
Illustration, Tree Thinning. The Effect of pruning on Yield and Quality and Fruit Size



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Main effects of Illumination

**Increase the
fruit**

**Improves Fruit
setting**

larger Fruit

More Fruit on Trees

**More Yield and
Larger Fruit**



Illumination management

Thinning

Thinning Trees

Pruning

1. To prune the branches in front of the tree

Door Pruning = To open a door

2. To prune the tree inside

Window pruning = to open the canopy

3 . Hedging

4 . Topping



The effect of Thinning on the Quantity of Fruits Per Tree

In the First Year Kibbutz Gadot & Yehiam

The Significant effect of Illumination

| Miniola | S. Ruby 4 | S. Ruby 3 | S Ruby.2 | S. Ruby 1 | |
|---------|-----------|-----------|----------|-----------|------------|
| 233 | 43 | 80 | 153 | 264 | control |
| 355 | 74 | 120 | 249 | 346 | Thinning |
| 52% | 72% | 50% | 63% | 31% | additional |



Illumination by pruning



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The main effects of pruning



Illumination

by pruning toping or hedging

**Reduces the number of the fruits
on branches / tree**

Reduces the quantity of fruits

**Higher quantity of fruits with larger
diameter**

**It is possible to increase the
quantity of the yield**

Early Picking of fruit in designated areas



Pruning topping & hedging

אזהרה
סכנת חבלה
במסלול



Pruning Instructions (1)

Distance in underside of tree between the rows

The width between the rows 1.5 m.

To allow convenient passage of mechanical equipment without damaging fruit or tree

Distance between the canopy and the nozzles of the sprayer should be a minimum of 0.5 m (for the purpose of allowing the correct and efficient spread of spray)



Blower at open grove



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Blower at open grove



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Pruning Instructions (2)

Optimal distance of the canopy

The distance between the rows on the upper portion between the trees starting at 2 m high increase the angle 3 to 4 m

Avoiding shadowing between trees

Distance between trees within the row -0.5m



Door & window

Goals

- **Improve the illumination inside the tree**
- **Reduce alternate fruit**
- **Improve fruit setting and increase**
- **Reduce degeneration of branches**
- **Reduction of development of Meal bugs**
- **Improvement and efficiency of spraying methods**
- **Convenient approach within the canopy for the purpose of pruning , girdling and harvesting.**



