



University of California Cooperative Extension

Livestock, Range & Watershed

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Living with Wildland Fire

Royce Larsen

No one imagines that his or her home will ever be destroyed by fire. Of course, we realize this might happen to someone else, but never to us. There is ever increasing costs and damage caused by wildland fire in California. The following information is from the University of California Division of Agriculture, Natural Resources publication "How Can We Live With Wildland Fire?" and from the Forest Products Laboratory, UC Berkeley.

California's unique weather, topography and fuel creates one of the worlds most severe wildfire environments. California has dry hot summers. There are a lot of canyons, hills and mountains helping to trap heat and create or control wind patterns. There is an abundance of dry grasses, shrubs and trees. All of this creates a potential for severe fires in California. With this fire potential its not really a question of if it will burn, but rather when will it burn. As citizens living in this environment we need to learn to live with the fire. Gene Dowdy, USFS National Fire Protection Operations has stated "there is no good fire and there is no bad fire, there's just fire and in some places it's going to do some

good and in some places it's going to do some bad."

As homeowners we should be aware of the level of fire hazard where we live. Hazards are defined by degree: extreme, high, or moderate. Homeowners should check with their local fire authority to see how their area is rated. In all probability, the hazard to your home is as high as or higher than the area rating, depending on the details of the parcel and/or house. Obviously, the higher the hazard, the greater the risk to your house, and the more you need to do to ensure survival from an approaching wildfire.

Homeowners should keep in mind the vulnerable parts of houses -- roofing, vents, windows, nooks and crannies, and under floor areas -- when assessing fire hazards.

There are some "**quick fixes**" that are relatively inexpensive and easily carried out by the homeowner. Regardless of the level of hazard, these should be done immediately, and cannot wait until a fire is approaching. These quick fixes include, but are not limited to:

- Plants in and around your home should be well maintained, free of debris and "fire-safe."
- No trees should have branches within 6 feet of your roof—cut the branches or remove the tree if necessary.
- Create islands of vegetation (a "fuel mosaic") so that fire does not have a path to your house.

- Be careful of using a lot of landscaping bark and mulch—this could cause smoldering of embers.
- Annual grasses are a major hazard in the fall when they cure, especially if you have grasses on a slope leading up to your house. Cut these grasses or get them grazed before they die!
- The area within 6 feet of your house is especially hazardous—do not store firewood and other combustibles within this zone, especially under decks.
- Keep barbecue propane tanks as far away from the house as possible.
- Clean your gutters regularly or cover your gutters with metal screening.
- If you have a chimney, be sure that it has an approved spark arrester.
- Metallic screens provide protection to windows from radiant energy from fires and some protection against wind-blown debris.

There is more information available to local citizens. The San Luis Obispo County Community Fire Safe Council has sponsored a brochure “Living With Fire – A Guide For The Home Owner.” that has information available on how to prepare your home and family to survive wildfire. This brochure includes many pictures and demonstrations showing how to create defensible space. These are available at most county libraries, City Hall, CDF, local fire departments and UC Cooperative Extension. Further information may also be obtained from web sites: www.ucfpl.ucop.edu, www.cdfslo.org, www.firewise.org, and www.firesafecouncil.org.

BOVINE SPONGIFORM ENCEPHALOPATHY: WHAT’S THE LATEST?

Wayne Jensen

As in past newsletters, I include timely information that Dr. John Maas, our Extension Veterinarian at UC Davis provides. The

following is his overview regarding the BSE situation that surfaced recently in Canada.

With the recent news that Canada has confirmed a case of Bovine Spongiform Encephalopathy (BSE) or what the news media insist on calling "mad cow disease", I thought it would be important to review this topic. The US border with Canada was immediately closed to the shipment of live cattle and beef products. This is an absolutely necessary step and until much more is known about the risk of BSE in Canadian cattle, the border should remain closed. Although BSE has been recognized for more than 15 years as a devastating disease of cattle, until the Canadian case, it was off the radar screen for most people. Here is a quick review of the problem.

I don’t Remember! What is Bovine Spongiform Encephalopathy (BSE)? BSE is a chronic degenerative disease that affects the central nervous system (brain & spinal cord) of cattle, first diagnosed in cattle in Great Britain in 1986. BSE belongs to a group of diseases known as Transmissible Spongiform Encephalopathies (TSEs). The TSEs include scrapie (sheep & goats), transmissible mink encephalopathy, feline spongiform encephalopathy (cats), chronic wasting disease of elk and deer, and BSE in cattle. Humans have a number of TSEs and these include kuru, Creutzfeldt Jakob Disease (CJD), new variant Creutzfeldt Jakob Disease (nvCJD), Fatal Familial Insomnia, Gerstmann-Straussler syndrome (in humans). The TSEs appear to be caused by abnormal proteins or “prions”. The clinical signs or symptoms in cattle appear as nervousness or aggression, abnormal posture, incoordination, weight loss, difficulty rising, progressing to death. There is no treatment for any of these conditions and currently there are no vaccines available for prevention. Remember, BSE is different from Foot and Mouth Disease (FMD; a viral disease of cattle, sheep, and pigs). Both BSE and FMD occurred in Great Britain, but that was the only connection between the two diseases.

