University: University of Miami

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Partners or Cooperative Project: Partners

Project Title: The Development of an Extreme Cold Warning System for Newborn Calves

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SECTION 1: PROJECT OBJECTIVES AND ACCOMPLISHMENTS

1.1.a. Test the advisory decision tree with historical weather data

The proposed advisory system was 'run' for the winters of 2002–2007 to determine how often advisories were called. This ensured that the system accurately identified those events that caused calf mortality in the area. The proposed system classified days in the calving season (January 15–May 15) of 2002–2007 as follows: No Advisory 8.9%, Slight 5.8%, 15.6%, Moderate 50%, Severe 19%, Extreme 0.7%. The proposed system generally identified those events which had caused calf mortality. (University of Miami)

1.1.b. Meet with stakeholders to discuss the advisory decision tree

Members of the team met with stakeholders, i.e., cattle producers and extension agents, in the region to explain the proposed system and get input from the stakeholders as to what features they would like incorporated in the system. The users gave input regarding the practical utility of the currently selected thresholds, after which a humidity component was added to the system. The stakeholders verified that the number of advisory categories is sufficient for their needs, and suggested retaining the proposed 5-tiered advisory classification system with color coding. Participants provided suggested means of communicating advisories to the users that included the NWS website and NOAA weather radio. Users requested information on as fine a temporal scale as possible for as far into the future as possible. (NWS & University of Miami)

1.1.c Revise the advisory decision tree based on information gleaned from stakeholders' meeting

The decision tree was modified to incorporate a humidity component. The revised system was re-tested with the historical data. The revised system classified days in the calving season (January 15–May 15) of 2002–2007 as follows: No Advisory 7.9%, Slight 4.5%, 14.7%, Moderate 52.2%, Severe 19.5%, Extreme 1%. The revised system identified slightly more days in the higher advisory categories and identified the events that had caused calf mortality during the study period. (University of Miami & NWS)

1.1.d Develop the operational system

The final algorithm was applied to available forecast data and a script written to provide appropriate advice to forecasters and users via the internet during the February 20–May 15 calving season. Products available included a map of the CANL categories for the forecast area, and maps depicting the components of the CANL system, i.e., wind chill temperature, relative humidity and precipitation, for the same area.

A follow-up meeting was held with stakeholders to gain a sense of how well the system met their needs in the winter of 2009. A statement from one rancher summed up the feelings of the group: "It gives me a real good idea of what to expect out there." A concern was raised that not enough livestock producers are making use of the system. Thus, outreach is ongoing. The team is developing a pamphlet to be distributed to livestock producers through organizations such as the Montana Cattlewomen's Association and the local Chamber of Commerce. Local media personalities have been briefed on the system and will be sharing the information across the area. A go-to meeting is scheduled in mid-October with other NWS offices in the area to explain the system and discuss the possibility of testing it on a broader scale in the winter of 2010. Finally, it is hoped that in the winter of 2010 the CANL information will be available on NOAA Weather Radio. (NWS & University of Miami)

SECTION 2: RELATED ACCOMPLISHMENTS

Poster presented at the 12th Annual Great Divide Workshop hosted by NWS Billings in October 2008, and presented at the High Plains Weather Workshop hosted by NWS Rapid City in April 2009.

SECTION 3: SUMMARY OF BENEFITS

3.1 The collaboration has led to a new understanding of user needs in the study area and the NWS office has experienced increased communication with livestock producers in the area.

3.2 This project will likely lead to the expansion of the methodology and system to other areas across the northern plains affected by similar conditions.

3.3. Additional collaborative projects are being considered with the University partner both as follow-ons to the current project and on other subjects.

SECTION 4: PRESENTATIONS AND PUBLICATIONS

Frank, K. L., T. E. Fransen, L. S. Kalkstein, W. J. Martin, D. E. Simonsen. Submitted. The development of a Cold Advisory System for Newborn Livestock. *Int. J. Biometeor.*

Fransen, T. E., K. L. Frank, L. S. Kalkstein, W. J. Martin, D. E. Simonsen. 2009. Development of a cold weather warning system for newborn calves. Poster 1.24 at the Fourth Symposium on Policy and Socio—Economic Research, American Meteorological Society 89th Annual Meeting, Phoenix, Arizona.

SECTION 5: SUMMARY OF PROBLEMS ENCOUNTERED

No problems encountered.