

Colorado Dairy News

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Bioterrorism: Are You Prepared?

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Use of infectious organisms as biological weapons is now considered a realistic threat in the United States. October, 2001 anthrax attacks were conducted via five envelopes that were sent through the U.S. postal system. All were mailed from Trenton, New Jersey, and all contained spores identified as *Bacillus anthracis*. As participants in an animal industry we have the opportunity and responsibility to be observant of disease outbreaks that might represent biological weapon release.

It could be difficult to detect the release of biological agents. They could be disseminated over a large geographic area and clinical cases may take days to weeks to recognize. There is also the possibility of secondary spread via person-to-person contact or through vectors such as flies, ticks or mosquitoes. Wildlife would also have the potential to spread disease over large areas and could serve as a source of infection for humans and animals. Many pathogens that may be potentially used as bioweapons are zoonotic. Therefore, disease may first occur in animals, before it occurs in humans. For example in 1999 when West Nile Virus was first identified in the Western Hemisphere, unusual bird mortality occurred before any human illness was detected. These factors, especially the delayed recognition, allow the perpetrator time to leave the area and make the biological attack extremely effective.

The best protection from the effects of a biological attack is prevention via biosecurity, but in the event of an attack, early recognition would be critical to decrease the impact. Some clues suggesting that a biological agent may have been released include: 1) an unusual clustering of illness or mortality in people or animals in a given region or at a given time 2) normally healthy individuals suddenly becoming ill 3) unusual or atypical symptoms 4) an unusual age distribution for common diseases (e.g. an increase in chickenpox-like illness among adult patients may be smallpox) or 5) the disease occurring outside its "typical" season (e.g. flu-like symptoms in humans in June in the northern hemisphere).

Humans can become infected with zoonotic diseases in various ways. These include: 1) respiratory - by inhaling contaminated dust from the soil or environment or via an aerosol from a person or animal (e.g. sneezing or coughing) 2) vector transmission via bites of fleas, lice, ticks or mosquitoes 3) direct contact with a sick person or animal or its body fluids such as blood, saliva, feces, urine or vomit 4) ingestion of contaminated food or 5) drinking of contaminated water. Different infectious agents can be spread via one or more of these mechanisms.

Some factors that promote zoonotic disease transmission include frequent contact
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Sorghum Types as a Forage Source

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Continued drought conditions have influenced many production decisions for 2003. Alternate crops such as sorghum have received attention because of their inherent drought tolerance and reduced water requirements when compared to corn. Both forage sorghum and sorghum sudangrass are used for forage in the High Plains. This article will focus on management strategies and the uses of different sorghum types.

Sorghum types differ in their utility as forage crops. Sorghum sudangrass is better suited as a grazing or hay crop because of regrowth and is rarely used as a silage crop. Forage sorghum is primarily used as a silage crop due to its grain content and yield potential. Yield expectations for sorghum sudangrass range from 3.5 to 4.5 tons of dry matter per acre with approximately 50% of the yield from stems. Forage sorghums may produce 4.5 to 5.5 tons of dry matter per acre. Corn may produce 5 to 7.5 tons of dry matter under the same conditions.

Feed value of sorghum silage differs from corn silage. Research from Kan-

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Important Dates:
Mark Your Calendar

April 1, 2003: Mycoplasma Mastitis, discussion with Drs Page Dinsmore and Meg Cattel, at ARDEC CSU Ex Farm. Contact Carol (970-686-7983) or Mike (970-539-0943).

June 1, 2003: Dairy Youth Extravaganza, Island Grove Park, Greeley, CO. Contact Keith Maxey, Weld County Extension Office, 970/356-4000 X4475.

June 23-27, 2003: American Dairy Science Association Meeting, Phoenix, AZ. Contact William Wailes, Animal Sciences Department CSU, 970/491-5390.



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A Message From Your Extension Dairy Specialist.....