Have we had any cases of BSE in the United States? No. There have been no cases of BSE in

the U.S.A. There was one case in Canada (which was in a cow imported from Britain), before the recent case of BSE in a single beef cow. Before the ban on British cattle imports went into effect in 1989, there were 499 cattle brought to the U.S.A. from Britain. All of those cattle were carefully accounted for and none showed evidence of BSE. Veterinarians and others in the U.S.A. have very aggressive surveillance programs for BSE. This includes the National Veterinary Services Laboratory in Ames, Iowa, the Centers for Disease Control, the USDA, and all state labs such as the California Animal Health and Food Safety laboratory. Surveillance of high-risk populations such as disabled dairy cattle has continued at a high rate, with more than 3,000 cattle from California alone examined for evidence of BSE to date. So far, there has been no evidence of BSE in the U.S.A.

What about BSE in Japan?

There have been a few cases of BSE diagnosed in Japanese cattle in the past three years. The Japanese continued to import meat and bone meal (MBM) from high risk sources (Europe) and unknown sources as cattle feed despite scientific warnings to the contrary. It is thought that this risky practice is what resulted in BSE cases occurring in Japan. These BSE cases in cattle destroyed Japanese consumer confidence in beef products, which has not yet fully recovered.

What is currently being done to prevent BSE in the U.S.A.? The U.S.A. has banned importation of cattle and ruminant protein feeds from countries with BSE for many years and this ban is still in place (this now includes Canada). Surveillance in the U.S.A. continues at a very high rate. Also, in 1997 the FDA enacted a ruminant feed ban. The ban prohibits the feeding of protein derived from mammals (such as meat and bone meal) to ruminants. There are some exceptions to this rule, but in general it is very strict and effective. Some TSEs occur in the U.S.A. These include diseases such as scrapie in sheep, chronic wasting disease (CWD) in elk and deer, and transmissible encephalopathy in mink. Monitoring of all of these TSEs is occurring and active research is also ongoing on these

conditions. There has been a large increase in the efforts to eliminate scrapie in sheep. New, more accurate diagnostic tests in sheep have been developed and the scrapie elimination program is proceeding. Research work on CWD is ongoing and many efforts to monitor CWD are occurring. To date, several research projects have concluded that CWD does not appear to cause disease in cattle. Currently, there is no known risk to the cattle population of the U.S.A. with regard to BSE and there is no risk to people consuming beef produced in the U.S.A. Obviously, this problem has decimated the cattle industries of the U.K. and other countries, and we must all continue to work hard to prevent this problem from occurring in the U.S.A.

How well is the mammalian protein ban working? In general, the ban on feeding mammalian protein to cattle (or other ruminants) is working very well despite the news reports out of Texas a couple of years ago. The cattle industry recently received an update from the FDA on this question. The FDA has inspected 7,972 feed mills. The number of feed mills handling mammalian protein (meat and bone meal, and similar substances) was only 1,426 (21%). These are the feed mills that produce feed for poultry or swine operations. Currently, the use of mammalian protein for use in poultry and swine feeds is allowed, as these species are not affected by BSE or other TSEs. The number of mills handling these prohibited materials is declining. The number of significant problems uncovered during these inspections was less than 1%. Also, the FDA has inspected 2,007 ruminant feeding operations and there were no significant problems found and only 4 operations needed to improve their record keeping systems. There is still some education needed regarding the ruminant feed ban. The proper cleaning of equipment and better record keeping will be necessary to achieve 100% compliance. Also, the FDA is considering some possible changes to the BSE rule.

Locoweed Toxicity and Management

Ralph Phillips

There are many locoweeds species in our area. This last spring three species of locoweed from the west side of the valley (near the San Luis Obispo County border) were sent to the Poisonous Plant Research Laboratory, USDA, Logan, Utah.

The three species tested were Diablo locoweed (*Astragalus oxyphysis*), Jones freckled milkvetch (*A. lentiginous*) and Douglas's rattle-wood. (*A. douglasii*). All three species contained high levels of the toxic compound (swainsonine). The Diablo locoweed had the highest percent of the toxic compound (0.218%). If a plant contains 0.05% Swansons, it is considered toxic. All parts of the plant are toxic.

