

New book: *Biology of Mongolian Pastoral Livestock and Characteristics of Nomadic Animal Husbandry* by O. Shagdarsuren, 2005, 304 pages, ISBN none, the National University of Mongolia Press, paperback, MNT 7000.

Besides the foreword, conclusion and references, this book has nine chapters: Review of early literature sources on Mongolian pastoral livestock husbandry; Similarities and differences between sedentary (farming) and pastoral animal husbandries; Natural selection and pastoral livestock husbandry; The origin and population biology of Mongolian domestic animals; Environmental factors and Mongolian domestic animals; Four seasons of the year and the ecology of Mongolian pastoral livestock; Nomadic lifestyle as a basis for the existence of pastoral livestock husbandry; Practical approaches of Mongolians for selection of pastoral livestock; and Economic aspects of Mongolian pastoral livestock husbandry.

This is not the first or the last book to discuss various aspects of livestock husbandry in Mongolia: there have been several other comprehensive works (for example, Shagdarsuren, 1980; Tumurjav, 1989; Erdenetsogt, 1998; Tumurjav 2004.). However, we must credit Prof. Shagdarsuren for his efforts in making the study of Mongolian pastoral animals a subject of modern biological research. We as Mongolians all have roots in the nomadic lifestyle and we applaud Dr. Shagdarsuren for persistence in pursuing the subject matter. Pastoralism is a by-product of seasonality and low productivity and its effect on animal husbandry practice is profound. The biggest achievement of this book is to look at every aspect of Mongolian livestock husbandry from the viewpoint of population biology. Wide-ranging aspects of domestic animal husbandry are examined from ecological, evolutionary biological and even economical points of view. The book has thrown out many ideas as the author has attempted to elucidate his acute observations of everyday practices in Mongolian livestock husbandry using concepts from theoretical population biology. The author also noted that some of these ways (such as pasture use before and after collectivization [establishment of centrally planned collective farms during the socialist period], structure of herds, selection for and against certain traits etc.) have been lost due to socio-economic or political changes in the country and suggested ways to improve the current situation. There are many interesting observations: for example, Mongolian herders usually choose future sires for their herds even before animals reach

sexual maturity (i.e. before they exhibit secondary sexual characteristics). This is just one example of the author's intimate knowledge of livestock practices in Mongolia.

Despite these achievements, there are some issues with the book. First of all, there are numerous typographical errors. Secondly, there is a conspicuous lack of real, scientifically tested, data to support many of the claims made by the author. Generally, only after several stages of the research process, can ideas be either supported or rejected and claims made by a researcher tested as valid (or not). This book has many ideas, but essentially none of them were confronted with real data.

The author has made some questionable claims. For example, in illustrating differences between sedentary and pastoral farming practices, the author speculated that artificial selection in sedentary animal husbandry acts against natural selection, whereas it acts in the same direction as natural selection in pastoral livestock husbandry. This may be true to a certain extent but we have a couple of reservations with this claim. First, natural selection does operate even in the most artificial environments. That is to say that an artificial environment is not absolutely free from natural selection as long as there is fitness variance among individuals, as opposed to what the author argues. It is true that farm animals are highly dependent on the farm conditions. However, it should not be assumed that the farm animals are kept in a completely isolated artificial environment, such that natural selection cannot act on them. Secondly, natural selection is not a static force, but in fact a dynamic process with no clear end point. In other words, its direction always varies due to changes in biotic and abiotic environments. Therefore, it is superficial to conclude that artificial selection in the case of Mongolian domestic animals is always in the same direction as natural selection. It is true that Mongolians eliminate weak animals from reproduction, but that is also the case for sedentary animal husbandry. Our guess is that artificial selection is employed only for one or several traits in the case of sedentary farm animals (for example, for milk production or meat production or fat production etc.), whereas it selects for many traits simultaneously in the case of Mongolia (i.e. the animal has to be "vigorous"