The effect of climate changes in the agriculture
Nature around us is a big garden! It has everything - flowers, animals, rivers, lakes, snow ... - Things that we can admire that give us energy and peace.
Have you ever thought you however, what can be done with a flower garden if it has poor farmers?

Recent studies point to rapid climate change caused by global warming! This trend is progressing with unexpected pace.

*If you do not pay attention to the signals that climate change give us our fertile garden will be destroyed!*
The global warming and the changes in climate causes:

- raising in average temperatures;
- increase the area of the desert areas;
- raising the level of the World Ocean;
- alteration of the amount and rate of rainfall;
- lack of snowfall during the winter months in temperate regions;
- natural disasters - hurricanes, floods, fires, hail, summer heat;
- faster melting and movement of glaciers...
What is climate?

- An important natural component and resource
- It determines the forming and the changes in the others natural components (Waters, Soils, Vegetation and others)
- Its peculiarities determine the structure and the territorial organization of agriculture
Factors

Atmospheric
- Radiation
- Temperature
- Winds
- Air humidity
- Atmospheric pressure

Geographical
- Anthropogenic
- Rains

Elements
Climate changes - invisible danger for the life on The Earth

Till the dawn of life on our planet, the natural emission of Carbon dioxide, Water vapors and other gasses and chemical compounds have influenced for the forming of the climate on The Earth and created the so called natural greenhouse effect. The climate of the planet has changed since ancient times. According to geological data, the average ground temperature ranged from 7 to 27 degrees during different geological periods. The emergence of man and his activities have had the most significant impact on the climate and strengthen the natural greenhouse effect.
**Contemporary and climate**

During the last 30 years the burning of hard and liquid fuels have risen very sharply for the purpose of energetic, transport, industry and agriculture. The burning of hard fuels, pit coals, petrol, and gas causes the release of carbon dioxide, methane, nitrogen and other gasses. The cutting of forests which transforms the carbon from the nature during photosynthesis rise the level of the carbon dioxide.

Human actions have changed the chemical staff of air: the level of carbon has risen with 25%, nitric oxide with 19, and methane with 100. Because of these actions the planet warms up too fast and in the moment its average temperature is 15 degrees.

Over the next 100 years the temperature will rise between 1,5 and 3,5 degrees and the sea level will rise between 15 and 95 sm.

Besides the natural changes in the climate, a sharp warming is observed because of human actions. That causes negative effect over the stability of the climate of The Earth.
Climate changes, Global warming

...What’s next?
Projected impacts of climate change in different regions of the EU

- Winter rains (floods)
- Sea levels
- Hotter and drier summers
- Extraction from cultures, regions

- Temperature
- Yearly rains, the presence of water
- Risk from the droughts, heat stress
- Extraction from cultures
- Appropriate regions for cultures

- Sea/lake levels
- Storms, floods
- Hotter and heat summers
- Seasons of raising
- Possibility of raising cultures
- Vermin
- Melting of ices

- Winter rains of water (floods)
- Winter rains
- Risk of droughts
- Risk of erosion of the soil
- Continuation of seasons, extractions and more options of cultures.

Central Europe
Northern regions
South and South-East regions
West and Atlantic regions
Different influences over the changing of climate in Europe regions

More vulnerable are the mountain regions especially The Alps in which the winter border rises in height and lowers the period of rains.

South Europe and the Mediterranean will feel the effect of high temperature rising and reducing the level of rains.
South and Central Europe will be most damaged

On the other hand north countries can gain avail. North Europe will be the only country that will have profit from the climate changes. The financial benefits of Denmark, Sweden, Finland, Estonia, Lithuania and Latvia will rise to 0,5%-0,7% per year, mainly because of the positive effect over the Agriculture.

Spain, Portugal, Italy, Greece and Bulgaria will be one of the most affected countries because of the global warming. A negative influence will occur in all sectors because of the negative effects that the drought causes. The agricultural production will drop to 25 percent.
The climate changes causes boom to wine production in England

- Some of the countries in Europe take benefit from the global warming – in England a Vine and Wine revolution begins

- Vineyards are not now only located South. There are many that are located in the north part of the country

- Till 2080, wine could be produced in the mountains of Scotland and nearby the seaside
The change in climate will be most noticeable during summer that the number of extremely hot days will rise with 22 to 37. Till the middle of XXI century in countries like Poland and Hungary, the number of hot days with temperatures more than 30 may equals with those in Spain and Sicily.
The south parts of Romania are also threatened to become a dessert in 20 years because of the climate warming up. The production of grain foods will drop with 40 percent. The south parts of Oltenitsa and Dobrudzha have a dry climate like the Greek one, but the destruction of the green zones and the irrigation systems also have its negative effect.
The plant production in Europe during climate changes

