



Thinning 2018 a difficult year ?



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M. Zoth, Foundation KOB - Ravensburg

Starting situation

➤ **After the frost in year 2017 – How will it be possible to realize a proper thinning result ?**

- Good flowerset and fruitset in spring 2018

- Flattening of impending alternate bearing!

➤ **Early thinning at flowering is important**

➤ **Additional use of fruit thinners**

➤ **Which treatments / combinations will show good efficacy?**

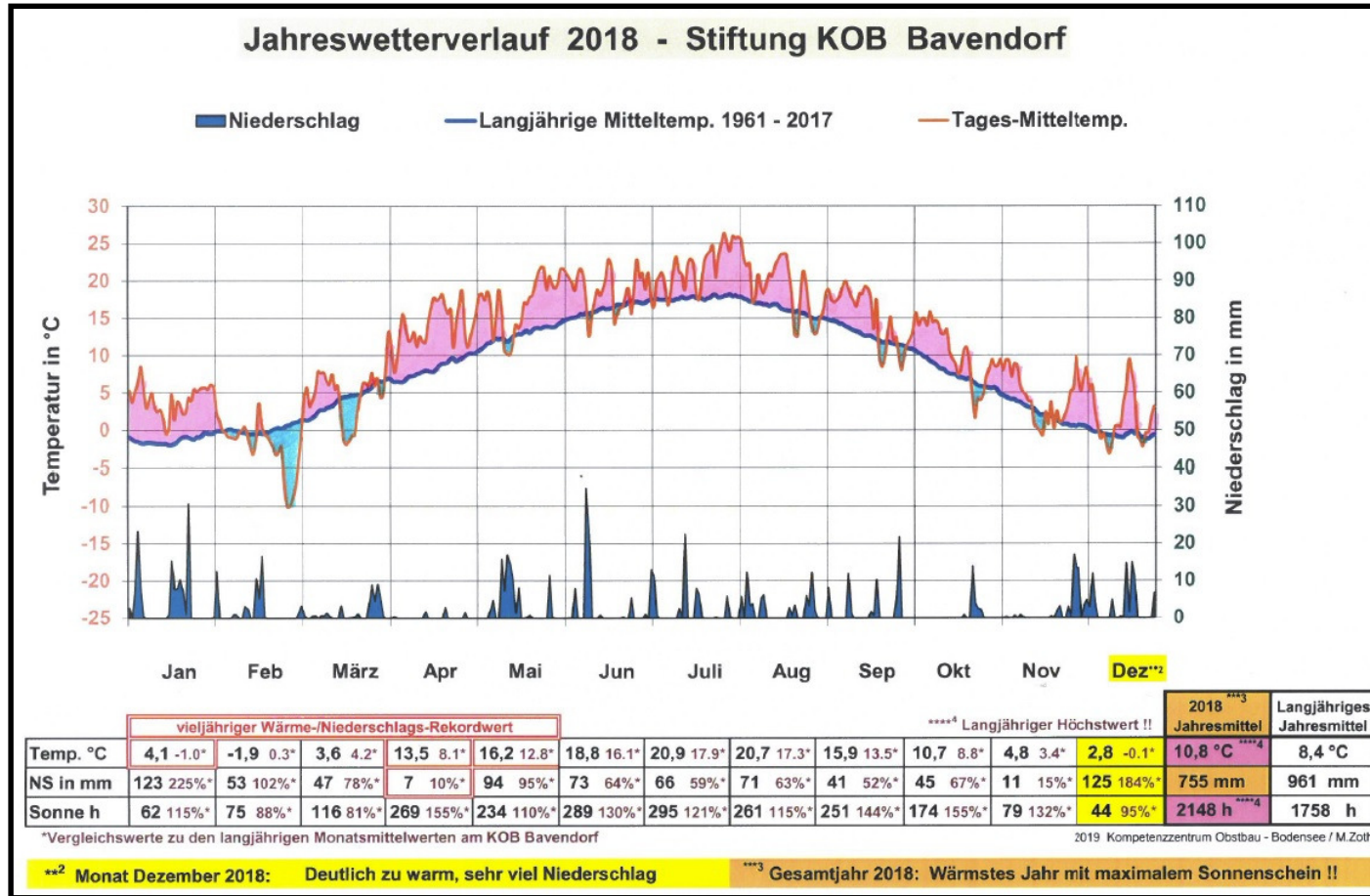
2018 => Warm blooming period, good pollination, heat stress, water deficiency



Studies 2018

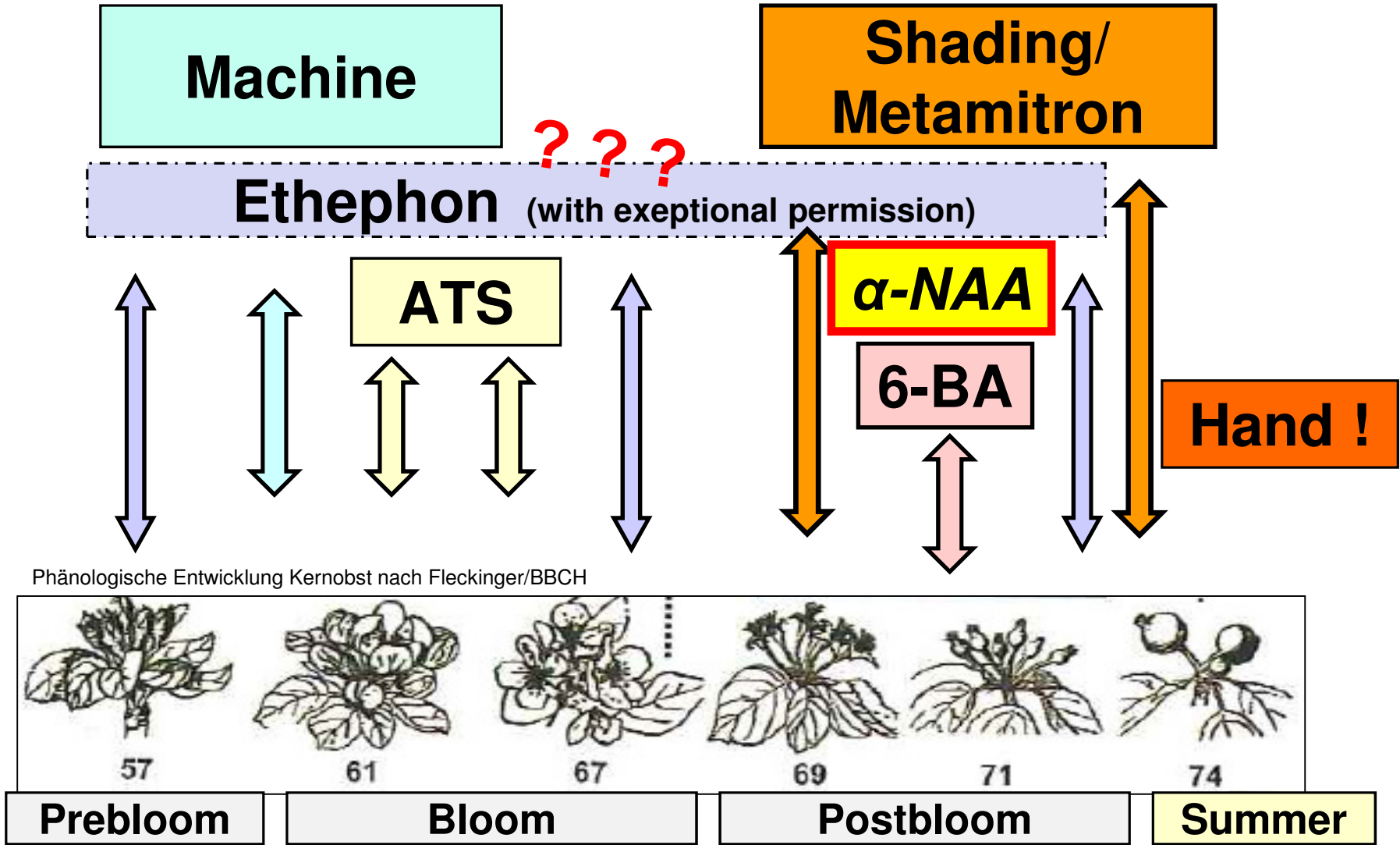
- **Cropload control on ‚Elstar‘ apple variety**
=> known as ‚difficult to thin‘
 - Flower thinning with ATS**
 - Compounds for fruit thinning**
 - Pruning**

