

Technology Fact Sheet

Sector	Agriculture. Animal breeding sub-sector.
Adaptation needs	Adaptation of animals to higher temperatures.
Technology Name	Intensive system of animal husbandry. ⁱ
How this technology contributes to adaptation	Intensive animal husbandry system features a concentration of hundreds and thousands of heads of livestock in the same unit. It was quite widely spread in the republic of Moldova in the 80'-90's of the last century, when many farms and livestock feeding lots operated on industrial scale. However, with the break up of large farms, livestock feeding lots practically disappeared (except for some pigs and poultry farms).
Background/Notes, Short description of the technology option sourced from ClimateTechWiki, Seminars, etc	Under the intensive animal breeding system, animals are permanently kept in paddocks, thus a high degree of technicality being ensured: skilled staff, operationally advanced livestock breeding equipment and technologies. High value breeds and hybrids can be grown based on scientific reproduction, breeding and selection programs, ensuring maximum genetic progress. Animal feeding can be done differentially, taking into account the age, category of animals, the production level, etc.
Implementation assumptions, How the technology will be implemented and diffused across the subsector?	Under the intensive animal breeding system, virtually all farm activities are mechanized, and some of them even automated. Animals are kept in several barns and are milked in special rooms. The milk obtained is cleaner, and of better quality. This system allows for the concentration and specialization of livestock and its rapid improvement. Switching from traditional animal breeding systems in the intensive ones allows to meet the growing demand for food products of animal origin, but at the same time, they are incompatible with animal health and entail a number of diseases: pneumopathies favored by the microclimate, stress, illness of hoofs, mastitis, behavior disorders (cannibalism, coprophagy, etc.)
Costs	The intensive animal breeding system yields good results when high productivity breeds and their half-breeds are used. Therefore, the purchase of such genotypes to complete the herds of the farms and feeding complexes will be quite expensive. Also, procurement of barn equipment and feed preparing equipment will be quite costly. For example, building a 100-cows farms, supplying equipment and import of animals costs about 15 million lei. According to the dairy sector development plan of the Republic of Moldova, the amount of 12.2 billion lei will be needed for the next 15 years.
Impact Statements - How this option impacts the country development priorities	

Country social development priorities	• The growth of population worldwide raise the demand for food. • Intensive animal breeding systems allow to better ensure the population with animal food. • Farms and feeding complexes can be supplemented with slaughterhouses, processing stations, even shops selling production.
Country economic development priorities – economic benefits	• Ensures labor productivity. • Allows to increase production in economically efficient way. • Concentration of large herds of livestock on small areas. • The workforce used is skilled and specialized. • Scientific organization of production and work based on economic efficiency indicators • High quality breeding material, technical equipment, feeding of animals with combined, scientifically substantiated rations, employment of state-of-the-art technologies allow to get high production and good economic results.
Country environmental development priorities (Environmental benefits)	• Concentration of a large number of animals on small areas entails accumulation of essential quantities of manure, which presents great danger to environment • Accumulation in large amounts of manure increases the amount of ammonia, carbon dioxide, carbon released into the atmosphere. • It is possible to build big facilities to produce biogas from manure.
Social benefits	• The animal breeding process can be computerized along the entire flow. • To facilitate the work of people milking cows, milking rooms can be equipped with robots. • There is a well established and rhythmic sales flow throughout the year. • Production is certified and complies with HACCP, SSOP, etc.
Other considerations and priorities (such as market potential)	• Intensive technologies must be adapted to the physiological and behavioral needs of animal species. • It is necessary to ensure animal welfare (feeding conditions, adaptation, microclimate, information flow between animals and their living environment), etc.
Costs	

Capital costs (per facility)	Species	Intensive production 100%
	Beef	1 000 000 anim.: 600 anim=1600 farms X 2 000 000 euro= 3 200 000 000 euro
	Swine	900 000 anim.: 3000 anim = 300 farms X 2 000 000 euro = 600 000 000 euro
	Sheep/goats	1 000 000 anim.: 1000 anim. = 1000 farms X 200 000 euro = 200 000 000 euro
	Horses	10 000 anim.: 50 anim. = 200 farms X 50 000 euro = 10 000 000 euro
	Poultry	35 000 000 anim.: 100 000 anim.= 350 entrep X 1 400 000 euro = 400 000 000 euro
	Total costs	4 500 000 000 euro
Operational and Maintenance costs (per facility)	Bred beef cots per capita – 1500 euro 500 000 anim X 1500 euro = 750 000 000 euro Other beef costs per capita – 500 euro 500 000 anim X 500 euro = 250 000 000 euro Swine costs per capita – 100 euro 900 000 anim X 100 euro = 90 000 000 euro Sheep /goat costs per capita – 50 euro 1 000 000 anim X 50 euro = 50 000 000 euro Horse costs per capita – 100 euro 10 000 anim X 100 euro = 1 000 000 euro Poultry costs per capita – 1 euro 35 000 000 anim X 1 euro = 35 000 000 euro Total costs of animals -1 176 000 000 euro Total costs of feed - 1 624 000 000 euro Labour – 200 000 000 euro Total operational costs – 3 000 000 000 euro	

ⁱ This fact sheet has been extracted from TNA Report - Technology Needs Assessment for climate change adaptation - Republic of Moldova. You can access the complete report from the TNA project website <http://tech-action.org/>