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sociální  
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EVROPSKÁ UNIE



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MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání  
pro konkurenceschopnost

Mendelova  
univerzita  
v Brně



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ



## Inovace studijních programů AF a ZF MENDELU směřující k vytvoření mezioborové integrace CZ.1.07/2.2.00/28.0302

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Zahradnická  
fakulta



# Control of fruit trees setting



## Control of fruit trees setting

In addition to late productiveness, alternating productiveness is also a problem

Found mostly in pomaceous fruits

Differentiation period interferes with fruits growing

Flower buds of stone fruits and berry plants

differentiate in later stages,

More stable productiveness

Excessive fruit setting with seeds impedes

differentiation of flower buds

Large leaf surface promotes differentiation of flower buds  
Gibberellins produced in developing seeds inhibit differentiation of flower buds  
Size and least developed seeds are important in apples  
Besides gibberellins, nutrition (N, assimilation products, lightening) is also an important factor

# Apple trees



- ◆ Pruning and fruit thinning is a key to fruit set regulation
- ◆ Excessive fruit set may be regulated by fruit thinning (manual and chemical)

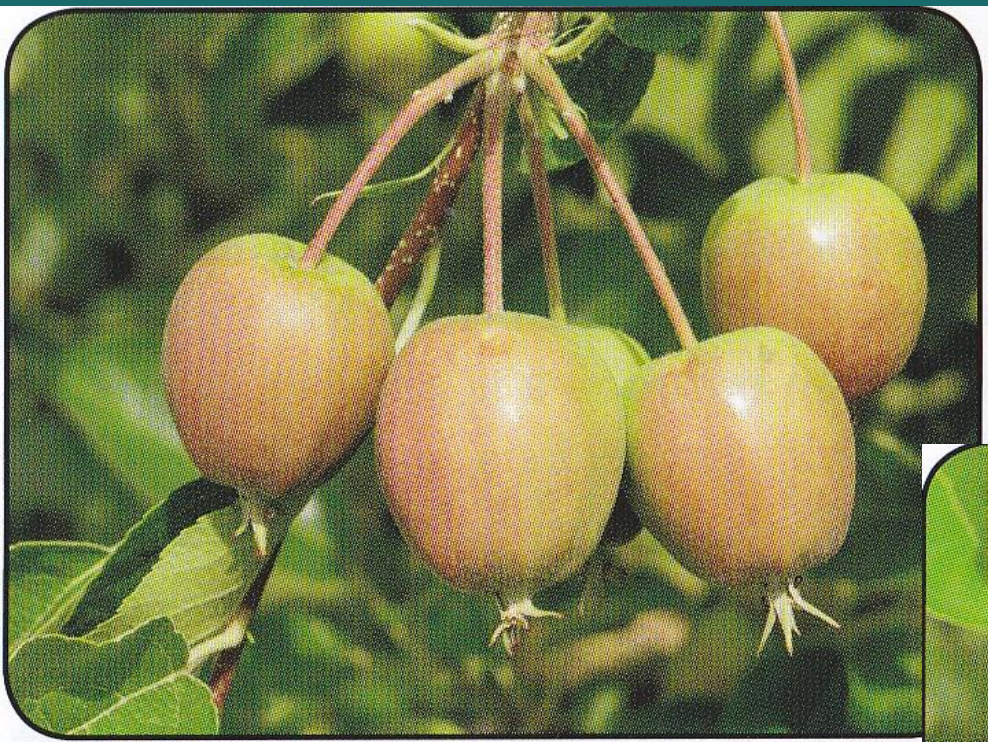


## Manual thinning

- ◆ Apple trees: 30-40 leaves per 1 fruit, 20-25 leaves per 1 fruit for less vigorous trees
- ◆ Fruit thinning depends on distances of fruits on a branch; medium-size fruits 10-20 cm, large fruits 15-25 cm
- ◆ Optimum timing of apple thinning, the largest fruit in the rosette – cross diameter of 10-14 mm

- ◆ In the thinning process, mericarp fruitlets on cluster bases in terminal flowers are left
- ◆ Smaller mericarp fruitlets (deformed, damaged) are usually removed from one-year old shoots
- ◆ Fruits are always removed without the peduncles (wound protection), the peduncles fall off later
- ◆ Increase amount of medium-size fruits (good for storage) when removing the largest and smallest