The Western Dairy Management Conference was held in Reno, NV March 12-14, 2003 and over 1800 participants registered for the conference. The fine attendance, appropriate topics and wonderful speakers made this meeting a huge success for the Western States Dairy Extension Specialists who organized it. We look forward to hosting the 2005 meeting at the same venue.

Dairy producers in the western United States as well as across the country must be even more concerned about low milk prices as we go into the spring flush months. Typically, we see more production and great production growth at this time of year and this will not help the low prices that are attributed to overproduction. I suggest that dairy producers look carefully at a producer funded program focused on managing our current overproduction. Had we self funded such a program prior to the 2002 farm bill which includes a dairy title, we might have improved our current situation by improving milk and dairy beef quality and sales price. Currently, we are competing with each other to produce every pound of milk we can when we should be working together to solve the overproduction issue. Leaders in our marketing coops should be helping us solve our problems, the greatest of which is how to take producing cows out of production in order to throttle back total production. At the same time, the financial advisors and bankers who finance dairy producers should also address overproduction. We need all the businesses that are touched by this ripple effect to send suggestions to their marketing agencies. I encourage cooperation of all sectors of the dairy industry to find a solution, not perpetuate the problem.

William R. Wailes, Colorado Extension Dairy Specialist

Commodity Price Quotes

By-Product Feeds	Price/Ton Spot Loads	Price/Ton April-August 2003
Bakery Waste	\$104.00 March	\$104.00 April
Blood Meal	\$400.00	NQ
Corn Gluten Feed	\$95.00	\$95.00 April-August
Corn Gluten Meal	\$265.00	NQ
Corn Hominy	\$105.00	\$105.00 April-August
Flaked Corn	\$120.00	\$123.00 April-August
Whole Corn	\$105.00	\$108.00 April-August
Cottonseed Meal	\$179.00	NQ
Whole Cottonseed	\$185.00	\$195.00 April-August
Distillers Grains	\$130.00	\$120.00 April-August
Pork - Meat & Bone Meal	\$215.00	NQ
Tallow	\$0.17 1/4 cents/lb.	NQ
SBM - 48%	\$192.00	NQ
Wheat Middlings	\$83.00	\$80.00 April-August
Soybean Hulls;Meal/Pellets	\$83.00	NQ
Canola Meal	\$153.00	NQ

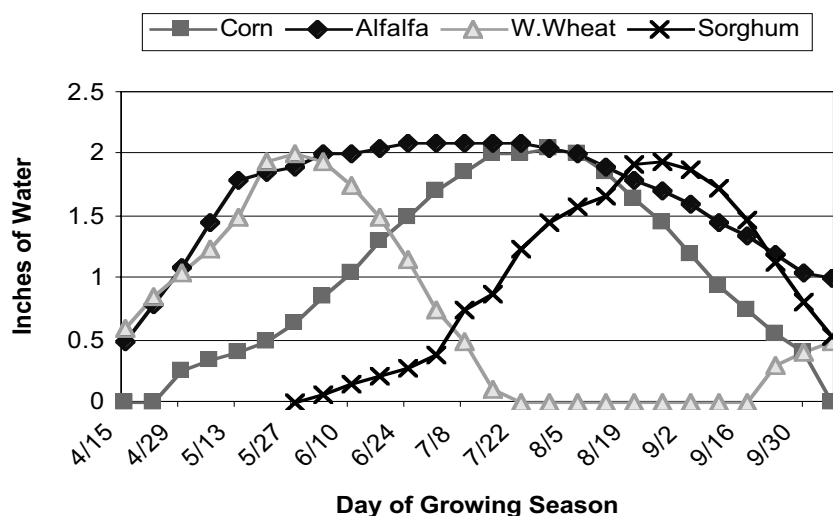
These price quotes are delivery at Greeley, Co

(Sorghum, continued from page 1)

sas State University suggests that sorghum sudangrass hybrids will have 65 to 75% of the energy value of corn silage. Forage sorghums will have 80 to 90% of the energy value of corn silage. Brown mid-rib hybrids have reduced lignin and thus contain higher levels of digestible nutrients when compared to conventional sorghum hybrids. To detect differences between conventional and BMR hybrids, it is important to check with your analytical lab to determine if lignin is being measured.

