

AGRO-TECHNICAL MEASURES  
REGARDING ADJUSTMENT TO  
DROUGHT IN THE „GORE TUDOR” f.h.  
Trifesti village, Rezina district



# Description of the household

1. The main activity of the F.H. (farmer household) „Gore Tudor” is the production of vegetables (onion, carrot, potato, late cabbage), using drip or sprinkler irrigation on an open field over an area of 2.5 ha and of cereal crops on an area of 10 ha.
2. The land is situated near a source of running water (Cogâlnic river), benefits from a water pump and a sprinkler irrigation system MIR-63, as well as a drip irrigation system for 2 ha, an electric tiller, a heated nursery greenhouse for seedlings, a deposit with a surface of 1090 sq.meters for storing the agricultural yield.

# Description of the household

3. It has a T-25 tractor and the entire set of agricultural machinery necessary for growing field crops and vegetables.
4. The household uses hybrid seeds and varieties of field crops and of vegetables resistant to drought and produces its own seedlings in special blades.
5. The labour of growing the vegetable seedlings is provided by the family members, and seasonal workforce is being hired for planting in the field and harvesting



# Promoting techniques for mitigation of drought risks

## **Using internal resources**

Applying water saving methods in irrigation,

Breeding varieties and hybrids resistant to diseases, pests, drought and extreme temperatures,

Reducing the share of purchased resources by applying organic fertilizers (fertilizers, pesticides).

**Integrating the field crop sector with the animal and vegetable growing sector with the view of creating a more complex and more stable agricultural system,** with a higher biodiversity, where internal resources are used more efficiently, production costs are reduced, and the local work force is fully engaged, increasing the stability of the agricultural unit.

# Organizational and phyto-ameliorative actions used in fighting drought

- Organizational and plant improving actions used in fighting drought include the implementation of crop rotation between cereal and forage crops and alfalfa:
  - 1-3. alfalfa (for hay and green forage);
  - 4. winter wheat;
  - 5. maize for seeds;
  - 6. peas, barley and oats;
  - 7. winter wheat.



# Organizational and phyto-ameliorative actions used in fighting drought

- Since in the district of Rezina there is a prevalent dry climate, emphasis is given to traditional crops (forage plants, winter cereals, maize, peas, barley and oats) and new, drought resistant varieties and hybrids are used.
- 1. alfalfa – growing alfalfa has an important role in mitigating the negative effects of drought with regards to providing forage stocks for animals and maintaining soil's water reserves. It resists well to drought, on the account of the radicular system which penetrates deeply into the soil and allows for the furnishing of water from the depth, while also consuming very reduced amounts of water during drought;

# Organizational and phyto-ameliorative actions used in fighting drought

2. Winter wheat – during the last years there is a constant rise in the frequency of rainfall shortage, that is why it is recommended that the share of early varieties also be increased;
3. peas, barley and oats – are crops with a short vegetation period which reach maturity before July 1st and consume little water, thus being resistant to drought;
4. Maize/corn – this variety is not to be used in the years with higher temperatures and humidity shortage, in favor of barley and oats.

An annual crop rotation ensures better water reserves in the soil, reduces, in the largest part, the spreading of diseases, pests and weeds, and gradually decreases the necessary amount of fertilizers.

# Organizational and phyto-ameliorative actions used in fighting drought

## The annual crop rotation:

1. Is better at ensuring water reserves in soil;
2. reduces, to a large extent, the spreading of diseases, pests and weeds;
3. gradually reduces the necessary amount of fertilizers.



# Soil tilling and crop rotation

Soil tilling and crop rotation shall be carried out depending on the crop and on the physiological state of the soil, as follows:

- Stubble-turning - is the activity of removing the field residues, undertaken with the aid of a disc harrow, at a depth of 8-12 cm, immediately after harvesting the summer crops. Stubble-turning has the following advantages:
  1. Facilitates penetration and accumulation in the soil of water resulted from rainfall;
  2. Ensures keeping water in the soil;
  3. Determines the germination and sprouting of weed seeds to be buried in the tilling process;
  4. Ensures the proper soil condition for the decay of the organic matter and for the nitrification processes;
  5. Provides the extirpation of insect nests, spores, eggs and other multiplication organs;
  6. On areas where the crop residues have been removed from ploughing becomes easier, with a lower energy consumption and a higher efficiency.

# Soil tilling and crop rotation

## Ploughing

- Ploughing is the main land cultivating activity, during which a certain layer of the soil, called furrow, is being turned over, breaking down and mixing weeds and remains of previous crops, and aerating the soil.
- 1. Ploughing, disregarding the period of time when it takes place, should be harrowed in order to ensure the breaking down and levelling up of soil and avoiding big water losses.
- 2. Recommended depths for ploughing:
  - 18-20 cm for stalky cereals;
  - 22-25 cm for maize, soy, sunflower, etc.;

# Soil tilling and crop rotation

- Summer ploughing. Shall be carried out after harvesting summer crops:
  1. Immediately for the autumn sowing (latest by 10-15 of August)
  2. Directly or after stubble-turning if it is intended for spring sowing..
  
- Autumn ploughing. Shall be carried out after harvesting the autumn crops:
  1. At least two weeks before sowing the winter crops so that the ploughing settles down.
  2. The ploughing intended for spring crops can be done with or without the stubble-turning latest by November 25th.

