disappearance of dairy products are slumping due to the higher retail prices. You purchase a \$13.50 March put option for \$.25/cwt.

**You were correct!** Now imagine that March has arrived. As you expected, milk price dropped to \$12.50. You receive \$12.50/cwt for your milk from your co-op. You exercise your put option to sell a futures contract at \$13.50. Since the March BFP futures are now trading at the March cash price of \$12.50, you immediately ask your broker to offset your futures position (sell at \$13.50/ buy at \$12.50) for a futures profit of \$1.00.

Your net milk price is:

Cash price	\$12.50/cwt
+ Futures profit	1.00
- Option premium	.25
<b>Net March price</b>	<b>\$13.25/cwt</b>

**Worst case scenario?** You predicted wrong. March has arrived and milk price has risen to

\$14.50. You allow your option to expire and do nothing. Your net milk price is:

Cash price	\$14.50/cwt
- Option premium	.25/cwt
<b>March net price</b>	<b>\$14.25/cwt</b>

**Are Dairy Options a tool for you?** Only you can answer that question after weighing the cost of the option against the risk of lower milk prices. Examine the consequences of both on your bottom line. Consider using options as a tool to protect a minimum profitable milk price rather than as a strategy to capture the highest possible price.

**Things to keep in mind:**

- **Calculate your cost of production on a cwt. basis.** Know what price is profitable for your operation before you attempt to use options (or futures) to lock in prices.
- Educate yourself before you jump in. Learn more about options and futures. Follow dairy market economists and forecasters to develop a level of comfort with price predictions.
- You will need a broker to execute these positions for you. Ask around - be an informed shopper. Find a broker you trust who is knowledgeable about doing markets. A broker

will charge a fee or commission so be sure to inquire about that also.

**Sources for more information:**

- ✓ Video on dairy futures available at the Glenn County Cooperative Extension Office. Call the office for more information.
- ✓ Chicago Mercantile Exchange (CME) web site: [www.cme.com/dairy](http://www.cme.com/dairy)
- ✓ Coffee, Sugar & Cocoa Exchange (CSCE) web site: [www.csce.com](http://www.csce.com)
- ✓ Next Superior California Dairy Newsletter.

## Watch For These Programs From The California Energy Commission

The California Energy Commission is organizing two new low interest energy efficiency loan demonstration programs. These programs will be available to you to make energy efficiency improvements in your operation. Do you need to upgrade or retrofit equipment to make your operation more cost effective? Have you wanted to upgrade your vacuum system or improve the ventilation of your barn? Watch for upcoming information on these programs from the California Energy Commission.



**UC DAIRY Cattle DAY**  
**Wednesday, March 24, 1999**  
**Main Theater**  
**University of California, Davis**  
**8:30 – 3:30 P.M.**

**On The Agenda:**

- Cow Comfort Retrofits
- Hoof Care: Keep the Corium Happy
- Biosecurity: It's Not Just for Vets Anymore
- Decision Making in a New Era of Agriculture
- Nutrient Management as a tool to Reduce Nutrient Impact of Dairy Production on the Environment
- Dairy Quality Assurance Program: Animal Waste and Food Safety Issues
- Risk Management for Purchasing Grain
- Ultrasound Use in Dairy Cattle
- Low Heat Clipping of Udder Hair
- Hoof Trimming and Care

**Main Theater**

From Interstate 80, take the UC Davis exit. Turn north on to Old Davis Rd. At the first stop sign turn east (still on Old Davis Rd.). Visitor Parking 5 will be on your right at the junction of Old Davis Rd. and A St. You will need \$3.00 for parking. Walk north on A St., turn west on Hutchison Dr. The Main Theater will be on your left.

**Registration Fee: \$15.00**  
**Box Lunch: \$5.00**

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