

Santa Barbara County

CENTRAL COAST AGRICULTURE HIGHLIGHTS

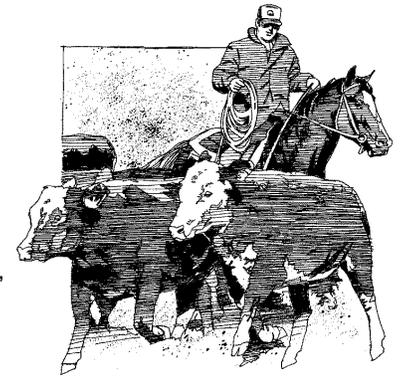
*From your Farm Advisors Serving you in the Areas of Vegetables, Small Farms, Strawberries, Field Crops,
Livestock and Natural Resources*

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February 2004

Bovine Spongiform Encephalopathy

by Wayne Jensen



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In light of all the recent news regarding Bovine Spongiform Encephalopathy or BSE (I prefer not to use the other name used by the press regarding this disease), I thought it appropriate to provide the following update developed by the State of California, Department of Food and Agriculture, Animal Health and Food Safety Services, Animal Health Branch. It provides a good overview of the disease and the actions taken to prevent it from occurring in California.

What is Bovine Spongiform Encephalopathy?

Bovine Spongiform Encephalopathy (BSE) is a fatal neurological disease of cattle, first recognized in the United Kingdom (U.K.) in 1986. This disease is a transmissible spongiform encephalopathy similar to scrapie in sheep and goats, chronic wasting disease in elk, and spontaneous Creutzfeldt-Jakob disease (CJD) in humans.

A new human disease, known as variant CJD (vCJD), first diagnosed in the U.K. in 1996, has claimed 153 human lives to date. Most scientific evidence supports that vCJD is caused by the same agent that causes BSE. Evidence suggests that the BSE agent may have been transmitted from cattle to man through the consumption of products contaminated with the infectious agent.

As a result of BSE, more than 5.8 million cattle have been diverted from the human food chain into rendering and incineration in the U.K. BSE has affected over 200,000 cattle in 24 countries to date. Recently, BSE has been diagnosed in one beef cow in Canada, and one dairy cow in Washington State.

In the U.S., BSE has led to a ban on non-ambulatory disabled (downer) cattle and specified risk materials (from cattle over 30 months of age) in human food. Furthermore, BSE has severely affected export markets for beef and beef products, and dramatically affected consumer confidence.

What are the signs of BSE?

BSE has an incubation period of 2 to 8 years. Signs begin with changes in temperament, such as nervousness or aggression. Cattle become progressively uncoordinated and lose condition despite continued appetite. There is no treatment; affected cattle die 2 weeks to 6 months after the first signs.

What causes BSE?

The agent causing BSE is not fully characterized, but most evidence suggests it is an abnormal protein known as a prion. This agent is smaller than most viruses and is very resistant to heat, ultraviolet light, radiation, and disinfectants. It causes no detectable immune or inflammatory response.

How is BSE spread?

The BSE agent spreads among cattle principally through feed containing meat and bone meal made from rendered ruminant products from infected animals. The U.S. and Canada banned these products in ruminant feed in 1997 to prevent BSE transmission.

Preventing the entry of BSE

The United States Department of Agriculture (USDA) banned importation of live ruminants and most ruminant products from BSE-affected countries in July 1989. In December 2000, the USDA banned the importation of all rendered animal products from Europe, regardless of species.

Surveillance for BSE in the U.S.

Surveillance began in 1990 and consists of examining brain tissue from cattle showing neurological signs and a targeted sample of high risk cattle. More than 2,200 brain samples from California and 20,526 samples nationwide were examined for BSE during 2003.

The U.S. Feed Ban

Since August 1997, the Food and Drug Administration has prohibited the use of protein derived from mammalian tissues (with certain

exceptions, including milk, blood, porcine and equine products) in ruminant feed. Ruminant means any animal that has a four-chambered stomach, including cattle, buffalo, sheep, goats, deer, elk and antelope. Feed manufacturers are required to label any feed that contains prohibited materials with the statement, "Do not feed to cattle or other ruminants."

