

## **Effects of climate change on some main compounds of milk ( protein, fat and milking) in Iran**

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The issue of climate change is increasingly receiving attention from scientists, public, and policy makers. The United Nations (UN) Convention on Climate Change defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods. However, the consequences of climate change for the food system, which comprises all the stages from “farm to fork” (mainly primary production, processing, transport, trading and consumption), have received less attention compared with other human and animal health and welfare issues. The information that is available in literature mainly focuses on the consequences of climate change on food security, defined by the World Health Organization as access to sufficient, safe and nutritious food. In general, the projected climate change is foreseen to have a negative impact on food security, especially in developing countries.

The research purposes of this project are:

- 1) Investigation of changes in milk compounds in different areas of Iran in terms of qualitative and quantitative characteristics based on the long term variety of climate parameters and determination of climate change trend on the milk compounds,
- 2) Investigation of the effect of different time periods of climate change on milk related to obtained results based on the maintained propose,

Based on the above-mentioned research topics, data gathering in Iran was designed as data base for milk components (total fat, total protein) and milk yield in some area in Iran based on existing data and adjusting these data for the period of times that cow uses the natural pasture for feeding (springs & summers) and also data base for climatic parameters in the same place and time using results from above stage.

The variance and the density of milk compounds such as fat, protein and milk yield in spring and summer was determined. Then the significant probable regression models between milk compounds and some climate parameters will be assessed. Then the generated climate data based on ECMWF Re-Analysis (ERA40) data in combination with model output will be used to generate milk data for future developments. The hypotheses of this research are also zoning the positive and negative effects of climate change on the milk components, finding the optimum scenario for minimizing negative effects of climate change on the milk components, such as changing the food rationing of cow, enrichment of milk, etc