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Disposing of livestock carcasses

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Dead cows must be disposed of in a manner that prevents spread of disease to other livestock, preserves the environment, and safeguards the public health. The potential negative impact on neighboring residential property should also be considered. Rendering, transporting to landfills, burial, burning and composting are options for disposal. Each method has advantages and disadvantages.

Preparations should be made to dispose of dead cattle under both normal daily conditions and catastrophic situations. With each, it will be necessary for dairy producers and veterinarians to work with local and state agencies to use the most appropriate methods. Planning ahead for the herd level or catastrophic event may also save the industry a tremendous amount of money.

Normal daily conditions

Under normal conditions the local rendering company can dispose of cows that die on dairies. Disposal by rendering avoids any environmental impact or public health issues because the carcass is removed from the premises. It also avoids breach of dairy biosecurity program if the pickup point for the carcass is on the perimeter of the dairy and permits collection of brain tissues for testing by the bovine spongiform encephalopathy surveillance program. In California, rendering capacity is between 400,000

to 500,000 carcasses per year and its infrastructure is well developed for disposal of their end products.

Composting is another way to dispose of carcasses in states where it is permitted by law. Although composting of unaltered mammalian tissues is not permitted in California, it is permitted in several other Western states. Contact your local water quality agency and agricultural commissioner for any local regulations or guidelines on composting.

Materials for composting cattle carcasses, such as silages or stacked manure, are readily available on dairies and provide an excellent media for composting. When properly done, composting produces little odor or flies and carcasses of mature cattle can be reduced to large bones in about six months. With composting a residual product remains on the dairy and must be disposed of properly. The animal may also escape detection by the BSE surveillance program. When composting is the disposal method, mature cows showing signs of a nervous disorder should be examined by the dairy veterinarian prior to dying to determine if the brain should be submitted for BSE testing. Final composting residue is not suitable for sale as compost, although it can be applied to land as fertilizer.

Burial is another option for carcass disposal, but it must be permitted by local ordinances. The immediate and long-term effects of carcass burial on soil and water are not clearly known. Various salts and bacteria may become evident in the ground water at different times following burial. Seasonal rainfall may prevent burial at

some times. Long term, burial may even influence property values and limit future use of the land at the burial site.

Herd outbreaks

On some occasions many cows may die on a single dairy. Local and state agencies will quickly become involved in the disposal of the carcasses and decide on the proper method. The causes of the death will determine the appropriate method of disposal to prevent spread of disease and protect the environment and public health.

The choice between rendering, burial, burning, composting and removal to the local landfill will have to be made in a timely fashion to prevent decaying carcasses from becoming a public nuisance. The decision is based on local environmental conditions, public health issues, available facilities and permit issues. When multiple carcasses are involved, each disposal method has certain advantages and disadvantages.

Catastrophic situations

Large numbers of cattle might die on several dairies during disease epidemics. State and Federal authorities will be immediately involved to rapidly contain the disease outbreak. With foreign animal disease events, there are diseased animals, in-contact animals, and nonexposed animal that may need disposal. Each category of dead livestock will require a different level of biosecurity. In such an event it will probably be necessary and advisable to use several disposal techniques to rapidly and safely handle the dead animals.

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Disposal methods like burning, burial or composting that can be completed on site are preferred, as they will contain the infectious agent to the affected premise. Burning requires a large source of combustibles to consume the carcasses and generates large volumes of smoke and odor. The ash generated may need to be transported to a landfill to avoid residue contamination. Large burial sites require use of heavy

earth moving machinery, and the effect on the environment may be significant.

When large numbers of carcasses are transported over public roads, use of special leak-resistant, covered containers and escort by governmental agents may be used for biosecurity reasons. Rendering facilities may easily become overwhelmed by numbers of animals dying. Landfills are not well suited for handling large carcasses as

the landfills are designed for less dense materials such as paper goods. Large sealed vaults may be used for on-site storage of carcasses prior to disposal to control spread of disease and prevent public nuisance due to flies and odor.

With each of these disposal methods there is an end product that may have to be moved at some later time to complete the disposal process.

