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Fencing Methods To Control Big Game Damage to Stored Crops in Wyoming¹

John F. Schneidmiller²

Abstract.--Fighting damage to stored crops by big game animals is both costly and time consuming. Fencing methods are the most suitable means to prevent big game damage to stored crops. Experimentation in fencing methods is ongoing to find the best and most cost effective solution to this problem.

Ever since the beginning of time, when early man figured out how to put a seed in the ground to produce food, he realized that more could be produced than could actually be used. At that time, if he could store these crops, they would be available to him for future use. These stored crops, however, were made available to all sorts of critters. Among these critters are what we now call the big game animals. Mule deer (Odocoileus hemionus), white-tailed deer (Odocoileus virginianus), pronghorn antelope (Antilocapra americana), elk (Cervus canadensis), and moose (Alces alces) are the big game animals which I will be referring to in this presentation.

Private landowners seem willing to take care of most of the problems associated with ranching. However, many of these landowners feel they should not be responsible for depredation by big game animals that are managed and protected by a state agency (Strickland 1976). Wyoming, as is true with numerous other states, is responsible for these damages caused by big game animals. Monetary compensation to the landowner is for the value of standing or stored crops as required by Wyoming law. Almost all damage in Wyoming occurs on private or leased lands. Big game damage to crops and compensation to landowners are sometimes emotional problems between landowners and the hunting public.

The State of Wyoming is divided into seven game supervisor districts. Within these seven supervisor districts are forty-six game warden districts. In Wyoming, the Game Warden is charged with the responsibility for wildlife damage within his warden district. In each game supervisor district, there is one Damage Control Warden who

is responsible for the storage of equipment and supplies and some of the actual damage prevention and investigation, and Department payment recommendation of landowner damage claims. Each game supervisor district has a budget for purchasing damage prevention materials and equipment. This budget is approved by the Wyoming Game and Fish Commission. Materials and equipment are stored in each Game Warden District as well as at a central location within the Game Supervisor District. Materials and equipment are dispersed from these locations to landowners having big game damage problems.

There are many different methods of controlling damage to stored crops. The most effective means of protecting stored crops is our physical presence at the stackyards. The second most effective method of protecting stored crops is various types of barriers, such as fences. We have experimented with many different barriers and each will be explored within this paper.

THE LAW

Under Wyoming law, it is the responsibility of the Game and Fish Department to investigate damage complaints and to recommend to the Commission fair and appropriate compensation to the landowner. It is at the sole discretion of the Commission whether or not to allow or reject any damage claim or portion thereof. Wyoming Statute 23-1-901 (Wyoming Game and Fish Department 1985) describes the action the landowner and the Department must take when damage has occurred:

"Any landowner, lessee or agent whose property is being damaged by any of the big game animals of this state shall not later than fifteen (15) days after the damage is discovered by the owner of the property or the representative of the owner, report the damage to the nearest game warden, damage control warden, supervisor or commission member.

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(The landowner must) "...present a verified claim for the damages to the Wyoming Game and Fish Department not later than sixty (60) days after the damage or last item of damage is discovered. The claim shall specify the damage and amount claimed...."

The department shall consider the claims based upon a description of the livestock damaged or killed by a trophy game animal, the damaged land, growing cultivated crops, stored crops, seed crops, improvements and extraordinary damage to grass. Claims shall be investigated by the department and rejected or allowed within ninety (90) days after submission....No award shall be allowed to any landowner who has not permitted hunting on his property during the authorized hunting seasons...."

In general, the landowner, in a timely manner, reports the damage to the Department. Department personnel meet with the landowner, investigate the damage, and make recommendations as to the level of compensation, if any. The Commission then acts upon this recommendation and level of compensation.

COST

It is no secret that the present economic trends of today have severely depressed the agricultural community. As a result, landowners are less tolerant of big game damage and recognize the potential of receiving compensation for crop damage as making up some of their losses.

Damage control costs have equally increased for the Department. We now furnish materials to prevent or discourage damage to stored crops by big game, and the landowner furnishes the labor for the construction of stackyards. Cooperation between landowners and the Department has and is improving.