Compliance within California

All feed-manufacturing facilities in California have been inspected and are compliant with the feed ban. As of December 2003, 99% of the feed-manufacturing facilities in the U.S. are in compliance with these requirements.

However, cattle producers are key in preventing BSE in the U.S. by ensuring that feed containing rendered mammalian tissues is NOT fed to ruminants.

Protecting California Consumers

As of December 30, 2003, non-ambulatory disabled cattle (downers) are not permitted to enter the human food supply. Specified risk materials such as the skull, brain, trigeminal ganglia, eyes, vertebral column, spinal cord, and dorsal root ganglia from animals over 30 months old are prohibited in the human food supply. The small intestine and tonsils from cattle of any age are also banned from the human food supply. Scientific evidence shows that muscle meat and milk from these animals are safe.

What should producers do?

Comply with the feed ban - do not feed products containing prohibited materials to ruminants. Be diligent that commodities you feed do not contain any prohibited materials (e.g., salvaged pet foods). Keep copies of all feed records - invoices and labels - for one year, and have them available for inspection. Farm inspections help ensure that prohibited materials are not being fed to ruminants, and regulatory action can be taken under the Federal Food, Drug and Cosmetic Act. Establish an individual animal identification plan for your herd, and maintain accurate records when animals enter and leave the herd.

Report cattle with neurological signs to your veterinarian.

Humanely euthanize non-ambulatory cattle. Guidelines are available from CDFA, and I have copies of this information at the Cooperative Extension office (805/934-6240). Dispose of carcasses appropriately, such as with a licensed renderer (if possible) or use other legal methods.

Ensure that unsafe meat does not enter the human food chain.

For BSE concerns and questions, call: **CDFA Animal Health Branch. The office nearest to us is in the Tulare District - (559) 654-3500** - or see the USDA aphis website at <<http://www.aphis.usda.gov/lpa/issues/bse/bse.html>>.



Tribute to a Farm Advisor

by Franklin Laemmlen

Many vegetable growers on the Central Coast, who also have winter vegetable ventures in the low desert (Yuma and Imperial Valleys), know Keith Mayberry. Keith has retired in January 2004, after 35 years as University of California Cooperative Extension vegetable farm advisor in Imperial County. His experience and extensive knowledge of vegetable production under desert conditions have been invaluable to desert vegetable producers.



Thank you, Keith Mayberry, for a job well done and your excellent contributions to the California vegetable industry. And best wishes for a rich and pleasant retirement.

The following article, written by Keith, is a tribute to Cooperative Extension Farm Advisors everywhere:

"I may not have been the one who met you at your field to diagnose the reason why your carrot stand did not germinate as expected, but I may have been the person who worked with your seed representative to solve the problem.

You may not use the Vegetable Guidelines to Production Costs and Practices data that I prepared in spreadsheet format, but your banker, CPA, or joint venture partner may have used it to compare values against your own figures for growing crops.

You may not have called me for advice when your crop is dying, but I may have provided training or answers for your pest control advisor

who met with you to solve the problem.

You may not have read my article on proper placement of fertilizer before applying your ammonical fertilizer, but your fertilizer sales rep probably did when he/she advised you on how to apply it.

It could be that your field of watermelons is wilting and dying. I determine that the problem is a soil-borne disease. The watermelons are lost, but I provide a crucial warning: Do not, as planned, grow cantaloupes as a rotation crop - they're susceptible. You switch to broccoli and save an estimated \$30,000.

You may not know that CALTRANS appraisers came to me to find a fair value for taking farmland (with existing crops) out of production in order to widen some Imperial Valley highways. The appraisers were enlightened to the fact that some crops have value not just at the present time, but also for potential production in future years. They were also shown a fair market value for the crops.

You are probably not aware that the California Highway Patrol contacted me to educate their farm road safety officers on what kinds of equipment may be moved on the Valley's back roads and highways. Or that I showed the officers that there were peak seasons of use for various types of equipment.