Sorghum water use is generally lower than corn. The range of water use for maximum sorghum production is 15 to 20 inches, whereas corn utilizes 22 to 28 inches of water. The timing of water use for forage type sorghums are slightly later than corn because of planting date. There are slight differences in water requirements for forage sorghums versus sorghum sudangrass hybrids due to harvest practices. Separation of peak water use requirements of various crops is a common strategy when irrigation supplies are limited.

Seasonal Water Use Curves



Sorghum types are planted later than corn. In general, sorghum is planted 20 to 30 days later than corn because the soil temperature needs to be near 65°F. This soil temperature generally occurs in late May to early June. Herbicide choices for sorghum are limited and some require a seed safener. Read and follow all herbicide labels for restrictions.

Base seeding rate on forage needs and growing conditions. Planting rates for forage sorghums vary with the type of forage and growing conditions for the area. Planting in rows and drilling can both give good results when the proper planting rate is employed. Follow the suggested planting rates outlined on the insert.

Nitrogen fertility requirements. Sorghum species require approximately 7 to 10 pounds of nitrogen per ton of 30% dry matter forage. Similarly, corn also requires 7-10 pounds of nitrogen per ton of 30% dry matter forage.

For summer pasture: For highest quality and feed value, start grazing sorghum-sudangrass when the first growth is three feet tall. Feed value and palatability start to decrease when plants reach the heading stage. Grazing pressure should be heavy enough to keep the crop from reaching the pre-boot stage. To increase grazing potential, divide the field into strips and rotate grazing from one strip to another.

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Striking at the nation's calcium crisis by urging Americans to boost milk, cheese and yogurt consumption, the dairy checkoff has launched its 3-A-Day of Dairy campaign. The nutrition-based marketing and education campaign will penetrate advertising, retail and public relations programs this year.

According to National Dairy Council®, the health community recognizes America's low calcium intake as a major health problem unnoticed by the public. Nearly 60 % of Americans think they are getting enough calcium, but USDA data confirms that 75 % are not. To help reverse this trend, nutrition education programs will raise public awareness about dairy's role in enabling Americans to meet calcium requirements. More than 240,000 doctors and other health professionals have signed on as official 3-A-Day partners.

Kroger and Walmart are holding major promotions associated with the program's kick-off. In 2003 over 30 retailers in 50 states will support the campaign. Dairy manufacturers are preparing to imprint the 3-A-Day logo on qualified milk, cheese and yogurt products. To qualify, products must be considered an "excellent source of calcium," meaning that a serving must contain at least 20 percent of the daily value (DV) for calcium as indicated on the Nutrition Facts label. Fortified dairy products must meet the 20 percent DV and contain at least 10 percent of the DV for calcium *before* fortification. Dairy producers can learn more about dairy checkoff-funded 3-A-Day promotion efforts and receive 3-A-Day baseball caps by visiting www.dairycheckoff.com.

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When only coarse stalks are left, clip or shred the field leaving six to eight inches of stubble. This promotes faster, more uniform regrowth, higher tonnage per acre and better stand retention. The field can be grazed again when regrowth reaches three feet. Grazing of regrowth can continue into late summer and fall, but *should* be stopped after frost because of *high* prussic acid content. Pasturing can continue when all foliage has turned brown following a hard freeze. Stop grazing when any basal regrowth develops late in the season following a drought or freeze.

For hay production: When cut and cured properly, sorghum sudangrass can produce high quality hay containing nearly as much protein (up to 20 percent) and almost as much energy as alfalfa. Hay quality, as measured by the protein to fiber ratio, decreases rapidly with additional height above four feet, especially as heads begin to appear.

