

Traditional knowledge of Mongolian herders to breed livestock and adapt for weather condition

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Abstract

Nomadic lifestyle gives the traditional knowledges and advanced experiences to adapt local environmental condition for Mongolian herders. Concept of livestock breeding is complex which consist of local geography, climate, animal habits and pasture plant composition and productivity, respectively. Herder families make livestock breeding by “family farm” which named “hot ail”. Their livestock graze up to 30 km away from camp but distance to grazing is different by environmental property and seasonality. Herders consider on winter season, especially. Hence, they categorize into 3 stages such as early, mid and late winter and one stage into 3 substages and a substage continue for 9 days. Totally, winter season continues for 81 days.

Herder’s movement is classified into (1) seasonal and (2) non-seasonal. (1) herder families move among livestock camps for winter, spring, summer and autumn seasons but recently, moving distance are getting shorter and decreased number of movements through year. Seasonal movement and its manner is different among regions. For example, herders in Khangai and Altai mountain ranges move to valley and higher mountains during summer season. (2) herders move to remote sites for searching better pasture lands which named “otor”, because of strong drought which named “gan gachig” or deep snow which named “dzud”.

Herder’s family build house which named “ger” and its door is to southward, resulting in wind direction and to smooth peak of mountain, indicating symbol of peaceful life. Westward is the most important for herders, because sunlight is firstly found in the morning. Herders make forecast of seasonal and yearly weather condition, using plant phenology. Herders use livestock grazing area to orient distance. Pasture area of child livestock indicates shorter distance but that of adults shows longer. Also, pasture area of small livestock shows shorther distance, compared with that of big livestock (Table 1).

Table 1. Distance measurement using livestock grazing areas (Badamkhatan, 1965)

Category	Distance
Horse secure place	0.025-0.03 km
Sheep child grazing place	0.50 km
Cow child grazing place	Around 1.0 km
Sheep grazing place	1.0-2.0 km
Cow grazing place	2-2.5 km
Horse grazing place	Around 4.0 km

Herders recognize that camel keep is completed, if they have upstanding mounds. Camel can live without drinking water, during several days or up to a month, because they drink large amount of water, once and mostly graze succulent and/or shrub plants and store the water in their mounds. Herders arrange horse's pasture to graze several decade of km (up to 30 km) away from camp. They graze nutritive pasture plants on higher mountain hills. For cow and small livestock, drinking water is more important. Dry bed is important for cow breeding more than other livestock (Table 2).

Table 2. Preferred pasture for livestock as herder's experience

Livestock type	Preferred pasture
Camel	Pasture with <i>Kalidium</i> spp., <i>Anabasis</i> spp., <i>Artemisia</i> (shrubs), <i>Salsola</i> (shrubs) and <i>Caragana</i> spp in the gobi-desert which is arid zone.
Horse	"Remote pasture" which nutritive plants well grow on higher mountain range but herders select their pasture, depending on seasonal situation.
Cow	Pasture with <i>Elymus</i> spp., <i>Carex</i> spp., <i>Agropyron</i> spp., <i>Stipa</i> spp., <i>Iris</i> (river site), <i>Achnatherum</i> and <i>Salsola</i> spp., on small mountain hill, slope, valley and meadow.
Sheep and goat	Pasture on low- or lower-lands. Drinking water is the most important for sheep and goat breeding, drought year.

Herders give their experience and knowledge for livestock breeding to next generations, using proverbs. "Ötög buuts"–winter camp and "khökh buuts"–spring camp which are used for long-term used from by generations (from grand parents to next generations). Herders symbolize early, mid and late winter as young, youthful and old ninth. "Youthful ninth" is the coldest stage than other two and herders teach to next generation as "youthful ninth to freeze and break horns of youthful bulls" and then "to cover horns of livestock during winter". Also, they teach as "warm bed, non-full grazing" which mean both rest and grazing are important

for livestock during “youthful ninth”. Herders teach as “cow weight increases or decreases as water” and as “well ruminant on dry bed” which mean drinking water and wetness is important for cow breeding. Moreover, they say that “Pass area is incompatible for sheep” which means lowlands are suitable for sheep grazing and “livestock cannot be full as eatage but full as nutritive” which means herders should select nutritive pasture for livestock. The above results are important to know in detail about traditional knowledge and experience of Mongolian nomadism.