Weather 2018



2018 – a year with height temperatures and much sun

Thinning - Strategy - 2018/19





Trial site

➤ **Field 0322 planted with Elstar ,Red Elstar‘**

Rootstock: M9

**Planting: 3,20 x 0,80m; in year 2004
ca. 3.700 trees/ha**

**Development: slender spindle training
100% filled canopy
strong growing**

Direction: north – south

➤ **Per treatment: 4 replications x 5 trees, randomised**

Trial 1 – Elstar ATS-thinning A

No	Treatment	Application rate / concentration per hectare
1	UTC	Untreated
2	Hand	Thinning by hand
3	ATS 30l	a. AGRO N Fluid plus. 30L/ha
4	ATS 50l strong	a. AGRO N Fluid plus 50L/ha
5	TMix	a. Tankmix [6-BA 150ppm + NAA 10ppm]
6	ATS 30l + TMix	a. AGRO N Fluid plus. 30L/ha b. Tankmix [6-BA 150ppm + NAA 10ppm]

Early flower thinning mit ATS + fruit thinners

Trial 1 – Elstar ATS-thinning B

No	Treatment	Application rate / concentration per hectare
7	Mathá_18	Click-pruning based on Mathá in April 2018 (4.4)
8	Mathá 18+ ATS 30l	Click-pruning based on Mathá + AGRO N Fluid plus. 30L/ha
9	Mathá 18+ ATS 50l stark	Click-pruning based on Mathá + AGRO N Fluid plus 50L/ha
10	a. ATS 30l b. Brevis 1,65kg/ha 14mm	a. AGRO N luid plus. 30L/ha b. 1,65 kg/ha=248ppm 14mmØ
11	a. ATS 50l strong b. Brevis 1,65kg/ha 14mm	a. AGRO N Fluid plus 50L/ha b. 1,65 kg/ha=248ppm 14mmØ

Stub pruning method, early use of ATS, metamitron

The Mathá stub pruning (2-4 buds)

A lot of short, well fruitening branchlets starting along the trunk

A few, longer fruitening base branches



Source: Peter Mathá
Giesserhof – Nals
Southtirol out of his
presentation 'The
Mathá stub pruning'

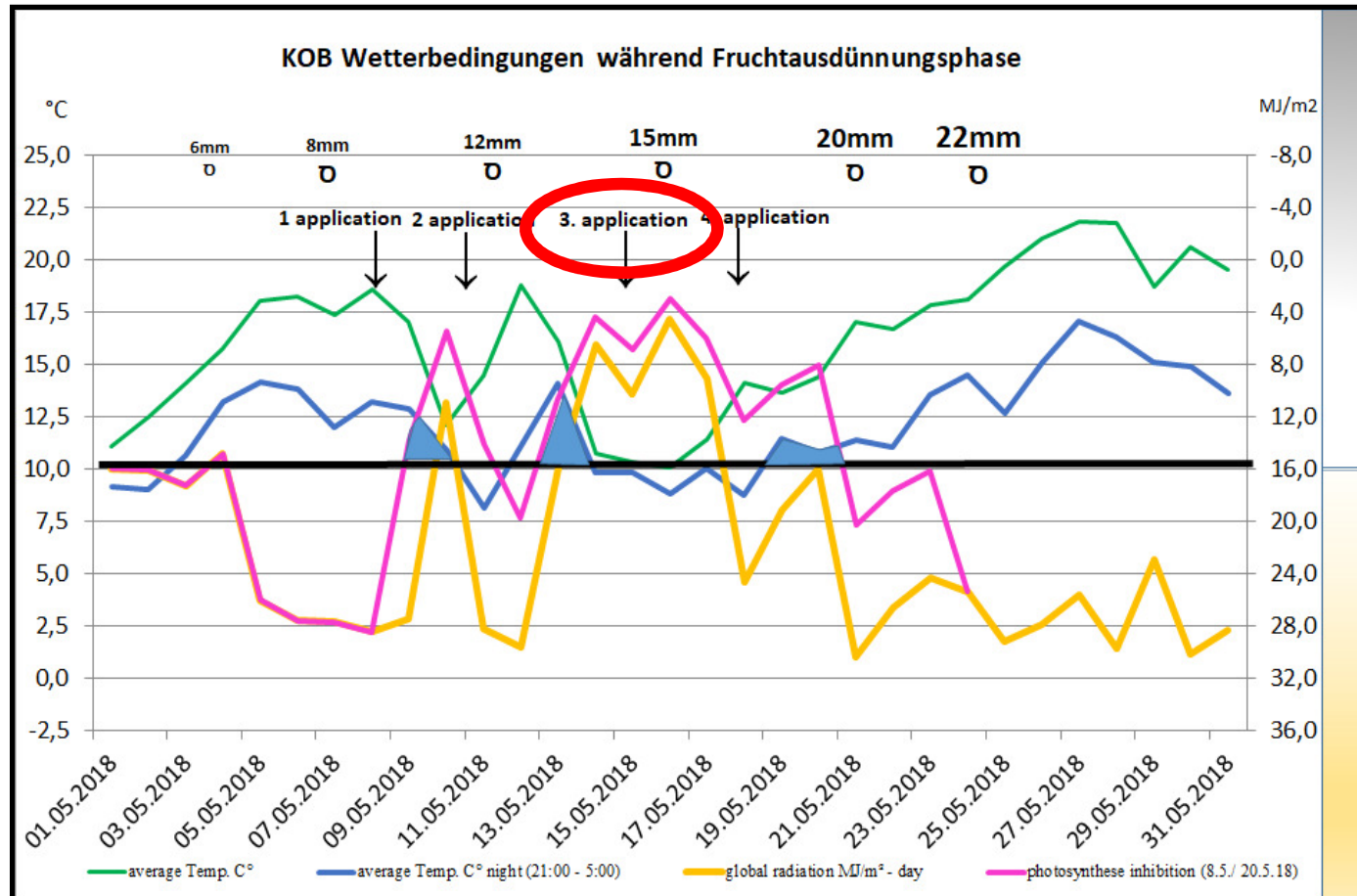
The Mathá stub pruning (2-4 buds)