Taking a closer look at culling decisions

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Culling and replacement decisions on dairies impact the profitability and sustainability of the industry; however, the root cause of why cows are leaving herds is poorly understood. An improved understanding of the true causes of culling will identify focus areas in management. Even with the best management practices in place producers still need an improved decision making process for culling.

Although culling decisions have an important impact on the economic performance of the herd, culls are often based partially on the intuition of the producer. Ideally a cow would leave the herd for voluntary reasons. Right now, national culling rates are approximately 35 percent, and over half of them are involuntary or ones that the manager is forced to make either for biological reasons (death and disease), or economic reasons (poor production related to health or reproduction).

Mortality rate is rising

Culling rate has not changed much in the past 30 years; however, the reason for removal from the dairy has changed substantially. A study done in 1988 showed a mortality rate of 1.2 percent, but more recent studies have shown the rate to be much higher today. The National Animal Health Monitoring System showed a mortality rate of 4.8 percent in the 2002 Dairy Study, and National DHIA records show a mortality rate as high as 12 percent in some states.

The cause for the increase is not fully understood. It may be due to increased reporting of deaths on the dairy, a decrease in the number of animals that leave for salvage purposes, or changes in management due to more intensive production.

One may ask why there is such an increase in current reported mortality rates. One reason is the NAHMS study relies on the memory of the dairy manager and the accuracy of on-farm records. Many times the manager will underestimate the rate of death and disease on the dairy. Although not every dairy in the country reports to DHIA, disease and death rates reported to DHIA are likely more accurate than those reported by the dairy manager in a survey.

Another reason for the difference is due to different terminology used to describe re-

moval rates. Culling rate, herd turnover rate, removal rate, and percentage removed are just a few terms used by the industry to describe the number of cows leaving the herd. Many of these are used synonymously; however, there may be subtle differences in the terms that make the reported rates different.

While the reported national culling rate shows the industry as a whole has a problem, how does this affect you, one producer? It is important to look at the reasons cows leave your herd to identify management areas that need improvement.

Traditionally, overall cull rate has been used to evaluate cow health; however this

All events that eventually cause a cow to leave the herd are extremely important and need to be accurately recorded and properly evaluated. Recording only one reason, or the final reason a cow leaves the herd, may overlook problems in management.

is a poor monitor of disease. Disease is not the only reason a cow is culled, and many times the decision to cull a cow is multifactorial. Health of the cow, production, economics, and producer disposition all are part of the decision.

All events that eventually cause a cow to leave the herd either by selling, slaughter or death are extremely important and need to be accurately recorded and properly evaluated in order to make decisions before it is too late and you find yourself in a wreck. Recording only one reason, or the final rea-

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son a cow leaves the herd, may overlook problems in management of the herd.

For example, a cow may be noted as leaving the herd due to poor production, but by looking at her previous health events one finds she had a short transition period followed by milk fever and mastitis. Now do you classify her as leaving due to poor production or due to poor management during the transition period? One of these provides little direction for what can be changed, while the other provides clear incentive to rethink some specific management items.

Record all culling causes

By recording all health events on the dairy and then systematically reviewing these records as cows leave the herd, the manager can adjust decision-making procedures to be timelier so management problems can be caught earlier. Replacing a "broken" cow without changing the problems in management that lead to the cow breaking is a poor management decision. If in the previous example, the producer evaluated the cow at the time of transition and found the transition period was too short, management decisions could have been made to reduce the risk of culling cows rather than trying to change management practices at the time of culling.

There are relatively few reasons for involuntary removal that cannot be controlled by the manager, such as hit by lightning, aggressiveness, or a cow being abducted. Virtually all culls, especially involuntary culls, can be avoided by good disease management and improved decision making. However, current record keeping systems may need to be reevaluated to meet these needs.

Culling management decisions are unique to every dairy and must be tailored to their individual needs. The first step is to identify your goals for the herd, whether they are to make a profit, have healthy, "happy" cows, genetic improvement, low SCCs, or all of the above.

All cows are eventually culled. The question is, do you want to continue to cull cows because they are "broken" or do you want to improve genetics and production? There are no easy answers, and this is an issue that needs further evaluation. Producers, veterinarians, consultants and industry leaders need to work together to improve record-keeping programs, evaluate current management systems, and develop enhanced decision making processes.