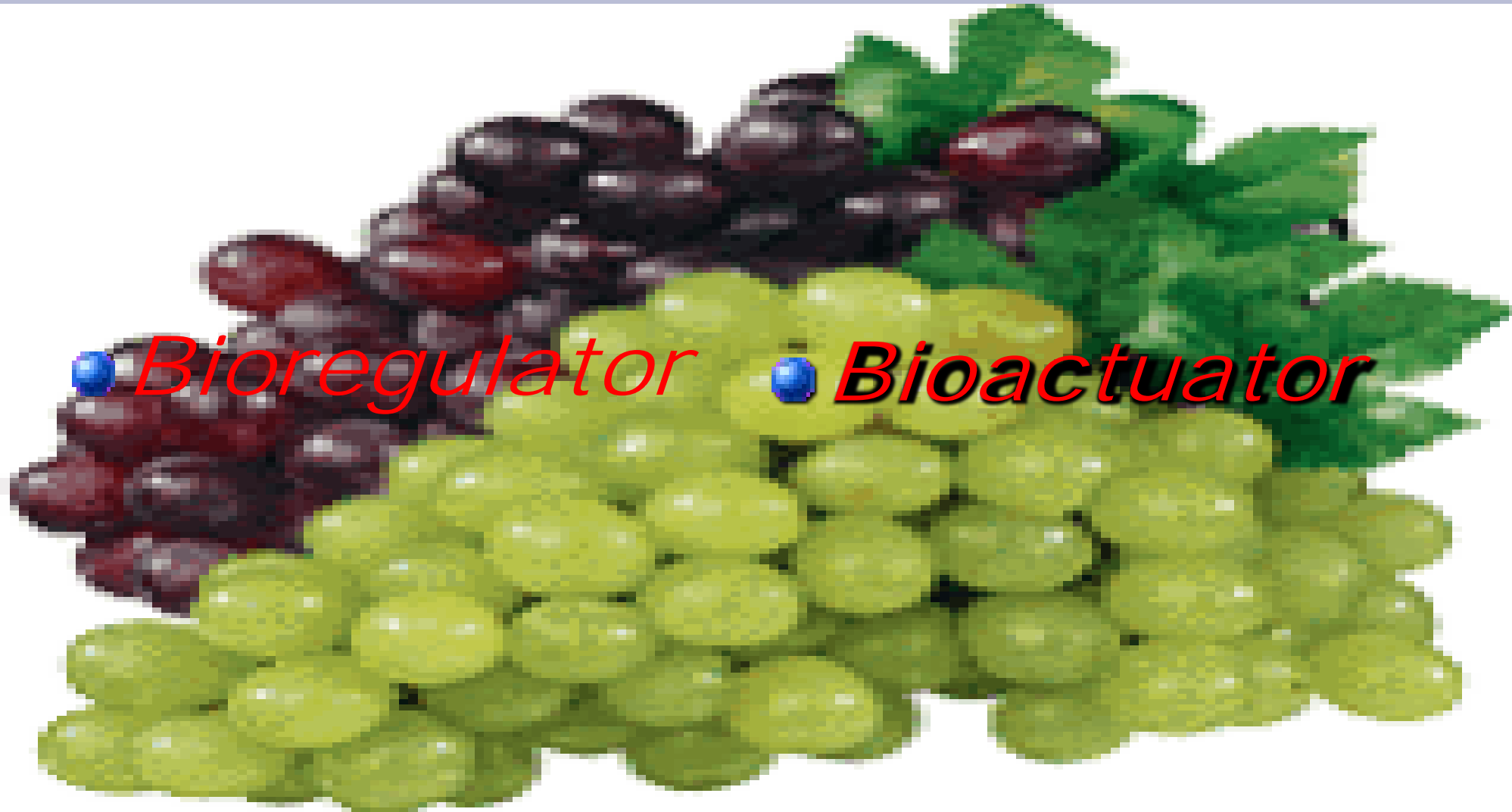


# AGROSTEMIN

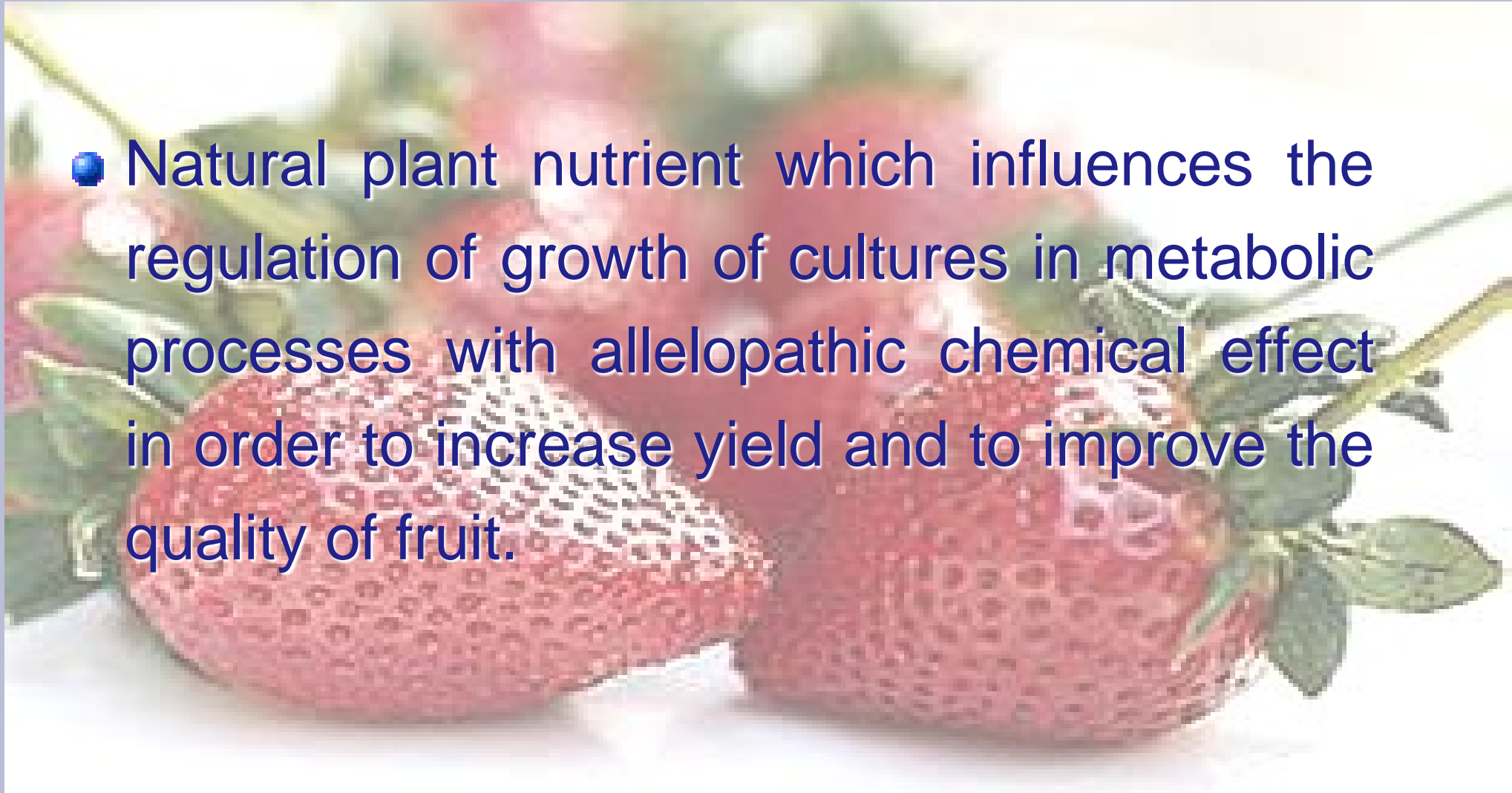


• *Bioregulator*

• *Bioactuator*

# Agrostemin

- Natural plant nutrient which influences the regulation of growth of cultures in metabolic processes with allelopathic chemical effect in order to increase yield and to improve the quality of fruit.