You probably don't remember that I was the first to identify the needle nematode as a plant pest on a wide array of Imperial County crops. Numerous professors and graduate students from the University of California studied the problem. Today we have good knowledge of how to find and control the needle nematode.

Nearly every farmer was affected by whiteflies in the early '90's. I was an important member of the team that found that the insecticide, Admire, was far more effective when injected under the seed line than sprayed on the plants.

You may not have read my Desert Gardener column on how to fertilize a lawn but, maybe,

the lush green grass growing in your neighbor's yard that your wife likes to see out her kitchen window happened because the neighbor saw the article.

These are but a few examples of how an advisor provides crucial information that enhances the lives and pocketbooks of the residents of Imperial Valley. Now that the state has made massive cuts in our operating budget and staffing, it is time to support the advisors that you still have on board. They help you far more than you know."

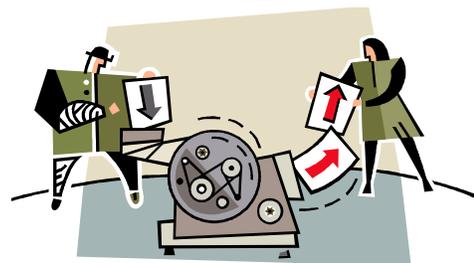


Get "Central Coast Agriculture Highlights" on Our Website

Franklin Laemmlen

The editor of this newsletter is again soliciting our readers to agree to get their newsletter via computer. Our budget requires that we reduce our printing and postage costs. Every newsletter we mail by US Post costs us some \$1,300. We can provide this same information to you via our Santa Barbara County website at a fraction of the mailing cost.

When we send you our newsletter, you get it in black-and-white. If you agree to get it on our website, you will enjoy the newsletter photos in full color.



Please fill out the form at the end of this February issue of CCAH and provide us with your e-mail address or call us at (805) 934-6240 and give us the information requested. When a new issue of CCAH is available, we will notify you to go to <http://cesantabarbara.ucdavis.edu> to view the letter.

Thank you for your help in this cost-cutting effort!



Vegetable Production Meeting Information

Franklin Laemmlen

At the Vegetable Production Meeting held in Guadalupe on January 21, 2004, several speakers left handout materials. If you would like copies of this information, call me at (805) 934-6240.



I have handout information for Tim Hartz's talk on phosphorous, Stuart Pettygrove's talk on

GPS/GIS applications, Franklin Laemmlen's talk on new research information on vegetable diseases of concern to coastal growers, and Franklin Laemmlen's causes of tipburn (calcium deficiency) chart. Mark Gaskell's talk on soil preparation and pH management for blueberries is available on our website <http://cesantabarbara.ucdavis.edu>.

Strawberry Production Trends for 2004 by Warren Bendixen

The Santa Maria district planted 5,647 acres of strawberries for the 2004 season. That is a 1,209 acre (27.2%) increase over the 2003 acreage. The strawberry acreage in the Santa Maria district represents 17.8% of the state's acreage and is the third largest district. All five districts had an increase in acreage for a total of 3,409-acre increase.

California has the largest state acreage with 31,639 acres in 2004 compared to 28,230 acres in 2003 and 26,828 acres in 2002.

Camarosa continues to be the dominant variety in both this district and the state. In 2004 there are 2,901 acres of Camarosa in the Santa Maria district, and 9,832 acres in the state. Proprietary varieties increased by 123 acres to 788 acres in the Santa Maria district, and 9,756 in the state.