Bulgaria enters the tropic.
Drought comes.
Global threats of the climate.
The middle temperatures rise with 5 degrees.
Bulgaria is characterized by a great variety of soils, regardless of its small territory.
It has been rightly pointed out that ".... the territory of Bulgaria is a real soil museum with a number of specific soils typical of Southeast Europe" / C. Koynov, 1964 /.
The proportion of arable land is 43% of the total territory of the country. With high fertility differ only about 15% of arable land with low fertility are about 33%.
Today represent a serious challenge etc. "disturbed soil". Their share is growing alarmingly, decreasing arable land.
Annually, industry and construction "swallow" to 4000 ha of arable land, and a portion is transferred to forest degradation due or contamination.
The outlook for the coming years is even bleaker in connection with mining expected to open new cover 30,000 ha prime farmland. This will give a negative impact on agriculture in the country.
For the first time in Bulgaria olives will be grown. Saplings will be seeded nearby Kardzhali, Krumovgrad and in the East Rodopi. The sort is Spanish and is resistant to minus temperatures down to minus 20 degrees, it is oil-bearing and from it excellent olive oil is extracted.
In Bulgaria the warming will mainly affect the vegetation period of the plants. In result, the extraction of the two general for the country crops drops down. The corn extraction drops with 23 percent and the winter corn with 15 to 17 percent.
How the climate change affects the agriculture?

The global warming will cause a drop in the harvest of agricultural production in the regions with low altitude. Negative influence will rise because of the more often natural disasters (floods, heat and droughts). It is expected that this will raise the risk of hunger, especially in Africa.
Studies have shown that the bigger part of the effect of the climate changes over the agriculture is because of the lowering of the rains. Water shortages will have a huge impact on agricultural production and nature in Europe. Agriculture needs to use more efficient water resources and develop new drought-resistant varieties.
Will increase the distribution and abundance of pests, diseases and weeds. The reason for this will be the high temperatures and humidity. These impacts will be specific to each region.

Climate change may lead to breeding of new varieties of crops atypical for the area, which are easier to adapt and displace local varieties.
Because of the influence of weather on crops observed:

- earlier periods of flowering trees
- extending the growing season of vines
- changes in natural cycles in most plants
- The changes in the calendar of agricultural activities (sowing, harvesting, etc.) suggest adaptation to the new climatic conditions.
Problems and challenges facing agriculture

- The signs of change are causing a decline in yields as a result of floods or droughts. Drought is the most pronounced problem with rising temperatures.
- Heavy rains during harvest, leading to deterioration of the grain.
- Changing climatic constants seriously dangers the development of agricultural crops.
- Global contemporary issues related to a decline in the yield of agriculture due to climate change are genetically modified varieties. They can survive in extreme conditions and for this reason are preferred by the manufacturers, but shifted local varieties.
- About 90% of the variety and diversity breeds of domestic animals are extinct in the last 100 years. This hides serious risks for the human health, because If one of these sorts massively gets ill, a prerequisite for lose of the entire harvest is created, and from that hunger.
On an island of the Arctic Svalbard archipelago a repository of all cereals is build. The task is to keep the encounter world catastrophes caused by global warming. The place can hold 4.5 million seeds that allow the resumption of food production after a possible global catastrophe.

Such banks are located worldwide and in Bulgaria. In the Institute of field crops Chirpan maintain national plant resources for cotton as a valuable source of genetic material.
Climate change affects many sectors, especially on agriculture. This influence affects everyone in Europe because farmland and forests cover approximately 90% of the earth's surface. Climate changes from year to year is one of the main reasons for the fluctuations in the harvest and the risks inherent in agriculture. This global problem is likely to be the first "slap" that humanity will get that we have forgotten that we are part of the ecosystem called planet Earth and that species diversity is the principle of existence of evolutionary ascent.
"We all know long ago that all the energy of our planet comes from one source - the sun. Its calories are stored in plants, in animals and in organic matter such as gas and oil. We can take them out and make them spend as interest from bank investment, but when you spend faster than they recover, destroy the system that originally created them, in other words - rather than live of interest from this stored energy, we started to live by himself capital."

David Suzuki

Thank you!