



COW SENSE CHRONICLE

MAY 2013

FEEDING WEEDY HAY: IMPLICATIONS FOR FUTURE WEED PROBLEMS?

Many Montana beef cattle operations purchased hay in the last year, sometimes from many counties away, and even from another country based on the Canadian hay that moved south this winter! Some of that hay might have been fairly weedy, or have different weeds than are found in your area. Just how well do weed seeds survive after going through the digestive system of a ruminant?

A Canadian study from the early 1990s evaluated weed seed viability after 24 hours of rumen incubation for many common weeds. In general, they found that after 24 hours in the rumen, grass weed species were more adversely affected than broadleaf weed species. Many broadleaf weed species have harder seed coats than grass weed species, which was suggested to be the main reason for the difference between grass and broadleaf species. The table below summarizes the results of the study, comparing viability of seeds after 24 hours in the rumen versus a control group (no rumen exposure).

Weed Species	Treatment	
	Control	Rumen
	---% viable seeds---	
Green foxtail	96	17
Downy brome	98	0
Foxtail barley	87	0
Barnyard grass	97	0
Flixweed	92	7
Kochia	94	15
Redroot pigweed	93	45
Common lambsquarters	87	52
Wild buckwheat	96	63
Roundleaf mallow	93	57

The study also found that the diet the cow was on when the seeds were incubated in the rumen had an impact on some species' seed viability. For example, wild oats and field pennycress were not impacted much by rumen incubation when the cow was consuming an all-forage diet, but when the cow was consuming a mixed diet of grain and forage, the viability of these weed seeds was dramatically reduced. This suggests that the lower pH environment in the rumen due to grain supplementation may have been better able to decrease seed viability.

What about noxious weeds? Are their seeds impacted by rumen exposure? Several different research projects at Montana State University have tackled this question over the years. Sheep, goats, and even mule deer have been used in these studies rather than cattle, since most cattle avoid grazing these weeds. Sheep and mule deer were dosed with 5,000 spotted knapweed seeds, then seeds were recovered from the manure³. Less than 20% of the dosed seeds were recovered, and large variability existed in seed viability (0-26%), but it was always lower than the control (98%). In a study evaluating leafy spurge, 18% of dosed seeds were recovered, and sheep were found to be more effective than goats in decreasing seed viability (sheep: 14%, goats: 31%, control: 90% viability)². Digestion of sulfur cinquefoil seeds by sheep and goats decreased viability of immature seeds by 92% and of mature seeds by 64%³. The difference was attributed to the hardened seed coat of mature seeds limiting digestive impacts.

Weed seed viability is impacted by passage through the rumen to varying degrees. It's important to keep a close watch on areas where weedy hay was fed this winter to ensure proper and timely management of any weed infestations.

References:

¹Frost et al., 2013. Rangeland Ecology and Management. 66:51-55

²Lacey et al., 1992. Weed Technology. 6:599-602.

³Wallender et al., 1995. Journal of Range Management. 48:145-149

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MAY 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			<i>1</i>	<i>2</i>	<i>3</i> Animal & Range Sciences Graduation Celebration	<i>4</i> MSU Graduation
<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
		-----Gallatin Farm Fair-----				
<i>12</i>	<i>13</i> Great Falls BRaNDS Training	<i>14</i> NWFCs Seminar Great Falls	<i>15</i> NWFCs Seminar Billings	<i>16</i> Billings BRaNDS Training	<i>17</i> Sidney BRaNDS Training	<i>18</i>
<i>19</i>	<i>20</i> Ag Lenders Range School Pre-Tour, Ekalaka	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i>
<i>26</i>	<i>27</i> Memorial Day	<i>28</i>	<i>29</i>	<i>30</i>	<i>31</i>	