CALIFORNIA ACREAGE BY DISTRICT*										
District	1996	1997	1998	1999	2000	2001	2002	2003	2004	Acreage Change
Orange Co/ San Diego	2,495	2,381	2,820	2,543	2,465	2,446	2,539	2,883	2899	16 increase
Oxnard	5,100	5,218	5,776	6,692	7,591	7,777	8,582	8,794	10,349	1,555 increase
Santa Maria	5,063	3,763	3,778	3,703	4,218	3,817	4,100	4,438	5,647	1,209 increase
Watsonville/ Salinas	11,712	10,446	11,058	11,108	11,444	10,759	11,300	11,687	12,201	514 increase
San Joaquin	875	700	732	557	622	344	309	429	544	115 increase
STATE TOTAL	25,245	22,508	24,164	24,603	26,340	25,142	26,828	28,230	31,639	3,409 increase

STATEWIDE VARIETAL TRENDS*										
Variety	1996	1997	1998	1999	2000	2001	2002	2003	2004	Acreage Change
Camarosa	6,102	9,850	11,124	10,956	11,764	10,931	10,485	9,626	9,832	206 increase
Selva	6,794	5,458	5,922	4,127	1,695	321	342	194	17	177 decrease
Diamante	—	—	—	999	3,114	5,141	6,408	7,445	7,527	82 increase
Aromas	—	—	—	528	1,815	720	667	529	537	8 increase
Chandler	5,438	1,065	654	650	695	396	343	463	535	72 increase
Proprietary	—	—	5,452	6,699	6,901	7,385	8,068	8,421	9,756	1,335 increase
Ventana	—	—	—	—	—	—	62	1,020	2,777	1,757 increase
Other	6,911	6,135	1,012	644	355	249	455	533	659	126 increase
STATE TOTAL	25,245	22,508	24,164	24,603	26,339	25,142	26,828	28,230	31,639	3,409 increase

*California Strawberry Commission

CENTRAL COAST AGRICULTURE HIGHLIGHTS — February 2004

Downy Mildew of Lettuce

Franklin Laemmlen

Research has shown that the fungus pathogen that causes downy mildew in lettuce is a dynamic organism. It is in a constant state of change. Therefore, lettuce cultivars that were resistant yesterday, may be losing their resistance today. Also fungicides that are effective today, may begin showing losses in efficacy tomorrow. Table I. (taken from the December 2003 issue of Vegetables WEST) shows the changes that have occurred in the lettuce downy mildew pathogen during the last six years. You will note that pathotypes that were once common are no longer found (IIA to V), and that new pathotypes and Novel (present, but not commonly found) pathotypes now dominate the pathogen population.



In 2003, a trial was conducted in Oso Flaco on head lettuce cultivar "Sniper." Treatments were replicated to yield statistically valid information. Table II presents the results of this trial. You will note that maneb still provided good control of downy mildew in this trial. The phosphorous acid compounds (Nutriphite and Fosphite) are still effective, but appear to be slipping, which indicates that some resistance in the fungus may be developing to these compounds. Reason™ is a new experimental product from Bayer Corp., which provided excellent control of lettuce downy mildew. Reason™ is not currently registered for use on lettuce.

If you have questions about the above information, please call me at (805) 934-6240.

In Santa Maria, I conduct fungicide trials for downy mildew control. These trials are done for two reasons: (1) to test new materials, and (2) to determine if standard materials in present use are still effective.

Table I.

Diversity of Lettuce Downy Mildew in Coastal California ¹								
Percentages per year of California pathotypes								
Year ²	IIA	IIB	III	IV	V	VI	VII	Novels ³
1995	5	15	6	15	26	0	0	33
1996	1	4	3	14	29	0	0	49
1997	0	5	0	0	51	0	0	44
1998	1	0	0	0	49	0	0	50
2001	0	0	0	0	17	29	29	25
2002	0	0	0	0	0	22	39	39

¹ Table adapted from R. W. Michelmore, Lettuce Board Annual Reports. Note that these numbers are based on samples, so that the diversity of all populations in the state may or may not be represented by these research statistics.

² The 1995 to 1997 data are based on systematic sampling. The 1998 to 2002 data are derived from samples submitted by growers and farm advisors. The 2001 and 2002 collections comprise significantly fewer samples than in previous years.

³ "Novels" are virulence phenotypes that are distinct from the accepted pathotype categories, usually are not found in great numbers, and have not yet been assigned to a pathotype designation.