Costs are broken down into three general categories:

Landowner Coupons

The Landowner coupon payment program was established by the Wyoming Legislature to compensate the landowner for forage consumed by deer and antelope legally harvested on deeded land. This incentive program was initiated to stimulate harvest on private land where damage was occurring and is a valuable management tool. Payments from 1976 through 1979 were made at \$5.00 per coupon. In 1980, an increase of \$3.00 per coupon was implemented by legislative action. No compensation is made for those animals harvested on state or federal land controlled by these landowners nor is compensation made for big game animals other than deer and antelope. Table 1 shows the 10-year trend, 1976-1985, of the number of deer and antelope landowner coupons redeemed, the percentages of coupons redeemed by landowners and the total dollar amount paid out by the Department (Wy. Game and Fish Department 1976 through 1985).

Damage Claims

As the stress of hard economic times filter into the agricultural community, ranchers and farmers understandably start looking for additional sources of income. Although they see the game animal as both a source of food and, as a fringe benefit of living with the animals, they also view them as an added source of revenue. As landowners become familiar with the process of compensation for big game damage, they also become more aware these added revenues are not difficult to obtain. A feeling of complacency can set in and for this reason, a strict damage investigation process has been implemented by the Department. However, in the majority of cases, this lengthy and complicated process is not completed as the landowner and Department personnel reach an agreement on the amount of compensation to be paid, and the Commission agrees.

Table 1.--1976-1985 Deer and Antelope Landowner Coupons Redeemed, Percentage of Coupons Redeemed, and Total Dollar Amount Paid by Department

YEAR	DEER COUPONS	% DEER COUPONS REDEEMED	ANTELOPE	% ANTELOPE COUPONS REDEEMED	TOTAL # COUPONS REDEEMED	TOTAL EXPEND. TO DEPT.
1976	43,891	40%	39,216	60%	83,107	\$415,535
1977	38,914	36%	35,527	55%	74,441	\$372,205
1978	34,864	31%	33,739	52%	68,603	\$343,015
1979	30,551	27%	24,717	48%	55,268	\$276,340
1980	30,888	28%	24,801	43%	55,689	\$445,512
1981	34,247	29%	34,888	51%	69,135	\$553,080
1982	38,066	25%	42,696	55%	80,762	\$646,096
1983	42,118	25%	54,241	59%	96,359	\$770,072
1984	37,692	30%	46,747	41%	84,439	\$675,512
1985	34,833	29%	39,169	40%	74,002	\$592,016

The number of damage claims submitted each year varies greatly depending upon the severity of the winter. Figure 1 shows the total number of damage claims submitted to the Department, and the total number of damage claims paid by the Department for big game animal damage to stored crops. This figure shows a 10 year trend of actual damage claims submitted to the Department, and the number of claims paid for big game damage to stored crops. Note the decline from 1979 when the implementation of giving out the damage materials was started. An increase is noted in 1984 when a very severe winter set in, and afterwards a downward trend is again noted. During this 10 year period, the difference between total claims submitted to the number of claims paid goes from a low of 31% to a high of 53% (Wy. Game and Fish Department 1977 through 1986).

Figure 2 shows a 10 year graph illustrating the total dollar amount of damage claims submitted to the Department and the dollar amount paid out by the Department solely for damage by big game animals to stored crops. Again a downward trend is noted from 1979 when materials were made available to landowners up to the very severe winter of 1984 when the upward trend is once again noted. The dollar amounts paid by the Department due to damage by big game animals to stored crops goes from a low of \$12,322.00 in 1979 to a high of \$153,780.00 in 1984. The differences in amounts by percentages stretch from a low of 15% in 1981 and 1982 to a high of 71% in 1984 (Wy. Game and Fish Department 1977 through 1986).

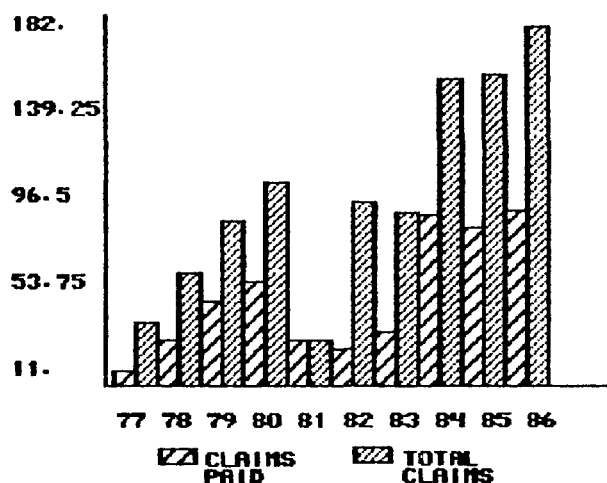


Figure 1.--10 Year trend of all damage claims submitted vs. damage claims paid for big game animals damage to stored crops.