- Prune a lot of short stubs inserting along the trunk so that it provokes always a high number of new shoots
- Prune / click them again in the following years that they stay short and stabil

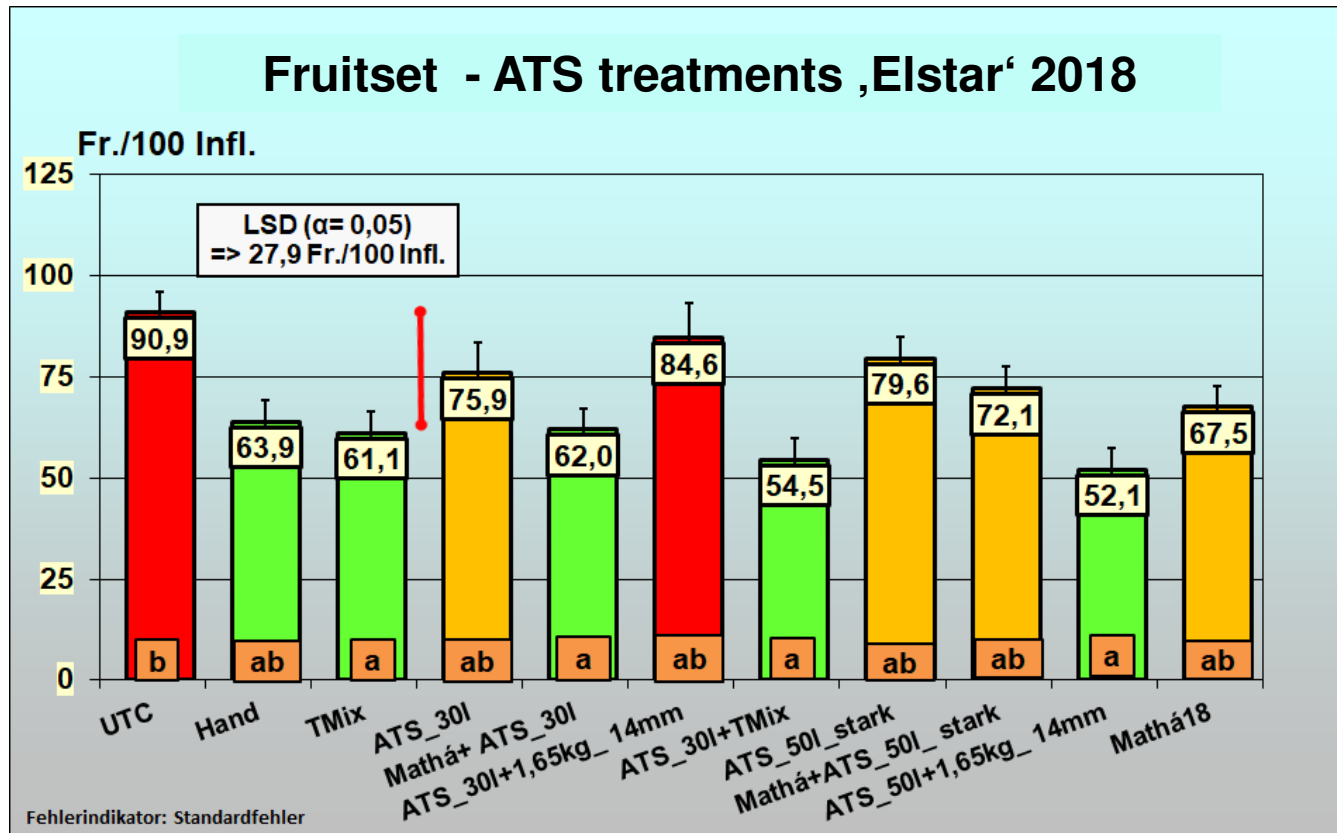
Source: Peter Mathá Giesserhof – Nals Southtirol out of his presentation ‚The Mathá stub pruning‘

