

Editorial

Sustainable Livestock Development - 1

A developing country is just out of human-induced or nature-related calamity. Much dislocation of humans and animals has taken place. Livestock is devastated. The human-induced disaster has calmed down or the nature-related calamity subsided - time to replenish decimated resources. International collaborators (previously termed Aid organisations) from all corners of globe come in trying to help people and to rehabilitate agriculture. A most pressing need is to produce food. A mosaic of commonly exotic livestock breeds are brought in to the country in the form of live animals, semen and/or embryos. The general situation in the country more or less stabilises and the external aid subsides. Animal production is **not sustained** let alone improved.

The above scenario is not imaginary but it did happen in the past and is happening now in many places in the world. Livestock development and particularly its genetic aspects is by nature a long-term endeavour. This does not reduce its importance nor the need for sound action for it is a permanent and substantial component of the majority of the world's agricultural production systems. The animal genetic resources of each primary production environment of a country have evolved through many many generations and they represent unique combinations of genes. These genes comprise those for production as well as the adaptation complexes configured over these long periods in response to the primary stressors of the local production environment. It is the latter which we are beginning to recognize are the **most** important, which make the local breeds so genetically unique, commonly highly productive when productivity is correctly measured, and precious.

Understandably any serious development for or rehabilitation of a national livestock industry must be based on the community carefully taking into consideration the

specificity of the country's primary production environments. Most important is to ask: what is required of a genetic resource under a defined set of production conditions? e.g. climate, feed, health conditions, husbandry system, all 'products and consumers' preferences etc. This forms the basis of what animal breeders call "breeding objectives". The better understood and defined these breeding objectives, the clearer the approach becomes to realising them.

In the past, numerous livestock development projects in the world, especially in developing countries, far too little consideration was given to the above principles, *viz.* characterizing the total production environment and defining the breeding objectives for that environment. These oversights have led to unsustainable development, not enhanced food security, have wasted resources and in some instances produced confusion over real needs. When this consideration is taken seriously the often raised argument of exotic vs. indigenous breeds becomes a non-issue. If a high input low stress environment can be sustained in an economic manner then there are breeds that will do well and can be further developed for productivity gain and product quality change in such environments. Future interest in genetic material from low to medium input high stress production environments to complement the genetic resources being developed in the high input low stress systems will then relate to the high input production needs to quickly respond to ingress of new pests and diseases, to changes in demand for product quality, to introduce production of novel products, and to utilize specific major genes from other genetic resources capable of further increasing productivity of the high input system.

If, however, such a benign and high input environment cannot practically be sustained

for some or all of the country's production environments, then locally adapted breeds are the candidates for such production systems - these may comprise a selection of only the indigenous breeds or of those plus breeds which have been maintained in production environments of other countries where similar primary stressors impact on the biology.

For these reasons it is crucial to maintain the diversity in animal genetic resources, to be able to effect such sustainable livestock development in all of the very broad range of production environments, as must be done to respond to the human population's needs for markedly increased production in the

(majority) developing world, increased productivity in virtually all environments and to effect major demanded product quality changes.

While the majority of manuscripts we receive deal with the description/characterization of livestock genetic resources, we very much welcome receiving manuscripts for consideration for publication in *AGRI* that directly deal with the specificity of livestock breeds to particular production environments/systems, i.e. manuscripts are sought which clearly document successes and failures of specific animal genetic resources (introduced or otherwise) to specific production environments.

The Editors