

## Experimental Cold Advisory for Newborn Livestock System Product Description Document

This is the second year of running this experimental program. In the winter of 2008-2009, NWS Glasgow ran this system. Due to significant livestock losses in other areas of the high plains during the winter of 2008-2009, additional NWS offices will join the experimental test period for the winter/spring of 2010, including:

WFO Aberdeen, SD  
WFO Billings, MT  
WFO Bismarck, ND  
WFO Glasgow, MT  
WFO Great Falls, MT



### Part I – Mission Connection

- a. Product Description – This graphic will take the current NDFD forecast grids for temperature and wind (wind chill), humidity, sky conditions and QPF to create a graphic that shows the potential for weather related impacts to newborn livestock.
- b. Product Type - Experimental with an eventual goal of becoming operational after testing it for a few seasons and expanding to other areas of the United States.
- c. Purpose – The purpose of this experimental product is to provide users with a decision support tool that could help reduce newborn livestock losses due to hazardous weather.
- d. Audience - The intended audience is for the general public, including those with livestock interests.
- e. Presentation Format – The output will be a graphic derived from the NDFD gridded database that is available via the WFO office website. The information may also be broadcast over the NOAA Weather Radio.
- f. Feedback Method – Feedback will be solicited through the website, and directly with interactions with the general public using the system. Comment

period January 18, 2010 through May 31, 2010/

- g. Example URL = <http://www.wrh.noaa.gov/ggw/canl/canl.html> (Each office will have a link to their own graphics)
- h. PDD approved by Robert Tibi, Western Region Director (primary approving official) and Lynn Maximuk, Central Region Director.

## **Part II – Technical Description**

**Format and Science Basis** – This information was completed through the COMET Partnership Program under grant #S08-68874. The research that went into this CANL System was developed with a partnership between NWS Glasgow and the University of Miami including Dr. Larry Kalkstein, and Dr. Katrina Frank. Nationally, approximately 95,000 calves die each year due to cold stress (Azzam et al. 1993) resulting in an estimated \$38 million loss to producers (Dietz et al. 2003). In discussions with ranchers by the NWS Glasgow office and adjoining offices, there was considerable interest from local ranchers distributed across Eastern Montana and the Dakotas in the possibility of a National Weather Service (NWS) product specific to the effect of cold weather on newborn livestock. During the critical weeks of calving, generally mid-January to mid-April in the high plains, ranchers heavily depend upon advanced warning of extreme cold in order to move livestock to more sheltered areas and minimize mortality rates of newborn calves, specifically those less than 24-hours old because these calves are least able to regulate their body temperature (Sanko et al. 1991). Improvement in the advanced warning of potentially hazardous conditions will enable ranchers to more effectively implement life-saving measures to minimize losses to their livestock.

Given that the primary mission of the National Weather Service is to: . . . *provide weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy,*

Development of a system that helps a broad range of livestock producers to take actions to mitigate losses to their herds due to cold stress furthers the fulfillment of the mission of the NWS. This proposal for the development and implementation of a cold advisory for newborn livestock system follows a feasibility study, UCAR Award Number: S07-62730, which found that such a system can be developed based on currently available forecast information.

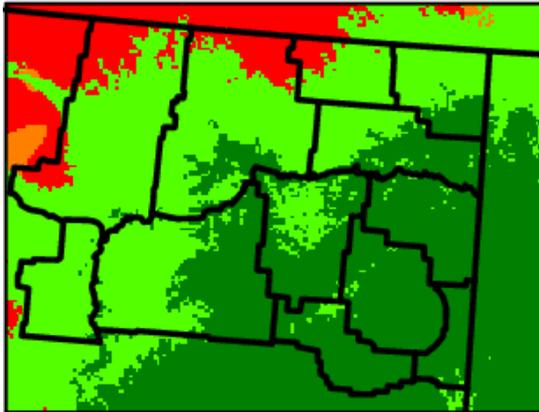
As the study evolved, it was shown this CANL system would work for all newborn livestock, and was expanded from calves to include all newborn livestock. It also works for all areas of the country because newborn livestock are not acclimated prior to being born.

**Availability** – The graphics will be automatically updated four times a day (4 am, 10 am, 4 pm and 10 pm) during the period from January 18, 2010 through May 31, 2010. The graphics will be available in 6 hour increments out to 36 hours.

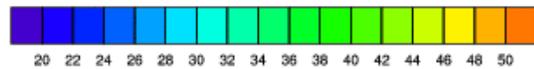
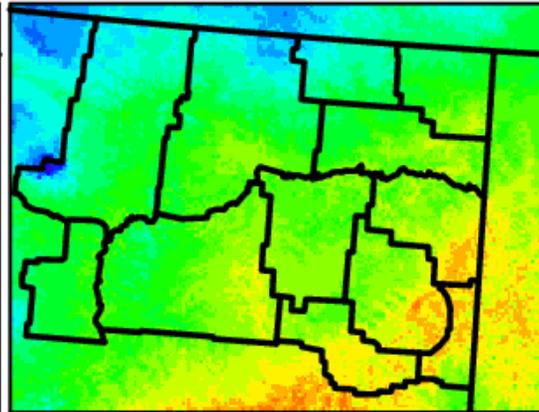
**Additional Information** – Below is an example of the experimental graphic from the web graphics run in early 2009:

**Cold Advisory for Newborn Livestock** Tue-Apr-28-2009: Noon-6pm  
 Plot Generated Mon Apr 27 2009 4:01 PM MDT

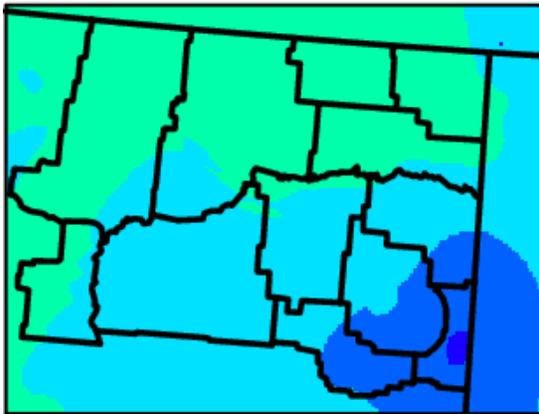
Experimental CANL Index for NE MT Counties



Wind Chill Values, Degrees F



Forecast Liquid Equiv. Precip., inches



Forecast Min. Relative Humidity, %