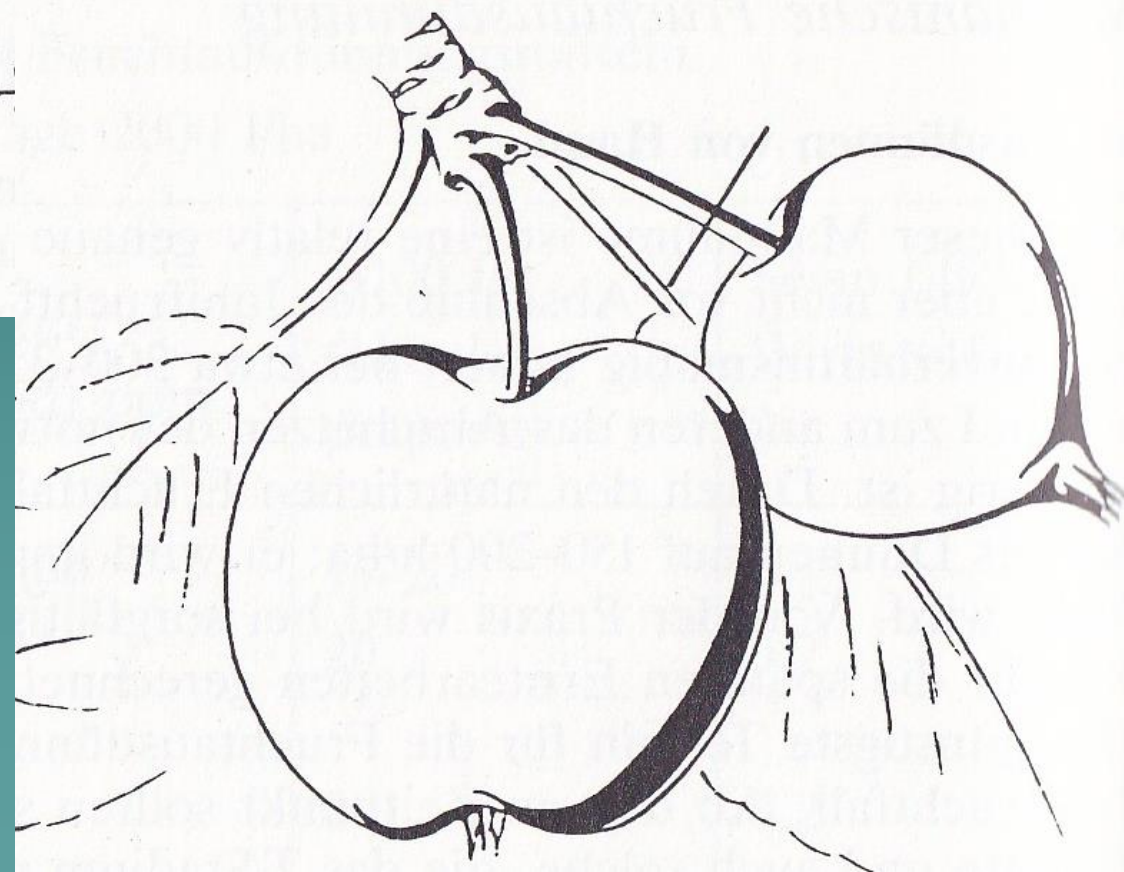
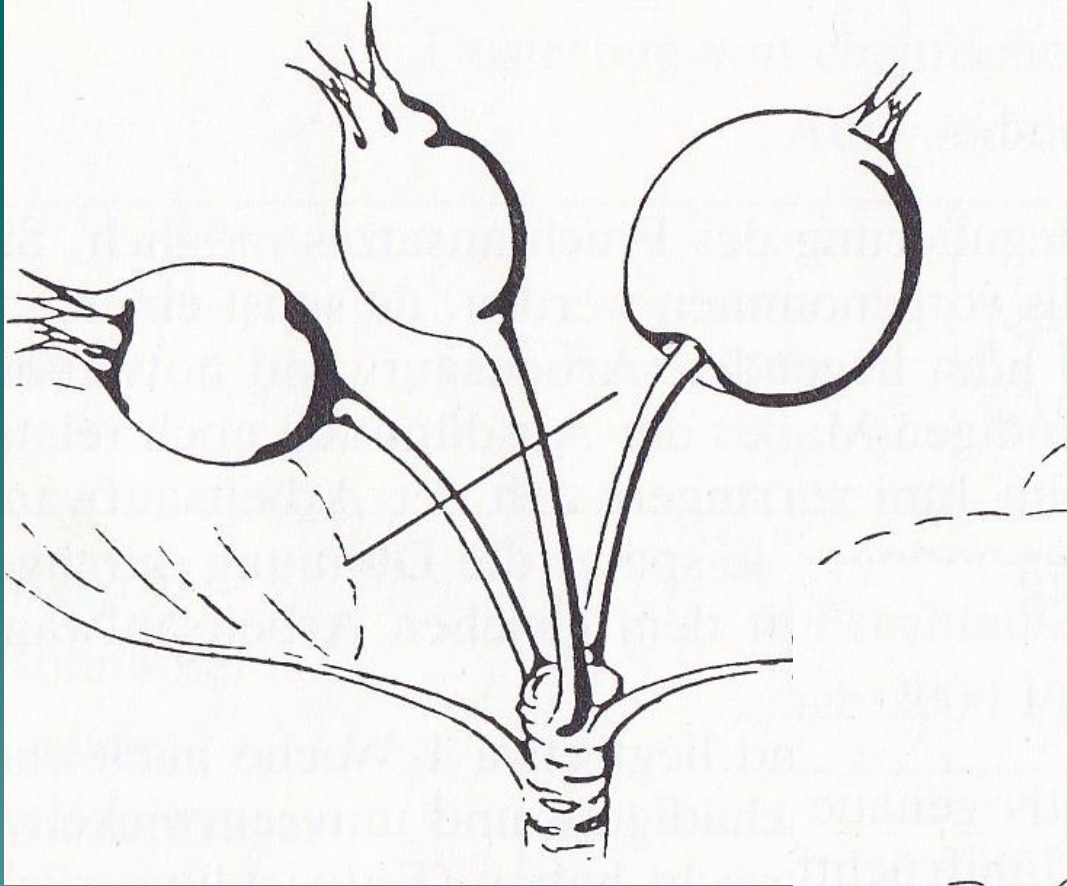