Diagonally hedging

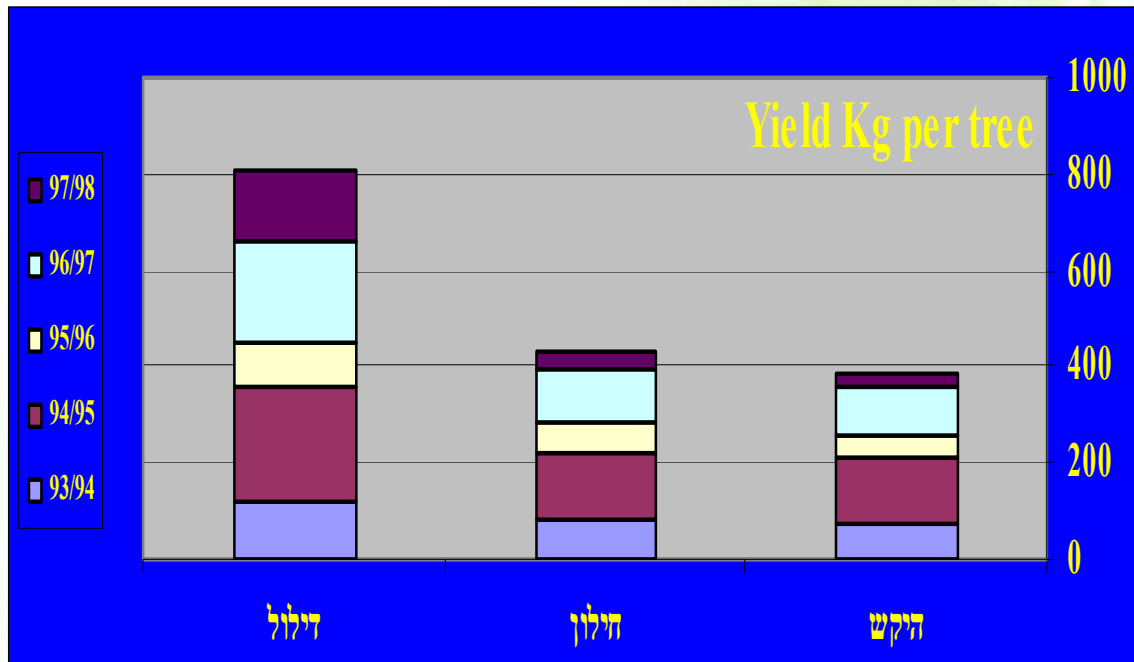


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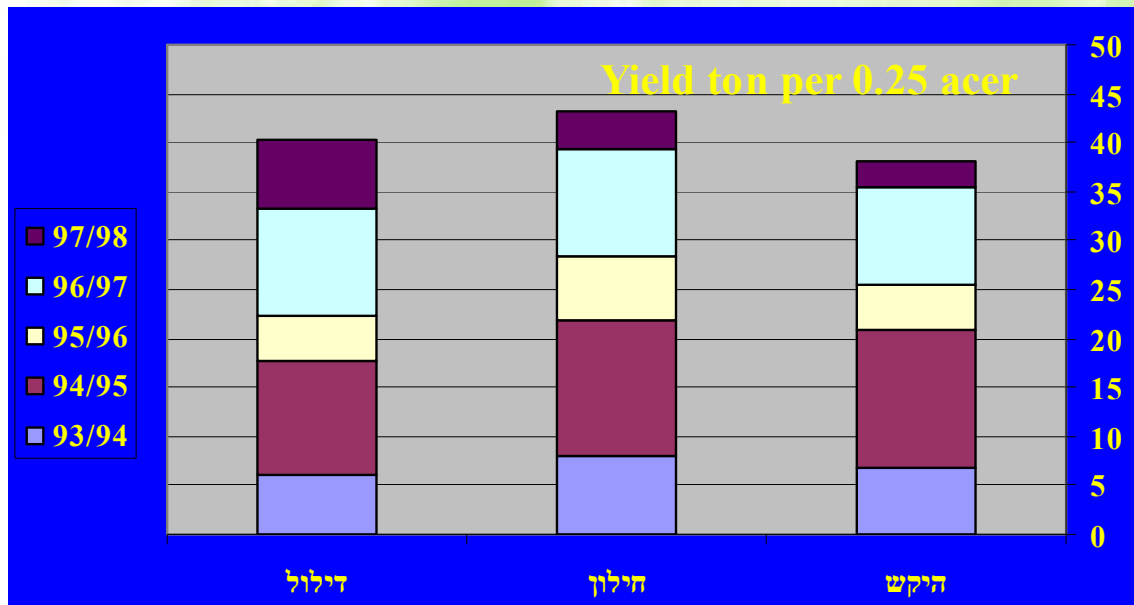
The effect of window on yield of Star Ruby Yechiam 93/97



**Window rises on control •
in all years and
measurements**

**Yield per tree in •
thinning were high – up
to double the yield in
thinning and window**

Reduce in alternate •



**Effect of pruning tree & branches
door & window and thinning
Increase the quantity of fruits on
the tree/branch**

**In incorrect
balance**

**correct
balance**

**Very high yield
with**

**High
yield with**

Very small fruit

**Large
fruit**



2 Door & window

**Segment /Slice whose width $1/6$ to $1/4$
of the circumference**

**The center of the segment is
perpendicular to the row**

**In the types needing illumination facing
East or South**

**In the types sensitive to illumination
facing East to North**

**Star Ruby in hot areas – 45 degrees
per row Northeast to Northwest**



Door & window at Star Ruby



Late effect of pruning and illumination

In consecutive years

Encourage the development of branches under the cut and in areas

Exposed to light .

This branches will carry the fruits in the next years .

The fruits on the branches are usually larger .

In overly enhanced growth some of the branches must be cut .



Illumination By Thinning



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Improve illumination management by thinning trees

Advantage

At one time long term action

Decrease in manpower

**An ongoing increase in yield in
crowded groves.**

Disadvantage

Slow reaction

No way back



The effect of thinning trees to the yield of Rishon mandarin

| Ton/ 0.25 ace | Kg / tree | Fruit/ gram | Fruit / tree | Treatment |
|---------------|-----------|-------------|--------------|-----------|
| 2.63 | 26 | 111 | 238 | control |