# Effect of Agrostemin

- *Activation of biochemical processes which is a consequence of lack of life factors*
- *Activation of biochemical processes which is a consequence of decreased quantity volume of substances inside the plant*

# Structure of Agrostemin

- Active complex:

- a) amino acids.
- b) organic acids and
- c) derivatives of organic acids

- Inhibitor complex

- a) derivatives ABA (abscisic acids).
- b) saturated aliphatic carbon hydrogen and
- c) cyclic inhibitor ( $C_8H_{29}N_3O_7$ )

# Origin

- Natural raw material
- Domestic biotechnology
- Domestic raw material

# Bioregulating effect

● **Agrostemin** encourages plant to optimize its own life processes:

- a) growth.
- b) development.
- c) breeding

# Bioactivating effect

- **Agrostemin** encourages plant to optimize its metabolic processes and to increase the following:
  - a) qualitative characteristics of cultures
  - b) quantitative characteristics of cultures.

# Use of Agrostemin

- Husbandry
- Truck farming
- Fruit growing
- Viticulture
- Horticulture
- Meadows





# Application

• Three applications (in fruit growing):

- 1) before blossom,
- 2) during blossom,
- 3) after blossom.

This is the most common way !!!

# Application

Five applications (in fruit growing):

- 1) before blossom,
- 2) during blossom,
- 3) after blossom,
- 4) fruit in ripen pheno phase
- 5) fruit ripening.

This is how the champions of the fruit growing industry do!

ZLATNO BRDO  
UDOVICE - SMEDEREVO

# The outcome of the use

- Increase of yield up to 20 % and continuity of yield
- High quality of consumer fruits
- Solid and uniformed development of habitus



# Agrostemin – W H Y ? ? ?

- How did we become aware of the need for biostimulator and bioregulator?
- How did we become aware of the time for use of biostimulator and bioregulator?

# The solution to the problem is in POLLEN

- The significance of pollen – pollination of plants
- The pollen seeds are created before opening of buds
- The creation of pollen can be influenced by the following:
  - ❖ internal and
  - ❖ external factors

# The formation of pollen seeds

❖ Internal factors depend on the plant's genetics which determines the following:

- the size and
- the quantity of pollen seeds

❖ External factors:

- insufficient soil moisture.
- exaggerated relative air humidity.
- lower temperatures by night.

# Pollen = Flower powdery substance

## The structure of pollen:

- ❖ Membrane of pollen seed
  - a) **EGZINA** – external membrane composed of cellulose or cutinized by contents of colored substances
  - b) **INTINA** – internal membrane. very thin and in two layers. composed of cellulose or of pectic substances with sporopollenin (high molecule terpen)

# Chemical composition of pollen

Plant species		Water	Proteins	Fats	Starch	Regular sugar	Irregular sugar	Ashes
Almond	g/100 g of pollen	9.8	28.7	3.2	0.7	24.4	3.1	2.6
Peach	g/100 g of pollen	8.5	26.5	2.7	1.6	21.8	9.0	2.8
Olive	g/100 g of pollen	10.1	16.7	4.7	1.1	28.3	5.8	1.9
Clover	g/100 g of pollen	11.6	23.7	3.4	1.3	21.4	4.2	3.1
Foxglove	g/100 g of pollen	13.3	20.4	2.4	0.4	25.5	3.4	3.1



# Transfer of pollen

- Pollen is transferred by:

- ❖ insects.

- ❖ air flow. ...

... from STAMEN to PISTIL STIGMA

# Germination of pollen

Germination of pollen occurs when **INTINA** (internal membrane) grows through pores of **EGZINE** (external membrane) creating **-THE POLLEN TUBE** which goes down to the seed embryo and embryo sac where the swollen pollen seed settles down due to the absorption of liquid from pistil stigma!!!

# Germination of pollen II

- Several pollen seeds arrive to pistil stigma
- Germination of pollen is effected by the following factors:
  - a) biotic and
  - b) abiotic

For example: It is due to extremely **high temperatures** and **low relative air humidity**.  
or. on the other side. **low temperatures** and **high air humidity** that pollen quickly loses its germination ability and seeds become sticky and die; even scientific farming methods. such as **pruning** and many other similar situations can jeopardize normal plant functions

this is why it is necessary to use **AGROSTEMIN**

# Fertilization and AGROSTEMIN

❖ Improvement of germination and fertility of pollen by complex of amino acids which:

- a) have an **inhibitory** effect on recessive alleles.
- b) have a **cumulative** effect on loci with dominant aleli and
- c) have an **epistatic** effect on mutual relations of dominant genes.

# AGROSTEMIN

Now you know why it is necessary  
to use initially **Agrostemin** before blossom  
and how and why to use it further during  
vegetation of your plants!

M.Sc. Engineer  
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