

Reproductive Methods in Low Input Animal Breeding

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Generally we should declare that ethics cannot be described by exact parameters but it is the conclusion of some principals and long lasting social rules directing human behavior. It is a similar phenomenon in animal breeding and mostly in that type of breeding which has historical traditions and emotional relation to country people. Since ethical issues have been getting rather “artificial” explanation by the media recently, people in the cities and unfortunately sometimes in the countryside many times do not have proper information on this field.

Nevertheless reproductive researchers also do not have opinion overcoming all others usually they have a modest and realistic behavior in their work aiming to improve the farmers’ results in their daily practice.

Ethical aspects of reproductive methods in low input breeding (LIB) need a rather complex approach determined by

1. Human factors – rural local and regional healthy food supply, rural development i.e. reducing unemployment, maintaining agriculture traditions, support rural tourism and environment protection.
2. Animal factors – gene conservation by all possible and necessary methods as well as animal welfare in the balanced frame of traditions and actual demands according to the forthcoming challenges of the rapidly changing world.

Easy to see that even by the applied reproductive management we cannot respond all criteria above thus we should select the priorities with regard on main purpose of the farm in case.

Before discussing the different techniques it should be declared that reproductive methods even in LIB should not miss the well trained experts having relevant knowledge and experience. Animal health conditions, individual registration of animals, exact documentation of mating or artificial insemination (AI) are required at the same manner as in intensive farming. It means that professionals involved in LIB should be familiar not only with the traditional methods but with the newest results of innovation, as well.

We try to give over some of our experiences regarding on reproductive techniques in LIB which has a special importance also in Hungary and we were conducting international research projects connected to it. Animal breeds in LIB are mostly indigenous and sometimes endangered ones adapted to the climate of Carpathian Basin very well during recent centuries. These animals are incorporating our traditions, representing our agricultural national value and capable for playing a key role in rural development, rural tourism and first of all unique processed products can be produced of their carcass i.e. Hungarian winter salami, sausage, bacon etc. Beside the widely known breeds - the Hungarian Grey cattle, Mangalica pig and Racka sheep - we have native horse, donkey and poultry breeds, as well. The projects and results listed above were dealing with Mangalica and Racka reproductive physiology and

techniques, too. The old Hungarian pig and sheep breed are on a rather different level of utilization i.e. while Racka has a decreased population (6450 breeding ewes) kept only by enthusiasts, the number of Mangalica is increasing from the early 1990s with developing domestic and export markets. So Mangalica found its new role in the modern world (cc 30-40.000 fattening animals per year), but Racka should still wait for it.

Mangalica pig

Mangalica pigs, more precisely Blond, Red and Swallow Belly Mangalica were always bred in small and large scale farms in the past and it is the same in the present. Apart from their own production large companies integrated small farmers' activity and organized the breeding and trading. The Mangalica Breeding Association is giving guidance for the members and supply boars or semen for them.

Reproductive work is done by natural mating and AI both in small and large farms. In some blood strains the low number of animals evidently needs natural mating for in vivo gene preservation. In some production units AI is a daily practice.

We should underline the necessity of AI in any production units. It is not so much costly as keeping minimally 5 times more boars but highly dedicated work is indispensable. Generally the AI is significantly different and probably more complicated in native breeds than in their modern counterparts. It is true in terms of male as well as female reproductive physiology.

Semen deep freezing is a connecting wing of LIB when involved farmers and companies are cooperating with research units and they develop together the most important tool for in vitro gene conservation. Although, boar semen cryopreservation is not clearly solved, our group has some really promising results (average 50% post-thaw motility).

National parks have an emphasized duty to demonstrate our agriculture traditions and they should keep indigenous domestic animal breeds e.g. Mangalica pigs in pure bred population among old, typical LIB circumstances.

It can be concluded that LIB in Hungarian Mangalica sector found its proper position and small farmers can take part of local and regional food supply by high value processed pork products. (Unfortunately recently upcoming high feed prices are very harmful for Mangalica breeders, too.)

Several successful attempts are running in Europe using also commercial breeds in organic farming for producing "BIO" labeled meat and processed products.

Racka sheep

Racka sheep has history of several hundred years. The Hungarian and other nomad tribes had similar type of sheep already on the Middle Asian steppes and we can find nearly identical breeds there even now.

It has a diminished population in Hungary with two color types i.e. the White and Black Racka. National parks and enthusiastic sheep breeders keep, also some village hotels keep them in small units. Although some attempts have been done to establish a new market role for it lower meat yield % (in EUROPE classification) undermined the efforts till now. Definitely an other evaluation system would be desirable for the ancient breeds. Anyway, Racka is excellently suitable for LIB in continental climate of the Carpathian Basin thus it could contribute rural development programs in remote areas.

Actually eminent purpose of reproductive management declared by the Hungarian Sheep Breeders' Association is the preservation of this breed. Almost everywhere ewes are mated naturally by selected rams.

However the population is increasing and in vitro preservation should be also in the focus of research. Our group found that reproductive characteristics in male and female Racka are

sometimes markedly differing from those of modern ones. To train Racka rams for semen collection is much harder than in intensive breeds, semen handling and freezing also need innovation. Our experimental Black Racka population consists of 75 ewes and 20 rams. Recently, 16 rams are trained for semen collection and we could attain more than 50 % post-thaw motility in frozen semen.

Conclusion

LIB has a special significance in modern animal breeding. Both in rural tourism and rural development it can find its proper place but farmers involved should clearly know their role in the sector. If they choose small scale farming, they must use the relevant techniques e.g reproductive methods and if they decide to take part of larger production amount they should adapt modern and more effective system. Innovation is always necessary either by taking part in it or by collecting the available achievements.

In our consideration reproductive methods in LIB does not mean closed eyes and ears but to be opened for the new results enabling the farmers to improve their dedicated work.