Pruning between trees

1/2 Thinning



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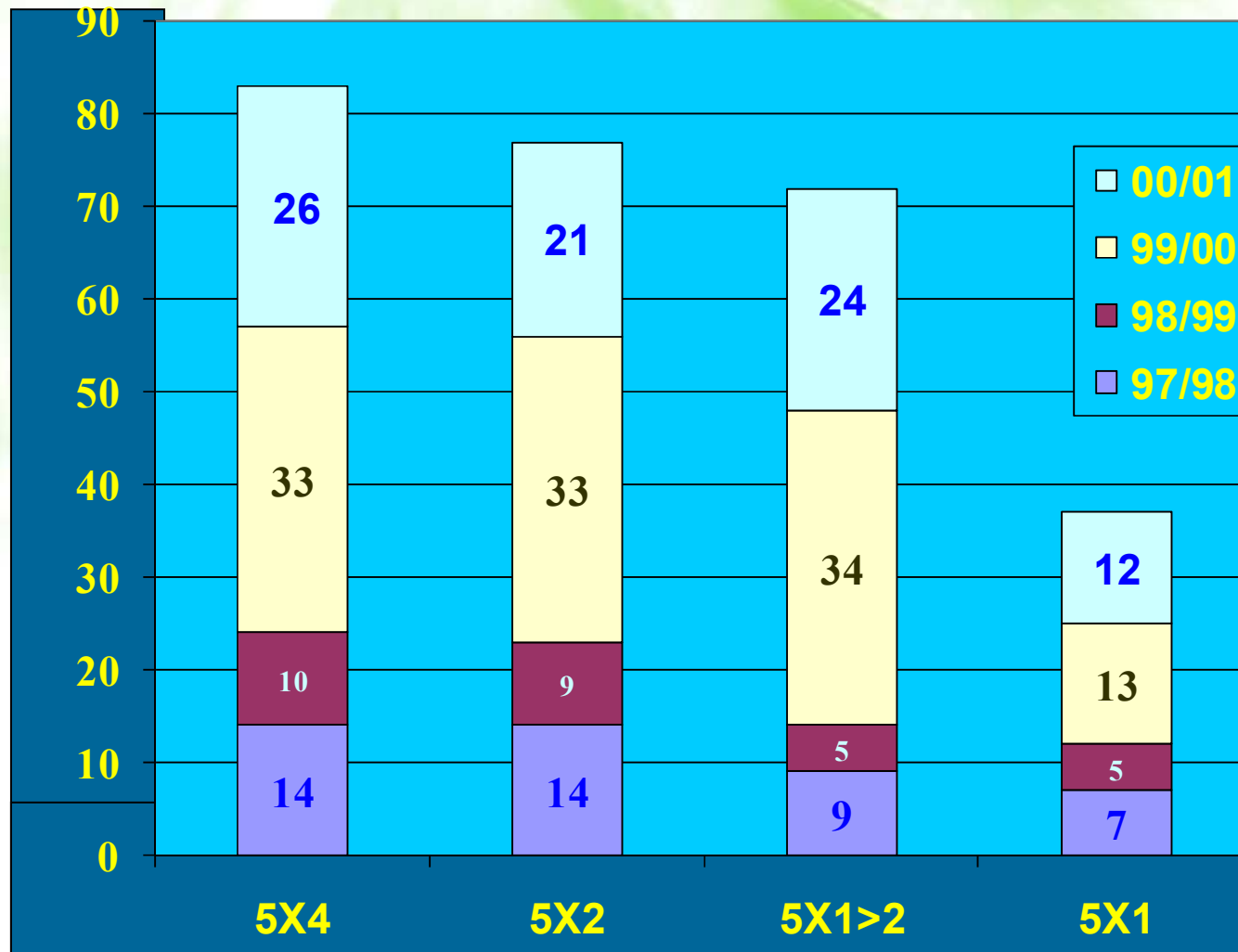
The effect of thinning trees to the yield Kibbutz Yehiam S.Ruby

1987/8

| Ton/ 0.25 ac. | Kg per tree | Fruit per tree | Fruit /gram | Treatment |
|---------------|-------------|----------------|-------------|-------------|
| 2.7 | 27 | 58 | 466 | control |
| 3.9 | 39 | 91 | 424 | window |
| 7 | 141 | 367 | 383 | Thining 1/2 |

