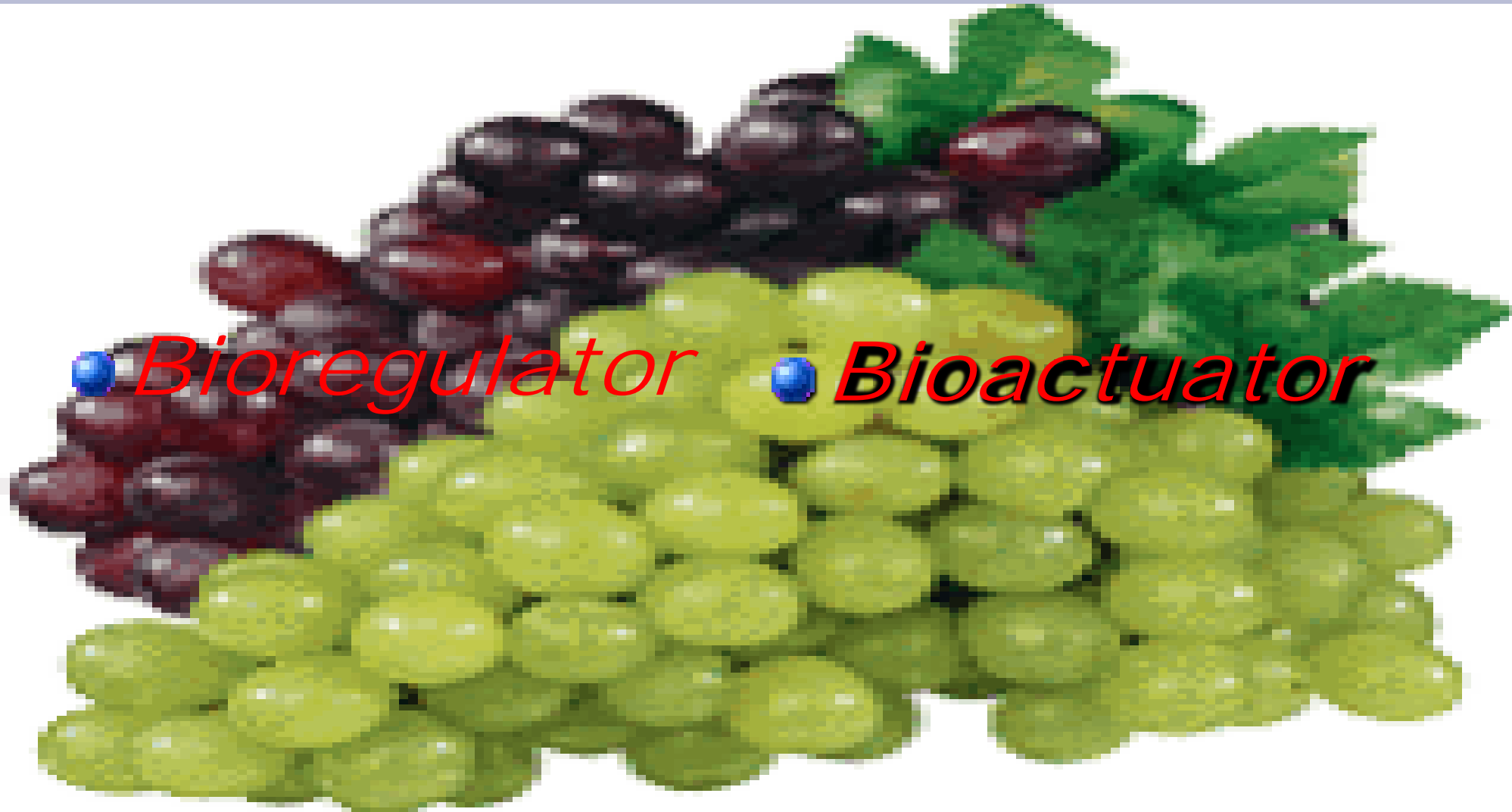


AGROSTEMIN

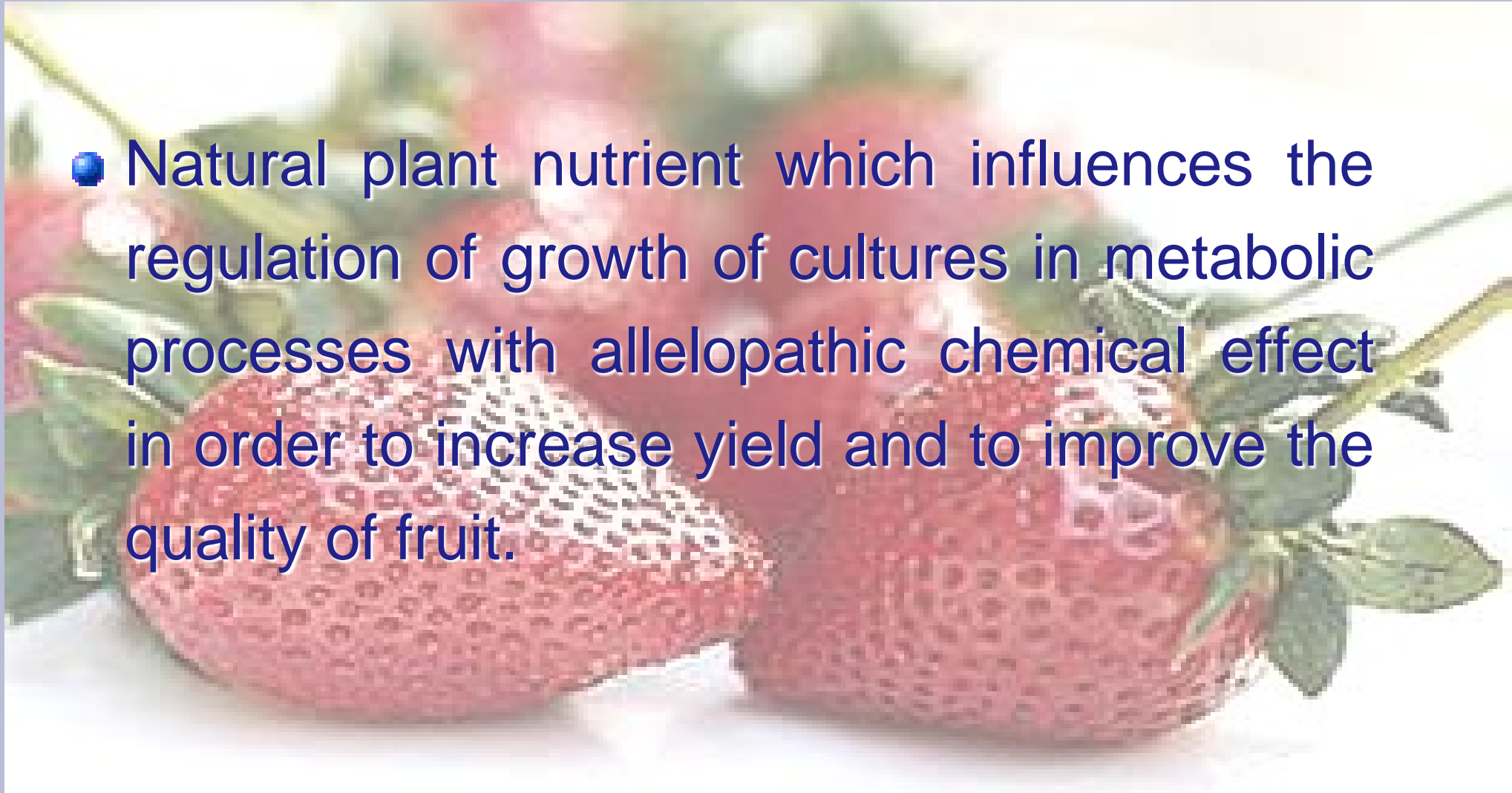


● *Bioregulator*

● *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 30-35 g/ha.
 - 2) during blossom 30 g/ha.
 - 3) after blossom 35 g/ha
- This is the most common way !!!

Application

Five applications (in fruit growing):

- 1) before blossom – 35 g/ha.
- 2) during blossom – 30 g/ha.
- 3) after blossom – 35 g/ha.
- 4) fruit in ripen pheno phase – 30 g/ha.
- 5) fruit ripening – 30 g/ha

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
Saša AVRAMOVIC