The Diablo locoweed has a light green to cream-colored flower and the seed pods are small and flat. Jones freckled milkvetch is a low-growing plant with large plump seedpods that will have red stripes or freckles. Douglas's rattle-wood is a low growing plant with a large plump, light green seedpod.

The Poisonous Plant Research Laboratory sent some research information how loco affects the annual as well some suggested livestock management practices to reduce poisoning. Locoweed poisoning symptoms usually do not appear until the animal had been grazing the plants for several weeks. Clinically, locoweed intoxication is characterized by depression, loss of coordination, tremors, nervousness (especially when stressed) dull hair coat, emaciation, decreased libido, infertility, abortion, water belly and death. By the time the animal shows these symptoms, damage has occurred in the hormone and reproductive systems.

Research has shown that as little as 10% locoweed in the diet for 20-40 days can alter estrus cycles behavior and reduce embryo viability and implantation. Also, after seventy days of locoweed intake, semen quality will be reduced and spermcell production will be

drastically reduced. There is no 100% safe grazing period on locoweed for livestock as far as reproduction is concerned. Lesions can appear in the reproduction organs within a few days after eating locoweed.

Locoweed was once thought to be addictive, but recent research has shown that preference for locoweed is relative to availability and condition of other forages. Another factor can influence locoweed poisoning in a herd. Certain animals have acquired a taste for locoweed and can influence other animals in the herd to eat locoweed. Researchers have found that if a cow eats locoweed, her calf will probably eat locoweed. In heavy locoweed areas, some ranchers will remove a cow from a herd if she is observed eating locoweed. Grazing studies have shown that keeping livestock out of locoweed areas during the dry season when most grasses are dry and the locoweed is green can reduce the amount of poisoning. Also, making sure that livestock have an abundant supply of forages can reduce the poisoning.

For additional information on locoweed, please contact our office or Ralph Phillips at 661-868-6219.

PINE NEEDLE ABORTION

Ralph Phillips

It was first reported in the 1920s that pine needles could be the cause of abortion in cattle. By 1952 research had proved that Ponderosa or yellow pine could cause abortion. Recently, the poisonous plant research laboratory, USDA, Logan, Utah said that there was a possibility that junipers could be causing the same problem. It was in the mid 1990s that the abortion causing compound was isolated and identified, isocupressic acid (ICA). Further research showed that ICA caused late term (last trimester) abortion. The toxicity of ICA is dose dependent and large doses of the compound could cause the cow to abort sooner than low doses. So, it is difficult to say exactly how many pounds of pine or juniper a cow needs to eat before she aborts. In some cases cows will need to eat 10 – 15

pounds a day for several days before they will abort, but as little as 4 or 5 pounds can cause cows to abort. ICA restricts the blood flow to the placenta and the calf basically starves to death in the cow's uterus. Smaller amounts of ICA will take longer for the calf to starve to death and larger amounts will starve the calf to death in a very short time. Also, the larger the calf, the quicker ICA can cause abortion. Larger calves require more nutrients from the cow, thus taking a shorter time to die. One of the signs of ICA abortion is a large percent of the cows that abort late term will have a retained placenta.

Table 1 shows a list of pine and juniper found in California, that have been tested for

ICA and the percent ICA found in the needles. Feeding trials have not been conducted on all the species in this list but the experts at the poisonous plant lab feel all these species are a potential cause of abortion. Before becoming too concerned, remember that cows must eat the needles during the last trimester of pregnancy and there also must be an ample supply of trees to graze and the cow must get enough pine needles to cause abortion. Just because these types of trees are on your range does not mean ICA is the problem. However, if you have unexplained abortions, ICA could be the cause.

Table 1. Pine and Juniper species found in California that contain high levels of an abortion causing compound, isocupressic acid (ICA).

Common Name	Scientific Name	% ICA
Rocky Mountain Juniper	<i>Juniperus scopulorum</i>	0.84 – 0.32
Common Juniper	<i>Juniperus communis</i>	2.88 – 2.05
Lodgepole Pine	<i>Pinus contorta</i>	0.66 – 0.11
Jefferey Pine	<i>Pinus jeffreyi</i>	0.54
Pinyon Pine	<i>Pinus monophylla</i>	0.32
Ponderosa Pine (Yellow Pine)	<i>Pinus Ponderosa</i>	1.35 – 0.42
California Juniper	<i>Juniperus Californica</i>	1.60 – 0.93



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