Weather during the fruit thinning period 2018



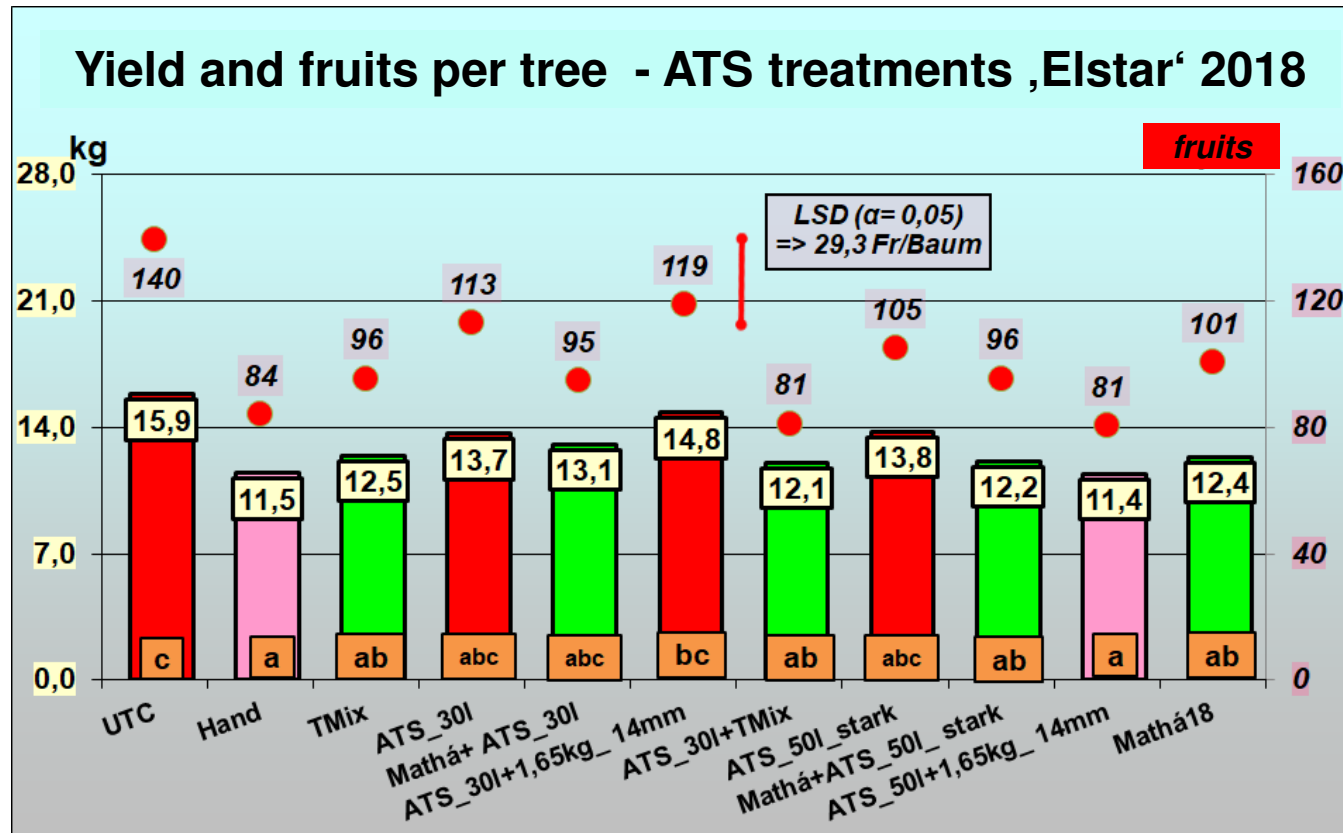
Will the spraying between \varnothing 12-14mm be successful?

Fruitset



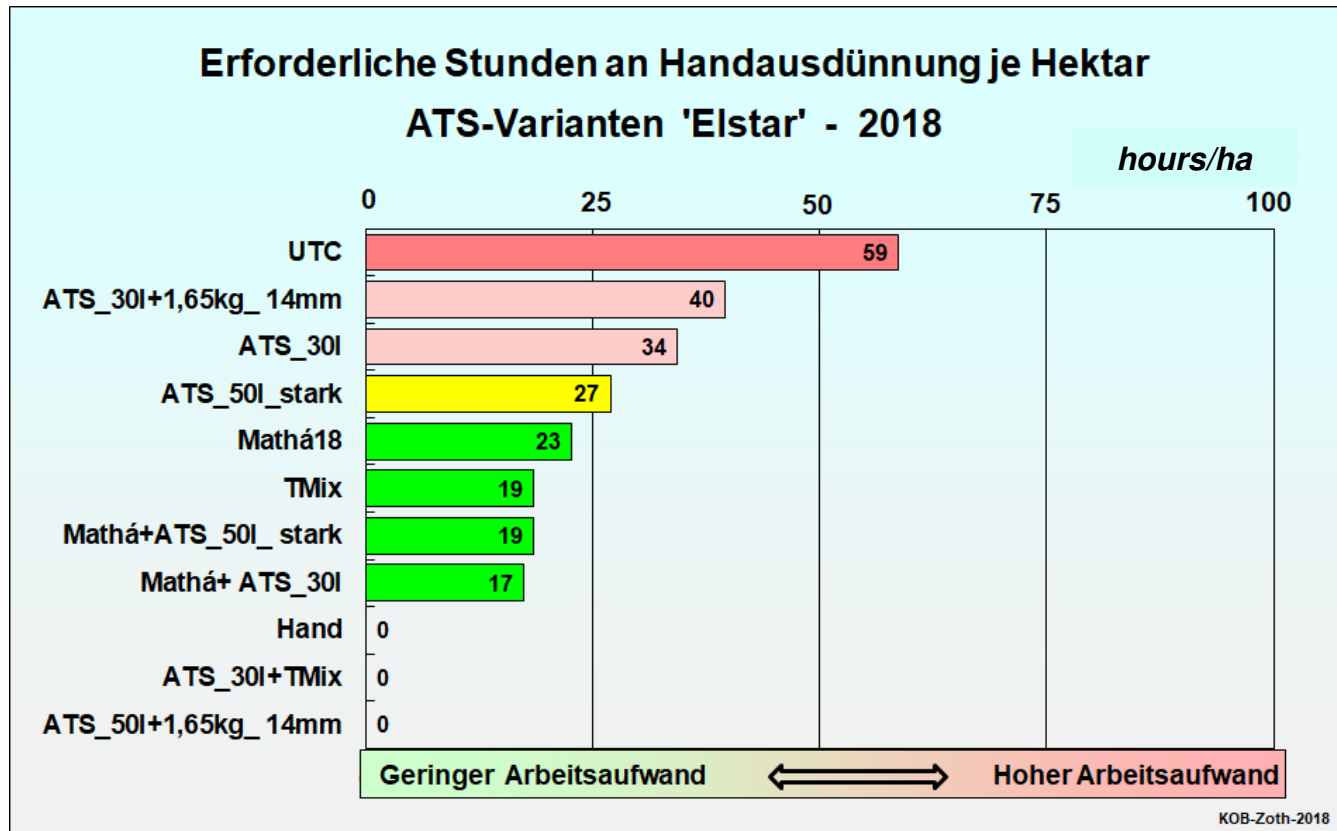
- High natural Fruitset ~ 1 fruit / flower cluster
- ATS solo was weak [30I/50I ATS] / TankMix good