# Soil tilling and crop rotation

- Preparing the seed bed/germinal layer
  1. The seed bed is the layer at the soil's surface, where the seed will be placed.
  2. On the soil that has been broken down and leveled the seed bed can be prepared by going over once with the field cultivator, which works at the same depth as the seeding depth.
  3. At the lower part of the seed bed the soil is settled, undisturbed – hard bed – where the seed will be incorporated.
  4. On top of the seed there is the broken down and refined soil layer – soft cover – through which air and heat penetrates to the seed and also the seedlings reach easier to the surface.

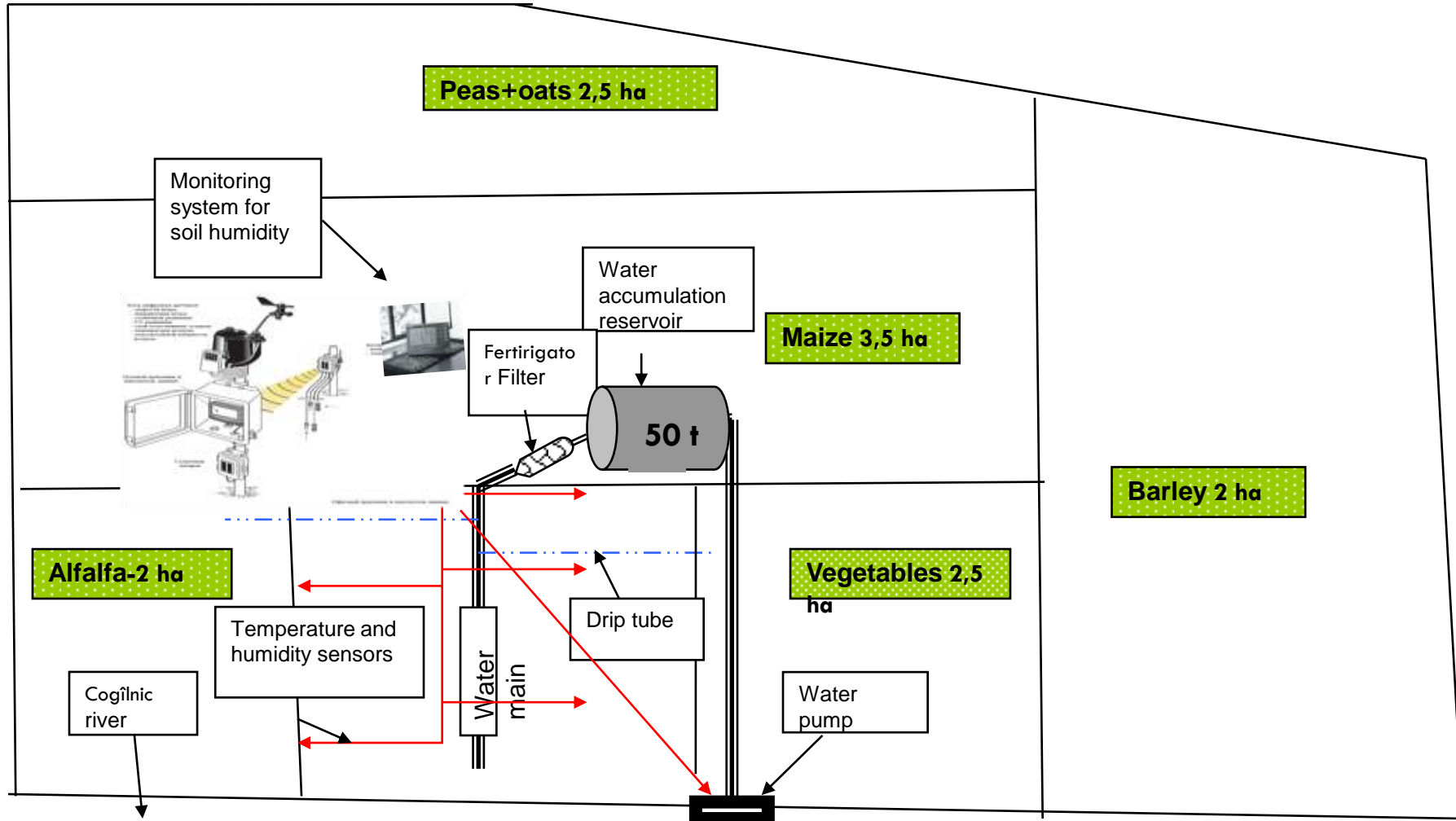
# Soil tilling and crop rotation

- Mechanical tillage – mechanical tillage accomplishes weed control.
- Tillage ensures:
  1. Maintaining the land clear of crust;
  2. Achieving a fine tilth and soil aeration;
  3. Creates proper conditions for water, nutritive elements, microbiological activity and normal crop development.
- Hoeing is done at the depth necessary for destroying the weeds. A deeper hoeing would lead to loss of water from the soil and would damage the roots of cultivated crops.

# Agro-technical measures

- The following actions may be taken in the process of mitigating drought effects:
  1. Giving up ploughing for the winter crops in favour of harrowing with the 15 cm disc;
  2. For crops and varieties resistant to drought early and semi-early hybrids are to be used;
  3. Sowing time: seeding should not be hurried, but should be achieved in short periods;
  4. Weed control carried out by tillage and herbicide usage is an important measure, but it is also important that it does not compete with the crops for the use of water from the soil;
  5. Irrigation – not the entire land is to be irrigated, only the crop fields;

# Diagram of the production sector in the F. H. „Gore Tudor Andrei





**THANK YOU**