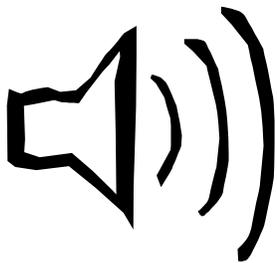
Table II.

Field Evaluation of Compounds for Lettuce Downy Mildew Control, Santa Maria, 2003			
Treatment	Rate/Ac	Total DM lesions/10 heads	Ave.Wgt/head/10 heads
1.Reason+Bond Alt.Maneb 75	8.2 oz + 1pt 2 lb	1 a ^{1/2}	1044.0 a ^{1/2}
2.Reason+Previcur +Bond	4 oz+12 oz+1pt	1 a	1089.6 a
3.Reason+Bond Alt.Maneb 75	5.5 oz+1 pt 2 lb	1 a	1011.1 a
4.Maneb 75 + B 1956	2 lb + 1 pt	1 a	1115.8 a
5.Verita	809.72 gm	1 a	969.9 a
6.Zoxium+Maneb75	0.3 lb ai + 2 lb	2 a	1089.6 a
7.TD-2398+B 1956	3 pt + 1pt	5 a	1036.9 a
8.Nutriphite	4 pt	9 a	1004.8 a
9.Fosphite	6 pt	11 a	1023.1 a
10.Zoxium	0.3 lb ai	30 ab	984.1 a
11.Cuprofix disperses + B 1956	2 lb + 1 pt	76 bc	1001.5 a
12.Control (Water)	80 gal	101 c	1153.7 a

^{1/2} p = .05

LSD 24.7

LSD 129.99



Announcements . . .

◆ **Weed Susceptibility Chart**

- This chart lists weeds and indicates how they respond to the application of various herbicides. For a copy call (805) 934-6240.



◆ **Pesticides for Specialty Crops.**

You can access this publication on-line at <<http://anrcatalog.ucdavis.edu>> or call (805) 934-6240 to get a copy.

- ◆ Do you need **ETo [Evapo-Transpiration]** information? The **California Irrigation Management Information System [CIMIS]** has upgraded its information network and website to be more user-friendly. Visit the CIMIS home page at



<<http://www.cimis.water.ca.gov>>

and look around. If you have urgent questions, call the CIMIS hotline at 1-800-922-4647.

◆ **Labor Management in Agriculture: Cultivating Personnel Productivity**

is the title of a recently published book by Greg Billikopf, Farm Advisor, Stanislaus County. There are many fixed costs in crop production. However, one factor that can improve the bottom line is worker performance and productivity. This text provides information on hiring, incentive programs, job evaluations, conflict resolution, discipline, and more to help growers get the best job performance from their workers in a pleasant working environment.



Labor Management in Agriculture is available in English or Spanish at \$12.50 per copy plus tax and shipping. Call Elizabeth Resendez at (209) 525-6800 for details on how to get a copy.

- ◆ **Biotechnology Information.** Go to <ucbiotech.org> for answers to your questions and for news, resources, educational materials and other information on the subject.



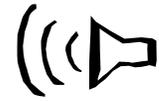
- ◆ **John D. Isaacs Scholarship in Marine Science.** This scholarship provides \$3,000 per year for four years (\$12,000 total) to high school juniors or seniors in California, who are considering a career in marine science. Call (805) 934-6240 for more details.

- ◆ **The California Labor Law Poster Service** has issued the list of required State and Federal posters for 2004. For a copy of this information and an order form call (805) 934-6240.

◆ Results of the **2003 Fresh Market Tomato Variety Trials** are now available. These trials were done in Kings, Merced and San Joaquin counties. Call (805) 934-6240 for a copy.

- ◆ **Water Quality Conservation Practices Studies.** Cost studies (estimated costs and potential benefits) are available for various conservation practices in six coastal counties from San Mateo to Santa Barbara. The studies are available via the Internet at <<http://cesantacruz.ucdavis.edu>> Click on Local Research & Reports and scroll down to "Central Coast Conservation Practices."