Yield and fruitload



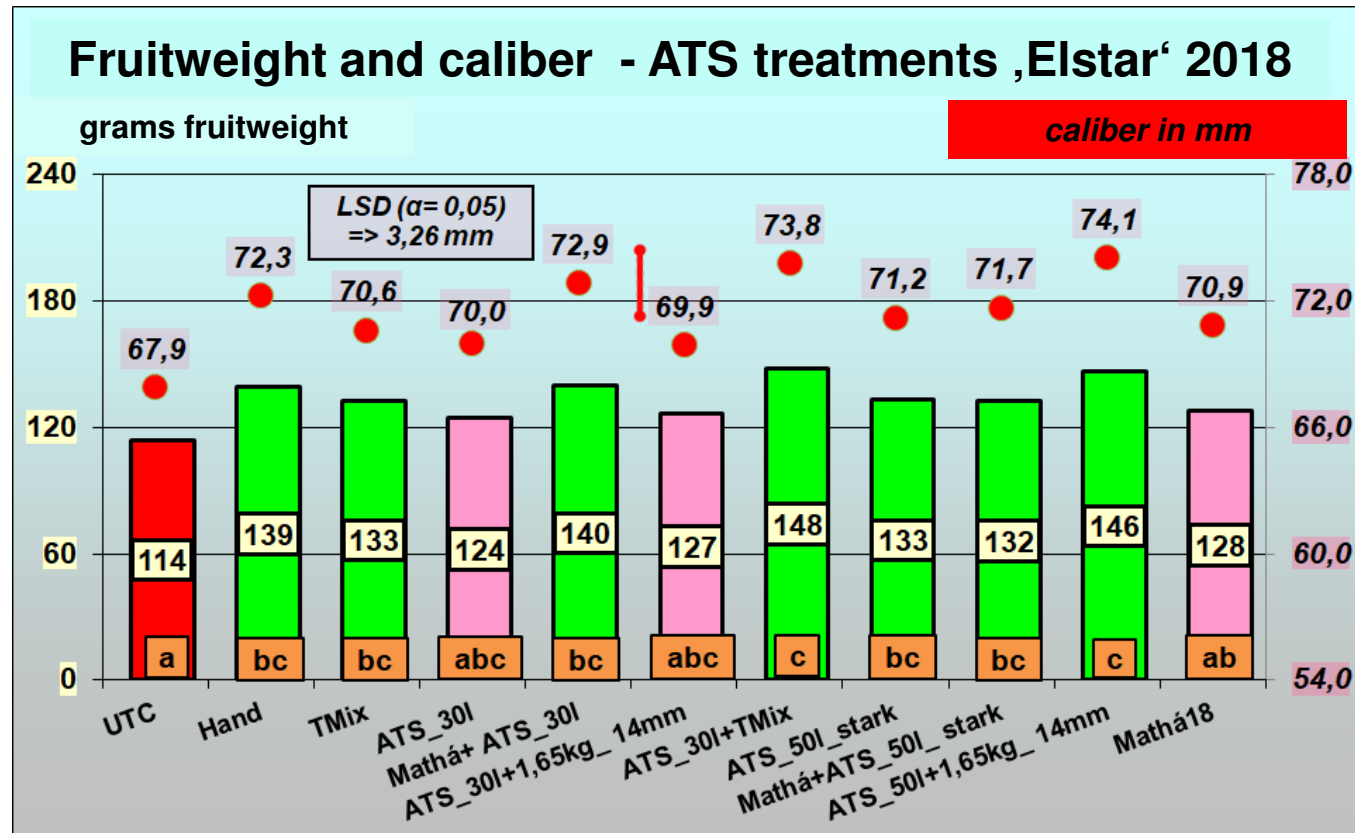
- **ATS moderate, TankMix optimal – the combination strong**
- **Pruning good – took up ATS / Brevis with 50l ATS strong**

Needed labour time for handthinning



- **ATS moderate, TankMix optimal – the combination strong**
- **Pruning good – took up ATS / Brevis with 50l ATS strong**

Fruitsize



- TankMix optimal – ATS / pruning improved the size
- 50l ATS better than 30l – Brevis 1,65kg improved with 50l



Conclusion thinning with ATS

- **ATS 30l / 50l with proper results**
- **TankMix [6-BA 150_{ppm} +NAA 10_{ppm}] was good**
- **ATS + TankMix with strong thinning result**
- **Stub pruning (Mathá) showed adequate fruitload
N of the ATS was used for anabolism**
- **Brevis 1,65kg 14mm in combination with
50l ATS was good.**

??? What is about return bloom ???

Trial 2 – Elstar Fruit thinning A

No	Treatment	Application rate / concentration per hectare
1	UTC	Untreated
2	Hand	Thinning by hand
3	Brevis 1,65kg/ha 9mm	1,65 kg/ha=248ppm 9mmØ
4	Brevis 1,65kg/ha 12mm	1,65 kg/ha=248ppm 12mmØ
5	Brevis 1,65kg/ha 14mm	1,65 kg/ha=248ppm 14mmØ
6	Brevis 2,2kg/ha 9mm +	2,2 kg/ha=333ppm 9mmØ
7	2x Brevis 1,65kg/ha 9mm+14mm	2x 1,65 kg/ha=248ppm 9mm+14mmØ