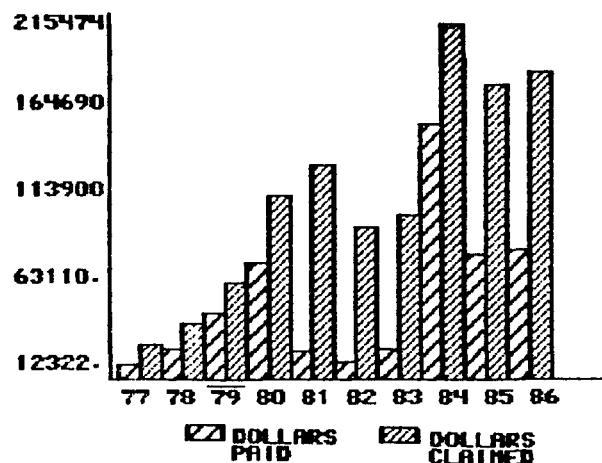


Figure 2.--10 Year trend of total dollar amount claimed vs. dollar amount paid due to damages by big game animals to stored crops.

Damage Material

As previously stated, the Department is responsible for preventing or minimizing the extent of damage, to assist landowners, and minimize payments for damage. Each of the seven game supervisor districts manages its own budget to provide adequate material for alleviating damage. Under the direction of the local game supervisor, through the damage control warden, traditional damage control methods and some experimentation are ongoing activities within each district.

The various methods currently used to curb damage to stored crops are: 1) barbed wire; 2) electric fencing; 3) remesh fencing; 4) woven wire; 5) reinforced plastic; 6) 6' wood cribbing; 7) tensor radar fencing; and 8) 8' wood cribbing. Table 2 shows the different types of fencing material provided and the approximate cost per linear foot.

Barbed wire fencing is the least effective method of preventing damage, as most big game are very adept at jumping over these barriers or simply going through them. It is, however, the least expensive method. Barbed wire enclosures can be made into good permanent type stackyards by elevating the wire to a height of six feet to seven feet. Wire strands should be spaced at about every four inches. Ten foot posts are a requirement for this type of enclosure. Constant care is a must for this enclosure as animals will keep jumping into the wire and damaging it. Once animals have created a hole through the fence at a certain point, it can then be expanded. The animals have a way of finding this entry, thus leaving the enclosure very vulnerable.

Electric fencing is about as effective as barbed wire in that most big game animals simply jump over the barrier. It is most effective in preventing antelope damage as antelope prefer not to jump, but rather attempt to go through or under fences. Two to four electrically charged strands can be incorporated into the enclosure to keep animals from nosing between the strands and then jumping through, gaining entry to the stored crop inside.

Remesh fencing in the six foot height is very effective with most big game animals as they will not attempt to jump over this. We have in the past used 5' remesh, however, with deep snow conditions animals will more readily attempt to jump into or over this fence. The added one foot of height seems to be the solution to this problem. Some type of posts must be used with this protection. It can be used for permanent or temporary stackyards depending upon the need. The main drawback for remesh wire is that it is very difficult to handle.

Woven wire used in permanent stackyards is the method we have found to provide the best protection on a long term basis, for all types of crops from big game damage. Permanent stackyards are often an improvement to the landowners property, a benefit to his operation and effective in preventing stored crop damage. They do, however, require considerable labor by the landowner to build. Thirty-nine inch woven wire may be substituted for 47 inch, as the need dictates. The wire is installed in combination with barbed wire. One strand of barbed wire is then placed six inches from the ground, then six inches above this is the 47 inch or 39 inch woven wire, followed at six inch intervals by three to four more strands of barbed wire, to a total of six and a half or seven feet in height. Ten foot posts are required for this enclosure.

Reinforced Plastic is a temporary type of crop protection and is very easy to install. It is simply a 10 foot wide sheet of polyurethane plastic, 100 feet long, stretched over the desired crop and anchored down every 3-4 feet for the length of plastic sheeting. However, it is a very expensive material to use.

