# RESEARCH OF INFLUENCE OF GRADIENTS ON TEMPERATURE AND MOISTURE ON CONDUCTUS MOISTLY EXCHANGE

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**Keywords**: layer of grain, drying, convection, warmth, humidity, gradient.

It is known that for different mass of capacious materials the gradient of temperature influences on the gradient of moisture. Does this conformity to law take place for identical mass of capacious materials?

For an answer for it we are execute scientific researches with the elementary layers of grain of corn. These data can be used for the improvement of technology of drying of grain.

Research of conducts moistly exchange between the elementary layers of grain of corn at the different values of temperature and humidity is presented in a table.1.

*Table 1* - **Moistly exchange between the elementary layers of grain of corn**

| Temperature of layers of grain °C | Initial humidity of grain, % | | Duration of contact, hours. | Eventual humidity of grain, % | | Difference of humidity of layers of grain, % | |
|---|---|---|---|---|---|---|---|
| | raw | dry | | raw | dry | initial | eventual |
| 20 | 23,9 | 9,6 | 6 | 20,7 | 12,7 | 14,3 | 8,0 |
| 55 | 23,9 | 9,6 | 2 | 19,6 | 13,6 | 14,3 | 6,0 |
| 20 | 20,7 | 12,7 | 18 | 18,4 | 14,5 | 8,0 | 3,9 |
| 55 | 19,6 | 13,6 | 2 | 18,0 | 14,4 | 6,0 | 3,6 |
| 20 | 18,4 | 14,5 | 24 | 17,7 | 14,8 | 3,9 | 2,9 |
| 55 | 18,0 | 14,4 | 2 | 17,0 | 14,6 | 3,6 | 2,4 |
| 20 | 17,7 | 14,8 | 24 | 17,6 | 14,7 | 2,9 | 2,9 |
| 55 | 17,0 | 14,6 | 2 | 17,0 | 14,6 | 2,4 | 2,4 |

At the different parameters of grain of both contacting layers (temperature, moistly of content), value of speed it was moistly changed an exchange from the least values ($0{,}85 \times 10^{-2}$ %/min) to most ($7{,}8 \times 10^{-2}$ %/min).

The most values of speed of conducts moistly exchange were observed at the beginning of experience (first 20…40 min), at most motive potential - difference of moisture or /and temperatures of layers of grain. Duration of period of most values of speed of moistly to the exchange is straight related to humidity of layers of grain and in reverse dependence on their temperature.

At different values moisture moves the gradient of temperature only into the side of her less values.

Conclusions:

1. Researches are not educe influence to the gradient of temperature ($\nabla\theta$) on the gradient of humidity ($\nabla W$).
2. Speed of diffusion of moisture straight proportional to the temperature of peripheral layers of grain.