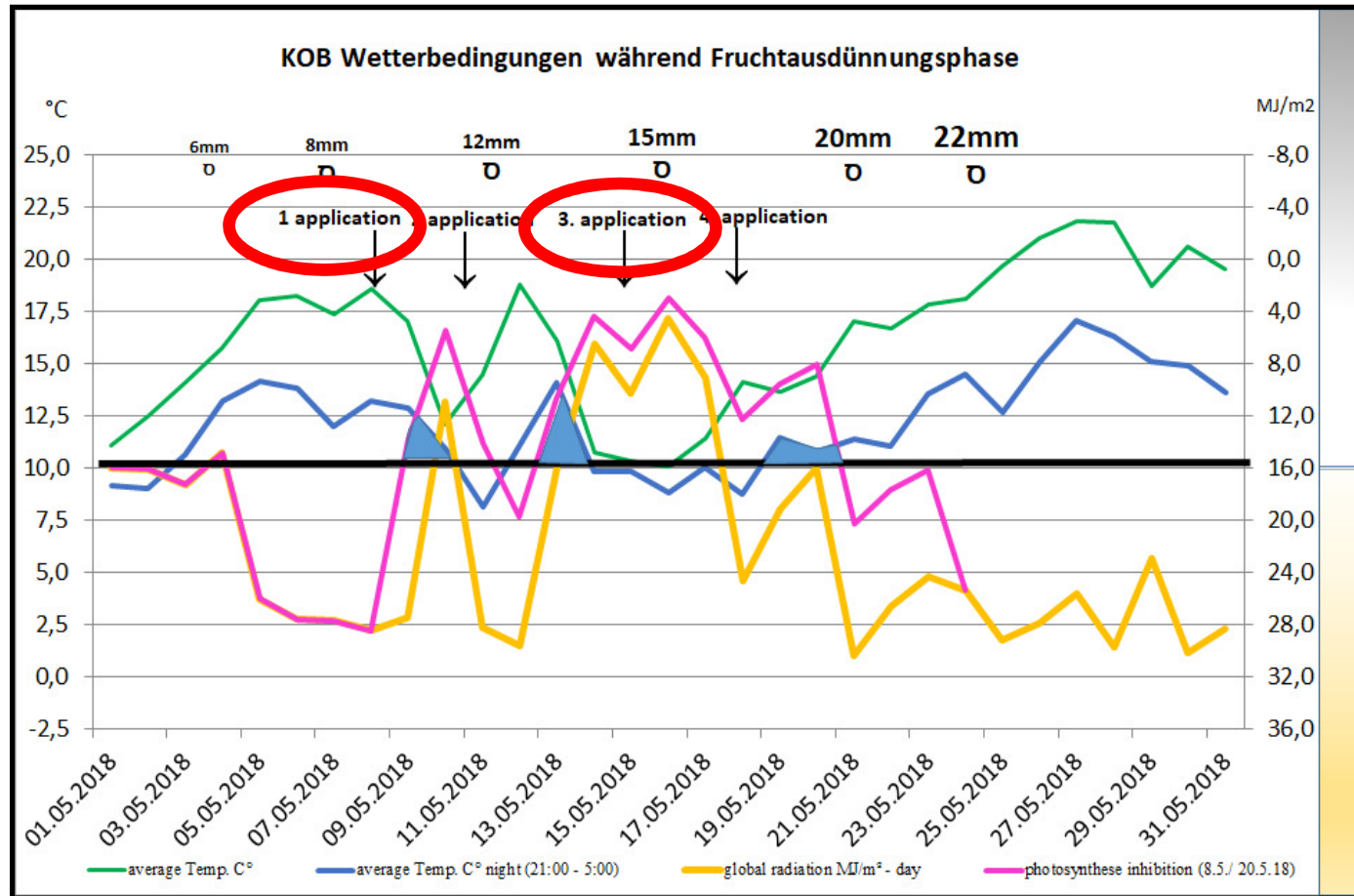
Metamitron-treatments single / double

Trial 2 – Elstar Fruit thinning B

No	Treatment	Application rate / concentration per hectare
8	a. Brevis 1,65kg/ha 9mm b. Brevis 2,2kg/ha 18mm	a. 1,65 kg/ha=248ppm 9mmØ b. 2,2 kg/ha=333ppm 18mmØ
9	a. TMix b. Brevis 1,65kg/ha 16mm	a. Tankmix [6-BA 150ppm + NAA 10ppm] b. 1,65 kg/ha=248ppm 16mmØ
10	TMix	Tankmix [6-BA 150ppm + NAA 10ppm]
11	Mathá_18	Click-pruning based on Mathá in April 2018 (4.4)
12	2x Kumar 12,5l/ha 11mm+18mm	2x 12,5l Kumar/ha 11mm+18mmØ

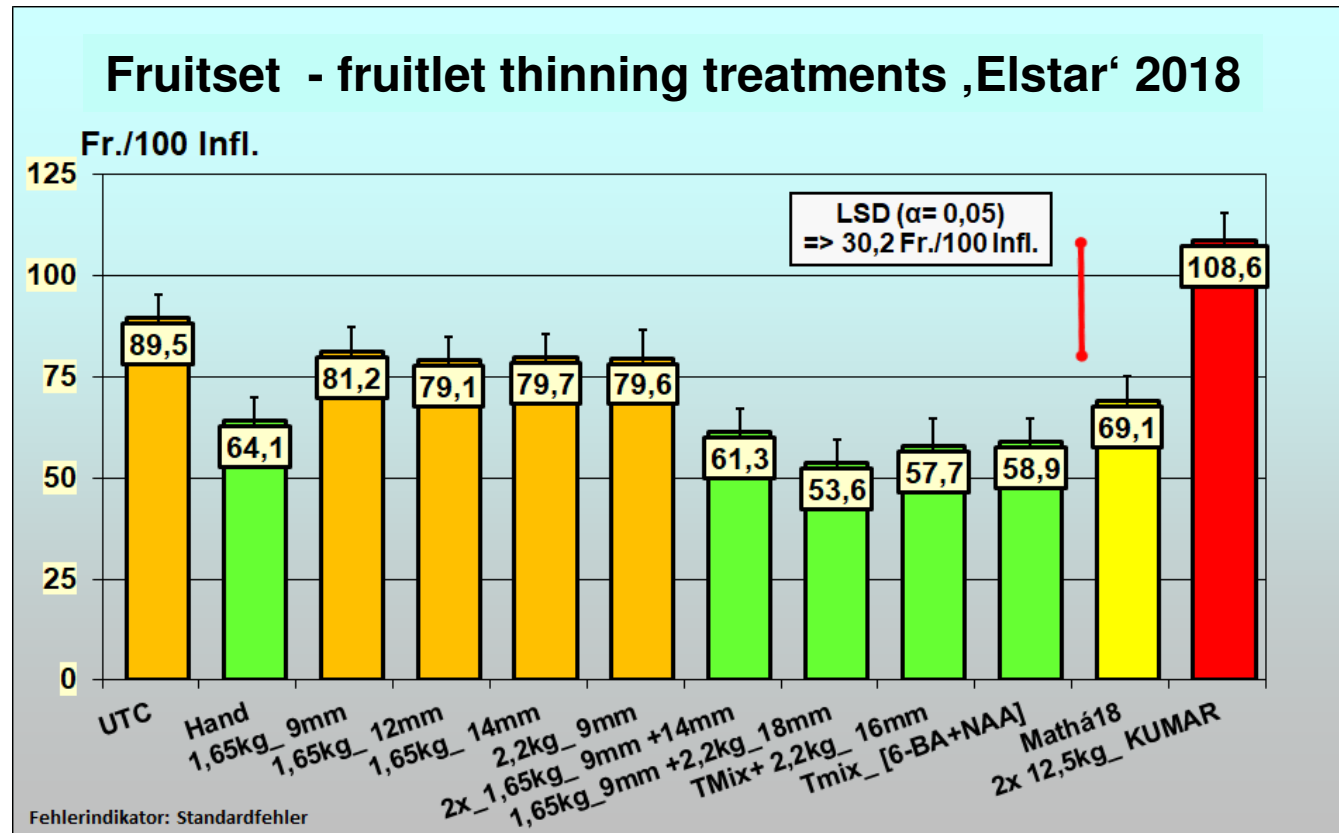
Metamitron strong, Tankmix [6-BA, NAA], Kumar

