

Gobi Forage Project: An Early Warning System for Livestock in the Gobi Region of Mongolia

Background

During the period from 1999 to 2002, Mongolia experienced a series of droughts and severe winters that significantly lowered livestock numbers. Specifically, livestock mortality in the Gobi region reached as much as 50% with many losing entire herds. Due to these extreme losses of livestock and its impact on pastoral livelihoods, the USAID mission in Mongolia and the Global Livestock-CRSP (GL-CRSP) initiated the Gobi Forage program with the goal of transferring Livestock Early Warning System (LEWS) technology developed by the GL-CRSP in East Africa to Mongolia. The Livestock Early Warning System technology combines near real-time weather, computer modeling, and satellite imagery to monitor and forecast livestock forage conditions so that pastoralists and other decision makers have needed information for timely decision making in the face of drought.

Methods

Eight aimags (provinces) comprise the area where previous drought impacts were greatest. A series of 297 monitoring sites have been established across the region. Computer model simulations were developed for each monitoring site and are driven by near real-time climate data (rainfall and temperature). This information is then combined with satellite greenness imagery provided by NASA to produce regional maps of forage production. These regional maps provide a spatial and temporal assessment of forage conditions and can highlight areas of significantly low forage availability. Forage conditions are predicted for 60 days into the future and current and forecast forage maps can be compared to long-term average maps. Herdsman and decision makers can assess how bad or good conditions are compared to the average and the associated level of risk based on projected forage conditions.

The nutritional profiling technology, Near Infrared Reflectance Spectroscopy (NIRS), scans the manure of livestock and allows near-real time assessment of forage quality. This information is used to determine whether the animal is losing or gaining weight and what forage or supplements can be fed to the animal to allow it to maintain weight or nurse offspring.

Impact

Map validation has indicated an overall accuracy level of 70% and successful identification of drought-stricken areas in the Dundgobi and Gobi Altai aimags in 2007. Current, forecast, and long-term deviation forage maps are produced bimonthly and are distributed via the internet and email. Radio bulletins are produced weekly and reported on Mongolian National Public Radio. A recent survey in the region has indicated that the program has been exceedingly well received, with over 70% of herders having some degree of familiarity with Gobi Forage products.

Partners

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