Wood cribbing may be both a temporary and permanent type of fencing and has been used by the Department for longer than any other type of fencing. It is constructed with 1"x4"x6' boards for deer fence and 1"x4"x8' lengths for elk fencing. Four strands of 11 1/2 ga. galvanized wire are used to tie the boards together. A fencing machine is required to keep the proper distance between boards and to twist the wire around each board. The fencing can be made in any desired length, however experience has proven that

15 foot lengths are the easiest to determine quantity needed, handling of that material, and ease of installation. It should be constructed in advance at a slack period when a crew can be assembled to do the work. A rather large area is also required to store the finished product as they are large and bulky. When installing, this fencing is considered difficult to handle. If cared for properly by the landowner, these panels will last several seasons.

Tensar Radar Fencing is a plastic type fence protection. We are experimenting with this material to evaluate its effectiveness and cost for big game damage control. It is both temporary and permanent in nature and very easy to install. At the present time, only two of these stackyards are in use in Wyoming. One is 7 feet in height and the other utilizes two 4 foot lengths laced together. Posts are needed with this protection with the plastic fencing being stapled right to the posts. At first, some concern was noted as to the extreme low temperatures experienced in Wyoming. However reports received from field personnel have stated that no trouble has been experienced at -25 degrees below zero. It is considered very expensive to install.

Table 2 shows the different types of fencing and how they compare as to size, cost, weight, ease of handling, support needed, temporary or permanent type enclosure and the cost per linear foot.

CONCLUSION

It is not our intention to dictate to each and every landowner what type of material is to be used by him in the protection of his stored crops. Each situation is different and must be handled on a case by case basis. However, the quest for finding economical and logical solutions to minimize damage is an ongoing challenge. Cooperation is a must between landowners and Department employees if successful solutions are to be reached.

Damage prevention and compensation for damage by big game is very expensive. These expenses come under three general headings of: 1) damage materials (which are now provided by the Department with very good results. However, due to budgetary constraints, distributing these materials is a slow process), 2) landowner coupon payment program (a valuable management tool for the Department and a good incentive program for the landowner to harvest surplus game animals), and 3) damage claims (claims filed against the Department correspond directly to the severity of winter conditions).

Table 2.--1986 Fencing Costs

FENCING	SIZE	COST	WEIGHT	HANDLING	EXTRA SUPPORT	TEMPORARY OR PERMANENT	COST/ LINEAR FT.
Barbed Wire	1300'	\$30/roll	60 lb./roll	Medium	Posts needed	Permanent	\$.02/ft.
Electric Fence	660'	\$36/roll	15 lb./roll	Easy	Posts needed	Temporary	\$.19/ft.*
Remesh	6'x150'	\$54/roll	250 lb./roll	Difficult	Posts needed	Both	\$.36/ft.
Woven Wire	39"x330'	\$73/roll	200 lb./roll	Difficult	Posts needed	Permanent	\$.44/ft. 6 1/2" high
Reinforced Plastic	10'x100'	\$130/sheet	30 lb./sheet	Quick & easy	None	Temporary	\$1.30/ft.
6' Wood Cribbing	6'x15'	\$11 w/o labor \$22 w labor	250 lb.	Difficult	Posts may be needed	Both	\$1.47/ft. w/labor
Tensar Radar Fence	7'x164'	\$285/roll	100 lb./roll	Easy & quick	Posts may be needed	Both	\$1.74/ft.
8' Wood Cribbing	8'x12'	\$14 w/o labor \$28 w/labor	250 lb.	Difficult	Posts may be needed	Both	\$2.33/ft. w/labor

*Includes insulators and charger cost

SOURCE: Demaree, John R. 1986. Personal correspondence. Wy. Game and Fish Department. Laramie.

There is little that can be done to alter the amount paid out by the Department for landowner coupons. However, ongoing experimentations as to the various and best solutions to stop depredation to stored crops can and will have a direct effect on the amount of actual dollars paid out by the Department on damage claims. It is the intention of the Wyoming Game and Fish Department to seek out and find solutions to the damage problems created by big game animals through fencing methods. With the help and cooperation from private landowners, we will find solutions to the problems of damage.

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