Weather during the fruit thinning period 2018



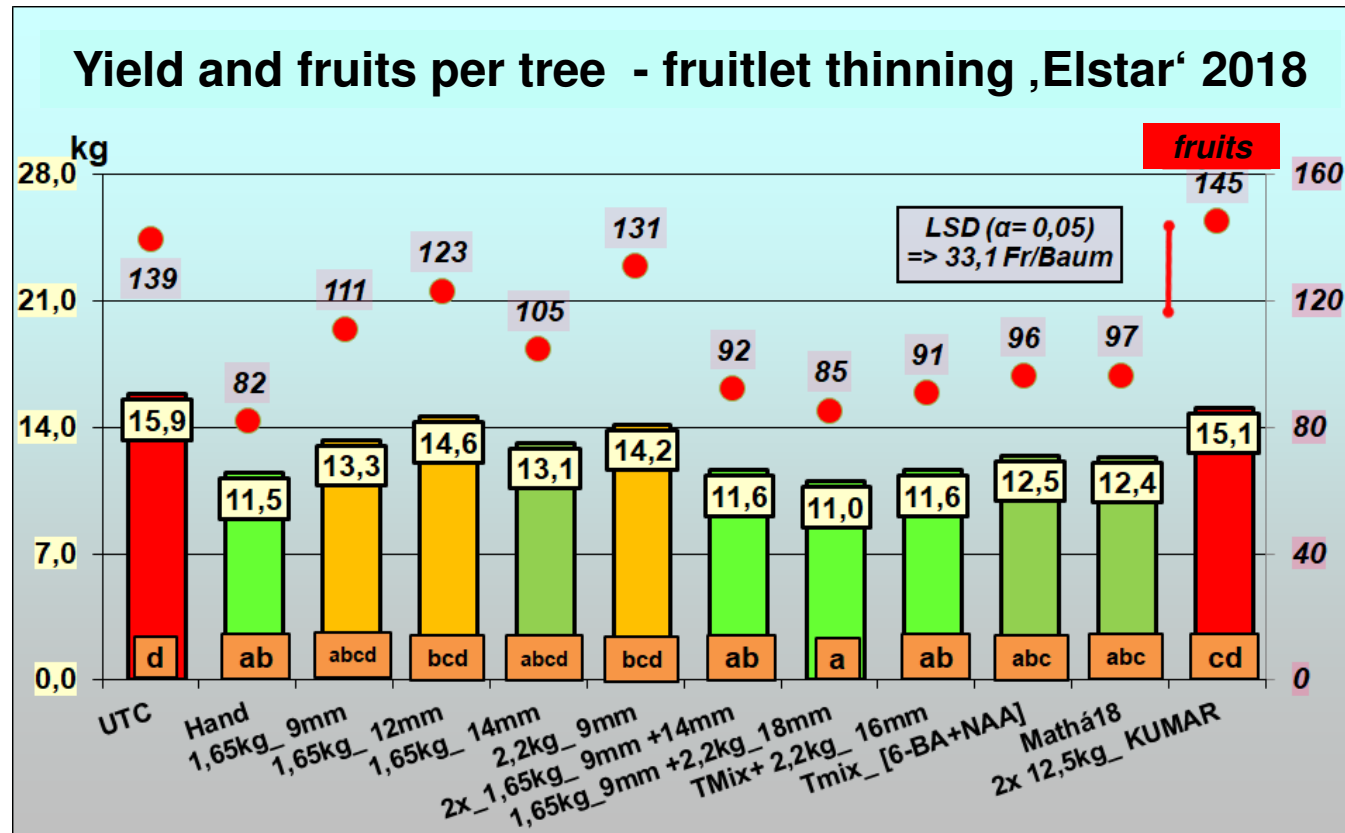
Will the spraying at Ø 9mm / 14mm be successful?

Fruitset



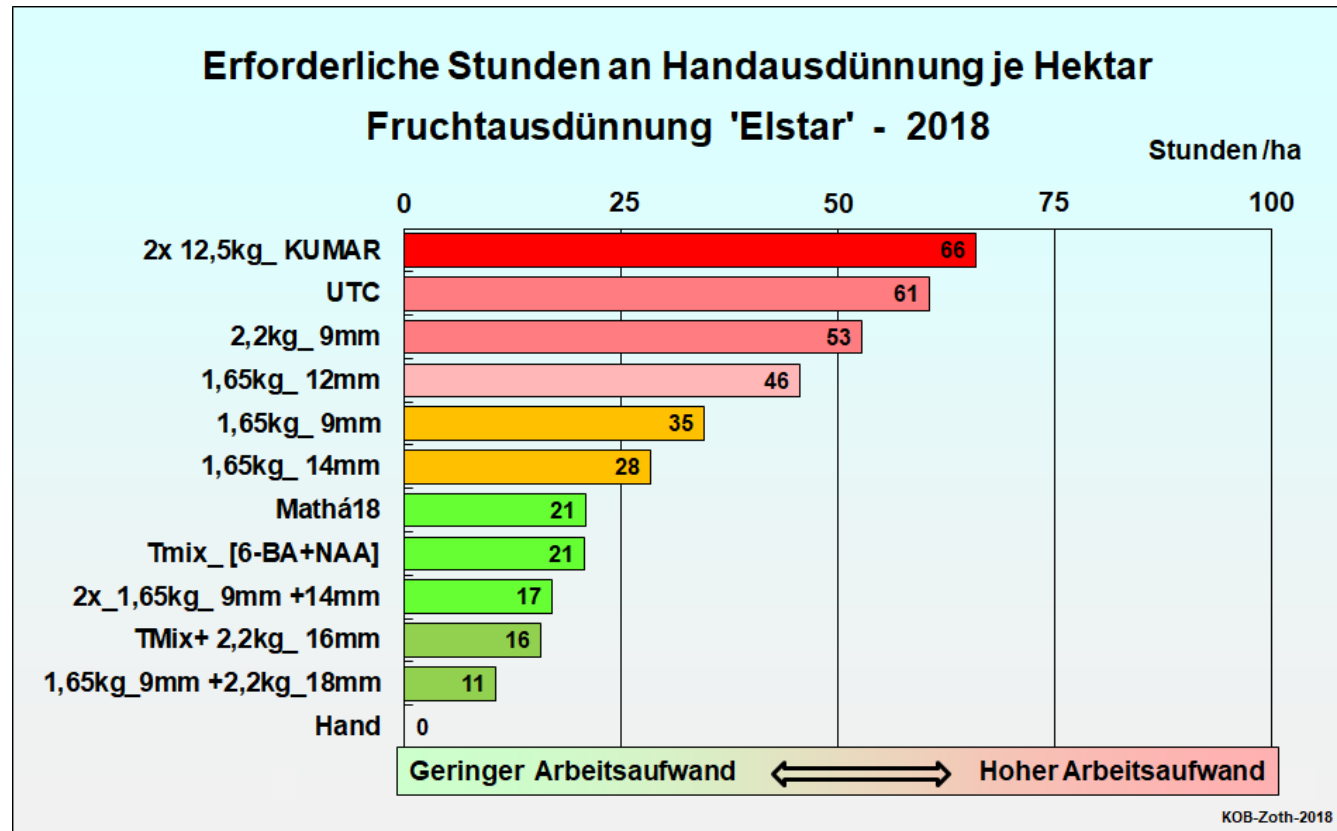
- **High natural Fruitset ~ 1 apple/flowercluster**
- **Brevis solo was weak / double good / TankMix good**