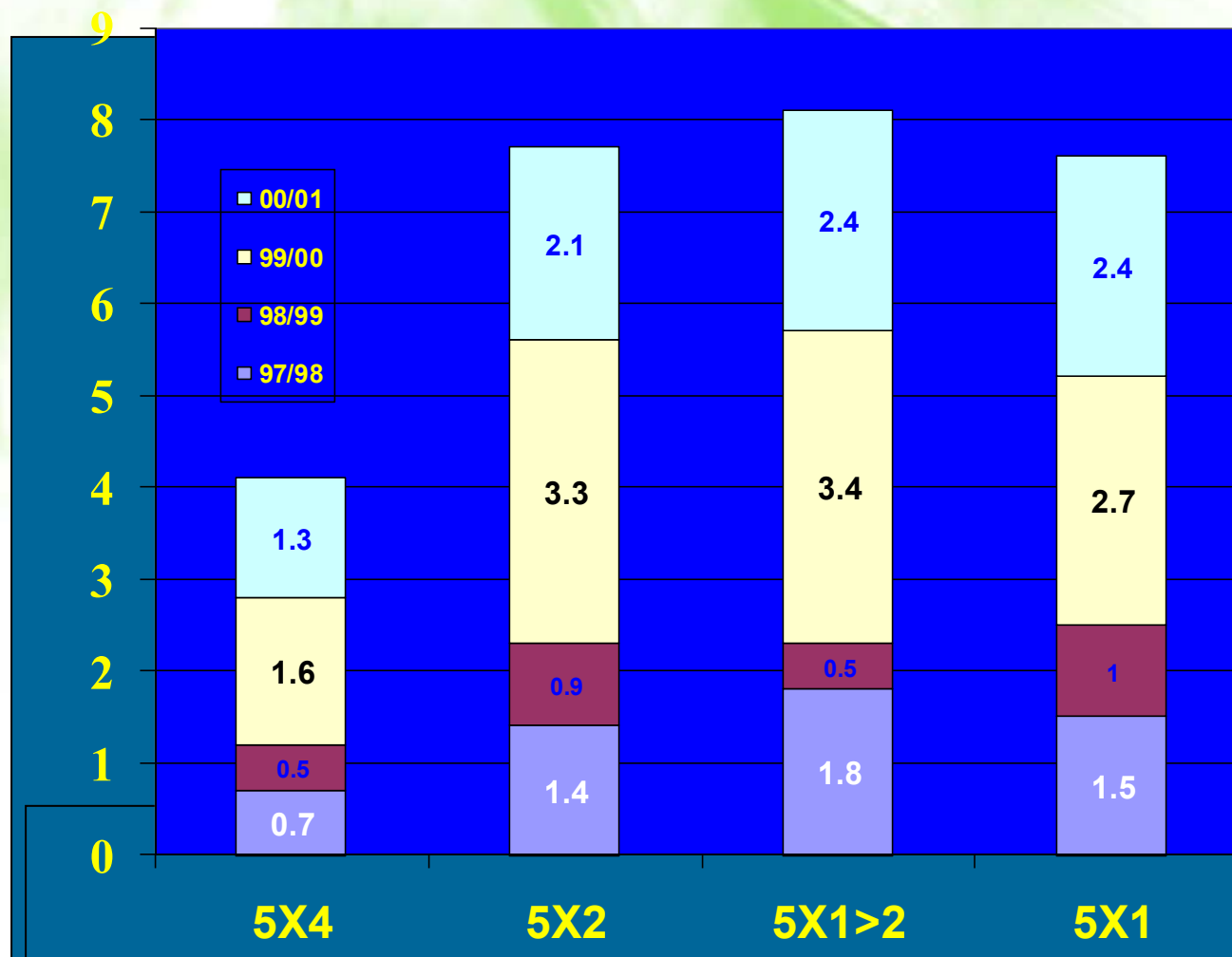


Variety Or 1/ Troyer Kg per tree



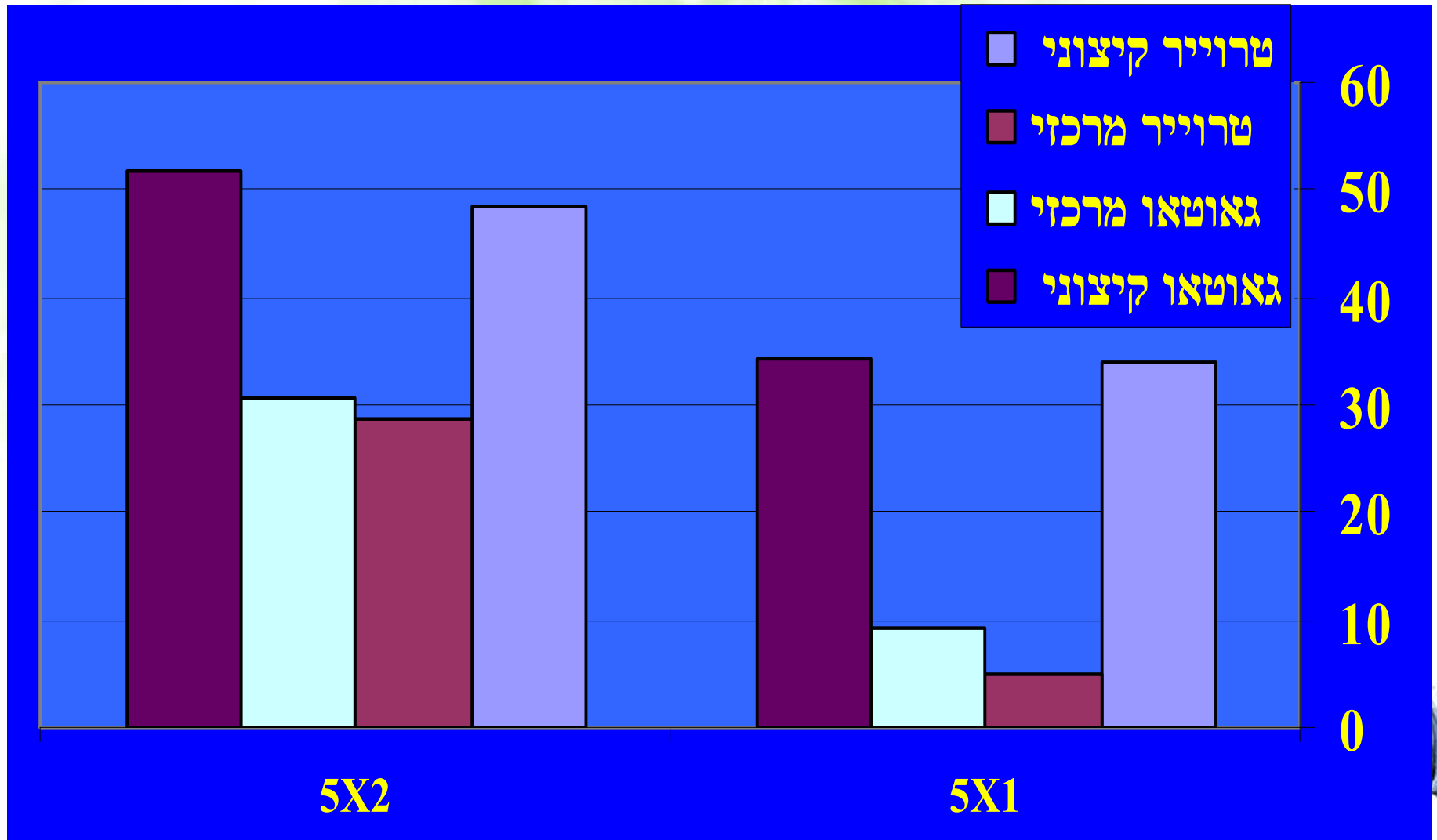
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Or 1 yield /ton per 0.25 Acer by treatments



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The effect of density on yield at Or 1 Kg per tree



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Improve illumination management by thinning trees

Begin implementation at a young age

[5 to 8]

Implement gradually

1 to 8 [4 years]

1 to 4 [2 years]



Thinning 50% of trees 1/4 every year

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 2 | 0 | 1 | 0 |
| 0 | 2 | 0 | 1 | 0 | 2 | 0 |
| 0 | 1 | 0 | 2 | 0 | 1 | 0 |
| 0 | 2 | 0 | 1 | 0 | 2 | 0 |

Thinning every year 1/8 trees every year

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 0 | 1 | 0 | 4 | 0 | 1 | 0 |
| 2 | 0 | 3 | 0 | 2 | 0 | 3 | 0 |
| 4 | 0 | 1 | 0 | 4 | 0 | 1 | 0 |
| 2 | 0 | 3 | 0 | 2 | 0 | 3 | 0 |

Regulating the yield by pruning management in Easy peelers

**The goal - 20 to 30 thousand
fruits[150 gr] at 0.25 Acer**

In an off - year–setting Improve fruit

Gibberellins ,Girdling

In an on - year - Reduce yield

By Thinning fruits

By pruning



Regulating of the yield by pruning management at Oranges , Grapefruits

In an on- year - Before flowering

Topping , Hedging , Window , Door

After fruit setting cutting branches which carry lot of fruits

Thinning trees

In an off - year - after flowering and fruit setting

Only if it is high yield

window , door , Topping ,Hedging.