Drilling is preferable to using a planter when seeding sorghum-sudangrass for hay because plants are better distributed and the stubble pattern may better aid drying of the hay. Cut when four to six feet tall, and leave at least six to eight inches of stubble for best regrowth and stand retention. Crush the stems with a crimper or conditioner to speed drying. If stems are wet, bales may mold.

Do not feed sorghum-sudangrass or forage sorghum to horses, since it can cause cystitis (inflamed urinary bladder). Symptoms are inability to coordinate rear quarters, uncontrolled urination, and abortion or stillbirths in mares. Cystitis is not a problem in ruminants such as cattle and sheep.

Harvesting. Although forage sorghum hybrids yield 20 to 30 percent more silage and produce better quality forage than sorghum-sudangrass, the latter, if harvested early, will contain 1-1/2 to 2 times the amount of protein as forage sorghum. Grain-bearing forage sorghum hybrids grown in Colorado will need the entire growing season to reach maturity.

When to chop for silage. For sorghum sudangrass, begin harvesting during the late boot stage of development. The sorghum sudangrass crop may need to be windrowed and wilted to the appropriate moisture for ensiling. Most forage sorghum hybrids should be harvested for silage at mid to full grain color. Generally, bunker silos have a targeted moisture range of 67 to 72% moisture. Wilting may reduce the concentration of prussic acid because it tends to volatilize. Ensiling too wet or too dry may lead to spoilage in-silo. Excessive moisture increases seepage and may lead to a butyric fermentation, which is undesirable. Chop length should be 1/4 to 3/8 inches theoretical cut length.

Sorghum sudangrass and forage sorghum have an intermediate to high risk for prussic acid production. Prussic acid, or hydrogen cyanide, is produced in leaves that have undergone some form of stress. Young leaves contain highest levels of prussic acid. Drought stunted plants or frozen leaf tissue present the greatest risk. To avoid prussic acid poisoning, follow these guidelines:

Do not graze or greenchop until plants are 20 – 24 inches in height.

If stunted by drought or other conditions, do not graze or greenchop until plants are 20 – 24 inches in height.

Do not pasture following a closely cut hay or greenchop harvest.

Avoid pasturing immediately following frost or freeze that does not completely kill plants; wait until top growth turns completely brown.

Do not greenchop for 2 or more days after a killing freeze.

Ensiling does not eliminate prussic acid.

(Bioterrorism, continued from page 1)

with domestic or wild animals, people living in or visiting areas that overlap with wildlife habitats or intensive livestock production. These are difficult to manipulate. However, other factors such as poor animal sanitation, poor animal health, and poor personal hygiene can also promote transmission of zoonotic diseases, and these can be minimized.

The best protection from the effects of release of infectious zoonotic agents is implementation and adherence to strict biosecurity protocols and an early detection of any signs of an unusual disease. A list of zoonotic diseases affecting cattle that could potentially be used as bioweapons is provided in this month's insert. More information on zoonotic agents can be found at the CDC web site: <http://www.bt.cdc.gov/Agent/agentlist.asp>. Also in this insert is a summary of biosecurity measures for prevention and control of infectious diseases and emergency contacts for reporting suspected bioterrorism. It is important to realize that weaponized biological agents may have atypical routes of transmission and clinical manifestations.

Recently, Iowa State University's Center for Food Security and Public Health (CFSPH) conducted the training session entitled *Bioterrorism Awareness Education: Zoonotic Disease Training for Veterinarians*. Two Colorado veterinarians, Drs. Magda Dunowska and Jamie Snow attended this session and can give presentations on zoonotic diseases to various audiences in Colorado. If you are interested in a presentation, contact Dr. Dunowska at (970) 297 4539 or Dr. Snow at (970) 988 9913.

***A Discussion on Mycoplasma
with Drs Page Dinsmore and
Meg Cattell
April 1, 2003, 12:30-4:30 pm
at ARDEC
CSU Experimental Farm
Call Carol (970-686-7983) or
Mike (970-539-0943)
for more information***