- ◆ **GIS [Geographic Information Systems] and GPS [Global Positioning Systems]** courses are available. Several extension courses will be offered this winter and spring on the UC campus at Riverside.



If you have interest, visit our office at 624-A West Foster Road, Santa Maria, to review course descriptions, cost and enrollment procedures.



◆ **2003 Asparagus Variety Trials.** Results of asparagus trials conducted in San Joaquin County are now available. Call Franklin Laemmlen at (805) 934-6240 to receive a

copy of this research report.

◆ **Control of Beet Armyworm and Cabbage Looper in Head Lettuce Using Selective and Reduced-Risk Insecticides**

is the title of a research report recently published by John Palumbo, Yuma Valley Agricultural Center, University of Arizona. For a copy of this report call (805) 934-6240.



◆ **Spinach Downy Mildew and Spinach Cultivar Reactions.** This topic is addressed in a recent research report released by U.C. and University of Arkansas scientists. For a copy of this report call Franklin Laemmlen at (805) 934-6240.



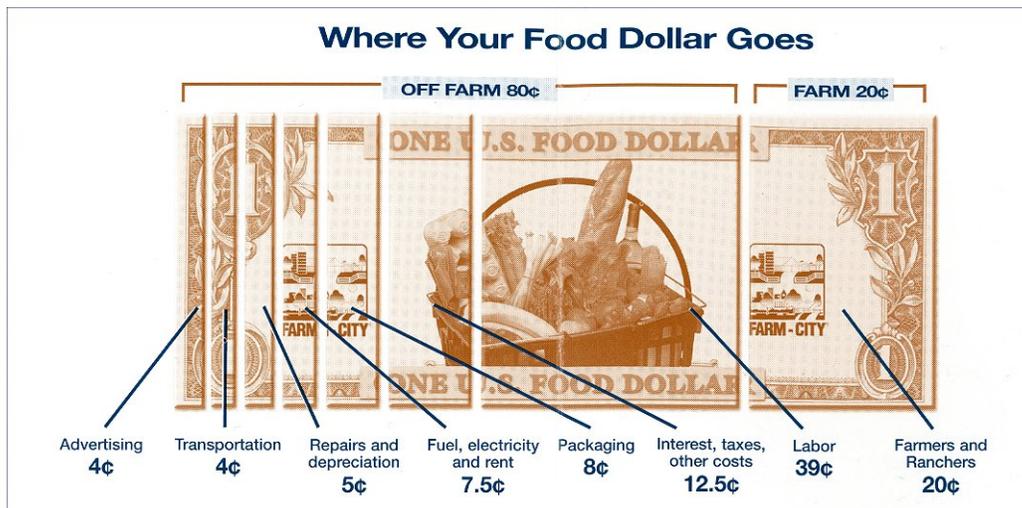
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Did You Know . . . ?

- * *Agriculture is the major producing industry in Santa Barbara County.*
- * *Santa Barbara County is the #14 agriculture producing county in California.*
- * *Santa Barbara County farmers and ranchers produce over 100 different crops and livestock commodities.*
- * *The majority of farmland in Santa Barbara County is owned by families.*
- * *Strawberries are the county's #1 commodity.*
- * *According to government statistics, there are over 1,613 farms and ranches in Santa Barbara County.*
- * *The average size of a Santa Barbara County farm is 563 acres.*
- * *Agriculture directly contributes over 1.5 billion dollars to Santa Barbara County's economy.*

Source: Santa Barbara County Farm Bureau.



Source: Grower-Shipper Vegetable Association

Newsletter Subscription for
Central Coast Agriculture Highlights (CAAH)
(Refer to page 4)

- I wish to access my newsletter via the UC Cooperative Extension Santa Barbara County website <<http://cesantabarbara.ucdavis.edu>>
My e-mail address is: _____
- I wish to continue receiving a copy of the CCAH newsletter by U.S. mail.
- I wish to cancel my CCAH subscription.

Signed: _____

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