## Chemical thinning

- ◆ Water solution with chemical hormones spray is applied on the trees
- ◆ Efficiency of the method depends on the weather, health of the trees (affects intake and activity in the plant)

- ◆ Application of alpha-naphthylacetic acid (NAA) (after blooming end till 3 weeks after blossom loss)
- ◆ Chemical reduction in apple trees using Rhodofix, the largest fruit in the rosette – cross diameter 10-14 mm, 10-14 days after petals loss
- ◆ In most cases, chemical thinning is combined with manual thinning



# Plum trees



# Plum trees

- ◆ Productiveness onset in intensively cultivated plum tree plantings starts after 2-4 years
- ◆ May be affected by bending of shoots and branches in the first two years and minimization of pruning
- ◆ After productiveness onset - tendency to produce lots of fruit sets (small fruits, less sugar, worse taste, poor colouring)
- ◆ Few cropping techniques (poor nutrition, and infestation by pests and diseases result in alternating productiveness)
- ◆ Opál, Čačanská rodná, Hanita, Elena: Tendency for excessive fruit setting

- ◆ Even in varieties with less vigorous rootstock: Katinka, Čačanská lepotica, Stanley, Hamanova, Valor
- ◆ Impact of weather during blooming
- ◆ Winter and spring frost damage of generative plant organs
- ◆ Decreased bee activity during blooming
- ◆ Pay attention to even distribution of fruits and keep well developed ones during thinning
- ◆ High requirements, even on tools (short, mobile ladders)







Optimum spacing

## Tree control - pruning

- ◆ Major pruning, especially of low-growing trees: Decrease in total fruit setting, increase in average weight, decrease in total yield
- ◆ Positive thinning effect: Only a delicate pruning of fruit bearing limbs with adequate thinning for increase in light penetration, little reduction of scaffold branches
- ◆ Delicate pruning reduces only a half to a third of fruit bearing limbs
- ◆ No more than 100 blooms per 1 m

## Manual thinning

- ◆ Excellent fruit quality, stable and high yields
- ◆ Costs of manual thinning equal costs of harvest (only for high-quality varieties)
- ◆ After June blossom loss, length of mericarp fruitlet 15-20 mm, 20-30 per 1 m of a branch (lower amount for large-fruit varieties: Valor, President, Empress)