Yield and fruitload



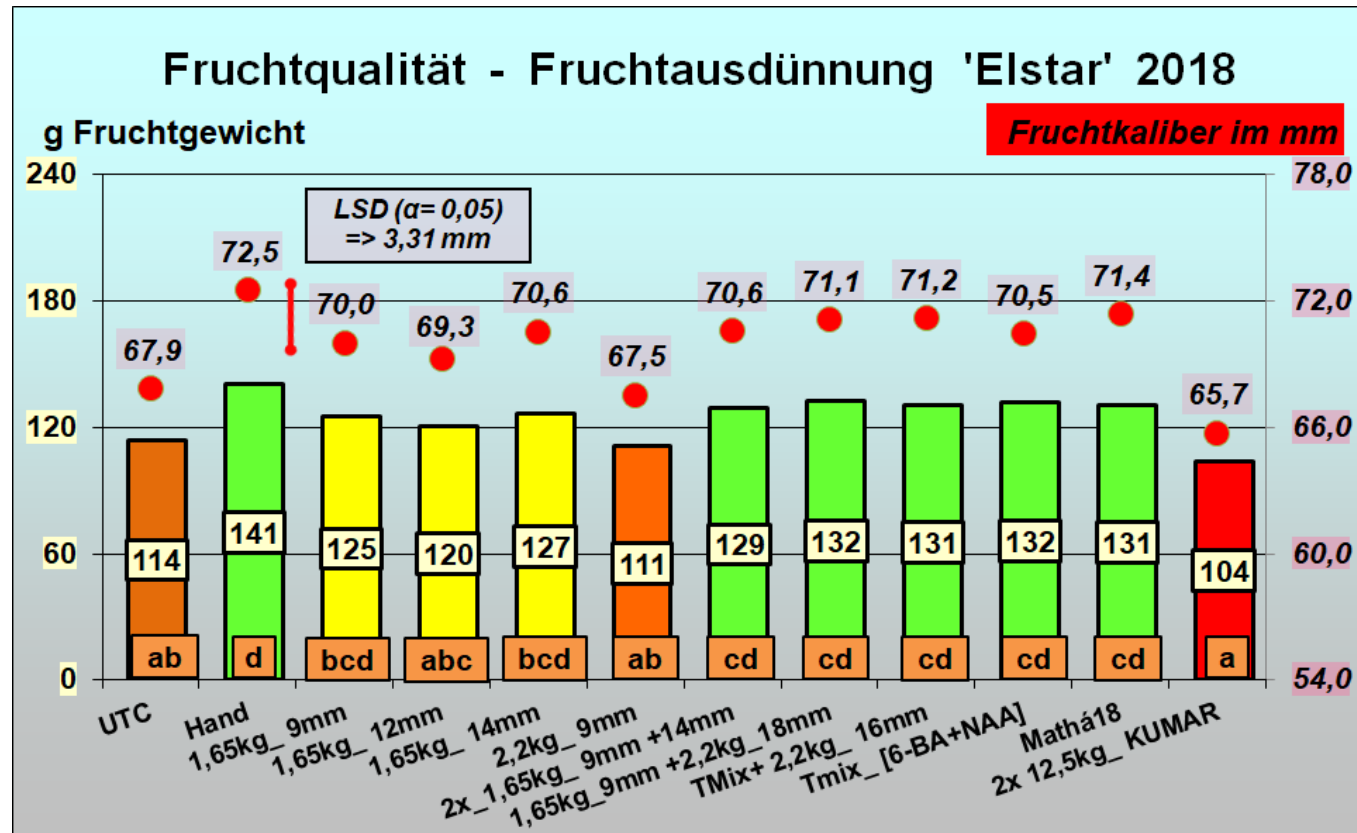
- TankMix was optimal – combined with Brevis stronger
- Click-pruning was good / Brevis double strong, solo weak

Needed labour time for handthinning



- TankMix was optimal – combined with Brevis stronger
- Click-pruning was good / Brevis double strong, solo weak

Fruchtgewicht und Kaliber



- TankMix was optimal / Click-pruning was good
- Brevis solo was weak / double treatments were efficient



Conclusion fruitlet thinning

- **TankMix [6-BA 150ppm+NAA 10ppm] was good**
- **TankMix was improved by Brevis (expenses)**
- **Brevis solo 1,65kg was less efficient**
- **Double Brevis treatments were successful**
- **2x Kumar 12,5kg showed no thinning result**

??? What is about return bloom ???

General conclusion thinning 2018

- **„Elstar Thinning“ seemed to be easy in 2018**
 - when looking at the high final fruitset after a strong natural fruitdrop before
 - moderate **„Overthinning“** is no problem

- **Other varieties like Gala, Pinova, Fuji, ... were difficult to thin in 2018**
 - extremely high fruitst (2-4 fruits/flowercluster)

=> efficient thinning resulted in high fruitloads

??? Return bloom ???